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Aboriginal and Torres Strait Islander Health Performance Framework 2012

Detailed Analyses

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Executive Summary

The *Aboriginal and Torres Strait Islander Health Performance Framework 2012 Detailed analyses* report finds areas of improvement in the health of Aboriginal and Torres Strait Islander people, including:

- a 33% decline in overall mortality for Indigenous Australians from 1991 to 2010 and a 24% decline in avoidable mortality from 1997 to 2010
- a 41% decline in deaths due to circulatory disease, the leading cause of death for Indigenous Australians from 1997 to 2010
- a significant decrease (39%) in deaths due to respiratory disease from 1997 to 2010
- a 62% decline in infant mortality rates from 1991 to 2010, and a significant narrowing of the gap between Indigenous and other Australians
- a significant increase in health assessments recorded through Medicare since the introduction of the National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes in July 2009, and corresponding increases in allied health care services claimed by Indigenous Australians through Medicare since 1 July 2009.
- immunisation coverage rates for Indigenous children are close to those for other Australian children by age 2
- an increase in episodes of care provided by Indigenous primary health care services between 1999–00 and 2010–11 (from 1.2 million to 2.5 million)

Areas of concern include:

- high rates of smoking during pregnancy (52%)
- lower rates of access to antenatal care in the first trimester of pregnancy (56% for Indigenous mothers compared to 75% for non-Indigenous mothers).
- half of Indigenous Australians aged 15 years and over had a disability or long-term health condition in 2008 and about 8% had a profound or severe core activity limitation
- mortality rates for chronic diseases are much higher for Indigenous Australians (almost 7 times the rate of non-Indigenous Australians for diabetes and twice the rate for circulatory diseases)
- a large increase (96%) in incidence rates of treated end-stage renal disease since 1991 (currently 7 times the rate for non-Indigenous Australians)
- high rates of hospitalisations and deaths due to injury (particularly assault, suicide and transport accidents)
- about one-quarter (25%) of Indigenous Australians aged 15 years and over live in overcrowded housing
- barriers to accessing appropriate health care, such as cultural competency, continue to remain a problem
- lower access to procedures in hospitals.

Key findings

A summary of the key findings from this report against the Aboriginal and Torres Strait Islander Health Performance Framework is outlined below. The main areas of improvement and areas of continuing concern are discussed for each Tier of the Framework (Health status and outcomes; Determinants of health; and Health system performance). A table of key statistics from the report is presented in Table S1.

Health status and outcomes

Areas of improvement

Overall mortality

- Between 1991 and 2010, there was a 33% decline in the mortality rate for Indigenous Australians living in Western Australia, South and Australia and the Northern Territory combined.

Avoidable mortality

- Deaths from avoidable causes declined by 24% for Indigenous Australians between 1997 and 2010 in Western Australia, South Australia and the Northern Territory combined.

Circulatory diseases

- Deaths from circulatory diseases declined by 41% for Indigenous Australians between 1997 and 2010.

Respiratory diseases

- Deaths from respiratory diseases declined by 39% for Indigenous Australians between 1997 and 2010.

Infant and child mortality

- The Indigenous infant mortality rate declined by 62% between 1991 and 2010, and the gap between Indigenous and other Australians narrowed by 67%.
- Significant declines were also evident for child mortality, with a 47% decline in the rate for Indigenous children and a 48% narrowing of the gap between Indigenous and other Australian children between 1991 and 2010.

Areas needing further work

Chronic disease

- The majority (68%) of Indigenous deaths in 2006–2010 were due to chronic diseases (for example, circulatory disease, cancer, diabetes, respiratory disease, kidney disease). Indigenous Australians died at almost 7 times the rate of non-Indigenous Australians from diabetes and at twice the rate from circulatory diseases.

- Diabetes is 3 times more prevalent among Indigenous Australians than non-Indigenous Australians based on data from the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS).

Cancer

- Between 1997 and 2010 there was a significant increase (53%) in the gap between mortality rates for Indigenous and other Australians from cancer in Western Australia, South Australia and the Northern Territory combined.

Kidney disease

- The incidence rate of treated end-stage renal disease (ESRD) for Indigenous Australians increased by 96% between 1991 and 2010, and is currently 7 times the rate for non-Indigenous Australians.

Injury

- Hospitalisation rates for assault for Indigenous Australians were 12 times the rate for non-Indigenous Australians during the period July 2008 to June 2010. Indigenous Australians were twice as likely to be hospitalised for injury and poisoning as non-Indigenous Australians.

Disability

- In 2008, half (50%) of Indigenous Australians aged 15 years and over had a disability or long-term health condition. Approximately 8% had a profound or severe core activity limitation. Indigenous Australians aged 15 years and over living in non-remote areas were twice as likely as non-Indigenous Australians to have a profound or severe core activity limitation.

Low birthweight

- Over the period 2007 to 2009, babies of Indigenous mothers were twice as likely to be of low birthweight as babies born to non-Indigenous mothers (12% compared with 6%).

Eye Health

- In 2008, about 9% of Indigenous adults had low vision and 2% were blind. Of those adults with vision impairment, the most common causes were refractive error (54%), cataract (27%), diabetic retinopathy (12%) and trachoma (2%).

Determinants of health

Areas of improvement

Access to functional housing

- In 2008, 99% of Indigenous households reported that they had working facilities for washing people, 94% reported working facilities for washing clothes/bedding, 94% reported working facilities for storing/preparing food and 98% reported working sewerage systems.

Education

- There have been some increases in the proportion of Indigenous Years 3, 5, 7 and 9 students achieving literacy benchmarks between 2008 and 2011, and the gap has narrowed. For example, the proportion of Indigenous students achieving the Year 3 reading benchmark increased from 68% to 76%; the proportion reaching the Year 3 grammar/punctuation benchmark increased from 65% to 71%; the proportion reaching the Year 7 reading benchmark increased from 72% to 77%; and the proportion reaching the Year 7 grammar/punctuation benchmark increased from 63% to 67%.

Employment

- The employment rate for Indigenous Australians increased from 44% to 54% between 2001 and 2008.

Areas needing further work

Smoking

- In 2008, 47% of Indigenous Australians aged 15 years and over were current daily smokers, which was more than twice the rate of non-Indigenous Australians.
- In 2009, 52% of Indigenous mothers smoked during pregnancy which was 3.7 times the rate of non-Indigenous mothers.
- In 2008, 65% of all Indigenous children aged 0–14 years lived in households with a current daily smoker compared with 32% of non-Indigenous children.

Physical activity

- In 2004–05, after adjusting for differences in age structure, 51% of Indigenous Australians aged 15 years and over living in non-remote area reported their physical activity level as sedentary, compared with 33% of non-Indigenous Australians of the same age.

Nutrition

- Compared with non-Indigenous Australians, in 2004–05, Indigenous Australians aged 12 and over were 7 times as likely to report no usual daily vegetable intake, and twice as likely to report no usual daily fruit intake.

Overweight and obesity

- In 2004–05, Indigenous adults were almost twice as likely as non-Indigenous adults to be obese (34% compared with 18%).
- For Indigenous Australians aged 18 years and over living in non-remote areas, rates of overweight and obesity increased between 1995 (51%) and 2004–05 (60%).

Risky/high risk alcohol consumption

- In 2008, 46% of Indigenous Australians aged 15 years and over reported drinking at low risk levels and 35% had abstained from drinking alcohol in the 12 months prior to the National Aboriginal and Torres Islander Social Survey (NATSISS).

Overcrowding

- In 2008, about 25% of Indigenous Australians aged 15 years and over lived in overcrowded households, compared with 4% of non-Indigenous Australians.

Education

- Despite some improvements in literacy and numeracy, the proportion of Indigenous students achieving the reading, writing and numeracy benchmarks in Years 3, 5, 7 and 9 remain below the corresponding proportions for all students.

Unemployment

- Unemployment rates continue to remain higher for Indigenous Australians than corresponding rates for non-Indigenous Australians (11% compared with 3% in 2008).

Income

- In 2008, 49% of Indigenous Australians aged 18 years and over were in the bottom 20% of mean equivalised household incomes. This compared with 20% of non-Indigenous Australians.

Community safety

- Indigenous Australians are more likely to experience exposure to violence, child abuse and neglect, and contact with the criminal justice system (including imprisonment) than other Australians.

Transport

- In 2008, 50% of Indigenous households in non-remote areas reported that they did not have access to motor vehicles, compared with 15% of other Australian households.
- In 2008, about 11% of Indigenous Australians aged 18 years and over reported that they often had difficulty, or could not get to, places when needed, compared with 4% of non-Indigenous Australians.

Health system performance

Areas of improvement

Chronic disease detection and management

- There has been a significant increase in the number of health assessments provided to Indigenous Australians since the introduction of the National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes in July 2009.
- There has been an increase in the total number of other allied healthcare services claimed through Medicare by Indigenous Australians between 2009–10 and 2010–11 from 25,961 to 35,731 services.
- Rates of general practitioner management plan claims (GPMPs) and team care arrangements (TCAs) were nearly twice as high for Indigenous Australians compared with non-Indigenous Australians in 2010–11.

Increased availability of Indigenous-specific services

- There has been a 96% increase in episodes of care provided by Indigenous primary health care services between 1999-2000 and 2010–11 (from 1.2 million to 2.5 million).

Antenatal care

- The proportion of Indigenous women accessing antenatal care at least once during pregnancy has increased in New South Wales, Queensland and South Australia combined between 1998 and 2009. In 2009, 97% of Indigenous women accessed antenatal care at least once during their pregnancy.

Immunisation

- Immunisation coverage rates for Indigenous children are similar to those for other children by the age of 2 (92.3% compared with 92.6%).

Areas needing further work

Barriers to accessing health care

- In 2008, 26% of Indigenous Australians aged 15 years and over reported having problems accessing health services. Of those who had problems accessing health services, about 20% had problem with accessing dentists, 10% reported problems accessing doctors, and 7% reported problems accessing hospitals.
- Selected potentially preventable hospitalisation rates for Indigenous Australians were 5 times the non-Indigenous rate during the period July 2008 and June 2010.
- Indigenous Australians had lower rates of hospitalisations with a procedure recorded compared with non-Indigenous Australians, and they also had lower rates of elective surgery.
- Indigenous Australians were discharged from hospital against medical advice at 5 times the rate of non-Indigenous Australians between July 2008 and June 2010.

Screening

- Breast cancer screening rates for Indigenous women aged 50–69 are lower than for other women of this age (37% compared with 56% in 2008–09).

Antenatal care

- In 2009, in New South Wales, Queensland, South Australia and the Northern Territory combined, 56% of Indigenous mothers had their first antenatal visit in the first trimester of pregnancy, compared with 75% of non-Indigenous mothers.

Health workforce

- In 2006, 1.2% of the Indigenous population was employed in health-related occupations, compared with 3% of the non-Indigenous population.
- Indigenous Australians are under-represented in training for various health professions. In 2010, 1.8% of undergraduate students enrolled in, and 1% of undergraduate students who had completed, health-related courses were Indigenous.

Resources

- In non-remote areas, 15% of Indigenous Australians were covered by private health insurance compared with 51% for the rest of the population. The most common reason that Indigenous Australians did not have private health insurance was that they could not afford it (65%).

Table S1: Key measures of Aboriginal and Torres Strait Islander health

		Current period			Trends		
Topic	**Measure—Indigenous population**	**Indig**	**Non-Indig**	**Gap[(a)]**	**Indig**	**Non-Indig**	**Gap[(a)]**
Health status and outcomes							
Low birthweight	Proportion of low-birthweight liveborn babies per 100 live births (2007–2009)	12.3*	5.9*	6.4	↓	—	↓
Hospitalisations	Age-standardised hospitalisation rate for total hospitalisations (excluding dialysis) per 1,000 population (2008–09 to 2009–10)	408.5*	310.2*	98.3	↓	↓	—
Disease incidence and prevalence	Proportion (age-standardised) of persons reporting circulatory disease as a long-term condition (2004–05)	23*	20*	3	—	n.a.	n.a.
	Proportion (age-standardised) of persons reporting diabetes as a long-term condition (2004–05)	12.0*	4.0*	8.0	—	n.a.	n.a.
	Age-standardised incidence rate of cancer per 100,000 population (2004–2008)	458.8*	432.4*	26.4	n.a.	n.a.	n.a.
	Age-standardised incidence rate of end-stage renal disease per 100,000 population (2008–2010)	68.3*	9.5*	58.7	↑	↑	↑
Self-assessed health status	Proportion (age-standardised) of persons aged 15 and over reporting very good/excellent health (2007–08)	37.9*	56.6*	–18.7	—	n.a.	n.a.
Community functioning	Recognises homeland (2008)	72	. .	. .	—	. .	. .
	Speaks an Indigenous language (2008)	19	. .	. .	—	. .	. .
	Lived in only 1 dwelling in last 12 months (2008)	78	. .	. .	↑	. .	. .
	Not a victim of physical or threatened violence in the last 12 months (2008)	75	. .	. .	—	. .	. .
	Adult participated in sport/social/community activities in last 3 months (2008)	89	. .	. .	n.a.	. .	. .
Social & emotional wellbeing	Proportion of persons reporting high/very high levels of psychological distress (2008)	32	. .	. .	n.a.	. .	. .
Disability	Age-standardised proportion of persons aged 18 and over with a profound or severe core activity limitation, non-remote (2008)	10.3*	4.7*	5.6	n.a.	n.a.	n.a.

(continued)

Table S1 (continued): Key measures of Aboriginal and Torres Strait Islander health

		Current period			Trends		
Topic	**Measure—Indigenous population**	**Indig**	**Non-Indig**	**Gap[(a)]**	**Indig**	**Non-Indig**	**Gap[(a)]**
Oral, ear and eye health	Age-standardised hospitalisation rate per 1,000 population for hospitalisations for dental problems (2008–09 to 2009–10)	2.0*	1.6*	0.4	n.a.	n.a.	n.a.
	Proportion of children aged 0–14 with ear/hearing problems (2008)	8.6	. .	. .	↓	. .	. .
	Prevalence of low vision in eligible Indigenous adults (2008)	9	. .	. .	n.a.	. .	. .
	Prevalence of blindness in eligible Indigenous adults (2008)	2	. .	. .	n.a.	. .	. .
Mortality	Life expectancy at birth, males 2005–2007	67.2*	78.7*	–11.5	n.a.	n.a.	n.a.
	Life expectancy at birth, females 2005–2007	72.9*	82.6*	–9.7	n.a.	n.a.	n.a.
	Infant mortality rate per 1,000 liveborn infants (2006–2010)	8.1*	4.1*	4.0	↓	↓	↓
	Child 0–4 mortality rate per 100,000 population (2006–2010)	217.5*	100.4*	117.1	↓	↓	↓
	Perinatal mortality rate per 1,000 births (2006–2010)	12.0*	8.1*	3.9	↓	↓	↓
	Age-standardised mortality rate per 100,000 population (2006–2010)	1,115.1*	597.0*	554.0	↓	↓	↓
	Age-standardised mortality rate for circulatory diseases per 100,000 population (2006–2010)	351.0*	201.0*	150.0	↓	↓	↓
	Age-standardised mortality rate for avoidable and preventable deaths (0–74) per 100,000 population (2006–2010)	519.4*	149.2*	370.2	↓	↓	↓
Determinants of health							
Housing	Proportion of people aged 15 and over living in overcrowded households (2008)	25.1*	4.2*	20.9	n.a.	n.a.	n.a.
Environmental tobacco smoke	Proportion of children aged 0–14 living in households with daily smokers who smoke at home indoors (2008 and 2007–08)	21.6*	6.6*	15.0	n.a.	n.a.	n.a.

(continued)

Table S1 (continued): Key measures of Aboriginal and Torres Strait Islander health

		Current period			Trends		
Topic	**Measure—Indigenous population**	**Indig**	**Non-Indig**	**Gap[(a)]**	**Indig**	**Non-Indig**	**Gap[(a)]**
Education	Apparent retention rate for year 7/8 to Year 12 (2011)	48.7*	80.7*	32.0	↑	↑	n.a.
	Apparent retention rate for year 11 to Year 12 (2011)	67.5*	86.7*	19.2	—	—	n.a.
	Proportion of persons aged 25–64 who had a post-school qualification (2008)	40.2*	61.4*	21.2	↑	—	n.a.
Literacy & numeracy	Proportion of Year 3 students achieving reading benchmark (2011)	76.3*	94.9*	18.6	↑	—	↓
	Proportion of Year 3 students achieving writing benchmark (2011)	79.9*	96.2*	16.3	n.a.	n.a.	n.a.
	Proportion of Year 3 students achieving numeracy benchmark (2011)	83.6*	96.4*	12.8	—	—	—
	Proportion of Year 3 students achieving grammar/punctuation benchmark (2011)	70.9*	94.4*	23.5	—	—	—
Employment	Labour force participation rate (2008)	53.8*	76.0*	22.2	n.a.	n.a.	n.a.
	Unemployment rate (2008)	10.7*	2.9*	7.8	n.a.	n.a.	n.a.
Income	Proportion of persons aged 18 and over in the bottom 20% of equivalised gross weekly household income (2008)	49.2*	19.8*	29.4	n.a.	n.a.	n.a.
Transport	Proportion of households in non-remote areas with access to motor vehicles (2008)	49.8*[(b)]	84.7*[(b)]	34.9	n.a.	n.a.	n.a.
Community safety and criminal justice	Proportion of persons aged 18 and over who reported they were a victim of physical or threatened violence in last 12 months (2008)	20.5	10.8	9.7	n.a.	n.a.	n.a.
	Age-standardised imprisonment rate per 100,000 adults (2011)	1,867.6*	130.2*	1,737.4	↑	↑	↑
	Rate of children aged 0–16 on child protection substantiations per 1,000 children (2010–11)	34.9*	4.7*	30.2	—	n.a.	n.a.

(continued)

Table S1 (continued): Key measures of Aboriginal and Torres Strait Islander health

		Current period			Trends		
Topic	**Measure—Indigenous population**	**Indig**	**Non-Indig**	**Gap[a]**	**Indig**	**Non-Indig**	**Gap[a]**
Health behaviours	Proportion (age-standardised) of persons aged 15 and over who are current daily smokers (2008 and 2007–08)	43.3*	18.3*	25.0	n.a.	n.a.	n.a.
	Proportion of persons aged 15 and over who drank at chronic risky/high risk levels in last 12 months (2008)	17	. .	. .	n.a.	. .	. .
	Proportion of persons aged 15 and over who used illicit drugs in last 12 months (2008)	22.6	. .	. .	—	. .	. .
	Proportion (age-standardised) of persons aged 15 and over reporting sedentary levels of physical activity, non-remote areas (2004–05)	51*	33*	18	↑	—	n.a.
	Age- standardised proportion of mothers who smoked during pregnancy (2009)	50.0*	13.5*	36.5	n.a.	n.a.	n.a.
	Proportion of infants (0–3) currently being breastfed (2008)	20.7	. .	. .	n.a.	. .	. .
Overweight & obesity	Proportion (age-standardised) of persons aged 18 and over who are obese (2004–05)	33.6*	17.9*	15.7	n.a.	n.a.	n.a.
Health System Performance							
Early detection and prevention, health promotion	Proportion of mothers who attended at least one antenatal care session during pregnancy (2009)	97.0	98.7	–1.7	↑	↑	↑
	Proportion of 2 year olds fully vaccinated (2011)	92.3[b]	92.6[b]	–0.3	—	↑	n.a.
	Proportion of discrete Indigenous communities with at least one health promotion program (2006)	67.4	. .	. .	n.a.	. .	. .
	Age-standardised participation rates for women aged 50–69 in BreastScreen Australia programs (2008–09)	36.5*[b]	55.5*[b]	–19.0	—	—	n.a.
	Rate per 1,000 of child 0–14 health checks (2010–11)	112.5	. .	. .	↑	. .	. .
	Rate per 1,000 of adult 15–54 health assessments (2010–11)	120.0	. .	. .	↑	. .	. .
	Rate per 1,000 of adult 55+ health assessments (2010–11)	209.3	. .	. .	↑	. .	. .

(continued)

Table S1 (continued): Key measures of Aboriginal and Torres Strait Islander health

		Current period			Trends		
Topic	**Measure—Indigenous population**	**Indig**	**Non-Indig**	**Gap[(a)]**	**Indig**	**Non-Indig**	**Gap[(a)]**
Chronic disease management/care planning	Age-standardised rate per 1,000 of General Practice Management Plans (GPMP)s (2010–11)	102.0*	55.0*	47.0	↑	—	↑
	Age-standardised rate per 1,000 of Team Care Arrangements (TCAs) (2010–11)	83.0*	45.0*	38.2	↑	—	↑
	Age-standardised rate per 1,000 of allied health items claimed (2010–11)	599*	547*	52	↑	↑	↑
	Age-standardised proportions of whether person in non-remote areas have a written asthma action plan (2004–05)	24.7	22.4	2.3	n.a.	n.a.	n.a.
Access to hospital procedures	Age-standardised proportions of hospitalisations with a procedure recorded (2008–09 to 2009–10)	60.0*	81.4*	–21.4	n.a.	n.a.	n.a.
Potentially preventable hospital admissions	Age standardised hospitalisations rates for potentially preventable hospital admissions (2008–09 to 2009–10)	137.3*	28.6*	108.8	n.a.	n.a.	n.a.
Governance and cultural competency	Age standardised per cent for discharge from hospital against medical advice (excluding mental and behavioural disorders) (2008–09 to 2009–10)	2.0*	0.4*	1.6	n.a.	n.a.	n.a.
	Proportion of Aboriginal and Torres Strait Islander primary health care services that have representatives on external boards (2010–11)	39.3	. .	. .	n.a.	. .	. .
	Proportion of Indigenous persons experiencing discrimination (2008)	27.3	. .	. .	n.a.	. .	. .
	Proportion of Indigenous persons aged 15 and over experiencing problems accessing health services (2008)	26.4	. .	. .	n.a.	. .	. .
Access to health services	Age-standardised rate per 1,000 population of MBS non-GP referred services claimed (2010–11)	6,376*	5,462*	914	n.a.	n.a.	n.a.
	Proportion aged 15 and over who had problems accessing a dentist (2008)	19.5	. .	. .	n.a.	. .	. .
	Proportion aged 15 and over who had problems accessing a doctor (2008)	9.5	. .	. .	n.a.	. .	. .
	Proportion aged 15 and over who had problems accessing a hospital (2008)	6.6	. .	. .	n.a.	. .	. .
	Episodes of health care provided by Indigenous primary health care services (2010–11)	2,498,067	. .	. .	↑	. .	. .

(continued)

Table S1 (continued): Key measures of Aboriginal and Torres Strait Islander health

		Current period			Trends		
Topic	**Measure—Indigenous population**	**Indig**	**Non-Indig**	**Gap[(a)]**	**Indig**	**Non-Indig**	**Gap[(a)]**
Access to health services	Elective surgery waiting times in public hospitals—50th percentile (days) (2010–11)	39	36	3	n.a.	n.a.	n.a.
	Emergency department waiting times—proportion meeting national benchmark (2010–11)	66	69	3	n.a.	n.a.	n.a.
	Age-standardised community mental health-care service contacts per 1,000 population (2009–10)	841.8*	262.0*	579.8	n.a.	n.a.	n.a.
	Proportion of presentations to emergency departments which were after hours (2008–09 to 2009–10)	57.6	55.8	1.8	n.a.	n.a.	n.a.
	Whether usually goes to the same GP/health service (2004–05)	91.0	. .	. .	n.a.	. .	. .
Accreditation	Per cent of hospital admitted patient care episodes in accredited hospitals (2008–09 to 2009–10)	95.8	97.1	1.3	↑	↑	↑
	Proportion of Indigenous primary health care services accredited (2010–11)	71.1	. .	. .	n.a.	. .	. .
Workforce, training and resources	Indigenous health workforce as a proportion of the Indigenous population aged 15+ (2006)	2.0	. .	. .	n.a.	. .	. .
	Per cent of undergraduates enrolled in health related courses who were Indigenous (2010)	1.8	. .	. .	n.a.	. .	. .
	Per cent of VET students enrolled in health related courses who were Indigenous (2010)	4.7	. .	. .	n.a.	. .	. .
	Estimated health expenditure per person (2008–09)	$6,787*	$4,876*	1,911	n.a.	n.a.	n.a.

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Gap is the rate difference (Indigenous rate minus non-Indigenous rate).

(b) Comparison is Indigenous and Other Australians (where Other includes Indigenous status not stated).

↑ Statistically significant increase in long-term trends presented (see relevant measure in body of report for time period).

↓ Statistically significant decrease in long-term trends presented (see relevant measure in body of report for time period).

– No significant change in long-term trends presented (see relevant measure in body of report for time period).

n.a. Time trends data not available or not reported.

. . Not applicable

Note: Figures reported in the current period column should not be compared as many of the measures are based on different denominators.

Introduction

This report presents the detailed analyses undertaken by the Australian Institute of Health and Welfare that were used to prepare the AHMAC policy report – the Aboriginal and Torres Strait Islander Health Performance Framework, 2012 report. This is the fourth report against the Aboriginal and Torres Strait Islander Health Performance Framework (HPF) and the first report based on the revised framework (see Figure 1).

The Health Performance Framework monitors progress of the health system and social determinants of health in improving health outcomes for Aboriginal and Torres Strait Islander people. The HPF comprises three tiers of performance as follows:

Tier 1—Health status and outcomes. This Tier covers prevalence of health conditions (for example, circulatory disease, diabetes), human function (for example, disability), life expectancy and well-being and deaths. It aims to provide an overall indication of current health status and recent trends on a range of issues, including child and maternal health, chronic diseases, injury, communicable diseases, and social and emotional wellbeing.

Tier 2—Determinants of health. This Tier covers determinants of health that focus on factors outside the health system that affect the health of Aboriginal and Torres Strait Islander people. This includes socioeconomic status (for example, income and education), environmental factors (for example, overcrowding), community capacity (for example, child protection), health behaviours (for example, risky alcohol consumption and dietary behaviours) and person-related factors (for example, prevalence of overweight and obesity). Such factors have been shown to have a strong association with both disease and ill health.

Tier 3— Health system performance. This covers the performance of the health system including population health, primary health care and secondary/tertiary care services. Six domains are covered: effectiveness of health services, responsiveness of health services to Aboriginal and Torres Strait Islander communities and individuals, accessibility of services, continuity, capability and sustainability. This tier includes measures that deal with a range of programs and service types including child and maternal health, early detection and chronic disease management, continuous care, assess to secondary/tertiary care, the health workforce and expenditure.

The tiers and domains of the HPF are shown in Figure 1. There are currently 68 measures that can be reported against at national level. Information on why these measures were selected is in the Aboriginal and Torres Strait Islander Health Performance Framework 2012 policy report (AHMAC 2012).

Tier 1 - Health status and outcomes

Health conditions
1.01 Low birthweight infants
1.02 Top reasons for hospitalisation
1.03 Injury and poisoning
1.04 Respiratory disease
1.05 Circulatory disease
1.06 Acute rheumatic fever & rheumatic heart disease
1.07 High blood pressure
1.08 Cancer
1.09 Diabetes
1.10 Kidney disease
1.11 Oral health
1.12 HIV/AIDS, hepatitis C and sexually transmissible infections

Human function
1.13 Community functioning
1.14 Disability
1.15 Ear health
1.16 Eye health

Life expectancy and wellbeing
1.17 Perceived health status
1.18 Social and emotional wellbeing
1.19 Life expectancy at birth

Deaths
1.20 Infant and child mortality
1.21 Perinatal mortality
1.22 All causes age standardised deaths rates
1.23 Leading causes of mortality
1.24 Avoidable and preventable deaths

Tier 2 - Determinants of health

Environmental factors
2.01 Housing
2.02 Access to functional housing with utilities
2.03 Environmental tobacco smoke

Socioeconomic factors
2.04 Literacy and numeracy
2.05 Education Outcomes for young people
2.06 Educational participation and attainment of adults
2.07 Employment
2.08 Income
2.9 Index of disparity

Community capacity
2.10 Community safety
2.11 Contact with the criminal justice system
2.12 Child protection
2.13 Transport
2.14 Indigenous people with access to their traditional lands

Health behaviours
2.15 Tobacco use
2.16 Risky alcohol consumption
2.17 Drug and other substance use including inhalants
2.18 Physical activity
2.19 Dietary behaviours
2.20 Breastfeeding practices
2.25 Health behaviours during pregnancy

Person-related factors
2.22 Overweight and obesity

Tier 3 - Health system performance

Effective/appropriate/efficient
3.01 Antenatal care
3.02 Immunisation
3.03 Health promotion
3.04 Early detection and early treatment
3.05 Chronic disease management
3.06 Access to hospital procedures
3.07 Selected potentially preventable hospital admissions
3.08 Cultural competency

Responsive
3.09 Discharge against medical advice
3.10 Access to mental health services
3.11 Access to alcohol and drug services
3.12 Aboriginal and Torres Strait Islander Australians in the health workforce
3.13 Competent governance

Accessible
3.14 Access to services compared with need
3.15 Access to prescription medicines
3.16 Access to after-hours primary health care

Continuous
3.17 Regular GP or health service
3.18 Care planning for chronic diseases

Capable
3.19 Accreditation
3.20 Aboriginal and Torres Strait Islander people training for health related disciplines

Sustainable
3.21 Expenditure on Aboriginal and Torres Strait Islander health compared to need
3.22 Recruitment and retention of staff

Figure 1: Aboriginal and Torres Strait Islander Health Performance Framework Measures

Note: The Safe domain of Tier 3 is measured within the National Health Performance Framework.

Demographic information

The preliminary estimated resident Aboriginal and Torres Strait Islander population of Australia as at 30 June 2011 was 669,736 people (ABS 2012). Indigenous people represent 3% of the Australian population (Table 1).

Table 1: Estimated resident population by state/territory and Indigenous status, 2011

	Indigenous		Non-Indigenous		Total			
	No.	Per cent	No.	Per cent	No.	Per cent	Per cent Indig.	Per cent Non-Indig.
New South Wales	208,364	31.1	7,003,104	32.3	7,211,468	32.3	2.9	97.1
Victoria	47,327	7.1	5,487,199	25.3	5,534,526	24.8	0.9	99.1
Queensland	188,892	28.2	4,285,206	19.8	4,474,098	20.0	4.2	95.8
South Australia	37,392	5.6	1,600,840	7.4	1,638,232	7.3	2.3	97.7
Western Australia	88,277	13.2	2,263,938	10.5	2,352,215	10.5	3.8	96.2
Tasmania	24,155	3.6	487,040	2.2	511,195	2.3	4.7	95.3
Northern Territory	68,901	10.3	162,430	0.8	231,331	1.0	29.8	70.2
Australian Capital Territory	6,167	0.9	361,585	1.7	367,752	1.6	1.7	98.3
Australia[(a)]	**669,736**	**100.0**	**21,654,197**	**100.0**	**22,323,933**	**100.0**	**3.0**	**97.0**

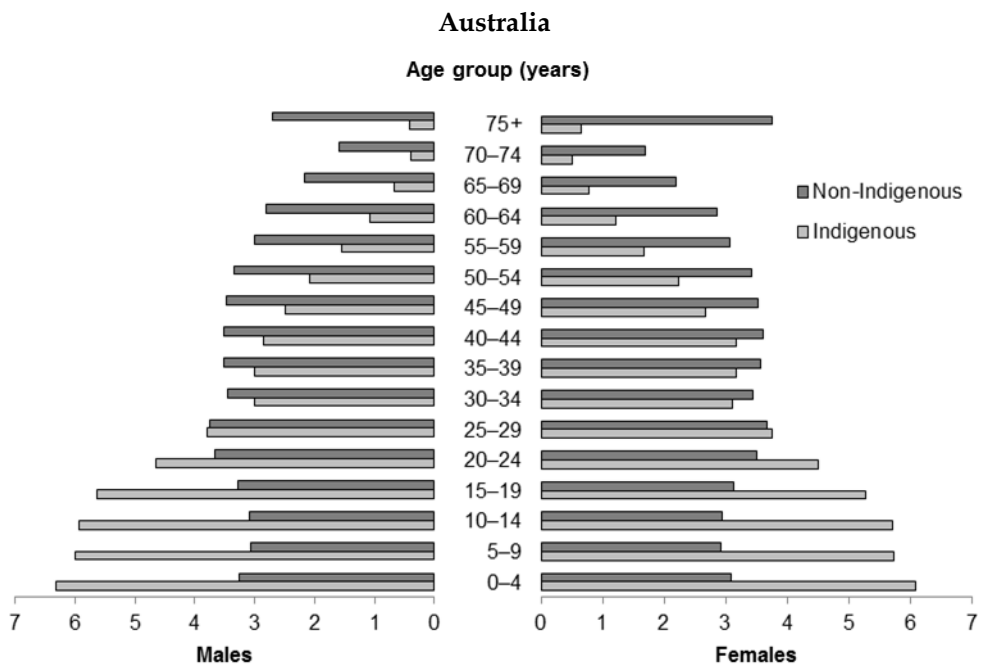
(a) Includes territories other than New South Wales, Victoria, Queensland, South Australia, Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory.

Source: AIHW analysis of ABS preliminary population estimates based on 2011 Census.

The Aboriginal and Torres Strait Islander population has an age structure that is significantly younger than that of other Australians. For example, in 2011, Aboriginal and Torres Strait Islander people aged under 15 constitute 35.8% of the Indigenous population, whereas this age group represents about 18.9% of the total Australian population. Conversely, those aged 65 and over comprise only 3.4% of the Indigenous population, compared with 13.8% of the total Australian population (Figure 2).

In 2006, about three-quarters of the total Indigenous population in Australia live in *Major cities* (32.1%), *Inner regional* (21.4%) and *Outer regional* areas (21.9%), with just under one-quarter in *Remote* (9.3%) and *Very remote* (15.4%) areas (Table 2).

Note that Indigenous population estimates from the 2011 Census are not yet available by remoteness, therefore the latest available data by remoteness is for 2006 sourced from the 2006 Census which is reported in Table 2 below.



Source: AIHW analysis of ABS preliminary population estimates based on 2011 Census.

Figure 2: Population profile, by Indigenous status, age and sex, Australia, 2011

Table 2: Estimated resident population by remoteness area and Indigenous status, Australia, 2006

	Indigenous		Non-Indigenous		Total			
	No.	Per cent	No.	Per cent	No.	Per cent	Per cent Indig.	Per cent Non-Indig.
Major cities	165,804	32.1	13,996,454	69.4	14,162,258	68.4	1.2	98.8
Inner regional	110,643	21.4	3,975,150	19.7	4,085,793	19.7	2.7	97.3
Outer regional	113,280	21.9	1,854,024	9.2	1,967,304	9.5	5.8	94.2
Remote	47,852	9.3	267,199	1.3	315,051	1.5	15.2	84.8
Very remote	79,464	15.4	88,010	0.4	167,474	0.8	47.4	52.6
Australia	**517,043**	**100.0**	**20,180,837**	**100**	**20,697,880**	**100**	**2.5**	**97.5**

Note: 2011 Census estimates are not yet available by remoteness.

Source: AIHW analysis of ABS population estimates based on 2006 Census.

Structure of this report

Part 1 presents analyses for Tier 1—Health status and outcomes; Part 2 presents analyses for Tier 2—Determinants of health, and Chapter 3 presents analyses for Tier 3—Health system performance. The layout for each measure is constant and includes a definition according to the technical specifications, a section on the data sources used, analyses undertaken, additional information and data quality issues. Where possible, analyses are presented by age, sex and Indigenous status. Time trends are also presented where data are available. For some measures, data are also presented by selected health and population characteristics to examine the relationships between health and socioeconomic factors. International

comparisons with New Zealand, the United States and Canada are presented for some measures. This report presents the most recent data available at the time of writing, which varies by data source (see Table S1 for the most recent year/period for which key statistics are reported).

Data sources and methodology

Data in this report come from a number of different administrative data sets and surveys. For each measure there is both a data quality statement and a brief description of the data sets used in analyses, a table of all data sources used for each measure of the Framework is presented at Appendix 1.

Health-related administrative data sets include the Australian Institute of Health and Welfare's (AIHW) National Hospital Morbidity Database, the AIHW National Mortality Database, the AIHW Community Mental Health Care Database, the AIHW National Perinatal Data Collection, the Australia and New Zealand Dialysis and Transplant Registry, the National Notifiable Diseases Surveillance System, the Service Activity Reporting Database and Medicare databases. Administrative data related to education include the Australian Bureau of Statistics (ABS) National Schools Statistics Collection, Department of Education, Employment and Workplace Relations (DEEWR) Higher Educations Statistics Collection and the National Centre for Vocational Education Research database. Community services related data include the AIHW National Child Protection Data collections.

Surveys that were used to obtain data include Indigenous specific surveys such as the National Aboriginal and Torres Strait Islander Health Survey, the National Aboriginal and Torres Strait Islander Social Survey, and the Community Housing Infrastructure Needs Survey. Data from the Census of Population and Housing have also been used.

Age-standardised rates, rate differences and rate ratios have been used in many of the measures to show how the Indigenous population fares relative to other Australians. All age-standardised rates and rate ratios have been calculated using the direct standardisation method and the 2001 Australian population as the standard population.

Time series analyses have used linear regression analysis to determine whether there have been significant increases or decreases in the observed rates. Many of the tables also include an asterisk (*) to indicate that rates for the Indigenous and non-Indigenous populations are statistically different from each other at the $p < 0.05$ level.

Data limitations

There are a number of limitations of data in this report that should be noted. The main issue in most administrative data collections is the under-identification of Aboriginal and Torres Strait Islander people. Under-identification is a major problem in mortality, hospital morbidity and communicable disease data, particularly in some states and territories. Data analysis has therefore been limited to jurisdictions with adequate identification of Indigenous people. At the introduction of each measure there is a brief description of each data source. At the end of each measure there is a comprehensive data quality statement covering the data sources and specific issues that need to be noted when reading the measure and interpreting the findings.

For recent hospitalisations, New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory are considered as having data of sufficient

quality to be included in the analyses. For longer-term hospital morbidity, data from only Queensland, Western Australia, South Australia and the Northern Territory are used. Longer-term mortality trend data are limited to three jurisdictions—Western Australia, South Australia and the Northern Territory, which have more than 10 years of adequate identification of Indigenous deaths in their recording systems. Queensland data from 1998 and NSW data from 2001 onwards are considered to be of adequate quality for mortality analyses.

Data on communicable diseases from the National Notifiable Disease Surveillance System have been assessed and found to have varying levels of completeness across diseases and jurisdictions.

The incompleteness of Indigenous identification means the number of hospital separations, deaths and disease notifications recorded as Indigenous result in underestimates of the true levels of hospitalisation and mortality.

Surveys are also subject to a number of data limitations due to sampling and non-sampling errors, such as bias in responses. In most tables in this report, estimates with large relative standard errors, which is a measure of the sampling variability, have been footnoted to indicate that they should be used with caution or are considered too unreliable for general use.

There are also data limitations surrounding international comparisons for some of the measures. These include the lack of an accurate denominator for the Indigenous population (mainly due to undercounting) and the lack of agreement over which is the best population denominator to use when they exist (for example, whether to use single ethnic response groups or multiple ethnic response groups). There are differences in how Indigenous status is defined in the different countries. There have also been frequent modifications to the ethnicity question recorded in the censuses in some of these countries.

Volatility due to small numbers and impact on Interpretation of changes over time

Both small numbers and volatility in the data from year to year make it difficult to detect significant changes over time, and can greatly impact on any conclusions reached from a trend analysis. This is a particular problem when analysing trends for small populations such as the Indigenous population in the smaller jurisdictions.

Statistical methods can be used to model trend data in various ways and to determine whether there is a statistically significant trend. Time series analyses presented throughout this report have used linear regression analysis to determine whether there have been significant increases or decreases in the observed rates over the period. Regression analysis has several advantages over other techniques for assessing trends. In general, regression modelling has the advantage of jointly considering the information contained in the series of rates (i.e. taking into account volatility from year to year), rather than considering each time point separately.

In this report, the average annual change in rates, rate ratios and rate differences are calculated using linear regression which uses the least squares method to calculate a straight line that best fits the data and returns an array that best describes the line. The simple linear regression line, $Y = a + bX$, or 'slope' estimate is used to determine the average annual change in the data over the period. The 95% confidence intervals (CIs) for the standard error

of the slope estimate (average annual change) are used to determine whether the apparent increases or decreases in the data are statistically significant at the $p<0.05$ level.

The per cent change estimates presented in this report use the slope estimate to derive an end point in the time series, rather than the actual end point. This overcomes the problem of being reliant on the end data point to determine the significance of the trend. However the first data point in the time series is still used in the per cent change calculation and therefore care must be taken in selecting a sensible starting point.

Great care should be taken when assessing apparent changes over time, particularly those involving small numbers and a small number of data points.

Data improvement activities

All jurisdictions are working towards improving the quality of Indigenous status in health data collections.

States and territories have agreed to improve Aboriginal and Torres Strait Islander data collection procedures in key data collections including implementation of the *National best practice guidelines for collecting Indigenous status in health data sets* published by the AIHW in 2010.

The AIHW is working with the states and territories in the development of an enhanced Perinatal National Minimum Data Set (NMDS) to include nationally consistent data items on antenatal care, smoking and alcohol use during pregnancy, and Indigenous status of the baby. Nationally consistent data items on smoking during pregnancy, gestational age at first antenatal visit, and Indigenous status of the baby have been added to the Perinatal NMDS (from 1 July 2009, 1 July 2010, and 1 July 2012, respectively). A data item on number of antenatal visits will be included in the Perinatal NMDS from 1 July 2013. Work is under way to progress data elements related to alcohol use in pregnancy.

The ABS and the AIHW work in partnership with jurisdictions to lead analysis of the level of Indigenous identification in key data sets. As part of this work, the AIHW conducted a study in 2011–12 to assess the level of under-identification in public hospitals data, which was a repeat of a study conducted in 2007. All states and territories have participated in the study to assess improvements in data quality. The report on the findings, *Indigenous identification in hospitals separations data,* was published in May 2013, including new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

As part of the data development work funded under the National Indigenous Reform Agreement (NIRA), the ABS will link Census records with death registration records to assess the level of identification in relation to the 2011 Census (this was undertaken for data from the 2006 Census and will be repeated).

The AIHW is also undertaking a project to develop an Enhanced Mortality Database by linking death registration records to several additional data sources that contain information on Aboriginal and Torres Strait Islander deaths (hospital, perinatal and residential aged care data). The enhanced data are expected to enable more accurate estimates of Aboriginal and Torres Strait Islander mortality, including life expectancy, to be made. Results from phase 1 of the project, which linked data for 2001 to 2006, produced national estimates of Aboriginal and Torres Strait Islander life expectancy at birth of 66.6 years for males and 72.7 for females, which was similar to the estimates produced by the ABS (AIHW 2012).

Population data

Indigenous population data are required when computing rates from administrative data collections. While the 2011 preliminary estimated resident population is the latest available data that gives an estimate of the number of Aboriginal and Torres Strait Islander people in the population, estimates are not yet available from the 2011 Census by remoteness or for years pre or post 2011. Denominators used to calculate proportions and rates in this report are therefore based on Indigenous population estimates and projections from the 2006 Census (ABS 2009).

The Census enumerated the Indigenous population from responses to a question on a person's Indigenous status. The Indigenous ERP for 2006 is computed using this enumerated figure, and adjusted for undercount based on results from the Post-Enumeration Survey (PES) as well as for non-response to the Indigenous status question (ABS 2009). Population numbers for other years are projected based on assumed future levels of fertility, mortality and migration (ABS 2009).

The use of Indigenous ERP based on the 2006 Census showed vastly different results in mortality time series to those published in previous national reports, which used 2001 census-based ERP. The implications of using 2006 census-based compared with 2001 census-based ERP were discussed in the 2010 state and territory reports on the Aboriginal and Torres Strait Islander Health Performance Framework.

Statistical definitions

A number of statistic terms are used in this report. The definitions are:

Incidence is the number of new cases (of an illness or event, and so on) occurring during a given period.

Prevalence is the number or proportion (of cases, instances, and so forth) in a population at a given time.

Crude rate in this report refers to the number or proportion (of cases, instances, and so forth) in a population at a given time, unadjusted for age differences across the Indigenous and non-Indigenous populations.

Age-standardised rate in this report refers to a directly age-standardised rate in which the age-specific rates are multiplied by a constant population. This effectively removes the influence of the age structure on the summary rate to enable comparisons to be made between populations that have different age structures such as the Indigenous and non-Indigenous populations.

Rate ratio is calculated by dividing the rate for Indigenous Australians with a particular characteristic by the rate for non-Indigenous Australians with the same characteristic.

Rate difference is calculated by subtracting the rate for Indigenous Australians from the rate for non-Indigenous Australians for the characteristic of interest.

Statistically significant difference, for example between Indigenous and non-Indigenous or over time, is denoted as 'significant' in the text and denoted with a * against relevant statistics in tables. The word 'significant' is not used outside its statistical context.

Average annual change is used for rates, rate ratios and rate differences to reflect the average annual change in these statistics over the specified period.

Percentage change is used for rates, rate ratios and rate differences and is the difference between the first year and the last year of the specified period based on the average annual change over the period.

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Tier 1 Health Status and Outcomes

1.01 Low birthweight

The incidence of low birthweight among liveborn babies of Aboriginal and Torres Strait Islander mothers

Data sources

Data for this measure come from the National Perinatal Data Collection, the 2008 National Aboriginal and Torres Strait Islander Social Survey and the Healthy for Life data collection.

National Perinatal Data Collection

Perinatal data included in this report come from the Australian Institute of Health and Welfare (AIHW) National Perinatal Epidemiology and Statistics Unit National Perinatal Data Collection (NPDC).

Each state and territory has a perinatal collection based on birth notifications completed by midwives and other staff, using information obtained from mothers and from hospital and other records. Perinatal notification forms are completed in Australia for all births of 20 weeks or more gestation, or a birthweight of 400 grams or more.

The Perinatal National Minimum Data Set (NMDS) includes all births in Australia in hospitals, birth centres and the community. State-level data are based on place of mother's usual residence rather than place where birth occurred. Since 2005, all jurisdictions collect information on Indigenous status of the mother in accordance with the Perinatal NMDS. A data item on Indigenous status of the baby was added to the Perinatal National Minimum Data Set from 1 July 2012.

Data on Indigenous status are not reported for Tasmania prior to 2005 as the not stated category for Indigenous status was included with the non-Indigenous category. Data for Tasmania and the ACT are not deemed of sufficient stability to support trends analysis (AIHW: Leeds KL et al. 2007).

Data on mothers for whom Indigenous status was 'not stated' have been excluded from analysis.

National Aboriginal and Torres Strait Islander Social Survey

The Australian Bureau of Statistics (ABS) conducted the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) between August 2002 and April 2003. The 2008 NATSISS was conducted between August 2008 and April 2009. The survey provides information about the Aboriginal and Torres Strait Islander populations of Australia for a wide range of areas of social concern including health, education, culture and labour force participation. The 2008 NATSISS included for the first time children aged under 15. The NATSISS will be conducted every six years, with the next survey planned for 2014.

The 2008 NATSISS collected information by personal interview from 13,300 Indigenous Australians across all states and territories of Australia, including those living in remote areas. The sample covered persons aged 15 years and over who are usual residents in selected private dwellings. It collected information on a wide range of subjects including

family and culture, health, education, employment, income, financial stress, housing, and law and justice.

Healthy for Life

The Healthy for Life (HfL) program is an ongoing program funded by the Office for Aboriginal and Torres Strait Islander Health (OATSIH) of the Australian Government Department of Health and Ageing (DoHA). The program aims to improve the capacity and performance of primary health-care services to deliver high-quality maternal, children's and chronic disease care to Aboriginal and Torres Strait Islander people. This is carried out through population health approaches using best-practice and quality improvement principles.

Services participating in the HfL program are required to submit de-identified, aggregate service data for 11 essential indicators. These indicators cover maternal health, child health and chronic disease care on a regular basis (6 and 12 months), as well as information about the characteristics of their service and organisational infrastructure.

The Commonwealth and the AIHW are working with the States and Territories to develop a national Key Performance Indicator (KPI) framework for Indigenous primary health care services. The new National KPIs will replace the *Healthy for Life* program Essential Indicators and cover maternal and child health and chronic disease management. The AIHW is leading the development and refinement of the indicators, data standards and analyses and reporting back to services. The national KPI data collection will be implemented in three stages, with rollout in 2012 and 2013.

Analyses

A baby's birthweight is a key indicator of health status. Babies are defined as low birthweight if their weight at birth is less than 2,500 grams. Those weighing less than 1,500 grams are defined as very low birthweight and those less than 1,000 grams as extremely low birthweight (WHO 1992).

Birthweight is a key indicator of infant health and a principal determinant of a baby's chance of survival and good health. For newborns, low birthweight (defined as less than 2,500 grams) poses a greater risk of lengthy hospitalisation after birth, the need for resuscitation and death. Low birthweight is a risk factor for neurological and physical disabilities and for ill health in childhood, with the risk of adverse outcomes increasing with decreasing birthweight (Ford et al. 2003).

Data are presented on the proportion of low birthweight among babies born to Aboriginal and Torres Strait Islander mothers using data from the National Perinatal Data Collection.

Births

Between 2007 and 2009, there were 880,282 births (Indigenous and non-Indigenous) recorded in the Perinatal National Minimum Data Set of which 33,324 (3.8%) were to Aboriginal and Torres Strait Islander mothers.

Low birthweight

Table 1.01.1 presents the number and proportion of liveborn low birthweight babies by Indigenous status of the mother and state/territory for the periods 2007–2009.

- Over the period 2007–2009, there were 4,093 liveborn babies weighing less than 2,500 grams birthweight born to Indigenous mothers in Australia. Babies of Indigenous mothers were twice as likely to be of low birthweight as babies born to non-Indigenous mothers (12.3% compared with 5.9%).
- When multiple births are excluded, approximately 11% of liveborn babies born to Indigenous mothers were of low birthweight compared with around 4% of babies born to non-Indigenous mothers.
- Tasmania and Queensland had the lowest proportion of liveborn low birthweight babies born to Indigenous mothers in 2007–2009 (10.0% and 10.7%, respectively). The Northern Territory and Western Australia had the highest proportion of low birthweight babies (13.8% and 15.0%, respectively). Australian Capital Territory data should be interpreted with caution because of the small number of Indigenous babies born there each year and the likelihood that some women from surrounding areas of New South Wales (especially those with pregnancy complications) are referred to hospitals in the Australian Capital Territory.

Table 1.01.1: Low birthweight babies, by Indigenous status of mother and usual state of residence, 2007–2009[(a)(b)(c)(d)(e)]

	2007–2009				
	Number of live births	Number of low birthweight live-born babies	Per cent	Number of singleton low birthweight liveborn babies	Per cent
NSW					
Indigenous	9,065	1,040	11.5	906	10.3
Non-Indigenous	281,951	15,858	5.6	11,648	4.3
Rate difference	*. .*	*. .*	*5.8*	*. .*	*6.0*
Rate ratio	*. .*	*. .*	*2.0*	*. .*	*2.4*
Vic					
Indigenous	2,057	275	13.4	241	12.0
Non-Indigenous	209,175	12,939	6.2	9,290	4.6
Rate difference	*. .*	*. .*	*7.2*	*. .*	*7.4*
Rate ratio	*. .*	*. .*	*2.2*	*. .*	*2.6*
Qld					
Indigenous	9,867	1,053	10.7	922	9.6
Non-Indigenous	173,165	10,468	6.0	7,473	4.5
Rate difference	*. .*	*. .*	*4.6*	*. .*	*5.1*
Rate ratio	*. .*	*. .*	*1.8*	*. .*	*2.1*
WA					
Indigenous	5,237	784	15.0	705	13.8
Non-Indigenous	86,180	4,921	5.7	3,648	4.4
Rate difference	*. .*	*. .*	*9.3*	*. .*	*9.4*
Rate ratio	*. .*	*. .*	*2.6*	*. .*	*3.2*
SA					
Indigenous	1,857	252	13.6	219	12.2
Non-Indigenous	57,150	3,521	6.2	2,631	4.7
Rate difference	*. .*	*. .*	*7.4*	*. .*	*7.4*
Rate ratio	*. .*	*. .*	*2.2*	*. .*	*2.6*
Tas					
Indigenous	818	82	10.0	61	7.8
Non-Indigenous	18,153	1,182	6.5	902	5.1
Rate difference	*. .*	*. .*	*3.5*	*. .*	*2.7*
Rate ratio	*. .*	*. .*	*1.5*	*. .*	*1.5*

(continued)

Table 1.01.1 (continued): Low birthweight babies, by Indigenous status of mother and usual state of residence, 2007–2009[(a)(b)(c)(d)(e)]

	2007–2009				
	Number of live births	Number of low birthweight live-born babies	Per cent	Number of singleton low birthweight liveborn babies	Per cent
ACT					
Indigenous	222	29	13.1	22	10.3
Non-Indigenous	14,109	731	5.2	534	3.9
Rate difference	*. .*	*. .*	*7.9*	*. .*	*6.4*
Rate ratio	*. .*	*. .*	*2.5*	*. .*	*2.6*
NT					
Indigenous	4,201	578	13.8	528	12.9
Non-Indigenous	7,075	389	5.5	304	4.4
Rate difference	*. .*	*. .*	*8.3*	*. .*	*8.4*
Rate ratio	*. .*	*. .*	*2.5*	*. .*	*2.9*
Total					
Indigenous	**33,324**	**4,093**	**12.3**	**3,604**	**10.8**
Non-Indigenous	**846,958**	**50,009**	**5.9**	**36,430**	**4.3**
Rate difference	*. .*	*. .*	***6.4***	*. .*	***6.5***
Rate ratio	*. .*	*. .*	***2.1***	*. .*	***2.5***

(a) Table includes live births of 20 weeks gestation or more or of 400 grams or more birthweight. Low birthweight is defined as less than 2,500 grams.

(b) Data are presented in three year groupings because of small numbers each year. These groupings represent three calendar years.

(c) Data relate to the Indigenous status of the mother only and therefore underestimate Indigenous births.

(d) Indigenous and non-Indigenous data exclude births where the mother's Indigenous status is not stated.

(e) Data are by place of usual residence of the mother. Table excludes non-residents, external territories and not stated State/Territory of residence.

Source: AIHW (unpublished) National Perinatal Data Collection.

Time series analysis

Longer term perinatal trend data are limited to six states and territories—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. These have been assessed by the AIHW as having adequate identification of Indigenous mothers in their perinatal data collections from 1991 onwards (AIHW: Leeds et al. 2007).

Owing to the late inclusion of a 'not stated' category of Indigenous status in 2000 in the National Perinatal Data Collection (before which 'not stated' responses were included in the number of births to non-Indigenous mothers), the rate of low birthweight babies born to Indigenous mothers has been compared with rates of 'other' Australians (which includes births to both non-Indigenous mothers and births to mothers for whom Indigenous status was not stated).

Fluctuations in the number/proportion of low birthweight babies of Indigenous mothers over time partly reflect changing levels of coverage of babies of Indigenous mothers in the perinatal data. Caution should be exercised in assessing trends in low birthweight babies of Indigenous mothers over time and comparisons with the non-Indigenous population.

The rate (proportion) of low birthweight babies per 100 live births, rate ratios and rate differences between Indigenous and non-Indigenous low birthweight babies over the period 1991–2009 are presented in Table 1.01.2 and Figure 1.01.1. Data are presented for all live births from 1991–2009 and for live singleton births from 1991–2009. Analyses of live singleton births are presented because low birthweight is associated with multiple births and there has been an increasing trend in multiple births over time. Inclusion of multiple births may therefore confound the results of trends analyses on low birthweight.

- Over the period 1991–2009, there was a significant increase in the proportion of low birthweight babies born to Indigenous mothers. The fitted trend implies an average yearly increase in low birthweight babies born to Indigenous mothers of around 0.08 per 100 live births, which is equivalent to an increase of 11.3% over the period (Table 1.01.2). Around a 10% increase was evident for singleton babies born to Indigenous mothers over the period 1991–2009.
- Over the period 1991–2009, there was a significant increase in the proportion of low birthweight babies born to other mothers. There was an average yearly increase in low-birthweight babies of around 0.02 per 100 live births, which is equivalent to a 6.5% increase over the period. Over the same period, there was a non-significant increase in the proportion of singleton babies born to other mothers, a per cent change of 0.7% increase over the period.
- Between 1991 and 2009 there was a significant increase in the rate difference between low birthweight babies born to Indigenous and non-Indigenous mothers. The fitted trend implies an average yearly increase in the rate difference of around 0.05 (increase of 15.7% over the period). Over the same period there was no significant change in the rate ratio between low birthweight babies born to Indigenous and other mothers (Table 1.01.2).
- Between 1991 and 2009 there were significant increases in the rate ratio and rate differences for low birthweight singleton liveborn babies (per cent increases of 9.1% and 16.1% respectively).
- More recent trends between 2000 and 2009 show there was a significant decline in the proportion of babies of low birthweight born to Indigenous mothers (a decline of 7%). Over the same period, there was a small narrowing of the gap between babies of low birthweight of Indigenous and non-Indigenous mothers (a decline of 10%) (Table 1.01.3).

Table 1.01.2: Rate (proportion), rate ratio and rate difference between liveborn low birthweight babies of Indigenous and other mothers, 1991–2009

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Annual change[(a)]	Per cent change[(b)]
Low birthweight liveborn babies																					
Indigenous	11.9	11.8	10.8	11.9	10.9	11.6	12.1	11.0	12.2	12.7	12.8	12.9	12.9	13.1	13.3	12.4	12.6	12.2	11.9	0.08*	11.3*
Other[(c)]	5.7	5.7	5.7	5.7	5.8	5.8	5.9	5.9	6.0	6.1	6.0	6.1	6.0	6.1	6.1	6.2	5.9	5.9	5.9	0.02*	6.5*
Rate ratio	2.1	2.1	1.9	2.1	1.9	2.0	2.1	1.9	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.0	2.1	2.1	2.0	0.01	4.8
Rate difference	6.2	6.1	5.1	6.3	5.2	5.9	6.3	5.1	6.2	6.6	6.8	6.8	6.9	7.0	7.2	6.3	6.7	6.4	6.0	0.05*	15.7*
Low birthweight singleton liveborn babies																					
Indigenous	11.1	10.8	9.7	11.0	10.2	10.7	11.3	10.0	10.9	11.7	11.5	11.8	11.9	12.1	12.1	11.4	11.3	11.1	10.8	0.06*	9.9*
Other[(c)]	4.5	4.4	4.5	4.4	4.5	4.5	4.5	4.6	4.6	4.5	4.5	4.6	4.5	4.6	4.5	4.6	4.4	4.4	4.5	0	0.7
Rate ratio	2.5	2.4	2.2	2.5	2.3	2.4	2.5	2.2	2.4	2.6	2.6	2.6	2.6	2.6	2.7	2.5	2.6	2.5	2.4	0.01*	9.1*
Rate difference	6.6	6.3	5.3	6.7	5.7	6.2	6.8	5.4	6.3	7.2	7.0	7.3	7.4	7.5	7.5	6.8	6.9	6.7	6.4	0.06*	16.1*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1991 to 2009.

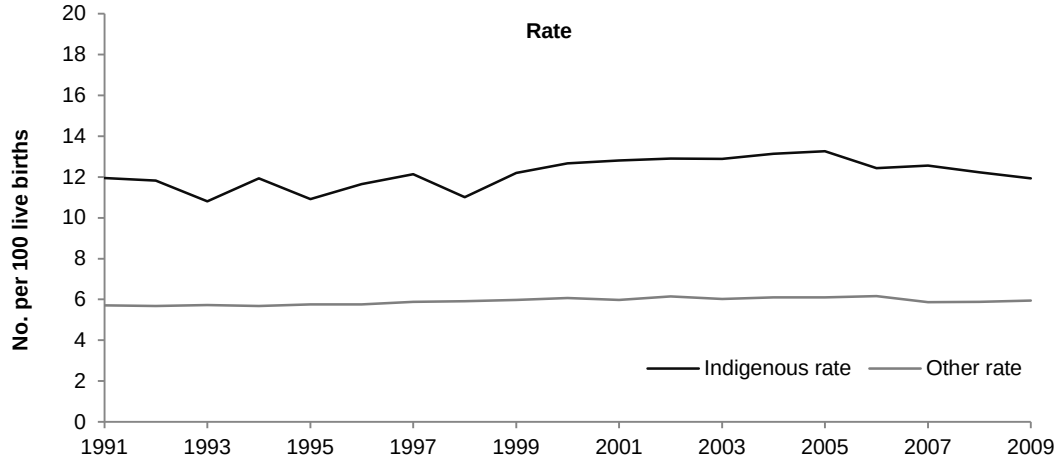
(a) Average annual change in number and proportion of low birthweight babies determined using linear regression analysis.

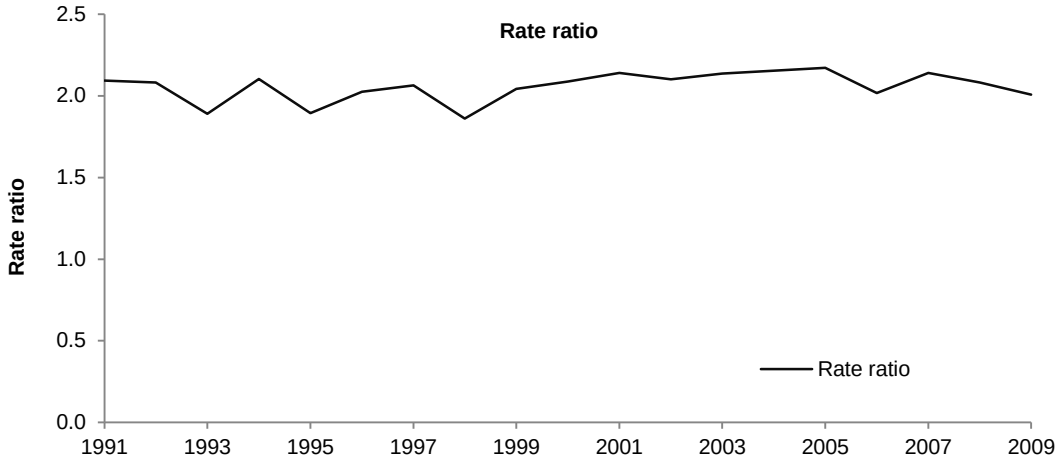
(b) Per cent change between 1991 and 2009 based on the average annual change over the period.

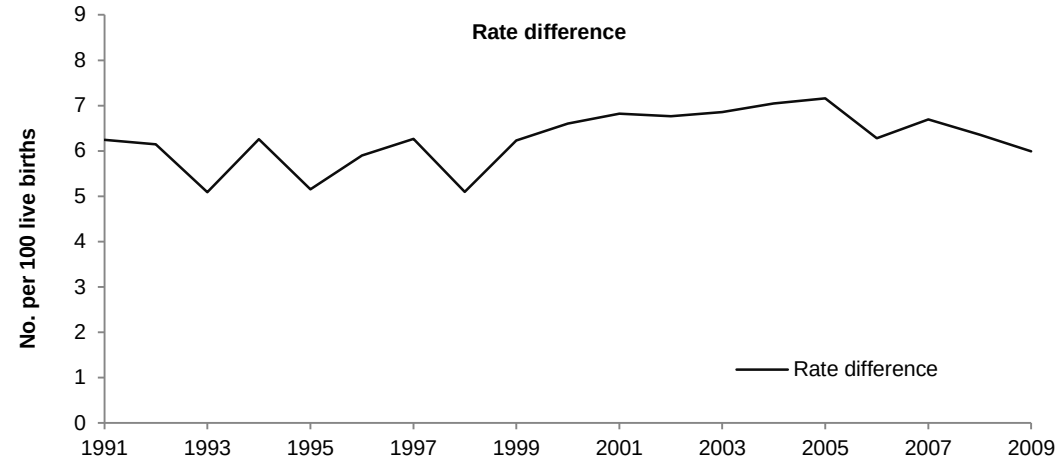
(c) Includes non-Indigenous mothers and mothers for whom Indigenous status was not stated.

Note: Excludes Tasmania and the Australian Capital Territory as data from these jurisdictions are not considered stable enough to be included in trend analyses mainly because of small population size and some issues with data quality over the reporting period (AIHW: Leeds et al. 2007).

Source: AIHW (unpublished) National Perinatal Data Collection.







Note: Excludes Tasmania and the Australian Capital Territory because data from these jurisdictions are not considered stable enough to be included in trend analyses mainly because of small population size and some issues with data quality over the reporting period (AIHW: Leeds et al. 2007).

Source: AIHW analysis of NPESU National Perinatal Data Collection.

Figure 1.01.1: Rates, rate ratios and rate differences between low birthweight babies (per 1,000 live births) of Indigenous and other mothers, 1991–2009

Table 1.01.3: Incidence of low birthweight among liveborn singleton babies, by Indigenous status of the mother and state/territory, NSW, Vic, Qld, WA, SA and NT, 2000 to 2009[(a)(b)(c)(d)]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Annual change[(e)]	Per cent change[(f)]
Indigenous												
Number	977	965	1,011	1,017	1,048	1,127	1,093	1,165	1,172	1,153	24.9*	22.9*
Per cent	11.7	11.5	11.9	11.9	12.1	12.1	11.4	11.3	11.1	10.8	–0.1*	–7.2*
Non-Indigenous												
Number	10,349	10,139	10,296	10,224	10,450	10,927	11,372	11,506	11,545	11,703	193.9*	16.9*
Per cent	4.5	4.5	4.6	4.5	4.6	4.5	4.6	4.4	4.4	4.4	0.0	–2.9
Rate ratio[(g)]	**2.6**	**2.6**	**2.6**	**2.6**	**2.6**	**2.7**	**2.5**	**2.6**	**2.5**	**2.4**	**–0.02***	**–5.7***
Rate difference[(h)]	**7.2**	**7**	**7.3**	**7.4**	**7.5**	**7.5**	**6.8**	**6.9**	**6.7**	**6.4**	**–0.1***	**–9.9***

* Represents results with a statistically significant change at the $p < 0.05$ level over the period.

(a) Low birthweight is defined as less than 2500grams. Data excludes babies with unknown birthweight.

(b) Data relate to live births. Data exclude stillbirths; births less than 20 weeks gestation and less than 400 grams birthweight; and multiple births.

(c) Data are by place of usual residence of the mother. Table excludes non-residents, external territories and not stated state/territory of residence.

(d) Data on Indigenous births relate to babies born to Indigenous mothers only, and excludes babies born to non-Indigenous mothers and Indigenous fathers. Therefore the information may not be based on the total count of Indigenous babies.

(e) Average annual change in number and proportion of low birthweight babies determined using linear regression analysis.

(f) Per cent change based on the average annual change over the period.

(g) Rate ratio is the proportion of low birthweight babies born to Indigenous mothers divided by the proportion of low birthweight babies born to non-Indigenous mothers.

(h) Rate difference is the proportion of low birthweight babies born to Indigenous mothers less the proportion of low birthweight babies born to non-Indigenous mothers.

Source: AIHW (unpublished) National Perinatal Data Collection.

Low birthweight babies by birth characteristics

Table 1.01.4 presents the number and proportion of low birthweight babies born to Indigenous and non-Indigenous mothers in 2008–2009 by selected birth characteristics.

- The proportion of neonatal deaths among low birthweight babies born to Indigenous mothers was similar to low birthweight babies born to non-Indigenous mothers, 80% and 81% respectively.
- Approximately 66% of pre-term babies born to Indigenous mothers were of low birthweight, compared with 71% of pre-term babies born to non-Indigenous mothers.
- Approximately 60% of multiple births of Indigenous mothers resulted in low birthweight babies, compared with 11% of singleton births.
- Nearly half (42%) of liveborn low birthweight babies born to Indigenous mothers had an Apgar score of less than 7.
- Although the proportion of pre-term and multiple births resulting in low birthweight babies was similar for babies born to Indigenous and non-Indigenous mothers (rate ratio 1.2), low birthweight among full-term births and singleton births was more than twice as high among babies born to Indigenous mothers as among babies born to non-Indigenous mothers (rate ratio 2.6 for full-term births, 2.5 for singleton births).

Table 1.01.4: Liveborn low birthweight babies by birth characteristics and maternal Indigenous status, 2008–2009

	Indigenous[a]			Non-Indigenous[a]				
	Number	Per cent of live births[b]	Per cent of LBW births[c]	Number	Per cent of live births[b]	Per cent of LBW births[c]	Rate ratio (live births)[d]	Rate difference
Pre-term	1,796	64.8	65.7	23,787	56.3	70.9	1.2	8.5
Full-term	938	4.8	34.3	9,755	1.9	29.1	2.6	2.9
Multiple birth	318	59.8	11.6	9,161	51.6	27.3	1.2	8.2
Singleton birth	2,418	11.0	88.4	24,397	4.4	72.7	2.5	6.6
APGAR score 0–6	231	41.9	8.5	2,689	33.0	8.0	1.3	9.0
APGAR score 7–10	2,478	11.3	91.5	30,732	5.5	92.0	2.1	5.8
Neonatal deaths[e]	109	80.1	4.2	1,070	81.2	3.7	1.0	–0.9
Total	**2,736**	**12.2**	**. .**	**33,558**	**5.9**	**. .**	**2.1**	**6.3**

(a) Excludes not stated response from denominator.

(b) Per cent of live births: No. of liveborn low birthweight in stratum category divided by total number of all stratum category live births.

(c) Per cent of LBW births: No. of stratum category liveborn low birthweight divided by total combined liveborn low birthweight stratum categories.

(d) Rate ratio: Indigenous per cent of live births divided by non-Indigenous per cent of live births.

(e) 2009 Victorian data not received at the time of publication.

Notes

1. Excludes mothers for whom Indigenous status was not stated.
2. Apgar score is a measure used to assess the health of newborn babies immediately after birth. Values range from zero to 10, with a value of seven to 10 considered normal. Lower values indicate that medical attention is necessary.

Source: AIHW (unpublished) National Perinatal Data Collection.

Low birthweight babies by maternal characteristics

Table 1.01.5 presents the number and proportion of liveborn low birthweight babies born to Indigenous and non-Indigenous mothers in 2008–2009 by selected characteristics of the mother.

- In 2008–2009, the highest rate of low birthweight babies born to Indigenous mothers occurred in mothers aged 35 years and over (15.1%) followed by mothers aged less than 20 years and aged 25–29 years (12.4%). Indigenous mothers in all age groups were around twice as likely to have low birthweight babies as non-Indigenous mothers (rate ratios from 1.7 to 2.3).
- Indigenous mothers in the lowest quintile and 2nd quintile of socioeconomic status were most likely to have low birthweight babies (12.7%). Rates of low birthweight babies among Indigenous mothers were around twice those among non-Indigenous mothers across all quintiles of socioeconomic status (rate ratios form 1.9 to 2.1).
- Low birthweight babies were most common among Indigenous mothers who had a parity (number of times a woman has previously given birth) of four or more (14.6%), followed by Indigenous mothers who had a parity of three or none (12.8% and 12%).
- The proportion of low birthweight babies born to Indigenous mothers was highest among mothers living in Remote and Very remote areas (13.3% and 13.6%, respectively). In Very remote areas, babies born to Indigenous mothers were nearly three times (rate ratio 2.7) as likely as babies born to non-Indigenous mothers to be of low birthweight.

Multivariate analyses

- During the period 2006–08, 33% of all low birthweight babies born to Indigenous mothers were attributable to smoking during pregnancy, compared with 13% for other Australian mothers. If the smoking rate during pregnancy among Indigenous mothers was the same as it was for other Australian mothers, the proportion of babies with low birthweight among the Indigenous population could be reduced by 24% (Table 1.01.6A).
- After adjusting for age differences and all other factors, including pre-term delivery, socioeconomic status, remoteness areas and multiple births, 26% of all low birthweight babies born to Indigenous mothers were attributable to smoking during pregnancy, compared with 9% for other Australian mothers. If the smoking rate during pregnancy among Indigenous mothers was the same as it was for other Australian mothers, after accounting for other factors, the proportion of babies with low birthweight among the Indigenous population could be reduced by 19% (Table 1.01.6B).

Table 1.01.5: Liveborn low birthweight babies by maternal characteristics and Indigenous status, 2008–2009

	Indigenous		Non-Indigenous			
	Number	Per cent	Number	Per cent	Rate ratio	Rate difference
Age of mother						
Less than 20	555	12.4	1,410	7.3	1.7	5.0
20–24	813	11.4	4,785	6.2	1.8	5.1
25–29	662	12.4	8,620	5.6	2.2	6.8
30–34	389	11.5	10,029	5.5	2.1	6.0
35+	316	15.1	8,706	6.5	2.3	8.6
Quintile of socioeconomic disadvantage [(a)]						
1st quintile (lowest)	1,178	12.7	6,430	6.4	2.0	6.2
2nd quintile	598	12.7	6,779	6.2	2.0	6.5
3rd quintile	371	11.3	6,337	5.8	2.0	5.5
4th quintile	197	10.6	6,570	5.7	1.9	4.9
5th quintile (highest)	392	11.8	7,397	5.5	2.1	6.3
Parity[(b)]						
None	818	12.0	14,630	7.0	1.7	5.0
One	579	11.2	7,510	4.5	2.5	6.7
Two	408	11.0	3,827	5.1	2.1	5.9
Three	316	12.8	1,711	6.3	2.0	6.5
Four or more	498	14.6	1,503	8.5	1.7	6.1
Remoteness						
Major Cities	735	11.8	23,836	5.9	2.0	5.9
Inner Regional	491	10.8	6,107	6.0	1.8	4.8
Outer Regional	706	12.3	2,968	6.0	2.0	6.3
Remote	318	13.3	407	5.1	2.6	8.2
Very Remote	483	13.6	137	5.0	2.7	8.6
Total	**2,736**	**12.2**	**33,558**	**5.9**	**2.1**	**6.3**

(a) Based on SEIFA Index of Relative Socioeconomic Advantage and Disadvantage 2006, population-based, using Australian cut-offs.

(b) 2009 Victorian data not received at the time of publication.

Note: Excludes mothers for whom Indigenous status was not stated.

Source: AIHW (unpublished) National Perinatal Data Collection.

Table 1.01.06A: Unadjusted burden and gap analysis of low birthweight among live born babies by selected maternal characteristics and Indigenous status, 2006–2008

	Unadjusted RR (95% CI)		Unadjusted PAF[(a)]		Unadjusted PIF[(b)]
	Indigenous	Other[(c)]	Indigenous	Other[(c)]	
Age of mother					
<20	1.01(0.92,1.10)	1.29(1.24,1.34)*			
20–24	0.96(0.88,1.05)	1.10(1.07,1.14)*			
25–29	REF	REF	1.2	5.7	n.a
30–34	1.01(0.91,1.12)	0.99(0.96,1.01)			
35+	1.22(1.08,1.36)*	1.16(1.13,1.19)*			
Smoking during pregnancy[(d)]					
Yes	1.94(1.81,2.08)*	1.98(1.93,2.02)*	33.2	12.8	23.8
No	REF	REF			
Pre-term delivery					
Yes	13.56(12.70,14.48)*	29.99(29.42,30.58)*	61.5	68.3	25.5
No	REF	REF			
Parity					
Primiparas	0.99(0.93,1.06)	1.38(1.36,1.41)*	–0.2	13.8	0.1
Multiparas	REF	REF			
Multiple births					
Singletons	REF		9.6	25.1	–2.7
Multiple births	5.21(4.73,5.73)*	11.47(11.24,11.69)*			
Socioeconomic status[(e)]					
Quintile 1 (least disadvantaged)	REF	REF			
Quintile 2	0.92(0.75,1.14)	1.06(1.03,1.09)*			
Quintile 3	1.02(0.83,1.24)	1.11(1.08,1.15)*	2.9	10.7	n.a
Quintile 4	1.01(0.83,1.22)	1.19(1.15,1.22)*			
Quintile 5 (most disadvantaged)	1.07(0.89,1.28)	1.23(1.2,1.27)*			
Remoteness					
Major cities and inner/outer regions	REF	REF	3.8	–0.2	n.a
Remote and very remote regions	1.14(1.07,1.22)*	0.88(0.82,0.94)*			

(continued)

Table 1.01.06A (continued): Unadjusted burden and gap analysis of low birthweight among live born babies by selected maternal characteristics and Indigenous status, 2006–2008

	Unadjusted RR (95% CI)		Unadjusted PAF[(a)]		Unadjusted PIF[(b)]
	Indigenous	Other[(c)]	Indigenous	Other[(c)]	
State[(f)]					
NSW	REF	REF			
Vic	1.08(0.94,1.25)	1.09(1.06,1.11)*			
Qld	0.89(0.82,0.97)*	1.07(1.04,1.09)*			
WA	1.27(1.16,1.39)*	1.00(0.97,1.03)	3.7	3.8	n.a
SA	1.17(1.02,1.34)*	1.04(1.00,1.08)*			
Tas	0.78(0.61,1.00)*	1.14(1.07,1.21)*			
ACT	1.03(0.70,1.51)	0.97(0.90,1.04)			
NT	1.15(1.04,1.28)*	0.99(0.90,1.09)			
Baby Gender					
Male	REF	REF	7.0	8.0	n.a
Female	1.15(1.08,1.23)*	1.18(1.16,1.20)*			

* significant at $p < 0.05$ level.

(a) Population Attributable Fraction (PAF) = Burden (%).

(b) Potential Impact Fraction (PIF) = Gap (%).

(c) Include non-Indigenous mothers and mothers for whom Indigenous status was not stated.

(d) Smoking during pregnancy data were not available in Victoria.

(e) Based on SEIFA Index of Relative Socioeconomic Advantage and Disadvantage 2006, population-based, using Australian cut-offs.

(f) Data are by place of usual residence of the mother. Table excludes Australian non-residents, residents of external territories and not stated State/Territory of residence.

Source: NPESU analysis of National Perinatal Data Collection.

Table 1.01.06B: Adjusted burden and gap analysis of low birthweight among live born babies by selected maternal characteristics and Indigenous status, 2006–2008

	Adjusted RR (95% CI)		Adjusted PAF[(a)(b)]		Adjusted PIF[(a)(c)]
	Indigenous	Other[(d)]	Indigenous	Other[(d)]	
Age of mother					
<20	0.98(0.89,1.08)	1.06(1.02,1.11)*			
20–24	0.98(0.89,1.07)	1.05(1.02,1.08)*			
25–29	REF	REF	–0.8	2.3	n.a
30–34	0.97(0.87,1.07)	0.99(0.97,1.02)			
35+	1.09(0.97,1.23)	1.07(1.05,1.10)*			
Smoking during pregnancy[(d)]					
Yes	1.66(1.54,1.78)*	1.67(1.63,1.71)*	25.9	9.1	18.5
No	REF	REF			
Pre-term delivery					
Yes	12.17(11.36,13.03)*	24.01(23.51,24.51)*	58.7	63.1	24.3
No	REF	REF			
Parity					
Primiparas	1.15(1.06,1.24)*	1.26(1.23,1.28)*	4.4	9.9	–1.6
Multiparas	REF	REF			
Multiple births					
Singletons	REF	REF	1.5	3.0	–0.4
Multiple births	1.62(1.46,1.79)*	1.97(1.93,2.01)*			
Socioeconomic status[(e)]					
Quintile 1 (least disadvantaged)	REF	REF			
Quintile 2	1.03(0.83,1.27)	1.03(1.00,1.06)*			
Quintile 3	1.05(0.86,1.29)	1.07(1.04,1.11)*	5.9	6.6	n.a
Quintile 4	1.07(0.88,1.30)	1.11(1.08,1.15)*			
Quintile 5 (most disadvantaged)	1.07(0.89,1.30)	1.13(1.10,1.17)*			
Remoteness					
Major cities and inner/outer regions	REF	REF	2.2	0.2	n.a
Remote and very remote regions	1.08(0.99,1.18)	1.09(1.02,1.17)*			

(continued)

Table 1.01.06B: Adjusted burden and gap analysis of low birthweight among live born babies by selected maternal characteristics and Indigenous status, 2006–2008

	Adjusted RR (95% CI)		Adjusted PAF[(a)(b)]		Adjusted PIF[(a)(c)]
	Indigenous	Other[(d)]	Indigenous	Other[(d)]	
State[(f)]					
NSW	REF	REF			
Vic	1.06(0.87,1.30)	0.87(0.81,0.93)*			
Qld	0.91(0.83,0.99)*	0.93(0.91,0.96)*			
WA	1.10(1.00,1.22)	0.94(0.91,0.97)*	–1.4	–6.2	n.a
SA	0.99(0.86,1.14)	0.93(0.90,0.97)*			
Tas	0.88(0.69,1.12)	0.94(0.88,1.00)*			
ACT	0.92(0.62,1.37)	1.02(0.94,1.10)			
NT	0.99(0.87,1.12)	0.95(0.86,1.06)			
Baby Gender					
Male	REF	REF	8.5	10.4	n.a
Female	1.19(1.12,1.27)*	1.24(1.22,1.26)*			

* significant at $p < 0.05$ level.

(a) Adjusted for age and all other factors in table.

(b) Population Attributable Fraction (PAF) = Burden (%).

(c) Potential Impact Fraction (PIF) = Gap (%).

(d) Include non-Indigenous mothers and mothers for whom Indigenous status was not stated.

(e) Smoking during pregnancy data were not available in Victoria.

(f) Based on SEIFA Index of Relative Socioeconomic Advantage and Disadvantage 2006, population-based, using Australian cut-offs.

(g) Data are by place of usual residence of the mother. Table excludes Australian non-residents, residents of external territories and not stated State/Territory of residence.

Source: NPESU analysis of National Perinatal Data Collection.

Mean birthweight

- In 2009, the average birthweight of liveborn babies of Indigenous mothers was 3,183 grams (Table 1.01.7). This was 298 grams lighter than the average of 3,381 grams for liveborn babies of non-Indigenous mothers in 2009.
- Note that male liveborn babies were proportionally less likely to be of low birthweight than were female babies (the average birthweight of male babies was 118 grams higher than that of female babies in 2009) (Li et al. 2011).

Time series analysis

- Over the period 1991–2009, there was no significant change in the mean birthweight of babies of Indigenous mothers. Over the same period there was a significant increase in the mean birthweight of babies of other mothers, equivalent to an increase of 0.3% over the period (Table 1.01.7).
- There was no significant change in the ratio or difference between the mean birthweight of babies born to Indigenous and other mothers over the period 1991–2009.

Table 1.01.7: Mean birthweight, ratio and difference between mean birthweight of liveborn babies of Indigenous and other mothers, 1991–2009

	Mean birthweight (grams)			
Year	Indigenous	Other[(b)]	Ratio	Difference (grams)
1991	3,158	3,367	0.9	–209.3
1992	3,177	3,373	0.9	–196.1
1993	3,180	3,374	0.9	–194.9
1994	3,170	3,375	0.9	–204.8
1995	3,181	3,376	0.9	–194.2
1996	3,163	3,378	0.9	–215.6
1997	3,168	3,375	0.9	–206.3
1998	3,187	3,382	0.9	–195.1
1999	3,169	3,380	0.9	–211.3
2000	3,176	3,384	0.9	–207.4
2001	3,168	3,382	0.9	–214.6
2002	3,165	3,378	0.9	–212.9
2003	3,160	3,380	0.9	–219.7
2004	3,159	3,381	0.9	–222.5
2005	3,155	3,376	0.9	–221.7
2006	3,168	3,377	0.9	–209.4
2007	3,178	3,382	0.9	–203.6
2008	3,196	3,384	0.9	–188.1
2009	3,183	3,381	0.9	–197.7
Annual change[(a)]	0.23	0.52*	0.00	–0.29
Per cent change	0.1	0.3	–0.1	2.5

* Represents results with statistically significant increases or decreases at the $p < 0.05$ level over the period 1991–2009.

(a) Average annual change in number and proportion of low birthweight babies determined using linear regression analysis.

(b) Includes non-Indigenous mothers and mothers for whom Indigenous status was not stated.

Note: Excludes Tasmania and the Australian Capital Territory as data from these jurisdictions are not considered stable enough to be included in trend analyses mainly because of small population size and some issues with data quality over the reporting period (AIHW: Leeds et al. 2007).

Source: AIHW (unpublished) National Perinatal Data Collection.

Indigenous children born weighing less than 2500 grams

- According to the NATISS, in 2008 6,029 Indigenous children aged 0–3 years were born weighing less than 2,500 grams. New South Wales had the lowest proportion (10%), while South Australia had the highest proportion (18%) (Table 1.01.8).
- In 2008, the proportion of Indigenous children aged 0–3 years who were born weighing less than 2500 grams was similar in non-remote and remote areas (both 13%) (Table 1.01.9).

Table 1.01.8: Number and proportion of Indigenous children aged 0–3 years born weighing less than 2500 grams, by state/territory, 2008

	Number	Proportion
NSW	1,509[(a)]	10.0[(a)]
Vic	495	15.1
Qld	1,826[(a)]	11.5[(a)]
WA	848	15.6
SA	470	18.4
Tas	282[(a)]	15.6[(a)]
ACT	61[(a)]	15.4[(a)]
NT	538	16.2
Total	**6,029**	**12.6**

(a) Estimate has a relative standard error between 25% and 50% and should be used with caution.

Note: Proportions exclude not known and not collected responses.

Source: 2008 NATSISS.

Table 1.01.9: Number and proportion of Indigenous children aged 0–3 years born weighing less than 2500 grams, by Remoteness Area, 2008

	Number	Proportion
Major cities	2,560	15.8
Inner regional	973[(a)]	7.9[(a)]
Outer regional	1,441	13.2
Total non-remote	*4,975*	*12.6*
Remote	529[(a)]	14.5[(a)]
Very remote	525	11.5
Total remote	*1,055*	*12.8*
Total	**6,029**	**12.6**

(a) Estimate has a relative standard error between 25% and 50% and should be used with caution.

Note: Proportions exclude not known and not collected responses

Source: 2008 NATSISS.

High birthweight

High birthweight is defined here as babies born weighing 4,000 grams or more.

National Perinatal Data Collection

- In 2007–2009 the proportion of high birthweight liveborn babies born to Indigenous mothers in Australia was 8.6%. This compared with 12.2% of babies born of high birthweight to non-Indigenous mothers (AIHW: NPESU unpublished data).

Healthy for Life data collection

- In 2009–2010 the proportion of high birthweight liveborn babies born to Indigenous mothers living in remote areas of Australia was 1.9%. This compared with 3.5% of babies born of high birthweight to Indigenous mothers living in non-remote areas (Table 1.01.10).

Table 1.01.10: Number and proportion of Indigenous babies[(a)] who had a low, normal and high birthweight, by remoteness, 1 July 2009–30 June 2010

Birth weight	Non-remote[(b)] %	Remote[(c)] %	Total %
Low birth weight[(d)]	12.0*	15.5*	13.3
Normal Birth weight[(e)]	84.5*	82.6*	83.8
High Birth weight[(f)]	3.5*	1.9*	2.9
Total number of Indigenous babies	**1,177**	**701**	**1,878**

* Represents results with statistically significant differences between non remote and remote categories in low birth weight, normal birth weight or high birth weight percentages.

(a) Indigenous babies born in the current reporting period to women who were regular clients of the HfL service.

(b) Includes Major cities, Inner Regional and Outer Regional areas.

(c) Includes remote and very remote areas.

(d) Low birth weight is <2,500g.

(e) Normal birth weight is 2,500–4,499g.

(f) High birth weight is 4,500g and over.

Notes

1. Valid data for this indicator were provided by 65 services (5 in Major Cities of Australia, 13 in Inner Regional Australia, 23 in Outer Regional Australia, 13 in Remote Australia and 11 in Very Remote Australia).
2. Services used their own definition of regular client.

Source: AIHW, Healthy for Life data collection.

International comparisons

International Indigenous data are available for Indigenous persons from New Zealand, the United States and Canada using the WHO definition of low birthweight.

International statistics on liveborn low birthweight show that Indigenous mothers in Canada and the United States have lower rates of low birthweight babies than the general population, and Indigenous mothers in New Zealand have slightly higher rates of low birthweight babies than the general population, but the gap is not as great as for Aboriginal and Torres Strait Islander Australians. In Australia over the period 2007–2009, babies of Aboriginal or Torres Strait Islander mothers are more than twice as likely to be of low birthweight as babies born to non-Indigenous Australian mothers (12% compared with 6%).

The latest available data from the United States, Canada and New Zealand are outlined below. Note that the Canadian data exclude births less than 500 grams because of changes over time in the quality of reporting babies' birthweight less than 500 grams. This definition

is different from Australia's criteria—including all live births and stillbirths of at least 400 grams birthweight or at least 20 weeks gestation.

- For the period 2005–2007, 7.4% of liveborn babies born to American Indian or Alaskan native mothers on reserves were of low birthweight, compared with 8.2% of babies born to non-Indigenous mothers in the United States (National Center for Health Statistics, unpublished data).
- For the period 2001–2002, 5.7% of Canadian First Nation liveborn babies were of low birthweight which was the same as the 2001 total Canadian rate of 5.5% (Health Canada unpublished data; Health Canada 2005).
- For the period 2008–2010, 6.7% of liveborn babies born to Maori mothers were of low birthweight, compared with 5.5% of babies born to non-Indigenous mothers in New Zealand (Statistics New Zealand unpublished data).

Additional information

Risk factors for low birthweight

There are a range of factors that can affect a baby's birthweight. Low birthweight babies may also be the result of pre-term birth, fetal growth restriction, or a combination of the two, or other factors such as socioeconomic status, the size and age of the mother, the number of babies previously born to the mother, the mother's nutritional status, smoking and other risk factors such as the use of alcohol, illness during pregnancy, multiple births and the duration of pregnancy (Horta et al. 1997; Kramer 1998). Data on some of these risk factors for low birthweight are presented below for Indigenous and non-Indigenous mothers.

- Aboriginal and Torres Strait Islander mothers smoke during pregnancy at around three times the rate of non-Indigenous mothers (see Indicator 2.19 for more information on smoking during pregnancy).
- Indigenous females are more likely to have babies at younger ages than non-Indigenous females. In 2009, 19.6% of Aboriginal and Torres Strait Islander mothers were aged less than 20 years compared with 3.4% of non-Indigenous mothers (Li et al. 2011). Teenage pregnancies are associated with a number of adverse reproductive outcomes, including low birthweight (Chen et. al. 2007).
- Indigenous mothers have a higher rate of pre-term birth (gestational age of less than 37 weeks) compared with non-Indigenous mothers (13.1% compared with 8.0% in 2009) (Li et al. 2011).
- Indigenous mothers are more likely to have had a higher number of previous pregnancies. In 2009, 27.2% of Aboriginal and Torres Strait Islander mothers had given birth three or more times previously. This compared with 9.8% of total Australian mothers (Li et al. 2011).

Data quality issues

National Perinatal Data Collection

Births

Birth notification forms are completed for all births of 20 weeks or more gestation, or a birthweight of 400 grams or more. The Perinatal National Minimum Data Set includes all births in Australia in hospitals, birth centres and the community.

Indigenous status question

A standard data item for Indigenous status is specified in the Perinatal National Minimum Data Set. While each jurisdiction has a unique perinatal form for collecting data on which the format of the Indigenous status question and recording categories varies slightly, all systems include the NMDS item on Indigenous status.

Since 2005, all jurisdictions collect information on Indigenous status of the mother in accordance with the NMDS. A data item on Indigenous status of the baby was added to the Perinatal National Minimum Data Set from 1 July 2012.

Under-identification

Data presented by Indigenous status are influenced by the quality and completeness of Indigenous identification of mothers which is likely to differ among jurisdictions and comparisons between states and territories should be interpreted with caution. No formal national assessment has been undertaken to determine completeness of the coverage of Indigenous mothers in the Perinatal NMDS. However, the proportion of Indigenous mothers for the period 2001–2010 has been consistent, at 3.6–3.9% of women who gave birth. Approximately 0.3% of mothers who gave birth in 2009 had missing Indigenous status information. Mothers for whom Indigenous status was not stated have been excluded from analyses. No adjustments have been made for under-identification or missing information.

In 2007, the NPESU, in collaboration with the AIHW's Aboriginal and Torres Strait Islander Health and Welfare Unit, released a report on Indigenous mothers and their babies in each state and territory. This report was based on a survey which was sent to the midwifery managers across Australia to determine how many hospitals in each jurisdiction obtain Indigenous status information of mothers giving birth from admission records and how many collect this information independently. The assessment also involved analysis of the variability in the number and proportion of mothers recorded as Indigenous in the perinatal data collection over time and across jurisdictions for the period 1991–2004. The outcomes of this assessment showed that Indigenous status data from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory are suitable for trends analysis. Perinatal data from the ACT and Tasmania, although improving, were deemed to be of insufficient quality. This project included an assessment of Indigenous status data quality (AIHW: Leeds et al. 2007).

All jurisdictions are working towards improving the quality of Indigenous status data in their perinatal data collections.

State/territory data

Analysis by state/territory is based on the usual residence of the mother unless otherwise stated. Data excludes Australian non-residents of external territories and where the state/territory of residence was not stated.

Data on Indigenous status are not reported for Tasmania before 2005 because the 'not stated' category for Indigenous status was included with the non-Indigenous category.

International comparisons

International Indigenous data are available for New Zealand, the United States and Canada using the WHO definition of low birthweight. These data are subject to similar data quality issues experienced in Australia around the accuracy of identification. The Canadian data exclude births less than 500 grams because of changes over time in the quality of reporting babies' birthweight less than 500 grams. This definition is different from Australia's criteria—including all live births and stillbirths of at least 400 grams birthweight or at least 20 weeks gestation.

The scope of data collections in Canada and the United States is often limited to the registered or reserve Indigenous populations and therefore does not cover the whole Indigenous population. International comparisons need to take into account that the definition of Indigenous status is specific to each country.

National Aboriginal and Torres Strait Islander Social Survey

The NATSISS is conducted in all states and territories and includes remote and non-remote areas. The 2008 sample was 13,300 persons in 6900 households, with a response rate of 82% of households. Up to three randomly selected Indigenous people were chosen from selected households to participate in the survey. Trained ABS interviewers conducted the survey using face-to-face interviews. In non-remote areas interviewers used a notebook computer to record responses, while in remote areas a paper questionnaire was used. Interviewers obtained the consent of a parent or guardian before interviewing those aged 15 to 17 years. Indigenous persons usually resident in non-private dwellings such as hotels, motels, hostels, hospitals, short-stay caravan parks, prisons and other correctional facilities were excluded.

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians.

Information recorded in this survey is 'as reported' by respondents, and therefore may differ from information available from other sources or collected using different methodologies.

Data on health related indicators have been age-standardised to the 2001 total Australian population to account for differences in the age structures of the states and territories and the Indigenous and non-Indigenous population.

Time series comparisons for the 2008 survey are available through the 1994 National Aboriginal and Torres Strait Islander Survey and the 2002 NATSISS. However not all data elements align across the three (1994, 2001 and 2008) NATSISS surveys, hence care is required when reviewing results across the three surveys. There are no strictly comparable non-Indigenous results available for the 2008 NATSISS because the latest General Social Survey (which has been used in the past to compare with Indigenous results from the NATSISS) was run in 2006, with the next being run in 2010. Data from other ABS surveys run in 2008 may, however, be used to obtain rough non-Indigenous comparisons for some data items. Where possible, the ABS has provided recommendations for non-Indigenous data comparisons these have been adopted in this report.

The 2008 NATSISS has a relatively large level of under-coverage when compared to other ABS surveys. There was also an increase in under-coverage compared to previous ABS Indigenous surveys. For example, the estimated under-coverage in the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) was 42%. The overall under-coverage rate for the 2008 NATSISS is approximately 53% of the in-scope population at the national level. This rate varies across the states and territories (ABS 2010).

Further information on NATSISS data quality issues can be found in the 2008 NATSISS User's guide (ABS 2010).

Healthy for Life data

For the July 2009 to June 2010 reporting period, 79 services submitted data as part of the Healthy for Life (HfL) Program.

Services started submitting their data through an electronic interface (OSCAR) for the February 2008 reporting period. This has improved the quality of data submitted.

Not all of the services were able to provide data for all of the essential indicators and service profile questions included in the HfL data collection. The number of services that were able to provide data varies across the qualitative and quantitative indicators.

There has been an upward trend in the proportion of services that reported on each of the indicators over time, particularly compared with the first reporting period ending June 2007. All of the services reporting provided data for all of the EIs in the period ending December 2009. This proportion decreased slightly in the current reporting period ending June 2010. This may be because services need to report against fewer EIs and do not need to provide most qualitative data in periods ending in December, unlike in annual reporting periods ending in June. The current period had higher proportions of services that reported against most EIs than the previous annual collection period ending June 2009.

In general, the data quality improved noticeably between the period ending June 2008 and the period ending June 2009. The overall level of data quality remained similar in the current period, though there was a different pattern of data quality issues.

The current period ending June 2010 had a different distribution of data quality issues than the previous period. No services had inconsistencies between related indicators, however the number of services with missing data and data out of the expected range increased. The latter might be due to more stringent data checking procedures employed by the AIHW during the current period.

List of symbols used in tables

n.a.	not available
–	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.02 Top reasons for hospitalisation

Hospital admissions for the leading ICD-10-AM (International Classification of Diseases) categories for Aboriginal and Torres Strait Islander people expressed as a rate by age group, age-standardised rate and rate ratio

Data sources

National Hospital Morbidity Database

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Hospitalisation data are presented for the 2-year period from July 2008 to June 2010. An aggregate of 2 years of data has been used, because the number of hospitalisations for some conditions is likely to be small for a single year.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individual, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question. For example, it is not possible to identify whether one patient was admitted 5 times or five patients were admitted once. People who receive treatment at hospital but are not admitted are not counted in hospital records. Hospital separation data are also affected by variations in admission practices, and the availability of and access to hospital and non-hospital services.

Care types 7.3, 9 and 10 (Newborn – unqualified days only; organ procurement; hospital border) have been excluded from analysis.

Data are presented for the six jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalisations in 2006–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. National totals include separations for people resident in these six jurisdictions only and are not necessarily representative of the jurisdictions not included. Indigenous status data are reported for Tasmania and the Australian Capital Territory (public hospitals only) with caveats until further audits of the quality of data in these jurisdictions are completed. Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Data are presented by state/territory of usual residence of the patient.

The following caveats have been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).

- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

Analyses

Age-standardised rates and ratios have been used as a measure of hospitalisations in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of hospital admissions among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

Hospitalisations

- In the 2-year period July 2008 to June 2010 there were a total of 15,666,685 hospitalisations in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined. Of these, 589,936 or 3.8% were hospitalisations of Indigenous Australians (Table 1.02.5).
- Excluding hospitalisations for dialysis, there were 13,598,803 hospitalisations in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, and 331,384 (2.4%) of these were for Indigenous Australians (Table 1.02.2).
- After adjusting for Indigenous under-identification, there were 370,147 hospitalisations excluding dialysis in Australia for Indigenous persons. Indigenous Australians represented 2.7% of all hospitalisations excluding dialysis in Australia.

Hospitalisations by age and sex

- For the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, when hospitalisations for dialysis are excluded, Indigenous males and females had higher hospitalisation rates than non-Indigenous males across all age groups with the exception of those aged 65 years and over (Table 1.02.1).
- The greatest rate ratios between Indigenous and non-Indigenous hospitalisations occurred in the 35–44 year age group for males and in the 15–24 year age group for females, at 2.0 times and 1.8 times respectively. The greatest rate differences between Indigenous and non-Indigenous hospitalisations occurred in the 35–44 and 45–54 year age groups for males (190 and 199 per 1,000), and in the 15–24 year age group for females (163 per 1,000).

Table 1.02.1: Age-specific hospitalisation rates (excluding dialysis) (per 1,000 population), by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [(a)(b)(c)]

									All ages	
	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65+	Crude	Age std.[(d)]
Males										
Indigenous	362.0	113.4	145.9	232.6	374.2	464.6	555.5	824.8	271.7	378.3
Non-Indigenous	253.9	92.8	122.9	133.1	183.8	265.7	454.4	923.6	294.7	291.4
Rate ratio[(e)]	1.4	1.2	1.2	1.7	2.0	1.7	1.2	0.9	0.9	1.3
Rate difference[(f)]	108.2	20.6	22.9	99.4	190.4	198.9	101.1	–98.7	–23.0	86.9
Females										
Indigenous	288.7	93.3	376.5	490.6	436.1	460.7	556.9	770.2	357.2	440.4
Non-Indigenous	193.5	74.0	213.2	349.1	319.9	310.4	426.1	779.0	350.7	331.6
Rate ratio[(e)]	1.5	1.3	1.8	1.4	1.4	1.5	1.3	1.0	1.0	1.3
Rate difference[(f)]	95.2	19.3	163.3	141.5	116.2	150.3	130.8	–8.8	6.4	108.8
Persons										
Indigenous	326.2	103.6	258.3	362.0	406.4	462.6	556.3	793.7	314.6	408.5
Non-Indigenous	224.5	83.7	166.7	240.2	252.3	288.2	440.2	844.9	322.8	310.2
Rate ratio[(e)]	1.5	1.2	1.5	1.5	1.6	1.6	1.3	0.9	1.0	1.3
Rate difference[(f)]	101.7	19.9	91.6	121.8	154.2	174.3	116.1	–51.3	–8.2	98.3

(a) Data excludes private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patients hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(d) Directly age-standardised using the Australian 2001 standard population.

(e) Rate ratio Indigenous: non-Indigenous Australians.

(f) Rate difference Indigenous minus non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by state/territory

Table 1.02.2 presents hospitalisations excluding dialysis for the 2-year period July 2008 to June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Data for Tasmania and the Australian Capital Territory are also included with caveats, along with national level data. Table 1.02.3 presents national level data that is unadjusted and adjusted for Indigenous under-identification, data are adjusted by applying a weighted correction factor of 1.09, which suggests that the 'true' number of records for Indigenous persons was about 9% higher than indicated in the hospital separations data, for further information see *Indigenous identification in hospitals separations data* (AIHW 2013).

- Over the period July 2008 to June 2010, excluding hospitalisations for dialysis, Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised at 1.3 times the rate of non-Indigenous Australians.

- In the jurisdictions with adequate data quality (New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory), the highest hospitalisation rates for Indigenous Australians were in Western Australia and South Australia (481 and 478 per 1,000 population respectively), followed by the Northern Territory (457 per 1,000). The lowest rate was in Victoria (342 per 1,000).
- Indigenous Australians were hospitalised (excluding dialysis) at a similar rate to non-Indigenous Australians in Victoria, and between 1.1 and 1.4 times the rate of non-Indigenous Australians in Tasmania, New South Wales, Queensland and the Australian Capital Territory. In Western Australia and South Australia, Indigenous Australians were hospitalised at 1.5 and 1.6 times the rate of non-Indigenous Australians respectively; and in the Northern Territory, Indigenous Australians were hospitalised at more than twice the rate of non-Indigenous Australians (Tables 1.02.2). These differences may partly reflect jurisdictional differences in the level of Indigenous under-identification and therefore should be interpreted with caution.
- When hospitalisation rates are adjusted at the national level for Indigenous under-identification, Indigenous persons were hospitalised at 1.4 times the rate of Other Australians (Table 1.02.3).

Table 1.02.2: Hospitalisations (excluding dialysis), by Indigenous status, sex and jurisdiction, July 2008–June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
NSW						
Males	39,098	325.9	1,925,382	272.7	1.2*	53.2*
Females	49,662	377.9	2,296,119	304.8	1.2*	73.1*
Persons	88,760	351.6	4,221,521	287.8	1.2*	63.8*
Vic						
Males	7,825	307.9	1,709,785	316.3	1.0	-8.4
Females	10,908	377.7	2,112,171	365.1	1.0*	12.5*
Persons	18,733	341.7	3,822,026	339.2	1.0	2.5
Qld						
Males	39,165	392.5	1,267,345	298.1	1.3*	94.4*
Females	53,455	446.4	1,500,474	340.7	1.3*	105.7*
Persons	92,620	417.7	2,767,819	318.3	1.3*	99.4*
WA						
Males	24,840	437.9	635,379	296.0	1.5*	142.0*
Females	32,391	525.0	744,146	338.5	1.6*	186.5*
Persons	57,232	480.8	1,379,526	315.2	1.5*	165.6*
SA						
Males	9,478	441.9	463,355	275.5	1.6*	166.4*
Females	12,662	516.1	555,644	314.2	1.6*	201.8*
Persons	22,141	478.2	1,019,026	293.3	1.6*	184.9*
NT						
Males	22,084	426.1	29,193	206.2	2.1*	212.0*
Females	29,814	491.0	28,308	206.8	2.4*	284.2*
Persons	51,898	457.1	57,501	207.3	2.2*	249.8*
NSW, Vic, Qld, WA, SA and NT[(h)]						
Males	142,490	378.3	6,030,439	291.4	1.3*	86.9*
Females	188,892	440.4	7,236,862	331.6	1.3*	108.8*
Persons	331,384	408.5	13,267,419	310.2	1.3*	98.3*
Tas						
Males	2,041	161.0	76,968	150.6	1.1*	10.5*
Females	3,022	183.2	86,392	167.5	1.1*	15.7*
Persons	5,063	172.2	163,363	158.8	1.1*	13.4*
ACT						
Males	718	192.9	48,656	152.6	1.3*	40.2*
Females	970	262.7	59,347	170.9	1.5*	91.8*
Persons	1,688	227.0	108,003	161.5	1.4*	65.5*

(continued)

Table 1.02.2 (continued): Hospitalisations (excluding dialysis), by Indigenous status, sex and jurisdiction, July 2008–June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
Australia[(i)]						
Males	**146,077**	**369.4**	**6,181,883**	**286.8**	**1.3***	**82.6***
Females	**193,505**	**430.7**	**7,406,410**	**326.3**	**1.3***	**104.4***
Persons	**339,584**	**399.3**	**13,588,414**	**305.3**	**1.3***	**94.0***

* Represents results with statistically significant differences in the Indigenous/Non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patient hospitalised.

(d) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+.

(e) Directly age-standardised using the Australian 2001 standard population.

(f) Rate ratio Indigenous: Non-Indigenous.

(g) Rate difference Indigenous minus Non-Indigenous.

(h) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions

(i) Includes all separations in all eight states and territories, including the Australian Capital Territory and Tasmania; Other Territories and Residence State not applicable (e.g. overseas, at sea, no fixed address).

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Table 1.02.3: Adjusted hospitalisations (excluding dialysis), by Indigenous status and sex, Australia, July 2008–June 2010[(a)(b)(c)(d)(e)]

	Indigenous		Other Australians			
	Number	Rate per 1,000[(f)]	Number	Rate per 1,000[(f)]	Ratio[(g)]	Difference[(h)]
Australia						
Males	146,077	369.4	6,346,497	294.7	1.3*	74.7*
Females	193,505	430.7	7,587,173	334.1	1.3*	96.6*
Persons	**339,584**	**399.3**	13,933,798	313.1	1.3*	86.2*
Adjusted Australia[(i)]						
Males	159,224	403.9	6,333,350	294.1	1.4*	109.8*
Females	210,920	470.1	7,569,758	333.3	1.4*	136.8*
Persons	**370,147**	**436.2**	**13,903,235**	**312.4**	**1.4***	**123.8***

* Represents results with statistically significant differences in the Indigenous/Other Australian comparisons at the $p < 0.05$ level.

(a) Data are from public and most private hospitals. Excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patient hospitalised.

(d) Age standardised by 5 year age groups to 75+.

(e) Includes all separations in all eight states and territories, including the Australian Capital Territory and Tasmania; Other Territories and Residence State not applicable (e.g. overseas, at sea, no fixed address).

(f) Directly age-standardised using the Australian 2001 standard population.

(g) Rate ratio Indigenous: Other.

(h) Rate difference Indigenous minus Other.

(i) These jurisdictions hospitalisation numbers and rates have been adjusted for Indigenous under-identification using a national adjustment factor of 1.09. This factor was derived from a study undertaken by the AIHW in 2011 & 2012 which assessed the level of Indigenous under-identification in hospital data in all states and territories by comparing information gathered from face-to face interviews in public hospitals with results from hospital records. By applying this factor, the number of Indigenous hospitalisations was increased by 9% and these additional hospitalisations then subtracted from the number of hospitalisations for Other Australians. For further information see *Indigenous identification in hospitals separations data* (AIHW 2013).

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by remoteness area

Hospitalisation rates for all conditions excluding dialysis in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory are presented by Australian Standard Geographical Classification (ASGC) in Table 1.02.4, covering the period July 2008 to June 2010.

- Across all remoteness areas, Indigenous Australians were more likely to be hospitalised for all conditions excluding dialysis than non-Indigenous Australians. The greatest disparity was for persons living in remote areas, in which Indigenous Australians were hospitalised at twice the rate of non-Indigenous Australians. In major cities there was only a very minor difference in rates between the two population groups (ratio of 1.02) although statistically significant.
- Rates of hospitalisations per 1,000 population were highest for Indigenous people living in remote areas, at 596.5 per 1,000, and were lowest for Indigenous people living in in major cities (318. 6 per 1,000). This may partly reflect differences in Indigenous identification across the remoteness areas.

Table 1.02.4: Hospitalisations (excluding dialysis) by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous					
	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Ratio[(i)]	Difference[(j)]
Major cities	81,860	318.6	315.9	321.3	9,256,937	311.4	311.2	311.6	1.02*	7.2*
Inner regional	61,388	384.4	380.7	388.2	2,658,353	316.2	315.8	316.6	1.2*	68.2*
Outer regional[(k)]	75,878	436.7	433.0	440.4	1,141,938	299.4	298.8	299.9	1.5*	137.3*
Remote[(l)]	49,063	596.5	590.2	602.7	153,660	291.9	290.4	293.4	2.0*	304.6*
Very remote	62,515	434.7	430.7	438.7	48,962	297.4	294.7	300.2	1.5*	137.3*
Total[(m)]	**331,384**	**404.0**	**402.3**	**405.6**	**13,267,419**	**310.3**	**310.1**	**310.5**	**1.3***	**93.7***

* Represents results with statistically significant differences in the Indigenous/Non-Indigenous comparisons at the p < 0.05 level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010)

(c) Financial year reporting.

(d) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(e) Directly age-standardised using the Australian 2001 standard population, by 5 year age groups to 65+

(f) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous.

(j) Rate difference Indigenous- non-Indigenous.

(k) Includes remote Victoria

(l) Excludes remote Victoria

(m) Total includes hospitalisations where ASGC is missing.

Notes

1. Rates are calculated using the remoteness distribution by Indigenous status, age and sex based on the 2006 ERP and applied to the 2008-10 population projections (Series B) based on the 2006 Census.
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by principal diagnosis

Table 1.02.5 presents data on the most common principal diagnoses for hospitalisations involving Aboriginal and Torres Strait Islander people for the 2-year period July 2008 to June 2010 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- In absolute terms, the most common principal diagnosis among Indigenous Australians was care involving dialysis (43.8%), followed by injury and poisoning (7.5%), pregnancy and child birth (6.7%), diseases of the respiratory system (6%) and diseases of the digestive system (4.8%). However, when the younger age structure of the Indigenous population is taken into account, circulatory disease becomes a significant cause of hospitalisation among Indigenous people.
- Indigenous Australians were hospitalised at 11 times the rate of non-Indigenous Australians for dialysis and almost 3 times the rate of non-Indigenous Australians for respiratory diseases and endocrine, nutritional and metabolic diseases (mainly diabetes).
- The greatest difference in hospitalisation rates between Indigenous and non-Indigenous Australians was for care involving dialysis (406 per 1,000), diseases of the respiratory system (27 per 1,000), injury and poisoning (23 per 1,000) and diseases of the circulatory system (14 per 1,000).

Table 1.02.5: Hospitalisations, by principal diagnosis and Indigenous status, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [a][b][c][d]

	Number		Per cent		Indigenous			Non-Indigenous				
Principal diagnosis	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**No. per 1,000[e]**	**95% LCL[f]**	**95% UCL[g]**	**No. per 1,000[e]**	**95% LCL[f]**	**95% UCL[g]**	**Ratio[h]**	**Difference[i]**
Injury & poisoning & certain other consequences of external causes	44,067	986,474	7.5	6.5	46.9	46.3	47.4	23.5	23.5	23.5	2.0*	23.4*
Pregnancy, childbirth and the puerperium[j]	39,408	873,827	6.7	5.8	33.0	32.6	33.3	21.8	21.8	21.9	1.5*	11.1*
Diseases of the respiratory system	35,343	668,657	6.0	4.4	43.2	42.6	43.8	16.0	15.9	16.0	2.7*	27.3*
Diseases of the digestive system	28,494	1,582,973	4.8	10.5	36.1	35.5	36.6	37.1	37.0	37.1	0.97*	-1.0*
Symptoms, signs and abnormal clinical and laboratory findings	26,195	1,034,990	4.4	6.9	36.0	35.5	36.6	24.0	24.0	24.1	1.5*	12.0*
Mental and behavioural disorders	23,438	594,910	4.0	3.9	25.8	25.4	26.1	14.2	14.2	14.2	1.8*	11.6*
Diseases of the circulatory system	17,928	880,612	3.0	5.8	33.9	33.3	34.4	19.8	19.8	19.9	1.7*	14.0*
Diseases of the genitourinary system	14,361	717,000	2.4	4.8	20.0	19.6	20.4	16.9	16.8	16.9	1.2*	3.1*
Diseases of the skin & subcutaneous tissue	12,648	241,332	2.1	1.6	13.2	13.0	13.5	5.7	5.7	5.7	2.3*	7.5*
Certain infectious and parasitic diseases	10,842	223,030	1.8	1.5	11.3	11.0	11.6	5.3	5.3	5.3	2.1*	5.9*
Endocrine, nutritional and metabolic diseases	12,088	299,089	2.0	2.0	20.0	19.6	20.5	6.9	6.9	6.9	2.9*	13.1*
Other[k]	66,541	5,155,949	11.3	34.2	89.2	88.3	90.0	118.8	118.7	118.9	0.8*	-29.6*
Subtotal	*331,353*	*13,258,843*	*56.2*	*87.9*	*408.5*	*406.7*	*410.2*	*310.0*	*309.9*	*310.2*	*1.3**	*98.5**
Care involving dialysis	258,552	1,809,330	43.8	12.0	446.8	444.9	448.7	40.9	40.8	40.9	10.9*	405.9*
Total[l]	**589,936**	**15,076,749**	**100.0**	**100.0**	**855.3**	**852.8**	**857.9**	**351.1**	**350.9**	**351.3**	**2.4***	**504.2***

(continued)

Table 1.02.5 (continued): Hospitalisations, by principal diagnosis and Indigenous status, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

* Represents results with statistically significant differences in the Indigenous/Non-Indigenous Australian comparisons at the p < 0.05 level.

(a) Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patients hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions

(e) Directly age-standardised using the Australian 2001 standard population.

(f) LCL = lower confidence limit.

(g) UCL = upper confidence limit.

(h) Rate ratio Indigenous: Non-Indigenous Australians.

(i) Rate difference Indigenous minus non-Indigenous Australians.

(j) Rates and rate ratios are for females only.

(k) Includes: diseases of the musculoskeletal system and connective tissue; neoplasms; diseases of the nervous system; certain conditions originating in the perinatal period; diseases of the ear and mastoid process; diseases of the eye and adnexa; diseases of the blood and blood-forming organs and certain disorders involving the immune system; congenital malformations, deformations and chromosomal abnormalities; and factors influencing health status and contact with health services (except dialysis).

(l) Includes hospitalisations for which no principal diagnosis was recorded.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by additional diagnosis

Table 1.02.6 presents hospitalisations for selected principal diagnoses by additional diagnoses, for Aboriginal and Torres Strait Islander people in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- For the 2-year period July 2008 to June 2010, the majority of hospitalisations with a principal diagnosis of care involving dialysis were reported with an additional diagnosis of diseases of the genitourinary system (40%) or endocrine, nutritional and metabolic disorders (11%).
- Of hospitalisations with a principal diagnosis of injury and poisoning, 23% were reported with an additional diagnosis of mental and behavioural disorders.
- Hospitalisations with a principal diagnosis of circulatory diseases were most commonly reported with an additional diagnosis of endocrine, nutritional and metabolic diseases (37%). Similarly, hospitalisations with a principal diagnosis of endocrine, nutritional and metabolic diseases were commonly reported with an additional diagnosis of diseases of the circulatory system (50.1%).

Table 1.02.6: Hospitalisations of Indigenous persons: principal diagnosis chapter by additional diagnosis chapter of hospitalisation, NSW, Vic, Qld, WA, SA, and NT, July 2008 to June 2010[(a)(b)(c)(d)]

	Principal diagnosis														
Additional diagnosis of hospitalisation	**Dialysis (Z49)**	**Injury & poisoning (S00-T98)**	**Pregnancy (O00-O99)**	**Respiratory (J00-J99)**	**Digestive (K00-K93)**	**Abnormal findings (R00-R99)**	**Mental disorders (F00-F99)**	**Circulatory (I00-I99)**	**Genito-urinary (N00-N99)**	**Skin (L00-L99)**	**Infectious (A00-B99)**	**Endocrine (E00-E90)**	**Other[(e)]**	***Total (excl. dialysis)***	**Total**
	Per cent														
Genitourinary diseases (N00–N99)	39.7	5.8	4.1	7.9	5.9	7.5	2.2	17.7	24.3	5.5	18.3	44.9	6.4	9.1	22.5
Endocrine, nutritional & metabolic (E00–E90)	11.2	7.6	3.2	16.5	12.0	13.4	5.6	37.0	14.6	12.2	36.9	61.7	9.3	14.1	12.8
Diseases of the circulatory system (I00–I99)	3.2	7.2	1.6	12.9	10.8	13.6	3.1	60.7	11.2	8.7	12.9	50.1	9.2	12.9	8.7
Mental and behavioural disorders (F00–F99)	0.0	22.5	3.6	10.3	16.3	14.4	50.8	10.0	5.1	6.4	6.4	10.0	7.0	13.6	7.7
Infectious and parasitic diseases (A00–B99)	0.0	9.6	5.8	13.8	7.5	5.8	3.0	7.9	23.8	47.5	20.3	18.3	7.1	10.8	6.1
Symptoms, signs and abnormal findings (R00–R99)	0.0	8.4	6.0	10.6	9.1	16.7	16.8	14.6	9.3	6.7	16.1	15.6	9.5	10.7	6.0
Injury & poisoning (S00-Y98)	0.1	42.1	0.6	2.2	2.8	2.7	6.4	4.6	3.2	14.8	4.0	6.8	6.3	9.4	5.3
Pregnancy, childbirth (O00-O99)	0.0	0.2	54.7	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.3	6.7	3.7
Digestive diseases (K00-K93)	0.0	3.4	2.2	3.9	25.0	7.9	3.8	6.3	5.2	2.7	7.4	9.6	5.2	6.5	3.6

(continued)

Table 1.02.6 (continued): Hospitalisations of Indigenous persons: principal diagnosis chapter by additional diagnosis chapter of hospitalisation, NSW, Vic, Qld, WA, SA, and NT, July 2008 to June 2010[(a)(b)(c)(d)]

Additional diagnosis of hospitalisation	Principal diagnosis														
	Dialysis (Z49)	Injury & poisoning (S00-T98)	Pregnancy (O00-O99)	Respiratory (J00-J99)	Digestive (K00-K93)	Abnormal findings (R00-R99)	Mental disorders (F00-F99)	Circulatory (I00-I99)	Genito-urinary (N00-N99)	Skin (L00-L99)	Infectious (A00-B99)	Endocrine (E00-E90)	Other[(e)]	*Total (excl. dialysis)*	Total
	Per cent														
Respiratory diseases (J00-J99)	0.0	2.8	2.0	20.1	3.7	4.5	2.6	11.6	4.0	2.7	11.4	8.7	4.7	6.1	3.5
Skin diseases (L00-L99)	0.0	4.4	0.6	3.2	1.9	1.6	1.5	3.4	2.8	18.5	9.5	13.6	3.3	3.9	2.2
Care involving dialysis (Z49)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	1.3	0.1	0.1	0.4	0.0	0.1	0.1
Other[(e)]	3.2	40.6	75.0	45.3	47.0	48.6	58.2	70.3	49.1	47.6	40.5	74.3	57.8	54.5	32.1
No additional diagnosis	59.5	25.9	7.2	31.6	32.2	28.4	18.7	12.0	25.5	21.3	26.5	9.0	30.3	23.9	39.5
Total number[(f)]	**258,552**	**44,067**	**39,408**	**35,343**	**28,494**	**26,195**	**23,438**	**17,928**	**14,361**	**12,648**	**10,842**	**12,088**	**66,541**	**331,353**	**589,905**

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Indigenous data are reported by state/territory and remoteness of usual residence of the patient hospitalised and are for New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland only. These six jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Includes: diseases of the musculoskeletal system and connective tissue; neoplasms; diseases of the nervous system; certain conditions originating in the perinatal period; diseases of the ear and mastoid process; diseases of the eye and adnexa; diseases of the blood and blood-forming organs and certain disorders involving the immune system; congenital malformations, deformations and chromosomal abnormalities; and factors influencing health status and contact with health services (except dialysis).

(f) Hospitalisations with specified additional diagnosis as a proportion of total number of hospitalisations with stated principal diagnosis.

(g) Total number of hospitalisations for each principal diagnosis.

Notes

1. Sum of components may exceed 100% as more than one additional diagnosis can be reported for each hospitalisation.
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data from 1998–99 to 2009–10 are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations over this period—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population.

Additional trend analysis has also been presented for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined from 2004–05 to 2007–08 for Indigenous and non-Indigenous Australians. New South Wales and Victoria have been assessed as having adequate identification of Indigenous hospitalisations from 2004–05. These six jurisdictions represent approximately 96% of the Indigenous population of Australia.

Note that changes in the level of accuracy of Indigenous identification in hospital records will result in changes in the level of reported hospital separations for Indigenous Australians, as will changes in access, hospital policies and practices over time. Caution should be used in interpreting changes over time, as it is not possible to ascertain whether a change in reported hospitalisation is due to changes in the accuracy of Indigenous identification or real changes in the rates at which Indigenous people are hospitalised. An increase in hospitalisation rates may also reflect increased use of admitted patient hospital services rather than a worsening of health.

All hospitalisations excluding dialysis from 1998-99 to 2009-10

Hospitalisation rates, rate ratios and rate differences (excluding dialysis) between Indigenous and non-Indigenous Australians over the period 1998-99 to 2009-10 for Queensland, Western Australia, South Australia and the Northern Territory combined are presented in Table 1.02.7 and Figure 1.02.1.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates among Indigenous persons during the 12-year period 1998-99 to 2009-10. The fitted trend implies an average yearly increase in the rate of 2 per 1,000. This is equivalent to a 6% increase in the rate over the period.
- There were also significant increases in hospitalisation rates among non-Indigenous Australians during the same period, with an average yearly increase in the rate of 3 per 1,000, which is equivalent to a 14% increase in the rate over the period.
- Over the same period, there were significant decreases in the hospitalisation rate ratios between Indigenous and non-Indigenous females (8%) and persons overall (7%).
- There was a significant decrease in the hospitalisation rate differences between Indigenous and non-Indigenous females only over this period (11% decrease).

Table 1.02.7: Age-standardised hospitalisation rates, rate ratios and rate differences (excluding dialysis), Qld, WA, SA and NT, 1998–99 to 2009–10[a][b]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[c]	Per cent change over period[d]
Indigenous separations														
Males	36,714	36,972	37,275	38,530	38,356	39,829	39,723	42,033	41,999	45,514	46,504	49,063	1,075.4*	32.2*
Females	49,043	49,402	50,873	51,893	52,010	53,449	54,428	56,933	58,958	61,209	62,760	65,562	1,487.3*	33.4*
Persons	85,757	86,376	88,150	90,430	90,369	93,278	94,152	98,966	100,957	106,723	109,266	114,625	2,562.5*	32.9*
Non-Indigenous separations														
Males	815,928	859,751	894,213	922,313	930,191	946,446	970,422	1,040,136	1,084,362	1,131,795	1,178,224	1,217,048	35,334.6*	47.6*
Females	970,127	1,016,070	1,057,377	1,092,742	1,111,105	1,126,666	1,148,726	1,232,581	1,279,115	1,319,816	1,391,305	1,437,267	40,808*	46.3*
Persons	1,786,068	1,875,839	1,951,602	2,015,076	2,041,318	2,073,113	2,119,152	2,272,720	2,363,485	2,451,624	2,569,541	2,654,331	76,142*	46.9*
Indigenous rate per 1,000														
Males	393.0	392.3	384.6	387.6	384.4	401.5	384.9	403.0	385.8	415.3	408.2	421.6	2.5*	6.9*
Females	459.4	456.5	454.0	457.4	453.1	456.8	448.4	461.5	465.6	478.1	474.7	483.1	2.3*	5.4*
Persons	426.1	424.1	419.1	422.4	418.4	427.6	415.5	430.8	425.3	445.4	440.3	450.6	2.2*	5.8*
Non-Indigenous rate per 1,000														
Males	258.4	267.2	272.0	273.9	269.6	267.7	267.4	278.9	282.7	286.6	290.3	291.9	2.6*	11.2*
Females	284.8	293.3	299.6	303.8	302.7	300.8	300.5	315.6	320.1	322.2	331.0	333.5	4.0*	15.6*
Persons	269.8	278.5	284.3	287.4	284.7	282.8	282.6	295.8	299.9	302.9	309.2	311.2	3.3*	13.7*
Rate ratio[e]														
Males	1.5	1.5	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.4	1.4	1.4	0.00	–3.6
Females	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	–0.01*	–8.4*
Persons	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.4	1.4	–0.01*	–6.6*

(continued)

Table 1.02.7 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences (excluding dialysis), Qld, WA, SA and NT, 1998–99 to 2009–10[(a)(b)]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change over period[(d)]
Rate difference[(f)]														
Males	134.6	125.1	112.6	113.7	114.8	133.8	117.4	124.1	103.1	128.7	117.8	129.7	–0.2	–1.4
Females	174.6	163.2	154.4	153.6	150.4	156.0	147.9	145.9	145.5	155.9	143.7	149.6	–1.8*	–11.1*
Persons	156.3	145.6	134.8	135.1	133.7	144.8	132.9	135.0	125.4	142.5	131.2	139.4	–1.1	–7.8

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2009–10.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Data are reported by state/territory of usual residence of the patient hospitalised.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 1998–99 and 2009–10 based on the average annual change over the period.

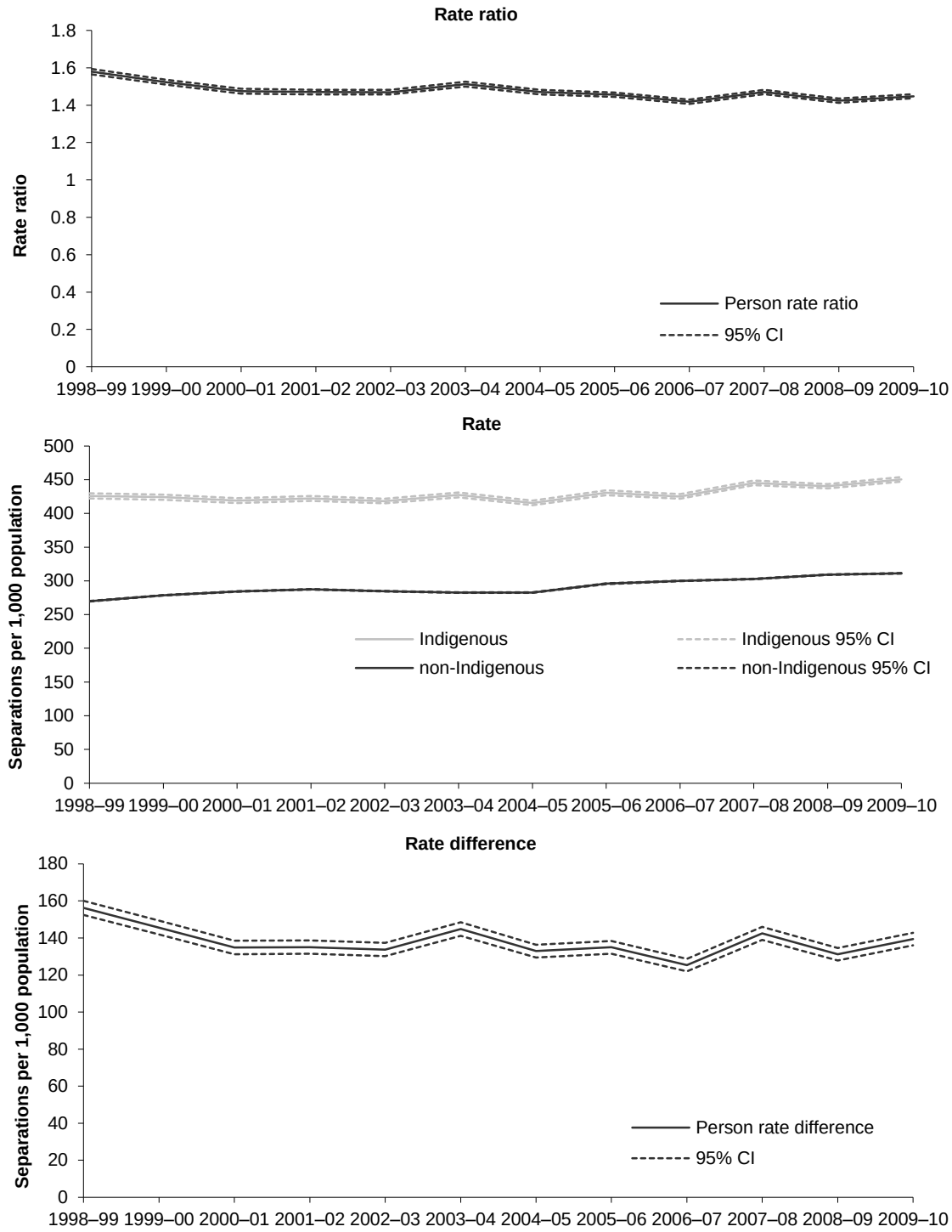
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.
3. Separations with a principal diagnosis of dialysis excluded.

Source: AIHW analysis of National Hospital Morbidity Database.



So: AIHW analysis of National Hospital Morbidity Database.

Figure 1.02.1: Hospitalisation rates, rate ratios and rate differences (excluding dialysis) between Indigenous and non-Indigenous Australians, Qld, WA, SA and NT, 1998-99 to 2009-10

All hospitalisations excluding dialysis 2004-05 to 2009-10

Hospitalisation rates, rate ratios and rate differences (excluding dialysis) between Indigenous and non-Indigenous Australians over the period 2004–05 to 2009–10 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined are presented in Table 1.02.8 and Figure 1.02.2.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates among Indigenous persons during the 7-year period 2004–05 to 2009–10. The fitted trend implies an average yearly increase in the rate of over 9 per 1,000 which is equivalent to a 12.5% increase in the rate over the period. Significant increases were also observed for Indigenous males and females
- There were also significant increases in hospitalisation rates among non-Indigenous Australian persons during the same period, with an average yearly increase in the rate of over 4 per 1,000, which is equivalent to a 7% increase in the rate over the period.
- There was a significant increase in both the hospitalisation rate ratio and rate difference between Indigenous and non-Indigenous persons. The fitted trend implies an average yearly increase of over 5 per 1,000 in the rate difference, which is equivalent to a 33.5% increase over the 7-year period.

Table 1.02.8: Age-standardised hospitalisation rates, rate ratios and rate differences (excluding dialysis), NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[(a)(b)]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change over period[(d)]
Indigenous separations								
Males	57,153	61,418	62,301	66,717	69,170	73,320	3,100.2*	27.1*
Females	77,192	81,530	85,570	89,105	92,253	96,639	3,798.3*	24.6*
Persons	134,350	142,949	147,871	155,822	161,425	169,959	6,897.8*	25.7*
Non-Indigenous Australian separations								
Males	2,556,298	2,672,252	2,770,756	2,866,304	2,956,249	3,074,190	101,057.1*	19.8*
Females	3,077,705	3,223,025	3,333,349	3,427,676	3,545,646	3,691,216	117,992.7*	19.2*
Persons	5,634,060	5,895,304	6,104,131	6,294,015	6,501,931	6,765,488	219,054.4*	19.4*
Indigenous rate (separations per 1,000)								
Males	337.1	355.1	347.5	368.3	370.8	385.5	8.9*	13.1*
Females	395.8	409.5	420.9	433.2	435.7	444.9	9.6*	12.1*
Persons	365.9	381.4	384.2	400.3	402.8	414.1	9.2*	12.5*
Non-Indigenous Australian rate (separations per 1,000)								
Males	274.5	281.0	284.6	287.3	289.3	293.5	3.5*	6.4*
Females	308.5	317.9	322.8	324.9	328.7	334.6	4.7*	7.6*
Persons	290.2	298.1	302.4	304.8	307.6	312.8	4.1*	7.1*
Rate ratio[(e)]								
Males	1.2	1.3	1.2	1.3	1.3	1.3	0.02*	6.3*
Females	1.3	1.3	1.3	1.3	1.3	1.3	0.01*	4.2*
Persons	1.3	1.3	1.3	1.3	1.3	1.3	0.01*	5.1*
Rate difference[(f)]								
Males	62.6	74.1	62.9	81.0	81.5	92.0	5.3*	42.7*
Females	87.3	91.6	98.2	108.3	107.0	110.4	4.9*	28.1*
Persons	75.7	83.3	81.8	95.5	95.2	101.3	5.1*	33.5*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2004–05 to 2009–10.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Data are reported by state/territory of usual residence of the patient hospitalised.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 2004–05 and 2009–10 based on the average annual change over the period.

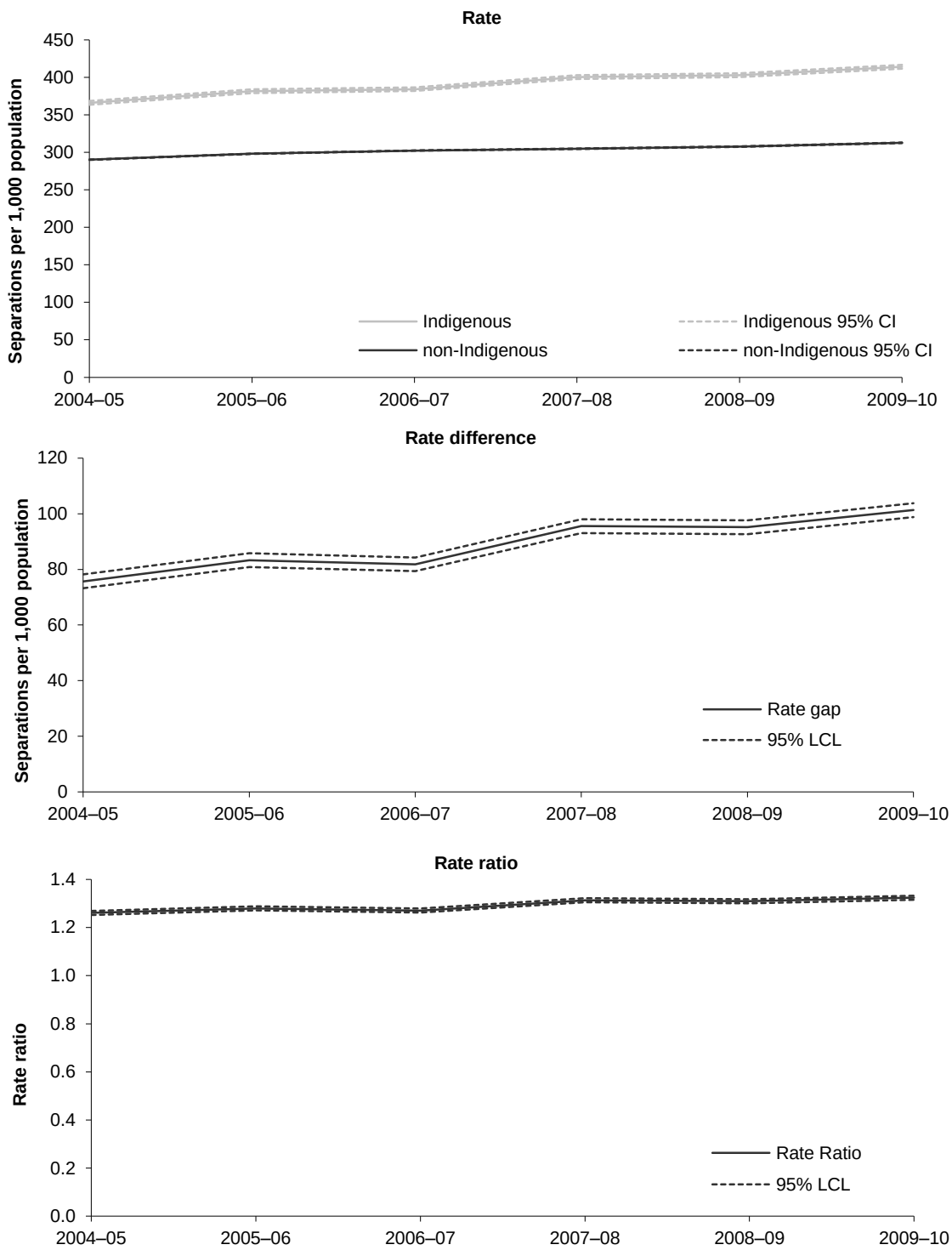
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for Non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for Non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.02.2: Hospitalisation rates, rate ratios and rate differences (excluding dialysis) between Indigenous and non-Indigenous Australians, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009-2010

Sensitivity of hospitalisation trends to changes in identification for Qld, WA, SA and NT

- The fitted trends described above have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for identification were posted—constant identification, increasing identification and decreasing identification:
  - Under the constant identification scenario, the number of hospitalisations for the period under study was adjusted using the following identification factors from 2007 AIHW hospital data quality study:
    - Queensland 93%
    - Western Australia 99%
    - South Australia 92%
    - Northern Territory 100%
  - Under the increasing identification scenario, hospitalisations were adjusted by linearly increasing the identification through the period under study—from 85% in 1998–99 to 93% in 2009–10 for Queensland, from 93% to 99% for Western Australia, from 80% to 92% for South Australia, and from 96% to 100% for the Northern Territory.
  - Under the decreasing identification scenario, hospitalisations were adjusted by linearly decreasing the identification from 96% in 1998–99 to 93% in 2009–10 for Queensland, from 100% to 99% for Western Australia, from 98% to 92% for South Australia, and left at 100% for the Northern Territory.
- The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; of course, if any actual shift in identification was more extreme than has been assumed under these scenarios, then the observed trends in hospitalisations might not persist.
- For all hospitalisations excluding dialysis, all the observed significant changes in hospitalisation rates, rate ratios and rate differences during the period 1998–99 to 2009–10 remained statistically significant under the constant identification scenario. Under the increasing identification scenario the increases in hospitalisation rates for Indigenous males, females and persons were no longer significant, however the decreases in the rate ratios and differences remained significant. Under the decreasing identification scenario, the majority of the reported significant changes continued to be observed, the exception was the female rate difference.

Sensitivity of hospitalisation trends to changes in identification for NSW, Vic, Qld, WA, SA and NT

- The fitted trends described above have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for identification were posted—constant identification, increasing identification and decreasing identification:

- Under the constant identification scenario, the number of hospitalisations for the period under study was adjusted using the following identification factors from the most recent AIHW hospital data quality study:
  - New South Wales 83%
  - Victoria 81%
  - Queensland 93%
  - Western Australia 99%
  - South Australia 92%
  - Northern Territory 100%
- Under the increasing identification scenario, hospitalisations were adjusted by linearly increasing the identification through the period under study—from 79% in 2004–05 to 83% in 2009–10 for New South Wales, from 79% to 81% in Victoria, from 89% to 93% in Queensland, from 96% to 99% for Western Australia, from 86% to 92% for South Australia, and from 98% to 100% for the Northern Territory.
- Under the decreasing identification scenario, hospitalisations were adjusted by linearly decreasing the identification from 87% in 2004–05 to 83% in 2009–10 for New South Wales, from 83% to 81% in Victoria, from 94% to 93% in Queensland, from 99.5% to 99% for Western Australia, from 95% to 92% for South Australia, and left at 100% for the Northern Territory.

- The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; of course, if any actual shift in identification was more extreme than has been posted under these scenarios, then the observed trends in hospitalisations might not persist.
- For all hospitalisations excluding dialysis, all the observed significant increases in hospitalisation rates, rate ratios and rate differences during the period 2004–05 to 2009–10 remained statistically significant under the constant and decreasing identification scenarios. Under the increasing identification scenario the increases in hospitalisation rates for Indigenous males, females and persons were no longer significant.

Time series by principal diagnosis

Hospitalisation rates by principal diagnosis were compared for the six jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations for all years from 2004–05 to 2009–10—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory.

- Hospitalisation rates among Indigenous Australians significantly increased between 2004-05 and 2009-10 for most principal diagnoses, with the largest increase observed for certain infectious and parasitic diseases (increase of 34%) (Table 1.02.9).
- Hospitalisation rates among non-Indigenous Australians also significantly increased for several principal diagnoses over the period 2004-05 and 2009-10, with the largest increase also observed for certain infectious and parasitic diseases (increase of 29%).
- Hospitalisation rates for diseases of the circulatory system significantly decreased for non-Indigenous Australians, leading to a significant widening of the gap between Indigenous and non-Indigenous Australians.

Table 1.02.9: Hospitalisations, by principal diagnosis and Indigenous status, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[(a)(b)(c)(d)]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(e)]	Per cent change[(f)]
Principal diagnosis	**Indig. No. per 1,000[(g)]**							
Injury & poisoning & certain other consequences of external causes	41.5	43.2	43.7	43.5	46.0	47.7	1.1**	13.5**
Pregnancy, childbirth and the puerperium	31.3	32.7	33.7	33.6	33.2	32.8	0.2	4.0
Diseases of the respiratory system	41.5	42.6	39.1	42.8	42.8	43.7	0.4	5.2
Diseases of the digestive system	34.4	35.9	36.0	38.2	35.6	36.5	0.3	4.9
Symptoms, signs and abnormal clinical and laboratory findings	29.8	31.1	31.9	33.7	34.7	37.4	1.4**	24.1**
Mental and behavioural disorders	23.9	24.1	24.6	25.6	25.5	26.1	0.5**	9.5**
Diseases of the circulatory system	32.2	33.4	32.5	34.3	34.5	33.3	0.3	4.6
Diseases of the genitourinary system	18.6	19.0	18.6	18.5	19.5	20.5	0.3**	8.1**
Diseases of the skin & subcutaneous tissue	12.6	12.9	12.8	13.8	13.0	13.5	0.2	6.6
Certain infectious and parasitic diseases	8.5	9.8	9.0	10.0	10.6	11.9	0.6**	34.4**
Endocrine, nutritional and metabolic diseases	16.4	18.5	19.1	19.6	20.2	19.9	0.7**	20.2**
Other[(h)]	74.9	78.2	82.8	86.7	87.4	90.8	3.2**	21.2**
Subtotal	*365.6*	*381.2*	*384.0*	*400.3*	*402.8*	*414.0*	*9.2***	*12.6***
Dialysis	363.7	396.9	411.2	431.1	440.8	452.6	17.0**	23.4**
Total (includes not stated)[(i)]	**729.6**	**778.3**	**795.4**	**831.4**	**843.6**	**866.7**	**26.2****	**18.0****

(continued)

Table 1.02.9 (continued): Hospitalisations, by principal diagnosis and Indigenous status, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[a][b][c][d]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[e]	Per cent change[f]
Principal diagnosis	**Non-Indig. No. per 1,000[g]**							
Injury & poisoning & certain other consequences of external causes	21.6	22.3	22.8	22.9	23.4	23.6	0.4**	8.7**
Pregnancy, childbirth and the puerperium	22.0	22.8	23.2	22.8	22.1	21.5	–0.1	–3.0
Diseases of the respiratory system	15.3	15.5	15.0	16.1	16.0	15.9	0.2	5.2
Diseases of the digestive system	37.6	38.3	38.8	38.5	36.9	37.3	–0.2	–2.4
Symptoms, signs and abnormal clinical and laboratory findings	20.1	21.1	22.4	22.7	23.5	24.5	0.8**	21.0**
Mental and behavioural disorders	13.6	13.6	13.6	13.6	13.9	14.5	0.2**	5.6**
Diseases of the circulatory system	20.5	20.8	20.7	20.5	19.9	19.8	–0.2**	–4.5**
Diseases of the genitourinary system	16.8	17.1	16.8	16.6	16.7	17.0	0.0	–0.1
Diseases of the skin & subcutaneous tissue	5.5	5.6	5.5	5.6	5.6	5.7	0.04**	3.8**
Certain infectious and parasitic diseases	4.1	4.5	4.5	4.1	5.2	5.5	0.2**	29.3**
Endocrine, nutritional and metabolic diseases	5.5	5.9	6.2	6.6	6.9	6.9	0.3**	27.1**
Other[h]	107.2	110.4	112.6	114.8	117.2	120.3	2.5**	11.7**
Subtotal	*290.0*	*298.0*	*302.1*	*304.6*	*307.5*	*312.5*	*4.1***	*7.1***
Dialysis	34.6	37.2	38.1	39.0	39.9	41.8	1.3**	18.6**
Total (includes not stated)[i]	**324.8**	**335.3**	**340.5**	**343.7**	**347.6**	**354.6**	**5.4****	**8.3****

(continued)

Table 1.02.9 (continued): Hospitalisations, by principal diagnosis and Indigenous status, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[a][b][c][d]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[e]	Per cent change[f]
Principal diagnosis				**Ratio[j]**				
Injury & poisoning & certain other consequences of external causes	1.9*	1.9*	1.9*	1.9*	2.0*	2.0*	0.0	4.3
Pregnancy, childbirth and the puerperium	1.4*	1.4*	1.5*	1.5*	1.5*	1.5*	0.02**	7.1**
Diseases of the respiratory system	2.7*	2.7*	2.6*	2.7*	2.7*	2.7*	0.0	0.0
Diseases of the digestive system	0.9	0.9	0.9	1.0	1.0	1.0	0.01**	7.4**
Symptoms, signs and abnormal clinical and laboratory findings	1.5*	1.5*	1.4*	1.5*	1.5*	1.5*	0.0	2.7
Mental and behavioural disorders	1.8*	1.8*	1.8*	1.9*	1.8*	1.8*	0.0	3.8
Diseases of the circulatory system	1.6*	1.6*	1.6*	1.7*	1.7*	1.7*	0.03**	9.5**
Diseases of the genitourinary system	1.1*	1.1*	1.1*	1.1*	1.2*	1.2*	0.02**	8.1**
Diseases of the skin & subcutaneous tissue	2.3*	2.3*	2.3*	2.5*	2.3*	2.4*	0.0	2.7
Certain infectious and parasitic diseases	2.1*	2.2*	2.0*	2.5*	2.0*	2.2*	0.0	4.2
Endocrine, nutritional and metabolic diseases	3.0*	3.1*	3.1*	3.0*	2.9*	2.9*	0.0	–5.8
Other[h]	0.7	0.7	0.7	0.8	0.7	0.8	0.01**	8.5**
Subtotal	*1.3**	*1.3**	*1.3**	*1.3**	*1.3**	*1.3**	*0.01***	*5.2***
Dialysis	10.5*	10.7*	10.8*	11.1*	11.0*	10.8*	0.1**	4.0**
Total (includes not stated)[i]	**2.2***	**2.3***	**2.3***	**2.4***	**2.4***	**2.4***	**0.04****	**8.8****

(continued)

Table 1.02.9 (continued): Hospitalisations, by principal diagnosis and Indigenous status, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[a][b][c][d]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[e]	Per cent change[f]
Principal diagnosis				**Difference[k]**				
Injury & poisoning & certain other consequences of external causes	19.8*	20.9*	20.9*	20.6*	22.6*	24.1*	0.7**	18.6**
Pregnancy, childbirth and the puerperium	9.3*	9.9*	10.5*	10.8*	11.0*	11.3*	0.4**	20.6**
Diseases of the respiratory system	26.2*	27.1*	24.2*	26.7*	26.8*	27.8*	0.3	5.2
Diseases of the digestive system	–3.2	–2.5	–2.8	–0.3	–1.3	–0.8	0.5**	–80.8**
Symptoms, signs and abnormal clinical and laboratory findings	9.7*	10.0*	9.5*	11.0*	11.2*	12.9*	0.6**	30.7**
Mental and behavioural disorders	10.3*	10.5*	11.0*	12.0*	11.6*	11.6*	0.3**	14.8**
Diseases of the circulatory system	11.7*	12.6*	11.8*	13.9*	14.5*	13.5*	0.5**	20.7**
Diseases of the genitourinary system	1.8*	2.0*	1.8*	1.9*	2.7*	3.4*	0.3**	84.5**
Diseases of the skin & subcutaneous tissue	7.1*	7.3*	7.3*	8.2*	7.3*	7.8*	0.1	8.7
Certain infectious and parasitic diseases	4.4*	5.3*	4.6*	5.9*	5.4*	6.5*	0.3**	39.1**
Endocrine, nutritional and metabolic diseases	10.9*	12.5*	13.0*	13.0*	13.3*	13.0*	0.4**	16.8**
Other[h]	–32.3	–32.2	–29.8	–28.1	–29.8	–29.5	0.7**	–10.2**
Subtotal	*75.5**	*83.3**	*82.0**	*95.7**	*95.3**	*101.5**	*5.1***	*33.9***
Dialysis	329.1*	359.7*	373.1*	392.2*	400.8*	410.8*	15.7**	23.9**
Total (includes not stated)[i]	**404.8***	**443.0***	**454.9***	**487.7***	**496.0***	**512.1***	**20.8****	**25.7****

(continued)

Table 1.02.9 (continued): Hospitalisations, by principal diagnosis and Indigenous status, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[(a)(b)(c)(d)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

** Represents results with statistically significant increases or declines at the p < 0.05 level over the period 2004–05 to 2009–10.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD–10–AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification from 2004–05, although the level of accuracy varies by jurisdiction and hospital. Data for these jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Hospitalisation data for these four jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(f) Per cent change between 2004–05 and 2009–10 based on the average annual change over the period

(g) Directly age-standardised using the Australian 2001 standard population.

(h) Includes: diseases of the musculoskeletal system and connective tissue; neoplasms; diseases of the nervous system; certain conditions originating in the perinatal period; diseases of the ear and mastoid process; diseases of the eye and adnexa; diseases of the blood and blood-forming organs and certain disorders involving the immune system; congenital malformations, deformations and chromosomal abnormalities; and factors influencing health status and contact with health services (except dialysis).

(i) Includes hospitalisations for which no principal diagnosis was recorded.

(j) Rate ratio Indigenous: non-Indigenous.

(k) Rate difference Indigenous-non-Indigenous.

Notes

1. Rates for Indigenous are calculated using the 2006 population estimates based on the 2006 Census (Series B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

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Data quality issues

National Hospital Morbidity Database

The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free-standing day hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included. The NHMD does not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

For 2009–10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2,400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10,600 separations for one private hospital.

Separations

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay or a portion of a hospital stay beginning or ending in a change of type of care) and not patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set.

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Separations with care types of *Newborn* episodes that did not include qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded as these activities are not considered to be admitted patient care.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections.

Approximately 2% of hospital records have missing Indigenous status information.

Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from WA where records with an unknown status are recorded as non-Indigenous.

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. In 2007, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data (AIHW 2010).

It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Interpretation of results should take into account the relative quality of the data from the jurisdictions. The

proportion of the Indigenous population covered by these six jurisdictions is 96%. Tasmania and the Australian Capital Territory data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions.

From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level. Adjustments for Indigenous under-identification have been made at the national level for the total number of hospital separations using an adjustment factor of 89%. No adjustments for under-identification have been made at the state/territory level or principal diagnosis level.

The 2007 AIHW study indicated acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in *Major cities* to 97% in *Remote* and *Very remote* areas. The quality of data supports analyses for hospitalisations by remoteness areas at the national level only.

In 2011-12, the AIHW commenced another study to re-assess the level of under-identification in public hospitals data. All states and territories have participated in the study to assess improvements in data quality. A report on the findings is expected to be published in mid-2013 which will include new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

List of symbols used in tables

n.a.	not available
—	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.03 Injury and poisoning

The number of hospital separations with a principal diagnosis of injury and poisoning for Aboriginal and Torres Strait Islander people expressed as a rate by age group, age-standardised rate and rate ratio.

Data sources

Data for this measure come from the AIHW National Hospital Morbidity Database, the Bettering the Evaluation and Care of Health Survey, and the National Mortality Database.

National Hospital Morbidity Database

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Hospitalisation data are presented for the 2-year period from July 2008 to June 2010. An aggregate of 2 years of data has been used, because the number of hospitalisations for some conditions is likely to be small for a single year.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individual, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question. For example, it is not possible to identify whether one patient was admitted 5 times or five patients were admitted once. People who receive treatment at hospital but are not admitted are not counted in hospital records. Hospital separation data are also affected by variations in admission practices, and the availability of and access to hospital and non-hospital services.

Care types 7.3, 9 and 10 (Newborn – unqualified days only; organ procurement; hospital border) have been excluded from analysis.

Data are presented for the six jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalisations in 2006–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. National totals include separations for people resident in these six jurisdictions only and are not necessarily representative of the jurisdictions not included. Indigenous status data are reported for Tasmania and the Australian Capital Territory (public hospitals only) with caveats until further audits of the quality of data in these jurisdictions are completed. Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from WA where records with an unknown status are recorded as non-Indigenous.

Data are presented by state/territory of usual residence of the patient.

The following caveats have been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).
- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey, which was conducted by the AIHW Australian General Practice Statistics and Classification Centre, in the Family Medicine Research Centre (FMRC) at the University of Sydney until March 2012, when the AIHW ceased its involvement in the BEACH program . The FMRC continues to run BEACH the results are now published by the University of Sydney. The most recent annual reports can be found at <http://ses.library.usyd.edu.au/handle/2123/7771>.

Information is collected from every changing random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive GP–patient encounters is collected by each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated because some GPs might not ask the question on Indigenous status, or the patient may choose not to identify themselves (AIHW 2002).

Data are presented for the 5-year period 2006–07 to 2010–11, during which there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.2% of total GP encounters.

National Mortality Database

The National Mortality Database is a national collection of de-identified unit record level data. It comprises most of the information recorded on death registration forms and medical (cause of death) certificates, including Indigenous status. The database is maintained by the Australian Institute of Health and Welfare (AIHW). Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the Australian Bureau of Statistics (ABS). Information on the cause of death is supplied by the medical practitioner certifying the death, or by a coroner. The data are updated each calendar year and are presented by state/territory of usual residence rather than state/territory where death occurs.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander people are registered. However, a proportion of these deceased are not reported as Aboriginal or Torres Strait Islander by the family, health worker or funeral director during the death registration process. That is, while data are provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked of relatives and friends of the deceased by the funeral director.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to 3 jurisdictions (Western Australia, South Australia and the Northern Territory) with adequate identification of Indigenous deaths in their recording systems from 1991 onwards. The quality of the time-series data is also influenced by the late inclusion of a not stated category for Indigenous status in 1998. Prior to this time, the not stated responses were probably included with the non-Indigenous.

Deaths registered in 2010 with a usual residence of Queensland have been adjusted to exclude deaths registered in 2010 that occurred prior to 2007. This is to minimise the impact of late registration of deaths due to recent changes in the timeliness of death registrations in Queensland.

Western Australian Aboriginal and Torres Strait Islander deaths for 2007, 2008 and 2009, have been revised to correct for a data quality issue which resulted in the over-reporting of Indigenous deaths during this period.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2006–2010 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years.

Analyses

Age-standardised rates and ratios have been used as a measure of hospitalisations in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of hospital admissions among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

Hospitalisations

- In the 2-year period July 2008 to June 2010, there were 1,030,541 hospitalisations for injury and poisoning in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, 44,067 (4.3%) of which were hospitalisations of Aboriginal and Torres Strait Islander people (Table 1.03.2).
- Hospitalisations for injury and poisoning were the second most common principal diagnosis at the ICD-10-AM chapter level (first is the chapter which includes 'care involving dialysis') among Aboriginal and Torres Strait Islander Australians, representing 8% of all hospital separations.

Hospitalisations by age and sex

- For the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males and females had higher hospitalisation rates for injury and poisoning than non-Indigenous males and females across all age groups, except among females aged 65 years and over (Table 1.03.1).

- The greatest relative age differences in hospitalisation rates for injury and poisoning occurred in the 25–34, 35–44 and 45–54 year age groups. The rate of hospitalisations for Indigenous males aged 25–34 or 45–54 years was around 2.5 times the rate of non-Indigenous males and for Indigenous males aged 35–44 years, the rate of hospitalisations was almost three times the rate of non-Indigenous males. Indigenous females in these age groups were hospitalised at around 3 times to 4.5 times the rate of non-Indigenous females.
- For Indigenous males and females, hospitalisation rates were highest among those aged 25–34 years (66.4 and 54.8 per 1,000 respectively), for non-Indigenous males and females, rates were highest among those aged 65 years and over (45.5 and 57.9 per 1,000 respectively).
- Approximately 57% of Indigenous Australians hospitalised for injury and poisoning were male (24,923) and 43% were female (19,144) (Table 1.03.2).

Table 1.03.1: Age-specific hospitalisation rates (per 1,000 population) for a principal diagnosis of injury and poisoning, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [(a)(b)(c)]

									All ages	
	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65+	Crude	Age std.[(d)]
Males										
Indigenous	30.4	27.1	53.0	66.4	69.0	56.4	44.1	52.8	47.5	52.2
Non-Indigenous	19.0	20.1	34.0	26.3	23.5	21.9	23.3	45.5	27.2	27.2
Rate ratio[(e)]	1.6	1.3	1.6	2.5	2.9	2.6	1.9	1.2	1.7	1.9
Rate difference[(f)]	11.4	7.0	19.1	40.1	45.4	34.5	20.8	7.3	20.3	24.9
Females										
Indigenous	22.9	15.2	36.0	54.8	53.7	46.5	39.4	48.4	36.2	41.6
Non-Indigenous	14.5	11.4	14.6	12.2	13.9	15.7	19.5	57.9	20.8	19.4
Rate ratio[(e)]	1.6	1.3	2.5	4.5	3.9	3.0	2.0	0.8	1.7	2.1
Rate difference[(f)]	8.4	3.8	21.4	42.6	39.8	30.8	19.9	-9.5	15.3	22.2
Persons										
Indigenous	26.7	21.3	44.7	60.6	61.0	51.2	41.6	50.3	41.8	46.9
Non-Indigenous	16.8	15.8	24.6	19.3	18.7	18.8	21.4	52.3	24.0	23.5
Rate ratio[(e)]	1.6	1.3	1.8	3.1	3.3	2.7	1.9	1.0	1.7	2.0
Rate difference[(f)]	9.9	5.4	20.2	41.3	42.4	32.4	20.2	-2.0	17.8	23.4

(a) Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patients hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions

(d) Directly age-standardised using the Australian 2001 standard population.

(e) Rate ratio Indigenous: non-Indigenous Australians.

(f) Rate difference Indigenous minus non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by state/territory

Table 1.03.2 presents hospitalisations for a principal diagnosis of injury and poisoning for the 2-year period July 2008 to June 2010 in New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory, Tasmania and the Australian Capital Territory.

- Over the period July 2008 to June 2010, Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised for injury and poisoning at twice the rate of non-Indigenous Australians in these jurisdictions.
- In Tasmania, Victoria, New South Wales, the Australian Capital Territory and Queensland, Indigenous people were hospitalised between 0.8 and 1.7 times the rate of non-Indigenous Australians. In South Australia, the Northern Territory and Western Australia, Indigenous Australians were hospitalised between 2.6 and 2.9 times the rate of non-Indigenous Australians. These differences may partly reflect jurisdictional differences in the level of Indigenous under-identification and therefore should be interpreted with caution.

Table 1.03.2: Hospitalisations for principal diagnosis of injury and poisoning, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT, July 2008 to June 2010 [(a)(b)(c)(d)(e)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
NSW						
Males	6,399	42.5	184,440	26.7	1.6*	15.8*
Females	4,225	30.1	143,973	18.7	1.6*	11.5*
Persons	10,624	36.3	328,414	22.8	1.6*	13.5*
Vic						
Males	1,216	37.2	145,971	27.2	1.4*	10.0*
Females	805	27.4	119,399	20.2	1.4*	7.1*
Persons	2,021	32.4	265,373	23.9	1.4*	8.5*
Qld						
Males	6,862	49.1	124,119	29.4	1.7*	19.7*
Females	4,612	34.8	88,592	20.2	1.7*	14.7*
Persons	11,474	41.9	212,711	24.9	1.7*	17.0*
WA						
Males	4,651	67.4	56,982	26.2	2.6*	41.2*
Females	4,145	63.1	41,691	18.9	3.3*	44.1*
Persons	8,796	65.2	98,673	22.8	2.9*	42.4*
SA						
Males	1,672	63.2	40,094	25.1	2.5*	38.1*
Females	1,447	52.9	34,201	18.8	2.8*	34.1*
Persons	3,119	57.6	74,295	22.1	2.6*	35.5*
NT						
Males	4,123	68.0	4,669	29.3	2.3*	38.6*
Females	3,910	61.8	2,339	18.5	3.3*	43.3*
Persons	8,033	64.7	7,008	24.2	2.7*	40.4*
NSW, Vic, Qld, WA, SA and NT[(h)]						
Males	**24,923**	**52.2**	**556,275**	**27.2**	**1.9***	**24.9***
Females	**19,144**	**41.6**	**430,195**	**19.4**	**2.1***	**22.2***
Persons	**44,067**	**46.9**	**986,474**	**23.5**	**2.0***	**23.4***
Tas						
Males	289	14.9	9,445	20.1	0.7	–5.2
Females	225	12.7	7,267	13.8	0.9	–1.0
Persons	514	13.8	16,712	17.0	0.8	–3.2

(continued)

Table 1.03.2 (continued): Hospitalisations for principal diagnosis of injury and poisoning, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT, July 2006 to June 2008[(a)(b)(c)(d)(e)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
ACT						
Males	141	24.9	7,120	20.9	1.2	3.9
Females	116	23.5	5,681	16.7	1.4*	6.8*
Persons	257	24.6	12,801	18.9	1.3*	5.7*

* Represents results with statistically significant differences in the Indigenous/Non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patient hospitalised.

(d) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+.

(e) Directly age-standardised using the Australian 2001 standard population.

(f) Rate ratio Indigenous: Non-Indigenous.

(g) Rate difference Indigenous minus Non-Indigenous.

(h) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by principal diagnosis

Type of injury

Table 1.03.3 presents hospitalisations for a principal diagnosis of injury and poisoning and certain other consequences of external causes by type of injury for the 2-year period July 2008 to June 2010 for the six jurisdictions.

- For the period July 2008 to June 2010 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of all hospitalisations with a principal diagnosis of injury and poisoning, injuries were the most common reason for hospitalisation among Aboriginal and Torres Strait Islander people (76%) followed by complications of medical and surgical care not elsewhere classified (11.4%).
- Indigenous males and females were hospitalised at three times the rate of non-Indigenous males and females for burns and frostbite, and at around twice the rate of non-Indigenous males and females for poisoning, 'complications of surgical and medical care n.e.c.', 'other and unspecified effects of external causes (such as radiation, hypothermia, maltreatment syndromes)'/'certain early complications of trauma 'and 'toxic effects of substances chiefly non-medicinal'.

Table 1.03.3: Hospitalisations of Indigenous persons for principal diagnosis of injury and poisoning and certain other consequences of external causes, by type of injury and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

Principal diagnosis	Number	Per cent[(e)]	No per 1,000[(f)]	LCL[(g)]	UCL[(h)]	Ratio[(i)]	Difference[(j)]
			Males				
Injuries (S00–T19)	19,834	79.6	39.6	38.9	40.2	1.9*	19.0*
Complications of surgical & medical care n.e.c. (T80–T89)	2,405	9.6	7.4	7.0	7.8	1.8*	3.2*
Poisoning (T36–T50)	1,071	4.3	2.3	2.1	2.4	2.1*	1.2*
Other and unspecified effects of external causes/ Certain early complications of trauma (T66–T79)	485	1.9	1.0	0.9	1.1	1.8*	0.4*
Burns and frostbite (T20–T35)	797	3.2	1.4	1.3	1.5	2.8*	0.9*
Toxic effects of substances chiefly non-medicinal (T51–T65)	331	1.3	0.6	0.5	0.7	1.8*	0.3*
Total[(k)]	**24,923**	**100.0**	**52.2**	**51.4**	**53.0**	**1.9***	**24.9***
			Females				
Injuries (S00–T19)	13,716	71.6	29.0	28.5	29.6	2.2*	16.0*
Complications of surgical & medical care n.e.c. (T80–T89)	2,632	13.7	7.3	6.9	7.6	1.9*	3.5*
Poisoning (T36–T50)	1,590	8.3	3.1	2.9	3.3	1.8*	1.3*
Other and unspecified effects of external causes/ Certain early complications of trauma (T66–T79)	463	2.4	1.0	0.9	1.1	2.1*	0.5*
Burns and frostbite (T20–T35)	472	2.5	0.8	0.7	0.9	3.4*	0.6*
Toxic effects of substances chiefly non-medicinal (T51–T65)	271	1.4	0.5	0.4	0.5	2.1*	0.2*
Total[(k)]	**19,144**	**100.0**	**41.6**	**40.9**	**42.3**	**2.1***	**22.2***
			Persons				
Injuries (S00–T19)	33,550	76.1	34.3	33.9	34.8	2.0*	17.3*
Complications of surgical & medical care n.e.c. (T80–T89)	5,037	11.4	7.3	7.1	7.5	1.9*	3.4*
Poisoning (T36–T50)	2,661	6.0	2.7	2.6	2.8	1.9*	1.3*
Other and unspecified effects of external causes/ Certain early complications of trauma (T66–T79)	948	2.2	1.0	0.9	1.0	1.9*	0.5*
Burns and frostbite (T20–T35)	1,269	2.9	1.1	1.0	1.2	3.0*	0.7*
Toxic effects of substances chiefly non-medicinal (T51–T65)	602	1.4	0.5	0.5	0.6	1.9*	0.3*
Total[(k)]	**44,067**	**100.0**	**46.9**	**46.3**	**47.4**	**2.0***	**23.4***

(continued)

Table 1.03.3 (continued): Hospitalisations of Indigenous persons for principal diagnosis of injury and poisoning and certain other consequences of external causes, by type of injury and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

(a) Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patients hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Proportion of male, female and total hospitalisations of Indigenous persons in the period 2008–09 to 2009–10.

(f) Directly age-standardised using the Australian 2001 standard population.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: Non-Indigenous Australians.

(j) Rate difference Indigenous minus non-Indigenous Australians.

(k) Total includes sequelae of injuries, poisoning, external causes (T90–T98).

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

External cause of injury and poisoning

Table 1.03.4 presents external causes of injury and poisoning for Aboriginal and Torres Strait Islander people in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory with a principal diagnosis of injury, poisoning and other consequences of external causes.

- In the 2-year period July 2008 to June 2010, assault was the most common cause for hospitalisation for Indigenous males and females hospitalised with a principal diagnosis of injury and poisoning (21% and 28% respectively) in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.
- Aboriginal and Torres Strait Islander males and females were 8 and 34 times as likely to be hospitalised for injuries due to assault as non-Indigenous males and females respectively.
- Indigenous males and females were hospitalised for intentional self-harm at almost three times and two times the rate of non-Indigenous males and females, respectively.
- Indigenous males and females were hospitalised for exposure to electrical currents, smoke, fire, animals or nature at 2.5 times the rate of non-Indigenous males and females.

Table 1.03.4: External causes for hospitalisations of Indigenous persons with a principal diagnosis of injury and poisoning and other consequences of external causes, by sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

Principal diagnosis	Number	Per cent [(e)]	No per 1,000[(f)]	LCL[(g)]	UCL[(h)]	Ratio[(i)]	Difference[(j)]
			Males				
Assault (X85–Y09)	5,244	21.0	10.9	10.5	11.2	7.5*	9.4*
Falls (W00–W19)	4,522	18.1	10.3	9.9	10.7	1.5*	3.4*
Exposure to inanimate mechanical forces (W20–W49)	3,683	14.8	6.5	6.2	6.7	1.5*	2.2*
Complications of medical and surgical care (Y40–Y84)	2,439	9.8	7.5	7.1	7.9	1.7*	3.1*
Transport accidents (V01–V99)	2,875	11.5	5.2	5.0	5.4	1.4*	1.6*
Other accidental exposures[(k)]	1,834	7.4	3.7	3.5	3.9	1.1*	0.3*
Intentional self-harm (X60–X84)	1,245	5.0	2.6	2.4	2.7	2.9*	1.7*
Exposure to animate mechanical forces (W50–W64)	1,182	4.7	2.0	1.9	2.2	2.1*	1.1*
Exposure to electric current/smoke/ fire/venomous animals and plants/forces of nature (W85–W99, X00–X39)[(l)]	853	3.4	1.5	1.4	1.7	2.3*	0.9*
Accidental poisoning by and exposure to noxious substances (X40–X49)	482	1.9	0.9	0.8	1.0	2*	0.5*
Other external causes[(m)]	526	2.1	1.1	1.0	1.2	3.4*	0.8*
No external causes	38	0.2	0.1	0.0	0.1	3.5*	0.1*
Total	**24,923**	**100.0**	**52.2**	**51.4**	**53.0**	**1.9***	**24.9***
			Females				
Assault (X85–Y09)	5,362	28.0	10.6	10.3	10.9	34.4*	10.3*
Falls (W00–W19)	3,475	18.2	9.3	8.9	9.7	1.2*	1.7*
Exposure to inanimate mechanical forces (W20–W49)	1,693	8.8	3.0	2.8	3.1	2.2*	1.6*
Complications of medical and surgical care (Y40–Y84)	2,690	14.1	7.4	7.1	7.7	1.9*	3.5*
Transport accidents (V01–V99)	1,278	6.7	2.4	2.3	2.6	1.5*	0.8*
Other accidental exposures[(k)]	982	5.1	2.1	2.0	2.3	1.2*	0.4*
Intentional self-harm (X60–X84)	1,669	8.7	3.2	3.0	3.3	2.1*	1.7*
Exposure to animate mechanical forces (W50–W64)	553	2.9	1.0	0.9	1.1	2.3*	0.6*
Exposure to electric current/smoke/ fire/venomous animals and plants/forces of nature (W85–W99, X00–X39)[(l)]	539	2.8	0.9	0.8	1.0	2.7*	0.6*
Accidental poisoning by and exposure to noxious substances (X40–X49)	465	2.4	0.8	0.7	0.9	2.1*	0.4*
Other external causes[(m)]	410	2.1	0.8	0.7	0.9	3.0*	0.5*
No external causes	28	0.1	0.1	0.0	0.1	4.4*	0.04*
Total	**19,144**	**100.0**	**41.6**	**40.9**	**42.3**	**2.1***	**22.2***

(continued)

Table 1.03.4 (continued): External causes for hospitalisations of Indigenous persons with a principal diagnosis of injury and poisoning and other consequences of external causes, by sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010([a][b][c][d])

Principal diagnosis	Number	Per cent [e]	No per 1,000[f]	LCL[g]	UCL[h]	Ratio[i]	Difference[j]
			Persons				
Assault (X85–Y09)	10,606	24.1	10.7	10.5	10.9	12.2*	9.8*
Falls (W00–W19)	7,997	18.1	9.9	9.6	10.2	1.3*	2.5*
Exposure to inanimate mechanical forces (W20–W49)	5,376	12.2	4.7	4.5	4.8	1.7*	1.9*
Complications of medical and surgical care (Y40–Y84)	5,129	11.6	7.4	7.2	7.7	1.8*	3.3*
Transport accidents (V01–V99)	4,153	9.4	3.8	3.6	3.9	1.5*	1.2*
Other accidental exposures[k]	2,816	6.4	2.9	2.8	3.0	1.1*	0.3*
Intentional self-harm (X60–X84)	2,914	6.6	2.9	2.8	3.0	2.4*	1.7*
Exposure to animate mechanical forces (W50–W64)	1,735	3.9	1.5	1.4	1.6	2.1*	0.8*
Exposure to electric current/smoke/ fire/venomous animals and plants/forces of nature (W85–W99, X00–X39)[l]	1,392	3.2	1.2	1.1	1.3	2.5*	0.7*
Accidental poisoning by and exposure to noxious substances (X40–X49)	947	2.1	0.9	0.8	0.9	2.1*	0.4*
Other external causes[m]	936	2.1	0.9	0.9	1.0	3.2*	0.6*
No external causes	66	0.1	0.1	0.0	0.1	3.8*	0.05*
Total	**44,067**	**100.0**	**46.9**	**46.3**	**47.4**	**2.0***	**23.4***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patients hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Proportion of male, female and total hospitalisations of Indigenous persons in the period 2008–09 to 2009–10.

(f) Directly age-standardised using the Australian 2001 standard population.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: Non-Indigenous Australians.

(j) Rate difference Indigenous minus non-Indigenous Australians.

(k) Accidental drowning and submersion (W65–W74), accidental threats to breathing (W75–W84), overexertion, travel and privation (X50–X57), accidental exposure to other and unspecified factors (X58–X59),

(l) Includes exposure to electrical current, radiation and extreme ambient air temperature and pressure (W85–W99), smoke, fire and flames (X00–X09), contact with heat and hot substances (X10–X19), contact with venomous animals and plants (X20–X29), exposure to forces of nature (X30–X39).

(m) Includes event of undetermined intent (Y10–Y34), legal intervention and operation of war (Y35–Y36), sequelae of external causes of morbidity and mortality (Y85–Y89), supplementary factors classified elsewhere (Y90–Y98).

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data from 1998–99 to 2009–10 are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations over this period—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population.

Additional trend analysis has also been presented for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined from 2004–05 to 2007–08 for Indigenous and non-Indigenous Australians. New South Wales and Victoria have been assessed as having adequate identification of Indigenous hospitalisations from 2004–05. These six jurisdictions represent approximately 96% of the Indigenous population of Australia.

Note that changes in the level of accuracy of Indigenous identification in hospital records will result in changes in the level of reported hospital separations for Indigenous Australians, as will changes in access, hospital policies and practices over time. Caution should be used in interpreting changes over time, as it is not possible to ascertain whether a change in reported hospitalisation is due to changes in the accuracy of Indigenous identification or real changes in the rates at which Indigenous people are hospitalised. An increase in hospitalisation rates may also reflect increased use of admitted patient hospital services rather than a worsening of health.

Injury and poisoning—1998-99 to 2009-10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for injury and poisoning over the period 1998-99 to 2009-10 for Queensland, Western Australia, South Australia and the Northern Territory are presented in Table 1.03.5 and Figure 1.03.1.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were no significant changes in hospitalisation rates for injury and poisoning among Indigenous males and females during the period 1998-99 to 2009-10.
- There were significant increases in hospitalisation rates for injury and poisoning among non-Indigenous males, females, and persons overall during the same period, with an average yearly increase in the rate of around 0.2 overall, per 1,000 population. This was equivalent to a 9.3% increase in the rate for persons, over the period.
- Over the period 1998-99 to 2009-10 there were significant decreases in the rate ratio between Indigenous females and non-Indigenous females (9% decline) and Indigenous persons and non-Indigenous Australians (7% decline).

Table 1.03.5: Age-standardised hospitalisation rates, rate ratios and rate differences for injury and poisoning, Qld, WA, SA and NT, 1998–99 to 2009–10[a][b]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[c]	Per cent change[d]
Indigenous separations														
Males	7,050	6,649	6,735	7,208	6,867	6,909	7,145	7,550	7,637	7,944	8,412	8,896	172*	26.8*
Females	5,618	5,643	5,523	5,737	5,661	5,821	5,884	6,169	6,522	6,462	6,850	7,264	144*	28.1*
Persons	12,668	12,292	12,259	12,946	12,528	12,730	13,029	13,719	14,159	14,406	15,262	16,160	315*	27.4*
Non-Indigenous separations														
Males	87,125	89,164	87,752	88,025	85,986	89,283	92,575	96,716	102,198	107,221	112,458	113,406	2,592*	32.7*
Females	59,751	60,925	61,453	61,761	61,725	64,087	66,152	69,686	72,570	75,760	82,121	84,702	2,257*	41.5*
Persons	146,876	150,089	149,207	149,788	147,716	153,370	158,727	166,402	174,768	182,982	194,579	198,108	4,849*	36.3*
Indigenous rate per 1,000														
Males	60.0	54.6	55.3	56.8	51.9	52.8	53.7	56.1	53.8	54.9	58.0	59.4	0.1	1.2
Females	48.2	47.4	45.7	46.6	44.6	45.7	45.2	45.9	47.3	46.8	47.9	49.4	0.1	2.6
Persons	54.0	51.0	50.4	51.6	48.3	49.3	49.4	50.8	50.6	50.8	52.9	54.2	0.1	1.8
Non-Indigenous rate per 1,000														
Males	26.1	26.5	25.8	25.5	24.5	25.0	25.3	25.9	26.8	27.3	27.9	27.5	0.2*	7.3*
Females	17.5	17.5	17.3	17.0	16.7	16.9	17.2	17.7	18.0	18.4	19.5	19.6	0.2*	12.6*
Persons	22.0	22.2	21.7	21.4	20.7	21.1	21.4	22.0	22.5	23.0	23.8	23.7	0.2*	9.3*
Rate ratio[e]														
Males	2.3	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.0	2.0	2.1	2.2	–0.01	–5.4
Females	2.8	2.7	2.6	2.7	2.7	2.7	2.6	2.6	2.6	2.5	2.5	2.5	–0.02*	–9.0*
Persons	2.5	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	–0.02*	–6.8*

(continued)

Table 1.03.5 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences for injury and poisoning, Qld, WA, SA and NT, 1998–99 to 2009–10[(a)]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Rate difference[(f)]														
Males	33.9	28.1	29.5	31.3	27.4	27.9	28.4	30.2	27.0	27.5	30.1	31.9	–0.1	–3.4
Females	30.7	29.9	28.5	29.5	27.9	28.7	28.0	28.2	29.3	28.4	28.4	29.8	–0.1	–3.2
Persons	32.0	28.9	28.7	30.2	27.6	28.2	28.0	28.9	28.1	27.8	29.0	30.5	–0.1	–3.4

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2009–10.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory the Australian Capital Territory and Tasmania.

(b) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 1998–99 and 2009–10 based on the average annual change over the period.

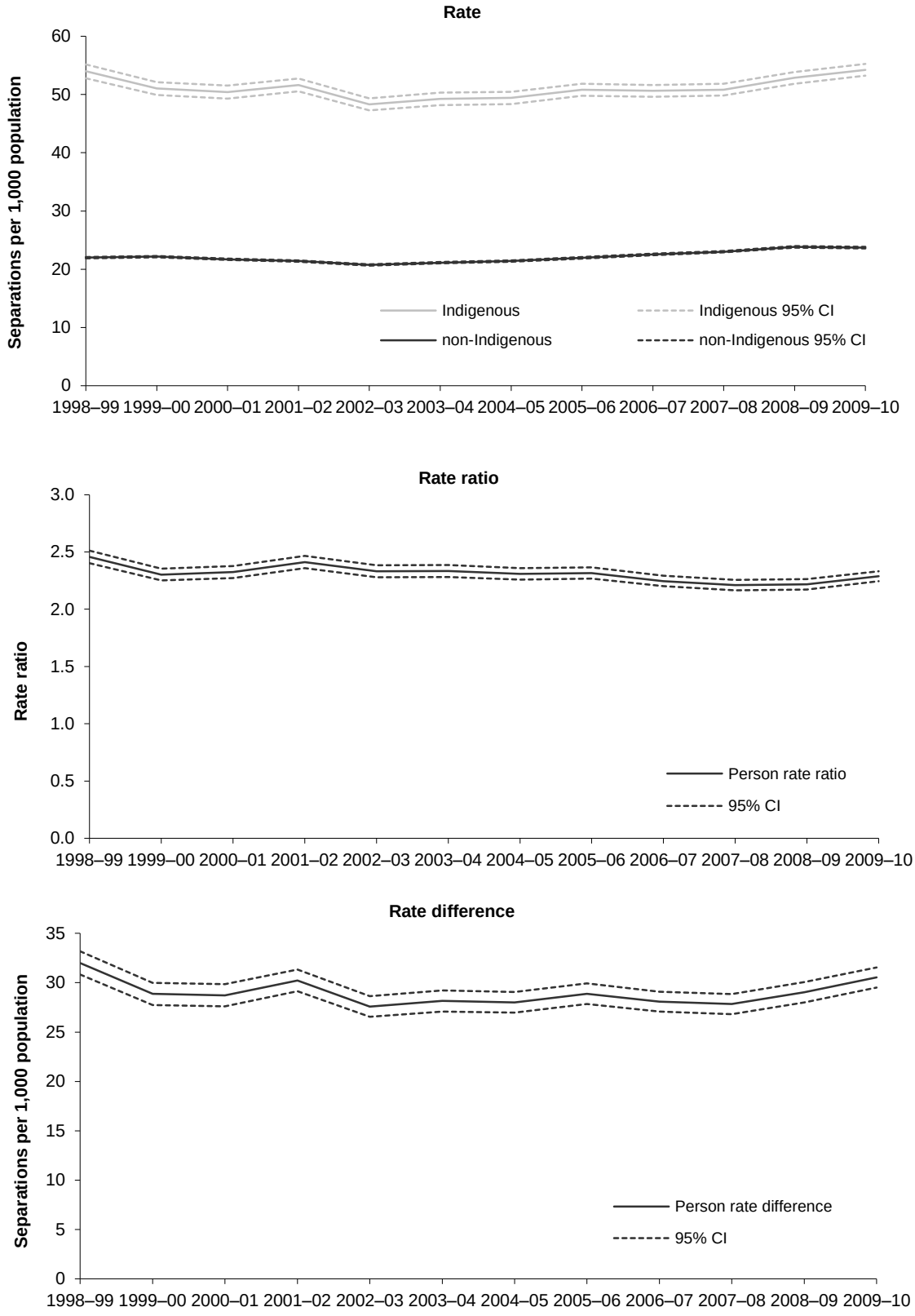
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.03.1: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for injury and poisoning, Qld, WA, SA and NT, 1998-1999 to 2009–2010

Injury and poisoning—2004–05 to 2009-10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for injury and poisoning over the period 2004–05 to 2009-10 for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory are presented in Table 1.03.6 and Figure 1.03.2.

- In New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates for injury and poisoning among Indigenous males, females and persons overall during the period 2004–05 to 2009-10.
- There were also significant increases in hospitalisation rates for injury and poisoning among non-Indigenous Australian males, females, and persons overall during the same period, with an average yearly increase in the rate of around 0.4 overall, per 1,000 population. This was equivalent to an 8.7% increase in the rate for persons overall, over the period.
- Over the period 2004–05 to 2009-10 there was a significant increase in the hospitalisation rate ratio between Indigenous and non-Indigenous Australians (5%). There were also significant increases in the rate differences between Indigenous and non-Indigenous males, females and persons overall (24%, 14% and 19%, respectively).

Table 1.03.6: Age-standardised hospitalisation rates, rate ratios and rate differences for injury and poisoning, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[(a)(b)]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change over period[(d)]
Indigenous separations								
Males	9,847	10,659	11,015	11,248	12,078	12,845	557*	28.3*
Females	7,812	8,183	8,670	8,639	9,311	9,833	385*	24.6*
Persons	17,659	18,842	19,685	19,887	21,389	22,678	941*	26.6*
Non-Indigenous Australian separations								
Males	236,480	247,218	258,238	265,779	275,416	280,859	8,972*	19.0*
Females	178,850	188,080	194,838	200,209	211,320	218,875	7,863*	22.0*
Persons	415,334	435,302	453,081	465,992	486,739	499,735	16,835*	20.3*
Indigenous rate (separations per 1,000)								
Males	45.6	48.5	47.7	48.1	51.0	53.3	1.3*	14.5*
Females	37.4	38.0	39.6	39.0	41.0	42.2	0.9*	12.5*
Persons	41.5	43.2	43.7	43.5	46.0	47.7	1.1*	13.6*
Non-Indigenous Australian rate (separations per 1,000)								
Males	25.3	26.1	26.7	26.9	27.2	27.2	0.4*	7.4*
Females	17.6	18.2	18.5	18.7	19.3	19.6	0.4*	10.5*
Persons	21.6	22.3	22.8	22.9	23.4	23.6	0.4*	8.7*
Rate ratio[(e)]								
Males	1.8	1.9	1.8	1.8	1.9	2.0	0.02	6.6
Females	2.1	2.1	2.1	2.1	2.1	2.2	0.01	1.8
Persons	1.9	1.9	1.9	1.9	2.0	2.0	0.02*	4.5*
Rate difference[(f)]								
Males	20.2	22.4	21.0	21.2	23.8	26.1	1.0*	23.5*
Females	19.7	19.8	21.0	20.3	21.7	22.6	0.6*	14.3*
Persons	19.8	20.9	20.9	20.6	22.6	24.1	0.8*	19.0*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2004–05 to 2009–10.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory the Australian Capital Territory and Tasmania.

(b) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 2004–05 and 2009–10 based on the average annual change over the period.

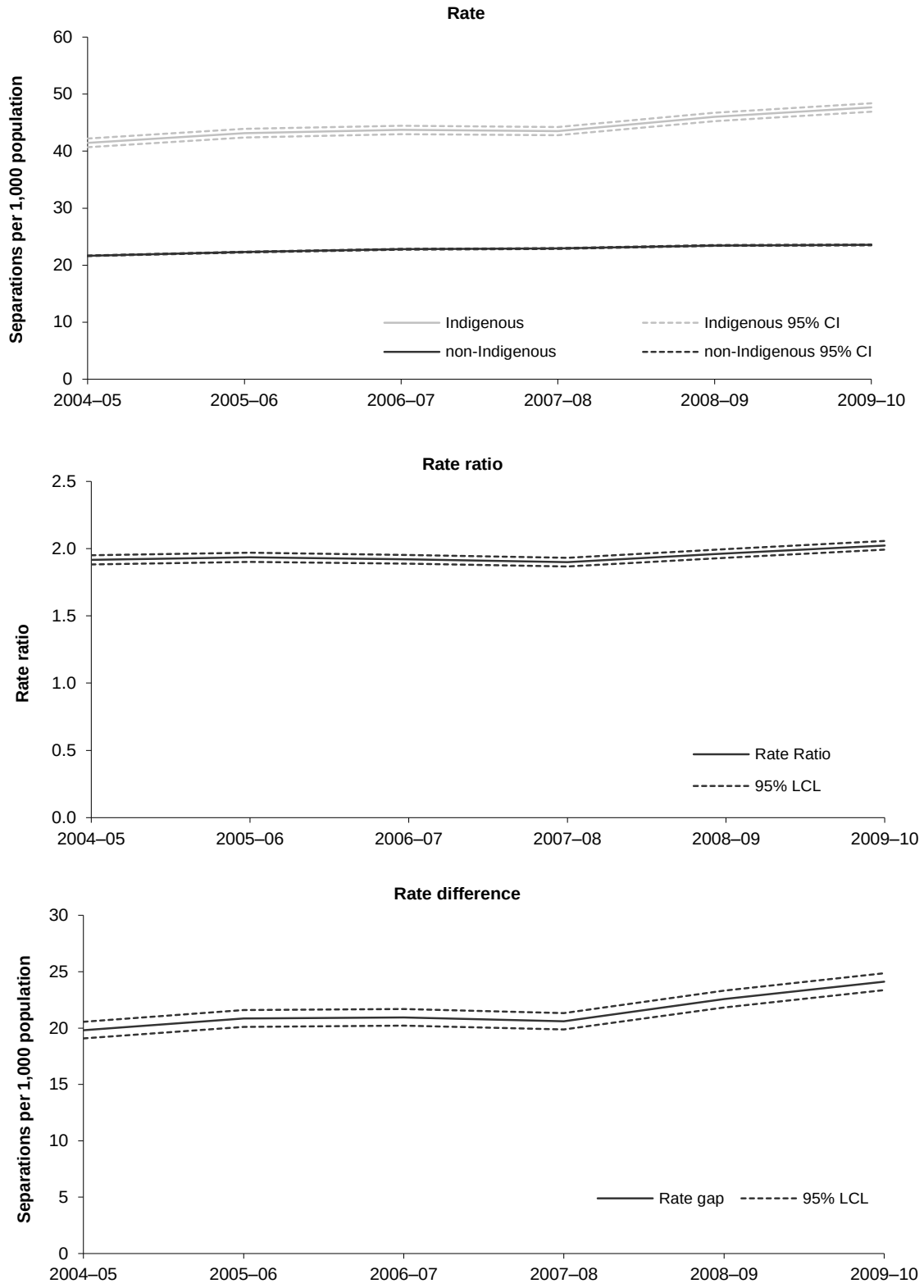
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for Non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for Non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.03.2: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for injury and poisoning, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009-2010

Assault

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for assault over the seven-year period 1998-99 to 2009-10 are presented in Table 1.03.7 and Figure 1.03.3.

- Over the period 1998-99 to 2009-10, there were no significant changes in the hospitalisation rate for assault among Indigenous males and females.
- Over the same period there were significant increases in the hospitalisation rate for assault for non-Indigenous Australians. The fitted trend implies an average yearly increase in the rate of around 0.03 per 1,000 for non-Indigenous males and 0.01 per 1,000 for non-Indigenous females, which is equivalent to a 22% and 19% increase in the rate for males and females over the period.
- There was a significant decline in the hospitalisation rate ratio between Indigenous and non-Indigenous Australians for assault over the period 1998-99 to 2009-10 (15% decrease). Over the same period there was no significant change in the rate difference between Indigenous and non-Indigenous Australians.

Table 1.03.7: Age-standardised hospitalisation rates, rate ratios and rate differences for a principal diagnosis of injury and poisoning and a first reported external cause of assault, Qld, WA, SA and NT, 1998–99 to 2009–10[(a)(b)]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Indigenous separations														
Males	1,602	1,571	1,580	1,960	1,835	1,764	1,803	1,868	1,880	1,994	2,032	2,093	43*	29.3*
Females	1,749	1,782	1,701	2,180	2,132	2,127	2,181	2,255	2,363	2,232	2,277	2,370	57*	35.9*
Persons	3,351	3,353	3,281	4,140	3,967	3,891	3,984	4,123	4,243	4,226	4,309	4,463	100*	32.7*
Non-Indigenous separations														
Males	4,589	4,510	4,835	5,039	4,814	4,729	5,062	5,496	5,916	6,296	6,632	6,365	194*	46.6*
Females	1,022	967	1,028	1,117	1,078	1,090	1,029	1,160	1,154	1,243	1,424	1,460	38*	40.7*
Persons	5,611	5,477	5,864	6,156	5,893	5,819	6,091	6,656	7,070	7,539	8,056	7,825	232*	45.5*
Indigenous rate (separations per 1,000)														
Males	13.9	13.1	12.7	15.7	14.4	13.3	13.3	13.5	13.2	13.8	13.6	13.7	0.0	–1.6
Females	13.7	13.5	12.6	15.7	15.2	14.7	15.1	15.2	15.5	14.4	14.4	14.7	0.1	9.0
Persons	13.7	13.3	12.6	15.7	14.7	14.0	14.2	14.3	14.4	14.1	14.0	14.2	0.0	3.7
Non-Indigenous rate (separations per 1,000)														
Males	1.3	1.3	1.4	1.4	1.3	1.3	1.4	1.5	1.5	1.6	1.6	1.5	0.03*	22.0*
Females	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.01*	19.1*
Persons	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.9	0.9	1.0	1.0	1.0	0.02*	22.1*
Rate ratio[(e)]														
Males	10.5	10.2	9.2	11.0	10.7	10.3	9.7	9.3	8.6	8.7	8.4	9.0	–0.2*	–19.5*
Females	45.4	47.8	42.4	49.2	50.0	48.5	53.5	48.4	50.8	44.8	40.0	40.6	–0.3	–8.3
Persons	16.8	16.8	15.0	17.8	17.8	17.4	17.1	16.1	15.5	14.6	13.9	14.9	–0.2*	–15.3*

(continued)

Table 1.03.7 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences for a principal diagnosis of injury and poisoning and a first reported external cause of assault, Qld, WA, SA and NT, 1998–99 to 2009–10 [(a)(b)]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Rate difference[(f)]														
Males	12.5	11.8	11.3	14.2	13.0	12.0	11.9	12.0	11.7	12.2	12.0	12.1	0.0	–4.1
Females	13.4	13.2	12.3	15.4	14.9	14.4	14.8	14.9	15.2	14.1	14.1	14.3	0.1	8.8
Persons	12.9	12.5	11.8	14.8	13.9	13.2	13.4	13.4	13.4	13.1	13.0	13.2	0.0	2.6

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2009–10.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 1998–99 and 2009–10 based on the average annual change over the period.

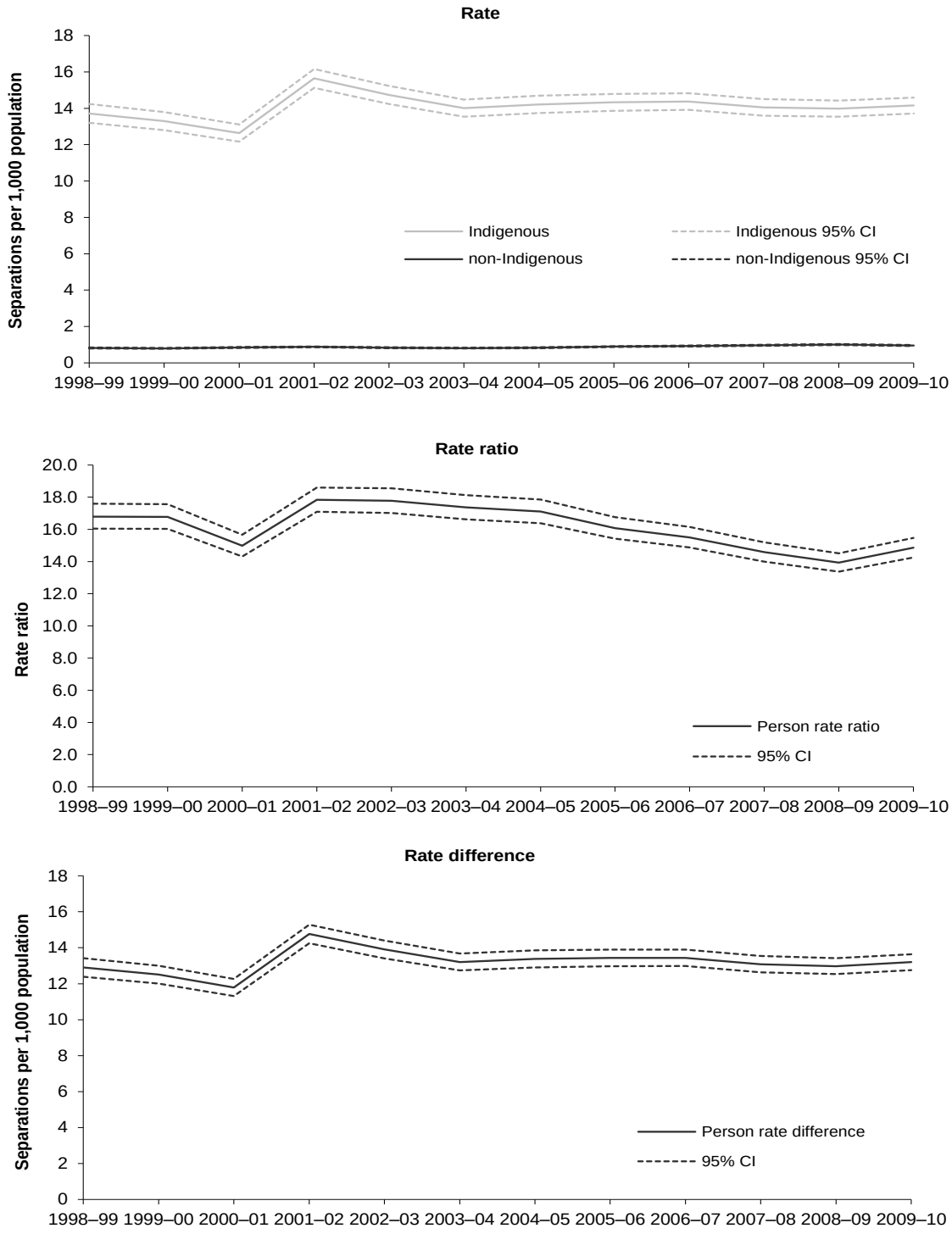
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010). Causes of injury are based on the first reported external cause as 'assault' ICD-10-AM codes X85–Y09, where the principal diagnosis was 'injury and poisoning' (S00–T98).
2. Rates have been directly age-standardised using the 2001 Australian standard population.
3. Population estimates are based on 2006 census.
4. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.03.3: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for a principal diagnosis of injury and poisoning and a first reported external cause of assault, Qld, WA, SA and NT, 1998-1999 to 2009-2010

Assault 2004–05 to 2009-10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for assault over the period 2004–05 to 2007–08 for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory are presented in Table 1.03.8 and Figure 1.03.4.

- Over the period 2004–05 to 2009-10, there was only a significant increase in the hospitalisation rate for assault among Indigenous males; the fitted trend implies an average yearly increase in the rate of 0.1 per 1,000 (a 5% increase). There was no significant change in the rate for Indigenous females, or persons overall.
- Over the same period, there were no significant increases in the hospitalisation rate for assault for non-Indigenous males, females and persons overall.
- There was a significant increase in the rate difference between Indigenous and non-Indigenous Australians for males only (5%).

Table 1.03.8: Age-standardised hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for a principal diagnosis of injury and poisoning and a first reported external cause of assault, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10(a)(b)

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Indigenous separations								
Males	2,251	2,352	2,464	2,539	2,587	2,657	80*	17.8*
Females	2,502	2,572	2,750	2,559	2,646	2,716	31	6.3
Persons	4,753	4,924	5,214	5,098	5,233	5,373	112*	11.8*
Non-Indigenous Australian separations								
Males	12,697	13,858	14,738	14,955	15,403	14,392	381*	15.0*
Females	2,798	2,891	2,874	2,920	3,191	3,081	67*	12.1*
Persons	15,495	16,749	17,612	17,875	18,594	17,473	448*	14.5*
Indigenous rate (separations per 1,000)								
Males	10.4	10.6	10.7	11.0	10.8	10.9	0.1*	5.0*
Females	10.9	10.9	11.4	10.4	10.6	10.6	–0.1	–4.0
Persons	10.6	10.7	11.1	10.7	10.7	10.7	0.0	0.1
Non-Indigenous rate (separations per 1,000)								
Males	1.3	1.4	1.5	1.5	1.5	1.4	0.0	3.5
Females	0.3	0.3	0.3	0.3	0.3	0.3	0.0	2.8
Persons	0.8	0.9	0.9	0.9	0.9	0.8	0.0	3.9
Rate ratio[(e)]								
Males	7.7	7.3	7.1	7.3	7.2	7.9	0.0	1.5
Females	36.5	36.0	38.4	35.1	33.4	35.4	–0.5	–6.5
Persons	12.9	12.2	12.2	11.8	11.7	12.7	–0.1	–3.4
Rate difference[(f)]								
Males	9.0	9.1	9.2	9.5	9.3	9.5	0.1*	5.2*
Females	10.6	10.6	11.1	10.1	10.3	10.3	–0.1	–4.2
Persons	9.8	9.9	10.2	9.8	9.8	9.9	0.0	–0.2

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2004–05 to 2009–10.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory.

(b) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 2004–05 and 2009–10 based on the average annual change over the period.

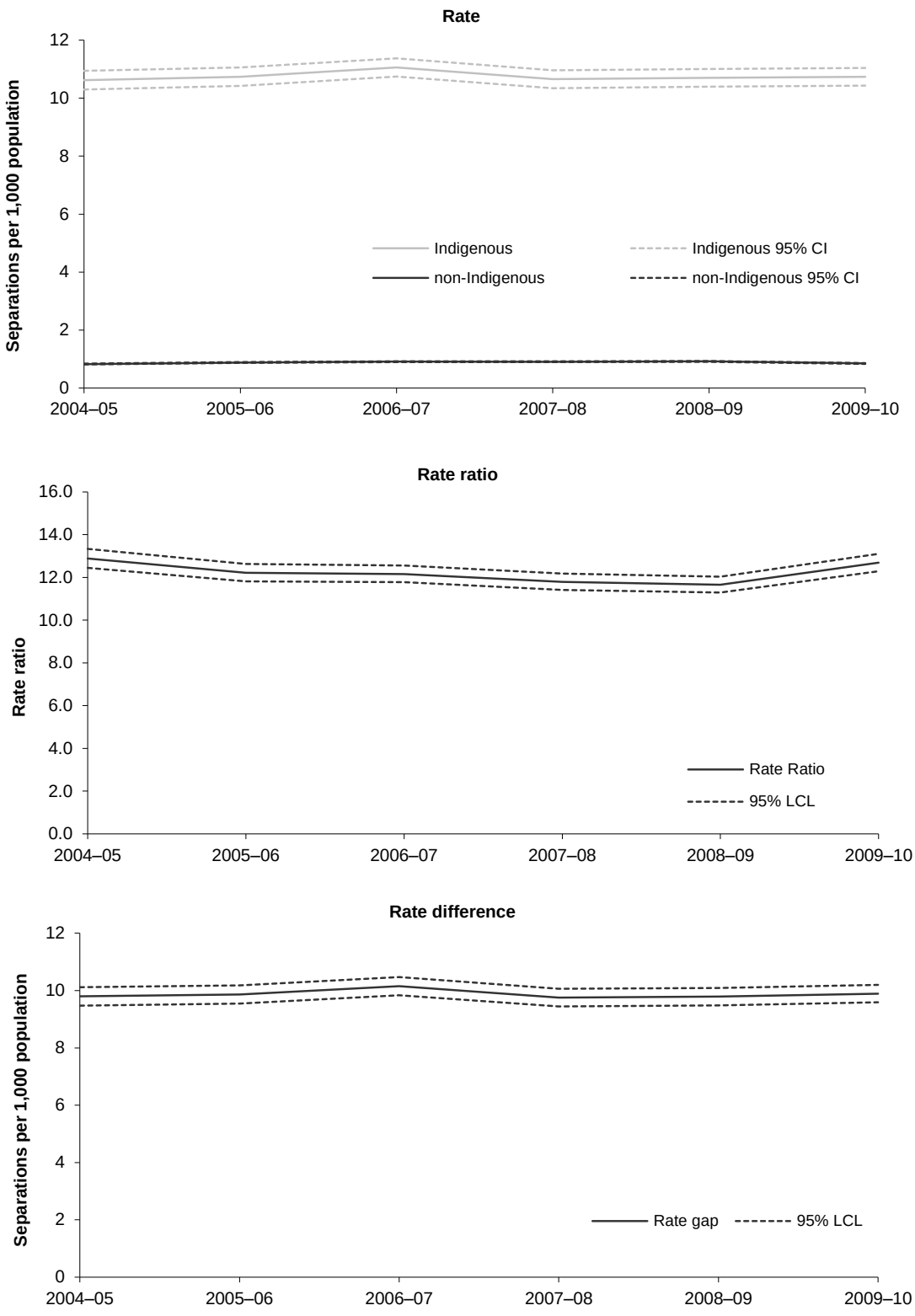
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for Non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for Non-Indigenous Australians.

Notes

1. Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010). Causes of injury are based on the first reported external cause as 'assault' ICD-10-AM codes X85–Y09, where the principal diagnosis was 'injury and poisoning' (S00–T98).
2. Rates have been directly age-standardised using the 2001 Australian standard population.
3. Population estimates are based on 2006 census.
4. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.03.4: Hospitalisation rates, rate ratios and rate differences for a principal diagnosis of injury and poisoning and a first reported external cause of assault, NSW, Vic, Qld, WA, SA and NT, 2004-05 to 2009-2010

General practitioner encounters

Information about general practitioner (GP) encounters is available from the BEACH survey. Data for the 5-year period April 2006–March 2007 to April 2010–March 2011 are presented below. In general, GPs manage significantly more problems per 1,000 Indigenous encounter than they do at encounters with other patients (table 1.03.9).

- In the period April 2006–March 2007 to April 2010–March 2011, there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, at which 9,196 problems were managed. Of these, 4.8 per cent (440) were injury problems (Table 1.03.9).
- Injury problems were managed at a rate of around 74 per 1,000 encounters with Indigenous patients.
- After adjusting for differences in age distribution:
  - Injury problems were managed at similar rates during GP encounters with Indigenous patients and with other patients.
  - There were almost five times as many GP encounters for assault with Indigenous patients than with other patients over the BEACH 5-year reporting period.

Table 1.03.9: Problems managed relating to injury[a] managed by general practitioners, by Indigenous status of the patient, BEACH survey years April 2006–March 2007 to April 2010–March 2011 inclusive[b][c]

	Number		Per cent of all problem managed		Crude rate (no. per 1,000 encounters)						Age-standardised rate (no. per 1,000 encounters)[d]			
Problem managed	Indig.	Other[e]	Indig.	Other[e]	Indig.	95% LCL[f]	95% UCL[g]	Other	95% LCL[f]	95% UCL[g]	Indig.	Other[e]	Ratio[h]	Rate Difference[i]
General injuries (A80-82)	11	930	0.1	0.1	1.8	0.7	3.0	1.9	1.8	2.1	3.5	1.9	1.8	1.6
Trauma/injury NOS (A80)[j]	9	819	0.1	0.1	1.5	0.4	2.6	1.7	1.6	1.9	3.3	1.7	1.9	1.6
Multiple trauma/injuries (A82)[j]	2	98	0.0	0.0	0.3	0.0	0.8	0.2	0.2	0.2	0.2	0.2	1.2	0.0
Musculoskeletal injuries[k]	218	17,125	2.4	2.3	36.5	31.2	41.8	35.8	34.9	36.7	35.1	35.9	1.0	-0.8
Skin injuries (S12-19)	153	11,466	1.7	1.5	25.6	21.1	30.1	24.0	23.4	24.6	25.5	24.0	1.1	1.5
Neurological injuries (N79-81)	15	715	0.2	0.1	2.5	1.2	3.8	1.5	1.4	1.6	1.9	1.5	1.3	0.4
Ear injuries (H76-79, H85)	13	424	0.1	0.1	2.2	0.9	3.4	0.9	0.8	1.0	1.8	0.9	2.0	0.9
Eye injuries (F75-79)	9	954	0.1	0.1	1.5	0.5	2.5	2.0	1.9	2.1	1.4	2.0	0.7	-0.6
Assault/harmful event (Z25)	17	210	0.2	0.0	2.8	1.5	4.2	0.4	0.4	0.5	2.1*	0.4*	4.8*	1.7*
Other injuries[l]	4	234	0.0	0.0	0.7	0.0	1.3	0.5	0.4	0.6	0.4	0.5	0.9	-0.1
Total injury problems[m]	*440*	*32,044*	*4.8*	*4.3*	*73.7*	*65.5*	*81.9*	*67.0*	*65.8*	*68.2*	*71.7*	*67.1*	*1.1*	*4.6*
Other problems managed	8,756	713,580	95.2	95.7	1,466.4	1,426.3	1,506.6	1,492.8	1,483.6	1,501.9	1,567.4*	1,491.5*	1.1*	75.9*
Total problems	**9,196**	**745,624**	**100.0**	**100.0**	**1,540.1**	**1,499.0**	**1,581.2**	**1,559.8**	**1,550.9**	**1,568.7**	**1,639.1***	**1,558.6***	**1.1***	**80.5***

(continued)

Table 1.03.9 (continued): Problems managed relating to injury[(a)] managed by general practitioners, by Indigenous status of the patient, BEACH survey years April 2006–March 2007 to April 2010–March 2011 inclusive[(b)(c)]

* Represents results with statistically significant differences in the Indigenous/other comparisons at the $p < 0.05$ level.

(a) Classified according to ICPC-2 chapter codes (Classification Committee of the World Organization of Family Doctors (WICC) 1998).
(b) Data from five combined BEACH years April 2006–March 2007 to April 2010–March 2011 inclusive.
(c) Data for Indigenous and other Australians have not been weighted.
(d) Directly age-standardised rate (no. per 1,000 encounters). Figures do not add to 100 as more than one problem can be managed at each encounter.
(e) 'Other' includes non-Indigenous patients and patients for whom Indigenous status was not stated.
(f) LCL = lower confidence interval.
(g) UCL = upper confidence interval.
(h) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for other Australians.
(i) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for other Australians.
(j) Trauma/injury NOS and Multiple trauma/injuries are subsets of General Injuries.
(k) ICPC–2 codes: L72-L81, L96, L19014, L83023-26, L84019-21, L95003, L99017-19, L99084, L99089, L99091, L99 095, N54005, N80012-14.
(l) ICPC–2 codes: B76-B77, D79-D80, R87-R88, U80, W75, X82, Y80.
(m) ICPC–2 codes: A80-A82, F75-F79, H76-H79, H85, L72-L81, L96, L19014, L83023-26, L84019-21, L95003, L99017-19, L99084, L99089, L99091, L99 095, N54005, N80012-14, N79-N81, S12-S19, Z25.

Source: Family Medicine Research Centre, University of Sydney analysis of BEACH data.

Mortality

Table 1.03.10 presents data on mortality due to external causes (injury and poisoning) over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the period 2006–2010, external causes (injury and poisoning) were responsible for 15% of Indigenous deaths.
- After adjusting for differences in age distribution, a slightly higher proportion of Indigenous deaths had an underlying cause of external causes (injury and poisoning) than non-Indigenous deaths (7% and 6%, respectively). External causes were reported as an additional cause of death in 11% of Indigenous deaths and 10% of non-Indigenous deaths.
- Intentional self-harm (suicide) was the most common external cause reported as an additional cause of death for Indigenous persons (4% of deaths).
- The mean number of causes of death for deaths with an underlying cause of external cause (injury and poisoning) was slightly lower for Indigenous Australians (3.1) than non-Indigenous Australians (3.5).

Table 1.03.10: Selected external causes (injury and poisoning) as causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006-2010[(a)(b)(c)(d)(e)(f)(g)]

	Underlying cause								Additional cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Indig.	Non-Indig.
Site of neoplasm	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Crude mean no. of causes[(i)]	Crude mean no. of causes[(i)]
Males																		
Intentional self-harm (X60–X84)	31.5	6.1	33.9	2.6	15.6	2.3	15.5	2.2	31.5	6.1	33.9	2.6	15.6	2.3	15.6	2.3	2.8	2.6
Accidents																		
Transport accidents (V01–V99)	26.4	5.1	29.6	2.2	11.2	1.7	11.2	1.6	26.7	5.2	30.2	2.3	11.5	1.7	11.4	1.7	2.9	2.8
Accidental drowning or accidental threats to breathing (W65–W84)	4.1	0.8	5.8	0.4	2.8	0.4	2.8	0.4	8.4	1.6	14.1	1.1	7.6	1.1	7.8	1.1	3.0	3.4
Accidental poisoning by and exposure to noxious substances (X40–X49)	9.1	1.8	10.6	0.8	5.0	0.8	5.1	0.7	13.7	2.7	16.6	1.3	6.1	0.9	6.1	0.9	3.8	3.7
Exposure to electric current/smoke/fire/ animals/nature (W85–W99,X00–X39)	2.8	0.6	4.7	0.4	0.9	0.1	0.9	0.1	3.1	0.6	5.1	0.4	1.2	0.2	1.2	0.2	3.1	3.3
Accidental falls (W00–W19)	3.7	0.7	8.7	0.7	5.7	0.9	6.0	0.9	4.3	0.8	9.6	0.7	7.4	1.1	7.8	1.1	4.3	4.4

(continued)

Table 1.03.10 (continued): Selected external causes (injury and poisoning) as causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006-2010[a][b][c][d][e][f][g]

	Underlying cause								Additional cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Indig.	Non-Indig.
External cause	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Crude mean no. of causes[i]	Crude mean no. of causes[i]
Exposure to inanimate mechanical forces (W20–W49)	1.5	0.3	n.p.	n.p.	0.8	0.1	0.8	0.1	1.7	0.3	1.8	0.1	0.8	0.1	0.8	0.1	3.4	2.9
Other external causes of accidental injury (W50–W64 X50–X59)	1.5	0.3	n.p.	n.p.	3.1	0.5	3.4	0.5	3.5	0.7	11.9	0.9	8.1	1.2	8.6	1.2	4.3	5.0
Assault (X85–Y09)	8.4	1.6	10.3	0.8	1.3	0.2	1.3	0.2	8.5	1.7	10.5	0.8	1.3	0.2	1.3	0.2	2.8	2.7
Complications of medical or surgical care (Y40–Y84)	0.7	0.1	n.p.	n.p.	1.1	0.2	1.1	0.2	12.7	2.5	31.3	2.4	16.5	2.5	17.0	2.5	5.5	5.1
Other external causes)[j]	6.5	1.3	9.0	0.7	3.8	0.6	3.8	0.6	9.1	1.8	15.1	1.1	5.2	0.8	5.2	0.8	3.3	3.4
Total external causes	**96.3**	**18.8**	**119.2**	**9.0**	**51.4**	**7.7**	**51.9**	**7.5**	**117.3**	**22.9**	**169.9**	**12.9**	**78.5**	**11.7**	**80.0**	**11.6**	**3.1**	**3.3**
All causes	513.3	100.0	1,321.9	100.0	668.4	100.0	690.8	100.0	513.3	100.0	1,321.9	100.0	668.4	100.0	690.8	100.0	3.2	3.2

(continued)

Table 1.03.10 (continued): Selected external causes (injury and poisoning) as causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006-2010[a][b][c][d][e][f][g]

	Underlying cause								Additional cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Indig.	Non-Indig.
External cause	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Crude mean no. of causes[i]	Crude mean no. of causes[i]
Females																		
Intentional self-harm (X60–X84)	9.5	2.3	8.9	0.9	4.6	0.7	4.5	0.9	9.5	2.3	8.9	0.9	4.6	0.7	4.5	0.9	2.8	2.9
Accidents																		
Transport accidents (V01–V99)	12.2	2.9	13.9	1.4	3.6	0.6	3.5	0.7	12.4	3.0	14.5	1.4	3.6	0.6	3.5	0.7	2.9	2.7
Accidental drowning or accidental threats to breathing (W65–W84)	1.8	0.4	1.5	0.1	1.3	0.2	1.2	0.2	4.5	1.1	7.8	0.8	5.1	0.8	4.3	0.8	2.5	3.7
Accidental poisoning by and exposure to noxious substances (X40–X49)	4.8	1.2	5.8	0.6	2.3	0.4	2.2	0.4	7.5	1.8	9.1	0.9	2.8	0.4	2.6	0.5	3.8	4.1
Exposure to electric current/smoke/fire/ animals/nature (W85–W99,X00–X39)	1.2	0.3	n.p.	n.p.	0.4	0.1	0.4	0.1	1.2	0.3	n.p.	n.p.	0.7	0.1	0.6	0.1	3.0	3.5
Accidental falls (W00–W19)	1.8	0.4	4.5	0.4	5.6	0.9	4.5	0.9	2.7	0.6	7.1	0.7	8.0	1.3	6.4	1.2	5.3	4.5

(continued)

Table 1.03.10 (continued): Selected external causes (injury and poisoning) as causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006-2010[a][b][c][d][e][f][g]

	Underlying cause								Additional cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Indig.	Non-Indig.
External cause	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Crude mean no. of causes[i]	Crude mean no. of causes[i]
Exposure to inanimate mechanical forces (W20–W49)	0.4	0.1	n.p.	n.p.	0.1	0.0	0.1	0.0	0.4	0.1	n.p.	n.p.	0.1	0.0	0.1	0.0	2.8	3.0
Other external causes of accidental injury (W50–W64 X50–X59)	1.6	0.4	n.p.	n.p.	4.1	0.7	3.3	0.6	4.1	1.0	12.8	1.3	11.8	1.9	9.4	1.8	4.5	5.1
Assault (X85–Y09)	6.4	1.5	7.0	0.7	0.6	0.1	0.6	0.1	6.4	1.5	7.0	0.7	0.6	0.1	0.7	0.1	3.2	2.6
Complications of medical or surgical care (Y40–Y84)	0.8	0.2	n.p.	n.p.	1.2	0.2	1.0	0.2	10.8	2.6	23.7	2.3	13.8	2.2	11.6	2.3	5.5	5.1
Other external causes)[j]	2.2	0.5	2.7	0.3	1.6	0.3	1.5	0.3	3.5	0.8	5.6	0.6	2.7	0.4	2.4	0.5	3.4	3.8
Total external causes	**42.7**	**10.3**	**52.7**	**5.2**	**25.4**	**4.1**	**22.7**	**4.4**	**59.7**	**14.4**	**94.3**	**9.3**	**51.1**	**8.2**	**43.8**	**8.5**	**3.3**	**3.9**
All causes	414.2	100.0	1,016.6	100.0	625.0	100.0	515.2	100.0	414.2	100.0	1,016.6	100.0	625.0	100.0	515.2	100.0	3.4	3.2

(continued)

Table 1.03.10 (continued): Selected external causes (injury and poisoning) as causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006-2010[a][b][c][d][e][f][g]

	Underlying cause								Additional cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Indig.	Non-Indig.
External cause	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Crude mean no. of causes[i]	Crude mean no. of causes[i]
										Persons								
Intentional self-harm (X60–X84)	20.4	4.4	21.0	1.8	10.1	1.6	9.9	1.7	20.4	4.4	21.0	1.8	10.1	1.6	9.9	1.7	2.8	2.7
Accidents																		
Transport accidents (V01–V99)	19.3	4.2	21.6	1.9	7.4	1.1	7.3	1.2	19.5	4.2	22.2	1.9	7.5	1.2	7.4	1.2	2.9	2.8
Accidental drowning or accidental threats to breathing (W65–W84)	3.0	0.6	3.4	0.3	2.1	0.3	2.0	0.3	6.4	1.4	10.8	0.9	6.3	1.0	6.0	1.0	2.9	3.5
Accidental poisoning by and exposure to noxious substances (X40–X49)	7.0	1.5	8.2	0.7	3.6	0.6	3.6	0.6	10.6	2.3	12.8	1.1	4.4	0.7	4.4	0.7	3.8	3.9
Exposure to electric current/smoke/fire/ animals/nature (W85–W99,X00–X39)	2.0	0.4	3.0	0.3	0.7	0.1	0.7	0.1	2.2	0.5	3.3	0.3	0.9	0.1	0.9	0.2	3.1	3.3
Accidental falls (W00–W19)	2.7	0.6	6.4	0.6	5.7	0.9	5.2	0.9	3.5	0.7	8.3	0.7	7.7	1.2	7.1	1.2	4.6	4.5

(continued)

Table 1.03.10 (continued): Selected external causes (injury and poisoning) as causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006-2010[a][b][c][d][e][f][g]

	Underlying cause								Additional cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Indig.	Non-Indig.
External cause	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Rate	Proportion of total deaths %	Crude mean no. of causes[i]	Crude mean no. of causes[i]
Exposure to inanimate mechanical forces (W20–W49)	1.0	0.2	0.9	0.1	0.4	0.1	0.4	0.1	1.0	0.2	1.1	0.1	0.5	0.1	0.5	0.1	3.3	2.9
Other external causes of accidental injury (W50–W64 X50–X59)	1.5	0.3	4.1	0.4	3.6	0.6	3.3	0.6	3.8	0.8	12.5	1.1	9.9	1.5	9.1	1.5	4.4	5.1
Assault (X85–Y09)	7.4	1.6	8.6	0.7	1.0	0.1	1.0	0.2	7.5	1.6	8.6	0.7	1.0	0.2	1.0	0.2	3.0	2.7
Complications of medical or surgical care (Y40–Y84)	0.7	0.2	n.p.	n.p.	1.1	0.2	1.0	0.2	11.7	2.5	27.2	2.4	15.2	2.3	14.0	2.3	5.5	5.1
Other external causes)[j]	4.4	0.9	5.6	0.5	2.7	0.4	2.6	0.4	6.3	1.4	9.9	0.9	3.9	0.6	3.7	0.6	3.3	3.5
Total external causes	**69.4**	**15.0**	**84.5**	**7.3**	**38.4**	**5.9**	**37.1**	**6.2**	**88.4**	**19.1**	**130.7**	**11.3**	**64.7**	**10.0**	**61.5**	**10.3**	**3.1**	**3.5**
All causes	463.5	100.0	1,156.1	100.0	646.6	100.0	597.3	100.0	463.5	100.0	1,156.1	100.0	646.6	100.0	597.3	100.0	3.3	3.2

(continued)

Table 1.03.10 (continued): Selected external causes (injury and poisoning) as causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006-2010[(a)(b)(c)(d)(e)(f)(g)]

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) These data exclude 5,441 registered deaths where the Indigenous status was not stated over the period 2006-2010.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(h) Figures are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Mean number of causes is calculated based on the average number of causes of death present for a death with the selected underlying cause of death. This data item provides insight into co-morbidity.

(j) Includes event of undetermined intent; legal intervention and operations of war; sequelae of external cause of mortality; supplementary factors related to causes of mortality not classified elsewhere.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Injury due to transport

Mode of transport

Tables 1.03.11 and 1.03.12 present data on mode of transport for fatal and serious injury for the six jurisdictions assessed as having adequate identification of Indigenous deaths for the period 2003–04 to 2006–07 and hospitalisations for 2003–04 to 2007–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory.

- During the period 2003–04 to 2006–07, 56% of Indigenous persons fatally injured in a transport accident were occupants of a car, 29% were pedestrians, 3.8% were motorcyclists and 1.5% were occupants of a pick-up truck or van. Of other Australians fatally injured in a transport accident, 51% were occupants of a car, 15% were pedestrians, 14% were motorcyclists, and 2.9% were occupants of pick-up truck or van (Table 1.03.11).
- Of the Indigenous persons seriously injured in a transport accident in the period 2003–04 to 2007–08, 42% were occupants of a car, 17% were pedal cyclists, 15% were motorcyclists and 14% were pedestrians. Of other Australians seriously injured in a transport accident, 35% were occupants of a car, 25% were motorcyclists, 17% were pedal cyclists, 7% were pedestrians and 6% were animal riders or an occupant of an animal-drawn vehicle (Table 1.03.12).

Table 1.03.11: Mode of transport[a] for fatal injury, NSW, Vic, Qld, WA, SA & NT, 2003–04 to 2006–07

	Indigenous			Other				
Fatally injured person	Number	Per cent	Rate[b]	Number	Per cent	Rate[b]	Rate ratio[c]	Rate difference[d]
Car occupant	191	55.7	11.1	3,025	51.2	3.9	2.9	7.2
traffic[e]	179	52.2	10.5	2,937	49.7	3.8	2.8	6.7
non-traffic[f]	10	2.9	0.5	79	1.3	0.1	4.5	0.4
Motorcyclist	13	3.8	0.7	813	13.8	1.1	0.7	–0.4
traffic[e]	12	3.5	0.6	747	12.7	1.0	0.7	–0.4
non-traffic[f]	n.p.	n.p.	n.p.	65	1.1	0.1	n.p.	n.p.
Pedal cyclist	n.p.	n.p.	n.p.	128	2.2	0.2	n.p.	n.p.
traffic[e]	n.p.	n.p.	n.p.	122	2.1	0.2	n.p.	n.p.
non-traffic[f]	0	0.0	0.0	6	0.1	0.0	0.0	0.0
Pedestrian	100	29.2	6.0	861	14.6	1.1	5.5	4.9
traffic[e]	81	23.6	4.9	703	11.9	0.9	5.5	4.0
non-traffic[f]	13	3.8	0.8	105	1.8	0.1	6.2	0.7
Occupant of pick-up truck or van	5	1.5	0.3	169	2.9	0.2	1.3	0.1
Occupant of heavy transport vehicle	n.p.	n.p.	n.p.	137	2.3	0.2	n.p.	n.p.
Bus occupant	n.p.	n.p.	n.p.	14	0.2	0.0	n.p.	n.p.
Animal rider or occupant of animal-drawn vehicle	0	0.0	0.0	25	0.4	0.0	0.0	0.0
Occupant of special all-terrain or off-road vehicle	n.p.	n.p.	n.p.	44	0.7	0.1	n.p.	n.p.
Occupant of 3-wheeled motor vehicle	0	0.0	0.0	11	0.2	0.0	1.0	0.0
Occupant of a tram	0	0.0	0.0	n.p.	n.p.	n.p.	n.p.	n.p.
Occupant of a train	0	0.0	0.0	19	0.3	0.0	0.0	0.0

(continued)

Table 1.03.11 (continued): Mode of transport[(a)] for fatal injury, NSW, Vic, Qld, WA, SA & NT, 2003–04 to 2006–07

	Indigenous			Other				
Fatally injured person	**Number**	**Per cent**	**Rate[(b)]**	**Number**	**Per cent**	**Rate[(b)]**	**Rate ratio[(c)]**	**Rate difference[(d)]**
Occupant of a special industrial vehicle	0	0.0	0.0	24	0.4	0.0	0.0	0.0
Occupant of a special agricultural vehicle	0	0.0	0.0	53	0.9	0.1	0.0	–0.1
Occupant of a special construction vehicle	0	0.0	0.0	19	0.3	0.0	0.0	0.0
Occupant of watercraft	n.p.	n.p.	n.p.	118	2.0	0.1	n.p.	n.p.
Occupant of aircraft	n.p.	n.p.	n.p.	155	2.6	0.2	n.p.	n.p.
Other and unspecified	16	4.7	0.7	288	4.9	0.4	1.8	0.3
Total	**343**	**100.0**	**19.7**	**5,905**	**100.0**	**7.5**	**2.6**	**12.2**

(a) 'Mode of transport' here means the vehicle the person was travelling in at the time of being injured in a transport accident. 'Other and unspecified' includes V87, V88, V89, V98, and V99 for ICD–10 (deaths).

(b) Per 100,000 population, adjusted by direct standardisation to the Australian population in June 2001.

(c) Ratio of age-standardised rate for persons specified as Indigenous to the equivalent rate for all other persons (i.e. non-Indigenous or not stated).

(d) Difference between age-standardised rate for persons specified as Indigenous to the equivalent rate for all other persons (i.e. non-Indigenous or not stated).

(e) A traffic accident is any vehicle accident occurring on a public road (i.e. originating on, terminating on, or involving a vehicle partially on the road).

(f) A non-traffic accident is any vehicle accident that occurs entirely on any place other than a public road. For a certain proportion of cases, whether an accident was traffic or non-traffic was unknown. These cases are included in the totals for each mode of transport and this is the reason the sum of traffic and non-traffic cases is sometimes less than the total for each mode.

Source: Henley and Harrison, 2010.

Table 1.03.12: Mode of transport[a] for serious injury, NSW, Vic, Qld, WA, SA and NT, 2003–04 to 2007–08

Seriously injured person	Indigenous			Other			Rate ratio[c]	Rate difference[d]
	Number	Per cent	Rate[b]	Number	Per cent	Rate[b]		
Car occupant	3,167	41.7	134.5	83,321	34.7	84.5	1.6	50.0
traffic[e]	2,691	35.5	114.4	72,944	30.8	74.9	1.5	39.5
non-traffic[f]	368	4.8	15.3	6,971	2.9	7.2	2.1	8.1
Motorcyclist	1,135	15.0	38.0	58,927	24.9	61.8	0.6	–23.8
traffic[e]	527	6.9	18.7	30,601	12.9	31.9	0.6	–13.2
non-traffic[f]	576	7.6	18.4	26,182	11.0	27.7	0.7	–9.3
Pedal cyclist	1,265	16.7	35.7	40,164	16.9	42.7	0.8	–7.0
traffic[e]	582	7.7	17.6	19,982	8.4	21.1	0.8	–3.5
non-traffic[f]	635	8.4	16.8	18,844	7.9	20.2	0.8	–3.4
Pedestrian	1,064	14.0	44.4	16,938	7.1	17.4	2.5	27.0
traffic[e]	774	10.2	33.5	11,930	5.0	12.3	2.7	21.2
non-traffic[f]	153	2.0	5.3	3,261	1.4	3.4	1.6	1.9
Occupant of pick-up truck or van	119	1.6	5.2	2,334	1.0	2.4	2.2	2.8
Occupant of heavy transport vehicle	46	0.6	2.4	3,676	1.6	3.8	0.6	–1.4
Bus occupant	45	0.6	2.4	2,007	0.8	2.0	1.2	0.4
Animal rider or occupant of animal-drawn vehicle	331	4.4	12.2	14,792	6.2	15.5	0.8	–3.3
Occupant of special all-terrain or off-road vehicle	96	1.3	3.0	3,371	1.4	3.5	0.8	–0.5
Occupant of three-wheeled motor vehicle	9	0.1	0.4	339	0.1	0.3	1.1	0.1
Occupant of a tram	14	0.2	0.7	347	0.1	0.3	2.0	0.4
Occupant of a train	18	0.2	0.6	544	0.2	0.5	1.1	0.1

(continued)

Table 1.03.12 (continued): Mode of transport[(a)] for serious injury, NSW, Vic, Qld, WA, SA and NT, 2003–04 to 2007–08

	Indigenous			Other				
Seriously injured person	**Number**	**Per cent**	**Rate[(b)]**	**Number**	**Per cent**	**Rate[(b)]**	**Rate ratio[(c)]**	**Rate difference[(d)]**
Occupant of a special industrial vehicle	16	0.2	0.9	704	0.3	0.7	1.2	0.2
Occupant of a special agricultural vehicle	10	0.1	0.3	935	0.4	0.9	0.3	–0.6
Occupant of a special construction vehicle	n.p.	n.p.	n.p.	308	0.1	0.3	0.9	n.p.
Occupant of watercraft	59	0.8	2.6	3,643	1.5	3.8	0.7	–1.2
Occupant of aircraft	n.p.	n.p.	n.p.	658	0.3	0.7	n.p.	n.p.
Other and unspecified	189	2.5	7.2	5,112	2.2	5.3	1.4	1.9
Total	**7,590**	**100.0**	**290.0**	**237,120**	**100.0**	**246.6**	**1.2**	**43.4**

(a) 'Mode of transport' here means the vehicle the person was travelling in at the time of being injured in a transport accident. 'Other and unspecified' includes V87, V88, V89, V98, and V99 for ICD–10 (deaths).

(b) Per 100,000 population, adjusted by direct standardisation to the Australian population in June 2001.

(c) Ratio of age-standardised rate for persons specified as Indigenous to the equivalent rate for all other persons (i.e. non-Indigenous or not stated).

(d) Difference between age-standardised rate for persons specified as Indigenous to the equivalent rate for all other persons (i.e. non-Indigenous or no stated).

(e) A traffic accident is any vehicle accident occurring on a public road (i.e. originating on, terminating on, or involving a vehicle partially on the road).

(f) A non-traffic accident is any vehicle accident that occurs entirely on any place other than a public road. For a certain proportion of cases, whether an accident was traffic or non-traffic was unknown. These cases are included in the totals for each mode of transport and this is the reason the sum of traffic and non-traffic cases is sometimes less than the total for each mode.

Source: Henley and Harrison, 2010.

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Land transport injury

- Most Indigenous transport deaths (98%) and serious injury cases (99%) were known to have involved land transport; 95% of other Australian transport deaths and 97% of serious injury cases were known to have involved land transport (Henley and Harrison, 2010).
- During the period 2003–04 to 2006–07, land transport accidents accounted for 20% of fatal injury cases for Indigenous people. From 2003–04 to 2007–08, land transport accidents accounted for 8% of all injury hospitalisations for Indigenous people. The age-standardised rate of land transport injury was 19 deaths per 100,000 Indigenous persons and 287 admissions to hospital per 100,000 Indigenous persons (Henley and Harrison, 2010).

Land transport injury by age and sex

- Fatal injury rates for Indigenous males were higher than those for other males across all ages. For females, fatal injury rates were similar for Indigenous and other women in the 10–14 and 15–19 year age groups, but Indigenous females had a higher death rate than other females in all other age groups (Table 1.03.13).
- Age-specific fatal injury rates for other males and females were highest for the 15–19 and 20–24 year age groups. For Indigenous males and females, fatal injury rates rose in the older teenage years and early adulthood then remained elevated through middle age, although age-specific rates were variable due to small numbers in each age group (Table 1.03.13).
- For Indigenous males and females, serious injury rates rose in the older teenage years and early adulthood then remained elevated throughout middle age. However, for other males and females, serious injury rates were highest for the 15–19 and 20–24 year age groups, declining thereafter until the 65 years and over age group (Table 1.03.13).

Table 1.03.13: Age-specific serious injury rates (per 100,000 population)[(a)] for land transport injury by sex, Indigenous and other persons, NSW, Vic, Qld, WA, SA and NT 2003–04 to 2007–08

	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+	Age std.[(b)]
Fatal injury (2003–04 to 2006–07)															
Indigenous male	12.7	5.5	4.7	38.1	33.5	22.9	45.4	51.8	28.8	28.3	19.2	23.0	34.6	31.1	27.5
Other male	2.2	1.7	2.5	17.9	22.1	17.3	15.5	11.6	9.1	9.6	8.2	7.5	8.6	13.0	10.8
Indigenous female	5.8	4.9	1.7	6.9	15.4	14.0	15.5	13.0	18.3	26.3	7.7	10.4	20.3	8.5	11.8
Other female	2.0	1.0	1.7	7.1	6.0	3.1	3.0	2.9	2.4	3.0	2.7	3.9	4.4	6.5	3.7
Serious injury (2003–04 to 2007–08)															
Indigenous male	156.7	254.5	492.0	650.0	554.8	545.5	532.1	465.0	440.4	398.2	311.6	255.0	166.1	186.4	386.3
Other male	78.8	215.0	490.1	681.3	603.0	466.8	412.2	351.0	303.9	258.3	220.6	186.5	163.9	176.5	329.0
Indigenous female	116.1	158.2	150.0	272.9	261.0	262.2	248.4	262.4	193.2	171.5	172.0	133.1	166.8	108.8	189.5
Other female	47.5	130.3	182.5	284.6	227.8	175.2	142.2	131.8	123.6	121.4	119.2	113.0	109.1	151.0	148.9

(a) Rates are averages of annual rates over the four years 2003–04 to 2006–07 for fatally injured persons and over the five years 2003–04 to 2007–08 for seriously injured persons.

(b) Adjusted by direct standardisation to the Australian population in June 2001.

Source: Henley and Harrison, 2010.

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Additional information

This section presents information on injuries received in the 4 weeks before the interview from the 2004–05 ABS National Aboriginal and Torres Strait Islander Health Survey (NATSIHS). The NATSIHS collected information on the type of injury, the damage caused by the injury, the activity and location at the time of injury and the part of the body affected.

Note that the 2004–05 NATSIHS data relate only to persons in private dwellings. People in hospitals, nursing and convalescent homes, and hospices were excluded from the sample.

Prevalence

- After adjusting for differences in age distribution, Indigenous Australians had a slightly lower rate of reported recent injury (in the previous 4 weeks) than non-Indigenous Australians (15.4 per 100 compared with 18.6 per 100).

Type of injury

- The most common events which led to injury for Indigenous Australians were low falls (33%) and cuts (19%).
- Indigenous Australians were three times as likely as non-Indigenous Australians to report a recent injury which was the result of an attack by another person (rate ratio 2.8) or a high fall (rate ratio 3.1).

Nature of injury

- The most common forms of recent injury for Indigenous Australians were an open wound (41%) and bruising (30%).
- Nearly half (45%) of Indigenous Australians aged 0–14 years who experienced an injury had an open wound. Bruising was also a common injury in this age group (36%).
- Indigenous Australians were more than twice as likely as non-Indigenous Australians to report a fracture as a recent injury (rate ratio 2.4).

Activity at time of injury event

- Leisure activities were the most common activity being undertaken when Indigenous Australians were injured (37% of Indigenous persons recently injured were undertaking leisure activity at the time of injury).
- In the Indigenous 0–14 age group, 62% of injuries occurred during leisure activities, 14% occurred during sports activities and 7% of injuries received in this age group occurred while attending school. For non-Indigenous Australians in the 0–14 age group, 54% of injuries occurred during leisure activities, 15% of injuries occurred during sports activities and 12% of injuries were received while attending school.
- Indigenous Australians who were recently injured were slightly less likely than non-Indigenous Australians who were recently injured to be attending school/college/university or working for income or as a volunteer at the time of injury (rate ratios of 0.7 and 0.8 respectively) and slightly more likely to be resting, sleeping or engaged in other personal activities at the time of injury (rate ratio of 1.4).

Location at time of injury event

- Indigenous Australians who received recent injuries were most likely to experience them inside or outside their own or someone else's home (29% and 28% respectively).
- Indigenous Australians were less likely that non-Indigenous Australians to experience recent injuries at a commercial or industrial place (respective rate ratios of 0.5 and 0.7)

and slightly more likely than non-Indigenous Australians to experience recent injuries at a street/highway (rate ratio of 1.3).

Influence of alcohol

- In 2004–05, 6% of Indigenous Australians aged 15 years and over reported being under the influence of alcohol or other substances at the time of injury.
- Indigenous Australians were almost five times as likely as non-Indigenous Australians to report being under the influence of alcohol or other substances at the time of injury (rate ratio of 4.5).

Data quality issues

National Hospital Morbidity Database

The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free-standing day hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included. The NHMD does not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

For 2009–10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2,400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10,600 separations for one private hospital.

Separations

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay or a portion of a hospital stay beginning or ending in a change of type of care) and not patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set.

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Separations with care types of *Newborn* episodes that did not include qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded as these activities are not considered to be admitted patient care.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections.

Approximately 2% of hospital records have missing Indigenous status information.

Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from WA where records with an unknown status are recorded as non-Indigenous.

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and

Torres Strait Islander people. In 2007, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data (AIHW 2010).

It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Interpretation of results should take into account the relative quality of the data from the jurisdictions. The proportion of the Indigenous population covered by these six jurisdictions is 96%. Tasmania and the Australian Capital Territory data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions.

From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level. Adjustments for Indigenous under-identification have been made at the national level for the total number of hospital separations using an adjustment factor of 89%. No adjustments for under-identification have been made at the state/territory level or principal diagnosis level.

The 2007 AIHW study indicated acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in *Major cities* to 97% in *Remote* and *Very remote* areas. The quality of data supports analyses for hospitalisations by remoteness areas at the national level only.

In 2011-12, the AIHW commenced another study to re-assess the level of under-identification in public hospitals data. All states and territories have participated in the study to assess improvements in data quality. A report on the findings is expected to be published in mid-2013 which will include new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

General Practitioner Data (BEACH)

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. Although the questionnaire contains an Indigenous identifier, it is unknown whether all GPs ask their patients this question. In the BEACH survey, 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners. Further detailed analyses of this issue are covered in General practice in Australia, heath priorities and policies 1998 to 2008, (Britt & Miller 2009:101):

'The findings of a BEACH substudy confirmed this suspected under-identification. In the data period reported here, 1.4% of patients encountered identified themselves as Indigenous. In contrast, in a BEACH substudy that asked 9,245 patients a complete set of questions about their cultural background (including Indigenous status) 2.2% (95% CI: 1.6–2.9) of respondents identified themselves as Indigenous (Britt et al. 2007). This rate is similar to the ABS estimates of Indigenous Australians as a proportion of the total population (ABS 2006).

However, the BEACH substudy included Indigenous Australians seen at Community Controlled Health Services funded through Medicare claims, and the estimate of 2.2% could have been an overestimate for the proportion of encounters that are with Indigenous patients in general practice as a whole. Deeble et al. (2008) conducted further investigations on this data and estimated that the BEACH encounter identification was an underestimate of about 10%, and that a more reliable estimate of the Indigenous population would be about 1.6% of all encounters (Deeble et al. 2008).

The findings of these studies are that some GPs are not routinely asking patients at the encounter about their Indigenous status, even when this is a variable specifically collected for each patient encountered, as it is in BEACH encounter data.'

Mortality data

Mortality data presented in this report are from the AIHW National Mortality Database. The AIHW National Mortality Database includes information on the factors that caused death, as well as other information about the deceased person, such as age at death, place of death, country of birth, and where applicable, the circumstances of their death. These data are collected in Australia by the Registrars of Births, Deaths and Marriages in each state and territory. The data are then compiled nationally by the ABS, which codes the data according to the International Classification of Diseases (ICD).

Deaths

Although it is considered likely that most deaths of Aboriginal and Torres Strait Islander (Indigenous) Australians are registered, a proportion of these deaths are not registered as Indigenous. Information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred and may differ from the self-identified Indigenous origin of the deceased.

Queensland deaths

In November 2010, the Queensland Registrar of Births, Deaths and Marriages advised the ABS of an outstanding deaths registration initiative undertaken by the Registry. This initiative resulted in the November 2010 registration of 374 previously unregistered deaths which occurred between 1992 and 2006 (including a few for which a date of death was unknown). Of these, around three-quarters (284) were deaths of Aboriginal and Torres Strait Islander Australians.

The ABS discussed different methods of adjustment of Queensland death registrations data for 2010 with key stakeholders. Following the discussion, a decision was made by the ABS and key stakeholders to use an adjustment method that added together deaths registered in 2010 for usual residents of Queensland which occurred in 2007, 2008, 2009 and 2010. This method minimises the impact on mortality indicators used in various government reports. However, care should still be taken when interpreting Aboriginal and Torres Strait Islander death data for Queensland for 2010**.**

Western Australia deaths

Indigenous deaths registered in Western Australia in 2007, 2008 and 2009 were corrected by the ABS in mid-2012 due to some non-Indigenous deaths being incorrectly recorded as

Indigenous for these years. Data presented in this report are based on the corrected data and will differ from mortality data presented in the 2010 Health Performance Framework report which presented data prior to the ABS corrections.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms.

Under-identification

At present, there is considerable variation across the states and territories in the completeness of mortality data for Indigenous people. Information concerning the number of deaths of Indigenous people is limited by the accuracy with which Indigenous persons are identified in death records. Problems associated with identification result in an underestimation of deaths of Indigenous people and in the gap in mortality between Indigenous and non-Indigenous Australians.

Mortality data for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered to have sufficient coverage to produce reliable statistics on Indigenous Australian deaths for the period 2001–2010.

Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) which are considered to have adequate identification from 1991. Queensland is considered to have sufficient coverage of Indigenous deaths from 1998.

The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.

Indigenous Mortality Quality Study

The ABS conducted a number of quality studies based on the 2006 Census of Population and Housing and other data sets as part of the Census Data Enhancement (CDE) project (ABS 2008). The CDE Indigenous Mortality Quality Study linked Census records with death registration records for the 11-month period following the Census and examined differences in the reporting of Indigenous status across the two data sets.

For the purpose of this study, the linked record was assumed to be an Indigenous record if a positive response was recorded against the Indigenous status question on either the death registration or the corresponding Census record. Following linkage, the number of death records identified as Indigenous increased from 1,800 to 2,123 records, or from 1.7% to 2.0% of all registered deaths.

'While 323 additional death records were able to be identified as Indigenous from Census records, more may have been expected if all death records had been linked. A key reason records could not be linked appears to be Census undercount, with a corresponding Census record not existing to link to for many Indigenous death records' (ABS 2008).

The results from the study suggested that coverage of Indigenous deaths in death registrations is considerably higher, at least in 2006-07, than previous estimates have indicated. Nationally, the coverage rate was estimated to be 85%. State/territory coverage estimates were: NSW 76%, Vic 74%, Qld 87%, SA 86%, WA 92% and NT 99% (ABS 2008).

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in death records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

List of symbols used in tables

n.a. not available

– rounded to zero (including null cells)

0 zero

. . not applicable

n.e.c. not elsewhere classified

n.f.d. not further defined

n.p. not available for publication but included in totals where applicable, unless otherwise indicated

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1.04 Respiratory disease

Deaths, hospitalisations and prevalence of respiratory disease for Aboriginal and Torres Strait Islander people expressed as a rate by age group, age-standardised rate and ratio

Data sources

Data for this measure come from the Australian Institute of Health and Welfare (AIHW) National Mortality Database, the National Hospital Morbidity Database and the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS). Additional information on invasive pneumococcal disease notifications comes from the National Notifiable Disease Surveillance System.

National Mortality Database

The National Mortality Database is a national collection of de-identified unit record level data. It comprises most of the information recorded on death registration forms and medical (cause of death) certificates, including Indigenous status. The database is maintained by the Australian Institute of Health and Welfare (AIHW). Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the Australian Bureau of Statistics (ABS). Information on the cause of death is supplied by the medical practitioner certifying the death, or by a coroner. The data are updated each calendar year and are presented by state/territory of usual residence rather than state/territory where death occurs.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander people are registered. However, a proportion of these deceased are not reported as Aboriginal or Torres Strait Islander by the family, health worker or funeral director during the death registration process. That is, while data are provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked of relatives and friends of the deceased by the funeral director.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to 3 jurisdictions (Western Australia, South Australia and the Northern Territory) with adequate identification of Indigenous deaths in their recording systems from 1991 onwards. The quality of the time-series data is also influenced by the late inclusion of a not stated category for Indigenous status in 1998. Prior to this time, the not stated responses were probably included with the non-Indigenous.

Deaths registered in 2010 with a usual residence of Queensland have been adjusted to exclude deaths registered in 2010 that occurred prior to 2007. This is to minimise the impact of late registration of deaths due to recent changes in the timeliness of death registrations in Queensland.

Western Australian Aboriginal and Torres Strait Islander deaths for 2007, 2008 and 2009, have been revised to correct for a data quality issue which resulted in the over-reporting of Indigenous deaths during this period.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2006–2010 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years.

National Hospital Morbidity Database

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Hospitalisation data are presented for the 2-year period from July 2008 to June 2010. An aggregate of 2 years of data has been used, because the number of hospitalisations for some conditions is likely to be small for a single year.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individual, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question. For example, it is not possible to identify whether one patient was admitted 5 times or five patients were admitted once. People who receive treatment at hospital but are not admitted are not counted in hospital records. Hospital separation data are also affected by variations in admission practices, and the availability of and access to hospital and non-hospital services.

Care types 7.3, 9 and 10 (Newborn – unqualified days only; organ procurement; hospital border) have been excluded from analysis.

Data are presented for the six jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalisations in 2006–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. National totals include separations for people resident in these six jurisdictions only and are not necessarily representative of the jurisdictions not included. Indigenous status data are reported for Tasmania and the Australian Capital Territory (public hospitals only) with caveats until further audits of the quality of data in these jurisdictions are completed. Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Data are presented by state/territory of usual residence of the patient.

The following caveats have been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in

data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).

- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

National Notifiable Diseases Surveillance System

A set of 65 diseases and conditions are notifiable nationally to the National Notifiable Diseases Surveillance System (NNDSS), which is managed by the Australian Government Department of Health and Ageing.

Identification of Indigenous notifications in all states and territories is incomplete, with the level of completeness varying across diseases as well as jurisdictions. The NNDSS provided the AIHW with data on Indigenous status completeness by disease and jurisdiction. Using a cut-off of 50% completeness of Indigenous status for the period 2009-2011, Western Australia, South Australia, Tasmania and the Northern Territory were assessed to have adequate identification for chlamydia, syphilis, gonorrhoea, hepatitis B and hepatitis C. Of the remaining states/territories, Queensland and Victoria had adequate identification for syphilis, gonorrhoea and chlamydia; ACT had adequate identification for syphilis, gonorrhoea and hepatitis B; and New South Wales had adequate identification for syphilis only.

Although data on hepatitis C is included in this indicator, sexual transmission is not considered the main route of transmission, hepatitis C primarily occurs among those with a history of injecting drug use. Data for hepatitis C included in this indicator are for 'newly acquired' and 'unspecified' notifications.

All categories of syphilis (including infectious, latent and unknown duration) have been included in the analysis of data in this report, with the exception on New South Wales for which the category of greater than 2 years duration or unknown status have been excluded due to low completeness of Indigenous status for these data.

Three years have been combined for reporting due to the small number of Indigenous and non-Indigenous notifications for some STIs each year.

Other Australians includes notifications for non-Indigenous Australians and those for whom Indigenous status is not stated.

National Aboriginal and Torres Strait Islander Health Survey

The 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians. This included information on health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. The survey provides comparisons over time in the health of Indigenous Australians. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

It is planned to repeat the NATSIHS at 6-yearly intervals, with the next survey to be conducted during 2012-13 as part of the Australian Health Survey (will be called the Australian Aboriginal and Torres Strait Islander Health Survey (ATSIHS)).

Analyses

Mortality

Table 1.04.1 presents data on mortality due to respiratory diseases over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

Further information on mortality due to respiratory disease, including trends over time can be found in indicator 1.23 Leading causes of mortality.

- Over the period 2006–2010, there were 858 deaths of Indigenous Australians and 39,317 deaths of non-Indigenous Australians from respiratory diseases in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.
- Over the period 2006–2010, respiratory diseases were responsible for 8% of Indigenous deaths and 8% of non-Indigenous deaths, most of which were for Chronic Obstructive Pulmonary Disease (COPD) (55%). Additionally, respiratory disease was reported as an additional cause of death in 26% of Indigenous deaths and 30% of non-Indigenous deaths.
- Indigenous Australians died from respiratory diseases at around twice the rate of non-Indigenous Australians.
- There has been a significant decline in mortality rates for respiratory diseases among Indigenous Australians in Western Australia, South Australia and the Northern Territory combined between 1997 and 2010 (39%), and a significant decline in the gap between Indigenous and non-Indigenous Australians (45% decline in the rate difference).
- Over the period 2001 to 2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, there was a 20% decline in respiratory disease mortality rates for Indigenous persons, and no significant change in the gap (see Indicator 1.23 for more).
- The mean number of causes of death reported for deaths with an underlying cause of respiratory disease was similar for Indigenous Australians (3.4) and non-Indigenous Australians (3.3) (Table 1.04.1).
- After adjusting for differences in age-structure, COPD was reported as an additional cause of death in 13% of Indigenous deaths compared with 9% of non-Indigenous deaths (Table 1.04.1).

Table 1.04.1: Selected respiratory diseases as causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)]

	Underlying cause								Additional cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[(i)]		Crude		Age-standardised[(i)]		Crude		Age-standardised[(i)]		Crude		Age-standardised[(i)]		Indig.	Non-Indig.
	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Crude Mean no. of causes[(j)]	Crude Mean no. of causes[(j)]
Males																		
Chronic lower respiratory diseases (J40–J47)	22.6	4.4	88.5	6.7	29.1	4.4	30.6	4.4	51.1	10.0	202.9	15.3	76.8	11.5	80.6	11.7	3.7	3.6
COPD (J40-J44)[(k)]	*18.6*	*3.6*	*79.2*	*6.0*	*26.9*	*4.0*	*28.4*	*4.1*	*45.3*	*8.8*	*187.6*	*14.2*	*71.5*	*10.7*	*75.2*	*10.9*	*3.6*	*3.6*
Asthma (J45-J46)[(k)]	*1.3*	*0.3*	*n.p.*	*n.p.*	*1.4*	*0.2*	*1.4*	*0.2*	*3.3*	*0.7*	*10.8*	*0.8*	*4.6*	*0.7*	*4.7*	*0.7*	*3.4*	*3.5*
Pneumonia and influenza (J09–J18)	8.6	1.7	23.7	1.8	9.2	1.4	9.8	1.4	53.5	10.4	176.2	13.3	76.7	11.5	81.3	11.8	2.4	2.3
Other respiratory disease (J00–06, J20–39, J60–99)	7.1	1.4	23.6	1.8	18.0	2.7	19.1	2.8	58.0	11.3	181.5	13.7	97.6	14.6	102.3	14.8	3.5	3.6
Total respiratory diseases	**38.3**	**7.5**	**135.8**	**10.3**	**56.3**	**8.4**	**59.5**	**8.6**	**132.0**	**25.7**	**447.4**	**33.8**	**207.5**	**31.0**	**218.3**	**31.6**	**3.4**	**3.4**
All causes	513.3	100.0	1,321.9	100.0	668.4	100.0	690.8	100.0	513.3	100.0	1,321.9	100.0	668.4	100.0	690.8	100.0	3.2	3.2

(continued)

Table 1.04.1 (continued): Selected respiratory diseases as causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010 [(a)(b)(c)(d)(e)(f)(g)(h)]

	Underlying cause								Additional cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[(i)]		Crude		Age-standardised[(i)]		Crude		Age-standardised[(i)]		Crude		Age-standardised[(i)]		Indig.	Non-Indig.
	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Crude Mean no. of causes[(j)]	Crude Mean no. of causes[(j)]
Females																		
Chronic lower respiratory diseases (J40–J47)	21.8	5.3	65.3	6.4	24.3	3.9	20.0	3.9	48.8	11.8	145.9	14.4	56.2	9.0	46.2	9.0	3.7	3.5
COPD (J40-J44)[(k)]	*17.6*	*4.2*	*55.3*	*5.4*	*20.3*	*3.2*	*16.7*	*3.2*	*39.5*	*9.5*	*123.9*	*12.2*	*46.6*	*7.5*	*38.3*	*7.4*	*3.7*	*3.5*
Asthma (J45-J46)[(k)]	*2.5*	*0.6*	*5.7*	*0.6*	*2.3*	*0.4*	*2.0*	*0.4*	*6.9*	*1.7*	*17.0*	*1.7*	*7.9*	*1.3*	*6.5*	*1.3*	*3.9*	*3.8*
Pneumonia and influenza (J09–J18)	6.6	1.6	16.2	1.6	11.3	1.8	9.1	1.8	39.9	9.6	114.7	11.3	75.9	12.1	61.2	11.9	2.7	2.2
Other respiratory disease (J00–06, J20–39, J60–99)	4.7	1.1	14.3	1.4	14.1	2.3	11.4	2.2	45.4	11.0	126.0	12.4	80.4	12.9	65.9	12.8	3.4	3.5
Total respiratory diseases	**33.2**	**8.0**	**95.8**	**9.4**	**49.7**	**8.0**	**40.5**	**7.9**	**110.9**	**26.8**	**315.6**	**31.0**	**179.9**	**28.8**	**146.6**	**28.5**	**3.5**	**3.2**
All causes	414.2	100.0	1,016.6	100.0	625.0	100.0	515.2	100.0	414.2	100.0	1,016.6	100.0	625.0	100.0	515.2	100.0	3.4	3.2

(continued)

Table 1.04.1 (continued): Selected respiratory diseases as causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010 [(a)(b)(c)(d)(e)(f)(g)(h)]

	Underlying cause								Additional cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[(i)]		Crude		Age-standardised[(i)]		Crude		Age-standardised[(i)]		Crude		Age-standardised[(i)]		Indig.	Non-Indig.
	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Rate[(f)]	% of total deaths	Crude Mean no. of causes[(j)]	Crude Mean no. of causes[(j)]
Persons																		
Chronic lower respiratory diseases (J40–J47)	22.2	4.8	74.9	6.5	26.7	4.1	24.6	4.1	49.9	10.8	169.4	14.7	66.5	10.3	61.2	10.2	3.7	3.6
COPD (J40-J44)[(k)]	*18.1*	*3.9*	*65.1*	*5.6*	*23.6*	*3.7*	*21.7*	*3.6*	*42.4*	*9.1*	*150.3*	*13.0*	*59.0*	*9.1*	*54.3*	*9.1*	*3.6*	*3.6*
Asthma (J45-J46)[(k)]	*1.9*	*0.4*	*4.8*	*0.4*	*1.9*	*0.3*	*1.7*	*0.3*	*5.1*	*1.1*	*14.2*	*1.2*	*6.2*	*1.0*	*5.7*	*1.0*	*3.7*	*3.6*
Pneumonia and influenza (J09–J18)	7.6	1.6	19.5	1.7	10.3	1.6	9.4	1.6	46.7	10.1	141.3	12.2	76.3	11.8	70.1	11.7	2.6	2.2
Other respiratory disease (J00–06, J20–39, J60–99)	5.9	1.3	18.4	1.6	16.0	2.5	14.7	2.5	51.7	11.2	150.6	13.0	89.0	13.8	81.9	13.7	3.5	3.6
Total respiratory diseases	**35.7**	**7.7**	**112.8**	**9.8**	**53.0**	**8.2**	**48.7**	**8.2**	**121.4**	**26.2**	**372.2**	**32.2**	**193.6**	**29.9**	**178.2**	**29.8**	**3.4**	**3.3**
All causes	463.5	100.0	1,156.1	100.0	646.6	100.0	597.3	100.0	463.5	100.0	1,156.1	100.0	646.6	100.0	597.3	100.0	3.3	3.2

(continued)

Table 1.04.1 (continued): Selected respiratory diseases as causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010 [(a)(b)(c)(d)(e)(f)(g)(h)]

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) These data exclude 5,441 registered deaths where the Indigenous status was not stated over the period 2006-2010.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) Rates are number of deaths per 100,000 population.

(g) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(h) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(i) Figures are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(j) Mean number of causes is calculated based on the average number of causes of death present for a death with the selected underlying cause of death. This data item provides insight into co-morbidity.

(k) Data presented for COPD and asthma are a subset of data presented for all chronic lower respiratory diseases.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Hospitalisations

Age-standardised rates and ratios have been used as a measure of hospitalisations in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of hospital admissions among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

- In the 2-year period July 2008 to June 2010, there were 704,000 hospitalisations for respiratory diseases in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, 35,343 (5%) of which were hospitalisations of Aboriginal and Torres Strait Islander people (Table 1.04.2).
- Hospitalisations for respiratory diseases represented 6% of all hospital separations for Aboriginal and Torres Strait Islander Australians.

Hospitalisations by age and sex

- In the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males and females had higher hospitalisation rates for respiratory diseases than other males and females across all age groups (Table 1.04.2).
- For both Indigenous and non-Indigenous males and females, hospitalisation rates for respiratory diseases were highest among those aged 0–4 years, and 65 years and over.
- The greatest ratio of Indigenous to non-Indigenous mortality from respiratory diseases occurred in the 45–54 year age group for males and females, where Indigenous males were hospitalised at about 5 times the rate of non-Indigenous males and Indigenous females were hospitalised at over 6 times the rate of non-Indigenous females.
- Approximately 49.4% of Indigenous Australians hospitalised for respiratory diseases were males (17,475) and 50.6% were females (17,868) (Table 1.04.2).

Table 1.04.2: Age-specific hospitalisation rates for a principal diagnosis of diseases of the respiratory system, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)]

									All ages	
	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65+	Crude	Age std.[(d)]
Males										
Indigenous	103.5	14.8	8.5	13.2	29.4	39.0	60.5	114.6	33.3	43.3
Non-Indigenous	55.9	13.4	7.8	6.2	7.0	8.1	13.9	50.0	17.3	17.5
Rate ratio[(e)]	1.9	1.1	1.1	2.1	4.2	4.8	4.4	2.3	1.9	2.5
Rate difference[(f)]	47.5	1.4	0.7	7.0	22.4	30.9	46.7	64.6	16.0	25.8
Females										
Indigenous	75.2	13.5	12.3	18.3	31.5	50.8	73.4	103.9	33.8	43.5
Non-Indigenous	37.5	11.9	10.6	6.9	7.1	8.2	13.4	37.1	15.3	14.6
Rate ratio[(e)]	2.0	1.1	1.2	2.6	4.4	6.2	5.5	2.8	2.2	3.0
Rate difference[(f)]	37.6	1.5	1.7	11.4	24.4	42.6	60.0	66.8	18.5	28.8
Persons										
Indigenous	89.6	14.2	10.3	15.7	30.5	45.2	67.4	108.5	33.6	43.2
Non-Indigenous	47.0	12.7	9.2	6.5	7.1	8.1	13.7	43.0	16.3	16.0
Rate ratio[(e)]	1.9	1.1	1.1	2.4	4.3	5.5	4.9	2.5	2.1	2.7
Rate difference[(f)]	42.6	1.5	1.2	9.2	23.4	37.0	53.7	65.5	17.3	27.3

(a) Data excludes private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patients hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(d) Directly age-standardised using the Australian 2001 standard population.

(e) Rate ratio Indigenous: non-Indigenous Australians.

(f) Rate difference Indigenous minus non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

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Hospitalisations by state/territory

Table 1.04.3 presents hospitalisations for a principal diagnosis of respiratory diseases for the 2-year period July 2008 to June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory, Tasmania and the Australian Capital Territory.

- Over the period July 2008 to June 2010, Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised for respiratory diseases at 2.7 times the rate of non-Indigenous Australians.
- In the Northern Territory Indigenous Australians were 4.5 times as likely as non-Indigenous Australians to be hospitalised for respiratory diseases. In Western Australia and South Australia, the ratio was 4 and 3 times respectively. In New South Wales, Victoria and Queensland Indigenous Australians were hospitalised at around twice the rate of non-Indigenous Australians in these jurisdictions.

Table 1.04.3: Hospitalisations for principal diagnosis of diseases of the respiratory system, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT, July 2008-June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Number per 1,000[(e)]	Number	Number per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
NSW						
Males	4,524	34.2	122,364	17.8	1.9*	16.4*
Females	4,642	37.5	107,017	14.5	2.6*	23.0*
Persons	9,166	35.9	229,381	16.0	2.2*	19.9*
Vic						
Males	676	23.5	92,819	17.6	1.3*	5.9*
Females	795	27.4	84,949	14.8	1.8*	12.6*
Persons	1,471	25.6	177,770	16.0	1.6*	9.6*
Qld						
Males	4,468	41.5	72,162	17.3	2.4*	24.3*
Females	4,315	36.8	63,926	14.6	2.5*	22.2*
Persons	8,783	38.7	136,088	15.9	2.4*	22.8*
WA						
Males	3,274	54.5	31,817	15.2	3.6*	39.3*
Females	3,448	58.1	28,222	13.0	4.5*	45.0*
Persons	6,722	56.2	60,039	14.0	4.0*	42.1*
SA						
Males	1,106	51.4	32,228	20.1	2.6*	31.3*
Females	1,336	58.8	29,722	17.3	3.4*	41.6*
Persons	2,442	55.0	61,950	18.6	3.0*	36.5*
NT						
Males	3,427	66.6	2,098	16.5	4.0*	50.2*
Females	3,332	58.8	1,331	11.1	5.3*	47.7*
Persons	6,759	62.0	3,429	13.9	4.5*	48.1*
NSW, Vic, Qld, WA, SA and NT[(h)]						
Males	**17,475**	**43.3**	**353,488**	**17.5**	**2.5***	**25.8***
Females	**17,868**	**43.5**	**315,167**	**14.6**	**3.0***	**28.8***
Persons	**35,343**	**43.2**	**668,657**	**16.0**	**2.7***	**27.3***
Tas						
Males	187	13.5	5,249	10.3	1.3*	3.2*
Females	219	12.9	4,900	9.2	1.4*	3.8*
Persons	406	13.2	10,149	9.7	1.4*	3.5*

(continued)

Table 1.04.3 (continued): Hospitalisations for principal diagnosis of diseases of the respiratory system, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT, July 2008–June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Number per 1,000[(e)]	Number	Number per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
ACT						
Males	55	9.3	3,270	10.6	0.9	–1.4
Females	45	16.2	3,031	9.1	1.8*	7.1*
Persons	100	12.8	6,301	9.8	1.3	3.0

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patient hospitalised.

(d) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+.

(e) Directly age-standardised using the Australian 2001 standard population.

(f) Rate ratio Indigenous: Non-Indigenous.

(g) Rate difference Indigenous minus Non-Indigenous.

(h) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by remoteness

Hospitalisation rates for respiratory diseases in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory are presented by Australian Standard Geographical Classification (ASGC) in Table 1.04.4, covering the period July 2008 to June 2010.

- Indigenous Australians in all remoteness areas were more likely to be hospitalised for a principal diagnosis of respiratory diseases than non-Indigenous Australians. The ratio of hospitalisations of Indigenous people compared with non-Indigenous Australians was between 1.8 (*Major cities*) and 4.3 (*Remote areas*).
- Rates of hospitalisations per 1,000 head of population were highest for Indigenous people living in *Remote* areas, at about 80 per 1,000. The rate was highest for non-Indigenous Australians who lived in *Very remote* areas, at about 21 per 1,000. The lowest rates were observed in *Major cities* areas for both Indigenous (about 27 per 1,000) and non-Indigenous Australians (15.4 per 1,000).
- Indigenous people in *Remote* areas were hospitalised for respiratory diseases at 4.3 times the rate of non-Indigenous Australians. In *Major cities*, where the lowest ratio was observed, Indigenous Australians were hospitalised at a rate which was 1.8 times that of non-Indigenous Australians. Nationally, the rate was 2.7 times.

Table 1.04.4: Hospitalisations for principal diagnosis of diseases of the respiratory system, by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2008-June 2010[(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous					
	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Ratio[(i)]	Difference[(j)]
Major cities	7,125	26.9	26.1	27.7	444,094	15.3	15.3	15.4	1.8*	11.6*
Inner regional	5,948	34.5	33.4	35.7	143,309	17.3	17.2	17.4	2.0*	17.2*
Outer regional[(k)]	8,353	48.9	47.5	50.2	67,949	18.0	17.8	18.1	2.7*	30.9*
Remote[(l)]	6,477	79.8	77.4	82.1	9,803	18.7	18.4	19.1	4.3*	61.0*
Very remote	7,413	51.9	50.5	53.3	3,313	20.6	19.9	21.4	2.5*	31.3*
Total[(m)]	**35,343**	**42.6**	**42.1**	**43.2**	**668,657**	**16.0**	**15.9**	**16.0**	**2.7***	**26.7***

* Represents results with statistically significant differences in the Indigenous/Non-Indigenous comparisons at the p < 0.05 level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised.

(e) Directly age-standardised using the Australian 2001 standard population, by 5 year age groups to 65+.

(f) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous.

(j) Rate difference Indigenous- non-Indigenous.

(k) Includes remote Victoria.

(l) Excludes remote Victoria.

(m) Total includes hospitalisations where ASGC is missing.

Notes

1. Rates are calculated using the remoteness distribution by Indigenous status, age and sex based on the 2006 ERP and applied to the 2008-10 population projections (Series B) based on the 2006 Census.
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by principal diagnosis

Table 1.04.5 presents hospitalisations of Indigenous people for principal diagnosis of diseases of the respiratory system by type of respiratory and sex for the 2-year period July 2008 to June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- For the period July 2008 to June 2010 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of all hospitalisations with a principal diagnosis of respiratory diseases, about 23% was for pneumonia, 13% was for chronic obstructive pulmonary disease (COPD) and 11% was for asthma.
- Indigenous females were hospitalised for COPD at about six times the rate of non-Indigenous females, and Indigenous males were hospitalised for COPD at four times the rate of non-Indigenous males. Indigenous females were hospitalised for pneumonia at 4.2 times the rate of non-Indigenous females, and Indigenous males were hospitalised for pneumonia at 3.5 times the rate of non-Indigenous males.

Table 1.04.5: Hospitalisations of Indigenous persons for principal diagnosis of diseases of the respiratory system, by type of respiratory disease and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

Principal diagnosis	Number	Per cent [(e)]	No per 1,000[(f)]	LCL[(g)]	UCL[(h)]	Ratio[(i)]	Difference[(j)]
			Males				
Asthma (J45)	1,739	10.0	2.5	2.3	2.6	1.6*	1.0*
COPD (J43-J44)	1,978	11.3	11.2	10.6	11.8	4.0*	8.4*
Other	9,799	56.1	18.4	17.8	18.9	1.8*	8.4*
Pneumonia (J12-J18)	3,959	22.7	11.2	10.7	11.7	3.5*	8.0*
Total (J00-J99)	**17,475**	**100.0**	**43.3**	**42.4**	**44.2**	**2.5***	**25.8***
			Females				
Asthma (J45)	2,086	11.7	4.1	3.9	4.4	2.7*	2.6*
COPD (J43-J44)	2,721	15.2	11.6	11.1	12.0	5.9*	9.6*
Other	9,031	50.5	17.2	16.8	17.7	2.0*	8.7*
Pneumonia (J12-J18)	4,030	22.6	10.5	10.1	10.9	4.2*	8.0*
Total (J00-J99)	**17,868**	**100.0**	**43.5**	**42.7**	**44.2**	**3.0***	**28.8***
			Persons				
Asthma (J45)	3,825	10.8	3.4	3.2	3.5	2.2*	1.8*
COPD (J43-J44)	4,699	13.3	11.3	10.9	11.7	4.9*	9.0*
Other	18,830	53.3	17.7	17.4	18.1	1.9*	8.5*
Pneumonia (J12-J18)	7,989	22.6	10.8	10.5	11.1	3.8*	8.0*
Total (J00-J99)	**35,343**	**100.0**	**43.2**	**42.6**	**43.8**	**2.7***	**27.3***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous Australian comparisons at the $p < 0.05$ level.

(a) Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patients hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Proportion of male, female and total hospitalisations of Indigenous persons in the period 2008–09 to 2009–10.

(f) Directly age-standardised using the Australian 2001 standard population.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous Australians.

(j) Rate difference Indigenous minus Non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data from 1998–99 to 2009–10 are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations over this period—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population.

Additional trend analysis has also been presented for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined from 2004–05 to 2007–08 for Indigenous and non-Indigenous Australians. New South Wales and Victoria have been assessed as having adequate identification of Indigenous hospitalisations from 2004–05. These six jurisdictions represent approximately 96% of the Indigenous population of Australia.

Note that changes in the level of accuracy of Indigenous identification in hospital records will result in changes in the level of reported hospital separations for Indigenous Australians, as will changes in access, hospital policies and practices over time. Caution should be used in interpreting changes over time, as it is not possible to ascertain whether a change in reported hospitalisation is due to changes in the accuracy of Indigenous identification or real changes in the rates at which Indigenous people are hospitalised. An increase in hospitalisation rates may also reflect increased use of admitted patient hospital services rather than a worsening of health.

Respiratory diseases — 1998-99 to 2009-10

All ages

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for respiratory diseases as principal diagnosis over the period 1998-99 to 2009–10 are presented in Table 1.04.6 and Figure 1.04.1.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant declines in hospitalisation rates for respiratory diseases among Indigenous males, female and persons overall during the period 1998-99 to 2009–10, with an average yearly decline in hospitalisation rates of 0.6 per 1,000 (11% decline) for males, 0.7 per 1,000 (13% decline) for females, and 0.6 per 1,000 (12% decline) for persons respectively.
- There were also significant declines in hospitalisation rates among non-Indigenous Australian males over the same period. The average yearly decline was 0.2 per 1,000 (9% decline).
- There was a significant decline in the hospitalisation rate ratio between Indigenous and non-Indigenous females and persons (not for males). There was a significant decrease in the rate difference between Indigenous and non-Indigenous males, females and persons 12% decline for males and 17% for females).

Children aged 0–4 years

Hospitalisation rates, rate ratios and rate differences between Indigenous and other children aged 0–4 years for respiratory diseases over the 12-year period 1998-99 to 2009–10 are presented in Table 1.04.7 and Figure 1.04.2.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there was a significant decrease in hospitalisation rates for respiratory diseases among Indigenous children aged 0–4 years during the period 1998-99 to 2009–10. The fitted trend implies an average yearly decrease in the rate of around 2.9 per 1,000 which is equivalent to a 25% decline over the period.
- Over the same period, there was a significant decrease in the rate of respiratory diseases hospitalisation among non-Indigenous children aged 0–4 years, with an average yearly decrease of 0.6 per 1,000 or a 12% decline in the rate over the period.

- There was a significant decrease in both the hospitalisation rate ratio and rate difference between Indigenous and non-Indigenous children for respiratory diseases. The fitted trend implies an average yearly decrease of 0.03 (14% decline) for the rate ratio, and around 2.3 per 1,000 for the rate difference (33% decline) in the period.

Table 1.04.6: Age-standardised hospitalisation rates, rate ratios and rate differences for diseases of the respiratory system, Qld, WA, SA and NT, 1998–1999 to 2009–2010[a][b]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[c]	Per cent change[d]
Indigenous separations														
Males	5,886	5,892	5,723	5,538	5,420	5,874	5,354	5,463	5,163	5,805	5,909	6,366	13	2.4
Females	5,792	5,599	5,597	5,295	5,474	5,781	5,509	5,687	5,451	5,769	5,986	6,445	46*	8.6*
Persons	11,678	11,491	11,320	10,834	10,894	11,655	10,863	11,150	10,614	11,574	11,895	12,811	59	5.5
Non-Indigenous separations														
Males	58,750	59,555	59,059	60,695	58,505	59,544	58,936	61,751	59,318	66,497	68,213	70,092	899*	16.8*
Females	50,169	51,030	50,237	51,459	50,373	51,238	50,281	54,740	51,685	58,185	61,120	62,081	1,017*	22.3*
Persons	108,919	110,587	109,296	112,155	108,878	110,782	109,217	116,491	111,003	124,682	129,333	132,173	1,915*	19.3*
Indigenous rate per 1,000														
Males	57.5	56.1	52.0	52.0	50.7	53.6	51.9	50.9	45.9	51.3	50.6	50.5	–0.6*	–10.9*
Females	55.9	54.6	52.1	48.1	50.4	50.6	49.2	49.8	45.5	47.7	48.1	48.3	–0.7*	–13.0*
Persons	56.4	55.2	52.0	49.7	50.3	51.7	50.1	50.0	45.4	49.1	48.9	49.1	–0.6*	–12.4*
Non-Indigenous rate per 1,000														
Males	18.6	18.6	18.1	18.2	17.3	17.2	16.7	17.0	15.9	17.3	17.3	17.2	–0.2*	–9.2*
Females	14.8	14.8	14.3	14.4	13.8	13.8	13.3	14.2	13.1	14.4	14.7	14.6	0.0	–2.5
Persons	16.5	16.5	16.0	16.2	15.4	15.4	14.8	15.5	14.4	15.7	15.9	15.8	–0.1	–5.6
Rate ratio[e]														
Males	3.1	3.0	2.9	2.9	2.9	3.1	3.1	3.0	2.9	3.0	2.9	2.9	–0.01	–2.2
Females	3.8	3.7	3.6	3.3	3.6	3.7	3.7	3.5	3.5	3.3	3.3	3.3	–0.04*	–10.8*
Persons	3.4	3.3	3.2	3.1	3.3	3.4	3.4	3.2	3.2	3.1	3.1	3.1	–0.02*	–7.3*

(continued)

Table 1.04.6 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences for diseases of the respiratory system , Qld, WA, SA and NT, 1998–1999 to 2009–2010[(a)(b)]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Rate difference[(f)]														
Males	39.0	37.5	33.9	33.8	33.4	36.4	35.3	33.9	29.9	34.0	33.3	33.3	–0.4*	–11.8*
Females	41.1	39.8	37.8	33.6	36.5	36.8	35.9	35.7	32.4	33.3	33.5	33.7	–0.6*	–16.7*
Persons	39.9	38.7	36.0	33.5	35.0	36.3	35.2	34.6	31.0	33.3	33.1	33.3	–0.6*	–15.2*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2009–10.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Data are reported by state/territory of usual residence of the patient hospitalised.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 1998–99 and 2009–10 based on the average annual change over the period.

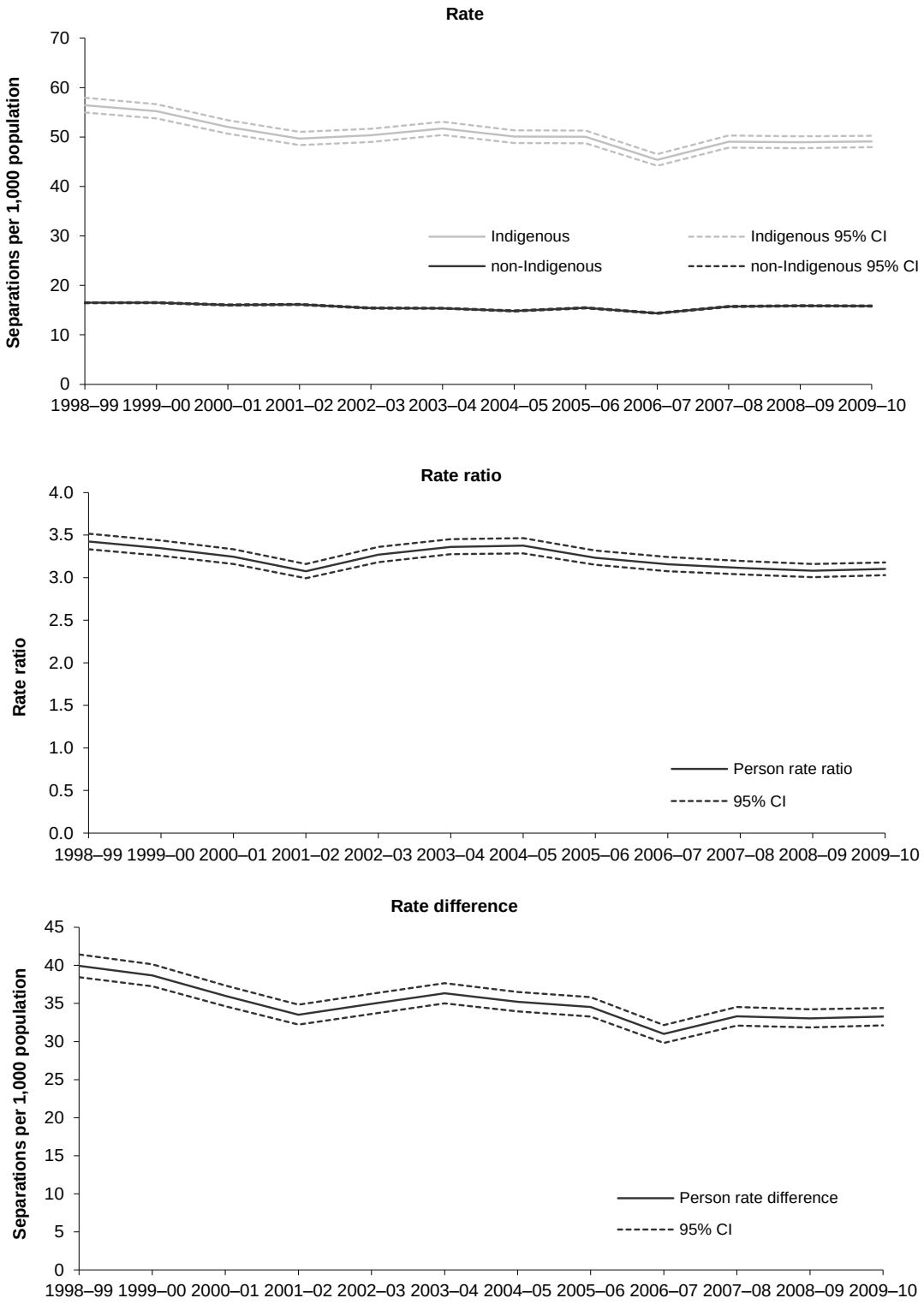
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.04.1: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for diseases of the respiratory system, Qld, WA, SA and NT, 1998–1999 to 2009–2010

Table 1.04.7: Children aged 0-4 years, hospitalisation rates, rate ratios and rate differences for, diseases of the respiratory system Qld, WA, SA and NT, 1998–99 to 2009–10[(a)(b)]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Indigenous separations	4,868	4,751	4,592	4,202	4,289	4,569	3,648	3,726	3,584	3,781	3,846	4,094	-98*	-22.2*
Non-Indigenous separations	23,034	23,241	22,510	22,726	21,061	22,470	21,145	20,675	19,647	24,170	24,482	25,198	100.0	4.8
Indigenous No. per 1,000	128.0	124.2	118.7	107.6	109.3	116.7	93.7	96.3	92.8	97.2	97.3	101.4	-2.9*	-24.7*
Non-Indigenous No. per 1,000	51.6	52.2	50.6	51.1	47.2	50.1	46.6	44.7	41.3	49.0	47.4	47.0	-0.6*	-12.3*
Rate ratio[(e)]	2.5	2.4	2.3	2.1	2.3	2.3	2.0	2.2	2.2	2.0	2.1	2.2	-0.03*	-14.1*
Rate difference[(f)]	76.4	72.0	68.1	56.6	62.1	66.6	47.0	51.6	51.5	48.3	49.9	54.4	-2.3*	-33.0*

* Represents results with statistically significant increases or declines at the p < 0.05 level over the period 1998–99 to 2009–10.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Data are reported by state/territory of usual residence of the patient hospitalised.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 1998–99 and 2009–10 based on the average annual change over the period.

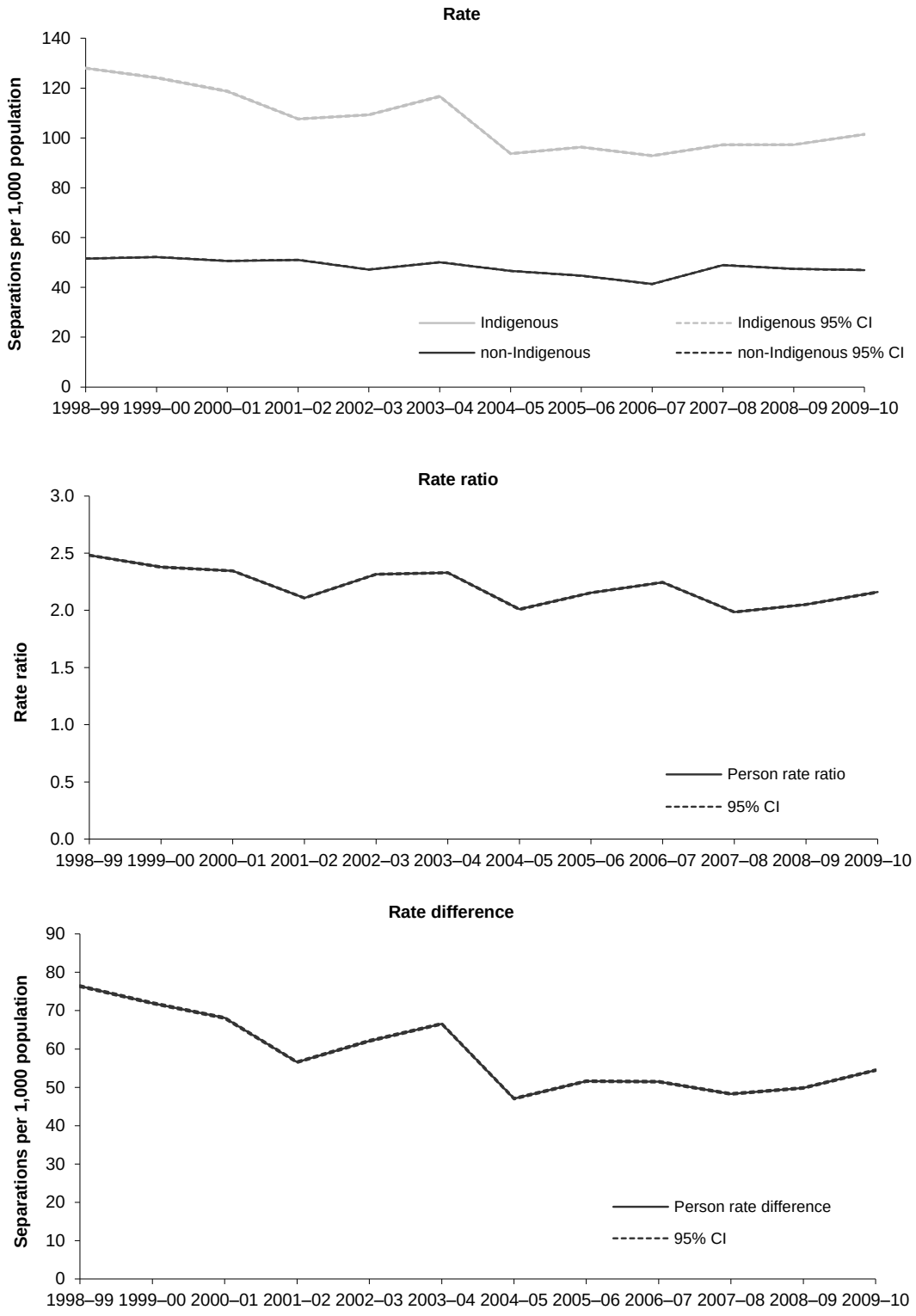
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.04.2: Children aged 0–4 years, hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for diseases of the respiratory system, Qld, WA, SA and NT, 1998-1999 to 2009-2010

Respiratory diseases — 2004–05 to 2009–10

All ages

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for respiratory diseases over the period 2004–05 to 2009–10 are presented in Table 1.04.8 and Figure 1.04.3.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were increases in hospitalisation rates for respiratory diseases among Indigenous males, females and persons during the period 2004–05 to 2009–10, although the increases were not statistically significant.
- There were also increases in hospitalisation rates among non-Indigenous males, females and persons over the same period. The increase for non-Indigenous females (0.2 per 1,000 yearly, or 7.6% over the period) was statistically significant.
- There were no significant changes in the hospitalisation rate ratios and rate difference between Indigenous and non-Indigenous males, females and persons over this period.

Children aged 0–4 years

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous children aged 0–4 years for respiratory diseases over the period 2004–05 to 2009–10 are presented in Table 1.04.9 and Figure 1.04.4.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there was a significant increase in hospitalisation rates for respiratory diseases among Indigenous children aged 0–4 years during the period 2004–05 to 2009-10. The fitted trend implies an average yearly increase in the rate of around 1.8 per 1,000 which is equivalent to an 11.3% increment in the rate over the period.
- Over the same period, there were no significant changes in the hospitalisation rates among non-Indigenous children aged 0–4 years for respiratory diseases.
- The hospitalisation rate difference for respiratory diseases between Indigenous and non-Indigenous children significantly increased by 1.1 per 1,000 a year on average (15.8% over the period), while there was no significant change in the rate ratios.

Table 1.04.8: Age-standardised hospitalisation rates, rate ratios and rate differences for respiratory diseases, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2007–08[(a)(b)]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Indigenous separations								
Males	7,318	7,779	7,383	8,253	8,436	9,039	327*	22.3*
Females	7,560	7,942	7,685	8,307	8,602	9,266	318*	21.0*
Persons	14,879	15,721	15,068	16,560	17,038	18,305	645*	21.7*
Non-Indigenous Australian separations								
Males	157,856	160,897	158,919	173,434	175,266	178,222	4,556*	14.4*
Females	135,498	141,219	138,325	152,357	157,091	158,076	4,987*	18.4*
Persons	293,367	302,117	297,244	325,792	332,357	336,300	9,541*	16.3*
Indigenous rate (separations per 1,000)								
Males	42.4	43.1	39.4	42.9	42.9	43.7	0.3	3.1
Females	41.2	42.6	39.3	42.9	43.1	43.9	0.5	6.3
Persons	41.5	42.6	39.1	42.8	42.8	43.7	0.4	5.2
Non-Indigenous Australian rate (separations per 1,000)								
Males	17.3	17.3	16.7	17.8	17.6	17.5	0.1	2.3
Females	13.7	14.1	13.5	14.6	14.7	14.6	0.2*	7.6*
Persons	15.3	15.5	15.0	16.1	16.0	15.9	0.2	5.0
Rate ratio[(e)]								
Males	2.5	2.5	2.4	2.4	2.4	2.5	0.0	0.8
Females	3.0	3.0	2.9	2.9	2.9	3.0	0.0	–1.2
Persons	2.7	2.7	2.6	2.7	2.7	2.7	0.0	0.2
Rate difference[(f)]								
Males	25.1	25.8	22.7	25.1	25.3	26.2	0.2	3.6
Females	27.5	28.5	25.8	28.3	28.3	29.3	0.3	5.7
Persons	26.2	27.1	24.2	26.7	26.8	27.8	0.3	5.3

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2004–05 to 2009–10.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Data are reported by state/territory of usual residence of the patient hospitalised.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 2004–05 and 2009–10 based on the average annual change over the period.

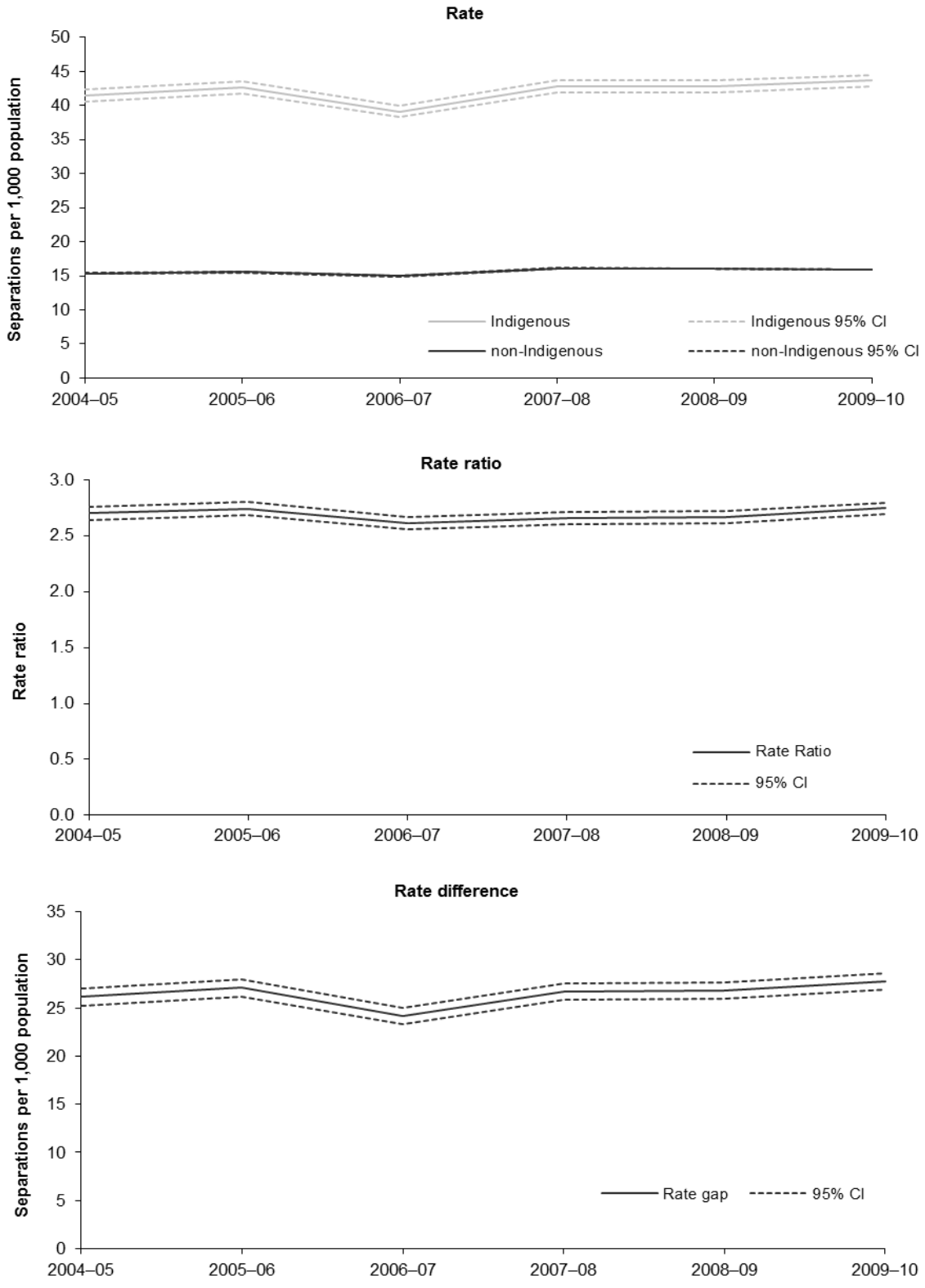
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for Non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.04.3: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for diseases of the respiratory system, NSW, Vic, Qld, WA, SA and NT, 2004-2005 to 2009-2010

Table 1.04.9: Children aged 0-4 years, hospitalisation rates, rate ratios and rate differences for, diseases of the respiratory system NSW, Vic, Qld, WA, SA and NT, 2004-2005 to 2009–10[(a)(b)]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Indigenous separations	5,012	5,286	5,067	5,533	5,674	5,897	173*	17.3*
Non-Indigenous Australian separations	52,393	52,801	52,050	61,328	60,435	61,725	2,253*	21.5*
Indigenous rate (separations per 1,000)	80.9	85.5	81.8	88.4	88.9	90.3	1.8*	11.3*
Non-Indigenous Australian rate (separations per 1,000)	44.8	44.5	43.0	49.4	47.2	46.8	0.7	7.6
Rate ratio[(d)]	1.8	1.9	1.9	1.8	1.9	1.9	0.0	3.3
Rate difference[(e)]	36.0	41.0	38.8	39.0	41.8	43.5	1.1*	15.8*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2004–05 to 2009–10.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Data are reported by state/territory of usual residence of the patient hospitalised.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 2004–05 and 2009–10 based on the average annual change over the period.

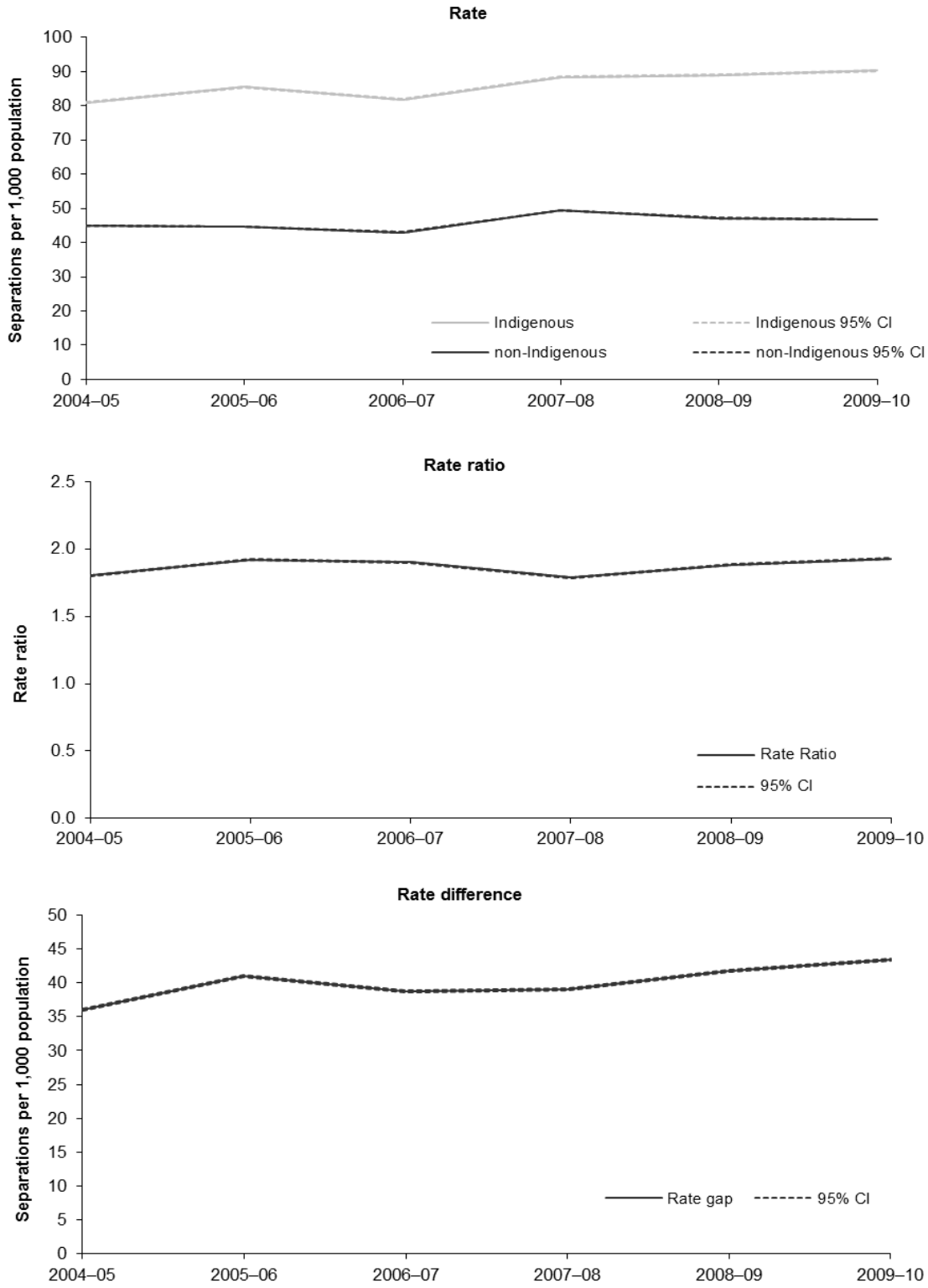
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for Non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for Non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.04.4: Children aged 0–4 years, hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for diseases of the respiratory system, NSW, Vic, Qld, WA, SA and NT, 2004-2005 to 2009-2010

Invasive pneumococcal disease time series analysis

Time series data from 1998-99 to 2009-10 for children aged 0–4 years are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations over this period—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population.

Additional trend analysis has also been presented for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined from 2004–05 to 2009-10 for Indigenous and non-Indigenous Australians. New South Wales and Victoria have been assessed as having adequate identification of Indigenous hospitalisations from 2004–05. These six jurisdictions represent approximately 96% of the Indigenous population of Australia.

Invasive pneumococcal disease 1998-99 to 2009-10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous children aged 0–4 years in Queensland, Western Australia, South Australia and the Northern Territory for invasive pneumococcal disease over period 1998-99 to 2009-10 are shown in Table 1.04.10.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there was a significant decrease in the hospitalisation rates for invasive pneumococcal disease for both Indigenous and non-Indigenous children aged 0–4 years during the period 1998-99 to 2009-10. The fitted trend implies an average yearly decrease in the rate of around 0.04 per 1,000 for Indigenous children (71% decline) and 0.02 per 1,000 for non-Indigenous children (177% decline).
- There was a remarkable decrease in the number of hospitalisations for invasive pneumococcal disease for non-Indigenous children between 2004–05 and 2005–06. This decrease reflects the impact of the introduction of pneumococcal vaccinations for all Australian children from January 2005 (Roche et al. 2007). The introduction of these vaccinations has not had the same impact for Indigenous children, although free pneumococcal vaccinations have been available to all Indigenous children under 2 years of age since 2001.

Table 1.04.10: Children aged 0–4 years, hospitalisation rates, rate ratios and rate differences for invasive pneumococcal disease, Qld, WA, SA and NT, 1998–99 to 2009–10[a][b]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[c]	Per cent change[d]
Indigenous separations	23	21	13	7	15	10	9	6	10	9	n.p.	n.p.	–1*	–71.1*
Non-Indigenous separations	47	89	101	116	99	78	63	12	18	29	20	33	–7*	–167.3*
Indigenous No. per 1,000	0.6	0.5	0.3	0.2	0.4	0.3	0.2	0.2	0.3	0.2	n.p.	n.p.	–0.04*	–71.1*
Non-Indigenous No. per 1,000	0.1	0.2	0.2	0.3	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.1	–0.02*	–177.1*
Rate ratio[e]	5.7	2.7	1.5	0.7	1.7	1.5	1.7	6.0	6.8	3.9	n.p.	n.p.	0.0	3.6
Rate difference[f]	0.5	0.3	0.1	–0.1	0.2	0.1	0.1	0.1	0.2	0.2	n.p.	n.p	0.0	–48.7

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2009–10.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Data are reported by state/territory of usual residence of the patient hospitalised.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 1998–99 and 2009–10 based on the average annual change over the period.

(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Hospitalisations for pneumococcal meningitis (G00.1) and pneumococcal septicaemia (A40.3) have been used as a measure for invasive pneumococcal disease.
2. Rates have been directly age-standardised using the 2001 Australian standard population.
3. Population estimates are based on 2006 census.
4. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Invasive pneumococcal disease 2004–05 to 2009–10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous children aged 0–4 years in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory for invasive pneumococcal disease over the six year period 2004–05 to 2009-10 are shown in Table 1.04.11.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there was a significant decrease in hospitalisation rates for invasive pneumococcal disease among Indigenous children aged 0–4 years, while there were no significant change for non-Indigenous children aged 0–4 years during the period 2004–05 to 2009-10.
- Over the same period there were no significant trends observed in the hospitalisation rate ratios and rate differences between Indigenous and other children for invasive pneumococcal disease.

Table 1.04.11: Children aged 0–4 years, hospitalisation rates, rate ratios and rate differences for invasive pneumococcal disease, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[(a)(b)]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Indigenous separations	12	8	14	9	6	4	–1*	–60.7*
Non-Indigenous separations	158	48	54	80	75	71	–9	–29.7
Indigenous No. per 1,000	0.2	0.1	0.2	0.1	0.1	0.1	–0.02*	–62.7*
Non-Indigenous No. per 1,000	0.1	0.0	0.0	0.1	0.1	0.1	0.0	–35.2
Rate ratio[(e)]	1.4	3.2	5.1	2.2	1.6	1.1	–0.3	–90.6
Rate difference[(f)]	0.1	0.1	0.2	0.1	0.0	0.0	0.0	–126.6

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2004–05 to 2009–10.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Data are reported by state/territory of usual residence of the patient hospitalised.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 2004–05 and 2009–10 based on the average annual change over the period.

(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for Non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for Non-Indigenous Australians.

Notes

1. Hospitalisations for pneumococcal meningitis (G00.1) and pneumococcal septicaemia (A40.3) have been used as a measure for invasive pneumococcal disease.
2. Rates have been directly age-standardised using the 2001 Australian standard population.
3. Population estimates are based on 2006 census.
4. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

NATSIHS data

The NATSIHS reports data on the prevalence of respiratory conditions, including asthma among Indigenous Australians.

- In 2004–05, approximately 27% of Indigenous Australians reported respiratory diseases as a long-term health condition (ABS 2006).
- Prevalence of asthma was higher among Aboriginal and Torres Strait Islander people than non-Indigenous Australians. The rate for Indigenous children was 14% compared

with 11% for non-Indigenous children. After adjusting for differences in age-structure, Indigenous Australians were 1.6 times as likely as non-Indigenous people to report having asthma.

- Asthma was almost twice as common among Indigenous people living in non-remote areas (17%) than in remote areas (9%) (ABS 2006).

Additional information

Invasive pneumococcal disease

Pneumococcal disease is caused by the bacterium *Streptococcus pneumoniae* and can cause infection in parts of the respiratory tract (otitis media, sinusitis, respiratory diseases) or enter the bloodstream. Manifestations include meningitis, respiratory diseases and septicaemia. Invasive pneumococcal disease is defined as a sterile site isolate of *Streptococcus pneumoniae*, usually from blood (Menzies et al. 2008).

Incidence

The notification numbers and rates for invasive pneumococcal diseases for the period 2009-11 are presented in Table 1.04.12 and Table 1.04.13.

- For the period 2009–2011, there were 683 invasive pneumococcal disease notifications among Indigenous persons in all states (New South Wales, Victoria, Queensland, Western Australia, South Australia, Tasmania, the Northern Territory and the Australian Capital Territory). The age standardised notification rate for Indigenous persons was 47.6 per 100,000, which was seven times the rate for other persons (6.5 per 100,000).
- Notification rates were highest among those aged 35-44 years and 45-54 years for Indigenous Australians, and for other Australians the rates were highest in the age groups 0–4 years and 65 years and over. However, this data needs to be interpreted with caution due to the possible differences in the ascertainment of Indigenous status across different age groups.
- For all age groups, Indigenous Australians had higher notification rates than other Australians. Rate ratios were highest among the 35–44 and 45–54 year age groups, where Indigenous Australians suffered from invasive pneumococcal disease at around 15 and 14 times, respectively, the rate of other Australians (Table 1.04.12). However, this data needs to be interpreted with caution due to the possible differences in the ascertainment of Indigenous status across different age groups.
- For the period 2009–2011, among the invasive pneumococcal disease notifications for Indigenous Australians, there were 289 notifications of pneumonia and 172 notifications of other clinical presentations. The age standardised notification rate of pneumonia for Indigenous persons was 20.5 per 100,000, which was eight times the rate for other persons (2.5 per 100,000).

Table 1.04.12: Invasive pneumococcal disease notification rate, by age group and Indigenous status, NSW, Vic, Qld, WA, SA, Tas, NT and the ACT, 2009–2011[(a)(b)(c)]

	Number		Rate per 100,000			
	Indig.	Other[(d)]	Indig.	Other[(d)]	Rate ratio[(e)]	Rate difference[(f)]
0–4	116	714	56.4	17.6	3.2*	38.8*
5–14	97	223	25.2	2.9	8.8*	22.4*
15–24	51	162	14.8	1.8	8.1*	13.0*
25–34	82	281	35.1	3.1	11.4*	32.0*
35–44	139	405	67.7	4.4	15.3*	63.3*
45–54	110	449	71.3	5.1	14.0*	66.2*
55–64	53	693	58.4	9.4	6.2*	49.0*
65+	35	1,470	62.1	16.6	3.7*	45.5*
Total age-standardised[(g)]	**683**	**4,398**	**47.6**	**6.5**	**7.3***	**41.1***

* Represents results with statistically significant differences in the Indigenous/other comparisons at the $p < 0.05$ level.

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Rates are calculated using the sum of notifications divided by the sum of the populations for the relevant years.

(c) Data are reported for all states in Australia including New South Wales, Victoria, Queensland, Western Australia, South Australia, Tasmania, the Northern Territory and the Australian Capital Territory. All these jurisdictions are considered to have adequate levels of Indigenous identification in these data in 2009-2011.

(d) "Other" includes notifications for non-Indigenous Australians and those for whom Indigenous status was not stated.

(e) Rate ratio Indigenous: Other.

(f) Rate difference Indigenous minus other.

(g) Directly age-standardised using the Australian 2001 standard population using five year age groups up to 65+.

Source: AIHW analysis of NNDSS data.

Table 1.04.13: Notification rates for Invasive Pneumococcal Disease[(a)], NSW, Vic, Qld, WA, SA, Tas, NT and the ACT, 2009–2011

	No.		Proportion (%)		No. per 100,000[(b)(c)]			
Clinical presentation	Indig.	Other[(d)]	Indig.	Other[(d)]	Indig.	Other[(d)]	Rate ratio[(e)]	Rate difference
Pneumonia	289	1,741	14.2	85.8	20.5	2.5	8.0	17.9
Other clinical presentations	172	1,591	9.8	90.2	12.6	2.3	5.4	10.3
Unknown clinical presentations	25	690	3.5	96.5	2.4	1.1	2.3	1.3
Total[(f)]	**683**	**4,398**	**13.4**	**86.6**	**47.6**	**6.5**	**7.3**	**41.1**

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Rates are calculated using the sum of notifications divided by the sum of the populations for the relevant years.

(c) Directly age-standardised using the Australian 2001 standard population using 5 year age groups up to 65+.

(d) "Other" includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(e) Rate ration Indigenous: Other.

(f) Total includes number of persons with no data provided.

Source: AIHW analysis of NNDSS data.

Immunisation

A report by the National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases found that coverage of pneumococcal vaccine was significantly higher for Indigenous adults compared with non-Indigenous adults, with the exception of those aged 65 years or more (Menzies et al. 2008). It should be noted that pneumococcal vaccinations were funded for non-Indigenous adults in that age group for only part of the

period covered by the survey. Indigenous adults aged 50 years and over in remote areas had higher vaccination coverage rates for this disease than in non-remote areas (56% and 26%, respectively). There has been an increase in pneumococcal vaccine coverage in Indigenous adults aged 50 years and over from 25% in 2001 to 34% 2004–05 (Menzies et al. 2008).

Data quality issues

Mortality data

Mortality data presented in this report are from the AIHW National Mortality Database. The AIHW National Mortality Database includes information on the factors that caused death, as well as other information about the deceased person, such as age at death, place of death, country of birth, and where applicable, the circumstances of their death. These data are collected in Australia by the Registrars of Births, Deaths and Marriages in each state and territory. The data are then compiled nationally by the ABS, which codes the data according to the International Classification of Diseases (ICD).

Deaths

Although it is considered likely that most deaths of Aboriginal and Torres Strait Islander (Indigenous) Australians are registered, a proportion of these deaths are not registered as Indigenous. Information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred and may differ from the self-identified Indigenous origin of the deceased.

Queensland deaths

In November 2010, the Queensland Registrar of Births, Deaths and Marriages advised the ABS of an outstanding deaths registration initiative undertaken by the Registry. This initiative resulted in the November 2010 registration of 374 previously unregistered deaths which occurred between 1992 and 2006 (including a few for which a date of death was unknown). Of these, around three-quarters (284) were deaths of Aboriginal and Torres Strait Islander Australians.

The ABS discussed different methods of adjustment of Queensland death registrations data for 2010 with key stakeholders. Following the discussion, a decision was made by the ABS and key stakeholders to use an adjustment method that added together deaths registered in 2010 for usual residents of Queensland which occurred in 2007, 2008, 2009 and 2010. This method minimises the impact on mortality indicators used in various government reports. However, care should still be taken when interpreting Aboriginal and Torres Strait Islander death data for Queensland for 2010**.**

Western Australia deaths

Indigenous deaths registered in Western Australia in 2007, 2008 and 2009 were corrected by the ABS in mid-2012 due to some non-Indigenous deaths being incorrectly recorded as Indigenous for these years. Data presented in this report are based on the corrected data and will differ from mortality data presented in the 2010 Health Performance Framework report which presented data prior to the ABS corrections.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms.

Under-identification

At present, there is considerable variation across the states and territories in the completeness of mortality data for Indigenous people. Information concerning the number of deaths of Indigenous people is limited by the accuracy with which Indigenous persons

are identified in death records. Problems associated with identification result in an underestimation of deaths of Indigenous people and in the gap in mortality between Indigenous and non-Indigenous Australians.

Mortality data for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered to have sufficient coverage to produce reliable statistics on Indigenous Australian deaths for the period 2001–2010.

Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) which are considered to have adequate identification from 1991. Queensland is considered to have sufficient coverage of Indigenous deaths from 1998.

The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.

Indigenous Mortality Quality Study

The ABS conducted a number of quality studies based on the 2006 Census of Population and Housing and other data sets as part of the Census Data Enhancement (CDE) project (ABS 2008). The CDE Indigenous Mortality Quality Study linked Census records with death registration records for the 11-month period following the Census and examined differences in the reporting of Indigenous status across the two data sets.

For the purpose of this study, the linked record was assumed to be an Indigenous record if a positive response was recorded against the Indigenous status question on either the death registration or the corresponding Census record. Following linkage, the number of death records identified as Indigenous increased from 1,800 to 2,123 records, or from 1.7% to 2.0% of all registered deaths.

'While 323 additional death records were able to be identified as Indigenous from Census records, more may have been expected if all death records had been linked. A key reason records could not be linked appears to be Census undercount, with a corresponding Census record not existing to link to for many Indigenous death records' (ABS 2008).

The results from the study suggested that coverage of Indigenous deaths in death registrations is considerably higher, at least in 2006-07, than previous estimates have indicated. Nationally, the coverage rate was estimated to be 85%. State/territory coverage estimates were: NSW 76%, Vic 74%, Qld 87%, SA 86%, WA 92% and NT 99% (ABS 2008).

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in death records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

National Hospital Morbidity Database

The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free-standing day hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-

shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included. The NHMD does not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

For 2009–10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2,400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10,600 separations for one private hospital.

Separations

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay or a portion of a hospital stay beginning or ending in a change of type of care) and not patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set.

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Separations with care types of *Newborn* episodes that did not include qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded as these activities are not considered to be admitted patient care.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections.

Approximately 2% of hospital records have missing Indigenous status information.

Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. In 2007, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data.

It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Interpretation of results should take into account the relative quality of the data from the jurisdictions. The proportion of the Indigenous population covered by these six jurisdictions is 96%. Tasmania and the Australian Capital Territory data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions.

From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level. Adjustments for Indigenous under-identification have been made at the national level for the total number of hospital separations using an adjustment factor of 89%. No

adjustments for under-identification have been made at the state/territory level or principal diagnosis level.

The 2007 AIHW study indicated acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in *Major cities* to 97% in *Remote* and *Very remote* areas. The quality of data supports analyses for hospitalisations by remoteness areas at the national level only.

In 2011-12, the AIHW commenced another study to re-assess the level of under-identification in public hospitals data. All states and territories have participated in the study to assess improvements in data quality. A report on the findings is expected to be published in mid-2013 which will include new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

National Aboriginal and Torres Strait Islander Health Survey

The NATSIHS uses the standard Indigenous status question. The 2004-05 NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians. It therefore overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in *Major cities*, *Inner and outer regional* areas and *Remote and very remote* areas, but *Very remote* areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 NHS.

In *Remote and very remote* communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

National Notifiable Diseases Surveillance System

Notifications

Incidence of sexually transmissible infections is one indicator of unsafe sexual practices. It does not measure all cases, just those involving sexually transmissible infections.

Notification statistics do not measure the incidence or prevalence of these infections in the community. Under-reporting of these infections can occur at a number of stages:

- a person infected may not have symptoms
- a person may not seek medical care
- no testing performed
- a false negative result may occur
- there may be a positive test result but for some reason a notification may not occur
- the case may not be reported to the NNDSS (for more information see Figure 1 in NNDSS 2008).

The level of under-reporting can vary by disease, jurisdiction and by time. The method of surveillance can vary between jurisdictions with different requirements for notification by medical practitioners, laboratories and hospitals. These can also change over time.

Notification statistics can provide insights into the health of the population which has been diagnosed with a notifiable illness and changes over time.

Notification statistics do not necessarily capture the mode of transmission, NNDSS data on the diseases discussed in this indicator are known to include infections acquired through non-sexual modes of transmission. For example, although data on hepatitis C is included in this indicator, sexual transmission is not considered the main route of transmission, hepatitis C primarily occurs among those with a history of injecting drug use.

Due to the high proportion of asymptomatic presentations of STI infections, diagnoses are heavily influenced by testing patterns. High rates of STI diagnoses in Indigenous populations may be due to higher levels of screening and not necessarily associated with increased levels of transmission among Indigenous persons.

Under-identification

The incompleteness of Indigenous identification means the number of notifications recorded as Indigenous is likely to be an under-estimate of Aboriginal and Torres Strait Islander notifications rates.

The completeness of Indigenous identification in notifiable disease registries varies between the states and territories and by disease. Information on the occurrence of sexually transmitted infections is included in this indicator if information on Indigenous status was reported for at least 50% of diagnoses in a state or territory health jurisdiction for the period 2009–2011. Based on this cut-off, Western Australia, South Australia, Tasmania and the Northern Territory were assessed to have adequate identification for chlamydia, syphilis, gonorrhoea, hepatitis B and hepatitis C. Of the remaining states/territories, Queensland and Victoria had adequate identification for syphilis, gonorrhoea and chlamydia; the Australian Capital Territory had adequate identification for syphilis, gonorrhoea and hepatitis B; and New South Wales had adequate identification for syphilis only.

Numerator and denominator

Rate and ratio calculations rely on good population estimates. The changes in the completeness of identification of Indigenous people in notification records may take place at different rates from changes in the identification of Indigenous people in the population estimates. Denominators used here are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

List of symbols used in tables

n.a. not available

– rounded to zero (including null cells)

0 zero

. . not applicable

n.e.c. not elsewhere classified

n.f.d. not further defined

n.p. not available for publication but included in totals where applicable, unless otherwise indicated

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1.05 Circulatory disease

Prevalence, incidence and number of hospital separations with a principal diagnosis of circulatory disease for Aboriginal and Torres Strait Islander people expressed as a rate by age group, age-standardised rate and rate ratio

Data sources

Data for this measure come from the AIHW National Mortality Database, the National Aboriginal and Torres Strait Islander Health Survey, the Bettering the Evaluation and Care of Health survey and the AIHW National Hospital Morbidity Database.

National Mortality Database

The National Mortality Database is a national collection of de-identified unit record level data. It comprises most of the information recorded on death registration forms and medical (cause of death) certificates, including Indigenous status. The database is maintained by the Australian Institute of Health and Welfare (AIHW). Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the Australian Bureau of Statistics (ABS). Information on the cause of death is supplied by the medical practitioner certifying the death, or by a coroner. The data are updated each calendar year and are presented by state/territory of usual residence rather than state/territory where death occurs.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander people are registered. However, a proportion of these deceased are not reported as Aboriginal or Torres Strait Islander by the family, health worker or funeral director during the death registration process. That is, while data are provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked of relatives and friends of the deceased by the funeral director.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to 3 jurisdictions (Western Australia, South Australia and the Northern Territory) with adequate identification of Indigenous deaths in their recording systems from 1991 onwards. The quality of the time-series data is also influenced by the late inclusion of a not stated category for Indigenous status in 1998. Prior to this time, the not stated responses were probably included with the non-Indigenous.

Deaths registered in 2010 with a usual residence of Queensland have been adjusted to exclude deaths registered in 2010 that occurred prior to 2007. This is to minimise the impact of late registration of deaths due to recent changes in the timeliness of death registrations in Queensland.

Western Australian Aboriginal and Torres Strait Islander deaths for 2007, 2008 and 2009, have been revised to correct for a data quality issue which resulted in the over-reporting of Indigenous deaths during this period.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2006–2010 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years.

National Aboriginal and Torres Strait Islander Health Survey

The 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians. This included information on health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. The survey provides comparisons over time in the health of Indigenous Australians. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

It is planned to repeat the NATSIHS at 6-yearly intervals, with the next survey to be conducted during 2012-13 as part of the Australian Health Survey (will be called the Australian Aboriginal and Torres Strait Islander Health Survey (ATSIHS)).

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey, which was conducted by the AIHW Australian General Practice Statistics and Classification Centre, in the Family Medicine Research Centre (FMRC) at the University of Sydney until March 2012, when the AIHW ceased its involvement in the BEACH program . The FMRC continues to run BEACH the results are now published by the University of Sydney. The most recent annual reports can be found at http://ses.library.usyd.edu.au/handle/2123/7771.

Information is collected from every changing random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive GP–patient encounters is collected by each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated because some GPs might not ask the question on Indigenous status, or the patient may choose not to identify themselves (AIHW 2002).

Data are presented for the 5-year period 2006–07 to 2010–11, during which there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.2% of total GP encounters.

National Hospital Morbidity Database

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Hospitalisation data are presented for the 2-year period from July 2008 to June 2010. An aggregate of 2 years of data has been used, because the number of hospitalisations for some conditions is likely to be small for a single year.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individual, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question. For example, it is not possible to identify whether one patient was admitted 5 times or five patients were admitted once. People who receive treatment at hospital but are not admitted are not counted in hospital records. Hospital separation data are also affected by variations in admission practices, and the availability of and access to hospital and non-hospital services.

Care types 7.3, 9 and 10 (Newborn – unqualified days only; organ procurement; hospital border) have been excluded from analysis.

Data are presented for the six jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalisations in 2006–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. National totals include separations for people resident in these six jurisdictions only and are not necessarily representative of the jurisdictions not included. Indigenous status data are reported for Tasmania and the Australian Capital Territory (public hospitals only) with caveats until further audits of the quality of data in these jurisdictions are completed. Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Data are presented by state/territory of usual residence of the patient.

The following caveats have been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).
- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

Analyses

Age-standardised rates and ratios have been used as a measure of morbidity in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of morbidity among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

Mortality

Table 1.05.1 presents data on deaths of Indigenous Australians from circulatory diseases over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

Data on time series analysis for mortality from circulatory diseases is presented in Table 1.23.15 of the measure *1.23 -Leading causes of mortality* in this report.

- Over the period 2006–2010, there were 2,925 deaths of Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from circulatory diseases. Indigenous Australians died from circulatory diseases at 1.7 times the rate of non-Indigenous Australians.
- The most common type of circulatory disease causing death among Indigenous Australians was ischaemic heart disease (including acute myocardial infarction) (54%), followed by cerebrovascular disease (including stroke) (18%). Indigenous Australians died from these diseases at 1.8 and 1.5 times the rate of non-Indigenous Australians, respectively.

Table 1.05.1: Deaths of Indigenous Australians from circulatory diseases, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	Number	Per cent	No. per 100,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	Rate ratio[(i)]	Rate difference[(j)]	Rate difference %[(k)]
Ischaemic heart disease (I20–I25)	1,567	53.6	176.3	166.0	186.7	1.8	78.3	52.2
Acute myocardial infarction (I21)[(l)]	*638*	*21.8*	*74.3*	*67.5*	*81.1*	*1.6*	*26.5*	*17.7*
Cerebrovascular disease (I60–I69)	519	17.7	76.9	69.3	84.4	1.5	26.0	17.4
Stroke (I60–I64)[(l)]	*414*	*14.2*	*57.2*	*50.8*	*63.6*	*1.5*	*20.1*	*13.4*
Other heart disease (I26–I52)	515	17.6	58.6	52.4	64.7	1.8	25.6	17.1
Rheumatic heart disease (I00–I09)	90	3.1	5.7	4.3	7.1	4.7	4.5	3.0
Hypertension disease (I10–I15)	118	4.0	17.7	14.1	21.3	2.4	10.3	6.9
Other diseases of the circulatory system (I70–I99)	116	4.0	15.9	12.5	19.3	1.5	5.3	3.6
Total circulatory diseases (I00-I99)	**2,925**	**100.0**	**351.0**	**335.9**	**366.1**	**1.7**	**150.0**	**100.0**

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(f) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(k) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all circulatory diseases.

(l) Data presented for acute myocardial infarction are a subset of data presented for ischaemic heart disease; data presented for stroke are a subset of data presented for cerebrovascular disease in this table.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Self-reported prevalence

Self-reported data from the 2004-05 NATSIHS on the prevalence of heart and circulatory conditions among Aboriginal and Torres Strait Islander people are presented below.

Prevalence by age and sex

- In 2004–05, approximately 12% of Indigenous Australians reported having a diagnosed heart or circulatory condition as a current and long-term condition. Approximately 7% of Indigenous Australians reported having high blood pressure and 2% reported having a heart murmur or heart valve disorder.
- After adjusting for differences in age structure, approximately 23% of Indigenous Australians reported having a heart or circulatory condition compared with 20% of non-Indigenous Australians.
- Heart and circulatory conditions were most prevalent among those aged 55 years and over (57% for Indigenous Australians and 53% for non-Indigenous Australians).
- A higher proportion of Indigenous Australians reported having a heart or circulatory problem than non-Indigenous Australians across all age groups from 25 years and over (Table 1.05.2).

Table 1.05.2: Persons reporting heart and circulatory conditions, by Indigenous status and age group, 2004–05[(a)(b)]

	0–24		25–44		45–54		55 years and over		Total (crude)	Total (age standardised)			
	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Indig.	Non-Indig.	Rate ratio	Rate difference
							Per cent						
Total with heart or circulatory condition	**2**	**2**	**17**	**12**	**35**	**28**	**57**	**53**	**12**	**23***	**20***	**1.2***	**3.0**
Has current and/or long-term high blood pressure	—[(c)]	—[(c)]	8*	4*	23*	14*	43*	34*	7	15*	11*	1.4*	4.0
Heart murmur/heart valve disorder	1	1	3*	1*	2[(c)]	2	4	3	2	2*	2*	1.0*	0.0
Total persons ('000)	**273**	**6,396**	**129**	**5,661**	**40**	**2,706**	**33**	**4,530**	**474**	**474**	**19,292**	**. .**	**. .**

* Represents results with statistically significant differences at the p<0.05 level in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Age-standardised proportions.

(c) Estimate has a relative standard error of 25% to 50% and should be used with caution.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.

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Prevalence by remoteness and time series

- In 2004–05, the prevalence of heart/circulatory conditions was slightly higher among Aboriginal and Torres Strait Islander males and females in remote areas (12% and 17% respectively) than those in non-remote areas (10% and 14% respectively) (Table 1.05.3).
- There has been little change in the prevalence of heart/circulatory conditions among Aboriginal and Torres Strait Islander people between 2001 and 2004–05.

Table 1.05.3: Indigenous persons reporting heart and circulatory problems/diseases[(a)], by sex and remoteness area, 1995, 2001 and 2004–05

	1995[(b)]			2001			2004–05		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
					Per cent				
Remote	n.a.	n.a.	n.a.	10	16	12	12	17	14
Non-remote	15	16	15	10	13	10	10	14	11
Total	**n.a.**	**n.a.**	**n.a.**	**10**	**14**	**11**	**11**	**15**	**12**
Total number	**131,616**	**133,800**	**265,416**	**217,893**	**225,102**	**442,995**	**232,362**	**241,948**	**474,310**

(a) ICD-10-AM based output classification.

(b) Non-remote data are not available from the 1995 National Health Survey.

Sources: ABS and AIHW analysis of 1995 National Health Survey (Indigenous supplement); 2001 National Health Survey (Indigenous supplement); 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Prevalence by selected population and health characteristics

- In 2004–05, Indigenous Australians aged 15 years and over were more likely to report having heart or circulatory problems if they were in the lowest (1st) quintile of household income than in the highest (5th) income quintile (28% compared with 25%); if the highest year of school completed was Year 9 or below than if Year 12 was the highest year of school completed (30% compared with 24%); and if they were unemployed or not in the labour force (28% and 30%) than if they were employed (23%) (Table 1.05.4).
- Indigenous Australians with reported fair/poor health status were much more likely to report heart or circulatory problems than Indigenous Australians with excellent/very good health status (37% compared with 19%). The proportions for non-Indigenous Australians were similar (34% compared with 16%).
- Indigenous Australians aged 15 years and over were more likely to report heart or circulatory problems if they reported their exercise level as low or sedentary rather than high (28% compared with 11%). They were also more likely to report heart or circulatory problems if they had experienced stressors in the previous 12 months (21%) than if no stressors were experienced (17%); if they drank at risky/high-risk levels in the last 12 months than if they did not (31% compared with 28%); and if they were overweight and obese than if they were normal or underweight (29% compared with 21%).
- Indigenous Australians aged 15 years and over were much more likely to report having heart or circulatory problems if they also reported diabetes or high cholesterol than if they did not report these conditions. This was also the case for non-Indigenous Australians.

Table 1.05.4: Proportion[(a)] of Indigenous and non-Indigenous Australians aged 15 years and over with heart/circulatory problems, by selected population characteristics, 2004–05

	Indigenous Australians		Non-Indigenous Australians	
	Has heart/circulatory problems	Does not have heart/circulatory problems	Has heart/circulatory problems	Does not have heart/circulatory problems
Household income				
1st quintile	28.2	71.8	25.7	74.3
5th quintile	24.8	75.2	16.7	83.3
Financial stress—able to raise $2,000 within a week for something important				
Yes	15.9	84.1	n.a.	n.a.
No	20.0	80.0	n.a.	n.a.
Highest year of school completed				
Year 12	23.6	76.4	18.4	81.6
Year 9 or below	30.0	70.0	24.6	75.4
Whether has non-school qualification				
Has a non-school qualification	25.4	74.6	20.7	79.3
Does not have a non-school qualification	28.0	72.0	21.9	78.1
Employment				
Employed	22.5	77.5	17.0	83.0
Unemployed	28.2	71.8	13.6	86.4
Not in the labour force	30.3	69.7	25.9	74.1
Housing				
Owner	17.3	82.7	n.a.	n.a.
Renter	18.4	81.6	n.a.	n.a.
Stressors in last 12 months[(b)]				
Serious illness or disability	24.5	75.5	n.a.	n.a.
Total experienced stressors	21.4	78.6	n.a.	n.a.
No stressors	16.8	83.2	n.a.	n.a.
Self-assessed health status				
Excellent/very good	18.8	81.2	15.9	84.1
Good	24.1	75.9	23.2	76.8
Fair/poor	37.4	62.6	33.5	66.5
Smoker status[(b)]				
Current daily smoker	29.0	71.0	19.4	80.6
Not current daily smoker	27.7	72.3	22.9	77.1
Risky/high-risk alcohol consumption in last 12 months[(b)]				
Yes	31.0	69.0	20.5	79.5
No	28.1	71.9	22.8	77.2

(continued)

Table 1.05.4 (continued): Proportion[(a)] of Indigenous and non-Indigenous Australians aged 15 years and over with heart/circulatory problems, by selected population characteristics, 2004–05

	Indigenous Australians		Non-Indigenous Australians	
	Has heart/circulatory problems	Does not have heart/circulatory problems	Has heart/circulatory problems	Does not have heart/circulatory problems
Whether used substances in last 12 months[(b)(c)]				
Yes	13.0	87.0	n.a.	n.a.
No	21.3	78.7	n.a.	n.a.
Physical activity[(c)]				
Low/sedentary	27.5	72.5	21.9	78.1
Moderate	21.9	78.1	21.0	79.0
High	11.0	89.0	15.4	84.6
Overweight/obesity				
Yes	29.3	70.7	23.8	76.2
No	20.6	79.4	18.5	81.5
Eats vegetables daily				
Yes	27.0	73.0	21.4	78.6
No	24.5	75.5	27.0	73.0
Eats fruit daily				
Yes	27.1	72.9	21.5	78.5
No	24.9	75.1	19.6	80.4
Diabetes				
Yes	39.5	60.5	35.6	64.4
No	23.9	76.1	20.4	79.6
High cholesterol				
Yes	59.6	40.4	44.5	55.5
No	23.4	76.6	18.6	81.4
Total (age-standardised)	**26.9**	**73.1**	**21.4**	**78.6**
Total (crude)	**18.1**	**81.9**	**. .**	**. .**
Total number persons aged 15 years and over	**53,179**	**240,462**	**3,422,780**	**12,109,597**

(a) Proportions are age-standardised except for data for financial stress, housing tenure, substance use in the last 12 months and stressors experienced in the last 12 months for which crude proportions are presented, as data for non-Indigenous Australians are not available.

(b) Persons aged 18 years and over.

(c) Non-remote areas only.

Source: AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

General practitioner encounters

Information about general practitioner (GP) encounters is available from the BEACH survey. Data for the 5-year period April 2006–March 2007 to April 2010–March 2011 are presented below. Circulatory problems (cardiovascular problems) are among the six most common types of problems managed at GP encounters with Indigenous patients (AIHW 2011).

- In the period April 2006–March 2007 to April 2010–March 2011, there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, for whom 9,196 problems were managed. Of these, 8.1 per cent (741) were for circulatory problems (Table 1.05.5).
- Circulatory problems were managed at a rate of around 124 per 1000 encounters among Indigenous patients.
- After adjusting for differences in age distribution:
  - Circulatory problems, including hypertension and circulatory checking were managed at similar rates during GP encounters with Indigenous patients and other patients.
  - There were almost twice as many GP encounters for ischaemic heart disease with Indigenous patients as with other patients over the BEACH 5-year reporting period, the difference is statistically significant.
  - There were also twice as many GP encounters for heart failure with Indigenous patients as with other patients over the BEACH 5-year reporting period. However, this the difference is not statistically significant due to the smaller Indigenous encounter sample size.

Table 1.05.5: Circulatory problems[a] managed by general practitioners, by Indigenous status of the patient, BEACH survey years April 2006–March 2007 to April 2010–March 2011 inclusive[b][c]

	Number		Per cent of all problems		Crude rate (no. per 1,000 encounters)			Age-standardised rate (no. per 1,000 encounters)[d]							
Problem managed	**Indig.**	**Other[e]**	**Indig.**	**Other[e]**	**Indig.**	**95% LCL[f]**	**95% UCL[g]**	**Indig.**	**95% LCL[f]**	**95% UCL[g]**	**Other[e]**	**95% LCL[f]**	**95% UCL[g]**	**Rate ratio[h]**	**Rate difference [i]**
Hypertension (K86, K87)	381	45,130	4.1	6.1	63.8	54.8	72.8	96.4	81.7	111.0	94.0	91.9	96.0	1.0	2.4
Ischaemic heart disease (K74, K76)	77	5,597	0.8	0.8	12.9	9.3	16.5	21.7	14.6	28.9	11.6	11.2	12.1	1.9*	10.1*
Heart failure (K77)	35	3,112	0.4	0.4	5.9	3.1	8.6	13.1	6.7	19.4	6.5	6.1	6.8	2.0	6.6
Cardiac check-up (K30, K31)	34	5,715	0.4	0.8	5.7	3.8	7.6	8.1	4.7	11.5	11.9	11.2	12.6	0.7	–3.8
Atrial fibrillation/ flutter (K78)	38	5,548	0.4	0.7	6.4	3.3	9.4	15.1	5.7	24.4	11.5	11.0	12.0	1.3	3.5
Total circulatory problems(K00-K99)	741	84,100	8.1	11.3	124.1	110.0	138.2	189.6	161.9	217.3	175.1	172.0	178.1	1.1	14.5
Other problems managed	8,455	661,524	91.9	88.7	1,416.0	1,378.9	1,453.2	1,449.5	1,402.6	1,496.4	1,383.5	1,376.0	1,391.1	1.1*	66.0*
Total problems	**9,196**	**745,624**	**100.0**	**100.0**	**1,540.1**	**1,499.0**	**1,581.2**	**1,639.1**	**1,587.0**	**1,691.2**	**1,558.6**	**1,549.7**	**1,567.5**	**1.1***	**80.5***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Classified according to ICPC-2 chapter codes (Classification Committee of the World Organization of Family Doctors (WICC) 2005).

(b) Data from five combined BEACH years April 2006–March 2007 to April 2010–March 2011 inclusive.

(c) Data for Indigenous and other Australians have not been weighted.

(d) Directly age-standardised rate (no. per 1,000 encounters) using total BEACH encounters in the period as the standard. Figures do not add to 100 as more than one problem can be managed at each encounter.

(e) 'Other' includes non-Indigenous patients and patients for whom Indigenous status was not stated.

(f) LCL = lower confidence interval.

(g) UCL = upper confidence interval.

(h) Rate ratio Indigenous: Other.

(i) Rate difference Indigenous rate minus Other (non-Indigenous) rate.

Source: Family Medicine Research Centre, University of Sydney analysis of BEACH data.

Hospitalisations

- For the 2-year period July 2008 to June 2010, there were 898,540 hospitalisations for circulatory diseases in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, 17,928 (2.0 per cent) of which were hospitalisations of Aboriginal and Torres Strait Islander people (Table 1.05.6).
- Indigenous Australians were hospitalised for circulatory diseases at 1.7 times the rate of non-Indigenous Australians in the six jurisdictions combined.
- Circulatory disease is the seventh most common diagnosis at the ICD-10-AM chapter level for Aboriginal and Torres Strait Islander Australians admitted to hospital (excluding the Chapter which includes 'care involving dialysis'). Approximately 3 per cent of all hospitalisations of Indigenous Australians were for circulatory diseases.

Hospitalisations by age and sex

- For the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous females had higher hospitalisation rates for circulatory diseases than non-Indigenous females across all age groups. Indigenous males had higher hospitalisation rates for circulatory diseases than non-Indigenous males across all age groups (Table 1.05.6).
- The greatest difference in hospitalisation rates for males occurred in the 25–34, 35–44 and 45–54 year age groups where Indigenous males were hospitalised at between two and three times the rate of non-Indigenous Australian males. The greatest difference in hospitalisation rates for females occurred in the 35–44, 45–54 and 55–64 year age groups where Indigenous females were hospitalised at around three times the rate of non-Indigenous Australian females.
- Hospitalisation rates for circulatory diseases increased with age for both Indigenous and non-Indigenous Australians.
- Approximately 52 per cent of Indigenous Australians hospitalised for circulatory diseases were males (9,362) and 48 per cent were females (8,566) (Table 1.05.7).

Hospitalisations by state/territory

Table 1.05.7 presents hospitalisations for a principal diagnosis of diseases of the circulatory system for the 2-year period July 2008 to June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory.

- Indigenous Australians were hospitalised for circulatory disease at 1.7 times the rate of non-Indigenous Australians.
- In Queensland, Western Australia, South Australia and the Northern Territory, Indigenous persons were hospitalised for circulatory diseases at around twice the rate of non-Indigenous Australians. Indigenous persons were hospitalised at 1.6 times the rate of non-Indigenous Australians for circulatory disease in the Australian Capital Territory and in New South Wales, and at similar rates to non-Indigenous Australians in Victoria and Tasmania. Hospitalisation rates by state/territory should be interpreted with caution due jurisdictional differences in the level of Indigenous under-identification in hospital separations data.

Table 1.05.6: Age-specific hospitalisation rates for a principal diagnosis of circulatory disease, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [(a)(b)(c)]

									All ages	
	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65+	Crude	Age std.[(d)]
Males										
Indigenous	1.3	1.7	2.8	8.1	27.4	55.5	83.8	118.5	17.9	37.5
Non-Indigenous	0.9	0.9	1.9	4.0	9.8	22.0	45.7	112.5	24.6	24.3
Rate ratio[(e)]	1.5	1.8	1.5	2.0	2.8	2.5	1.8	1.1	0.7	1.5
Rate difference[(f)]	0.4	0.8	0.9	4.0	17.6	33.5	38.0	6.0	-6.8	13.2
Females										
Indigenous	1.2	2.2	2.6	6.2	20.6	42.4	66.0	104.5	16.2	30.7
Non-Indigenous	0.6	0.8	1.7	3.5	7.6	13.0	23.3	80.4	18.2	15.8
Rate ratio[(e)]	1.8	2.7	1.6	1.8	2.7	3.3	2.8	1.3	0.9	1.9
Rate difference[(f)]	0.5	1.4	0.9	2.8	13.0	29.4	42.7	24.1	-2.0	14.9
Persons										
Indigenous	1.2	1.9	2.7	7.1	23.9	48.7	74.3	110.5	17.0	33.9
Non-Indigenous	0.7	0.9	1.8	3.7	8.7	17.5	34.5	95.1	21.4	19.8
Rate ratio[(e)]	1.6	2.2	1.5	1.9	2.7	2.8	2.2	1.2	0.8	1.7
Rate difference[(f)]	0.5	1.1	0.9	3.4	15.2	31.2	39.9	15.4	-4.4	14.0

(a) Data excludes private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patients hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(d) Directly age-standardised using the Australian 2001 standard population.

(e) Rate ratio Indigenous: non-Indigenous Australians.

(f) Rate difference Indigenous minus non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database

Table 1.05.7: Hospitalisations for principal diagnosis of diseases of the circulatory system, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT, July 2008 to June 2010[(a)(b)(c)(d)(e)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
NSW						
Males	2,675	35.3	173,139	24.1	1.5*	11.1*
Females	2,300	27.5	127,126	15.2	1.8*	12.3*
Persons	4,975	31.1	300,265	19.4	1.6*	11.7*
Vic						
Males	510	29.6	139,792	25.8	1.1*	3.7*
Females	415	21.1	109,052	17.3	1.2*	3.8*
Persons	925	24.8	248,845	21.3	1.2*	3.5*
Qld						
Males	2,754	42.2	101,032	24.1	1.8*	18.2*
Females	2,620	36.0	74,280	16.1	2.2*	20.0*
Persons	5,374	38.9	175,312	19.9	1.9*	18.9*
WA						
Males	1,490	37.5	47,823	22.8	1.6*	14.7*
Females	1,382	33.4	33,001	14.4	2.3*	19.0*
Persons	2,872	35.5	80,824	18.5	1.9*	17.0*
SA						
Males	506	34.3	40,115	22.7	1.5*	11.6*
Females	539	32.5	31,654	15.1	2.2*	17.5*
Persons	1,045	33.4	71,769	18.6	1.8*	14.7*
NT						
Males	1,427	37.3	2,484	20.1	1.9*	17.2*
Females	1,310	29.4	1,113	12.2	2.4*	17.2*
Persons	2,737	33.0	3,597	16.6	2.0*	16.4*
NSW, Vic, Qld, WA, SA and NT[(h)]						
Males	**9,362**	**37.5**	**504,385**	**24.3**	**1.5***	**13.2***
Females	**8,566**	**30.7**	**376,226**	**15.8**	**1.9***	**14.9***
Persons	**17,928**	**33.9**	**880,612**	**19.8**	**1.7***	**14.0***
Tas						
Males	120	15.5	8,426	15.2	1.0	0.4
Females	85	8.7	5,587	9.0	1.0	-0.3
Persons	205	12.1	14,013	11.9	1.0	0.1

(continued)

Table 1.05.7 (continued): Hospitalisations for principal diagnosis of diseases of the circulatory system, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT, July 2008 to June 2010[(a)(b)(c)(d)(e)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
ACT						
Males	43	29.1	5,056	17.0	1.7*	12.2*
Females	33	16.7	3,734	11.3	1.5	5.4
Persons	76	22.3	8,790	14.0	1.6*	8.3*

* Represents results with statistically significant differences in the Indigenous/Non-Indigenous comparisons at the p < 0.05 level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patient hospitalised.

(d) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+.

(e) Directly age-standardised using the Australian 2001 standard population.

(f) Rate ratio Indigenous: non-Indigenous.

(g) Rate difference Indigenous minus non-Indigenous.

(h) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by remoteness

Hospitalisation rates for circulatory diseases in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory are presented by Australian Standard Geographical Classification (ASGC) in Table 1.05.8, covering the period July 2008 to June 2010.

- Indigenous Australians in all remoteness areas were more likely to be hospitalised for circulatory diseases than non-Indigenous Australians. The ratio of hospitalisations of Indigenous people compared with non-Indigenous Australians was higher and the difference was statistically significant for all ASGC areas.
- Rates of hospitalisations per 1,000 people were highest for Indigenous people living in *Remote* areas, at 46 per 1,000. The rate was highest for non-Indigenous Australians who lived in *Inner regional* areas, at 21 per 1,000. The lowest rates were observed in *Major cities* for both Indigenous Australians (27 per 1,000) and non-Indigenous Australians (19 per 1,000).
- Indigenous people were hospitalised for these conditions at a rate of 2.3 times that of non-Indigenous Australians in *Remote* areas of Australia. In *Major cities*, where the lowest ratio was observed, Indigenous Australians were hospitalised at a rate of 1.3 times that of non-Indigenous Australians. Nationally, the rate was 1.7 times.

Table1.05.8: Hospitalisations for principal diagnosis of diseases of the circulatory system, by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous					
	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Ratio[(i)]	Difference[(j)]
Major cities	4,144	25.9	25.0	26.8	581,222	19.3	19.2	19.3	1.3*	6.6*
Inner regional	3,394	33.7	32.4	34.9	200,616	21.4	21.3	21.5	1.6*	12.2*
Outer regional[(k)]	4,384	38.3	37.0	39.5	84,951	20.5	20.4	20.7	1.9*	17.7*
Remote[(l)]	2,775	46.4	44.5	48.4	10,437	20.4	20.1	20.8	2.3*	26.0*
Very remote	3,221	31.9	30.6	33.1	3,124	20.9	20.1	21.6	1.5*	11.0*
Total[(m)]	**17,928**	**33.1**	**32.6**	**33.7**	**880,612**	**19.9**	**19.8**	**19.9**	**1.7***	**13.3***

* Indicates a significant difference at the p <0.05 level.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(e) Directly age-standardised using the Australian 2001 standard population, by 5 year age groups to 65+.

(f) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous.

(j) Rate difference Indigenous- non-Indigenous.

(k) Includes remote Victoria.

(l) Excludes remote Victoria.

(m) Total includes hospitalisations where ASGC is missing.

Notes

1. Rates are calculated using the remoteness distribution by Indigenous status, age and sex based on the 2006 ERP and applied to the 2008-10 population projections (Series B) based on the 2006 Census.
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by principal diagnosis

Table 1.05.9 presents hospitalisations with a principal diagnosis of diseases of the circulatory system by type of circulatory disease for the 2-year period July 2008 to June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Of all hospitalisations with a principal diagnosis of diseases of the circulatory system, ischaemic heart disease was the most common reason for hospitalisation among Aboriginal and Torres Strait Islander people (43%, followed by pulmonary heart disease and other forms of heart disease (30%).
- Indigenous males and females were hospitalised for acute rheumatic fever and chronic rheumatic heart disease at much higher rates than non-Indigenous males and females (5 and 8 times respectively).
- Indigenous males and females were hospitalised for ischaemic heart disease at twice and three times the rate of non-Indigenous males and females respectively.
- Indigenous Australians were hospitalised at almost 3 times the rate of non-Indigenous Australians for hypertension disease.

Table 1.05.9: Hospitalisations of Indigenous persons for principal diagnosis of diseases of the circulatory system, by type of circulatory disease and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

Principal diagnosis	Number	Per cent[(e)]	No per 1,000[(f)]	LCL[(g)]	UCL[(h)]	Ratio[(i)]	Difference[(j)]
			Males				
Ischaemic heart disease (I20–I25)	4,397	47.0	17.1	16.5	17.7	1.9*	8.3*
Acute myocardial infarction (I21)	*2,089*	*22.3*	*7.9*	*7.5*	*8.3*	*2.5**	*4.8**
Subsequent myocardial infarction (I22)	*19*	*0.2*	*0.1*	*0.0*	*0.1*	*8.0**	*0.1**
Pulmonary heart disease and other forms of heart disease (I26–I52)	2,724	29.1	11.9	11.3	12.4	1.6*	4.2*
Cerebrovascular disease (I60–I69)	710	7.6	3.5	3.2	3.9	1.8*	1.5*
Stroke (I60–I64)	*655*	*7.0*	*3.2*	*2.9*	*3.5*	*1.9**	*1.6**
Acute rheumatic fever and chronic rheumatic heart disease (I00–I09)	249	2.7	0.4	0.3	0.5	4.8*	0.3*
Hypertension disease (I10–I15)	201	2.1	0.6	0.5	0.7	2.7*	0.4*
Other diseases of the circulatory system (I70–I99)[(k)]	1,081	11.5	4.0	3.7	4.3	0.7*	–1.5*
Total	**9,362**	**100.0**	**37.5**	**36.6**	**38.5**	**1.5***	**13.2***
			Females				
Ischaemic heart disease (I20–I25)	3,315	38.7	12.1	11.6	12.5	3.1*	8.2*
Acute myocardial infarction (I21)	*1,348*	*15.7*	*5.1*	*4.8*	*5.4*	*3.6**	*3.6**
Subsequent myocardial infarction (I22)	*15*	*0.2*	*0.1*	*0.0*	*0.1*	*10.3**	*0.05**
Pulmonary heart disease and other forms of heart disease (I26–I52)	2,689	31.4	10.3	9.8	10.7	1.9*	4.9*
Cerebrovascular disease (I60–I69)	754	8.8	3.3	3.0	3.5	2.2*	1.8*
Stroke (I60–I64)	*681*	*8.0*	*3.0*	*2.7*	*3.2*	*2.4**	*1.7**
Acute rheumatic fever and chronic rheumatic heart disease (I00–I09)	469	5.5	0.9	0.8	1.0	8.3*	0.8*
Hypertension disease (I10–I15)	292	3.4	1.0	0.9	1.2	3.0*	0.7*
Other diseases of the circulatory system (I70–I99)[(k)]	1,047	12.2	3.2	3.0	3.5	0.7*	–1.3*
Total	**8,566**	**100.0**	**30.7**	**30.0**	**31.5**	**1.9***	**14.9***

(continued)

Table 1.05.9 (continued): Hospitalisations of Indigenous persons for principal diagnosis of diseases of the circulatory system, by type of circulatory disease and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

Principal diagnosis	Number	Per cent[(e)]	No per 1,000[(f)]	LCL[(g)]	UCL[(h)]	Ratio[(i)]	Difference[(j)]
				Persons			
Ischaemic heart disease (I20–I25)	7,712	43.0	14.4	14.1	14.8	2.3*	8.2*
Acute myocardial infarction (I21)	*3,437*	*19.2*	*6.4*	*6.2*	*6.7*	*2.9**	4.2*
Subsequent myocardial infarction (I22)	*34*	*0.2*	*0.1*	*0.0*	*0.1*	*8.4**	0.1*
Pulmonary heart disease and other forms of heart disease (I26–I52)	5,413	30.2	11.0	10.6	11.3	1.7*	4.5*
Cerebrovascular disease (I60–I69)	1,464	8.2	3.4	3.2	3.6	2.0*	1.7*
Stroke (I60–I64)	*1,336*	*7.5*	*3.1*	*2.9*	*3.3*	*2.1**	1.6*
Acute rheumatic fever and chronic rheumatic heart disease (I00–I09)	718	4.0	0.7	0.6	0.7	6.8*	0.6*
Hypertension disease (I10–I15)	493	2.7	0.9	0.8	1.0	2.9*	0.6*
Other diseases of the circulatory system (I70–I99)[(k)]	2,128	11.9	3.6	3.4	3.7	0.7*	–1.4*
Total	**17,928**	**100.0**	**33.9**	**33.3**	**34.4**	**1.7***	**14.0***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010); ICD-10-AM codes I00–I99.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patients hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Proportion of male, female and total hospitalisations of Indigenous persons in the period 2008–09 to 2009–10.

(f) Directly age-standardised using the Australian 2001 standard population.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous Australians.

(j) Rate difference Indigenous minus non-Indigenous Australians.

(k) Includes disease of arteries, arterioles and capillaries, diseases of veins, lymphatic vessels and lymph nodes and other unspecified disorders of the circulatory system.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by additional diagnosis

Table 1.05.10 presents hospitalisations for additional diagnoses of diseases of the circulatory system for Aboriginal and Torres Strait Islander people in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- For the 2-year period July 2008 to June 2010, hospitalisations of Indigenous Australians with a principal diagnosis of circulatory diseases were commonly reported with the disease category 'contact with health services and factors influencing health status' which includes dialysis (65%) and with other diseases of the circulatory system (61%). Furthermore, 37% of all hospitalisations of Indigenous Australians with a principal diagnosis of circulatory disease were reported with an additional diagnosis of endocrine, metabolic and nutritional disorders.
- In particular, hospitalisations with a principal diagnosis of ischaemic heart disease, cerebrovascular disease and pulmonary heart disease/other heart disease were commonly reported with an additional diagnosis of endocrine, metabolic and nutritional disorders (44%, 41% and 38% respectively).
- Indigenous Australians who were hospitalised with a principal diagnosis of cerebrovascular disease, which includes stroke, had diseases of the nervous system commonly reported as an additional diagnosis of hospitalisation (55%), as well as symptoms, signs and abnormal clinical and laboratory findings (45%).

Table 1.05.10: Hospitalisations of Indigenous persons for principal diagnosis of circulatory disease, by additional diagnoses of hospitalisation, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[a][b][c][d]

	Reported with a principal diagnosis of circulatory disease									
Additional diagnoses of hospitalisation	**Ischaemic heart disease (I20–I25)**	***Acute myocardial infarction (I21)***	***Subsequent myocardial infarction (I22)***	**Pulmonary heart disease/Other heart disease (I26–I52)**	**Cerebro-vascular disease (I60–I69)**	***Stroke (I60–I64)***	**Acute rheumatic fever /chronic rheumatic heart disease (I00–I09)**	**Hypertensive disease (I10–115)**	**Other circulatory diseases (I70–I99)**[e]	**All circulatory diseases**
	Per cent									
Contact with health services & factors influencing health status (includes dialysis) (Z00–Z99)	73.9	77.7	76.5	61.3	62.8	62.6	41.6	52.1	50.3	64.5
Diseases of the circulatory system (I00–I99)	78.1	82.6	88.2	57.5	62.1	61.8	35.7	12.8	24.1	60.7
Endocrine, nutritional & metabolic diseases (E00–E90)	44.1	48.9	52.9	38.4	40.8	41.4	13.9	18.3	17.6	37.0
Diseases of the genitourinary system (N00–N99)	15.3	20.1	29.4	23.8	19.5	20.0	9.7	19.1	12.4	17.7
Symptoms, signs & abnormal clinical & laboratory findings (R00–R99)	8.6	10.8	14.7	16.6	44.9	46.2	10.0	18.9	11.3	14.6
Diseases of the respiratory system (J00–J99)	8.3	11.3	8.8	20.1	11.3	11.5	9.7	4.7	4.3	11.6
Mental & behavioural disorders (F00–F99)	8.4	9.7	2.9	12.4	15.6	15.8	3.2	12.4	7.4	10.0
Diseases of the nervous system (G00–G99)	4.2	5.4	11.8	6.7	54.5	57.3	1.0	4.9	2.9	8.8
Certain infectious and parasitic diseases (A00–B99)	5.2	7.4	8.8	10.2	11.6	12.4	12.7	3.2	8.8	7.9
Diseases of the blood and disorders involving immune mechanism (D50–D89)	5.7	7.8	5.9	8.5	6.8	6.7	8.9	5.5	7.2	6.9

(continued)

Table 1.05.10 (continued): Hospitalisations of Indigenous persons for principal diagnosis of circulatory disease, by additional diagnoses of hospitalisation, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

	Reported with a principal diagnosis of circulatory disease									
Additional diagnoses of hospitalisation	**Ischaemic heart disease (I20–I25)**	***Acute myocardial infarction (I21)***	***Subsequent myocardial infarction (I22)***	**Pulmonary heart disease/Other heart disease (I26–I52)**	**Cerebro-vascular disease (I60–I69)**	***Stroke (I60–I64)***	**Acute rheumatic fever /chronic rheumatic heart disease (I00–I09)**	**Hypertensive disease (I10–115)**	**Other circulatory diseases (I70–I99)[(e)]**	**All circulatory diseases**
					Per cent					
Diseases of the digestive system (K00–K93)	3.9	4.7	2.9	7.0	7.7	7.6	4.7	6.1	13.1	6.3
Injury & poisoning and other consequences of external causes (S00–T98)	4.7	6.3	0.0	3.9	5.9	5.2	5.0	2.8	5.6	4.6
Diseases of the eye and adnexa (H00–H59)	3.7	4.9	14.7	4.2	9.6	9.9	0.8	2.2	1.6	3.9
Other[(f)]	5.3	7.0	8.8	11.0	11.5	12.0	10.0	4.1	11.4	8.4
Total number	**7,712**	**3,437**	**34**	**5,413**	**1,464**	**1,336**	**718**	**493**	**2,128**	**17,928**

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010); ICD-10-AM codes I00–I99.

(c) Financial year reporting.

(d) Indigenous data are reported by state/territory of usual residence of the patient hospitalised and are for New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland only. These six jurisdictions are considered to have adequate Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Includes diseases of arteries, arterioles and capillaries, diseases of veins, lymphatic vessels and lymph nodes and other unspecified disorders of the circulatory system.

(f) Includes: diseases of the musculoskeletal system and connective tissue; diseases of the skin and subcutaneous tissue; neoplasms; congenital malformations, deformations and chromosomal abnormalities; diseases of the ear and mastoid process; pregnancy, childbirth and the puerperium; and certain conditions originating in the perinatal period.

Notes

1. Sum of components may exceed 100% as more than one additional diagnosis can be reported for each hospitalisation.

2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data from 1998–99 to 2009–10 are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations over this period—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population.

Additional trend analysis has also been presented for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined from 2004–05 to 2007–08 for Indigenous and non-Indigenous Australians. New South Wales and Victoria have been assessed as having adequate identification of Indigenous hospitalisations from 2004–05. These six jurisdictions represent approximately 96% of the Indigenous population of Australia.

Note that changes in the level of accuracy of Indigenous identification in hospital records will result in changes in the level of reported hospital separations for Indigenous Australians, as will changes in access, hospital policies and practices over time. Caution should be used in interpreting changes over time, as it is not possible to ascertain whether a change in reported hospitalisation is due to changes in the accuracy of Indigenous identification or real changes in the rates at which Indigenous people are hospitalised. An increase in hospitalisation rates may also reflect increased use of admitted patient hospital services rather than a worsening of health.

Circulatory disease—1998-99 to 2009-10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for diseases of the circulatory system over period 1998–99 to 2009–10 are presented in Table 1.05.11 and Figure 1.05.1.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there was a non-significant decline in hospitalisation rates for circulatory diseases among Indigenous Australians during the period 1998-99 to 2009–10. The fitted trend implies an average yearly decrease in the rate of 0.1 per 1,000 which is equivalent to an increase of 4 per cent over the period.
- There were significant declines in hospitalisation rates for circulatory diseases among non-Indigenous Australians during the same period, with an average yearly decrease in the rate of around 0.2 per 1,000 population. This is equivalent to 13 per cent decline over the period.
- There was a significant increase in the hospitalisation rate ratio and a non-significant increase in the rate differences between Indigenous and non-Indigenous Australians for circulatory diseases over the period 1998-99 to 2009–10. The fitted trend implies an average yearly increase of 0.02 in the rate ratio (10% increase over the period) and 0.1 per 1,000 in the rate difference between Indigenous and non-Indigenous Australians (9% increase) for the period 1998-99 to 2009–10. This reflects a relative and absolute increase in the gap between hospitalisation rates for Indigenous and non-Indigenous Australians for circulatory diseases.

Table 1.05.11: Age-standardised hospitalisation rates, rate ratios and rate differences from diseases of circulatory system, Qld, WA, SA and NT, 1998–99 to 2009–10[a][b]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[c]	Per cent change[d]
Indigenous separations														
Males	2,242	2,347	2,277	2,383	2,509	2,679	2,688	2,980	2,805	2,999	2,939	3,238	87*	42.7*
Females	2,181	2,249	2,141	2,359	2,276	2,354	2,636	2,661	2,674	2,772	2,875	2,976	76.3*	38.5*
Persons	4,423	4,596	4,418	4,742	4,785	5,033	5,324	5,641	5,479	5,771	5,814	6,214	163.2*	40.6*
Non-Indigenous separations														
Males	80,879	83,044	81,958	83,041	82,758	81,701	83,252	90,022	93,032	95,302	95,102	96,352	1,557.5*	21.2*
Females	60,078	61,936	62,039	63,176	61,996	61,122	62,589	65,449	66,924	68,066	69,306	70,742	896.5*	16.4*
Persons	140,958	144,980	143,997	146,217	144,754	142,823	145,841	155,471	159,956	163,368	164,408	167,094	2,453.9*	19.1*
Indigenous rate per 1,000														
Males	39.9	42.1	38.8	39.7	41.3	43.4	39.1	43.1	39.4	42.4	38.2	40.8	0.0	–0.1
Females	36.6	37.0	33.1	34.8	34.0	32.3	35.1	35.1	33.6	34.0	34.4	32.8	–0.2	–6.1
Persons	38.2	39.4	35.8	37.1	37.4	37.2	37.0	38.8	36.3	37.7	36.3	36.4	–0.1	–3.5
Non-Indigenous rate per 1,000														
Males	27.1	27.1	25.9	25.5	24.6	23.5	23.2	24.3	24.4	24.2	23.6	23.2	–0.3*	–13.2*
Females	17.3	17.4	16.9	16.7	16.0	15.4	15.3	15.6	15.6	15.5	15.4	15.3	–0.2*	–12.5*
Persons	21.9	21.9	21.2	20.9	20.1	19.2	19.1	19.8	19.8	19.7	19.3	19.1	–0.2*	–12.5*
Rate ratio[e]														
Males	1.5	1.6	1.5	1.6	1.7	1.8	1.7	1.8	1.6	1.7	1.6	1.8	0.02*	15.4*
Females	2.1	2.1	2.0	2.1	2.1	2.1	2.3	2.2	2.2	2.2	2.2	2.1	0.01*	6.9*
Persons	1.7	1.8	1.7	1.8	1.9	1.9	1.9	2.0	1.8	1.9	1.9	1.9	0.02*	10.3*

(continued)

Table 1.05.11 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences from diseases of circulatory system, Qld, WA, SA and NT, 1998–99 to 2009–10[(a)(b)]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Rate difference[(f)]														
Males	12.8	15.0	12.9	14.3	16.8	19.9	15.9	18.8	15.0	18.1	14.7	17.6	0.3	27.6
Females	19.2	19.6	16.2	18.1	18.1	16.9	19.7	19.4	18.0	18.6	19.0	17.5	0.0	–0.5
Persons	16.3	17.5	14.6	16.2	17.4	18.0	17.9	19.1	16.5	18.1	17.0	17.3	0.1	8.6

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2009–10.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Data are reported by state/territory of usual residence of the patient hospitalised

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 1998–99 and 2009–10 based on the average annual change over the period.

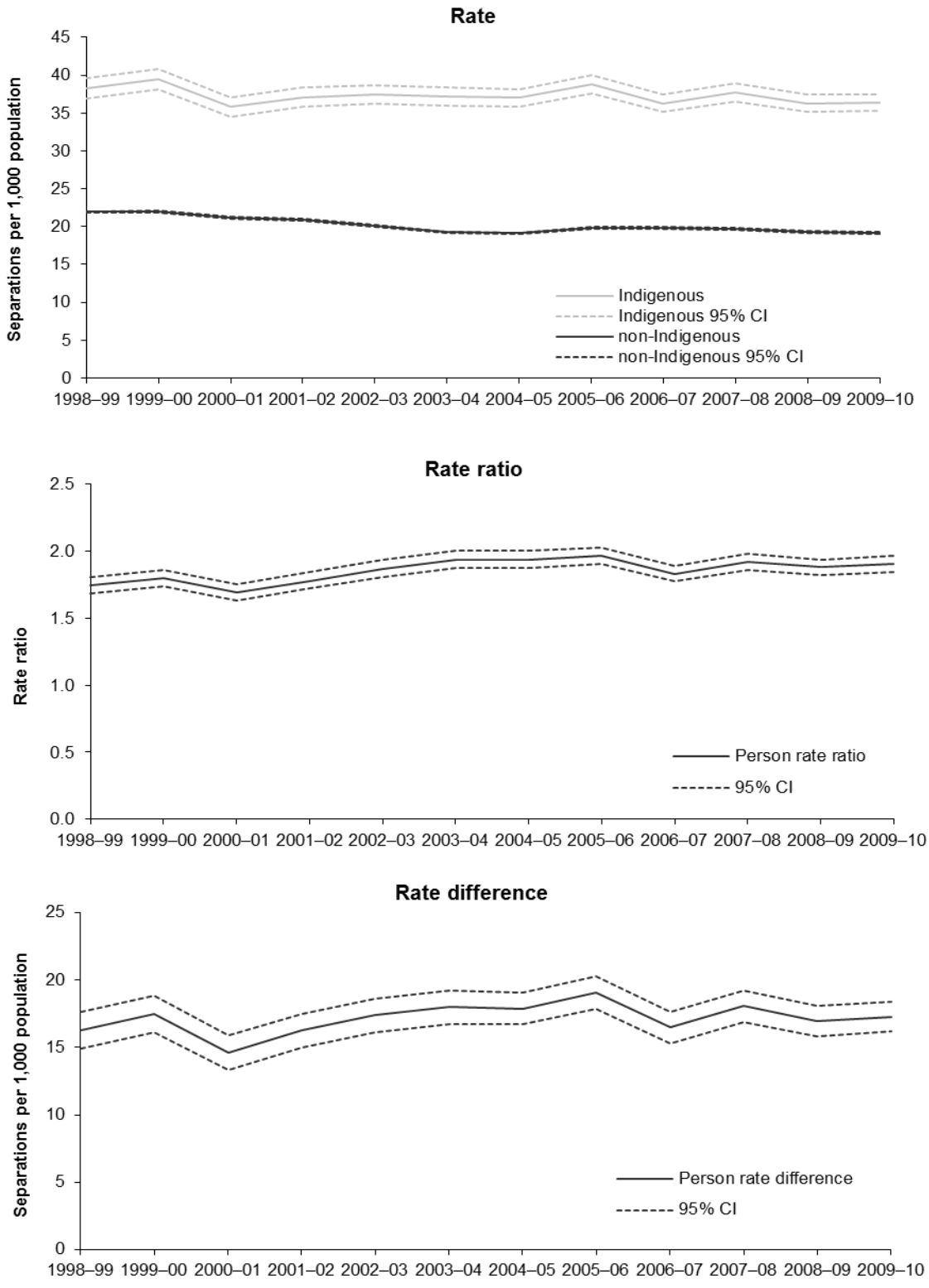
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.05.1: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians from diseases of circulatory system, Qld, WA, SA and NT, 1998-1999 to 2009-2010

Circulatory disease—2004–05 to 2009-10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for diseases of the circulatory system over the period 2004-05 to 2009–10 are presented in Table 1.05.12 and Figure 1.05.2.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined; there was no significant change in hospitalisation rates for circulatory diseases among Indigenous Australians during the period 2004-05 to 2009–10.
- There were significant declines in hospitalisation rates among non-Indigenous Australians during the same period, with an average yearly decrease in the rate of around 0.2 per 1,000 population. This is equivalent to a 5% decline over the period.
- There were significant increases in the hospitalisation rate ratios and rate differences between Indigenous and non-Indigenous Australians for circulatory diseases over the period 2004-05 to 2009–10. The fitted trend implies an average yearly increase of 0.03 in the rate ratio (10 % increase over the period) and 0.5 per 1,000 in the rate difference (21 % increase). This reflects a relative and absolute increase in the gap between hospitalisation rates for Indigenous and non-Indigenous Australians for circulatory diseases.

Table 1.05.12: Age-standardised hospitalisation rates, rate ratios and rate differences from diseases of circulatory system, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[(a)(b)]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Indigenous separations								
Males	3,861	4,178	4,170	4,459	4,544	4,818	176.3*	22.8*
Females	3,593	3,679	3,816	4,087	4,266	4,300	159.1*	22.1*
Persons	7,454	7,857	7,986	8,546	8,810	9,118	335.4*	22.5*
Non-Indigenous Australian separations								
Males	234,039	243,627	249,167	252,382	250,089	254,296	3,539.6*	7.6*
Females	176,204	180,924	184,913	186,291	186,456	189,770	2,451.5*	7.0*
Persons	410,256	424,552	434,082	438,674	436,545	444,067	5,989.3*	7.3*
Indigenous rate (separations per 1,000)								
Males	35.0	36.8	35.7	37.9	37.3	37.7	0.5*	7.1*
Females	29.8	30.3	29.8	31.3	31.9	29.6	0.2	2.7
Persons	32.2	33.4	32.5	34.3	34.5	33.3	0.3	4.6
Non-Indigenous Australian rate (separations per 1,000)								
Males	25.3	25.7	25.6	25.3	24.4	24.2	–0.3*	–5.5*
Females	16.3	16.4	16.4	16.2	15.9	15.8	–0.1*	–3.7*
Persons	20.5	20.8	20.7	20.5	19.9	19.8	–0.2*	–4.6*
Rate ratio[(e)]								
Males	1.4	1.4	1.4	1.5	1.5	1.6	0.04*	13.2*
Females	1.8	1.8	1.8	1.9	2.0	1.9	0.02	6.6
Persons	1.6	1.6	1.6	1.7	1.7	1.7	0.03*	9.5*
Rate difference[(f)]								
Males	9.7	11.1	10.1	12.7	12.9	13.5	0.8*	40.0*
Females	13.5	13.9	13.4	15.2	16.1	13.8	0.3	10.5
Persons	11.7	12.6	11.8	13.9	14.5	13.5	0.5*	20.7*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2004–05 to 2009–10.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Data are reported by state/territory of usual residence of the patient hospitalised

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 2004–05 and 2009–10 based on the average annual change over the period.

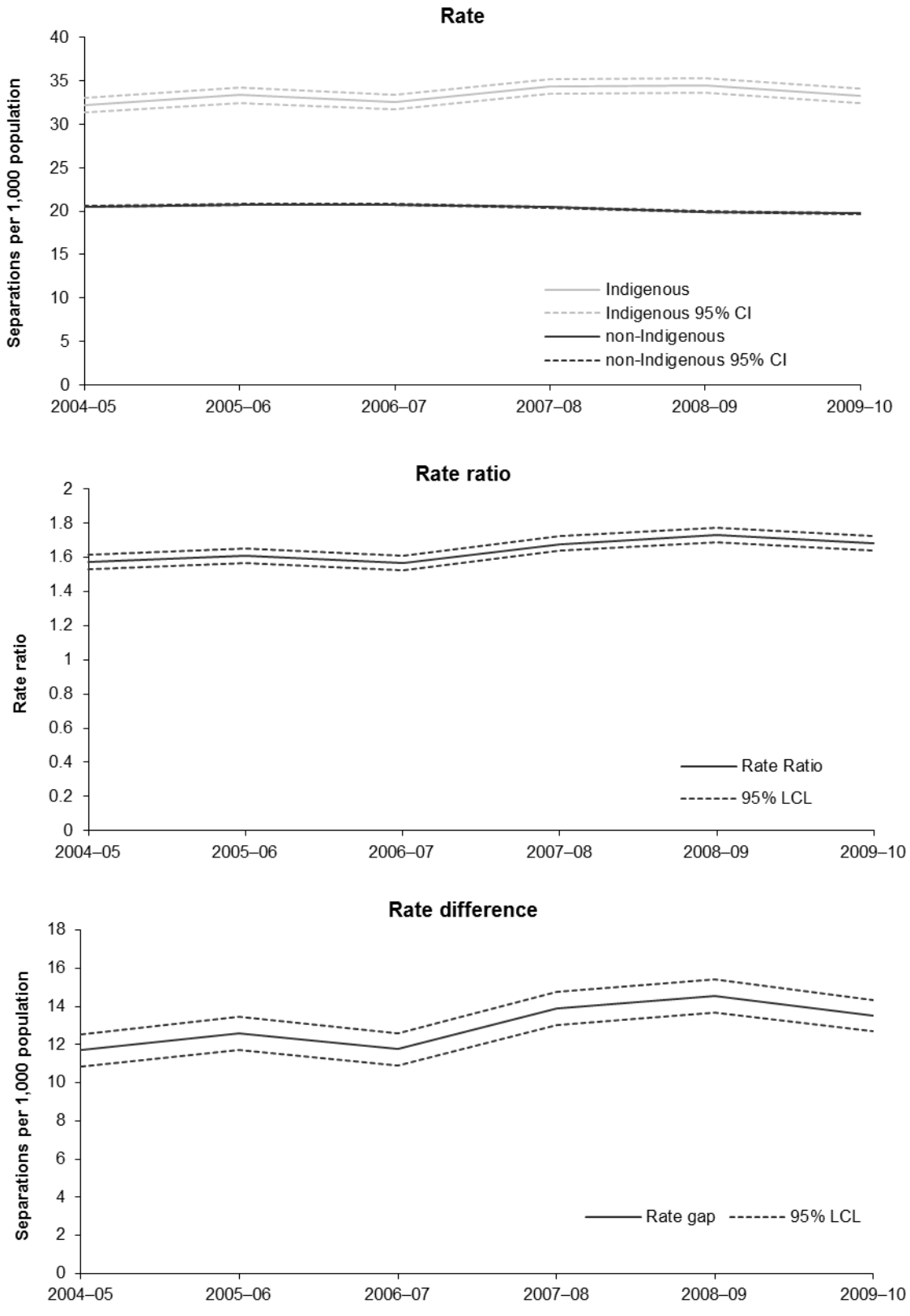
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for Non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for Non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.05.2: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians from diseases of circulatory system, NSW, Vic, Qld, WA, SA and NT, 2004-2005 to 2009-2010

Coronary heart disease hospital procedures

This section presents summarized information on coronary heart disease hospital procedures for Indigenous and non-Indigenous Australians in 2008-10. For detailed analysis see measure 3.06 in this report.

- In 2008–10, among those Australians hospitalised with coronary heart disease, Indigenous Australians were less likely to receive coronary procedures such as coronary angiography and revascularisation procedures than non-Indigenous Australians. Approximately 19.3% of Indigenous patients and 29.2% of non-Indigenous patients received coronary procedures such as coronary angiography and revascularisation procedures.
- After taking the different population age structures into account, the angiography and revascularisation rate for Aboriginal and Torres Strait Islanders was 60% lower than the rate for non-Indigenous Australians (rate ratio of 0.6 for both).
- Similar results were observed when PCI and CABG were analysed separately, with Indigenous Australians generally less likely to receive these procedures than non-Indigenous Australians. The age-adjusted procedure rate for PCI was around 50% lower than non-Indigenous Australians, although the age-adjusted rate for CABG is 10% lower (age-standardised rate ratio of 0.5 and 0.9, respectively).
- Indigenous Australians with coronary heart disease tended to have more complex cases (measured by the number of comorbidities). In 2008–10, Indigenous people with coronary heart disease were less likely to undergo a coronary procedure across all levels of complexity. In the lower complex group (none, 1 or 2 comorbidities present), Indigenous Australians were no more than half as likely to have a coronary procedure.
- The complexity of cases did not explain the lower procedure rate in Indigenous Australians compared with non-Indigenous Australians.

Data quality issues

Mortality data

Mortality data presented in this report are from the AIHW National Mortality Database. The AIHW National Mortality Database includes information on the factors that caused death, as well as other information about the deceased person, such as age at death, place of death, country of birth, and where applicable, the circumstances of their death. These data are collected in Australia by the Registrars of Births, Deaths and Marriages in each state and territory. The data are then compiled nationally by the ABS, which codes the data according to the International Classification of Diseases (ICD).

Deaths

Although it is considered likely that most deaths of Aboriginal and Torres Strait Islander (Indigenous) Australians are registered, a proportion of these deaths are not registered as Indigenous. Information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred and may differ from the self-identified Indigenous origin of the deceased.

Queensland deaths

In November 2010, the Queensland Registrar of Births, Deaths and Marriages advised the ABS of an outstanding deaths registration initiative undertaken by the Registry. This initiative resulted in the November 2010 registration of 374 previously unregistered deaths which occurred between 1992 and 2006 (including a few for which a date of death was unknown). Of these, around three-quarters (284) were deaths of Aboriginal and Torres Strait Islander Australians.

The ABS discussed different methods of adjustment of Queensland death registrations data for 2010 with key stakeholders. Following the discussion, a decision was made by the ABS and key stakeholders to use an adjustment method that added together deaths registered in 2010 for usual residents of Queensland which occurred in 2007, 2008, 2009 and 2010. This method minimises the impact on mortality indicators used in various government reports. However, care should still be taken when interpreting Aboriginal and Torres Strait Islander death data for Queensland for 2010**.**

Western Australia deaths

Indigenous deaths registered in Western Australia in 2007, 2008 and 2009 were corrected by the ABS in mid-2012 due to some non-Indigenous deaths being incorrectly recorded as Indigenous for these years. Data presented in this report are based on the corrected data and will differ from mortality data presented in the 2010 Health Performance Framework report which presented data prior to the ABS corrections.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms.

Under-identification

At present, there is considerable variation across the states and territories in the completeness of mortality data for Indigenous people. Information concerning the number of deaths of Indigenous people is limited by the accuracy with which Indigenous persons are identified in death records. Problems associated with identification result in an underestimation of deaths of Indigenous people and in the gap in mortality between Indigenous and non-Indigenous Australians.

Mortality data for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered to have sufficient coverage to produce reliable statistics on Indigenous Australian deaths for the period 2001–2010.

Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) which are considered to have adequate identification from 1991. Queensland is considered to have sufficient coverage of Indigenous deaths from 1998.

The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.

Indigenous Mortality Quality Study

The ABS conducted a number of quality studies based on the 2006 Census of Population and Housing and other data sets as part of the Census Data Enhancement (CDE) project (ABS 2008). The CDE Indigenous Mortality Quality Study linked Census records with death registration records for the 11-month period following the Census and examined differences in the reporting of Indigenous status across the two data sets.

For the purpose of this study, the linked record was assumed to be an Indigenous record if a positive response was recorded against the Indigenous status question on either the death registration or the corresponding Census record. Following linkage, the number of death records identified as Indigenous increased from 1,800 to 2,123 records, or from 1.7% to 2.0% of all registered deaths.

'While 323 additional death records were able to be identified as Indigenous from Census records, more may have been expected if all death records had been linked. A key reason records could not be linked appears to be Census undercount, with a corresponding Census record not existing to link to for many Indigenous death records' (ABS 2008).

The results from the study suggested that coverage of Indigenous deaths in death registrations is considerably higher, at least in 2006-07, than previous estimates have indicated. Nationally, the coverage rate was estimated to be 85%. State/territory coverage estimates were: Vic 74%, NSW 76%, SA 86%, Qld 87%, WA 92% and NT 99% (ABS 2008).

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in death records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The 2004-05 NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians. It therefore overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in Major cities, Inner and outer regional areas and Remote and very remote areas, but Very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 NHS.

In Remote and very remote communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

General Practitioner Data (BEACH)

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample frame has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. Although the questionnaire contains an Indigenous identifier, it is unknown whether all GPs ask their patients this question. In the BEACH survey, 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners. Further detailed analyses of this issue are covered in General practice in Australia, heath priorities and policies 1998 to 2008, (Britt & Miller 2009:101):

'The findings of a BEACH substudy confirmed this suspected under-identification. In the data period reported here, 1.4% of patients encountered identified themselves as Indigenous. In contrast, in a BEACH substudy that asked 9,245 patients a complete set of questions about their cultural background (including Indigenous status) 2.2% (95% CI: 1.6–2.9) of respondents identified themselves as Indigenous (Britt et al. 2007). This rate is similar to the ABS estimates of Indigenous Australians as a proportion of the total population (ABS 2006).

However, the BEACH substudy included Indigenous Australians seen at Community Controlled Health Services funded through Medicare claims, and the estimate of 2.2% could have been an overestimate for the proportion of encounters that are with Indigenous patients in general practice as a whole. Deeble et al. (2008) conducted further investigations on this data and estimated that the BEACH encounter identification was an underestimate of about 10%, and that a more reliable estimate of the Indigenous population would be about 1.6% of all encounters (Deeble et al. 2008).

The findings of these studies are that some GPs are not routinely asking patients at the encounter about their Indigenous status, even when this is a variable specifically collected for each patient encountered, as it is in BEACH encounter data.'

National Hospital Morbidity Database

The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free-standing day

hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included. The NHMD does not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

For 2009–10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2,400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10,600 separations for one private hospital.

Separations

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay or a portion of a hospital stay beginning or ending in a change of type of care) and not patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set.

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Separations with care types of *Newborn* episodes that did not include qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded as these activities are not considered to be admitted patient care.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections.

Approximately 2% of hospital records have missing Indigenous status information.

Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. In 2007, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data.

It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Interpretation of results should take into account the relative quality of the data from the jurisdictions. The proportion of the Indigenous population covered by these six jurisdictions is 96%. Tasmania and the Australian Capital Territory data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions.

From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national

level. Adjustments for Indigenous under-identification have been made at the national level for the total number of hospital separations using an adjustment factor of 89%. No adjustments for under-identification have been made at the state/territory level or principal diagnosis level.

The 2007 AIHW study indicated acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in *Major cities* to 97% in *Remote* and *Very remote* areas. The quality of data supports analyses for hospitalisations by remoteness areas at the national level only (AIHW 2010).

In 2011-12, the AIHW commenced another study to re-assess the level of under-identification in public hospitals data. All states and territories have participated in the study to assess improvements in data quality. A report on the findings is expected to be published in mid-2013 which will include new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

List of symbols used in tables

n.a.	not available
—	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.06 Acute rheumatic fever and rheumatic heart disease

Age-standardised rate and ratio of incidence and prevalence of acute rheumatic fever and rheumatic heart disease among Aboriginal and Torres Strait Islander people by age group

Data sources

Northern Territory Acute Rheumatic Fever and Rheumatic Heart Disease Program data

Data for this measure come from the acute rheumatic fever and rheumatic heart disease program in the Northern Territory.

Prior to 2009, data on acute rheumatic fever (ARF) and rheumatic heart disease (RHD) in the Northern Territory were collected from two programs. Data from the Top End program covered the northern part of the Northern Territory including Darwin, East Arnhem, Lower Top End (Katherine region), Alligator, Daly, Finniss and Bathurst–Melville. Data from the Central Australian program covered the Barkley region and Central Northern Territory (Alice Springs region). Although Central Australia also covers parts of Western Australia and South Australia, data from these areas have not been included. This is due to difficulties in determining denominator populations for the calculation of rates.

Incidence data (new registrations) for ARF are for the period 2007–2010. Prevalence data for RHD are at 31 December 2010.

The 2006 estimated resident Indigenous populations for the Northern Territory, the Top End and Central Australia have been used as the denominator for rates. This is because data for the Top End and Central Australia are available from the ABS for Census years only. Caution should therefore be used in interpreting rates presented here.

Analyses

Incidence of ARF

- Between 2007 and 2010 in the Northern Territory, there were 221 new and recurrent cases of ARF among Indigenous persons (Table 1.06.1).

Incidence by sex and age group

- During the 4-year period 2007–2010, Aboriginal and Torres Strait Islander children aged 5–14 years in the Northern Territory accounted for over half (61%) of new and recurrent cases of ARF among Indigenous persons in the Northern Territory (Table 1.06.1).
- The incidence of ARF among Aboriginal and Torres Strait Islander children aged 5–14 years in the Northern Territory was around 1.8 per 1,000 among males and 2.8 per 1,000 among females.
- Approximately 37% of new and recurrent cases of ARF among Indigenous persons in the Northern Territory were of males and 63% were of females.

Incidence by region

- During the 4-year period 2007–2010, there were 160 new or recurrent cases of ARF among Indigenous persons in the Top End of the Northern Territory. For the same period in Central Australia, there were 61 cases of ARF registered among Indigenous persons. Most of the new or recurrent cases of ARF in either Top End of the Northern Territory or Central Australia were for Indigenous persons (Table 1.06.2).
- In 2007–2010, incidence of ARF among Indigenous Australians in the Top End of the Northern Territory and Central Australia was around 0.6 per 1,000 (Table 1.06.2).
- Incidence rates of ARF among Indigenous Australians in the Northern Territory were around 75 times those for non-Indigenous Australians, which is the result of the very small number of notifications among non-Indigenous Australians (Table 1.06.2).

Table 1.06.1: Incidence (new and recurrent cases) of acute rheumatic fever among Indigenous persons in the Northern Territory, by age group and sex, 2007–2010[a]

	Males					Females					Persons				
	Number	Per cent	No. per 1,000[b]	95% LCL[c]	95% UCL[d]	Number	Per cent	No. per 1,000[b]	95% LCL[c]	95% UCL[d]	Number	Per cent	No. per 1,000[b]	95% LCL[c]	95% UCL[d]
0–4	1	1.2	0.1	–0.2	0.3	2	1.4	0.1	–0.2	0.5	3	1.4	0.1	–0.1	0.3
5–14	54	65.9	1.8	0.8	2.7	81	58.3	2.8	1.6	4.1	135	61.1	2.3	1.5	3.1
15–24	21	25.6	0.8	0.1	1.5	32	23.0	1.3	0.4	2.2	53	24.0	1.0	0.5	1.6
25–34	3	3.7	0.1	–0.2	0.5	14	10.1	0.6	0.0	1.3	17	7.7	0.4	0.0	0.8
35–44	2	2.4	0.1	–0.2	0.5	8	5.8	0.5	–0.2	1.1	10	4.5	0.3	–0.1	0.7
45+	1	1.2	0.1	–0.2	0.3	2	1.4	0.1	–0.2	0.3	3	1.4	0.1	–0.1	0.2
Total	**82**	**100.0**	**0.7**	**0.4**	**0.9**	**139**	**100.0**	**1.1**	**0.7**	**1.4**	**221**	**100.0**	**0.9**	**0.6**	**1.1**

(a) Calendar year reporting. Data are presented in 4-year groupings because of small numbers each year.

(b) Age-specific rates calculated using the average number of registrations for 2007–2010 divided by the 2006 estimated resident Indigenous population for the Northern Territory.

(c) LCL = lower confidence limit.

(d) UCL = upper confidence limit.

Source: AIHW analysis of Northern Territory Rheumatic Heart Disease Program data.

Table 1.06.2: Incidence (new or recurrent cases) of acute rheumatic fever in the Top End of the Northern Territory, Central Australia and the Northern Territory, by Indigenous status and sex, 2007–2010[a]

	Number		Per cent[b]		Indigenous			Non-Indigenous				
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	No. per 1,000[c]	95% LCL[d]	95% UCL[e]	No. per 1,000[b]	95% LCL[d]	95% UCL[e]	Ratio[f]	Rate difference[g]
NT Top End												
Males	69	2	97.2	2.8	0.5	0.3	0.8	0.01	–0.01	0.03	70.8*	0.5*
Females	91	2	97.8	2.2	0.7	0.4	1.0	0.01	–0.02	0.03	78.0*	0.7*
Persons	160	4	97.6	2.4	0.6	0.4	0.8	0.01	–0.01	0.02	76.7*	0.6*
Central Australia[h]												
Males	13	0	100.0	0.0	0.2	0.0	0.5	0.00	0.00	0.00	n.a.	0.2
Females	48	1	98.0	2.0	0.9	0.4	1.5	0.02	–0.05	0.08	54.3	0.9
Persons	61	1	98.4	1.6	0.6	0.3	0.9	0.01	–0.03	0.04	65.6*	0.6*
Northern Territory												
Males	82	2	97.6	2.4	0.4	0.2	0.6	0.01	–0.01	0.02	70.1*	0.4*
Females	139	3	97.9	2.1	0.8	0.5	1.0	0.01	–0.01	0.03	74.6*	0.8*
Persons	221	5	97.8	2.2	0.6	0.4	0.8	0.01	–0.01	0.02	75.0*	0.6*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Calendar year reporting. Data are presented in 4-year groupings because of small numbers each year.
(b) Proportion of total male, female and all persons cases in the period 2007–2010.
(c) Directly age-standardised using the Australian 2001 standard population.
(d) LCL = lower confidence limit.
(e) UCL = upper confidence limit.
(f) Rate ratio Indigenous: non-Indigenous.
(g) Rate difference is Indigenous minus non-Indigenous
(h) Excludes cases in Western Australia and South Australia because of difficulties in ascertaining denominator populations.

Source: AIHW analysis of Northern Territory Rheumatic Heart Disease Program data.

Incidence time series analyses

Incidence rates for ARF among Indigenous Australians in the Northern Territory are presented by age group and year for the period 2006 to 2010 in Table 1.06.3.

- Over the period 2006 to 2010, the incidence rate of ARF among Indigenous people did not change significantly for any age group other than 0–4 year olds which declined by 120% over the period.

Table 1.06.3: Incidence rates[(a)] of acute rheumatic fever in the Northern Territory, Indigenous Australians by age group, 2006 to 2010

	2006	2007	2008	2009	2010	Annual change[(b)]	Per cent change over period[(c)]
0–4	0.3	0.3	0.1	0.0	0.0	–0.08*	–120.0*
5–14	1.5	3.2	1.7	2.2	2.1	0.02	5.5
15–24	0.9	1.2	1.0	0.9	1.0	–0.01	–3.3
25–34	0.6	0.7	0.1	0.5	0.4	–0.06	–40.0
35–44	0.2	0.5	0.0	0.4	0.4	0.01	20.0
45+	0.4	0.0	0.0	0.0	0.3	–0.02	–20.0
Total	**0.7**	**1.2**	**0.6**	**0.81**	**0.84**	**–0.02**	**–9.2**

* Represents significant increases or decreases over the period 2006 to 2010 at the $p < 0.05$ level.

(a) Age-specific rates calculated using the 2006 estimated resident Indigenous population for the Northern Territory.

(b) Average annual change in rates determined using linear regression analysis.

(c) Per cent change between 2006 and 2010 based on the average annual change over the period.

Source: AIHW analysis of Northern Territory Rheumatic Heart Disease Program data.

Incidence of RHD (new registrations)

Time series analyses by age

Incidence rates for RHD registrations among Indigenous Australians in the Northern Territory are presented by age group for the period 2006 to 2010 in Table 1.06.4.

- Between 2006 and 2010 there was a 54% decline in new registrations of RHD among Aboriginal and Torres Strait Islander people in the Northern Territory (Table 1.06.4).
- There were significant decreases in the rate of new registrations for RHD in the Northern Territory among Indigenous Australians aged 15–24, 25–34 and 45–54 years.
- For 0–14 year olds, the rate increased but not significantly. For other age groups, the rate decreased but not significantly.

Table 1.06.4: Incidence rates[a] of rheumatic heart disease (new registration) in the Northern Territory, Indigenous Australians by age group[b], 2006 to 2010

Age (years)	2006	2007	2008	2009	2010	Annual change[c]	Per cent change over period[d]
0–14	0.5	0.8	1.3	0.9	0.8	0.1	43.3
15–24	2.1	1.9	1.3	1.5	0.6	–0.3*	–63.1*
25–34	1.8	1.8	1.7	1.1	0.3	–0.4*	–84.2*
35–44	1.0	1.8	1.1	0.6	0.6	–0.2	–80.0
45–54	2.7	2.5	0.7	1.6	0.7	–0.5*	–72.0*
55–64	1.5	1.1	0.0	0.7	1.1	–0.1	–30.0
65+	1.6	0.5	0.5	0.5	0.5	–0.2	–53.3
Total	**1.4**	**1.5**	**1.2**	**1.1**	**0.6**	**–0.2***	**–54.3***

* Represents significant increases or decreases over the period 2006 to 2010 at the $p < 0.05$ level.

(a) Age-specific rates calculated using the 2006 estimated resident Indigenous population for the Northern Territory.
(b) All ages are as at 31 December 2010.
(c) Average annual change in rates determined using linear regression analysis.
(d) Per cent change between 2006 and 2010 based on the average annual change over the period.

Source: AIHW analysis of Northern Territory Rheumatic Heart Disease Program data.

Time series analyses by region

Incidence rates for RHD registrations among Indigenous Australians in the Northern Territory between 2006 and 2010 by region are presented in Table 1.06.5 and Figure 1.06.1. Rates for non-Indigenous Australians are not presented because of the small number of cases each year.

Note that the 2006 estimated resident Indigenous population has been used as the denominator when calculating rates for all years as population data for the Top End and Central Australia are available for Census years only.

Note also that changes in the level of accuracy of Indigenous identification in registration data will result in changes in the level of reported cases of RHD for Indigenous Australians. Caution should therefore be used in interpreting rates and changes over time.

- Over the period 2006 to 2010, there was a 55% decline in new RHD registrations among Indigenous Australians in the Top End of the Northern Territory over the 5-year period (Table 1.06.5).
- In Central Australia there was no significant change in the in the rate of new RHD registrations among Indigenous Australians.

Table 1.06.5: Numbers and rates[a] of new rheumatic heart disease registrations in the Top End of the Northern Territory, Central Australia and total Northern Territory, Indigenous Australians, 2006 to 2010

	2006	2007	2008	2009	2010	Annual change[b]	Per cent change over period[c]
Top End NT							
Number	69	68	65	53	29	. .	. .
Rate[d]	1.6	1.5	1.5	1.2	0.7	–0.2*	–55.1
Central Australia							
Number	18	26	13	15	12	. .	. .
Rate[d]	0.9	1.3	0.6	0.7	0.6	–0.1	–51.1
Northern Territory							
Number	87	94	78	68	41	. .	. .
Rate[d]	1.4	1.5	1.2	1.1	0.6	–0.2*	–54.3*

* Represents significant increases or decreases over the period 2006 to 2010 at the $p < 0.05$ level.

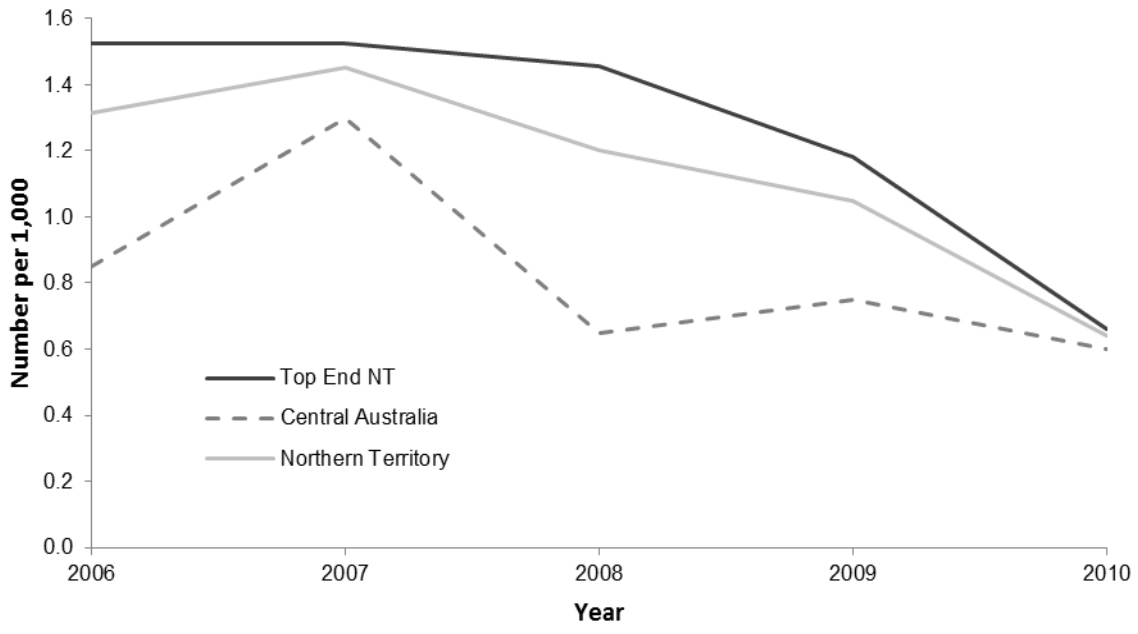
(a) Crude rates calculated using the 2006 estimated resident Indigenous population for the Top End, Central Australia and total Northern Territory.

(b) Average annual change in rates determined using linear regression analysis.

(c) Per cent change between 2006 and 2010 based on the average annual change over the period.

(d) Rate per 1,000.

Source: AIHW analysis of Northern Territory Rheumatic Heart Disease Program data.



Source: Northern Territory Rheumatic Heart Disease Program data.

Figure 1.06.1: Rates of new rheumatic heart disease registrations among Indigenous persons in the Top End of the Northern Territory, Central Australia and total Northern Territory, all ages, 2006 to 2010

Prevalence of RHD

- As at 31 December 2010, there were 1,479 cases of RHD in the Northern Territory, of which 1,379 (93%) were Indigenous people (Table 1.06.7).

Prevalence by sex and age group

- The overall prevalence rate of RHD for Indigenous males in the Northern Territory was around 18 per 1,000. For Indigenous females, the prevalence rate was much higher at around 33 per 1,000 (Table 1.06.6).
- As at 31 December 2010, rates of RHD among Indigenous adults between the ages of 25 and 64 years in the Northern Territory were between 31 and 36 per 1,000 (Table 1.06.6).
- The biggest disparities in rates of RHD between Indigenous and non-Indigenous Australians were in the 15–24 and 25–34 year age groups, where the respective rate ratios were around 120 and 131 (Table 1.06.6).
- Approximately 34% of cases of RHD in the Indigenous population were among Indigenous males and 66% among Indigenous females (Table 1.06.6).

Table 1.06.6: Prevalence of rheumatic heart disease (total registrations) for Indigenous persons in the Northern Territory, by age group and sex, as at 31 December 2010

Age at 31 Dec 2010 (in years)	No.	%	No. per 1,000[a]	95% LCL[b]	95% UCL[c]	Rate ratio[d]
			Males			
0–14	53	11.2	4.6	3.4	5.8	n.a.
15–24	121	25.5	19.0	15.6	22.4	100.1*
25–34	108	22.7	21.5	17.5	25.5	139.9*
35–44	92	19.4	22.6	18.0	27.1	76.4*
45–54	62	13.1	23.9	18.0	29.8	32.7*
55–64	26	5.5	21.3	13.2	29.4	47.6*
65+	13	2.7	18.5	8.5	28.5	5.9*
Total	**475**	**100.0**	**15.1**	**13.7**	**16.4**	**33.5***
Total ASR[e]	**. .**	**. .**	**17.8**	**15.8**	**19.8**	**28.2***
			Females			
0–14	68	7.5	6.2	4.8	7.7	n.a.
15–24	184	20.4	29.3	25.1	33.4	137.5*
25–34	215	23.8	39.8	34.6	45.0	123.1*
35–44	198	21.9	46.1	39.8	52.4	79.5*
45–54	137	15.2	47.1	39.4	54.8	42.9*
55–64	67	7.4	43.6	33.4	53.8	14.3*
65+	35	3.9	30.3	20.4	40.1	5.2*
Total	**904**	**100.0**	**27.8**	**26.0**	**29.6**	**29.5***
Total ASR[e]	**. .**	**. .**	**32.6**	**30.2**	**34.9**	**24.4***
			Persons			
0–14	121	8.8	5.4	4.4	6.4	n.a.
15–24	305	22.1	24.1	21.4	26.8	120.1*
25–34	323	23.4	31.0	27.7	34.3	131.1*
35–44	290	21.0	34.6	30.7	38.6	80.6*
45–54	199	14.4	36.2	31.2	41.1	40.0*
55–64	93	6.7	33.7	27.0	40.5	21.8*
65+	48	3.5	25.8	18.6	33.0	6.0*
Total	**1,379**	**100.0**	**21.5**	**20.4**	**22.7**	**31.6***
Total ASR[e]	**. .**	**. .**	**25.7**	**24.1**	**27.2**	**27.3***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Age-specific rates calculated using the 2006 estimated resident Indigenous population for the Northern Territory.

(b) LCL = lower confidence limit.

(c) UCL = upper confidence limit.

(d) Rate ratio Indigenous: non-Indigenous.

(e) Total age-standardised rates.

Source: Northern Territory Rheumatic Heart Disease Program data.

Prevalence by region

Table 1.06.7 presents total numbers and rates (prevalence) of RHD among Indigenous and non-Indigenous Australians in the Top End of the Northern Territory, Central Australia and the total Northern Territory as at 31 December 2010.

- As at 31 December 2010, there were 1,154 cases of RHD in the Top End of the Northern Territory, of which 93% (1,073) were Indigenous Australians (Table 1.06.7).
- For the same reference period, there were 325 cases of RHD in Central Australia, of which 94% (306) were Indigenous Australians (Table 1.06.7).
- After adjusting for differences in age structures, rates of RHD among Indigenous males and females in the Top End of the Northern Territory were around 36 and 28 times the rates for non-Indigenous males and females respectively (Table 1.06.7).
- In 2010, the prevalence rate of RHD among Indigenous males and females in Central Australia was around 13 and 17 times the rates for non-Indigenous males and females respectively (Table 1.06.7).

Table 1.06.7: Prevalence of rheumatic heart disease in the Top End of the Northern Territory and Central Australia, by Indigenous status and sex, as at 31 December 2010

	Number		Per cent[a]		Indigenous			Non-Indigenous				
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	No. per 1,000[b]	95% LCL[c]	95% UCL[d]	No. per 1,000[b]	95% LCL[c]	95% UCL[d]	Ratio[e]	Rate difference[f]
NT Top End												
Males	379	28	93.1	6.9	20.7	18.1	23.2	0.6	0.3	0.8	35.6*	20.1*
Females	694	53	92.9	7.1	36.9	33.8	40.0	1.3	0.9	1.7	27.7*	35.6*
Persons	1,073	81	93.0	7.0	29.3	27.2	31.3	0.9	0.7	1.1	32.4*	28.4*
Central Australia[g]												
Males	96	7	93.2	6.8	11.5	8.6	14.4	0.9	0.2	1.6	12.8*	10.6*
Females	210	12	94.6	5.4	23.7	20.3	27.2	1.4	0.5	2.2	17.4*	22.4*
Persons	306	19	94.2	5.8	18.1	15.8	20.4	1.1	0.6	1.7	16.3*	17.0*
Northern Territory												
Males	475	35	93.1	6.9	17.8	15.8	19.8	0.6	0.4	0.9	28.2*	17.2*
Females	904	65	93.3	6.7	32.6	30.2	34.9	1.3	1.0	1.7	24.4*	31.3*
Persons	1,379	100	93.2	6.8	25.7	24.1	27.2	0.9	0.7	1.1	27.3*	24.7*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Proportion of total registrations for males, females and all persons.

(b) Directly age-standardised using the Australian 2001 standard population.

(c) LCL = lower confidence limit.

(d) UCL = upper confidence limit.

(e) Rate ratio Indigenous: non-Indigenous.

(f) Rate difference is Indigenous minus non-Indigenous.

(g) Excludes cases in Western Australia and South Australia because of difficulties in ascertaining denominator populations.

Source: AIHW analysis of Northern Territory Rheumatic Heart Disease Program data.

Adherence to secondary prophylaxis

Table 1.06.8 presents numbers and percentages for adherence to secondary prophylaxis in the last 12 months, by Indigenous status, for persons on the ARF/RHD program in the Northern Territory in 2010.

- Of the 1,106 Indigenous persons in the ARF/RHD program in 2010, 30% met less than 50% of their required doses in the previous 12 months, 42% met 50% to 80% of their required doses, and 28% met greater than 80% of their required doses. Comparisons with non-Indigenous persons are difficult due to the low number of non-Indigenous persons on the ARF/RHD program.

Table 1.06.8: Adherence to secondary prophylaxis in the last 12 months for persons on the ARF/RHD program, 2010

	Number		Per cent	
Percentage of required doses received in previous 12 months	**Indigenous**	**Non-Indigenous**	**Indigenous**	**Non-Indigenous**
NT Top End				
Less than 50%	228	5	27.8	62.5
50% to 80%	348	n.p.	42.4	n.p.
Greater than 80%[(b)]	245	n.p.	29.8	n.p.
Central Australia[(a)]				
Less than 50%	103	n.p.	36.1	n.p.
50% to 80%	116	n.p.	40.7	n.p.
Greater than 80%[(b)]	66	n.p.	23.2	n.p.
Northern Territory				
Less than 50%	331	6	29.9	60.0
50% to 80%	464	n.p.	42.0	n.p.
Greater than 80%[(b)]	311	n.p.	28.1	n.p.

(a) Excludes cases in Western Australia and South Australia because of difficulties in ascertaining denominator populations.
(b) Includes people who received one or more doses when none were required.

Source: AIHW analysis of Northern Territory Rheumatic Heart Disease Program data.

Data quality issues

Northern Territory rheumatic heart disease program

Registrations

Registrations do not measure the incidence or prevalence of conditions in a population. Under-reporting of these conditions can occur at a number of stages. A person infected may not feel ill or may not seek medical care. The condition may not be diagnosed or a registration may not occur.

Some of the data tables (for instance table 1.06.1 and table 1.06.2) are presented in 4-year groupings because of small numbers each year.

Under-identification

The accurate identification of Aboriginal and Torres Strait Islander people within this data collection is less likely to be a problem. This is due to the high proportion of Aboriginal and Torres Strait Islander people in the Top End of the Northern Territory and in Central Australia, and the predominance of Aboriginal and Torres Strait Islander people with this disease.

List of symbols used in tables

n.a. not available

— rounded to zero (including null cells)

0 zero

. . not applicable

n.e.c. not elsewhere classified

n.f.d. not further defined

n.p. not available for publication but included in totals where applicable, unless otherwise indicated

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1.07 High blood pressure

The prevalence of high blood pressure/hypertension among Aboriginal and Torres Strait Islander Australians expressed as a rate by age group, age-standardised rate and ratio

Hypertension is high blood pressure. However, high blood pressure can be measured and managed without the diagnosis of hypertension, which requires multiple reading over time.

Data sources

Data for this measure come from the National Aboriginal and Torres Strait Islander Health Survey, the Australian Institute of Health and Welfare (AIHW) National Hospital Morbidity Database, the Bettering the Evaluation and Care of Health survey and National Aboriginal and Torres Strait Islander Social Survey.

National Aboriginal and Torres Strait Islander Health Survey

The 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians. This included information on health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. The survey provides comparisons over time in the health of Indigenous Australians. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

It is planned to repeat the NATSIHS at 6-yearly intervals, with the next survey to be conducted during 2012-13 as part of the Australian Health Survey (will be called the Australian Aboriginal and Torres Strait Islander Health Survey (ATSIHS)).

National Hospital Morbidity Database

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Hospitalisation data are presented for the 2-year period from July 2008 to June 2010. An aggregate of 2 years of data has been used, because the number of hospitalisations for some conditions is likely to be small for a single year.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individual, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question. For example, it is not possible to identify whether one patient was admitted 5 times or five patients were admitted once. People who receive treatment at hospital but are not admitted are not counted in hospital records. Hospital separation data are also affected by variations in admission practices, and the availability of and access to hospital and non-hospital services.

Care types 7.3, 9 and 10 (Newborn – unqualified days only; organ procurement; hospital border) have been excluded from analysis.

Data are presented for the six jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalisations in 2006–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. National totals include separations for people resident in these six jurisdictions only and are not necessarily representative of the jurisdictions not included. Indigenous status data are reported for Tasmania and the Australian Capital Territory (public hospitals only) with caveats until further audits of the quality of data in these jurisdictions are completed. Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Data are presented by state/territory of usual residence of the patient.

The following caveats have been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).
- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey, which was conducted by the AIHW Australian General Practice Statistics and Classification Centre, in the Family Medicine Research Centre (FMRC) at the University of Sydney until March 2012, when the AIHW ceased its involvement in the BEACH program . The FMRC continues to run BEACH the results are now published by the University of Sydney. The most recent annual reports can be found at http://ses.library.usyd.edu.au/handle/2123/7771.

Information is collected from every changing random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive GP–patient encounters is collected by each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated because some GPs might not ask the question on Indigenous status, or the patient may choose not to identify themselves (AIHW 2002).

Data are presented for the 5-year period 2006–07 to 2010–11, during which there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.2% of total GP encounters.

National Aboriginal and Torres Strait Islander Social Survey

The Australian Bureau of Statistics (ABS) conducted the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) between August 2002 and April 2003. The 2008

NATSISS was conducted between August 2008 and April 2009. The survey provides information about the Aboriginal and Torres Strait Islander populations of Australia for a wide range of areas of social concern including health, education, culture and labour force participation. The 2008 NATSISS included for the first time children aged under 15. The NATSISS will be conducted every six years, with the next survey planned for 2014.

The 2008 NATSISS collected information by personal interview from 13,300 Indigenous Australians across all states and territories of Australia, including those living in remote areas. The sample covered persons aged 15 years and over who are usual residents in selected private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice.

Analyses

Age-standardised rates and ratios have been used as a measure of morbidity in the Indigenous population relative to other Australians. Ratios of this type illustrate differences between the rates of morbidity among Indigenous people and those of other Australians, taking into account differences in age distributions.

Self-reported prevalence

Self-reported data from the NATSIHS on the prevalence of high blood pressure/ hypertension among Indigenous Australians are presented in Tables 1.07.1, 1.07.2, 1.07.3 and 1.07.4.

- In 2004–05, approximately 7% of Indigenous Australians reported high blood pressure/hypertension.
- After adjusting for differences in age structures, approximately 14% of Indigenous males and 16% of Indigenous females reported high blood pressure/ hypertension compared with 10% of both non-Indigenous males and females.
- High blood pressure/ hypertension was most prevalent among those aged 55 years and over for both population groups. Approximately 39% of Indigenous males and 46% of Indigenous females reported high blood pressure/hypertension in this age group compared with 32% and 36% of non-Indigenous males and females respectively (Table 1.07.1).
- In 2004–05, the prevalence of high blood pressure/ hypertension was higher among Indigenous Australians in remote areas (10% for both males and females) than among Indigenous Australians in non-remote areas (6% for males and 7% for females).
- There was no significant change in the prevalence of high blood pressure/hypertension among Indigenous Australians between 2001 and 2004–05 (Table 1.07.2).

Table 1.07.1: Proportion of persons reporting high blood pressure/ hypertension, by Indigenous status, sex and age group, 2004–05[a]

	Males		Females		Persons			
Age group	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Ratio (persons)	Rate difference (persons)
				Per cent				
0–14	—[b]	—[b]	—[b]	—[b]	—[c]	—[b]	0.8	n.p.
15–24	1[b]	—[b]	1[c]	—[b]	1[c]	—[c]	2.1	n.p.
25–34	4	3	5*[c]	2*[c]	5*	2*	2.3	3
35–44	14*	6*	11*	4*	12*	4*	2.7	8
45–54	22	15	24*	13*	22*	14*	1.6	8
55 years and over	39	32	46*	36*	42*	33*	1.2	9
Total	**7**	**. .**	**8**	**. .**	**7**	**. .**	**n.p.**	**n.p.**
Total standardised[d]	**14***	**10***	**16***	**10***	**15***	**10***	**1.5**	**5**
Total number	**232,632**	**9,600,405**	**241,948**	**9,691,973**	**474,310**	**19,292,387**	**. .**	**. .**

* Statistically significant differences at the p<0.05 level in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05 and the National Health Survey 2004–05 consisting of persons ever told has condition, still current and long term, and ever told has condition, current and not long term.

(b) Estimate has a relative standard error greater than 50% and is considered too unreliable for general use.

(c) Estimate has a relative standard error of 25% to 50% and should be used with caution.

(d) Age-standardised proportions.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.

Table 1.07.2: Indigenous persons reporting high blood pressure/ hypertension, by sex and remoteness, 1995, 2001 and 2004–05

	1995[(a)]		2001		2004–05	
	Males	Females	Males	Females	Males	Females
			Per cent			
Remote	n.a.	n.a.	7	10	10	10
Non-remote	15	16	5	7	6	7
Total	**n.a.**	**n.a.**	**6**	**8**	**7**	**8**
Total number	**131,616**	**133,800**	**217,893**	**225,012**	**232,362**	**241,948**

(a) Remote data are not available for the 1995 National Health Survey.

Sources: ABS and AIHW analysis of ABS 1995 National Health Survey (Indigenous supplement); 2001 National Health Survey (Indigenous supplement); 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Hospitalisations

- In the 2-year period July 2008 to June 2010 there were 13,610 hospitalisations for hypertensive disease in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of which 493 (3.6%) were hospitalisations of Aboriginal and Torres Strait Islander people (Table 1.07.4).
- Hospitalisations for hypertensive disease accounted for 0.1% of total hospitalisations (excluding dialysis) of Aboriginal and Torres Strait Islander people.

Hospitalisations by age and sex

- For the two-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males and females had higher hospitalisation rates for hypertensive disease than non-Indigenous males and females from age 15-24 years onwards (Table 1.07.3).
- The greatest disparities in rates for males occurred in the 25-34, 35–44 and 45–54 year age groups, where Indigenous males were hospitalised between 4.8 and 5.9 times the rate of non-Indigenous males in these age groups. For Indigenous females, the greatest disparities in hospitalisation rates was among those aged 35–44, 45–54 and 55–64 where Indigenous females were hospitalised at between 4.8 to 7.4 times the rate of non-Indigenous females (Table 1.07.3).
- For both Indigenous and non-Indigenous Australian males and females, hospitalisation rates for hypertensive disease were highest in the age group 65 years and over.
- Approximately 41% of Indigenous Australians hospitalised for a principal diagnosis of hypertensive disease were males (201) and 59% were females (292) (Table 1.07.4).

Table 1.07.3: Age-specific hospitalisation rates for a principal diagnosis of hypertensive disease, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)]

									All ages	
	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65+	Crude	Age std.[(d)]
Males										
Indigenous	0.2	0.0	0.1	0.4	0.8	1.3	1.0	1.1	0.4	0.6
Non-Indigenous	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.9	0.2	0.2
Rate ratio[(e)]	5.8	0.2	1.6	5.9	5.6	4.8	2.4	1.3	1.6	2.7
Rate difference[(f)]	0.2	0.0	0.0	0.3	0.7	1.1	0.6	0.2	0.1	0.4
Females										
Indigenous	0.0	0.0	0.1	0.3	1.0	1.3	2.2	3.3	0.6	1.0
Non-Indigenous	0.0	0.0	0.0	0.1	0.1	0.3	0.4	1.9	0.4	0.3
Rate ratio[(e)]	0.6	1.3	3.0	4.5	7.4	4.8	5.1	1.7	1.4	3.0
Rate difference[(f)]	0.0	0.0	0.1	0.2	0.8	1.0	1.7	1.4	0.1	0.7
Persons										
Indigenous	0.1	0.0	0.1	0.3	0.9	1.3	1.6	2.4	0.5	0.9
Non-Indigenous	0.0	0.0	0.0	0.1	0.1	0.3	0.4	1.4	0.3	0.3
Rate ratio[(e)]	3.5	0.6	2.2	5.2	6.5	4.8	3.9	1.6	1.5	2.9
Rate difference[(f)]	0.1	0.0	0.0	0.3	0.8	1.0	1.2	0.9	0.1	0.6

(a) Data excludes private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patients hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(d) Directly age-standardised using the Australian 2001 standard population.

(e) Rate ratio Indigenous: non-Indigenous Australians.

(f) Rate difference Indigenous minus non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisation rates by state/territory

Table 1.07.4 presents hospitalisations for the 2-year period July 2008 to June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males and females were hospitalised for hypertensive disease at around three times the rate of non-Indigenous males and females.
- Indigenous persons were hospitalised for hypertensive disease at around three times the rate of non-Indigenous males in most states and territories. Hospitalisation rates by state/territory should be interpreted with caution due to relative small numbers and jurisdictional differences in the level of Indigenous under-identification in hospital separations data.

Table 1.07.4: Hospitalisations of Indigenous persons for principal diagnosis of hypertensive disease, by sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT, July 2008 to June 2010 [(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
NSW						
Males	69	0.7	1,570	0.2	3.3*	0.5*
Females	76	1.0	2,997	0.4	2.7*	0.6*
Persons	145	0.9	4,567	0.3	2.9*	0.6*
Vic						
Males	3	0.1	1,090	0.2	0.5	–0.1
Females	10	0.4	1,969	0.3	1.3	0.1
Persons	13	0.3	3,059	0.3	1.0	0.0
Qld						
Males	66	0.6	1,335	0.3	1.8*	0.3*
Females	134	1.8	2,028	0.4	4.1*	1.4*
Persons	200	1.3	3,363	0.4	3.3*	0.9*
WA						
Males	31	1.0	348	0.2	6.0*	0.8*
Females	32	0.6	543	0.2	2.7*	0.4*
Persons	63	0.8	891	0.2	3.8*	0.6*
SA						
Males	12	0.7	432	0.3	2.8*	0.5*
Females	18	0.9	776	0.4	2.5*	0.6*
Persons	30	0.8	1,208	0.3	2.6*	0.5*
NT						
Males	20	0.4	6	0.0	8.1*	0.3*
Females	22	0.4	23	0.3	1.4	0.1
Persons	42	0.4	29	0.2	2.4*	0.2*
NSW, Vic, Qld, WA, SA and NT[(h)]						
Males	**201**	**0.6**	**4,781**	**0.2**	**2.7***	**0.4***
Females	**292**	**1.0**	**8,336**	**0.3**	**3.0***	**0.7***
Persons	**493**	**0.9**	**13,117**	**0.3**	**2.9***	**0.6***
Tas						
Males	2	0.1	79	0.1	1.0	0.0
Females	3	0.3	92	0.2	2.0	0.2
Persons	5	0.2	171	0.2	1.6	0.1

(continued)

Table 1.07.4 (continued): Hospitalisations of Indigenous persons for principal diagnosis of hypertensive disease, by sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT, July 2008 to June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
ACT						
Males	1	. .	49	0.2	. .	. .
Females	0	. .	69	0.2	. .	. .
Persons	1	. .	118	0.2	. .	. .

* Represents results with statistically significant differences in the Indigenous/Non-Indigenous comparisons at the p < 0.05 level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patient hospitalised.

(d) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+.

(e) Directly age-standardised using the Australian 2001 standard population.

(f) Rate ratio Indigenous: non-Indigenous.

(g) Rate difference Indigenous minus non-Indigenous.

(h) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by remoteness

Hospitalisation rates for hypertensive disease in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined are presented by Australian Standard Geographical Classification (ASGC) in Table 1.07.5, covering the period July 2008 to June 2010.

- Indigenous Australians in all ASGC areas except *Very remote* areas were more likely to be hospitalised for hypertensive disease than other Australians. The ratio of hospitalisations of Indigenous people compared with other Australians was higher and the difference was statistically significant for all ASGC areas except *Very remote* areas.
- Rates of hospitalisations per 1,000 people were highest for Indigenous people living in *Remote* areas, at 1.3 per 1,000. The rate was highest for non-Indigenous Australians who lived in *Very remote* areas, at 0.7per 1,000. The lowest rates were observed in *Major cities* for both Indigenous people (0.4 per 1,000) and non-Indigenous people (0.2 per 1,000).
- Indigenous people were hospitalised for these conditions at a rate of 2.3 times that of other Australians in *Remote* areas of Australia. In *Very remote* areas, where the lowest ratio was observed, Indigenous Australians were hospitalised at a rate of 0.8 times that of other Australians. In these states combined, the rate was 2.8 times.

Table 1.07.5: Hospitalisations for hypertensive disease, by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous					
	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Ratio[(i)]	Difference[(j)]
Major cities	69	0.4	0.3	0.6	7,433	0.2	0.2	0.3	1.8*	0.2*
Inner regional	100	0.8	0.6	1.0	3,218	0.3	0.3	0.4	2.4*	0.5*
Outer regional[(k)]	148	1.1	0.9	1.3	2,055	0.5	0.5	0.5	2.3*	0.6*
Remote[(l)]	83	1.3	1.0	1.6	291	0.6	0.5	0.6	2.3*	0.7*
Very remote	93	0.9	0.7	1.1	111	0.7	0.6	0.9	1.2	0.2
Total[(m)]	**493**	**0.8**	**0.8**	**0.9**	**13,117**	**0.3**	**0.3**	**0.3**	**2.8***	**0.5***

* Indicates a significant difference at the p < 0.05 level.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(e) Directly age-standardised using the Australian 2001 standard population, by 5 year age groups to 65+.

(f) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous.

(j) Rate difference Indigenous- non-Indigenous.

(k) Includes remote Victoria.

(l) Excludes remote Victoria.

(m) Total includes hospitalisations where ASGC is missing.

Notes

1. Rates are calculated using the remoteness distribution by Indigenous status, age and sex based on the 2006 ERP and applied to the 2008-10 population projections (Series B) based on the 2006 Census.
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

General practitioner encounters

Information about general practitioner (GP) encounters is available from the BEACH survey. Data for the 5-year BEACH reporting period April 2006–March 2007 to April 2010–March 2011 are presented in Table 1.07.6. Hypertension is among the top three most common individual problems managed at GP encounters with Aboriginal and Torres Strait Islander patients.

- In the BEACH period April 2006–March 2007 to April 2010–March 2011 there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, at which 9,196 problems were managed. Of these, 381 (4.1% of all problems managed) were for hypertension.
- Hypertension was managed at GP encounters with Indigenous patients at a rate of 63.8 per 1,000 encounters.
- After adjusting for differences in age distribution, hypertension was managed at GP encounters at similar rates for both Indigenous and other patients (96 per 1,000 for Indigenous, 94 per 1,000 for other people).

Table 1.07.6: Hypertension[a] managed by general practitioners, by Indigenous status, BEACH years April 2006–March 2007 to April 2010–March 2011[b][c]

	Number		Crude rate (no. per 1,000 encounters)			Age-standardised rate (no. per 1,000 encounters)[d]							
	Indigenous	Other[e]	Indigenous	95% LCL[f]	95% UCL[g]	Indigenous	95% LCL[f]	95% UCL[g]	Other[e]	95% LCL[f]	95% UCL[g]	Rate ratio[h]	Rate difference[i]
Males	152	19,212	64.5	52.6	76.5	82.6	66.2	99.0	99.2	96.8	101.6	0.8	–16.6
Females	222	25,552	62.2	51.5	73.0	103.2	83.2	123.1	90.5	88.3	92.6	1.1	12.7
Persons[j][k]	381	45,130	63.8	54.8	72.8	96.4	81.7	111.0	94.0	91.9	96.0	1.0	2.4

*Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Classified according to ICPC-2 codes (Classification Committee of the World Organization of Family Doctors (WICC) 2005). ICPC–2 codes: K86, K87.

(b) Data from five combined BEACH years April 2006–March 2007 to April 2010–March 2011 inclusive.

(c) Data for Indigenous and other Australians have not been weighted.

(d) Directly age-standardised rate (no. per 1,000 encounters) using total BEACH encounters in the period as the standard. Figures do not add to 100 as more than one problem can be managed at each encounter.

(e) 'Other' includes non-Indigenous patients and patients for whom Indigenous status was not stated.

(f) LCL = lower confidence interval.

(g) UCL = upper confidence interval.

(h) Rate ratio Indigenous: Other.

(i) Rate difference Indigenous rate minus Other (non-Indigenous) rate.

(j) Indigenous Total persons include 7 cases where sex was not recorded.

(k) Other Total persons includes 366 cases where sex was not recorded.

Source: Family Medicine Research Centre, University of Sydney analysis of BEACH data.

Additional information

Self-reported prevalence of hypertension during pregnancy

Self-reported data from the 2008 NATSISS on the prevalence of high blood pressure during pregnancy among Indigenous women are presented in Tables 1.07.7 and 1.07.8.

- In 2008 in Australia, 14% of Indigenous children aged 0–3 years had mothers who had high blood pressure during pregnancy. This proportion was lowest in Queensland (8%) and highest in Western Australia (20%) and the Australian Capital Territory (21%), although the proportion for the Australian Capital Territory should be interpreted with caution due to high relative standard errors (Table 1.07.7).
- The proportion of Indigenous children aged 0–3 years with mothers who had high blood pressure during pregnancy was higher in remote areas (16%) than non-remote areas (14%) (Table 1.07.8).

Table 1.07.7: Number and proportion of Indigenous children aged 0–3 years whose mother had high blood pressure during pregnancy, by state/territory, 2008

	Number	Proportion
NSW	2,702	17.4
Vic	486	14.8
Qld	1,337	8.4
WA	1,268	20.1
SA	425	16.0
Tas	302	16.7
ACT	88[(a)]	21.0[(a)]
NT	688	13.5
Total	**7,295**	**14.3**

(a) Estimate has a relative standard error between 25% and 50% and should be used with caution.

Note: Proportions exclude not known and not collected responses.

Source: 2008 NATSISS.

Table 1.07.8: Number and proportion of Indigenous children aged 0–3 years whose mother had high blood pressure during pregnancy, by Remoteness Area, 2008

	Number	Proportion
Major cities	1,956	11.7
Inner regional	2,177	17.5
Outer regional	1,459	13.1
Total non-remote	*5,593*	*13.9*
Remote	735	17.3
Very remote	968	14.7
Total remote	*1,702*	*15.7*
Total	**7,295**	**14.3**

Note: Proportions exclude not known and not collected responses.

Source: 2008 NATSISS.

Data quality issues

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians. It therefore overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Imperfect recall or individual interpretation of survey questions may nevertheless affect some responses.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in major cities and regional and remote areas, but very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 National Health Survey.

In remote communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

National Hospital Morbidity Database

The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free-standing day hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included. The NHMD does not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

For 2009–10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2,400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10,600 separations for one private hospital.

Separations

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay or a portion of a hospital stay beginning or ending in a change of type of care) and not patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set.

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Separations with care types of *Newborn* episodes that did not include qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded as these activities are not considered to be admitted patient care.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections.

Approximately 2% of hospital records have missing Indigenous status information.

Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. In 2007, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data.

It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Interpretation of results should take into account the relative quality of the data from the jurisdictions. The proportion of the Indigenous population covered by these six jurisdictions is 96%. Tasmania and the Australian Capital Territory data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions.

From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level. Adjustments for Indigenous under-identification have been made at the national level for the total number of hospital separations using an adjustment factor of 89%. No adjustments for under-identification have been made at the state/territory level or principal diagnosis level.

The 2007 AIHW study indicated acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in *Major cities* to 97% in *Remote* and *Very remote* areas. The quality of data supports analyses for hospitalisations by remoteness areas at the national level only.

In 2011-12, the AIHW commenced another study to re-assess the level of under-identification in public hospitals data. All states and territories have participated in the study to assess improvements in data quality. A report on the findings is expected to be published in mid-2013 which will include new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

General Practitioner Data (BEACH)

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. Although the questionnaire contains an Indigenous identifier, it is unknown whether all GPs ask their patients this question. In the BEACH survey, 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners. Further detailed analyses of this issue are covered in General practice in Australia, heath priorities and policies 1998 to 2008, (Britt & Miller 2009:101): 'The findings of a BEACH substudy confirmed this suspected under-identification. In the data period reported here, 1.4% of patients encountered identified themselves as Indigenous. In contrast, in a BEACH substudy that asked 9,245 patients a complete set of questions about their cultural background (including Indigenous status) 2.2% (95% CI: 1.6–2.9) of respondents identified themselves as Indigenous (Britt et al. 2007). This rate is similar to the ABS estimates of Indigenous Australians as a proportion of the total population (ABS 2006).

However, the BEACH substudy included Indigenous Australians seen at Community Controlled Health Services funded through Medicare claims, and the estimate of 2.2% could have been an overestimate for the proportion of encounters that are with Indigenous patients in general practice as a whole. Deeble et al. (2008) conducted further investigations on this data and estimated that the BEACH encounter identification was an underestimate of about 10%, and that a more reliable estimate of the Indigenous population would be about 1.6% of all encounters (Deeble et al. 2008).

The findings of these studies are that some GPs are not routinely asking patients at the encounter about their Indigenous status, even when this is a variable specifically collected for each patient encountered, as it is in BEACH encounter data.'

National Aboriginal and Torres Strait Islander Social Survey

The NATSISS is conducted in all states and territories and includes remote and non-remote areas. The 2008 sample was 13,300 persons in 6900 households, with a response rate of 82% of households. Up to three randomly selected Indigenous people were chosen from selected households to participate in the survey. Trained ABS interviewers conducted the survey using face-to-face interviews. In non-remote areas interviewers used a notebook computer to record responses, while in remote areas a paper questionnaire was used. Interviewers obtained the consent of a parent or guardian before interviewing those aged 15 to 17 years. Indigenous persons usually resident in non-private dwellings such as hotels, motels, hostels, hospitals, short-stay caravan parks, prisons and other correctional facilities were excluded.

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians.

Information recorded in this survey is 'as reported' by respondents, and therefore may differ from information available from other sources or collected using different methodologies.

Data on health related indicators have been age-standardised to the 2001 total Australian population to account for differences in the age structures of the states and territories and the Indigenous and non-Indigenous population.

Time series comparisons for the 2008 survey are available through the 1994 National Aboriginal and Torres Strait Islander Survey and the 2002 NATSISS. However not all data

elements align across the three (1994, 2001 and 2008) NATSISS surveys, hence care is required when reviewing results across the three surveys. There are no strictly comparable non-Indigenous results available for the 2008 NATSISS because the latest General Social Survey (which has been used in the past to compare with Indigenous results from the NATSISS) was run in 2006, with the next being run in 2010. Data from other ABS surveys run in 2008 may, however, be used to obtain rough non-Indigenous comparisons for some data items. Where possible, the ABS has provided recommendations for non-Indigenous data comparisons and these have been adopted in this report.

List of symbols used in tables

n.a. not available

— rounded to zero (including null cells)

0 zero

. . not applicable

n.e.c. not elsewhere classified

n.f.d. not further defined

n.p. not available for publication but included in totals where applicable, unless otherwise indicated

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1.08 Cancer

Incidence, survival rates, mortality and hospital separations for selected cancers

Data sources

Data for this measure come from the Australian Cancer Database (ACD), the National Mortality Database, the Bettering the Evaluation and Care of Health Survey (BEACH) and the AIHW National Hospital Morbidity Database.

Australian Cancer Database (ACD)

Each state and territory has its own cancer registry which draws on a number of sources; notifications from pathology laboratories, radiation oncology units, hospitals and Registrars of Births, Death and Marriages. Each jurisdictional cancer registry supplies data annually to the AIHW, which is compiled into the Australian Cancer Database (ACD).

Indigenous identification is incomplete for all cancer registries, however has been assessed by the AIHW as having sufficient quality to report for Western Australia, Queensland, New South Wales and the Northern Territory. For current period reporting, five-years combined data are presented for these four jurisdictions. Time-series data by Indigenous status are not able to be reported at this point in time.

National Mortality Database

The National Mortality Database is a national collection of de-identified unit record level data. It comprises most of the information recorded on death registration forms and medical (cause of death) certificates, including Indigenous status. The database is maintained by the Australian Institute of Health and Welfare (AIHW). Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the Australian Bureau of Statistics (ABS). Information on the cause of death is supplied by the medical practitioner certifying the death, or by a coroner. The data are updated each calendar year and are presented by state/territory of usual residence rather than state/territory where death occurs.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander people are registered. However, a proportion of these deceased are not reported as Aboriginal or Torres Strait Islander by the family, health worker or funeral director during the death registration process. That is, while data are provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked of relatives and friends of the deceased by the funeral director.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to 3 jurisdictions (Western Australia, South Australia and the Northern Territory) with adequate identification of Indigenous deaths in their recording systems from 1991 onwards. The quality of the time-series data is also influenced by the late inclusion of a not stated category for Indigenous status in 1998. Prior to this time, the not stated responses were probably included with the non-Indigenous.

Deaths registered in 2010 with a usual residence of Queensland have been adjusted to exclude deaths registered in 2010 that occurred prior to 2007. This is to minimise the impact of late registration of deaths due to recent changes in the timeliness of death registrations in Queensland.

Western Australian Aboriginal and Torres Strait Islander deaths for 2007, 2008 and 2009, have been revised to correct for a data quality issue which resulted in the over-reporting of Indigenous deaths during this period.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2006–2010 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years.

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey, which was conducted by the AIHW Australian General Practice Statistics and Classification Centre, in the Family Medicine Research Centre (FMRC) at the University of Sydney until March 2012, when the AIHW ceased its involvement in the BEACH program . The FMRC continues to run BEACH the results are now published by the University of Sydney. The most recent annual reports can be found at http://ses.library.usyd.edu.au/handle/2123/7771.

Information is collected from every changing random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive GP–patient encounters is collected by each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated because some GPs might not ask the question on Indigenous status, or the patient may choose not to identify themselves (AIHW 2002).

Data are presented for the 5-year period 2006–07 to 2010–11, during which there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.2% of total GP encounters.

National Hospital Morbidity Database

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Hospitalisation data are presented for the 2-year period from July 2008 to June 2010. An aggregate of 2 years of data has been used, because the number of hospitalisations for some conditions is likely to be small for a single year.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individual, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question. For example, it is not possible to identify whether one patient was admitted 5 times or five patients were admitted once. People who receive treatment at hospital but are not admitted are not counted in

hospital records. Hospital separation data are also affected by variations in admission practices, and the availability of and access to hospital and non-hospital services.

Care types 7.3, 9 and 10 (Newborn – unqualified days only; organ procurement; hospital border) have been excluded from analysis.

Data are presented for the six jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalisations in 2006–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. National totals include separations for people resident in these six jurisdictions only and are not necessarily representative of the jurisdictions not included. Indigenous status data are reported for Tasmania and the Australian Capital Territory (public hospitals only) with caveats until further audits of the quality of data in these jurisdictions are completed.

Data are presented by state/territory of usual residence of the patient.

The following caveats have been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).
- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

Data analysis

Cancer was identified as a leading cause of disease in Australia in 2010, accounting for 19% of the total burden (AIHW & AACR 2010). Recent research showed that cancer survival rates were lower for Indigenous people who were diagnosed with cancer in comparison with non-Indigenous people (Cramb et al. 2012). This raises important questions in relation to the delivery of, and access to services, for Indigenous Australians. This section uses cancer registration and hospital separation data to illustrate cancer diagnoses and survival rates among Indigenous and non-Indigenous populations.

Cancer incidence

State and territory population-based cancer registries receive information on cancer diagnoses from a variety of sources including hospitals, pathology laboratories, radiotherapy centres and registries of births, deaths and marriages.

Cancer registry data for selected cancers for the five year period 2004-2008, for New South Wales, Queensland, Western Australia and the Northern Territory combined, shows:

- Indigenous people were nearly twice as likely to be diagnosed with lung cancer, and nearly 3 times as likely to be diagnosed with cervical cancer as non-Indigenous people (Table 1.08.1). By contrast, Indigenous people were less likely to develop bowel cancer, female breast cancer and melanoma than non-Indigenous people (Table 1.08.1).

Table 1.08.1: Incidence of selected cancers, by Indigenous status and sex, WA, Qld, NSW, and NT, 2004–08[a][b]

Cancer type	Indigenous					Non-Indigenous					Indigenous status not stated		Rate ratio[f]	Rate difference[g]	Rate difference %[h]
	No.	% all cancers	No. per 100,000[c]	LCL 95%[d]	UCL 95%[e]	No.	% all cancers	No. per 100,000[c]	LCL 95%[d]	UCL 95%[e]	No.	%			
Males															
Bowel cancer	187	9.7	54.5	45.5	64.5	21,864	13.3	69.6	68.6	70.5	1,299	5.6	0.8*	–15.1*	–57.1
Lung cancer	339	17.6	109.6	96.2	124.1	18,097	11.0	58.4	57.6	59.3	460	2.4	1.9*	51.2*	193.6
Melanoma	34	1.8	11.5	7.2	17.1	12,650	7.7	40.2	39.5	40.9	8,706	40.7	0.3*	–28.7*	–108.4
Female breast cancer	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Cervical cancer	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Total cancers	**1,931**	**100.0**	**547.0**	**517.6**	**577.4**	**164,109**	**100.0**	**520.6**	**518.0**	**523.1**	**25,225**	**13.2**	**1.1**	**26.4**	**100.0**
Females															
Bowel cancer	160	8.3	41.0	34.2	48.7	17,650	13.9	48.9	48.2	49.6	1,169	6.2	0.8*	–7.9*	–21.5
Lung cancer	263	13.6	59.5	51.8	67.8	10,748	8.5	29.8	29.3	30.4	374	3.3	2.0*	29.6*	80.5
Melanoma	26	1.3	6.0	3.6	9.3	8,494	6.7	24.5	24.0	25.1	6,442	43.1	0.2*	–18.5*	–50.3
Female breast cancer	432	22.3	81.3	73.0	90.2	35,663	28.0	103.0	102.0	104.1	3,552	9.0	0.8*	–21.7*	–59.0
Cervical cancer	121	6.3	18.1	14.6	22.1	2,178	1.7	6.5	6.3	6.8	189	7.6	2.8*	11.5*	31.4
Total cancers	**1,933**	**100.0**	**397.2**	**377.2**	**417.8**	**127,154**	**100.0**	**360.4**	**358.4**	**362.4**	**15,946**	**11.0**	**1.1***	**36.8***	**100.0**
Persons															
Bowel cancer	347	9.0	47.2	41.6	53.2	39,514	13.6	58.6	58.0	59.2	2,468	5.8	0.8*	–11.4*	–43.3
Lung cancer	602	15.6	80.3	73.2	87.8	28,845	9.9	42.7	42.2	43.2	834	2.8	1.9*	37.6*	142.4
Melanoma	60	1.6	8.3	6.0	11.1	21,144	7.3	31.6	31.2	32.0	15,148	41.7	0.3*	–23.3*	–88.4
Female breast cancer	432	11.2	81.3	73.0	90.2	35,663	12.2	103.0	102.0	104.1	3,552	9.0	0.8*	–21.7*	–59.0
Cervical cancer	121	3.1	18.1	14.6	22.1	2,178	0.7	6.5	6.3	6.8	189	7.6	2.8*	11.5*	31.4
Total cancers	**3,864**	**100.0**	**458.8**	**442.0**	**476.0**	**291,263**	**100.0**	**432.4**	**430.8**	**434.0**	**41,171**	**12.2**	**1.1***	**26.4***	**100.0**

(continued)

Table 1.08.1 (continued): Incidence of selected cancers, by Indigenous status and sex, WA, Qld, NSW, and NT, 2004–08[(a)(b)]

* Represents results with statistically significant differences at the p<0.05 level in the Indigenous/non-Indigenous comparisons.

(a) Data are reported for New South Wales, Queensland, Western Australia and the Northern Territory only. These four states and territories are currently considered to have adequate levels of Indigenous identification in cancer registry data for these periods.

(b) Data are presented in five-year groupings because of small numbers each year.

(c) Directly age-standardised incidence rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(d) LCL = lower confidence limit.

(e) UCL = upper confidence limit.

(f) Rate ratio is the incidence rate for Indigenous Australians divided by the incidence rate for non-Indigenous Australians.

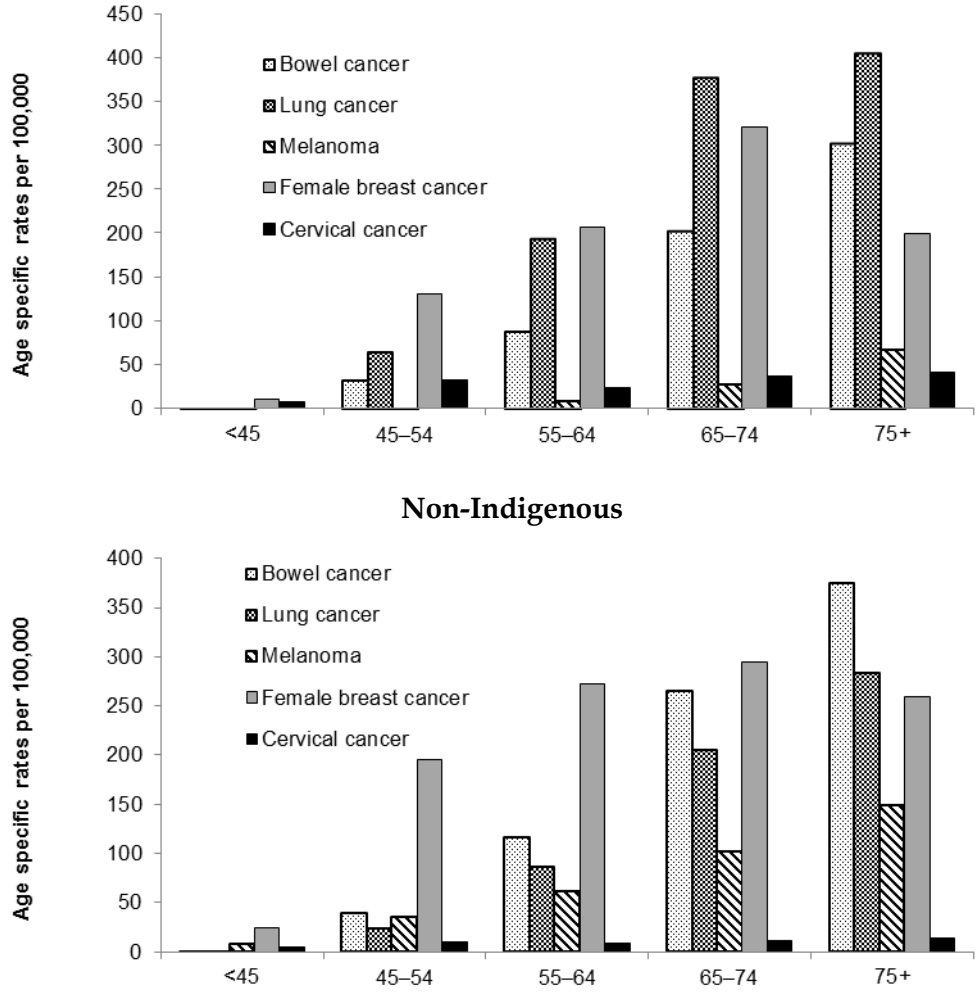
(g) Rate difference is the incidence rate for Indigenous Australians minus the incidence rate for non-Indigenous Australians.

(h) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all neoplasms.

Source: AIHW Australian Cancer Database.

Cancer incidence by age

- Cancer incidence rates for bowel cancer, lung cancer, melanoma and cervical cancer increased with age, being highest among those aged 75 years and over for both Indigenous and non-Indigenous Australians. Incidence rates for female breast cancer however were highest among those aged 65–74 years for both Indigenous and non-Indigenous (Figure 1.08.1).
- Incidence rates for bowel cancer and melanoma were lower for Indigenous Australians than non-Indigenous Australians across all age-groups. Indigenous females in age groups 45 years and over were around 3 times as likely to be diagnosed with cervical cancer as non-Indigenous females in the same age groups. Indigenous persons aged 45–54 years were three times as likely to be diagnosed with lung cancer as non-Indigenous persons in the same age groups.



Source: AIHW Australian Cancer Database.

Figure 1.08.1: Incidence of selected cancers, by Indigenous status and age, WA, Qld, NSW, and NT, 2004–08

Cancer incidence by state/territory

- Between 2004 and 2008, among the four jurisdictions where data were reported, Indigenous incidence rates for bowel cancer, lung cancer and female breast cancer were highest in New South Wales (65, 85 and 91 per 100,000 respectively). By contrast, the Indigenous cervical cancer incidence rate in New South Wales was the lowest among the four jurisdictions (13 per 100,000) (Table 1.08.2).
- During the same period of time, non-Indigenous incidence rates for bowel cancer and lung cancer were highest in the Northern Territory (61 per 100,000 for both types). The non–Indigenous cervical cancer incidence rate in New South Wales was the lowest among the four jurisdictions (6 per 100,000) (Table 1.08.2).
- For total cancers, incidence rates for Indigenous persons were slightly higher than for non-Indigenous persons in New South Wales, and slightly lower than for non-Indigenous persons in Western Australia and the Northern Territory. Rates were similar in Queensland.

Table 1.08.2: Incidence of selected cancers by Indigenous status, by state/territory, 2004–08[a][b]

Cancer type	Indigenous					Non-Indigenous					Indigenous status not stated		Rate ratio[f]	Rate difference[g]	Rate difference %[h]
	No.	%	No. per 100,000[c]	LCL 95%[d]	UCL 95%[e]	No.	%	No. per 100,000[c]	LCL 95%[d]	UCL 95%[e]	No.	%			
								NSW							
Bowel cancer	166	11.0	65.4	54.5	77.6	21,360	14.0	58.1	57.3	58.9	1,421	6.2	1.1	7.3	8.5
Lung cancer	236	15.6	85.2	73.2	98.4	15,176	9.9	41.2	40.6	41.9	533	3.3	2.1*	44.0*	51.3
Melanoma	33	2.2	14.2	9.1	20.9	9,304	6.1	25.8	25.2	26.3	8,475	47.6	0.6*	–11.5*	–13.4
Female breast cancer	179	11.9	90.9	76.8	106.7	18,783	12.3	101.5	100.0	103.0	1,997	9.5	0.9	–10.6	–12.4
Cervical cancer	34	2.3	13.2	8.9	18.8	1,072	0.7	6.0	5.6	6.4	120	9.8	2.2*	7.2*	8.4
Total cancers	**1,509**	**100.0**	**505.6**	**476.1**	**536.3**	**152,912**	**100.0**	**419.9**	**417.7**	**422.0**	**24,436**	**13.7**	**1.2***	**85.8***	**100.0**
								Qld							
Bowel cancer	110	8.9	43.7	34.7	54.0	12,264	13.9	60.6	59.5	61.7	987	7.4	0.7*	–17.0*	–100.5
Lung cancer	180	14.6	76.7	64.6	90.3	9,004	10.2	44.3	43.4	45.2	277	2.9	1.7*	32.4*	191.6
Melanoma	16	1.3	5.7	2.8	10.0	6,716	7.6	33.3	32.5	34.1	6,435	48.9	0.2*	–27.5*	–162.6
Female breast cancer	153	12.4	90.4	75.0	107.9	10,775	12.2	102.4	100.5	104.4	1,431	11.6	0.9	–12.0	–71.0
Cervical cancer	46	3.7	23.1	15.8	32.2	695	0.8	6.8	6.3	7.4	63	7.8	3.4*	16.3*	96.4
Total cancers	**1,233**	**100.0**	**452.2**	**422.9**	**482.8**	**88,544**	**100.0**	**435.3**	**432.5**	**438.2**	**15,983**	**15.1**	**1.0**	**16.9**	**100.0**
								WA							
Bowel cancer	38	6.5	30.8	20.2	44.4	5,616	11.8	56.0	54.6	57.5	60	1.1	0.6*	–25.2*	54.1
Lung cancer	95	16.3	83.7	65.9	104.4	4,413	9.3	44.5	43.2	45.9	23	0.5	1.9*	39.2*	–84.1
Melanoma	8	1.4	6.0	2.0	12.7	4,908	10.3	48.3	47.0	49.7	214	4.2	0.1*	–42.3*	90.8
Female breast cancer	54	9.3	66.6	48.3	89.0	5,844	12.3	110.9	108.1	113.8	123	2.0	0.6*	–44.4*	95.3

(continued)

Table 1.08.2 (continued): Incidence of selected cancers by Indigenous status, by state/territory, 2004–08[a][b]

	Indigenous					Non-Indigenous					Indigenous status not stated				
Cancer type	**No.**	**%**	**No. per 100,000[c]**	**LCL 95%[d]**	**UCL 95%[e]**	**No.**	**%**	**No. per 100,000[c]**	**LCL 95%[d]**	**UCL 95%[e]**	**No.**	**%**	**Rate ratio[f]**	**Rate difference[g]**	**Rate difference %[h]**
Cervical cancer	20	3.4	15.4	8.9	24.5	382	0.8	7.6	6.8	8.4	6	1.5	2.0*	7.8*	–16.7
Total cancers	**583**	**100.0**	**425.4**	**386.1**	**467.3**	**47,591**	**100.0**	**472.0**	**467.8**	**476.3**	**703**	**1.4**	**0.9***	**–46.6***	**100.0**
								NT							
Bowel cancer	33	6.1	24.1	15.4	35.4	274	12.4	61.0	52.8	69.9	0	0.0	0.4*	–36.8*	64.9
Lung cancer	91	16.9	71.8	56.3	89.8	252	11.4	60.6	52.1	69.8	1	0.3	1.2	11.2	–19.8
Melanoma	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Female breast cancer	46	8.5	53.7	38.3	72.8	261	11.8	91.2	78.9	104.7	1	0.3	0.6*	–37.5*	66.1
Cervical cancer	21	3.9	22.4	12.0	36.9	29	1.3	9.5	5.8	14.3	0	0.0	2.4	13.0	–22.9
Total cancers	**539**	**100.0**	**389.1**	**351.5**	**429.2**	**2,216**	**100.0**	**445.8**	**424.0**	**468.3**	**49**	**1.7**	**0.9***	**–56.7***	**100.0**
								Total[b]							
Bowel cancer	347	9.0	47.2	41.6	53.2	39,514	13.6	58.6	58.0	59.2	2,468	5.8	0.8*	–11.4*	–43.2
Lung cancer	602	15.6	80.3	73.2	87.8	28,845	9.9	42.7	42.2	43.2	834	2.8	1.9*	37.6*	142.4
Melanoma	60	1.6	8.3	6.0	11.1	21,144	7.3	31.6	31.2	32.0	15,148	41.7	0.3*	–23.3*	–88.3
Female breast cancer	435	11.3	81.3	73.0	90.2	35,663	12.2	103.0	102.0	104.1	3,552	9.0	0.8*	–21.7*	–82.2
Cervical cancer	121	3.1	18.1	14.6	22.1	2,178	0.7	6.5	6.3	6.8	189	7.6	2.8*	11.5*	43.6
Total cancers	**3,864**	**100.0**	**458.8**	**442.0**	**476.0**	**291,263**	**100.0**	**432.4**	**430.8**	**434.0**	**41,171**	**12.2**	**1.1***	**26.4***	**100.0**

(continued)

Table 1.08.2 (continued): Incidence of selected cancers by Indigenous status, by state/territory, 2004–08[(a)(b)]

* Represents results with statistically significant differences at the p<0.05 level in the Indigenous/non-Indigenous comparisons.

(a) Data are reported for New South Wales, Queensland, Western Australia and the Northern Territory only. These four states and territories are currently considered to have adequate levels of Indigenous identification in cancer registry data for these periods.

(b) Data are presented in **five**-year groupings because of small numbers each year.

(c) Directly age-standardised incidence rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(d) LCL = lower confidence limit.

(e) UCL = upper confidence limit.

(f) Rate ratio is the incidence rate for Indigenous Australians divided by the incidence rate for non-Indigenous Australians.

(g) Rate difference is the incidence rate for Indigenous Australians minus the incidence rate for non-Indigenous Australians.

(h) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all neoplasms.

Notes

1. Results reported in this table may differ from those in jurisdictional reports because the identification of Aboriginal and Torres Strait Islander status is based on self report which may differ by jurisdiction.
2. The proportion of cases with 'missing' Aboriginal and Torres Strait Islander status differs by jurisdiction, and methods to deal with missing status also differ. For example, some jurisdictions use a multiple imputation model to allocate Aboriginal status which is missing.

Source: AIHW Australian Cancer Database.

Survival from selected cancers

Data on survival rates for selected cancers is presented below for New South Wales, Queensland, Western Australia and the Northern Territory combined:

- Over the period 2006–2010 the mean age at diagnosis (for all selected cancers) was lower for Indigenous males and females than for non-Indigenous males and females (Table 1.08.3).
- Between 2006 and 2010 the survival rate for Indigenous males diagnosed with cancer (all selected cancers combined) was 11 percentage points less than that of non-Indigenous males (41% compared with 52%). A similar difference was found between Indigenous and non-Indigenous females (10 percentage points; 49% compared with 59%) (Table 1.08.3).
- Indigenous males diagnosed with lung cancer had a slightly higher rate of survival than their non-Indigenous counterparts (13% compared with 10% respectively). By contrast, Indigenous females diagnosed with lung cancer had a lower rate of survival than non-Indigenous females (7% compared with 14% respectively) (Table 1.08.3).

Table 1.08.3: Five-year crude survival for selected cancers by Indigenous status and sex, WA, Qld, NSW, and NT, 2006–2010[a][b]

	Males					Females				
	No.[c]	Mean age at diagnosis[c]	Crude survival (%)	LCL 95%[d]	UCL 95%[e]	No.[c]	Mean age at diagnosis[c]	Crude survival (%)	LCL 95%[d]	UCL 95%[e]
Bowel cancer										
Indigenous	187	60.6	39.6	31.0	48.2	160	62.8	49.1	39.1	58.4
Non-Indigenous	21,864	68.2	54.0	53.2	54.8	17,650	70.0	57.1	56.2	58.0
Not stated	1,299	66.6	—	—	—	1,169	69.1	—	—	—
Lung cancer										
Indigenous	339	63.2	12.5	8.2	17.8	263	61.2	6.9	3.7	11.5
Non-Indigenous	18,097	70.3	10.3	9.8	10.9	10,748	69.4	14.3	13.5	15.1
Not stated	460	70.7	—	—	—	374	69.1	—	—	—
Melanoma										
Indigenous	34	60.3	75.8	59.9	86.1	26	56.5	88.7	75.5	95.0
Non-Indigenous	12,650	64.1	67.4	66.4	68.3	8,494	60.0	79.3	78.3	80.3
Not stated	8,706	59.6	—	—	—	6,442	55.9	—	—	—
Breast cancer in females										
Indigenous	n.a.	n.a.	n.a.	n.a.		432	55.3	70.6	65.1	75.5
Non-Indigenous	n.a.	n.a.	n.a.	n.a.		35,663	59.8	82.5	82.0	82.9
Not stated	n.a.	n.a.	n.a.	n.a.		3,552	62.0	—	—	—
Cervical cancer										
Indigenous	n.a.	n.a.	n.a.	n.a.		121	45.9	44.8	32.9	56.0
Non-Indigenous	n.a.	n.a.	n.a.	n.a.		2,178	52.0	67.6	65.1	69.9
Not stated	n.a.	n.a.	n.a.	n.a.		189	43.8	—	—	—
Total cancers										
Indigenous	1,931	58.2	41.0	38.1	43.9	1,933	55.6	48.7	45.7	51.5
Non-Indigenous	164,109	66.8	51.7	51.4	52.0	127,154	64.4	58.7	58.4	59.1
Not stated	25,225	64.1	—	—	—	15,946	60.4	—	—	—

(a) Data are reported for New South Wales, Queensland, Western Australia and the Northern Territory only. These four states and territories are currently considered to have adequate levels of Indigenous identification in cancer registry data for these periods.

(b) Data are presented in five-year groupings because of small numbers each year.

(c) The number of incidence cases and the mean age at diagnosis are based on the period 2004–2008.

(d) LCL = lower confidence limit.

(e) UCL = upper confidence limit.

Source: AIHW Australian Cancer Database.

Mortality

Age-standardised rates and ratios have been used as a measure of mortality in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate disparities between the rates of mortality among Indigenous Australians and those of non-Indigenous Australians, taking into account differences in age distributions.

Tables 1.08.4 and 1.08.5 present data on mortality due to cancer (neoplasms) over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Between 2006 and 2010 about 2,100 Indigenous Australians died of neoplasms, which equates to an age-standardised rate of 245 deaths per 100,000 population. Almost all deaths from neoplasms involved malignant neoplasms (99%).
- Deaths involving cancer of the digestive organs and respiratory and intra-thoracic organs were the leading causes of death involving cancer for both Indigenous males and females (Table 1.08.4).
- Over the period 2006–2010, neoplasms were reported as an underlying cause of death in 21% of Indigenous and 30% of non-Indigenous deaths, and were reported as a multiple cause of death in 24% of Indigenous deaths and 34% of non-Indigenous deaths (Table 1.08.5).

Table 1.08.4: Deaths of Indigenous Australians from neoplasms (cancer), by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

Site of neoplasm	Number	Per cent	No. per 100,000[(g)]	95% LCL[(h)]	95% UCL[(i)]	Rate ratio[(j)]	Rate difference[(k)]	Rate difference %[(l)]
				Males				
Digestive organs (C15–C26)	334	31.0	78.3	68.2	88.4	1.3	18.3	30.9
Bowel cancer(C18–C20)[(m)]	*69*	*6.4*	*17.0*	*12.1*	*21.9*	*0.8*	*–3.2*	*–5.5*
Respiratory and inthrathoracic organs (C30–C39)	326	30.2	90.3	78.8	101.8	1.9	42.2	71.2
Bronchus & lung (C34)[(m)]	*289*	*26.8*	*81.6*	*70.6*	*92.7*	*1.8*	*35.8*	*60.4*
Ill-defined, secondary & unspecified site (C76–C80)	71	6.6	19.4	14.0	24.8	1.5	6.6	11.2
Malignant neoplasm, without specification of site (C80)[(m)]	*61*	*5.7*	*16.6*	*11.7*	*21.6*	*1.4*	*4.9*	*8.3*
Lymphoid, haematopoietic and related tissue (C81–C96)	54	5.0	15.8	10.6	21.0	0.8	–4.8	–8.1
Female genital organs (C51–C58)	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cervix (C53)[(m)]	*0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Lip, oral cavity and pharynx (C00–C14)	98	9.1	19.4	14.9	23.9	4.2	14.8	24.9
Breast (C50)	0	0.0	0.0	0.0	0.0	0.0	–0.2	–0.4
Malignant neoplasms of urinary tract (C64–C68)	30	2.8	7.6	4.5	10.8	0.6	–4.5	–7.5
Male genital organs (C60–C63)	70	6.5	27.9	20.6	35.2	0.9	–2.5	–4.1
Other malignant neoplasms[(n)]	65	6.0	16.6	11.6	21.6	0.6	–9.5	–16.1
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	***1,064***	***98.7***	***279.7***	***259.5***	***299.8***	***1.3***	***58.2***	***98.2***
Non-malignant neoplasms (D00-D44, D47.0, D47.2, D47.7-D48)	14	1.3	3.3	1.0	5.7	1.5	1.1	1.8
Total neoplasms	**1,078**	**100.0**	**283.0**	**262.7**	**303.3**	**1.3**	**59.3**	**100.0**
				Females				
Digestive organs (C15–C26)	260	25.3	58.5	50.5	66.4	1.6	21.4	29.0
Bowel cancer(C18–C20)[(m)]	*59*	*5.7*	*12.3*	*8.8*	*15.9*	*0.9*	*–1.3*	*–1.8*
Respiratory and inthrathoracic organs (C30–C39)	221	21.5	45.4	38.8	52.1	1.9	21.6	29.2
Bronchus & lung (C34)[(m)]	*213*	*20.7*	*43.5*	*37.0*	*50.0*	*1.9*	*20.1*	*27.2*
Ill-defined, secondary & unspecified site (C76–C80)	71	6.9	15.8	11.7	19.9	1.6	6.1	8.3
Malignant neoplasm, without specification of site (C80)[(m)]	*61*	*5.9*	*13.3*	*9.6*	*17.0*	*1.5*	*4.6*	*6.2*
Lymphoid, haematopoietic and related tissue (C81–C96)	74	7.2	17.2	12.8	21.6	1.4	4.7	6.4
Female genital organs (C51–C58)	123	12.0	22.9	18.3	27.5	1.9	10.7	14.5

(continued)

Table 1.08.4 (continued): Deaths of Indigenous Australians from neoplasms (cancer), by sex, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e][f]

Site of neoplasm	Number	Per cent	No. per 100,000[g]	95% LCL[h]	95% UCL[i]	Rate ratio[j]	Rate difference[k]	Rate difference %[l]
Cervix (C53)[m]	*58*	*5.6*	*8.8*	*6.3*	*11.3*	*4.6*	*6.9*	*9.3*
Lip, oral cavity and pharynx (C00–C14)	30	2.9	5.0	2.9	7.0	3.3	3.4	4.7
Breast (C50)	134	13.0	26.3	21.3	31.4	1.2	4.3	5.9
Malignant neoplasms of urinary tract (C64–C68)	16	1.6	3.0	1.3	4.7	0.6	–2.3	–3.0
Male genital organs (C60–C63)	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other malignant neoplasms[n]	63	6.1	13.2	9.4	17.0	1.1	0.7	0.9
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	***1,012***	***98.3***	***212.2***	***197.5***	***227.0***	***1.5***	***72.6***	***98.1***
Non-malignant neoplasms (D00-D44, D47.0, D47.2, D47.7-D48)	17	1.7	3.3	1.6	5.0	1.7	1.4	1.9
Total neoplasms	**1,029**	**100.0**	**215.5**	**200.6**	**230.4**	**1.5**	**73.9**	**100.0**
				Persons				
Digestive organs (C15–C26)	594	28.2	67.9	61.6	74.2	1.4	20.2	30.3
Bowel cancer(C18–C20)[m]	*128*	*6.1*	*14.4*	*11.5*	*17.3*	*0.9*	*–2.3*	*–3.5*
Respiratory and inthrathoracic organs (C30–C39)	547	26.0	64.5	58.4	70.7	1.9	29.8	44.7
Bronchus & lung (C34)[m]	*502*	*23.8*	*59.6*	*53.6*	*65.5*	*1.8*	*26.1*	*39.2*
Ill-defined, secondary & unspecified site (C76–C80)	142	6.7	17.4	14.1	20.6	1.6	6.3	9.4
Malignant neoplasm, without specification of site (C80)[m]	*122*	*5.8*	*14.7*	*11.7*	*17.7*	*1.5*	*4.6*	*7.0*
Lymphoid, haematopoietic and related tissue (C81–C96)	128	6.1	16.6	13.2	19.9	1.0	0.4	0.6
Female genital organs (C51–C58)	123	5.8	12.8	10.1	15.5	2.0	6.3	9.4
Cervix (C53)[m]	*58*	*2.8*	*4.8*	*3.4*	*6.2*	*4.8*	*3.8*	*5.7*
Lip, oral cavity and pharynx (C00–C14)	128	6.1	11.5	9.2	13.8	3.8	8.5	12.7
Breast (C50)	134	6.4	14.8	11.9	17.8	1.3	3.1	4.6
Malignant neoplasms of urinary tract (C64–C68)	46	2.2	5.0	3.4	6.7	0.6	–3.3	–5.0
Male genital organs (C60–C63)	70	3.3	11.5	8.5	14.4	0.9	–1.7	–2.6
Other malignant neoplasms[n]	128	6.1	14.7	11.7	17.8	0.8	–4.0	–6.1
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	***2,076***	***98.5***	***241.3***	***229.3***	***253.4***	***1.4***	***65.4***	***98.3***
Non-malignant neoplasms (D00-D44, D47.0, D47.2, D47.7-D48)	31	1.5	3.2	1.9	4.6	1.6	1.2	1.7
Total neoplasms	**2,107**	**100.0**	**244.6**	**232.5**	**256.7**	**1.4**	**66.6**	**100.0**

(continued)

Table 1.08.4 (continued): Deaths of Indigenous Australians from neoplasms (cancer), by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final), 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(k) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(l) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all neoplasms.

(m) Data presented for bowel cancer are a subset for all cancers of the digestive organs; data presented for bronchus & lung cancer are a subset of data presented for all respiratory and inthrathoracic organs; data presented for cervix cancer are a subset of data presented for all cancers of the female genital organs in this table.

(n) Includes neoplasms of bone and articular cartilage; melanoma & other neoplasms of skin; neoplasms of mesothelial and soft tissue; neoplasms of eye, brain and other parts of central nervous system; neoplasms of thyroid and other endocrine glands; C9 Malignant neoplasms of independent (primary) multiple sites.

Source: AIHW analysis of ABS Mortality Database.

Table 1.08.5: Selected multiple causes of death, by Indigenous status and sex, cancer, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e][f][g]

	Underlying cause								Multiple cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Indig.	Non-Indig.
Site of neoplasm	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	Crude mean no. of causes[i]	Crude mean no. of causes[i]
Males																		
Digestive organs (C15–C26)	27.9	5.4	78.6	5.9	59.9	9.0	60.0	8.7	30.6	6.0	87.3	6.6	68.5	10.3	69.1	10.0	2.6	2.4
Respiratory and inthrathoracic organs (C30–C39)	27.3	5.3	90.7	6.9	48.0	7.2	48.2	7.0	28.8	5.6	97.6	7.4	52.9	7.9	53.2	7.7	2.7	2.6
Bronchus & lung (C34)[j]	*24.2*	*4.7*	*82.0*	*6.2*	*45.7*	*6.8*	*45.8*	*6.6*	*25.4*	*5.0*	*88.1*	*6.7*	*49.8*	*7.5*	*50.2*	*7.3*	*2.8*	*2.6*
Ill-defined, secondary & unspecified site (C76–C80)	5.9	1.2	19.5	1.5	12.5	1.9	12.8	1.9	17.4	3.4	53.5	4.0	43.4	6.5	43.9	6.4	3.1	2.7
Lymphoid, haematopoietic and related tissue (C81–C96)	4.5	0.9	15.9	1.2	20.3	3.0	20.6	3.0	5.8	1.1	21.0	1.6	26.3	3.9	27.0	3.9	3.0	3.0
Female genital organs (C51–C58)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cervix (C53)[j]	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Lip, oral cavity and pharynx (C00–C14)	8.2	1.6	19.5	1.5	4.7	0.7	4.6	0.7	9.0	1.8	21.7	1.6	6.0	0.9	5.9	0.9	2.4	2.5
Breast (C50)	—	—	—	—	0.2	0.0	0.2	0.0	—	—	—	—	0.4	0.1	0.4	0.1	—	2.6

(continued)

Table 1.08.5 (continued): Selected multiple causes of death, by Indigenous status and sex, cancer, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e][f][g]

	Underlying cause								Multiple cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Indig.	Non-Indig.
Site of neoplasm	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	Crude mean no. of causes[i]	Crude mean no. of causes[i]
Malignant neoplasms of urinary tract (C64–C68)	2.5	0.5	7.7	0.6	11.8	1.8	12.1	1.8	3.4	0.7	12.0	0.9	16.3	2.4	16.9	2.4	2.7	2.7
Male genital organs (C60–C63)	5.9	1.1	28.0	2.1	28.8	4.3	30.3	4.4	8.0	1.6	40.3	3.0	44.3	6.6	47.1	6.8	2.6	2.6
Other malignant neoplasms[k]	6.8	1.3	21.1	1.6	32.4	4.8	32.8	4.7	7.3	1.4	23.6	1.8	34.0	5.1	34.5	5.0	2.8	2.6
Non-malignant neoplasms (D00–D48)	1.2	0.2	n.p.	n.p.	2.2	0.3	2.3	0.3	2.9	0.6	12.0	0.9	9.7	1.5	10.2	1.5	3.3	3.2
Total neoplasms	**90.1**	**17.6**	**284.2**	**21.5**	**220.7**	**33.0**	**223.9**	**32.4**	**99.5**	**19.4**	**325.6**	**24.6**	**255.5**	**38.2**	**260.8**	**37.8**	**2.7**	**2.6**
All causes	513.3	100.0	1,321.9	100.0	668.4	100.0	690.8	100.0	513.3	100.0	1,321.9	100.0	668.4	100.0	690.8	100.0	3.2	3.2
									Females									
Digestive organs (C15–C26)	21.6	5.2	58.8	5.8	44.0	7.0	37.1	7.2	24.3	5.9	68.7	6.8	49.9	8.0	41.9	8.1	2.6	2.3
Respiratory and inthrathoracic organs (C30–C39)	18.3	4.4	45.6	4.5	27.9	4.5	23.8	4.6	20.2	4.9	51.3	5.0	29.9	4.8	25.5	4.9	2.7	2.4
Bronchus & lung (C34)[j]	*17.7*	*4.3*	*43.7*	*4.3*	*27.3*	*4.4*	*23.4*	*4.5*	*19.3*	*4.7*	*48.9*	*4.8*	*29.2*	*4.7*	*25.0*	*4.9*	*2.7*	*2.4*

(continued)

Table 1.08.5 (continued): Selected multiple causes of death, by Indigenous status and sex, cancer, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e][f][g]

	Underlying cause								Multiple cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Indig.	Non-Indig.
Site of neoplasm	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	Crude mean no. of causes[i]	Crude mean no. of causes[i]
Ill-defined, secondary & unspecified site (C76–C80)	5.9	1.4	15.9	1.6	11.6	1.9	9.7	1.9	18.7	4.5	47.4	4.7	36.0	5.8	30.7	6.0	2.8	2.7
Lymphoid, haematopoietic and related tissue (C81–C96)	6.1	1.5	17.3	1.7	14.8	2.4	12.4	2.4	6.8	1.6	19.3	1.9	18.9	3.0	15.8	3.1	3.4	2.8
Female genital organs (C51–C58)	10.2	2.5	23.0	2.3	14.2	2.3	12.2	2.4	11.5	2.8	27.0	2.7	16.5	2.6	14.1	2.7	2.4	2.2
Cervix (C53)[j]	*4.8*	*1.2*	*8.8*	*0.9*	*2.1*	*0.3*	*1.9*	*0.4*	*5.3*	*1.3*	*10.3*	*1.0*	*2.6*	*0.4*	*2.3*	*0.4*	*2.5*	*2.4*
Lip, oral cavity and pharynx (C00–C14)	2.5	0.6	5.0	0.5	1.8	0.3	1.5	0.3	3.4	0.8	6.6	0.6	2.3	0.4	1.9	0.4	2.3	2.4
Breast (C50)	11.1	2.7	26.4	2.6	25.2	4.0	22.0	4.3	14.0	3.4	35.2	3.5	33.2	5.3	28.4	5.5	2.5	2.3
Malignant neoplasms of urinary tract (C64–C68)	1.3	0.3	n.p.	n.p.	6.3	1.0	5.3	1.0	1.6	0.4	n.p.	n.p.	8.0	1.3	6.6	1.3	3.0	2.6
Male genital organs (C60–C63)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other malignant neoplasms[k]	6.9	1.7	18.2	1.8	18.3	2.9	15.7	3.0	7.2	1.7	19.6	1.9	19.2	3.1	16.5	3.2	2.6	2.5
Non-malignant neoplasms (D00–D48)	1.4	0.3	n.p.	n.p.	2.3	0.4	1.9	0.4	3.6	0.9	8.8	0.9	8.0	1.3	6.5	1.3	3.4	3.1

(continued)

Table 1.08.5 (continued): Selected multiple causes of death, by Indigenous status and sex, cancer, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e][f][g]

	Underlying cause								Multiple cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Indig.	Non-Indig.
Site of neoplasm	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	Crude mean no. of causes[i]	Crude mean no. of causes[i]
Total neoplasms	**85.3**	**20.6**	**216.5**	**21.3**	**166.3**	**26.6**	**141.7**	**27.5**	**95.0**	**22.9**	**248.4**	**24.4**	**189.3**	**30.3**	**160.3**	**31.1**	**2.7**	**2.4**
All causes	414.2	100.0	1,016.6	100.0	625.0	100.0	515.2	100.0	414.2	100.0	1,016.6	100.0	625.0	100.0	515.2	100.0	3.4	3.2
									Persons									
Digestive organs (C15–C26)	24.7	5.3	68.2	5.9	51.9	8.0	47.8	8.0	27.4	5.9	77.8	6.7	59.2	9.2	54.4	9.1	2.6	2.4
Respiratory and inthrathoracic organs (C30–C39)	22.8	4.9	64.8	5.6	37.9	5.9	34.8	5.8	24.5	5.3	70.9	6.1	41.3	6.4	38.0	6.4	2.7	2.5
Bronchus & lung (C34)[j]	*20.9*	*4.5*	*59.8*	*5.2*	*36.5*	*5.6*	*33.5*	*5.6*	*22.4*	*4.8*	*65.4*	*5.7*	*39.5*	*6.1*	*36.3*	*6.1*	*2.7*	*2.5*
Ill-defined, secondary & unspecified site (C76–C80)	5.9	1.3	17.4	1.5	12.0	1.9	11.1	1.9	18.1	3.9	50.1	4.3	39.7	6.1	36.5	6.1	2.9	2.7
Lymphoid, haematopoietic and related tissue (C81–C96)	5.3	1.1	16.6	1.4	17.5	2.7	16.2	2.7	6.3	1.4	19.9	1.7	22.6	3.5	20.8	3.5	3.3	2.9
Female genital organs (C51–C58)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cervix (C53)[j]	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Lip, oral cavity and pharynx (C00–C14)	5.3	1.1	11.5	1.0	3.3	0.5	3.0	0.5	6.2	1.3	13.4	1.2	4.2	0.6	3.8	0.6	2.3	2.5

(continued)

Table 1.08.5 (continued): Selected multiple causes of death, by Indigenous status and sex, cancer, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e][f][g]

	Underlying cause								Multiple cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Indig.	Non-Indig.
Site of neoplasm	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	Crude mean no. of causes[i]	Crude mean no. of causes[i]
Breast (C50)	5.6	1.2	14.9	1.3	12.8	2.0	11.8	2.0	7.0	1.5	20.0	1.7	16.8	2.6	15.5	2.6	2.5	2.3
Malignant neoplasms of urinary tract (C64–C68)	1.9	0.4	5.1	0.4	9.1	1.4	8.3	1.4	2.5	0.5	7.3	0.6	12.2	1.9	11.2	1.9	2.8	2.7
Male genital organs (C60–C63)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other malignant neoplasms[k]	6.8	1.5	19.5	1.7	25.3	3.9	23.4	3.9	7.2	1.6	21.3	1.8	26.6	4.1	24.6	4.1	2.7	2.5
Non-malignant neoplasms (D00–D48)	1.3	0.3	3.3	0.3	2.3	0.3	2.1	0.4	3.3	0.7	9.9	0.9	8.8	1.4	8.1	1.4	3.3	3.1
Total neoplasms	**87.7**	**18.9**	**245.7**	**21.3**	**193.4**	**29.9**	**178.2**	**29.8**	**97.3**	**21.0**	**281.4**	**24.3**	**222.3**	**34.4**	**204.7**	**34.3**	**2.7**	**2.5**
All causes	463.5	100.0	1,156.1	100.0	646.6	100.0	597.3	100.0	463.5	100.0	1,156.1	100.0	646.6	100.0	597.3	100.0	3.3	3.2

(continued)

Table 1.08.5 (continued): Selected multiple causes of death, by Indigenous status and sex, cancer, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(d) These data exclude 5,441 registered deaths where the Indigenous status was not stated over the period 2006–2010.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(h) Figures are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Mean number of causes is calculated based on the average number of causes of death present for a death with the selected underlying cause of death. This data item provides insight into co-morbidity.

(j) Data presented for bronchus & lung cancer are a subset of data presented for all respiratory and inthrathoracic organs; data presented for cervix cancer are a subset of data presented for all cancers of the female genital organs in this table.

(k) Includes neoplasms of bone and articular cartilage; melanoma & other neoplasms of skin; neoplasms of mesothelial and soft tissue; neoplasms of eye, brain and other parts of central nervous system; neoplasms of thyroid and other endocrine glands; neoplasms of primary and independent sites, Chronic myeloproliferative disease; Essential thrombocythaemia.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

General practitioner encounters

Management of selected cancers

Information about general practitioner (GP) encounters is available from the BEACH survey. Data for the 5-year period April 2006–March 2007 to April 2010–March 2011 are presented below.

- During this period, there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, at which 9,196 problems were managed. Of these, less than one per cent (56) was for malignant neoplasms (Table 1.08.6).
- After adjusting for age differences, problems involving total malignant neoplasms were managed at a rate of 14 per 1,000 encounters with Indigenous patients, compared with 25 per 1,000 encounters for other patients, this difference is statistically significant (Table 1.08.6).
- Problems involving bowel cancer were managed at a significantly lower rate with Indigenous patients in comparison with encounters for other patients (0.5 per 1,000 encounters and 1.4 per 1,000 encounters respectively after adjusting for age differences)

Table 1.08.6: Problems managed relating to cancer[a] managed by general practitioners, by Indigenous status of the patient, BEACH survey years April 2006–March 2007 to April 2010–March 2011 inclusive[b][c]

	Number		Per cent of total problem managed		Crude rate (no. per 1,000 encounters)						Age-standardised rate (no. per 1,000 encounters)[d]			
Problem managed	**Indig.**	**Other[e]**	**Indig.**	**Other[e]**	**Indig.**	**95% LCL[f]**	**95% UCL[g]**	**Other**	**95% LCL[f]**	**95% UCL[g]**	**Indig.**	**Other[e]**	**Ratio[h]**	**Rate diff.[i]**
Respiratory malignancies (R84)(R85)	2	521	0.02	0.07	0.3	0.0	1.0	1.1	1.0	1.2	0.4	1.1	0.3	–0.7
Lung/brochus/trachea cancer (R84)[j]	2	426	0.02	0.06	0.3	0.0	1.0	0.9	0.8	1.0	0.4	0.9	0.4	–0.5
Breast cancer in females (X76)	7	1,170	0.08	0.16	1.2	0.3	2.0	2.4	2.3	2.6	1.3	2.4	0.5	–1.1
Cervical cancer (X75)	4	111	0.04	0.01	0.7	0.0	1.5	0.2	0.2	0.3	0.6	0.2	2.8	0.4
Bowel cancer (D75)	3	650	0.03	0.09	0.5	0.0	1.1	1.4	1.2	1.5	0.5*	1.4*	0.4*	–0.9*
Other malignant neoplasm[k]	40	9,725	0.43	1.30	6.7	4.5	8.9	20.3	19.6	21.1	10.7*	20.2*	0.5*	–9.5*
Malignant neoplasm total[l]	*56*	*12,177*	*0.61*	*1.63*	*9.4*	*6.5*	*12.2*	*25.5*	*24.6*	*26.3*	*13.5**	*25.3**	*0.5**	*–11.8**
Other problems managed	9,140	733,447	99.39	98.37	1,530.7	1,490.1	1,571.4	1,534.3	1,525.6	1,543.1	1,625.5*	1,533.2*	1.1*	92.3*
Total problems	**9,196**	**745,624**	**100.00**	**100.00**	**1,540.1**	**1,499.0**	**1,581.2**	**1,559.8**	**1,550.9**	**1,568.7**	**1,639.1***	**1,558.6***	**1.1***	**80.5***

(continued)

Table 1.08.6 (continued): Problems managed relating to cancer[(a)] managed by general practitioners, by Indigenous status of the patient, BEACH survey years April 2006–March 2007 to April 2010–March 2011 inclusive[(b)(c)]

* Represents results with statistically significant differences in the Indigenous/other Australian comparisons at the p < 0.05 level.

(a) Classified according to ICPC–2 chapter codes (Classification Committee of the World Organization of Family Doctors (WICC) 1998).
(b) Data from five combined BEACH years April 2006–March 2007 to April 2010–March 2011 inclusive.
(c) Data for Indigenous and other Australians have not been weighted.
(d) Directly age-standardised rate (no. per 1,000 encounters). Figures do not add to 100 as more than one problem can be managed at each encounter.
(e) 'Other' includes non-Indigenous patients and patients for whom Indigenous status was not stated.
(f) LCL = lower confidence interval.
(g) UCL = upper confidence interval.
(h) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for other Australians.
(i) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for other Australians.
(j) Lung/bronchus/trachea cancer is a subset of respiratory malignancies.
(k) ICPC–2 codes: A79, B72–B74, B74, D76–D77, F74002–03,06, H75002,03, K72002–03, L71, N74, S77, T71, T73001–02, U75–U77 W72, X77, Y77–Y78.
(l) ICPC–2 codes: A79, B72–B74, B74, D75–D77, F74002–03,06, H75002,03, K72002–03, L71, N74, R84–R85, S77, T71, T73001–02, U75–U77 W72, X75–X77, Y77–Y78.

Source: Family Medicine Research Centre, University of Sydney analysis of BEACH data.

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Hospitalisations

Age-standardised rates and ratios have been used as a measure of hospitalisations in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate disparities between the rates of hospital admissions among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

Hospitalisations by age and sex

- Hospitalisation admission data between July 2008 and June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia and Northern Territory combined, shows that hospitalisation rates with a principal diagnosis of cancer increased with age for both Indigenous and non-Indigenous people (Table 1.08.7).
- Indigenous males aged 55 years and over had higher hospitalisation rates for cancer than Indigenous females.
- Hospitalisation rates for cancer were lower for Indigenous persons than non-Indigenous persons across all age groups.

Table 1.08.7: Age-specific hospitalisation rates per 1,000 population for a principal diagnosis of neoplasms (cancer), by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)]

	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65+	Total (crude)	Total (age standardised)[(f)]
Males										
Indigenous	1.3	0.6	1.2	1.5	3.9	13.2	30.5	54.3	5.4	13
Non-Indigenous	2.2	1.5	1.4	2	4.8	14.8	42.3	104	21.3	20.8
Rate ratio[(g)]	0.6	0.4	0.9	0.8	0.8	0.9	0.7	0.5	0.3	0.6
Rate difference[(h)]	–0.8	–0.8	–0.2	–0.5	–0.9	–1.5	–11.8	–49.7	–15.8	–7.9
Females										
Indigenous	2.4	0.9	0.8	1.4	6.1	13.6	22.8	37	5.6	10.5
Non-Indigenous	2.1	1.1	1.1	2.3	6.9	16	29	56.1	15.5	13.7
Rate ratio[(g)]	1.2	0.8	0.8	0.6	0.9	0.8	0.8	0.7	0.4	0.8
Rate difference[(h)]	0.3	–0.2	–0.3	–0.9	–0.7	–2.4	–6.1	–19.1	–9.9	–3.3
Persons										
Indigenous	1.9	0.8	1.0	1.5	5.1	13.4	26.4	44.4	5.5	11.5
Non-Indigenous	2.1	1.3	1.3	2.2	5.9	15.4	35.6	78.0	18.4	16.9
Rate ratio[(g)]	0.9	0.6	0.8	0.7	0.9	0.9	0.7	0.6	0.3	0.7
Rate difference[(h)]	–0.2	–0.5	–0.2	–0.7	–0.8	–2.0	–9.2	–33.5	–12.9	–5.4

(continued)

Table 1.08.7 (continued): Age-specific hospitalisation rates for a principal diagnosis of neoplasms (cancer), by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [(a)(b)(c)(d)(e)]

(a) Categories are based on ICD-10-AM codes C00–C97, D45, D46, D47.1, D47.3.

(b) Data are from public and most private hospitals. Excludes data for private hospitals in the NT, ACT and Tasmania.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised.

(e) Data are reported for NSW, Vic, Qld, WA, SA and NT only. These jurisdictions are considered to have adequate levels of Indigenous identification in hospitalisation data, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(f) Total rate is directly age standardised per 1,000 separations, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(g) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for non-Indigenous Australians.

(h) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (Series B).
2. Care types 7.3, 9 & 10 (Newborn - unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by state/territory

Table 1.08.8 presents hospitalisations for a principal diagnosis of cancer for the 2-year period July 2008 to June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Rates for Tasmania and the Australian Capital Territory are also reported, however should be interpreted with caution due to small numbers and until recent audits of Indigenous identification in hospital data are completed.

- Between July 2008 and June 2010, Indigenous people in all states and territories, except Tasmania, had lower rates of hospitalisation from cancer than non-Indigenous people (Table 1.08.8).
- Hospitalisation rates for cancer ranged from around 9 per 100,000 in the Northern Territory to around 14 per 1,000 in Victoria, Queensland and South Australia (excludes Tasmania and the Australian Capital Territory).

Hospitalisation rates by state/territory should be interpreted with caution due jurisdictional differences in the level of Indigenous under-identification in hospital separations data.

Table 1.08.8: Hospitalisations for principal diagnosis of cancer (neoplasms) by Indigenous status and sex, NSW, Vic, Qld, WA, SA, NT, Tas and ACT, July 2008 to June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	No. per 1,000[(e)]	Number	No. per 1,000[(e)]	Rate ratio[(f)]	Rate difference[(g)]
NSW						
Males	849	11.2	125,547	17.4	0.6*	–6.2*
Females	843	9.4	95,304	11.8	0.8*	–2.4*
Persons[(h)]	1,692	10.2	220,851	14.3	0.7*	–4.1*
Vic						
Males	223	16.8	125,656	23.1	0.7*	–6.3*
Females	225	11.8	92,643	15.0	0.8*	–3.1*
Persons[(h)]	448	13.8	218,299	18.6	0.7*	–4.8*
Qld						
Males	882	15.4	98,143	23.2	0.7*	–7.8*
Females	938	12.4	70,885	15.4	0.8*	–3.0*
Persons[(h)]	1,820	13.7	169,028	19.0	0.7*	–5.3*
WA						
Males	455	12.7	45,119	21.5	0.6*	–8.8*
Females	395	9.3	31,749	13.9	0.7*	–4.6*
Persons[(h)]	850	10.8	76,868	17.4	0.6*	–6.6*
SA						
Males	152	13.6	39,381	22.1	0.6*	–8.5*
Females	163	12.4	28,077	13.8	0.9	–1.4
Persons[(h)]	315	12.9	67,458	17.5	0.7*	–4.6*
NT						
Males	295	9.5	1,645	13.7	0.7*	–4.1*
Females	375	8.5	907	7.8	1.1	0.7
Persons[(h)]	670	8.9	2,552	11.0	0.8*	–2.2*
NSW, Vic, Qld, WA, SA & NT[(i)]						
Males	2,856	13.0	435,491	20.8	0.6*	–7.9*
Females	2,939	10.5	319,565	13.7	0.8*	–3.3*
Persons[(h)]	5,795	11.5	755,056	16.9	0.7*	–5.4*
Tas						
Males	95	10.8	5,508	10.0	1.1*	0.9
Females	91	6.0	3,856	6.4	0.9*	–0.4
Persons[(h)]	186	8.4	9,364	8.1	1.0*	0.3

(continued)

Table 1.08.8 (continued): Hospitalisations for principal diagnosis of cancer (neoplasms) by Indigenous status and sex, NSW, Vic, Qld, WA, SA, NT, Tas and ACT, July 2008 to June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	No. per 1,000[(e)]	Number	No. per 1,000[(e)]	Rate ratio[(f)]	Rate difference[(g)]
ACT						
Males	5	2.8	2,397	7.9	0.4*	–5.1
Females	13	6.1	2,304	6.8	0.9*	–0.6
Persons[(h)]	18	4.5	4,701	7.3	0.6*	–2.7

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Categories are based on ICD-10-AM codes C00–C97, D45, D46, D47.1, D47.3.

(b) Data are from public and most private hospitals. Data are not available for private hospitals in the NT, the ACT and Tasmania.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised.

(e) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+. Rates are directly age standardised per 1,000 separations, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(f) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for non-Indigenous Australians.

(g) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for non-Indigenous Australians.

(h) Includes hospitalisations for which sex was indeterminate or not stated.

(i) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (Series B).
2. Care types 7.3, 9 & 10 (Newborn - unqualified days only; organ procurement; hospital boarder) excluded from analysis.
3. Data for Tasmania and the ACT should be interpreted with caution until recent audits of Indigenous identification in hospital data are completed.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by remoteness area

Hospitalisation rates for a principal diagnosis of cancer in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory are presented by Australian Standard Geographical Classification (ASGC) in Table 1.08.9, covering the period July 2008 to June 2010.

- Hospitalisation rates for cancer were highest in remote areas for Indigenous persons and highest in inner regional areas for non-Indigenous people.
- In remote areas, hospitalisation rates for cancer were similar for Indigenous and non-Indigenous people (14 per 1,000 population). In all other areas, rates were lower for Indigenous people than non-Indigenous people.

Table 1.08.9: Hospitalisations for principal diagnosis of cancer (neoplasms) by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)]

	Indigenous				Non-Indigenous					
	Number	No. per 1,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Number	No. per 1,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Rate ratio[(i)]	Rate difference[(j)]
Major cities	1,861	11.9	11.4	12.5	513,836	16.9	16.9	16.9	0.7*	–5.0*
Inner regional	1,192	12.6	11.9	13.3	163,389	17.1	17.0	17.2	0.7*	–4.5*
Outer regional[(k)]	1,240	10.7	10.1	11.3	67,316	15.7	15.6	15.8	0.7*	–5.0*
Remote[(l)]	729	14.0	12.9	15.0	7,930	14.2	13.9	14.5	1.0	–0.2
Very remote	773	8.4	7.8	9.0	2,459	10.7	10.2	11.1	0.8*	–2.3*
Total[(m)]	5,795	11.4	11.1	11.6	755,056	16.8	16.7	16.8	0.7*	**–5.4***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Categories are based on ICD-10-AM codes C00–C97, D45, D46, D47.1, and D47.3.

(b) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(c) Financial year reporting.

(d) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(e) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(f) Directly age-standardised using the Australian 2001 standard population, by 5 year age groups to 65+.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for non-Indigenous Australians.

(j) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for non-Indigenous Australians.

(k) Outer regional includes remote Victoria.

(l) Remote excludes remote Victoria

(m) Total includes hospitalisations where ASGC is missing.

Notes

1. Rates are calculated using the remoteness distribution by Indigenous status, age and sex based on the 2006 ERP and applied to the 2008–10 population projections (Series B) based on the 2006 Census.
2. Care types 7.3, 9 & 10 (Newborn - unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by principal diagnosis

Table 1.08.10 presents data on hospitalisations for cancer by principal diagnosis for Aboriginal and Torres Strait Islander people for the 2-year period July 2008 to June 2010 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- During this period, cancer of the digestive organs accounted for 18% of cancer hospitalisations among Indigenous people, followed by ill-defined and secondary cancers and cancers in an unspecified site, and lymphoid, haematopoietic and related tissue cancers (13% for each type).
- Indigenous people were almost three times as likely as non-Indigenous people to be hospitalised for cervical cancer, and cancer of the lip, oral cavity or pharynx; and 1.5 times as likely to be hospitalised for cancer of the lungs or bronchus.
- For Indigenous males, the most common types of cancer hospitalisations were: cancer of the digestive organs (21% of all cancer hospitalisations); lymphoid, haematopoietic and related tissue cancers (15%); and ill-defined and secondary cancers and cancers in an unspecified site (12%).
- For Indigenous females, the most common types, each accounting for more than 14% of all cancer hospitalisations, were: cancer of the female genital organs; cancer of the digestive organs; and ill-defined, secondary and unspecified site cancers.

Table 1.08.10: Hospitalisations of Indigenous persons for principal diagnosis of cancer (neoplasms), by type of cancer and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)]

Principal diagnosis	Number	%[(f)]	No. per 1,000[(g)]	LCL 95%[(h)]	UCL 95%[(i)]	Rate ratio[(j)]	Rate difference[(k)]
			Males				
Digestive organs (C15–C26)	588	20.6	2.6	2.4	2.9	0.9	–0.2
Respiratory and inthrathoracic organs (C30–C39)	322	11.3	1.7	1.5	1.9	1.4*	0.5*
Bronchus & lung (C34)(l)	246	8.6	1.4	1.2	1.6	1.3*	0.3*
Ill-defined, secondary & unspecified site (C76–C80)	350	12.3	1.7	1.5	1.9	0.9*	–0.2*
Lymphoid, haematopoietic and related tissue (C81–C96)	413	14.5	1.3	1.1	1.5	0.4*	–1.6*
Female genital organs (C51–C58)	.	.	.	.	.	.	.
Cervix (C53)(l)	.	.	.	.	.	.	.
Lip, oral cavity and pharynx (C00–C14)	267	9.3	1.1	1.0	1.3	3.0*	0.8
Breast (C50)	.	.	.	.	.	.	.
Malignant neoplasms of urinary tract (C64–C68)	117	4.1	0.7	0.5	0.8	0.5*	–0.7*
Male genital organs (C60–C63)	255	8.9	1.3	1.1	1.5	0.4*	–1.9*
Other malignant neoplasms(m)	544	19.0	2.6	2.4	2.9	0.4*	–4.5*
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	2,856	100.0	13.0	12.4	13.6	0.6*	–7.9*
Non-malignant neoplasms (D00-D44, D47.0, D47.2, D47.7-D48)	683	19.3	2.5	2.3	2.7	0.4*	–3.6*
Total neoplasms	3,539	100.0	15.5	14.8	16.1	0.6*	–11.5*
			Females				
Digestive organs (C15–C26)	424	14.4	1.7	1.5	1.9	1.0	0.0
Respiratory and inthrathoracic organs (C30–C39)	301	10.2	1.2	1.1	1.4	1.9*	0.6*
Bronchus & lung (C34)[(l)]	278	9.5	1.1	1.0	1.3	1.8*	0.5*
Ill-defined, secondary & unspecified site (C76–C80)	423	14.4	1.6	1.4	1.7	1.0	–0.1
Lymphoid, haematopoietic and related tissue (C81–C96)	314	10.7	1.0	0.9	1.1	0.5*	–0.8*
Female genital organs (C51–C58)	434	14.8	1.4	1.2	1.5	1.6*	0.5*
Cervix (C53)[(l)]	152	5.2	0.4	0.4	0.5	2.8*	0.3*
Lip, oral cavity and pharynx (C00–C14)	98	3.3	0.3	0.2	0.4	2.3*	0.2*
Breast (C50)	413	14.1	1.4	1.3	1.6	0.7*	–0.6*
Malignant neoplasms of urinary tract (C64–C68)	81	2.8	0.3	0.2	0.3	0.6*	–0.2*
Male genital organs (C60–C63)	.	.	.	.	.	.	.
Other malignant neoplasms[(m)]	451	15.3	1.5	1.4	1.7	0.4*	–2.8*
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	2,939	100.0	10.5	10.0	10.9	0.8*	–3.3*

(continued)

Table 1.08.10 (continued): Hospitalisations of Indigenous persons for principal diagnosis of cancer (neoplasms), by type of cancer and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[a][b][c][d][e]

Principal diagnosis	Number	%[f]	No. per 1,000[g]	LCL 95%[h]	UCL 95%[i]	Rate ratio[j]	Rate difference[k]
			Females (continued)				
Non-malignant neoplasms (D00-D44, D47.0, D47.2, D47.7-D48)	2,036	40.9	5.0	4.8	5.3	0.6*	–3.0*
Total neoplasms	4,975	100.0	15.5	15.0	16.0	0.7*	–6.3*
			Persons				
Digestive organs (C15–C26)	1,012	17.5	2.1	2.0	2.3	1.0	–0.1
Respiratory and inthrathoracic organs (C30–C39)	623	10.8	1.4	1.3	1.6	1.6*	0.5*
Bronchus & lung (C34)[l]	524	9.0	1.2	1.1	1.3	1.5*	0.4*
Ill-defined, secondary & unspecified site (C76–C80)	773	13.3	1.6	1.5	1.7	0.9*	–0.1*
Lymphoid, haematopoietic and related tissue (C81–C96)	727	12.5	1.1	1.0	1.3	0.5*	–1.2*
Female genital organs (C51–C58)	434	7.5	0.7	0.7	0.8	1.6*	0.3*
Cervix (C53)[l]	152	2.6	0.2	0.2	0.3	2.9*	0.2*
Lip, oral cavity and pharynx (C00–C14)	365	6.3	0.7	0.6	0.8	2.7*	0.4*
Breast (C50)	413	7.1	0.8	0.7	0.9	0.7*	–0.3*
Malignant neoplasms of urinary tract (C64–C68)	198	3.4	0.4	0.4	0.5	0.5*	–0.4*
Male genital organs (C60–C63)	255	4.4	0.6	0.5	0.6	0.4*	–0.9*
Other malignant neoplasms[m]	995	17.2	2.0	1.9	2.2	0.4*	–3.6*
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	5,795	100.0	11.5	11.2	11.9	0.7*	–5.4*
Non-malignant neoplasms (D00-D44, D47.0, D47.2, D47.7-D48)	2,719	31.9	3.8	3.6	3.9	0.5*	–3.2*
Total neoplasms	8,514	100.0	15.3	14.9	15.7	0.6*	–8.6*

(continued)

Table 1.08.10 (continued): Hospitalisations of Indigenous persons for principal diagnosis of cancer (neoplasms), by type of cancer and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Categories are based on ICD-10-AM codes C00–C97, D45, D46, D47.1, D47.3.

(b) Data are from public and most private hospitals. Excludes data for private hospitals in the NT, the ACT and Tasmania.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised.

(e) Data are reported for NSW, Vic, Qld, WA, SA and NT only. These jurisdictions are considered to have adequate levels of Indigenous identification in hospitalisation data, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(f) Proportion of male, female and total hospitalisations of Indigenous persons in the period 2008–09 to 2009–10.

(g) Rates are directly age standardised per 1,000 separations, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for non-Indigenous Australians.

(k) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for non-Indigenous Australians.

(l) Data presented for bronchus & lung cancer are a subset of data presented for all respiratory and inthrathoracic organs; data presented for cervix cancer are a subset of data presented for all cancers of the female genital organs in this table.

(m) Includes neoplasms of bone and articular cartilage; melanoma & other neoplasms of skin; neoplasms of mesothelial and soft tissue; neoplasms of eye, brain and other parts of central nervous system; neoplasms of thyroid and other endocrine glands; C9 Malignant neoplasms of independent (primary) multiple sites.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (Series B).
2. Care types 7.3, 9 & 10 (Newborn - unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data from 1998–99 to 2009–10 are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations over this period—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population.

Additional trend analysis has also been presented for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined from 2004–05 to 2007–08 for Indigenous and non-Indigenous Australians. New South Wales and Victoria have been assessed as having adequate identification of Indigenous hospitalisations from 2004–05. These six jurisdictions represent approximately 96% of the Indigenous population of Australia.

Note that changes in the level of accuracy of Indigenous identification in hospital records will result in changes in the level of reported hospital separations for Indigenous Australians, as will changes in access, hospital policies and practices over time. Caution should be used in interpreting changes over time, as it is not possible to ascertain whether a change in reported hospitalisation is due to changes in the accuracy of Indigenous identification or real changes in the rates at which Indigenous people are hospitalised. An increase in hospitalisation rates may also reflect increased use of admitted patient hospital services rather than a worsening of health.

Cancer—1998–99 to 2009–10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for cancer over the period 1998–99 to 2009–10 for Queensland, Western Australia, South Australia and the Northern Territory are presented in Table 1.08.11 and Figure 1.08.2.

- Between 1998–99 and 2009–10, the age–standardised cancer hospitalisation rate for Indigenous people increased significantly by 37% (from 9 to 12 per 1,000 population).
- During the same time period, the age standardised cancer hospitalisation rate for non-Indigenous people increased significantly by 14% (from 15 to 18 per 1,000 population).

Table 1.08.11: Age-standardised hospitalisation rates, rate ratios and rate differences from cancer (neoplasms), Qld, WA, SA and NT, 1998–99 to 2009–10[(a)(b)(c)(d)(e)]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(f)]	% change over period[(g)]
Indigenous separations														
Males	479	523	514	578	747	747	683	732	853	1,000	900	884	43.8*	100.5*
Females	537	631	707	561	688	775	737	813	897	937	903	968	37.8*	77.5*
Persons[(h)]	1,016	1,154	1,221	1,139	1,435	1,522	1,420	1,545	1,750	1,937	1,803	1,852	81.6*	88.3*
Non-Indigenous separations														
Males	55,353	63,451	66,529	67,975	72,250	73,122	73,910	81,554	85,203	89,213	91,432	92,856	3,279.7*	65.2*
Females	43,770	48,724	50,331	51,759	53,340	53,791	53,237	60,166	61,342	63,478	65,095	66,523	1,949.3*	49.0*
Persons[(h)]	99,123	112,175	116,860	119,734	125,592	126,913	127,147	141,720	146,545	152,691	156,527	159,379	5,228.9*	58.0*
Indigenous no. per 1,000[(i)]														
Males	9.7	11.6	10.3	11.0	14.3	14.3	12.4	14.4	13.4	16.6	13.6	13.4	0.4*	44.9*
Females	7.7	11.0	9.9	8.8	10.3	11.2	8.9	10.1	11.0	12.2	10.6	11.1	0.2*	28.7*
Persons[(h)]	8.5	11.2	10.0	9.7	12.0	12.4	10.3	11.8	12.0	14.1	11.9	12.0	0.3*	36.6*
Non-Indigenous no. per 1,000[(i)]														
Males	18.6	20.8	21.2	21.0	21.6	21.2	20.7	22.1	22.4	22.7	22.5	22.2	0.3*	15.2*
Females	12.9	14.0	14.0	14.0	14.0	13.8	13.3	14.6	14.5	14.6	14.6	14.6	0.1*	9.7*
Persons[(h)]	15.3	16.9	17.1	17.1	17.4	17.0	16.6	18.0	18.1	18.3	18.2	18.1	0.2*	14.1*
Rate ratio[(j)]														
Males	0.5	0.6	0.5	0.5	0.7	0.7	0.6	0.7	0.6	0.7	0.6	0.6	0.01*	24.4*
Females	0.6	0.8	0.7	0.6	0.7	0.8	0.7	0.7	0.8	0.8	0.7	0.8	0.01	15.9
Persons[(h)]	0.6	0.7	0.6	0.6	0.7	0.7	0.6	0.7	0.7	0.8	0.7	0.7	0.01	18.3

(continued)

Table 1.08.11 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences from cancer (neoplasms), Qld, WA, SA and NT, 1998–99 to 2009–10[(a)(b)(c)(d)(e)]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(f)]	% change over period[(g)]
							Rate difference[(k)]							
Males	–8.9	–9.2	–10.8	–10.0	–7.3	–6.8	–8.3	–7.7	–9.0	–6.1	–8.9	–8.8	0.1	–17.2
Females	–5.1	–3.0	–4.1	–5.2	–3.7	–2.6	–4.4	–4.5	–3.5	–2.4	–4.0	–3.5	0.1	–18.8
Persons[(h)]	–6.8	–5.7	–7.1	–7.3	–5.4	–4.6	–6.3	–6.2	–6.0	–4.2	–6.4	–6.0	0.1	–14.1

* Represents results with statistically significant increases or declines at the p < 0.05 level over the period 1998–99 to 2009–10.

(a) Categories are based on ICD-10-AM codes C00–C97, D45, D46, D47.1, D47.3.

(b) Data are from public and most private hospitals. Data are not available for private hospitals in the NT.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised.

(e) Data are reported for Qld, WA, SA and NT only. These jurisdictions are considered to have adequate levels of Indigenous identification in hospitalisation data over these time periods, although the level of accuracy varies by jurisdiction and hospital over time. Hospitalisation data for these jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(g) Per cent change between 1998–99 and 2009–10 based on the average annual change over the period.

(h) Includes hospitalisations for which sex was indeterminate or not stated.

(i) Rates are directly age standardised per 1,000 separations, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

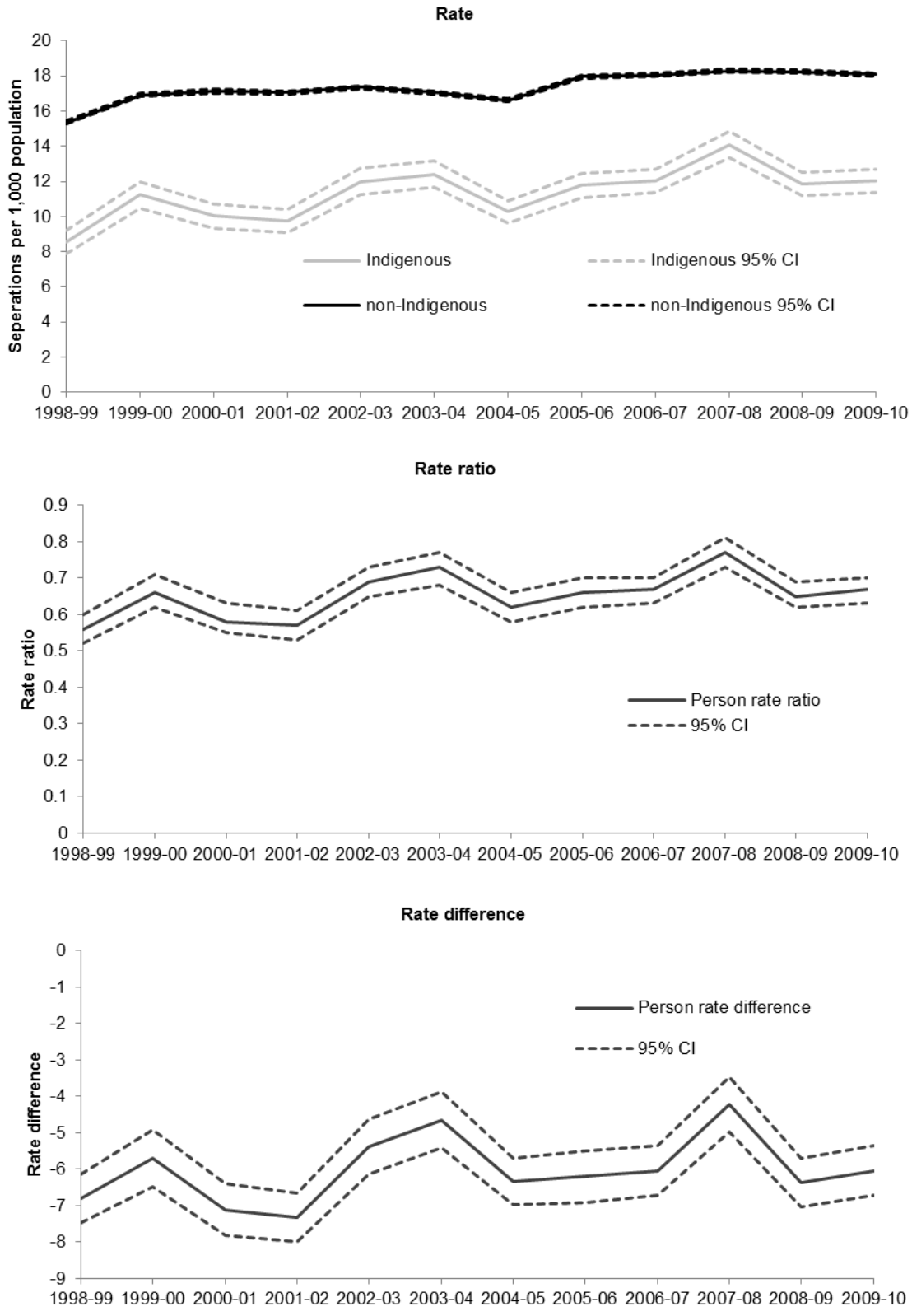
(j) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for non-Indigenous Australians.

(k) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 Census.
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.08.2: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for cancer, Qld, WA, SA and NT, 1998–1999 to 2009–2010

Cancer—2004–05 to 2009–10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australian for cancer over the period 2004–05 to 2009–10 for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory combined are presented in Table 1.08.12 and Figure 1.08.3.

- Between 2004–05 and 2009–10, the age-standardised cancer hospitalisation rate for Indigenous persons significantly increased by 25% (from 9 to 12 per 1,000 population). Significant increases were observed for Indigenous females but not for Indigenous males.
- Over the same period, the age-standardised cancer hospitalisation rate for non-Indigenous persons significantly increased by 6%, (from 16 to 17 per 1,000 population). Significant increases were observed for both non-Indigenous males and females.
- There was a significant increase in the rate ratio between Indigenous and non-Indigenous cancer hospitalisation rates for females; and a significant decline in the rate difference for females.

Table 1.08.12: Age-standardised hospitalisation rates, rate ratios and rate differences for cancer (neoplasms), NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[(a)(b)(c)(d)(e)]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(f)]	Per cent change over period[(g)]
Indigenous separations								
Males	1,025	1,131	1,228	1,444	1,396	1,460	91.0*	44.4*
Females	1,074	1,192	1,287	1,332	1,409	1,530	85.0*	39.6*
Persons[(h)]	2,099	2,323	2,515	2,776	2,805	2,990	176.1*	41.9*
Non-Indigenous separations								
Males	180,794	193,127	200,641	207,117	213,061	222,430	7,841.7*	21.7*
Females	136,935	145,736	148,962	153,053	156,626	162,939	4,765.2*	17.4*
Persons[(h)]	317,734	338,863	349,603	360,170	369,687	385,369	12,606.1*	19.8*
Indigenous no. per 1,000[(i)]								
Males	11.0	12.6	12.0	14.5	12.6	13.4	0.4	18.2
Females	8.0	9.4	9.9	10.5	10.2	10.7	0.5*	29.7*
Persons[(h)]	9.2	10.7	10.8	12.2	11.3	11.8	0.5*	25.2*
Non-Indigenous no. per 1,000[(i)]								
Males	19.6	20.4	20.6	20.7	20.7	21.0	0.2*	5.8*
Females	13.0	13.5	13.6	13.6	13.6	13.8	0.1*	4.8*
Persons[(h)]	15.9	16.6	16.7	16.8	16.8	17.1	0.2*	5.9*
Rate ratio[(j)]								
Males	0.6	0.6	0.6	0.7	0.6	0.6	0.01	11.6
Females	0.6	0.7	0.7	0.8	0.8	0.8	0.03*	23.5*
Persons[(h)]	0.6	0.6	0.6	0.7	0.7	0.7	0.02	18.0
Rate difference[(k)]								
Males	–8.6	–7.8	–8.6	–6.1	–8.1	–7.6	0.2	–10.2
Females	–5.0	–4.2	–3.6	–3.1	–3.4	–3.2	0.4*	–34.8*
Persons[(h)]	–6.7	–5.9	–5.9	–4.6	–5.5	–5.3	0.3	–20.5

* Represents results with statistically significant increases or declines at the p < 0.05 level over the period 2004–05 to 2009–10.

(a) Categories are based on ICD-10-AM codes C00–C97, D45, D46, D47.1, D47.3.

(b) Data are from public and most private hospitals. Data are not available for private hospitals in the NT.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised.

(e) Data are reported for NSW, Vic, Qld, WA, SA and NT only. These jurisdictions are considered to have adequate levels of Indigenous identification in hospitalisation data over these time periods, although the level of accuracy varies by jurisdiction and hospital over time. Hospitalisation data for these jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(g) Per cent change between 2004–05 and 2009–10 based on the average annual change over the period.

(h) Includes hospitalisations for which sex was indeterminate or not stated.

(i) Rates are directly age standardised per 1,000 separations, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

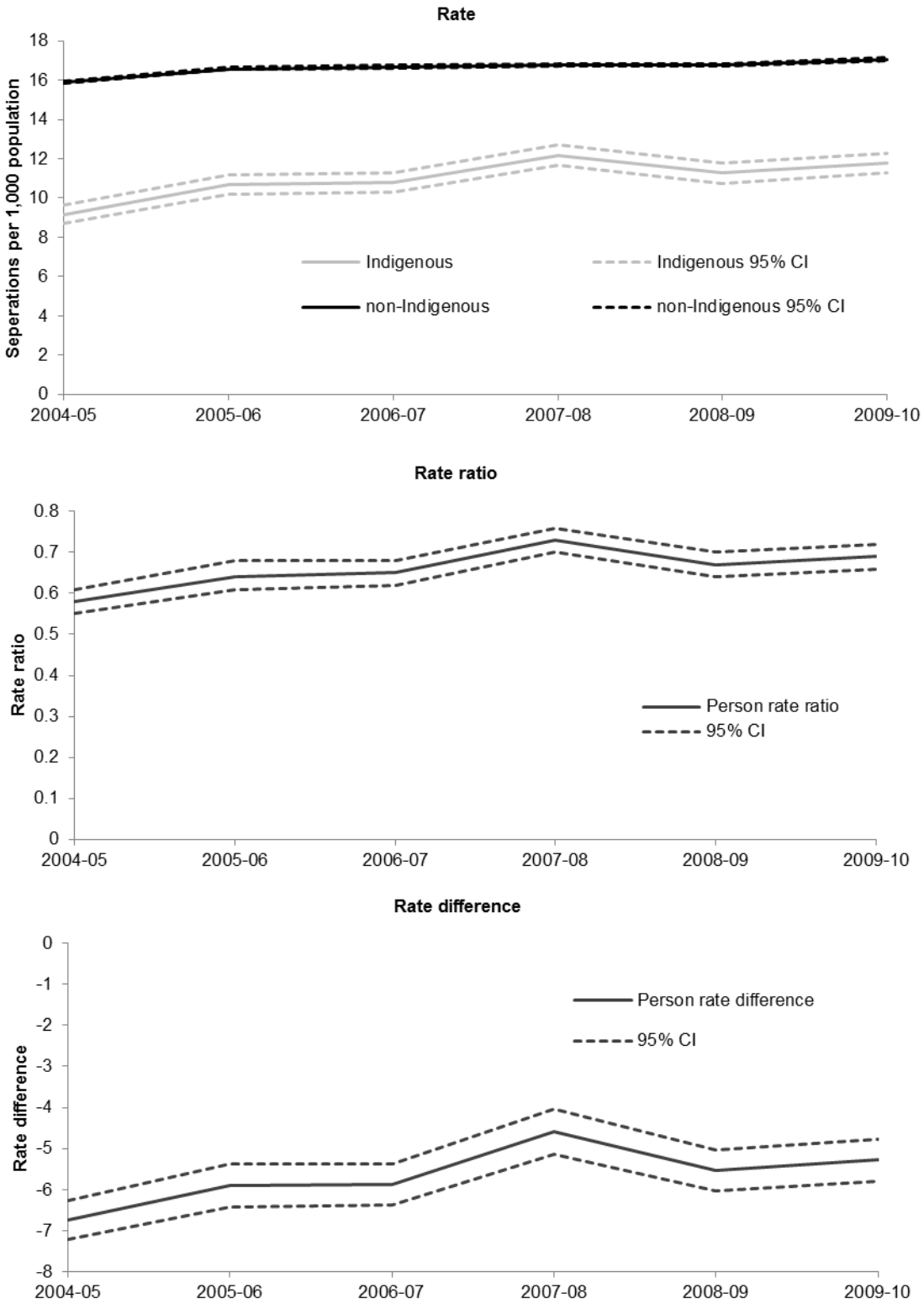
(j) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for non-Indigenous Australians.

(k) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for non-Indigenous Australians.

Notes

4. Rates have been directly age-standardised using the 2001 Australian standard population.
5. Population estimates are based on 2006 Census.
6. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.08.3: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for cancer, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–2010

Data quality issues

Australian Cancer Database (ACD)

Each state and territory cancer registry draws on a number of sources of data to collate information on cancer notifications. Hospital admissions and deaths data allow for the collection and reporting of Indigenous status, whereas there is currently no Indigenous identifier in Pathology forms, and inconsistent reporting through referring GPs/specialists/surgeons. Indigenous status is recorded for radiation oncology services in New South Wales, Queensland and the Northern Territory only.

Indigenous identification is incomplete for all cancer registries, however has been assessed by the AIHW as having sufficient quality to report for Western Australia, Queensland, New South Wales and the Northern Territory.

Mortality data

Mortality data presented in this report are from the AIHW National Mortality Database. The AIHW National Mortality Database includes information on the factors that caused death, as well as other information about the deceased person, such as age at death, place of death, country of birth, and where applicable, the circumstances of their death. These data are collected in Australia by the Registrars of Births, Deaths and Marriages in each state and territory. The data are then compiled nationally by the ABS, which codes the data according to the International Classification of Diseases (ICD).

Deaths

Although it is considered likely that most deaths of Aboriginal and Torres Strait Islander (Indigenous) Australians are registered, a proportion of these deaths are not registered as Indigenous. Information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred and may differ from the self-identified Indigenous origin of the deceased.

Queensland deaths

In November 2010, the Queensland Registrar of Births, Deaths and Marriages advised the ABS of an outstanding deaths registration initiative undertaken by the Registry. This initiative resulted in the November 2010 registration of 374 previously unregistered deaths which occurred between 1992 and 2006 (including a few for which a date of death was unknown). Of these, around three-quarters (284) were deaths of Aboriginal and Torres Strait Islander Australians.

The ABS discussed different methods of adjustment of Queensland death registrations data for 2010 with key stakeholders. Following the discussion, a decision was made by the ABS and key stakeholders to use an adjustment method that added together deaths registered in 2010 for usual residents of Queensland which occurred in 2007, 2008, 2009 and 2010. This method minimises the impact on mortality indicators used in various government reports. However, care should still be taken when interpreting Aboriginal and Torres Strait Islander death data for Queensland for 2010**.**

Western Australia deaths

Indigenous deaths registered in Western Australia in 2007, 2008 and 2009 were corrected by the ABS in mid-2012 due to some non-Indigenous deaths being incorrectly recorded as Indigenous for these years. Data presented in this report are based on the corrected data and will differ from mortality data presented in the 2010 Health Performance Framework report which presented data prior to the ABS corrections.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms.

Under-identification

At present, there is considerable variation across the states and territories in the completeness of mortality data for Indigenous people. Information concerning the number of deaths of Indigenous people is limited by the accuracy with which Indigenous persons are identified in death records. Problems associated with identification result in an underestimation of deaths of Indigenous people and in the gap in mortality between Indigenous and non-Indigenous Australians.

Mortality data for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered to have sufficient coverage to produce reliable statistics on Indigenous Australian deaths for the period 2001–2010.

Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) which are considered to have adequate identification from 1991. Queensland is considered to have sufficient coverage of Indigenous deaths from 1998.

The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.

Indigenous Mortality Quality Study

The ABS conducted a number of quality studies based on the 2006 Census of Population and Housing and other data sets as part of the Census Data Enhancement (CDE) project (ABS 2008). The CDE Indigenous Mortality Quality Study linked Census records with death registration records for the 11-month period following the Census and examined differences in the reporting of Indigenous status across the two data sets.

For the purpose of this study, the linked record was assumed to be an Indigenous record if a positive response was recorded against the Indigenous status question on either the death registration or the corresponding Census record. Following linkage, the number of death records identified as Indigenous increased from 1,800 to 2,123 records, or from 1.7% to 2.0% of all registered deaths.

'While 323 additional death records were able to be identified as Indigenous from Census records, more may have been expected if all death records had been linked. A key reason records could not be linked appears to be Census undercount, with a corresponding Census record not existing to link to for many Indigenous death records' (ABS 2008).

The results from the study suggested that coverage of Indigenous deaths in death registrations is considerably higher, at least in 2006–07, than previous estimates have indicated. Nationally, the coverage rate was estimated to be 85%. State/territory coverage estimates were: NSW 76%, Vic 74%, Qld 87%, SA 86%, WA 92% and NT 99% (ABS 2008).

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in death records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are

sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

General Practitioner Data (BEACH)

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample frame has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. Although the questionnaire contains an Indigenous identifier, it is unknown whether all GPs ask their patients this question. In the BEACH survey, 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners. Further detailed analyses of this issue are covered in General practice in Australia, heath priorities and policies 1998 to 2008, (Britt & Miller 2009:101):

'The findings of a BEACH substudy confirmed this suspected under-identification. In the data period reported here, 1.4% of patients encountered identified themselves as Indigenous. In contrast, in a BEACH substudy that asked 9,245 patients a complete set of questions about their cultural background (including Indigenous status) 2.2% (95% CI: 1.6–2.9) of respondents identified themselves as Indigenous (Britt et al. 2007). This rate is similar to the ABS estimates of Indigenous Australians as a proportion of the total population (ABS 2006).

However, the BEACH substudy included Indigenous Australians seen at Community Controlled Health Services funded through Medicare claims, and the estimate of 2.2% could have been an overestimate for the proportion of encounters that are with Indigenous patients in general practice as a whole. Deeble et al. (2008) conducted further investigations on this data and estimated that the BEACH encounter identification was an underestimate of about 10%, and that a more reliable estimate of the Indigenous population would be about 1.6% of all encounters (Deeble et al. 2008).

The findings of these studies are that some GPs are not routinely asking patients at the encounter about their Indigenous status, even when this is a variable specifically collected for each patient encountered, as it is in BEACH encounter data.'

National Hospital Morbidity Database

The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free-standing day hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included. The NHMD does not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

For 2009–10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2,400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10,600 separations for one private hospital.

Separations

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay or a portion of a hospital stay beginning or ending in a change of type of

care) and not patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set.

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Separations with care types of *Newborn* episodes that did not include qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded as these activities are not considered to be admitted patient care.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections.

Approximately 2% of hospital records have missing Indigenous status information.

Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. In 2007, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data.

It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Interpretation of results should take into account the relative quality of the data from the jurisdictions. The proportion of the Indigenous population covered by these six jurisdictions is 96%. Tasmania and the Australian Capital Territory data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions.

From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level. Adjustments for Indigenous under-identification have been made at the national level for the total number of hospital separations using an adjustment factor of 89%. No adjustments for under-identification have been made at the state/territory level or principal diagnosis level.

The 2007 AIHW study indicated acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in *Major cities* to 97% in *Remote* and *Very remote* areas. The quality of data supports analyses for hospitalisations by remoteness areas at the national level only.

In 2011–12, the AIHW commenced another study to re-assess the level of under-identification in public hospitals data. All states and territories have participated in the study to assess improvements in data quality. A report on the findings is expected to be published in mid-2013 which will include new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

List of symbols used in tables

n.a.	not available
—	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.09 Diabetes

Prevalence of diabetes for Aboriginal and Torres Strait Islander people expressed as a rate by age group, age-standardised rate and ratio

Data sources

Data for this measure come from the National Aboriginal and Torres Strait Islander Health Survey, the Bettering the Evaluation and Care of Health Survey, AIHW National Hospital Morbidity Database and the National Aboriginal and Torres Strait Islander Social Survey.

National Aboriginal and Torres Strait Islander Health Survey

The 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians. This included information on health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. The survey provides comparisons over time in the health of Indigenous Australians. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

It is planned to repeat the NATSIHS at 6-yearly intervals, with the next survey to be conducted during 2012–13 as part of the Australian Health Survey (will be called the Australian Aboriginal and Torres Strait Islander Health Survey (ATSIHS)).

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey, which was conducted by the AIHW Australian General Practice Statistics and Classification Centre, in the Family Medicine Research Centre (FMRC) at the University of Sydney until March 2012, when the AIHW ceased its involvement in the BEACH program . The FMRC continues to run BEACH the results are now published by the University of Sydney. The most recent annual reports can be found at http://ses.library.usyd.edu.au/handle/2123/7771.

Information is collected from every changing random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive GP–patient encounters is collected by each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated because some GPs might not ask the question on Indigenous status, or the patient may choose not to identify themselves (AIHW 2002).

Data are presented for the 5-year period 2006–07 to 2010–11, during which there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.2% of total GP encounters.

National Hospital Morbidity Database

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Hospitalisation data are presented for the 2-year period from July 2008 to June 2010. An aggregate of 2 years of data has been used, because the number of hospitalisations for some conditions is likely to be small for a single year.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individual, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question. For example, it is not possible to identify whether one patient was admitted 5 times or five patients were admitted once. People who receive treatment at hospital but are not admitted are not counted in hospital records. Hospital separation data are also affected by variations in admission practices, and the availability of and access to hospital and non-hospital services.

Care types 7.3, 9 and 10 (Newborn – unqualified days only; organ procurement; hospital border) have been excluded from analysis.

Data are presented for the six jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalisations in 2006–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. National totals include separations for people resident in these six jurisdictions only and are not necessarily representative of the jurisdictions not included. Indigenous status data are reported for Tasmania and the Australian Capital Territory (public hospitals only) with caveats until further audits of the quality of data in these jurisdictions are completed. Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Data are presented by state/territory of usual residence of the patient.

The following caveats have been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).
- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

National Aboriginal and Torres Strait Islander Social Survey

The Australian Bureau of Statistics (ABS) conducted the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) between August 2002 and April 2003. The 2008 NATSISS was conducted between August 2008 and April 2009. The survey provides

information about the Aboriginal and Torres Strait Islander populations of Australia for a wide range of areas of social concern including health, education, culture and labour force participation. The 2008 NATSISS included for the first time children aged under 15. The NATSISS will be conducted every six years, with the next survey planned for 2014.

The 2008 NATSISS collected information by personal interview from 13,300 Indigenous Australians across all states and territories of Australia, including those living in remote areas. The sample covered persons aged 15 years and over who are usual residents in selected private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice.

Analyses

Age-standardised rates and ratios have been used as a measure of morbidity in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of morbidity among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

Self-reported prevalence

Data on the self-reported prevalence of diabetes were measured in the 2004–05 National Aboriginal and Torres Strait Islander Health Survey and are presented below.

Prevalence by age, sex and remoteness

- In 2004–05, after adjusting for differences in age structure, approximately 12% of Indigenous Australians reported diabetes/ high sugar levels compared with 4% of non-Indigenous Australians.
- Prevalence of diabetes was highest among those aged 55 years and over for both Indigenous Australians (32%) and non-Indigenous Australians (12%). This age group had the greatest rate difference in prevalence between Indigenous and non-Indigenous Australians (21%).
- The greatest ratio between Indigenous and non-Indigenous Australians was among those 25–34 years. Indigenous Australians were 7.2 times as likely to report diabetes as non-Indigenous Australians in this age group (Table 1.09.1).
- Indigenous males were three times as likely and Indigenous females four times as likely, as non-Indigenous males and females to report diabetes/high sugar levels (Table 1.09.2).
- Prevalence of diabetes was higher among Indigenous Australians in remote areas than among Indigenous Australians in non-remote areas (9% compared with 5%) (Table 1.09.3).
- There was no significant change in the prevalence of diabetes among Indigenous Australians between 1995, 2001 and 2004–05 (Table 1.09.3).

Table 1.09.1: Persons reporting diabetes/high sugar levels, by Indigenous status and age group, 2004–05[(a)]

Age group	Indigenous	Non-Indigenous	Ratio	Rate difference
	Per cent	Per cent		
0–14	—[(b)]	—[(c)]	n.p.	n.p.
15–24	1.0[(c)]	0.5[(c)]	1.9	0.5
25–34	4.3*	0.6*	7.2	3.7
35–44	10.0*	2.0*	5.1	8
45–54	20.7*	4.0*	5.2	16.7
55 years and over	32.1*	11.6*	2.8	20.5
Total	**6.0***	**. .**	**. .**	**. .**
Total (age-standardised)[(d)]	**12.0***	**4.0***	**3.0**	**8.0**

* Represents statistically significant differences at the p < 0.05 level in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Estimate has a relative standard error greater than 50% and is considered too unreliable for general use.

(c) Estimate has a relative standard error of 25% to 50% and should be used with caution.

(d) Total is a directly age-standardised proportion.

Source: National Aboriginal and Torres Strait Islander Health Survey 2004–05.

Table 1.09.2: Persons reporting diabetes/high sugar levels, by Indigenous status, sex and remoteness, 2004–05

	Males			Females			Persons		
	Indig.	Non-Indig.	Ratio	Indig.	Non-Indig.	Ratio	Indig.	Non-Indig.	Ratio
	Per cent	Per cent		Per cent	Per cent		Per cent	Per cent	
Remote	15	n.a.	n.a.	18	n.a.	n.a.	16	n.a.	n.a.
Non-remote	10	4	3	11	3	4	11	4	3
Total	**11**	**4**	**3**	**13**	**3**	**4**	**12**	**4**	**3**
Total number	**232,362**	**9,788,447**	**. .**	**241,948**	**9,893,092**	**. .**	**474,310**	**19,681,539**	**. .**

Note: Data are age-standardised.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Table 1.09.3: Indigenous persons reporting diabetes/high sugar levels, by remoteness, 1995, 2001 and 2004–05

	1995	2001	2004–05
		Per cent	
Remote	n.a.	7	9
Non-remote	4	4	5
Total	**n.a.**	**5**	**6**
Total number	**265,416**	**442,995**	**474,310**

Sources: ABS and AIHW analysis of 1995 National Health survey (Indigenous supplement); 2001 National Health Survey (Indigenous supplement); ABS 2006.

Prevalence by selected population and health characteristics

- In 2004–05, Indigenous Australians aged 15 years and over were more likely to report having diabetes if they were under financial stress (unable to raise $2,000 within a week) (11% compared with 8%); if the highest year of school completed was Year 9 or below than if Year 12 was the highest year of school completed (17% compared with 14%); and if they were unemployed than if they were employed (22% compared with 13%). Among non-Indigenous Australians, those who were not in the labour force were more likely to report having diabetes than those who were unemployed or employed (Table 1.09.4).
- Indigenous Australians with reported fair/poor health status were much more likely to have diabetes than Indigenous Australians with excellent/very good health status (22% compared with 9%).
- Indigenous Australians aged 18 years and over were more likely to report having diabetes if they had experienced stressors in the last 12 months (12%) than if no stressors were experienced (9%); if they reported their exercise level as low or sedentary rather than high (14% compared with 11%); and if they were overweight and obese than if they were normal or underweight (18% compared with 9%).
- Indigenous Australians who drank at risky/high-risk levels in the last 12 months were less likely to report diabetes than those who did not drink at risky/high risk levels (8% compared with 17%).
- Indigenous Australians who reported that they did not eat vegetables daily (24%) were more likely to report having diabetes than those who did eat vegetables daily (15%). The reverse was true for non-Indigenous Australians.
- Similar proportions of Indigenous Australians who reported that they do and do not eat fruit daily had diabetes (16% and 13%).
- Indigenous Australians aged 15 years and over were much more likely to report having diabetes if they also reported hypertension, circulatory problems or high cholesterol (27%; 22%; and 30% respectively) than if they did not report these conditions (12%, 11% and 14% respectively). This was also the case for non-Indigenous Australians.

Table 1.09.4: Proportion[(a)] of Indigenous and non-Indigenous Australians aged 15 years and over with diabetes/high sugar levels, by selected population characteristics, 2004–05

	Indigenous		Non-Indigenous		Ratio
	Has diabetes	Does not have diabetes	Has diabetes	Does not have diabetes	Has diabetes
Household income					
1st quintile	17.9	82.1	6.0	94.0	3.0
5th quintile	16.3	83.7	3.4	96.6	4.8
Financial stress—able to raise $2,000 within a week for something important					
Yes	7.7	92.3	n.a.	n.a.	n.a.
No	11.2	88.8	n.a.	n.a.	n.a.
Highest year of school completed					
Year 12	14.4	85.6	3.8	96.2	3.8
Year 9 or below	17.3	82.7	6.0	94.0	2.9
Whether has non-school qualification					
Has a non-school qualification	13.3	86.7	4.3	95.7	3.1
Does not have a non-school qualification	16.6	83.4	4.7	95.3	3.5
Employment					
Employed	12.5	87.5	3.2	96.8	3.9
Unemployed	22.2	77.8	3.7	96.3	6.0
Not in the labour force	17.3	82.7	5.5	94.5	3.1
Housing					
Owner	6.6	93.4	n.a.	n.a.	n.a.
Renter	10.9	89.1	n.a.	n.a.	n.a.
Stressors in last 12 months[(b)]					
Serious illness or disability	12.2	87.8	n.a.	n.a.	n.a.
Total experienced stressors	11.7	88.3	n.a.	n.a.	n.a.
No stressors	8.8	91.2	n.a.	n.a.	n.a.
Self-assessed health status					
Excellent/very good	9.0	91.0	1.9	98.1	4.7
Good	14.2	85.8	5.0	95.0	2.8
Fair/poor	21.8	78.2	9.6	90.4	2.3
Smoker status[(b)]					
Current daily smoker	12.7	87.3	3.5	96.5	3.6
Not current daily smoker	18.5	81.5	4.8	95.2	3.9
Risky/high-risk alcohol consumption in last 12 months[(b)]					
Yes	8.1	91.9	2.9	97.1	2.8
No	17.4	82.6	5.0	95.0	3.5

(continued)

Table 1.09.4 (continued): Proportion[(a)] of Indigenous and non-Indigenous Australians aged 15 years and over with diabetes/high sugar levels, by selected population characteristics, 2004–05

	Indigenous		Non-Indigenous		Ratio
	Has diabetes	Does not have diabetes	Has diabetes	Does not have diabetes	Has diabetes
Whether used substances in last 12 months[(b)(c)]					
Yes	3.7	96.3	n.a.	n.a.	n.a.
No	10.7	89.3	n.a.	n.a.	n.a.
Physical activity[(c)]					
Low/sedentary	13.6	86.4	4.8	95.2	2.8
Moderate	12.1	87.9	4.0	96.0	3.0
High	11.2	88.8	2.6	97.4	4.3
Overweight/obesity					
Yes	17.7	82.3	5.9	94.1	3.0
No	8.7	91.3	2.9	97.1	3.0
Eats vegetables daily					
Yes	14.9	85.1	4.5	95.5	3.3
No	23.7	76.3	3.4	96.6	7.0
Eats fruit daily					
Yes	15.5	84.5	4.5	95.5	3.4
No	12.6	87.4	3.5	96.5	3.6
Hypertension					
Yes	26.5	73.5	9.6	90.4	2.8
No	12.3	87.7	3.3	96.7	3.7
Circulatory problems					
Yes	21.9	78.1	7.2	92.8	3.0
No	11.3	88.7	2.5	97.5	4.5
High cholesterol					
Yes	29.6	70.4	10.3	89.7	2.9
No	13.9	86.1	3.6	96.4	3.9
Total (age-standardised)	**15.4**	**84.6**	**4.5**	**95.5**	**3.4**
Total (crude)	**9.8**	**90.2**	**. .**	**. .**	**. .**
Total number persons aged 15 years and over	**28,703**	**264,938**	**720,634**	**14,811,743**	**. .**

(a) Proportions are age-standardised except for data for financial stress, housing tenure, substance use in the last 12 months and stressors experienced in the last 12 months for which crude proportions are presented, as data for non-Indigenous Australians are not available.

(b) Persons aged 18 years and over.

(c) Non-remote areas only.

Source: AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

General practitioner encounters

Information about general practitioner (GP) encounters is available from the BEACH survey. Data for the 5-year BEACH reporting period April 2006–March 2007 to April 2010–March 2011 are presented in Table 1.09.5. Diabetes is the most common individual problem managed at GP encounters with Indigenous patients.

- In the period April 2006–March 2007 to April 2010–March 2011 there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, at which 9,196 problems were managed. Of these, 4.9% (451) were for diabetes problems.
- Diabetes was managed at a rate of 75.5 per 1,000 GP encounters with Indigenous patients.
- After adjusting for differences in age distribution, diabetes was managed at encounters with Indigenous patients at around three times the rate of encounters with other patients and the difference is statistically significant. This was largely due to the significant higher management rate of non-insulin dependent diabetes (Type 2).
- Non-insulin-dependent diabetes (Type 2) was the most common type of diabetes managed at encounters with Indigenous patients—at around three times the rate of encounters with other patients.
- Insulin-dependent diabetes (Type 1) was managed at encounters with Indigenous patients at a higher rate of encounters than with other patients, however, the difference is not statistically significant.
- Gestational diabetes was managed at GP encounters with Indigenous females at 1.5 times the management rate of encounters with other females, however, the difference is not statistically significant.

Table 1.09.5: Diabetes problems[a] managed by general practitioners, by Indigenous status of patient, BEACH years April 2006–March 2007 to April 2010–March 2011[b][c]

	Number		Per cent of total problems		Crude rate (no. per 1,000 encounters)			Age-standardised rate (no. per 1,000 encounters)[d]							
Problem managed	**Indig.**	**Other[e]**	**Indig.**	**Other[e]**	**Indig.**	**95% LCL[f]**	**95% UCL[g]**	**Indig.**	**95% LCL[f]**	**95% UCL[g]**	**Other[e]**	**95% LCL[f]**	**95% UCL[g]**	**Rate ratio[h]**	**Rate difference[i]**
Diabetes: non-insulin-dependent (T90)	431	16,332	4.7	2.2	72.2	62.3	82.1	92.5	80.3	104.8	34.0	33.1	34.9	2.7*	58.5*
Diabetes: insulin-dependent (T89)	17	1,223	0.2	0.2	2.8	1.2	4.5	4.0	1.1	6.9	2.6	2.4	2.7	1.6	1.4
Total diabetes: non-gestational	*448*	*17,555*	*4.9*	*2.4*	*75.0*	*64.9*	*85.2*	*96.5*	*83.6*	*109.4*	*36.6*	*35.7*	*37.5*	*2.6**	*59.9**
Gestational diabetes (W85)[i]	3	112	0.0	0.0	0.5	0.0	1.1	0.3	0.0	0.7	0.2	0.2	0.3	1.5	0.1
All diabetes	*451*	*17,667*	*4.9*	*2.4*	*75.5*	*65.3*	*85.8*	*96.9*	*83.9*	*109.8*	*36.8*	*35.9*	*37.7*	*2.6**	*60.0**
Total problems	**9,196**	**745,624**	**100.0**	**100.0**	**1,540.1**	**1,499.0**	**1,581.2**	**1,639.1**	**1,587.0**	**1,691.2**	**1,558.6**	**1,549.7**	**1,567.5**	**1.1***	**80.5***

*Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Classified according to ICPC-2 codes (Classification Committee of the World Organization of Family Doctors (WICC) 2005). ICPC-2 codes T90, T89, W85.

(b) Data from five combined BEACH years April 2006–March 2007 to April 2010–March 2011 inclusive.

(c) Data for Indigenous and other Australians have not been weighted.

(d) Directly age-standardised rate (no. per 1,000 encounters) using total BEACH encounters in the period as the standard. Figures do not add to 100 as more than one problem can be managed at each encounter.

(e) 'Other' includes non-Indigenous patients and patients for whom Indigenous status was not stated.

(f) LCL = lower confidence interval.

(g) UCL = upper confidence interval.

(h) Rate ratio Indigenous: Other.

(i) Rate difference Indigenous rate minus Other (non-Indigenous) rate.

Source: Family Medicine Research Centre, University of Sydney analysis of BEACH data.

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Hospitalisations

- In the 2-year period July 2008 to June 2010, there were 161,525 hospitalisations for diabetes in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of which 7,955 hospitalisations (4.9%) were of Aboriginal and Torres Strait Islander people (Table 1.09.7).
- Diabetes was the principal diagnosis in 1.4% of all hospital separations for Aboriginal and Torres Strait Islander Australians.

Hospitalisations by age and sex

- For the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, Indigenous males and females had much higher hospitalisation rates for diabetes than non-Indigenous males and females in all age groups from 15–24 years onwards (Table 1.09.6).
- The greatest difference in hospitalisation rates for diabetes occurred in the 55–64 year age group for both males (28 per 1,000) and females (32 per 1,000).
- The greatest rate ratio for males occurred in the 35–44 year age group, where Indigenous males were hospitalised at around 9 times the rate of non-Indigenous males. The greatest rate ratio for females occurred in the 45–54 year age group, where Indigenous females were hospitalised at around 12 times the rate of non-Indigenous females (Table 1.09.6).
- For Indigenous males and females and non-Indigenous males and females, hospitalisation rates for diabetes were highest among those aged 65 years and over (Table 1.09.6).
- Approximately 47% of Indigenous Australians hospitalised for diabetes were males (3,706) and 53% were females (4,249) (Table 1.09.7).

Table 1.09.6: Age-specific hospitalisation rates for a principal diagnosis of diabetes mellitus, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)]

									All ages	
	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65+	Crude	Age std.[(d)]
Males										
Indigenous	0.1	1.1	1.6	3.0	11.0	21.2	34.4	41.9	7.1	14.0
Non-Indigenous	0.3	0.9	0.9	0.8	1.2	2.5	6.6	19.8	4.1	4.1
Rate ratio[(e)]	0.4	1.2	1.7	4.0	9.1	8.6	5.2	2.1	1.7	3.4
Rate difference[(f)]	–0.2	0.2	0.6	2.3	9.8	18.8	27.8	22.1	3.0	9.9
Females										
Indigenous	0.2	1.0	1.9	4.8	9.8	19.8	35.5	44.0	8.0	14.2
Non-Indigenous	0.3	1.0	1.2	0.9	1.1	1.7	3.9	14.4	3.4	3.0
Rate ratio[(e)]	0.5	1.0	1.6	5.5	9.2	11.8	9.1	3.1	2.4	4.8
Rate difference[(f)]	–0.1	0.0	0.8	3.9	8.7	18.1	31.7	29.6	4.7	11.2
Persons										
Indigenous	0.1	1.1	1.8	3.9	10.4	20.5	35.0	43.1	7.6	14.1
Non-Indigenous	0.3	1.0	1.1	0.8	1.1	2.1	5.3	16.8	3.7	3.5
Rate ratio[(e)]	0.4	1.1	1.7	4.8	9.1	9.9	6.7	2.6	2.0	4.0
Rate difference[(f)]	–0.2	0.1	0.7	3.1	9.3	18.4	29.7	26.3	3.8	10.6

(a) Financial year reporting.

(b) Data are reported by state/territory of usual residence of the patients hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(c) Data excludes private hospitals in the Northern Territory.

(d) Directly age-standardised using the Australian 2001 standard population.

(e) Rate ratio Indigenous: non-Indigenous Australians.

(f) Rate difference Indigenous minus non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.
3. Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010): ICD10-AM codes E10-E14.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by state/territory

Table 1.09.7 presents hospitalisations for a principal diagnosis of diabetes for the 2-year period July 2008 to June 2010 in New South Wales, Victoria, Queensland, Western Australia, South Australia, Northern Territory, Tasmania and the Australian Capital Territory.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males and females were hospitalised for diabetes at 3.4 and 4.8 times the rate of non-Indigenous Australian males and females respectively.
- In Western Australia, Indigenous females were hospitalised at over 6 times the rate of non-Indigenous females, and in the Northern Territory, Indigenous females were hospitalised at almost 7 times the rate of non-Indigenous females.

Table 1.09.7: Hospitalisations for principal diagnosis of diabetes mellitus, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT, July 2008 to June 2010 [(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
NSW						
Males	711	8.7	25,937	3.6	2.4*	5.0*
Females	818	8.9	21,760	2.7	3.3*	6.2*
Persons	1,529	8.7	47,697	3.1	2.8*	5.6*
Vic						
Males	148	7.7	24,339	4.5	1.7*	3.2*
Females	214	8.8	20,228	3.3	2.7*	5.6*
Persons	362	8.1	44,567	3.8	2.1*	4.3*
Qld						
Males	1,176	16.4	17,107	4.1	4.0*	12.3*
Females	1,322	16.6	13,817	3.1	5.4*	13.5*
Persons	2,498	16.5	30,924	3.5	4.7*	13.0*
WA						
Males	806	20.6	9,564	4.6	4.4*	16.0*
Females	909	21.5	7,876	3.5	6.2*	18.0*
Persons	1,715	21.2	17,440	4.0	5.3*	17.2*
SA						
Males	308	19.5	6,476	3.7	5.2*	15.8*
Females	285	16.1	5,526	2.8	5.8*	13.3*
Persons	593	17.6	12,002	3.2	5.4*	14.3*
NT						
Males	557	16.2	699	4.9	3.3*	11.3*
Females	701	17.2	241	2.4	7.2*	14.9*
Persons	1,258	16.9	940	3.8	4.4*	13.0*
NSW, Vic, Qld, WA, SA and NT[(h)]						
Males	**3,706**	**14.0**	**84,122**	**4.1**	**3.4***	**9.9***
Females	**4,249**	**14.2**	**69,448**	**3.0**	**4.8***	**11.2***
Persons	**7,955**	**14.1**	**153,570**	**3.5**	**4.0***	**10.6***
Tas						
Males	19	2.4	1,265	2.4	1.0	0.0
Females	51	3.1	1,163	2.1	1.5*	1.0
Persons	71	2.8	2,428	2.3	1.2	0.5

(continued)

Table 1.09.7 (continued): Hospitalisations for principal diagnosis of diabetes mellitus, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT, July 2008 to June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
ACT						
Males	11	3.7	815	2.7	1.4	1.0
Females	23	13.1	661	2.0	6.5*	11.1*
Persons	34	8.4	1,476	2.3	3.6*	6.1*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patient hospitalised.

(d) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+.

(e) Directly age-standardised using the Australian 2001 standard population.

(f) Rate ratio Indigenous: non-Indigenous.

(g) Rate difference Indigenous minus non-Indigenous.

(h) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.
3. Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010): ICD10-AM codes E10-E14.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by remoteness

Hospitalisation rates for diabetes mellitus in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory are presented by Australian Standard Geographical Classification (ASGC) in Table 1.09.8, covering the period July 2008 to June 2010.

- Indigenous Australians in all geographic areas were more likely to be hospitalised for diabetes than non-Indigenous Australians. The ratio of hospitalisations of Indigenous people compared with non-Indigenous Australians was higher and the difference was statistically significant for all ASGC areas.
- Rates of hospitalisations per 1,000 head of population were highest for Indigenous people living in *Remote* areas, at 21.5 per 1,000. The rate was highest for non-Indigenous Australians who lived in *outer regional* areas, at 3.8 per 1,000. The lowest rates were observed in *Major cities* areas for Indigenous people (8.8 per 1,000) and in *Very remote* areas for non-Indigenous Australians (3.3 per 1,000).
- Indigenous people were hospitalised for diabetes at a rate of 6 times that of non-Indigenous Australians in *Remote* areas of Australia. In *Major cities* areas, where the lowest ratio was observed, Indigenous Australians were hospitalised at a rate of 2.6 times that of non-Indigenous Australians. Nationally, the rate was 4.1 times.

Table1.09.8: Hospitalisations for diabetes mellitus by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous					
	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Ratio[(i)]	Difference[(j)]
Major cities	1,578	8.8	8.3	9.3	102,970	3.4	3.4	3.4	2.6*	5.4*
Inner regional	1,249	11.4	10.7	12.2	32,828	3.6	3.5	3.6	3.2*	7.9*
Outer regional[(k)]	2,035	17.1	16.2	17.9	15,449	3.8	3.7	3.9	4.5*	13.3*
Remote[(l)]	1,268	21.5	20.2	22.9	1,775	3.5	3.3	3.7	6.2*	18.0*
Very remote	1,814	19.3	18.3	20.2	511	3.3	3.0	3.6	5.8*	15.9*
Total[(m)]	**7,955**	**14.2**	**13.8**	**14.5**	**153,570**	**3.5**	**3.5**	**3.5**	**4.1***	**10.7***

* Indicates a significant difference at the p < 0.05 level.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010): ICD10-AM codes E10-E14.

(c) Financial year reporting.

(d) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(e) Directly age-standardised using the Australian 2001 standard population, by 5 year age groups to 65+

(f) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous.

(j) Rate difference Indigenous- non-Indigenous.

(k) Includes remote Victoria.

(l) Excludes remote Victoria.

(m) Total includes hospitalisations where ASGC is missing.

Notes

1. Rates are calculated using the remoteness distribution by Indigenous status, age and sex based on the 2006 ERP and applied to the 2008–10 population projections (Series B) based on the 2006 Census.
2. 2 Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by principal diagnosis

Table 1.09.9 presents hospitalisations for a principal diagnosis of diabetes by type of diabetic condition for the 2-year period July 2008 to June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- For the period 2008–09 to 2009–10 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of all hospitalisations with a principal diagnosis of diabetes, Type 2 diabetes was the most common, responsible for 84% of hospitalisations of Indigenous Australians for diabetes.
- In the six jurisdictions combined, Indigenous males and females were hospitalised for Type 2 non-insulin-dependent diabetes at much higher rates than non-Indigenous males and females (3.9 and 5.7 times respectively). Indigenous Australians were hospitalised for Type 1 diabetes at around twice the rate of non-Indigenous Australians.
- Indigenous males and females were hospitalised for other specified diabetes at 4.8 and 4.7 times the rate of non-Indigenous males and females respectively.
- Indigenous females were hospitalised for gestational diabetes at 2.8 times the rate of non-Indigenous females.

Table 1.09.9: Hospitalisations of Indigenous persons for principal diagnosis of diabetes mellitus, by type of diabetes and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

Principal diagnosis	Number	Per cent[(e)]	No per 1,000[(f)]	LCL[(g)]	UCL[(h)]	Ratio[(i)]	Difference[(j)]
			Males				
Type 2—non-insulin-dependent diabetes (E11)	3,119	84.2	12.8	12.2	13.3	3.9*	9.5*
Type 1—insulin-dependent diabetes (E10)	539	14.5	1.1	1.0	1.2	1.5*	0.3*
Other specified diabetes (E13)	26	0.7	0.1	0.0	0.1	4.8*	0.1*
Unspecified diabetes (E14)	22	0.6	0.1	0.0	0.1	2.3*	0.04*
Total[(k)]	**3,706**	**100.0**	**14.0**	**13.5**	**14.6**	**3.4***	**9.9***
Gestational diabetes (O24.4)[(l)]	—	—	—	—	—	—	—
Total incl. O24.4	**3,706**	**100.0**	**14.0**	**13.5**	**14.6**	**3.4***	**9.9***
			Females				
Type 2—non-insulin-dependent diabetes (E11)	3,552	83.6	12.8	12.3	13.3	5.7*	10.6*
Type 1—insulin-dependent diabetes (E10)	651	15.3	1.3	1.2	1.4	1.8*	0.6*
Other specified diabetes (E13)	26	0.6	0.1	0.0	0.1	4.7*	0.05*
Unspecified diabetes (E14)	20	0.5	0.1	0.0	0.1	3.7*	0.05*
Total[(k)]	**4,249**	**100.0**	**14.2**	**13.7**	**14.7**	**4.8***	**11.2***
Gestational diabetes (O24.4)[(l)]	1,171	21.6	2.2	2.1	2.4	2.8*	1.4*
Total incl. O24.4	**5,420**	**100.0**	**16.4**	**15.9**	**17.0**	**4.4***	**12.7***
			Persons				
Type 2—non-insulin-dependent diabetes (E11)	6,671	83.9	12.8	12.4	13.1	4.7*	10.1*
Type 1—insulin-dependent diabetes (E10)	1,190	15.0	1.2	1.1	1.3	1.6*	0.5*
Other specified diabetes (E13)	52	0.7	0.1	0.0	0.1	4.6*	0.1*
Unspecified diabetes (E14)	42	0.5	0.1	0.0	0.1	2.8*	0.04*
Total[(k)]	**7,955**	**100.0**	**14.1**	**13.8**	**14.5**	**4.0***	**10.6***
Gestational diabetes (O24.4)[(l)]	1,171	12.8	1.1	1.1	1.2	2.9*	0.7*
Total incl. O24.4	**9,126**	**100.0**	**15.2**	**14.9**	**15.6**	**3.9***	**11.4***

(continued)

Table 1.09.9 (continued): Hospitalisations of Indigenous persons for principal diagnosis of diabetes mellitus, by type of diabetes and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [(a)(b)(c)(d)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous Australian comparisons at the p < 0.05 level.

(a) Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patients hospitalised and are for New South Wales, Victoria, Queensland, Western Australia, South Australia, and the Northern Territory only. These jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Proportion of male, female and total hospitalisations of Indigenous persons in the period 2008–09 to 2009–10.

(f) Directly age-standardised using the Australian 2001 standard population.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous Australians.

(j) Rate difference Indigenous minus non-Indigenous Australians.

(k) Total excludes gestational diabetes (O24.4).

(l) Indigenous females with gestational diabetes (O24.4). Proportion calculated out of those with Type 1, Type 2, other specified, unspecified or gestational.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by additional diagnosis

Table 1.09.10 presents hospitalisations with a principal diagnosis of diabetes by additional diagnosis of hospitalisation for Aboriginal and Torres Strait Islander people in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory.

- For the 2-year period July 2008 to June 2010, aside from factors influencing health status and contact with health services for which 66.8% of Indigenous hospitalisations for diabetes had an additional diagnosis, hospitalisations of Indigenous Australians with a principal diagnosis of diabetes were commonly reported with an additional diagnosis of diseases of the circulatory system (57.8%), diseases of the genitourinary system (45.1%) and other endocrine, metabolic and nutritional disorders (33.8%).
- Aside from the diseases mentioned above, insulin-dependent diabetes was commonly reported with an additional diagnosis of certain infectious and parasitic disease (13.6 %), and non-insulin-dependent diabetes was commonly reported with an additional diagnosis of diseases of the eye and adnexa (28.3%).

Table 1.09.10: Hospitalisations of Indigenous persons for principal diagnosis of diabetes mellitus, by additional diagnosis of hospitalisation, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

	Reported with a principal diagnosis of diabetes				
Additional diagnosis of hospitalisation	**Insulin-dependent diabetes (E10)**	**Non-insulin-dependent diabetes (E11)**	**Other specified diabetes (E13)**	**Unspecified diabetes (E14)**	**Total**
			Per cent		
Factors influencing health status and contact with health services (includes dialysis) (Z00–Z99)	55.3	68.9	88.5	28.6	66.8
Diseases of the circulatory system (I00–I99)	17.6	65.4	40.4	11.9	57.8
Diseases of the genitourinary system (N00–N99)	21.2	49.6	36.5	11.9	45.1
Endocrine, nutritional & metabolic diseases (E00–E90) excluding (E10–E14)	26.2	35.0	61.5	21.4	33.8
Diseases of the eye & adnexa (H00–H59)	12.9	28.3	15.4	7.1	25.8
Certain infectious and parasitic diseases (A00–B99)	13.6	22.3	23.1	9.5	20.9
Diseases of the skin & subcutaneous tissue (L00–L99)	8.1	19.9	11.5	11.9	18.1
Diseases of the nervous system (G00–G99)	9.2	16.9	13.5	2.4	15.6
Symptoms, signs & abnormal clinical & laboratory findings (R00–R99)	11.5	14.1	17.3	9.5	13.7
Mental & behavioural disorders (F00–F99)	11.4	9.0	46.2	7.1	9.6
Diseases of the digestive system (K00–K93)	12.0	8.3	55.8	7.1	9.1
Injury & poisoning (S00–T98)	5.0	8.4	1.9	2.4	7.8
Diseases of the respiratory system (J00–J99)	6.8	6.9	13.5	2.4	6.9
Neoplasms (C00–D48)	0.2	0.9	1.9	0.0	0.8
Other[(e)]	9.2	21.7	19.2	9.5	19.8
Total number	**1,190**	**6,671**	**52**	**42**	**7,955**

(continued)

Table 1.09.10 (continued): Hospitalisations of Indigenous persons for principal diagnosis of diabetes mellitus, by additional diagnosis of hospitalisation, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [(a)(b)(c)(d)]

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Indigenous data are reported by state/territory of usual residence of the patient hospitalised and are for New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland only. These six jurisdictions are considered to have adequate Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Includes: diseases of the musculoskeletal system and connective tissue; diseases of the ear and mastoid process; congenital malformations, deformations and chromosomal abnormalities; pregnancy, childbirth and the puerperium; certain conditions originating in the perinatal period; diseases of the blood and blood-forming organs; and certain disorders involving the immune system.

Notes

1. Sum of components may exceed 100% as more than one additional diagnosis can be reported for each hospitalisation.
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data from 2001–02 to 2009–10 are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations over this period—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population. This period (2001–02 onwards) has been used for analysis because coding changes were made to diabetes complications in July 1999 and July 2000. Coding for diabetes is consistent only from 2001–02 onwards and data for previous years should not be included in the analysis of diabetes trends. The HPF Report (AHMAC 2012) reported trend data from July 1999 to July 2010 (Figure 37), however, the years 1999 to 2000 should be excluded from any interpretation of this figure.

Additional trend analysis has also been presented for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined from 2004–05 to 2009–10 for Indigenous and non-Indigenous Australians. New South Wales and Victoria have been assessed as having adequate identification of Indigenous hospitalisations from 2004–05. These six jurisdictions represent approximately 96% of the Indigenous population of Australia.

Note that changes in the level of accuracy of Indigenous identification in hospital records will result in changes in the level of reported hospital separations for Indigenous Australians, as will changes in access, hospital policies and practices over time. Caution should be used in interpreting changes over time, as it is not possible to ascertain whether a change in reported hospitalisation is due to changes in the accuracy of Indigenous identification or real changes in the rates at which Indigenous people are hospitalised. An increase in hospitalisation rates may also reflect increased use of admitted patient hospital services rather than a worsening of health.

Diabetes—2001–02 to 2009–10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for diabetes over the period 2001–02 to 2009–10 are presented in Table 1.09.11 and Figure 1.09.1.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates for diabetes among Indigenous males and females during the period 2001–02 to 2009–10. The fitted trend implies an average yearly increase in the rate of around 0.4 per 1,000 population, which is equivalent to an increase of 21.2% in the hospitalisation rate over this period.
- There were also significant increases in hospitalisation rates among non-Indigenous Australians during the same period, with an average yearly increase in the rate of around 0.2 per 1,000 population. This is equivalent to a 45% increase in the hospitalisation rate between 2001–02 and 2009–10.
- There was a significant decrease in the hospitalisation rate ratio between Indigenous and non-Indigenous Australians for diabetes over the period 2001–02 and 2009–10 (a 17% decline over the period), but there was a significant increase in the hospitalisation rate difference (a 16% increase over the period).

Table 1.09.11: Age-standardised hospitalisation rates, rate ratios and rate differences from diabetes mellitus, Qld, WA, SA and NT, 2001–02 to 2009–10[(a)(b)]

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Indigenous separations											
Males	924	1,015	1,130	1,078	1,188	1,236	1,336	1,482	1,365	62.3*	53.9*
Females	1,084	1,118	1,245	1,278	1,440	1,528	1,537	1,615	1,602	73.3*	54.1*
Persons	2,009	2,133	2,375	2,356	2,628	2,764	2,873	3,097	2,967	135.5*	53.9*
Non-Indigenous separations											
Males	10,154	10,728	11,605	12,637	13,732	14,881	16,555	16,871	16,975	964.3*	76.0*
Females	8,418	8,934	9,598	10,676	11,367	12,088	13,863	13,885	13,575	757.1*	71.9*
Persons	18,572	19,662	21,203	23,313	25,099	26,969	30,418	30,756	30,550	1,721.3*	74.1*
Indigenous rate per 1,000											
Males	14.8	14.4	16.9	14.9	16.6	17.1	17.1	18.4	17.1	0.4*	21.4*
Females	15.8	15.4	17.0	16.6	18.2	19.1	18.4	18.4	17.1	0.3*	16.7*
Persons	15.3	15.0	17.1	15.9	17.5	18.2	17.9	18.5	17.0	0.4*	18.5*
Non-Indigenous rate per 1,000											
Males	3.1	3.2	3.4	3.5	3.8	3.9	4.3	4.2	4.1	0.2*	40.7*
Females	2.3	2.4	2.5	2.7	2.8	2.9	3.2	3.2	3.0	0.1*	41.5*
Persons	2.7	2.7	2.9	3.1	3.2	3.4	3.7	3.7	3.5	0.1*	41.2*
Rate ratio[(e)]											
Males	4.8	4.6	5.1	4.2	4.4	4.3	4.0	4.4	4.1	–0.1*	–14.0*
Females	6.9	6.5	6.9	6.2	6.5	6.6	5.7	5.8	5.7	–0.2*	–17.3*
Persons	5.8	5.5	5.9	5.2	5.4	5.4	4.8	5.1	4.8	–0.1*	–16.2*

(continued)

Table 1.09.11 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences from diabetes mellitus, Qld, WA, SA and NT, 2001–02 to 2009–10[(a)(b)]

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(c)]	Per cent change[(d)]
Rate difference[(f)]											
Males	11.7	11.2	13.6	11.4	12.9	13.2	12.8	14.2	12.9	0.2*	16.3*
Females	13.5	13.0	14.5	13.9	15.4	16.2	15.2	15.3	14.1	0.2	12.6
Persons	12.7	12.3	14.2	12.8	14.3	14.9	14.2	14.9	13.5	0.2*	13.8*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2001–02 to 2009–10.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Data are reported by state/territory of usual residence.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 2001–02 and 2009–10 based on the average annual change over the period.

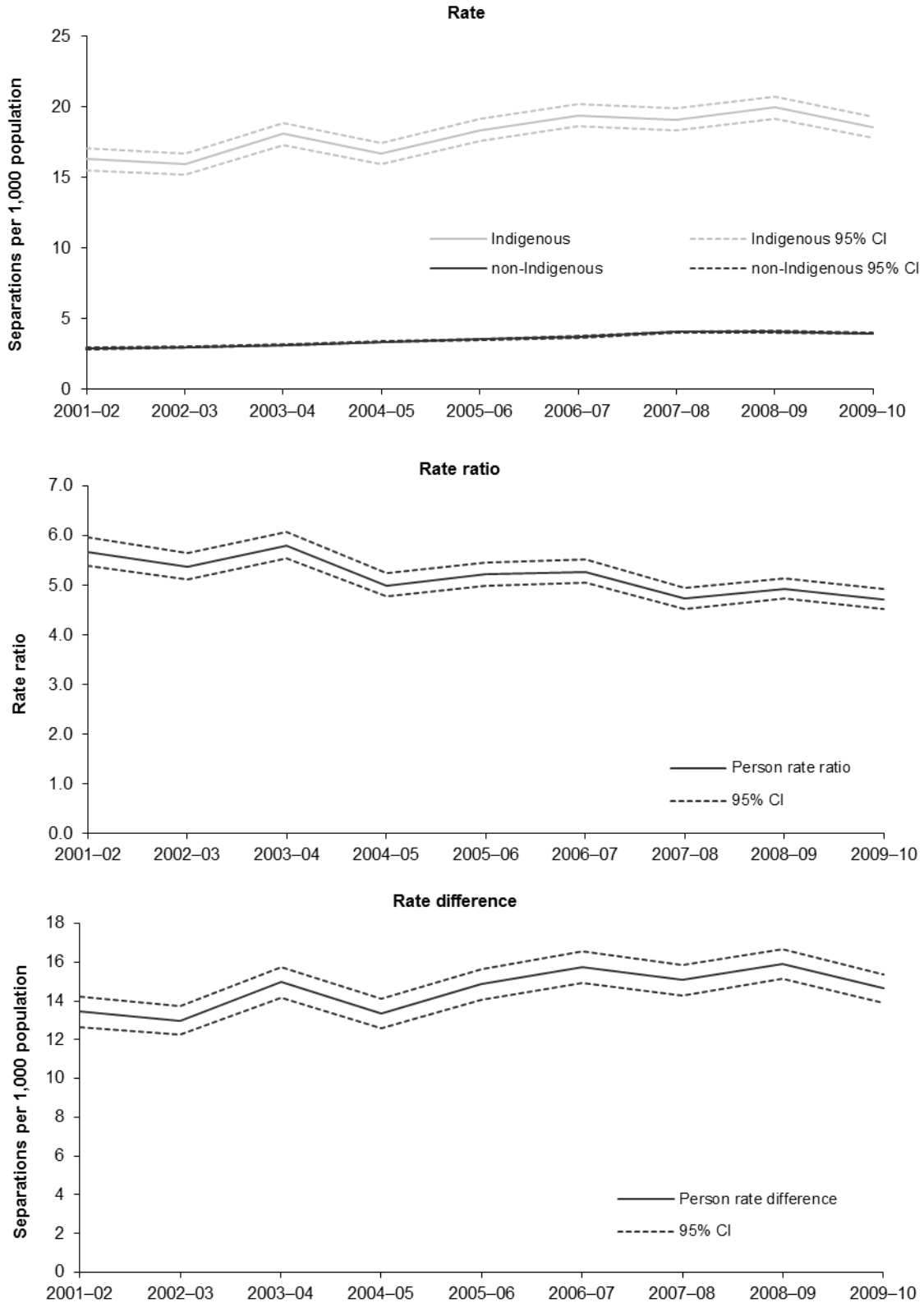
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.
4. Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010): ICD10-AM codes E10-E14.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.09.1: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians from diabetes mellitus, Qld, WA, SA and NT, 2001–02 to 2009–10

Diabetes — 2004–05 to 2009–10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for diabetes over the period 2004–05 to 2007–08 are presented in Table 1.09.12 and Figure 1.09.2.

- In New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates for diabetes among Indigenous males and females during the period 2004–05 to 2009–10. The fitted trend implies an average yearly increase in the rate of around 0.3 per 1,000 population, which is equivalent to an increase of 11% in the hospitalisation rate over this period.
- There were also significant increases in hospitalisation rates among non-Indigenous males and females during the same period, with an average yearly increase in the rate of around 0.1 per 1,000 population. This is equivalent to a 14% increase in the hospitalisation rate between 2004–05 and 2009–10.
- There was no significant change in the hospitalisation rate ratio or rate difference between Indigenous and non-Indigenous persons for diabetes over the period 2004–05 to 2009–10. There was however a significant increase in the hospitalisation rate difference for males (a 20% increase over the period).

Table 1.09.12: Age-standardised hospitalisation rates, rate ratios and rate differences from diabetes mellitus, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[a]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[b]	Per cent change[c]
Indigenous separations								
Males	1,384	1,585	1,677	1,754	1,903	1,803	89.3*	32.3*
Females	1,614	1,815	2,015	2,012	2,128	2,121	99.2*	30.7*
Persons	2,999	3,400	3,692	3,766	4,031	3,924	188.3*	31.4*
Non-Indigenous Australian separations								
Males	32,619	35,126	37,721	40,291	41,445	42,677	2,051.9*	31.5*
Females	28,172	30,292	31,701	33,740	34,597	34,851	1,381.4*	24.5*
Persons	60,791	65,418	69,422	74,031	76,042	77,528	3,433.3*	28.2*
Indigenous rate (separations per 1,000)								
Males	11.4	13.1	13.7	13.6	14.4	13.7	0.4*	18.6*
Females	12.9	14.1	15.2	14.9	14.8	13.7	0.2	6.3
Persons	12.3	13.7	14.5	14.4	14.6	13.6	0.3	10.8
Non-Indigenous Australian rate (separations per 1,000)								
Males	3.5	3.7	3.9	4.1	4.1	4.1	0.1*	15.3*
Females	2.7	2.8	2.9	3.0	3.0	3.0	0.1*	12.2*
Persons	3.1	3.2	3.4	3.5	3.5	3.5	0.1*	14.0*
Rate ratio[d]								
Males	3.2	3.5	3.5	3.4	3.5	3.4	0.0	2.5
Females	4.9	5.0	5.3	5.0	4.9	4.6	–0.05	–5.3
Persons	4.0	4.2	4.3	4.1	4.2	3.9	0.0	–3.0
Rate difference[e]								
Males	7.9	9.4	9.8	9.6	10.3	9.6	0.3*	20.1*
Females	10.3	11.3	12.3	11.9	11.8	10.7	0.1	4.8
Persons	9.2	10.5	11.2	10.9	11.1	10.2	0.2	9.8

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2004–05 to 2009–10.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Data are reported by state/territory of usual residence.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 2004–05 and 2009–10 based on the average annual change over the period.

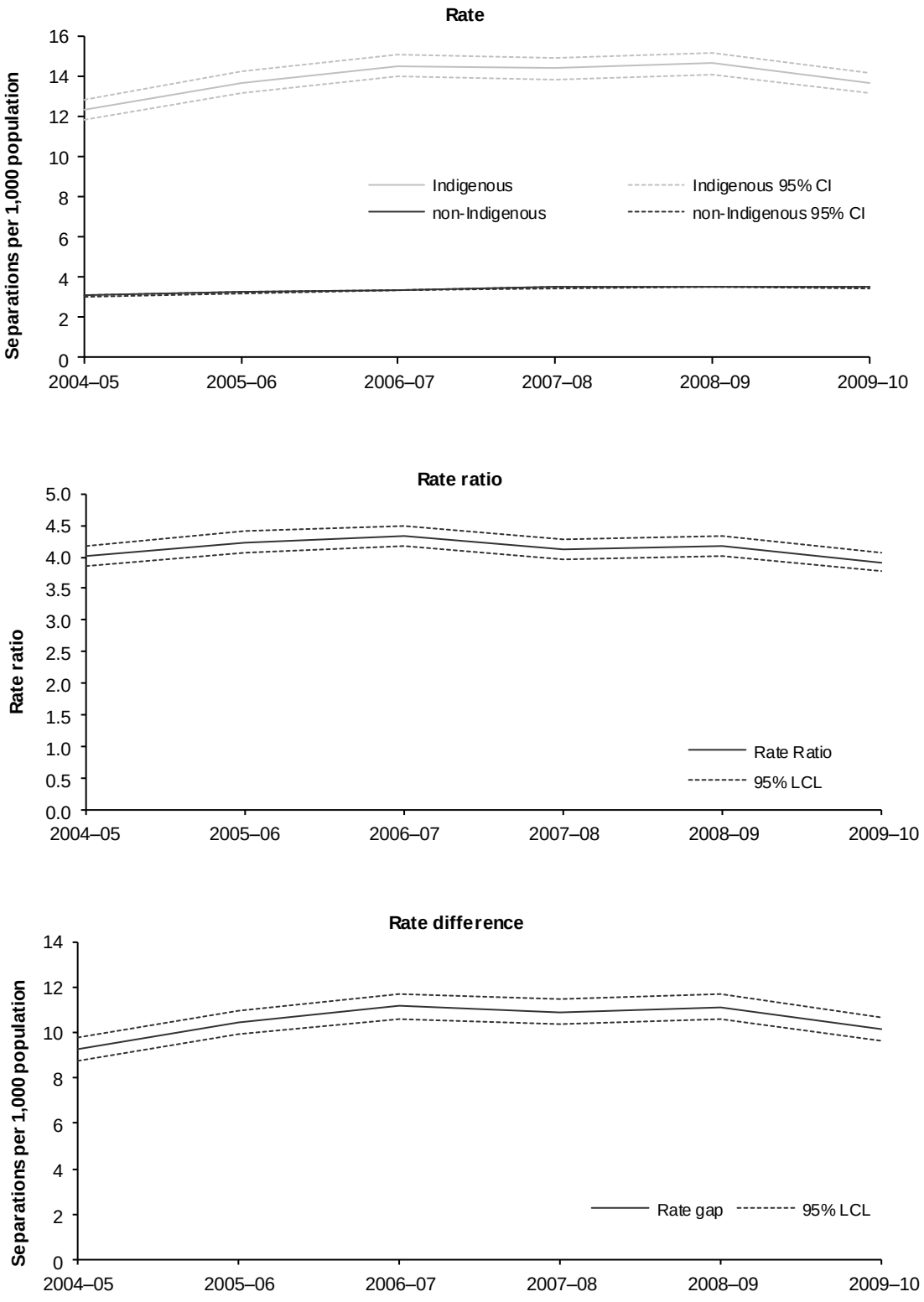
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.
4. Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010): ICD10-AM codes E10-E14.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.09.2: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians from diabetes mellitus, Qld, WA, SA and NT, 2004–2005 to 2009–2010

Mothers of Indigenous children

- In 2008, 8.5% Indigenous children aged 0–3 years had mothers who had diabetes or sugar problems during pregnancy. This proportion was lowest in Tasmania (2%), and highest in the Northern Territory (11%) however these data should be interpreted with caution due to small numbers and high standard errors for some states and territories (Table 1.09.13).
- In 2008, the proportion of Indigenous children age 0–3 years who had mothers who had diabetes or sugar problems during pregnancy was similar in non-remote (8.5%) and remote areas (8.4%) (Table 1.09.14).

Table 1.09.13: Number and proportion of Indigenous children aged 0–3 years whose mother had diabetes or sugar problems during pregnancy, by state/territory, 2008

	Number	Proportion
NSW/ACT	1,328[a]	8.3[a]
Vic	215	6.6
Qld	1,578[a]	9.8[a]
WA	519[a]	8.2[a]
SA	103[a]	3.8[a]
Tas	39[b]	2.2[b]
NT	577	11.1
Total	**4,361**	**8.5**

(a) Estimate has a relative standard error between 25% and 50% and should be used with caution.

(b) Estimate has a relative standard error greater than 50% and is considered too unreliable for general use.

Note: Proportions exclude not known and not collected responses.

Source: 2008 NATSISS.

Table 1.09.14: Number and proportion of Indigenous children aged 0–3 years whose mother had diabetes or sugar problems during pregnancy, by Remoteness Area, 2008

	Number	Proportion
Major cities	1,831[a]	11.0[a]
Inner regional	552[a]	4.4[a]
Outer regional	1,054[a]	9.4[a]
Total non-remote	*3,438*	*8.5*
Remote	279[a]	6.6[a]
Very remote	644	9.6
Total remote	*923*	*8.4*
Total	**4,361**	**8.5**

(a) Estimate has a relative standard error between 25% and 50% and should be used with caution.

Note: Proportions exclude not known and not collected responses.

Source: 2008 NATSISS.

Data quality issues

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The 2004–05 NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians. It therefore overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in *Major cities*, *Inner and outer regional* areas and *Remote and very remote* areas, but *Very remote* areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 NHS.

In *Remote and very remote* communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

General Practitioner Data (BEACH)

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. Although the questionnaire contains an Indigenous identifier, it is unknown whether all GPs ask their patients this question. In the BEACH survey, 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners. Further detailed analyses of this issue are covered in General practice in Australia, heath priorities and policies 1998 to 2008, (Britt & Miller 2009:101):

'The findings of a BEACH substudy confirmed this suspected under-identification. In the data period reported here, 1.4% of patients encountered identified themselves as Indigenous. In contrast, in a BEACH substudy that asked 9,245 patients a complete set of questions about their cultural background (including Indigenous status) 2.2% (95% CI: 1.6–2.9) of respondents identified themselves as Indigenous (Britt et al. 2007). This rate is similar to the ABS estimates of Indigenous Australians as a proportion of the total population (ABS 2006).

However, the BEACH substudy included Indigenous Australians seen at Community Controlled Health Services funded through Medicare claims, and the estimate of 2.2% could have been an overestimate for the proportion of encounters that are with Indigenous patients in general practice as a whole. Deeble et al. (2008) conducted further investigations on this data and estimated that the BEACH encounter identification was an underestimate

of about 10%, and that a more reliable estimate of the Indigenous population would be about 1.6% of all encounters (Deeble et al. 2008).

The findings of these studies are that some GPs are not routinely asking patients at the encounter about their Indigenous status, even when this is a variable specifically collected for each patient encountered, as it is in BEACH encounter data.'

National Hospital Morbidity Database

The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free-standing day hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included. The NHMD does not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

For 2009–10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2,400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10,600 separations for one private hospital.

Separations

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay or a portion of a hospital stay beginning or ending in a change of type of care) and not patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set.

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Separations with care types of *Newborn* episodes that did not include qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded as these activities are not considered to be admitted patient care.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections.

Approximately 2% of hospital records have missing Indigenous status information.

Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. In 2007, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data.

It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Interpretation of results should take into account the relative quality of the data from the jurisdictions. The proportion of the Indigenous population covered by these six jurisdictions is 96%. Tasmania and the Australian Capital Territory data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions.

From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level. Adjustments for Indigenous under-identification have been made at the national level for the total number of hospital separations using an adjustment factor of 89%. No adjustments for under-identification have been made at the state/territory level or principal diagnosis level.

The 2007 AIHW study indicated acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in *Major cities* to 97% in *Remote* and *Very remote* areas. The quality of data supports analyses for hospitalisations by remoteness areas at the national level only.

In 2011–12, the AIHW commenced another study to re-assess the level of under-identification in public hospitals data. All states and territories have participated in the study to assess improvements in data quality. A report on the findings is expected to be published in mid-2013 which will include new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

National Aboriginal and Torres Strait Islander Social Survey

The NATSISS is conducted in all states and territories and includes remote and non-remote areas. The 2008 sample was 13,300 persons in 6900 households, with a response rate of 82% of households. Up to three randomly selected Indigenous people were chosen from selected households to participate in the survey. Trained ABS interviewers conducted the survey using face-to-face interviews. In non-remote areas interviewers used a notebook computer to record responses, while in remote areas a paper questionnaire was used. Interviewers obtained the consent of a parent or guardian before interviewing those aged 15 to 17 years. Indigenous persons usually resident in non-private dwellings such as hotels, motels, hostels, hospitals, short-stay caravan parks, prisons and other correctional facilities were excluded.

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians.

Information recorded in this survey is 'as reported' by respondents, and therefore may differ from information available from other sources or collected using different methodologies.

Data on health related indicators have been age-standardised to the 2001 total Australian population to account for differences in the age structures of the states and territories and

the Indigenous and non-Indigenous population.
Time series comparisons for the 2008 survey are available through the 1994 National Aboriginal and Torres Strait Islander Survey and the 2002 NATSISS. However not all data elements align across the three (1994, 2001 and 2008) NATSISS surveys, hence care is required when reviewing results across the three surveys. There are no strictly comparable non-Indigenous results available for the 2008 NATSISS because the latest General Social Survey (which has been used in the past to compare with Indigenous results from the NATSISS) was run in 2006, with the next being run in 2010. Data from other ABS surveys run in 2008 may, however, be used to obtain rough non-Indigenous comparisons for some data items. Where possible, the ABS has provided recommendations for non-Indigenous data comparisons these have been adopted in this report.

The 2008 NATSISS has a relatively large level of under-coverage when compared to other ABS surveys. There was also an increase in under-coverage compared to previous ABS Indigenous surveys. For example, the estimated under-coverage in the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) was 42%. The overall under-coverage rate for the 2008 NATSISS is approximately 53% of the in-scope population at the national level. This rate varies across the states and territories (ABS 2010).

Further information on NATSISS data quality issues can be found in the 2008 NATSISS User's guide (ABS 2010).

List of symbols used in tables

n.a.	not available
–	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.10 Kidney disease

The number of Aboriginal and Torres Strait Islander people with treated end-stage renal disease (ESRD) as registered by the Australia and New Zealand Dialysis and Transplant Registry, expressed as a rate by age group, age-standardised rate and ratio

Data sources

Data for this indicator come from the National Mortality Database, the AIHW National Hospital Morbidity Database and the Australia and New Zealand Dialysis and Transplant Registry.

National Mortality Database

The National Mortality Database is a national collection of de-identified unit record level data. It comprises most of the information recorded on death registration forms and medical (cause of death) certificates, including Indigenous status. The database is maintained by the Australian Institute of Health and Welfare (AIHW). Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the Australian Bureau of Statistics (ABS). Information on the cause of death is supplied by the medical practitioner certifying the death, or by a coroner. The data are updated each calendar year and are presented by state/territory of usual residence rather than state/territory where death occurs.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander people are registered. However, a proportion of these deceased are not reported as Aboriginal or Torres Strait Islander by the family, health worker or funeral director during the death registration process. That is, while data are provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked of relatives and friends of the deceased by the funeral director.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to 3 jurisdictions (Western Australia, South Australia and the Northern Territory) with adequate identification of Indigenous deaths in their recording systems from 1991 onwards. The quality of the time-series data is also influenced by the late inclusion of a not stated category for Indigenous status in 1998. Prior to this time, the not stated responses were probably included with the non-Indigenous.

Deaths registered in 2010 with a usual residence of Queensland have been adjusted to exclude deaths registered in 2010 that occurred prior to 2007. This is to minimise the impact of late registration of deaths due to recent changes in the timeliness of death registrations in Queensland.

Western Australian Aboriginal and Torres Strait Islander deaths for 2007, 2008 and 2009, have been revised to correct for a data quality issue which resulted in the over-reporting of Indigenous deaths during this period.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2006–2010 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years.

National Hospital Morbidity Database

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Hospitalisation data are presented for the 2-year period from July 2008 to June 2010. An aggregate of 2 years of data has been used, because the number of hospitalisations for some conditions is likely to be small for a single year.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individual, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question. For example, it is not possible to identify whether one patient was admitted 5 times or five patients were admitted once. People who receive treatment at hospital but are not admitted are not counted in hospital records. Hospital separation data are also affected by variations in admission practices, and the availability of and access to hospital and non-hospital services.

Care types 7.3, 9 and 10 (Newborn – unqualified days only; organ procurement; hospital border) have been excluded from analysis.

Data are presented for the six jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalisations in 2006–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. National totals include separations for people resident in these six jurisdictions only and are not necessarily representative of the jurisdictions not included. Indigenous status data are reported for Tasmania and the Australian Capital Territory (public hospitals only) with caveats until further audits of the quality of data in these jurisdictions are completed. Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Data are presented by state/territory of usual residence of the patient.

The following caveats have been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in

data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).

- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

Australia and New Zealand Dialysis and Transplant Registry (ANZDATA)

In Australia, persons who develop ESRD and undertake dialysis or kidney transplantation are registered with ANZDATA. The Registry is the most comprehensive and reliable source of information on persons treated for ESRD. It compiles data on incidence and prevalence, renal complications, co-morbidities and patient deaths. The current Registry began in 1977 and is coordinated by the Queen Elizabeth Hospital in Adelaide. All relevant hospitals and related satellite units in Australia and New Zealand participate.

Indigenous identification is based on self-identification and discussion with the treating nurse or physician, and is often based on identification in hospital records. However, because of the heightened awareness of the extent of renal disease in Indigenous Australians and the prolonged and repeated contact with renal units in hospitals, it is believed that Indigenous identification in the Registry is more complete than in general hospital data (Cass et al. 2001).

Analyses

Age-standardised rates and ratios have been used as a measure of morbidity in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of morbidity among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

Mortality

Tables 1.10.1 and 1.10.2 present data on deaths of Indigenous Australians from kidney disease over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the period 2006–2010, 3% of deaths (323) among Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined were due to kidney disease. After adjusting for differences in age structure, Indigenous Australians died from kidney diseases at over three times the rate of non-Indigenous Australians (Table 1.10.1).
- Over the period 2001 to 2010 there were significant increases in the in kidney disease mortality rates for Indigenous and non-Indigenous Australians (increases of 89% and 19% respectively), and a significant widening of the gap (Table 1.10.2).

Table 1.10.1: Deaths of Indigenous Australians from kidney disease, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	Number			Per cent			Rate per 100,000[(g)]				
	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Rate ratio[(h)]	Rate difference[(i)]	Rate difference %[(j)]
Kidney diseases (N00–N29)	323	9,199	78	2.9	1.9	1.4	40.3	11.4	3.5*	28.9*	5.2
All causes	**11,132**	**479,933**	**5,441**	**100.0**	**100.0**	**100.0**	**1,151.1**	**597.0**	**1.9***	**554.0***	**100.0**

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final), 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(h) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(i) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(j) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all causes.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.10.2: Age-standardised mortality rates, rate ratios and rate differences, kidney diseases, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[(f)]	Per cent change[(g)]
Indigenous rate (deaths per 100,000[(h)])	21.1	26.3	28.3	28.2	25.7	49.8	35.6	40.3	38.4	38.0	2.1*	88.7*
Non-Indigenous rate (deaths per 100,000[(h)])	9.7	10.3	10.2	9.7	9.8	10.5	12.0	12.4	11.7	10.3	0.2*	19.2*
Rate ratio[(i)]	2.2	2.6	2.8	2.9	2.6	4.7	3.0	3.3	3.3	3.7	0.1*	56.2*
Rate difference[(i)]	11.4	16.0	18.1	18.6	15.9	39.3	23.5	27.9	26.7	27.7	1.9*	147.7*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the periods 2001–2010.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(g) Per cent change between 2001 and 2010 based on the average annual change over the period.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Notes

1. ICD-10 codes N00-N39.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Hospitalisations

- Over the period June 2008 to July 2010, there were 2,127,523 hospitalisations for chronic kidney disease and its sequelae in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of which 262,612 (12.3%) were for Indigenous Australians.
- Approximately 43% of total hospitalisations of Indigenous Australians were for chronic kidney disease.

Hospitalisations for chronic kidney disease

Chronic kidney disease includes diabetic nephropathy, hypertensive renal disease, glomerular disease, chronic renal failure and end-stage renal disease (ESRD).

Hospitalisations of Indigenous Australians for chronic kidney disease and its sequelae in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined over the period June 2008 to July 2010 are presented in Tables 1.10.3 and 1.10.4.

- Of all hospitalisations for chronic kidney disease among Aboriginal and Torres Strait Islander people, the majority (98%) were for care involving dialysis.
- Indigenous Australians were hospitalised for both care involving dialysis and diabetic nephropathy at around 11 times the rate of non-Indigenous Australians, and chronic renal failure at around four times the rate of non-Indigenous Australians.
- Approximately 45% of Indigenous Australians hospitalised for chronic kidney disease and its sequelae were males (118,711) and 55% were females (143,901).
- Indigenous males were hospitalised for chronic kidney disease with dialysis at over eight times the rate of non-Indigenous males, and Indigenous females were hospitalised for chronic kidney disease at over 15 times the rate of non-Indigenous females (Table 1.10.4).
- Over the period June 2008 to July 2010, there were 262,612 bed-days associated with Indigenous chronic kidney disease hospitalisations in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, at an average of 1.1 days per separation. Excluding same-day separations for dialysis (220,763 hospitalisations), the average length of stay in hospital for Indigenous people with chronic kidney disease was 5.0 days compared with 4.9 days for non-Indigenous Australians.
-

Table 1.10.3: Hospitalisations for chronic kidney disease and its sequelae, by Indigenous status and type of kidney disease, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

	Number		Per cent		Indigenous			Non-Indigenous				
Principal diagnosis	Indig.	Non-Indig.	Indig.	Non-Indig.	No. per 1,000[(e)]	95% LCL[(f)]	95% UCL[(g)]	No. per 1,000[(e)]	95% LCL[(f)]	95% UCL[(g)]	Ratio[(h)]	Difference[(i)]
Care involving dialysis (ESRD)	258,552	1,809,330	98.5	97.0	446.8	444.9	448.7	40.9	40.8	40.9	10.9*	405.9*
Diabetic nephropathy	1,534	11,823	0.6	0.6	2.8	2.7	3.0	0.3	0.3	0.3	10.7*	2.6*
Renal-tubulo interstitial diseases	912	12,812	0.3	0.7	1.0	0.9	1.1	0.3	0.3	0.3	3.3*	0.7
Chronic renal failure	789	15,058	0.3	0.8	1.5	1.4	1.6	0.3	0.3	0.4	4.4*	1.2*
Glomerular diseases	420	5,398	0.2	0.3	0.3	0.3	0.4	0.1	0.1	0.1	2.5*	0.2
Hypertensive renal disease	58	1,023	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	3.4*	0.1
Other chronic diseases	347	9,467	0.1	0.5	0.4	0.4	0.5	0.2	0.2	0.2	1.9*	0.2
Total	**262,612**	**1,864,911**	**100.0**	**100.0**	**453.0**	**451.1**	**454.9**	**42.2**	**42.1**	**42.2**	**10.7***	**410.8***
Total excl. dialysis	**4,060**	**55,581**	**1.5**	**3.0**	**6.2**	**6.0**	**6.4**	**1.3**	**1.3**	**1.3**	**4.8***	**4.9***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous Australian comparisons at the $p < 0.05$ level.

(a) Data are reported by state/territory of usual residence of the patient hospitalised. Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Directly age-standardised using the Australian 2001 standard population.

(f) LCL = lower confidence limit.

(g) UCL = upper confidence limit.

(h) Rate ratio Indigenous: non-Indigenous Australians.

(i) Rate difference Indigenous minus non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Table 1.10.4: Hospitalisations of Indigenous Australians for chronic kidney disease and its sequelae, by sex and type of kidney disease, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

	Males							Females						
Principal diagnosis	**Number**	**Per cent[(e)]**	**No per 1,000[(f)]**	**LCL[(g)]**	**UCL[(h)]**	**Ratio[(i)]**	**Difference[(j)]**	**Number**	**Per cent[(e)]**	**No per 1,000[(f)]**	**LCL[(g)]**	**UCL[(h)]**	**Ratio[(i)]**	**Difference[(j)]**
Care involving dialysis (ESRD)	117,076	98.6	444.4	441.4	447.4	8.2*	390.4*	141,476	98.3	454.4	451.9	456.9	15.3*	424.7*
Diabetic nephropathy	689	0.6	2.7	2.5	3.0	8.2*	2.4*	845	0.6	2.9	2.7	3.1	14.2*	2.7*
Renal-tubulo interstitial diseases	96	0.1	0.3	0.2	0.3	2.2*	0.1*	816	0.6	1.7	1.6	1.9	3.5*	1.2*
Chronic renal failure	384	0.3	1.8	1.6	2.0	4.6*	1.4*	405	0.3	1.3	1.2	1.5	4.4*	1.0*
Glomerular diseases	246	0.2	0.4	0.3	0.5	2.4*	0.2*	174	0.1	0.3	0.2	0.3	2.8*	0.2*
Hypertensive renal disease	40	0.0	0.1	0.1	0.1	3.7*	0.1*	18	0.0	0.1	0.0	0.1	3.0*	0.0*
Other chronic diseases	180	0.2	0.5	0.4	0.5	1.7*	0.2*	167	0.1	0.4	0.3	0.5	2.1*	0.2*
Total	**118,711**	**100.0**	**450.1**	**447.1**	**453.2**	**8.1***	**394.9***	**143,901**	**100.0**	**461.1**	**458.6**	**463.7**	**14.9***	**430.1***
Total excl. dialysis	**1,635**	**1.4**	**5.7**	**5.4**	**6.1**	**4.4***	**4.4***	**2,425**	**1.7**	**6.7**	**6.4**	**7.0**	**5.1***	**5.4***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous Australian comparisons at the $p < 0.05$ level.

(a) Data are reported by state/territory of usual residence of the patient hospitalised. Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Proportion of hospitalisations of Indigenous and non-Indigenous people in the period 2008–09 to 2009–10.

(f) Directly age-standardised using the Australian 2001 standard population.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous Australians.

(j) Rate difference Indigenous minus non-Indigenous Australians.

Notes

1. Rates are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by age and sex

- For the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, Indigenous males and females had higher hospitalisation rates for chronic kidney disease (excluding dialysis) than non-Indigenous males and females across all age groups (Table 1.10.5).
- For Indigenous and non-Indigenous males, hospitalisation rates were highest among those aged 65 years and over (14.9 and 4.9 per 1,000 respectively). For Indigenous females rates were highest among those aged 55–64 years (16.8 per 1,000), and for non-Indigenous females rates were highest among those aged 65 years and over (3.7 per 1,000).
- Approximately 40% of Indigenous Australians hospitalised for chronic kidney disease (excluding dialysis) were male (1,635) and 60% were female (2,425) (Table 1.10.6).

Table 1.10.5: Age-specific hospitalisation rates (per 1,000 population) for a principal diagnosis of chronic kidney disease (excluding dialysis), by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [(a)(b)(c)]

									All ages	
	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65+	Crude	Age std.[(d)]
Males										
Indigenous	2.0	1.0	0.4	1.2	4.9	8.7	12.6	14.9	3.1	5.7
Non-Indigenous	1.0	0.3	0.3	0.5	0.8	1.1	1.8	4.9	1.3	1.3
Rate ratio[(e)]	1.9	2.9	1.3	2.5	6.3	7.8	6.8	3.1	2.4	4.4
Rate difference[(f)]	1.0	0.6	0.1	0.7	4.1	7.6	10.7	10.1	1.8	4.4
Females										
Indigenous	0.8	1.2	2.5	3.7	6.6	9.6	16.8	13.9	4.6	6.7
Non-Indigenous	0.7	0.4	1.3	1.1	1.0	1.1	1.4	3.7	1.4	1.3
Rate ratio[(e)]	1.1	3.3	2.0	3.5	6.6	8.9	11.9	3.8	3.3	5.1
Rate difference[(f)]	0.1	0.9	1.3	2.6	5.6	8.5	15.4	10.3	3.2	5.4
Persons										
Indigenous	1.4	1.1	1.4	2.4	5.8	9.2	14.8	14.4	3.9	6.2
Non-Indigenous	0.9	0.4	0.8	0.8	0.9	1.1	1.6	4.2	1.4	1.3
Rate ratio[(e)]	1.6	3.1	1.9	3.2	6.5	8.3	9.1	3.4	2.9	4.8
Rate difference[(f)]	0.5	0.7	0.7	1.7	4.9	8.1	13.2	10.1	2.5	4.9

(a) Data are reported by state/territory of usual residence of the patient hospitalised. Data excludes private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Financial year reporting.

(c) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(d) Directly age-standardised using the Australian 2001 standard population.

(e) Rate ratio Indigenous: non-Indigenous Australians.

(f) Rate difference Indigenous minus non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by state/territory

Table 1.10.6 presents hospitalisations for chronic kidney disease (excluding dialysis) for the 2-year period July 2008 to June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, as well as rates and ratios for these six jurisdictions. Data for Tasmania and the Australian Capital Territory are also included but should be treated with caution until further audits of Indigenous hospital separations data are completed.

- Over the period July 2008 to June 2010, Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised for chronic kidney disease (excluding dialysis) at almost five times the rate of non-Indigenous Australians.
- In New South Wales, Queensland, South Australia, Western Australia and the Northern Territory, Indigenous Australians were hospitalised for chronic kidney disease (excluding dialysis) at between four and seven times the rate of non-Indigenous Australians. Indigenous Australians were hospitalised at around twice the rate of non-Indigenous Australians in Victoria and the Australian Capital Territory, and at similar rates to non-Indigenous Australians in Tasmania. These differences may partly reflect jurisdictional differences in the level of Indigenous under-identification and therefore should be interpreted with caution.

Table 1.10.6: Hospitalisations for chronic kidney disease (excluding dialysis) by Indigenous status and jurisdiction, July 2008–June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
NSW						
Males	389	5.7	8,069	1.1	4.9*	4.5*
Females	419	4.2	8,751	1.1	3.7*	3.1*
Persons	808	4.8	16,821	1.1	4.2*	3.6*
Vic						
Males	70	2.7	8,250	1.5	1.7*	1.1*
Females	79	2.9	9,038	1.6	1.9*	1.4*
Persons	149	2.8	17,288	1.5	1.8*	1.2*
Qld						
Males	491	5.4	5,202	1.2	4.3*	4.2*
Females	729	6.8	5,785	1.3	5.2*	5.5*
Persons	1,220	6.1	10,987	1.3	4.8*	4.8*
WA						
Males	349	8.0	3,035	1.5	5.5*	6.5*
Females	592	11.5	3,095	1.4	8.2*	10.1*
Persons	941	9.8	6,130	1.4	6.9*	8.4*
SA						
Males	107	6.6	2,027	1.2	5.6*	5.4*
Females	151	7.4	2,045	1.2	6.3*	6.3*
Persons	258	7.0	4,072	1.2	6.0*	5.8*
NT						
Males	229	5.2	118	0.9	6.0*	4.4*
Females	455	9.2	165	1.3	7.3*	7.9*
Persons	684	7.4	283	1.0	7.0*	6.3*
NSW, Vic, Qld, WA, SA and NT[(h)]						
Males	**1,635**	**5.7**	**26,701**	**1.3**	**4.4***	**4.4***
Females	**2,425**	**6.7**	**28,879**	**1.3**	**5.1***	**5.4***
Persons	**4,060**	**6.2**	**55,581**	**1.3**	**4.8***	**4.9***
Tas						
Males	15	0.9	596	1.2	0.8	–0.2
Females	25	1.8	505	0.9	1.9*	0.9
Persons	40	1.4	1,101	1.0	1.3	0.3

(continued)

Table 1.10.6 (continued): Hospitalisations for chronic kidney disease (excluding dialysis) by Indigenous status and jurisdiction, July 2008–June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
ACT						
Males	n.p.	n.p.	303	1.0	n.p.	n.p.
Females	n.p.	n.p.	313	0.9	n.p.	n.p.
Persons	13	1.8	616	0.9	1.9*	0.8

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patient hospitalised.

(d) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+.

(e) Directly age-standardised using the Australian 2001 standard population.

(f) Rate ratio Indigenous: non-Indigenous.

(g) Rate difference Indigenous minus non-Indigenous.

(h) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by remoteness area

Hospitalisation rates for chronic kidney disease (excluding dialysis) in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory are presented by Australian Standard Geographical Classification (ASGC) in Table 1.10.7 covering the period July 2008 to June 2010.

- Indigenous Australians in all remoteness areas were more likely to be hospitalised for chronic kidney disease (excluding dialysis) than non-Indigenous Australians.
- Rates of hospitalisations were highest for Indigenous people living in *Remote* and *Very remote* areas, at 10 and 9 per 1,000, respectively. The lowest rate for Indigenous people was observed in *Major cities* (3.5 per 1,000).

Table 1.10.7: Age-specific hospitalisations for chronic kidney disease (excluding dialysis) by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous					
	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Ratio[(i)]	Difference[(j)]
Major cities	770	3.5	3.2	3.8	36,726	1.2	1.2	1.2	2.8*	2.3*
Inner regional	622	5.6	5.1	6.1	12,687	1.5	1.4	1.5	3.8*	4.1*
Outer regional[(k)]	974	6.9	6.4	7.4	5,264	1.4	1.3	1.4	5.1*	5.5*
Remote[(l)]	669	10.3	9.4	11.2	681	1.3	1.2	1.4	7.7*	9.0*
Very remote	1,025	8.7	8.1	9.3	214	1.3	1.2	1.5	6.5*	7.4*
Total[(m)]	**4,060**	**6.2**	**6.0**	**6.4**	**55,581**	**1.3**	**1.3**	**1.3**	**4.8***	**4.9***

* Indicates a significant difference at the p <0.05 level.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(e) Directly age-standardised using the Australian 2001 standard population, by 5 year age groups to 65+.

(f) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous.

(j) Rate difference Indigenous- non-Indigenous.

(k) Includes remote Victoria.

(l) Excludes remote Victoria.

(m) Total includes hospitalisations where ASGC is missing.

Notes

1. Rates are calculated using the remoteness distribution by Indigenous status, age and sex based on the 2006 ERP and applied to the 2008–10 population projections (Series B) based on the 2006 Census.
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Registration data

Information is available on Indigenous persons with ESRD from the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA).

ESRD is a complete or near-complete failure of the kidneys to excrete wastes, concentrate urine, and regulate electrolytes. ESRD occurs when the kidneys are no longer able to function at a level that is necessary for day-to-day life. It usually occurs as chronic renal failure worsens to the point where kidney function is less than 10% of normal. Common associated complications include inflammation of the tissue layers surrounding the heart, bleeding in the gastrointestinal tract, altered brain function and structure, disturbances or structural or functional changes in the peripheral nervous system.

- Between 2008 and 2010, there were 7,204 new patients registered with ANZDATA, of whom 644 (9%) identified as Aboriginal or Torres Strait Islander. This is higher than the proportion of Indigenous people in the total population (3.0%).
- Indigenous people starting ESRD treatment were substantially younger than non-Indigenous Australians starting ESRD treatment. Over half (62%) of new Indigenous patients registered with ANZDATA were aged less than 55 years, whereas less than a third (27%) of non-Indigenous Australians registered were below that age (Table 1.10.8).
- Incidence rates of treated ESRD for Indigenous Australians were higher than for non-Indigenous Australians across all age groups. The difference was marked at ages 45–54 years and 55–64 years where incidence rates for Indigenous Australians were between 13 and 11 times those for non-Indigenous Australians.
- After adjusting for differences in age structure, the incidence rate of treated ESRD for Indigenous Australians was over seven times the incidence rate of non-Indigenous Australians.
- Between 2008 and 2010, Indigenous males and females were 5 and 10 times as likely to register for treatment of ESRD as non-Indigenous males and females (Table 1.10.9).
- Incidence rates of treated ESRD for Indigenous Australians were higher than for non-Indigenous Australians in all states and territories. Rate ratios ranged from three in New South Wales to 15 in the Northern Territory (Table 1.10.10).
- Incidence rates for ESRD among Indigenous Australians were higher in remote areas of Australia than in *Major cities*. Indigenous Australians were 22 and 15 times as likely to register for treatment of ESRD as non-Indigenous Australians in *Remote* and *Very remote* areas respectively, and 11 times as likely to register for treatment of ESRD in outer regional areas. In *Major cities* and *Inner regional* areas, incidence rates for Indigenous Australians were around four and three times those for non-Indigenous Australians living in these areas (Table 1.10.11).

The reasons for the high incidence of treated ESRD among Indigenous Australians are probably related to the high proportion of the Indigenous population with factors which contribute to the increased risk of kidney impairment and lack of access to services for detection and treatment of chronic kidney disease (ABS & AIHW 2005).

Table 1.10.8: Incidence of end-stage renal disease, by Indigenous status and age group, 2008–2010[a]

	Number		Per cent[b]		No. per 100,000[c]			
	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Rate ratio[d]	Rate difference
0–24	13	236	2.0	3.6	1.4	1.1	1.2	0.3
25–44	184	797	28.6	12.1	42.3	4.4	9.7*	37.9*
45–54	201	940	31.2	14.3	133.4	10.6	12.6*	122.8*
55–64	175	1,378	27.2	21.0	202.1	18.8	10.8*	183.3*
65+	71	3,209	11.0	48.9	132.0	36.9	3.6*	95.1*
Total[e]	**644**	**6,560**	**100.0**	**100.0**	**68.3**	**9.5**	**7.2***	**58.7***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous Australian comparisons.

(a) Calendar year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Proportion of Indigenous and non-Indigenous patients in each age group.

(c) Age-specific rates per 100,000 population.

(d) Rate ratio Indigenous: Non-Indigenous.

(e) Total rates are directly age-standardised using the Australian 2001 standard population. Age standardised rates have been calculated using the direct method, age standardised by 5 year age group to 65+.

Source: AIHW analysis of ANZDATA data.

Table 1.10.9: Incidence of end-stage renal disease for Indigenous Australians, by age group and sex, 2008–2010[a]

Age group	Indigenous Male						
	No.	Per cent[b]	No. per 100,000[c]	LCL 95%[d]	UCL 95%[d]	Rate ratio [e]	Rate difference [f]
0–14 years	n.p.	n.p.	n.p.	0.2	3.1	0.8	–0.2
15–24 years	n.p.	n.p.	n.p.	0.8	4.3	1.9	1.6
25–34 years	18	6.1	15.7	2.7	7.1	4.4*	12.1*
35–44 years	65	22.2	66.1	7.3	12.4	9.5*	59.2*
45–54 years	91	31.1	126.2	7.8	12.2	9.8*	113.3*
55–64 years	76	25.9	185.7	5.9	9.4	7.4*	160.7*
65 +years	35	11.9	150.9	2.1	4.1	3.0*	100.1*
Total[g]	**293**	**100.0**	**67.1**	**4.8**	**6.0**	**5.4***	**54.5***
Age group	**Indigenous Female**						
	No.	**Per cent[b]**	**No. per 100,000[c]**	**LCL 95%[d]**	**UCL 95%[d]**	**Rate ratio [e]**	**Rate difference [f]**
0–14 years	n.p.	n.p.	n.p.	n.a	n.a	0.0	–0.6
15–24 years	n.p.	n.p.	n.p.	0.9	5.3	2.1	1.6
25–34 years	23	6.6	20.0	4.2*	10.3	6.6*	16.9*
35–44 years	78	22.2	72.9	14.6*	24.8	19.0*	69.0*
45–54 years	110	31.3	139.9	13.6*	20.8	16.8*	131.6*
55–64 years	99	28.2	216.8	13.9*	21.4	17.2*	204.2*
65 +years	36	10.3	117.7	3.4*	6.5	4.7*	92.5*
Total[g]	**351**	**100.0**	**69.7**	**9.1***	**11.4**	**10.2***	**62.9***
Age group	**Indigenous Total**						
	No.	**Per cent[b]**	**No. per 100,000[c]**	**LCL 95%[d]**	**UCL 95%[d]**	**Rate ratio [e]**	**Rate difference [f]**
0–14 years	n.p.	n.p.	n.p.	0.1	1.9	0.5	–0.4
15–24 years	11	1.7	3.3	1.1	3.7	2.0*	1.6*
25–34 years	41	6.4	17.9	3.9	7.5	5.4*	14.5*
35–44 years	143	22.2	69.6	10.8	15.6	12.9*	64.2*
45–54 years	201	31.2	133.4	10.8	14.7	12.6*	122.8*
55–64 years	175	27.2	202.1	9.2	12.6	10.8*	183.3*
65 +years	71	11.0	132.0	2.8	4.5	3.6*	95.1*
Total[g]	**644**	**100.0**	**68.3**	**5.8**	**6.9**	**7.2***	**58.7***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous Australian comparisons.

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Proportion of male, female and total registration rates for Indigenous persons in the period 2008–20010.

(c) Age-specific rates per 100,000 population.

(d) LCL = lower confidence limit, UCL = upper confidence limit.

(e) Rate ratio Indigenous: non-Indigenous.

(f) Rate difference is Indigenous minus non-Indigenous.

(g) Total rates are directly age-standardised using the Australian 2001 standard population. Age standardised rates have been calculated using the direct method, age standardised by 5 year age group to 65+.

Source: AIHW analysis of ANZDATA data.

Table 1.10.10: Incidence of end-stage renal disease, by Indigenous status, sex and state/territory, 2008–2010[a]

	Males				Females				Persons			
	No.	No. per 100,000[b]	Ratio[c]	Rate difference[d]	No.	No. per 100,000[b]	Ratio[c]	Rate difference[d]	No.	No. per 100,000[b]	Ratio[c]	Rate difference[d]
NSW/ACT												
Indigenous	34	25.5	2.1*	13.1*	48	32.8	4.5*	25.5*	82	29.3	3.0*	19.6*
Non-Indigenous	1,409	12.4	..	..	911	7.4	..	..	2,320	9.7	..	..
Vic												
Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Non-Indigenous	1,073	13.0	..	..	552	6.1	..	..	1,625	9.4	..	..
Qld												
Indigenous	87	76.5	6.2*	64.2*	80	55.9	7.5*	48.5*	167	64.9	6.6*	55.1*
Non-Indigenous	787	12.3	..	..	509	7.5	..	..	1,296	9.8	..	..
WA												
Indigenous	59	97.6	7.8*	85.2*	73	114.9	18.8*	108.8*	132	107.1	11.7*	97.9*
Non-Indigenous	403	12.5	..	..	207	6.1	..	..	610	9.2	..	..
SA												
Indigenous	26	128.9	10.2*	116.3*	26	97.8	16.3*	91.8*	52	110.4	12.1*	101.3*
Non-Indigenous	334	12.6	..	..	180	6.0	..	..	514	9.1	..	..
Tas												
Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Non-Indigenous	89	11.0	..	..	66	7.5	..	..	155	9.1	..	..
NT												
Indigenous	76	132.4	10.8*	120.2*	110	166.2	n.a.	n.a.	186	150.7	15.3*	140.9*
Non-Indigenous	26	12.3	..	..	14	n.a.	..	..	40	9.8	..	..

(continued)

Table 1.10.10 (continued): Incidence of end-stage renal disease, by Indigenous status, sex and state/territory, 2008–2010[(a)]

	Males				Females				Persons			
	No.	No. per 100,000[(b)]	Ratio[(c)]	Rate difference[(d)]	No.	No. per 100,000[(b)]	Ratio[(c)]	Rate difference[(d)]	No.	No. per 100,000[(b)]	Ratio[(c)]	Rate difference[(d)]
Australia												
Indigenous	**293**	**67.1**	**5.4***	**54.5***	**351**	**69.7**	**10.2***	**62.9***	**644**	**68.3**	**7.2***	**58.7***
Non-Indigenous	**4,121**	**12.5**	**. .**	**. .**	**2,439**	**6.8**	**. .**	**. .**	**6,560**	**9.5**	**. .**	**. .**

* Represents results with statistically significant differences at the $p < 0.05$ level in the Indigenous/non-Indigenous Australian comparisons.

(a) Calendar year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Directly age-standardised using the Australian 2001 standard population. Age standardised rates have been calculated using the direct method, age standardised by 5 year age group to 65+.

(c) Rate ratio Indigenous: non-Indigenous.

(d) Rate difference is Indigenous minus non-Indigenous.

Source: AIHW analysis of ANZDATA data.

Table 1.10.11: Incidence of end-stage renal disease, by Indigenous status and remoteness, 2008–2010[a]

	Number		Per cent[b]		No. per 100,000[c]			
	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Rate ratio[d]	Rate difference[e]
Major cities	111	4,577	17.3	69.8	46.2	10.7	4.3*	35.5*
Inner regional	56	1,323	8.6	20.2	32.9	9.7	3.4*	23.2*
Outer regional	157	578	24.4	8.8	85.6	9.3	9.2*	76.4*
Remote	130	55	20.2	0.8	152.6	7.0	21.7*	145.5*
Very remote	190	23	29.5	0.4	138.7	9.2	15.1*	129.5*
Australia[f]	**644**	**6,560**	**100.0**	**100.0**	**77.2**	**10.3**	**7.5***	**66.9***

* Represents results with statistically significant differences at the $p < 0.05$ level in the Indigenous/non-Indigenous Australian comparisons.

(a) Calendar year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Proportion of Indigenous and non-Indigenous patients in each remoteness category.

(c) Directly age-standardised using the Australian 2001 standard population. Age standardised rates have been calculated using the direct method, age standardised by 5 year age group to 65+.

(d) Rate ratio Indigenous: non-Indigenous.

(e) Rate difference is Indigenous minus non-Indigenous.

(f) Australia total includes cases where remoteness category was not known.

Source: AIHW analysis of ANZDATA data.

Time series analysis

Data on the incidence of ESRD among Indigenous and non-Indigenous Australians for the period 1991–2010 are presented below (Table 1.10.12; Figure 1.10.1).

- The number of Indigenous patients starting ESRD treatment has nearly quadrupled since 1991 (from 54 in 1991 to 198 in 2010).
- Over the period 1991–2010, there were significant increases in the incidence rate of ESRD among Indigenous Australians. The fitted trend implies an average yearly increase in the rate of around 30.1 per 100,000, which is equivalent to a 96% increase in the rate over the period. The fitted trend showed significant increases in the incidence of ESRD for both Indigenous males and females.
- Over the same period, there were also significant increases in the incidence rates of ESRD among non-Indigenous males and females, but these increases were not as rapid as in the Indigenous population (increase of 90% for males and 41% for females).
- There was a significant increase in the incidence rate difference and a non-significant increase in the rate ratio between Indigenous and non-Indigenous Australians for ESRD over the period 1991–2010 (103% in the rate difference and 6% in the rate ratio for persons), reflecting both a relative and absolute increase in the gap between incidence rates for Indigenous and non-Indigenous Australians for ESRD over the period.

The early rapid increase in the incidence of ESRD in the Indigenous population may reflect both real growth and the increasing availability and acceptability of kidney replacement therapy by Indigenous people. In recent years rates of ESRD in the Indigenous population appear to have stabilised.

Fluctuations in the incidence rates of ESRD for Indigenous Australians over time may also reflect changing levels of identification of Indigenous registrations in the ANZDATA Registry and Indigenous population estimates. Caution should be exercised in assessing trends in Indigenous ESRD rates over time and comparisons with the non-Indigenous population.

Table 1.10.12: Age-standardised incidence rates, rate ratios and rate differences for end-stage renal disease, 1991–2010[a]

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[b]	Per cent change over period[c]
Indigenous																						
Males	26	25	41	45	58	46	57	67	59	66	71	81	81	88	90	103	105	110	84	93	76.3*	293.4*
Females	28	39	49	67	70	57	95	70	98	84	104	91	92	105	125	117	129	132	111	105	86.4*	308.5*
Persons	54	64	90	112	128	103	152	137	157	150	175	172	173	193	215	220	234	242	195	198	162.7*	301.2*
Non-Indigenous																						
Males	540	591	596	704	738	760	782	883	950	928	1,045	1,059	1,085	1,089	1,260	1,375	1,362	1,392	1,376	1,320	911.0*	168.7*
Females	385	429	473	499	507	563	551	586	644	672	692	661	725	673	808	842	770	842	831	739	430.4*	111.8*
Persons	925	1,020	1,069	1,203	1,245	1,323	1,333	1,469	1,594	1,600	1,737	1,720	1,810	1,762	2,068	2,217	2,132	2,234	2,207	2,059	1,341.4*	145.0*
Indigenous rate (no. per 100,000)[d]																						
Males	27.8	28.5	44.4	50.7	61.7	42.9	48.2	69.8	54.5	64.9	59.7	71.8	73.4	68.1	68.1	78.8	74.6	73.6	54.1	59.0	34.2*	123.1*
Females	34.0	44.1	47.9	67.5	68.9	55.0	87.4	67.1	89.5	68.5	92.9	75.1	69.1	76.9	91.3	81.7	79.7	79.1	62.2	61.5	26.3*	77.4*
Persons	31.2	36.8	45.8	59.1	65.2	49.7	69.2	67.9	73.1	66.2	77.8	73.7	70.4	72.6	80.7	80.1	77.0	76.4	58.2	60.4	30.1*	96.4*
Non-Indigenous[d] rate (no. per 100,000)																						
Males	6.9	7.4	7.5	8.7	9.0	9.1	9.2	10.3	10.9	10.5	11.5	11.5	11.5	11.3	12.9	13.7	13.2	13.2	12.6	11.9	6.2*	90.4*
Females	4.7	5.2	5.6	5.8	5.7	6.2	6.0	6.3	6.7	6.9	6.9	6.5	7.0	6.4	7.4	7.6	6.8	7.3	7.0	6.1	1.9*	40.7*
Persons	5.7	6.2	6.5	7.1	7.3	7.6	7.5	8.1	8.6	8.5	9.0	8.8	9.1	8.7	9.9	10.4	9.8	10.0	9.7	8.8	3.9*	68.9*
Rate ratio[e]																						
Males	4.0	3.9	5.9	5.9	6.9	4.7	5.2	6.8	5.0	6.2	5.2	6.3	6.4	6.0	5.3	5.8	5.6	5.6	4.3	5.0	0.2	5.9
Females	7.2	8.5	8.5	11.5	12.0	8.8	14.6	10.7	13.3	9.9	13.4	11.6	9.9	12.1	12.3	10.7	11.7	10.8	8.9	10.1	1.3	18.2
Persons	5.4	5.9	7.1	8.3	9.0	6.6	9.2	8.4	8.5	7.8	8.6	8.4	7.8	8.4	8.1	7.7	7.8	7.6	6.0	6.9	0.3	5.8

(continued)

Table 1.10.12 (continued): Age-standardised incidence rates, rate ratios and rate differences for end-stage renal disease, 1991–2010[(a)]

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[(b)]	Per cent change over period[(c)]
Rate difference[(f)]																						
Males	20.9	21.1	36.9	42.0	52.7	33.8	38.9	59.5	43.6	54.4	48.1	60.4	61.9	56.8	55.3	65.2	61.4	60.5	41.5	47.1	28.0*	134.2*
Females	29.3	38.9	42.3	61.6	63.1	48.7	81.4	60.9	82.8	61.6	86.0	68.6	62.1	70.6	83.8	74.1	72.9	71.8	55.2	55.4	24.5*	83.5*
Persons	25.5	30.5	39.4	52.0	57.9	42.1	61.7	59.8	64.5	57.7	68.8	65.0	61.4	64.0	70.8	69.7	67.2	66.4	48.6	51.6	26.2*	102.6*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1991–2010.

(a) Data for 1991–2008 are preliminary, and may not match totals reported in previous or future tables.

(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

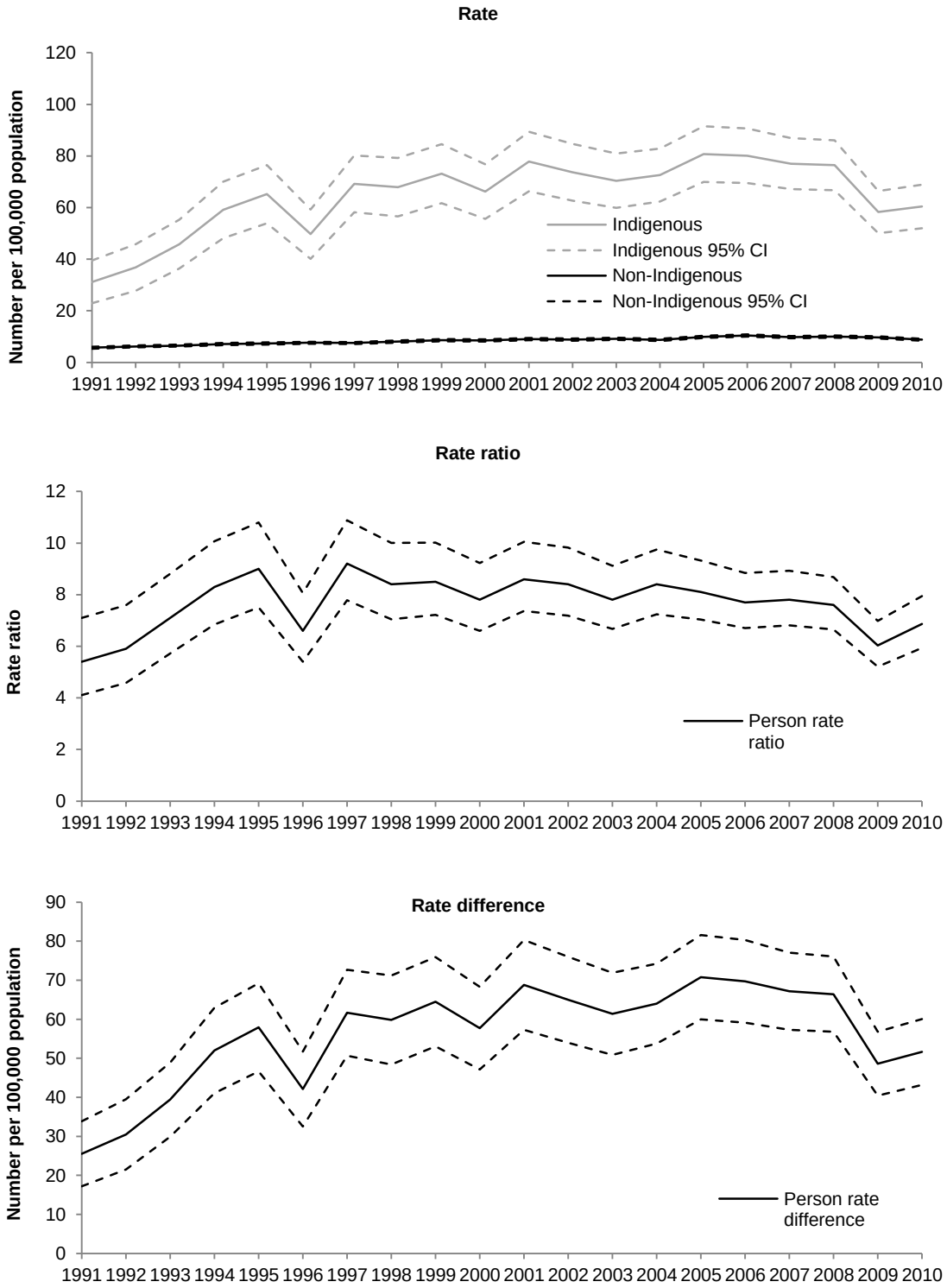
(c) Per cent change between 1991 and 2008 based on the average annual change over the period.

(d) Rates have been directly age-standardised using the Australian 2001 standard population. Age standardised rates have been calculated using the direct method, age standardised by 5 year age group to 75+.

(e) Incidence rate for Indigenous people divided by the rate for non-Indigenous Australians.

(f) Incidence rate for Indigenous people minus the rate for non-Indigenous Australians.

Source: AIHW analysis of ANZDATA data.



Source: AIHW analysis of ANZDATA data.

Figure 1.10.1: Age-standardised registration rates, rate ratios and differences for end-stage renal disease, by Indigenous status, 1991–2010

Management of end-stage renal disease

ESRD patients require either a kidney transplant or dialysis to maintain the functions normally performed by the kidneys. Patterns of treatment for ESRD differ between Indigenous and non-Indigenous patients.

- As at 31 December 2010, of all Indigenous ESRD patients registered, 87% relied on dialysis and only 13% had received a kidney transplant. In contrast, 53% of non-Indigenous Australians living with ESRD relied on dialysis and 48% had received a kidney transplant (Table 1.10.13).
- Indigenous Australians with ESRD were 15 times as likely as non-Indigenous Australians to rely on dialysis.

Once dialysis treatment has started, Indigenous people are less likely than non-Indigenous Australians to be placed on the active transplant waiting list and less likely to move from the waiting list to transplantation (McDonald & Russ 2003; Cass et al. 2003). Factors which may contribute to these disparities include miscommunication between Indigenous patients and health professionals, lack of understanding from Indigenous patients of their illness and its treatment, lower rates of well-matched kidney donors for Indigenous patients than for non-Indigenous patients and the higher rate of comorbidity among Indigenous Australians (Cass et al. 2003; McDonald & Russ 2003). Transplant outcomes are also substantially poorer for Indigenous Australians than for non-Indigenous Australians (McDonald & Russ 2003).

Table 1.10.13: Total patients with end-stage renal disease, by Indigenous status and treatment, as at 31 December 2010[a]

	Number		Per cent[b]		No. per 100,000[c]			
Treatment	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Ratio[d]	Ratio difference[e]
Dialysis	1,208	9,382	87.2	53.3	427.5	28.6	15.0*	398.9*
Transplant	177	8,232	12.8	46.7	57.6	34.4	1.7*	23.2*
Total	**1,385**	**17,614**	**100.0**	**100.0**	**485.1**	**63.0**	**7.7***	**422.1***

* Represents results with statistically significant differences at the $p < 0.05$ level in the Indigenous/non-Indigenous comparisons.

(a) Calendar year reporting.

(b) Proportion of Indigenous and non-Indigenous patients receiving dialysis and transplants.

(c) Directly age-standardised using the Australian 2001 standard population. Age standardised rates have been calculated using the direct method, age standardised by 5 year age group to 75+.

(d) Rate ratio Indigenous: non-Indigenous.

(e) Rate difference is Indigenous minus non-Indigenous.

Source: AIHW analysis of ANZDATA data.

Data quality issues

Mortality data

Mortality data presented in this report are from the AIHW National Mortality Database. The AIHW National Mortality Database includes information on the factors that caused death, as well as other information about the deceased person, such as age at death, place of death, country of birth, and where applicable, the circumstances of their death. These data are collected in Australia by the Registrars of Births, Deaths and Marriages in each state and territory. The data are then compiled nationally by the ABS, which codes the data according to the International Classification of Diseases (ICD).

Deaths

Although it is considered likely that most deaths of Aboriginal and Torres Strait Islander (Indigenous) Australians are registered, a proportion of these deaths are not registered as Indigenous. Information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred and may differ from the self-identified Indigenous origin of the deceased.

Queensland deaths

In November 2010, the Queensland Registrar of Births, Deaths and Marriages advised the ABS of an outstanding deaths registration initiative undertaken by the Registry. This initiative resulted in the November 2010 registration of 374 previously unregistered deaths which occurred between 1992 and 2006 (including a few for which a date of death was unknown). Of these, around three-quarters (284) were deaths of Aboriginal and Torres Strait Islander Australians.

The ABS discussed different methods of adjustment of Queensland death registrations data for 2010 with key stakeholders. Following the discussion, a decision was made by the ABS and key stakeholders to use an adjustment method that added together deaths registered in 2010 for usual residents of Queensland which occurred in 2007, 2008, 2009 and 2010. This method minimises the impact on mortality indicators used in various government reports. However, care should still be taken when interpreting Aboriginal and Torres Strait Islander death data for Queensland for 2010**.**

Western Australia deaths

Indigenous deaths registered in Western Australia in 2007, 2008 and 2009 were corrected by the ABS in mid-2012 due to some non-Indigenous deaths being incorrectly recorded as Indigenous for these years. Data presented in this report are based on the corrected data and will differ from mortality data presented in the 2010 Health Performance Framework report which presented data prior to the ABS corrections.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms.

Under-identification

At present, there is considerable variation across the states and territories in the completeness of mortality data for Indigenous people. Information concerning the number of deaths of Indigenous people is limited by the accuracy with which Indigenous persons are identified in death records. Problems associated with identification result in an underestimation of deaths of Indigenous people and in the gap in mortality between Indigenous and non-Indigenous Australians.

Mortality data for New South Wales, Queensland, Western Australia, South Australia and

the Northern Territory are considered to have sufficient coverage to produce reliable statistics on Indigenous Australian deaths for the period 2001–2010.

Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) which are considered to have adequate identification from 1991. Queensland is considered to have sufficient coverage of Indigenous deaths from 1998.

The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.

Indigenous Mortality Quality Study

The ABS conducted a number of quality studies based on the 2006 Census of Population and Housing and other data sets as part of the Census Data Enhancement (CDE) project (ABS 2008). The CDE Indigenous Mortality Quality Study linked Census records with death registration records for the 11-month period following the Census and examined differences in the reporting of Indigenous status across the two data sets.

For the purpose of this study, the linked record was assumed to be an Indigenous record if a positive response was recorded against the Indigenous status question on either the death registration or the corresponding Census record. Following linkage, the number of death records identified as Indigenous increased from 1,800 to 2,123 records, or from 1.7% to 2.0% of all registered deaths.

'While 323 additional death records were able to be identified as Indigenous from Census records, more may have been expected if all death records had been linked. A key reason records could not be linked appears to be Census undercount, with a corresponding Census record not existing to link to for many Indigenous death records' (ABS 2008).

The results from the study suggested that coverage of Indigenous deaths in death registrations is considerably higher, at least in 2006–07, than previous estimates have indicated. Nationally, the coverage rate was estimated to be 85%. State/territory coverage estimates were: NSW 76%, Vic 74%, Qld 87%, SA 86%, WA 92% and NT 99% (ABS 2008).

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in death records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

National Hospital Morbidity Database

The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free-standing day hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included. The NHMD does not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

For 2009–10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2,400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10,600 separations for one private hospital.

Separations

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay or a portion of a hospital stay beginning or ending in a change of type of care) and not patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set.

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Separations with care types of *Newborn* episodes that did not include qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded as these activities are not considered to be admitted patient care.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections.

Approximately 2% of hospital records have missing Indigenous status information.

Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. In 2007, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data (AIHW 2010).

It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Interpretation of results should take into account the relative quality of the data from the jurisdictions. The proportion of the Indigenous population covered by these six jurisdictions is 96%. Tasmania and the Australian Capital Territory data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions.

From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level. Adjustments for Indigenous under-identification have been made at the national level for the total number of hospital separations using an adjustment factor of 89%. No adjustments for under-identification have been made at the state/territory level or principal diagnosis level.

The 2007 AIHW study indicated acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in *Major cities* to 97% in *Remote* and *Very remote* areas.

The quality of data supports analyses for hospitalisations by remoteness areas at the national level only.

In 2011–12, the AIHW commenced another study to re-assess the level of under-identification in public hospitals data. All states and territories have participated in the study to assess improvements in data quality. A report on the findings is expected to be published in mid-2013 which will include new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

ANZDATA

The data reported here on Indigenous persons with end-stage renal disease (ESRD) have been supplied by the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA). Data sets provided for analysis are de-identified. The interpretation and reporting of these data are the responsibility of the authors and in no way should be seen as an official policy or interpretation of the registry. Data is collected from all dialysis and transplant units in Australia and New Zealand at 31st December. This encompasses virtually all patient events that have occurred in the previous twelve months as well as a "snapshot" of all dialysis and transplants patients on those dates.

Indigenous status question

Patients in the Registry are identified according to 'racial origin'. Aboriginal people and Torres Strait Islanders are identified separately, but separate results are not always published for Torres Strait Islanders because of small numbers of patients.

Under-identification

Indigenous identification is based on self-identification in hospital records and discussion with the treating nurse or physician. The completeness of identification of Indigenous people in the registry is not known. However it is believed that Indigenous identification in the Registry is more complete than in general hospital data (Cass et al. 2001). Racial identification in the ANZDATA Registry is reported to be good. A survey form is completed for all patients at the commencement of haemodialysis; this survey has a question about 'Racial origin' and includes a prompt regarding Indigenous status. ESRD patients have regular contact with renal services from the time of diagnosis, through intensive maintenance therapy until death. There is heightened awareness of renal disease in Indigenous Australians and multiple opportunities exist to reconfirm data accuracy (Cass et al. 2001).

List of symbols used in tables

n.a.	not available
–	rounded to zero (including null cells)
0	zero

. . not applicable

n.e.c. not elsewhere classified

n.f.d. not further defined

n.p. not available for publication but included in totals where applicable, unless otherwise indicated

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1.11 Oral health

The number of decayed, missing and filled deciduous infant teeth (dmft) and the number of decayed, missing and filled permanent adult teeth (DMFT) for Aboriginal and Torres Strait Islander people

Data sources

Data for this measure come from the ABS 2008 National Aboriginal and Torres Strait Islander Social Survey, the AIHW Dental Statistics Research Unit (Child Dental Health Survey, Indigenous child oral health in remote communities study, and the National Survey of Adult Oral Health), the AIHW National Hospital Morbidity Database, the Northern Territory Emergency Response Child Health Check Initiative data collection, the ABS 2004–05 National Aboriginal and Torres Strait Islander Health Survey, the Western Australian Aboriginal Child Health Survey.

National Aboriginal and Torres Strait Islander Social Survey

The Australian Bureau of Statistics (ABS) conducted the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) between August 2002 and April 2003. The 2008 NATSISS was conducted between August 2008 and April 2009. The survey provides

information about the Aboriginal and Torres Strait Islander populations of Australia for a wide range of social issues including health, education, culture and labour force participation. The 2008 NATSISS included for the first time children aged under 15. The NATSISS will be conducted every six years, with the next survey planned for 2014.

The 2008 NATSISS collected information by personal interview from 13,300 Indigenous Australians across all states and territories of Australia, including those living in remote areas. The sample covered persons aged 15 years and over who are usual residents in selected private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice.

Child Dental Health Survey

The Child Dental Health Survey is a national survey of the oral health status of school children enrolled in school dental services in each state and territory of Australia. Data are obtained each year from routine dental examinations conducted by non-calibrated dental health professionals within the school dental services. Children are enrolled from both public and private schools. The survey is managed by the AIHW Dental Statistics Research Unit.

The latest available data for Indigenous children is for 2007 for New South Wales and 2008 for South Australia, Tasmania and the Northern Territory.

Study of Aboriginal and Torres Strait Islander child oral health in remote communities

Indigenous child oral health data were collected from remote Indigenous communities in all jurisdictions in the 2000–2003 period, as part of a study undertaken by the Australian

Research Centre for Population Oral Health (ARCPOH). The study collaborated with the Far West Area Health Service (New South Wales), the remote Indigenous communities of Nganampa lands (South Australia), and various remote communities around Alice Springs (Northern Territory). Data were collected by dental health professionals providing services to these communities.

Data were gathered in terms of sociodemographic information (age, sex, and Indigenous status), self-care habits (toothbrushing at home and school), dental disease experience, gingivitis and caries risk status, and fluorosis and hypoplasia levels.

National Survey of Adult Oral Health

The 2004–06 National Survey of Adult Oral Health is the second national oral examination survey of Australians which included telephone interviews with 14,123 people aged 15–97 years, 5,505 of whom were also dentally examined. The survey included 229 people who identified as Aboriginal or Torres Strait Islander (1.6%). The survey collected information on levels of oral disease, perceptions of oral health and patterns of dental care within a representative cross-section of adults in all states and territories of Australia. The first survey (the National Oral Health Survey of Australia) was conducted in 1987–88 and did not collect information on Indigenous status.

National Hospital Morbidity Database

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Hospitalisation data are presented for the 2-year period from July 2008 to June 2010. An aggregate of 2 years of data has been used, because the number of hospitalisations for some conditions is likely to be small for a single year.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individual, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question. For example, it is not possible to identify whether one patient was admitted 5 times or five patients were admitted once. People who receive treatment at hospital but are not admitted are not counted in hospital records. Hospital separation data are also affected by variations in admission practices, and the availability of and access to hospital and non-hospital services.

Care types 7.3, 9 and 10 (Newborn – unqualified days only; organ procurement; hospital border) have been excluded from analysis.

Data are presented for the six jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalisations in 2006–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. National totals include separations for people resident in these six jurisdictions only and are not necessarily representative of the jurisdictions not included. Indigenous status data are reported for Tasmania and the Australian Capital Territory (public hospitals only) with caveats until further audits of the quality of data in these jurisdictions are

completed. Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Data are presented by state/territory of usual residence of the patient.

The following caveats have been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).
- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

Northern Territory Emergency Response Child Health Check Initiative

The Northern Territory Emergency Response Child Health Check Initiative (NTER CHCI) section in this indicator is produced based on the data that were collected from the Closing the Gap Program in the Northern Territory Dental Program.

This program was introduced as a follow-up to the Child Health Check Initiative (CHCI), which is one component of the health-related measures introduced under the Northern Territory Emergency Response (NTER). Oral health was identified as a major health problem during the health checks and children were provided with referrals for dental services. The Australian Government extended its CHCI funding to the Northern Territory Department of Health and Families (NT DHF) and six Aboriginal Community Controlled Health Organisations (ACCHOs) to provide eligible children with follow-up dental services.

This indicator presents the number of dental services that were provided to Indigenous children in the prescribed areas throughout the course of this program which concluded on 30 June 2012.

In March 2012, the Australian Government announced funding over 10 years for health services as part of the *Stronger Futures in the Northern Territory* package. This includes continued investment in oral health services.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians. This included information on health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. The survey provides comparisons over time in the health of Indigenous Australians. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

It is planned to repeat the NATSIHS at 6-yearly intervals, with the next survey to be conducted during 2012–13 as part of the Australian Health Survey (will be called the Australian Aboriginal and Torres Strait Islander Health Survey (ATSIHS)).

Western Australian Aboriginal Child Health Survey

This survey was a large-scale investigation into the health of 5,289 Western Australian Aboriginal and Torres Strait Islander children aged 0–17 years. It was undertaken in 2001 and 2002 by the Telethon Institute for Child Health Research in conjunction with the Kulunga Research Network. The survey was the first to gather comprehensive health, educational and developmental information on a population-based sample of Aboriginal and Torres Strait Islander children and their families and communities.

The survey findings were published in four volumes between June 2004 and November 2006.

Analyses

Age-standardised rates and ratios have been used as a measure of hospitalisations in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of hospital admissions among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

NATSISS data

Information from the 2008 NATSISS is available on children aged 0–14 years, regarding teeth or gum problems and the reason for parents not taking children to see the dentist when they needed to. Data on teeth and gum problems is available for breakdown by type of dental or gum problem, age, state/territory, remoteness, number of months with the problem, and the time since last dental check. This data is presented in Tables 1.11.1, 1.11.2, 1.11.3, 1.11.4, 1.11.5, 1.11.6, and 1.11.7.

In 2008, over 57,000 (32% of the sample) Indigenous children aged 0–14 years had reported teeth or gum problems. 15.5% of Indigenous children aged 0–14 years reported tooth or gum problems due to tooth or teeth being filled because of dental decay, and 15.2% reported problems due to cavities or dental decay (Table 1.11.1).

Table 1.11.1: Number and proportion of Indigenous children aged 0–14 years[(a)] with reported teeth or gum problems, by type of dental or gum problem, 2008

	Number	Proportion
Type of teeth/gum problem		
Cavities or dental decay	27,089	15.2
Tooth or teeth filled because of dental decay	27,647	15.5
Teeth pulled out because of dental decay	12,203	6.8
An accident caused breakage or loss of teeth	7,474	4.2
Bleeding or sore gums	4,927	2.8
Other problems with teeth or gums	6,713	3.8
Total has teeth or gum problems[(b)]	*57,056*	*32.0*
Does not have teeth or gum problems	121,177	68.0
Total[(c)]	**178,233**	**100.0**
Not known	3,581	. .

(a) Indigenous children who have teeth. Excludes children who do not have teeth.

(b) Total will be less than the sum of the components as a child can have more than one tooth or gum problem.

(c) Excludes not known responses.

Source: AIHW analysis of 2008 NATSISS.

For Indigenous children aged 0–14 years with reported teeth or gum problems, the most problems occurred between 10–14 years of age. The number of problems experienced was 26,380 (46% of the total problems experienced) (Table 1.11.2).

Table 1.11.2: Number and proportion of Indigenous children[(a)] with reported teeth or gum problems, by age, 2008

Age (years)	Number	Proportion
0–4	5,553	9.7
5–9	25,123	44.0
10–14	26,380	46.2
Total	**57,056**	**100.0**

(a) Indigenous children who have teeth. Excludes children who do not have teeth.

Note: Excludes not known responses.

Source: AIHW analysis of 2008 NATSISS.

Within Victoria, 38% of Indigenous children aged 0–14 years reported teeth or gum problems, compared to the Northern Territory where only 20% of Indigenous children reported teeth and gum problems (Table 1.11.3).

Table 1.11.3: Number and percentage of Indigenous children aged 0–14 years[a] with reported teeth or gum problems, by state/territory, 2008

	Number	Per cent[b]
NSW	17,826	32.8
Vic	4,519	38.3
Qld	17,811	33.8
WA	6,653	28.1
SA	3,190	33.1
Tas/ACT	2,885	36.8
NT	4,171	20.3
Aust.	57,055	31.6

(a) Excludes Indigenous children who do not have teeth and not known responses.

(b) Based on 2008 Indigenous population.

Source: AIHW analysis of 2008 NATSISS.

Within non-remote areas, 34% of Indigenous children aged 0–14 years reported teeth or gum problems compared to 24% of Indigenous children living in remote areas (Table 1.11.4).

Table 1.11.4: Number and percentage of Indigenous children aged 0–14 years[a] with reported teeth or gum problems, by remoteness, 2008

	Number	Per cent[b]
Non-remote	47,307	34.1
Remote	9,748	24.0
Total	**57,055**	**31.8**

(a) Excludes Indigenous children who do not have teeth and not known responses.

(b) Based on 2006 Indigenous population.

Source: AIHW analysis of 2008 NATSISS.

For Indigenous children aged 0–14 years with reported teeth or gum problems, over half (58%) had the problem for over 12 months. This was greater in non-remote (60%) than remote (49%) areas (Table 1.11.5).

Table 1.11.5: Number and proportion of Indigenous children aged 0–14 years with reported teeth or gum problems by number of months with teeth or gum problem and remoteness, 2008

	Non-remote		Remote		Total	
Number of months	**Number**	**Proportion**	**Number**	**Proportion**	**Number**	**Proportion**
1 month	7,927	16.8	1,779	18.2	9,706	17.0
2 to <6	5,690	12.0	1,737	17.8	7,426	13.0
6 to <12	5,208	11.0	1,417	14.5	6,625	11.6
12+	28,483	60.2	4,816	49.4	33,299	58.4
Total	**47,307**	**100.0**	**9,748**	**100.0**	**57,056**	**100.0**

Source: AIHW analysis of 2008 NATSISS.

For Indigenous children aged 0–14 years with reported teeth or gum problems, the majority (28%) had a dental check less than 3 months ago. Twenty-two per cent last had a dental check 6 months to less than a year ago, and 22% last had a check 1 year ago to less than 2 years ago (Table 1.11.6).

Table 1.11.6: Number and proportion of Indigenous children aged 0–14 years[(a)] with reported teeth or gum problems by time since last dental check, 2008

Time since last dental check	Number	Proportion
Less than 3 months ago	15,656	27.9
3 months to less than 6 months ago	8,622	15.3
6 months to less than a year ago	12,344	22.0
1 year ago to less than 2 years ago	12,096	21.5
2 years ago or more	3,237	5.8
Never	4,227	7.5
Total[(b)]	**56,180**	**100.0**
Not known	875	. .

(a) Includes children who have teeth only.

(b) Excludes not known responses.

Source: AIHW analysis of 2008 NATSISS.

In 2008, 14, 751 Indigenous children aged 0–14 years needed to go to the dentist, but were not taken by a parent. The main reason parents identified for this was that the waiting time was too long, or the dentist was not available at the time required (32%) (Table 1.11.7).

Table 1.11.7: Reasons parent did not take child to see a dentist when needed to in last 12 months, 2008

Reasons why parent did not take child to see a dentist when needed to	Number	Proportion
Cost	3,048	20.7
Transport/distance	1,712	11.6
Waiting time too long or not available at time required	4,715	32.0
Not available in area	2,311	15.7
Could not find time to take child (including personal/ family responsibilities)	2,382	16.1
Dislikes service/professional/afraid/embarrassed	1,330	9.0
Decided not to seek care for child	860	5.8
Other	1,769	12.0
Total needed to go to a dentist but didn't[(a)]	**14,751**	**100.0**
Total did not need to see dentist in last 12 months	**163,804**	**. .**

(a) Total will be less than the sum of the components as more than one reason may be reported.

Note: Children aged 0–14 years who had teeth and needed to go to a dentist but did not go.

Source: AIHW analysis of 2008 NATSISS.

Decayed, missing and filled teeth

Oral health outcomes are usually measured in terms of the number of decayed, missing or filled (dmft/DMFT) baby (deciduous) and adult (permanent) teeth (AIHW 2000). The dmft/DMFT score measures decay experience in deciduous and permanent teeth. Another measure of good oral health is the proportion of children with no tooth decay.

Data on decayed, missing and filled teeth for Indigenous children and adults come from the Child Dental Health Survey and the National Survey of Adult Dental Health and are presented below.

Children

Data on decay in deciduous and permanent teeth are presented below for Indigenous children in New South Wales, South Australia, the Northern Territory and Tasmania. Data for New South Wales are for 2007, and for South Australia, the Northern Territory and Tasmania they are for 2008.

Deciduous teeth

Mean dmft

- In New South Wales, South Australia, the Northern Territory and Tasmania, the mean number of decayed, missing or filled deciduous teeth for Indigenous children aged 5–10 years was higher than for non-Indigenous children at all ages (Table 1.11.8).
- In general, of all children with decayed, missing or filled deciduous teeth, both Indigenous and non-Indigenous children were most likely to have decayed teeth, followed by filled teeth.
- For New South Wales, South Australia, the Northern Territory and Tasmania combined, the mean numbers of decayed or missing teeth were highest among those aged less than 7 years, whereas the mean number of filled teeth was highest among those aged 7 years and over.

Table 1.11.8: Mean number of decayed, missing or filled deciduous teeth, children aged 4–10 years, by Indigenous status, NSW (2007), SA (2008), NT (2008) and Tas (2008)

	New South Wales		South Australia		Northern Territory		Tasmania		NSW, SA, Tas & NT	
Age	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.
					Decayed					
5 years	2.44*[a]	1.07*	3.03*[a]	1.10*	1.75*[b]	0.28*	1.69[a]	1.16	2.37*[b]	1.06*
6 years	2.01*	0.99*	2.86*	0.98*	1.64[a]	0.94[a]	2.77*[b]	1.20*	2.06*[b]	1.00*
7 years	1.96[a]	0.88	1.52*[a]	0.92*	2.22*[a]	0.19*	1.30[a]	0.97	2.03*[b]	0.89*
8 years	1.67*[a]	0.82*	1.44*[a]	0.82*	2.05*[a]	0.74*	1.43*[a]	0.94*	1.7*	0.83*
9 years	1.33[a]	0.85	1.29*	0.73*	1.47*[a]	0.16*	1.33*	0.74*	1.35*	0.81*
10 years	1.13*	0.55*	0.79*	0.54*	0.84*[a]	0.25*	0.93[a]	0.55	1.05*	0.54*
					Missing					
5 years	0.42[a]	0.10	0.52*	0.21*	0.87[a]	0.30	0.84[a]	0.31	0.52	0.14
6 years	0.23	0.07	0.78*	0.23*	0.32*	0.04*	0.58	0.60	0.31*	0.13*
7 years	0.22	0.10	0.41*	0.19*	0.19[b]	0.14[b]	0.76*	0.78*	0.25	0.16
8 years	0.31	0.10	0.47*	0.18*	0.24	0.12	0.58	0.62	0.32	0.15
9 years	0.15	0.07	0.23*	0.14*	0.09	0.03	0.26*	0.52*	0.15	0.11
10 years	0.06	0.06	0.13	0.09	0.12	0.02	0.60[a]	0.38	0.09	0.09
					Filled					
5 years	0.47	0.29	0.74*	0.59*	1.38[b]	1.29[a]	0.43	0.56	0.65	0.37
6 years	0.51	0.37	1.26*	0.94*	1.93*[a]	0.62*	0.87[a]	0.79	0.83	0.49
7 years	0.49	0.49	1.03	1.22*	2.23*[a]	1.13*	1.36[a]	1.01	0.99	0.66
8 years	0.86	0.63	1.77	1.44*	1.56[a]	2.02[a]	1.17[a]	1.20	1.07	0.84
9 years	0.72[a]	0.61	1.52	1.41*	1.56[a]	1.39[a]	1.51[a]	1.20	0.97	0.80
10 years	0.48	0.53	1.19	1.06*	0.64	0.66	0.75	0.98	0.58	0.65

(continued)

Table 1.11.8 (continued): Mean number of decayed, missing or filled deciduous teeth, children aged 4–10 years, by Indigenous status, NSW (2007), SA (2008), NT (2008) and Tas (2008)

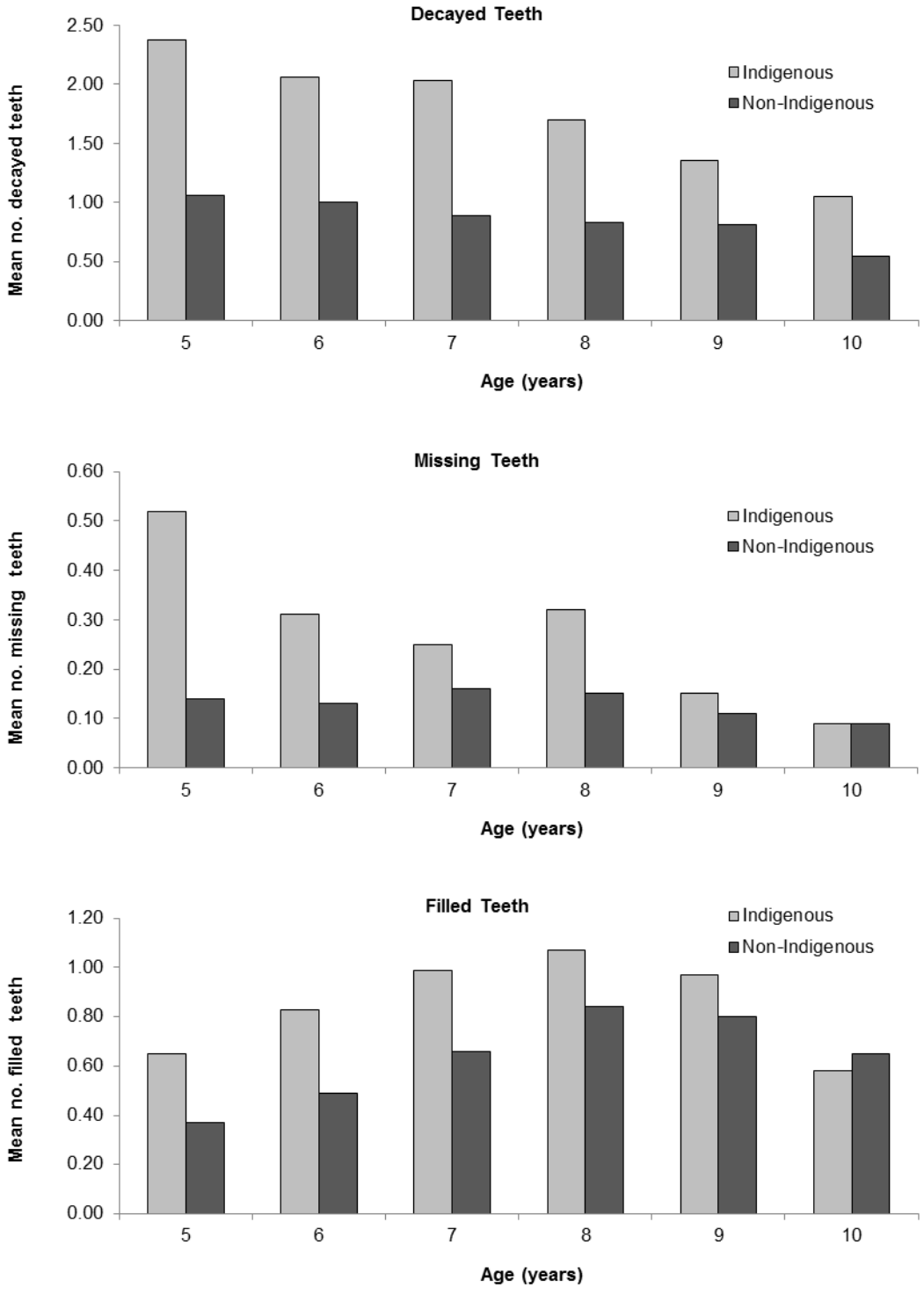
	New South Wales		South Australia		Northern Territory		Tasmania		NSW, SA, Tas & NT	
Age	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.
					Decayed, missing & filled (dmft)					
5 years	3.33*[b]	1.46*	4.29*	1.89*	4.00*[b]	1.87*[a]	2.96[b]	2.03	3.55*[b]	1.57*
6 years	2.74*[a]	1.42*	4.90*[a]	2.15*	3.90*[b]	1.6*[a]	4.22*[b]	2.59*	3.20*[b]	1.62*
7 years	2.67[b]	1.48	2.96*	2.34*	4.94*[a]	1.45*[a]	3.43[b]	2.77	3.27*[b]	1.7*
8 years	2.84*[a]	1.55*	3.68*	2.44*	3.85[a]	2.89[a]	3.19[a]	2.76	3.09*[b]	1.81*
9 years	2.20[a]	1.54	3.04*	2.28*	3.11*[a]	1.58*[a]	3.10[a]	2.46	2.47*[b]	1.73*
10 years	1.66[a]	1.13	2.11*	1.69*	1.6*[a]	0.93*	2.28[a]	1.91	1.71	1.28

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Estimate has a relative standard error of 25% to 50% and should be used with caution.

(b) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

Source: AIHW Dental Statistics Research Unit.



Source: AIHW Dental Statistics Research Unit.

Figure 1.11.1: Mean number of decayed, missing or filled deciduous teeth, children aged 5–10 years, by Indigenous status, NSW (2007), SA (2008), NT (2008) and TAS (2008)

- The mean dmft of children aged 5–10 years by residential location is presented in Table 1.11.9. In all age groups and residential locations, Indigenous children had higher mean dmft levels than non-Indigenous children. The highest rate ratio between Indigenous and non-Indigenous children was in Inner cities, followed by outer cities, remote/very remote and major cities.

Table 1.11.9: Mean dmft for Indigenous and non-Indigenous children aged 5–10 years by residential location, NSW (2007), SA (2008), NT (2008) and Tas (2008)

	Indigenous	Non-Indigenous	Rate ratio[(a)]	Rate difference[(b)]
Major cities				
5 years	2.62[(c)]	1.35	1.94	1.27
6 years	2.41[(c)]	1.41	1.71	1.00
7 years	2.75[(c)]	1.44	1.91	1.31
8 years	2.13[(d)]	1.54	1.38	0.59
9 years	2.27[(c)]	1.49	1.52	0.78
10 years	1.65[(d)]	1.22	1.35	0.43
Inner cities				
5 years	2.78[(c)]	0.18[(c)]	15.44	2.60
6 years	3.19*[(d)]	0.13*[(c)]	24.54	3.06
7 years	2.6[(c)]	0.14[(c)]	18.57	2.46
8 years	3.42[(c)]	0.14[(c)]	24.43	3.28
9 years	2.51[(d)]	0.12[(c)]	20.92	2.39
10 years	1.86[(d)]	0.12[(c)]	15.50	1.74
Outer cities				
5 years	4.68*[(c)]	0.23*[(c)]	20.35	4.45
6 years	3.39[(c)]	0.21[(c)]	16.14	3.18
7 years	3.69[(c)]	0.2[(c)]	18.45	3.49
8 years	3.87[(c)]	0.23[(c)]	16.83	3.64
9 years	2.33[(d)]	0.17[(c)]	13.71	2.16
10 years	1.78[(c)]	0.09[(c)]	19.78	1.69
Remote/very remote				
5 years	4.61*[(c)]	0.35*[(c)]	13.17	4.26
6 years	4.29*[(c)]	0.29*[(c)]	14.79	4.00
7 years	4.66*[(d)]	0.34*[(c)]	13.71	4.32
8 years	4.13[(d)]	0.36[(c)]	11.47	3.77
9 years	3.37[(d)]	0.22[(c)]	15.32	3.15
10 years	1.46[(d)]	0.12[(c)]	12.17	1.34

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Rate ratio is Indigenous: non-Indigenous.

(b) Rate difference is Indigenous minus non-Indigenous.

(c) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

(d) Estimate has a relative standard error of 25% to 50% and should be used with caution.

Source: AIHW Dental Statistics Research Unit.

The mean dmft of Indigenous and non-Indigenous children aged 5–10 years by the SEIFA Index of Relative Advantage/Disadvantage is presented in Table 1.11.10.

- Indigenous children had higher mean dmft scores than non-Indigenous children for all 5 categories of disadvantage, except for those aged 8 to 10 years in the least disadvantaged category.
- Indigenous children in the most disadvantaged category had likely higher dmft than Indigenous children who were less disadvantaged.
- Across all age groups, the dmft of Indigenous children from the most advantaged areas were less than the dmft of non-Indigenous children from the most disadvantaged areas. The dmft difference among Indigenous and non-Indigenous children decreased with increasing age.

Table 1.11.10: Mean dmft for Indigenous and non-Indigenous children aged 4–10 years by SEIFA Index of Relative Disadvantage[a], NSW (2007), SA (2008), NT (2008) and Tas (2008)

	SEIFA index	Indigenous	Non-Indigenous
5 years	1	4.60*[b]	2.26*
	2	3.25[b]	1.95
	3	2.91[b]	1.47
	4	1.86[b]	1.25
	5	2.25[b]	0.67
6 years	1	3.63[b]	2.20
	2	3.39*[b]	1.6*4
	3	2.64[b]	1.69
	4	2.43[b]	1.24
	5	0.39[c]	1.11
7 years	1	4.25*[b]	2.51*
	2	2.31[b]	1.90
	3	3.16[b]	1.72
	4	1.66[b]	1.20
	5	2.51*[b]	0.98*
8 years	1	3.82*[c]	2.25*
	2	3.07[b]	1.90
	3	2.33[b]	1.98
	4	2.16[b]	1.74
	5	0.38[c]	1.09
9 years	1	2.72[c]	2.23
	2	2.10[b]	1.85
	3	2.30[c]	1.76
	4	4.16*[b]	1.66*
	5	0.42[c]	1.10
10 years	1	1.99[c]	1.48
	2	2.18[c]	1.35
	3	1.42[c]	1.15
	4	0.22*	1.12*
	5	1.04[b]	1.23

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) 1 =most disadvantaged and 5= least disadvantaged.

(b) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

(c) Estimate has a relative standard error of 25% to 50% and should be used with caution.

Source: AIHW Dental Statistics Research Unit.

DMFT = 0

- At all ages, the proportion of Indigenous children in New South Wales, South Australia, the Northern Territory and Tasmania free of caries in their deciduous teeth (dmft = 0) was lower than the proportion for non-Indigenous children (Table 1.11.11).
- The proportion of children aged 5–10 years with dmft = 0 by residential location is presented in Table 1.11.12. Across all age groups and residential location, a higher proportion of non-Indigenous children had caries experience in their deciduous teeth than Indigenous children.

Table 1.11.11: Proportion of children aged 5–10 years with no decayed, missing or filled deciduous teeth (dmft = 0), by age and Indigenous status, NSW (2007), SA (2008), NT (2008) and Tas (2008)

	New South Wales		South Australia		Northern Territory		Tasmania		NSW, SA, Tas & NT			
Age	Indig. %	Non-Indig. %	Indig. %	Non-Indig. %	Indig. %	Non-Indig. %	Indig. %	Non-Indig. %	Indig. %	Non-Indig. %	Rate ratio[(a)]	Rate difference[(b)]
						Decayed						
5 years	40.4*	66.2*	40.3*	66.1*	57.6*	83.0*	60.6	65.6	43.8*	66.5*	0.7*	–22.7*
6 years	46.5*	67.7*	38.9*	62.7*	56.3*	78.0*	38.4*	61.6*	47.0*	66.7*	0.7*	–19.7*
7 years	50.2	66.7	47.2*	62.4*	50.4*	91.0*	46.5*	62.7*	49.8*	66.1*	0.8*	–16.3*
8 years	40.4*	67.3*	47.0*	62.5*	42.4*	74.7*	41.1*	61.3*	41.4*	66.2*	0.6*	–24.8*
9 years	47.8	63.5	51.5*	63.3*	60.3*	91.7*	39.9*	64.8*	50.1*	64.0*	0.8*	–13.9*
10 years	49.6	68.5	59.6*	71.3*	71.4*	82.2*	72.1	72.0	54.3*	69.5*	0.8*	–15.2*
						Missing						
5 years	90.4	96.9	87.3*	94.8*	75.9*	83.0*	83.3	88.4	87.4*	95.8*	0.9*	–8.4*
6 years	90.3*	97.6*	80.7*	92.2*	77.7*	96.1*	65.7	72.7	86.6*	95.2*	0.9*	–8.6*
7 years	92.8	94.7	86.8*	90.7*	84.4*	91.0*	65.0	60.4	89.4	91.8	1.0	–2.5
8 years	88	94.1	80.1*	89.5*	90.5	90.3	66.9	66.3	87.1	91.5	1.0	–4.5
9 years	92.3	95.6	87.6*	90.6*	94.8*	97.4*	79.0*	71.7*	91.9	93.2	1.0	–1.3
10 years	94.3	97.1	93.9	93.9	94.2*	98.5*	77.3	78.4	93.8	95.4	1.0	–1.5
						Filled						
5 years	84.8	88.8	77.21	79.67	63.3*	58.8*	78.8	77.7	80.1	86.0	0.9	–5.9
6 years	79.3	84.9	61.0*	69.5*	49.3*	78.8*	68.1	70.7	72.2*	81.4*	0.9*	–9.2*
7 years	70.2	82.3	60.8	62.0	41.7*	60.3*	50.5*	63.9*	61.8	77.3	0.8	–15.6
8 years	70.7	75	47.5*	54.8*	53.6*	36.3*	54.3	57.1	65.3	69.5	0.9	–4.3
9 years	68.3	74.1	45.1*	52.4*	43.3*	53.0*	47.1*	56.6*	61.0	68.8	0.9	–7.7
10 years	77.7	75.8	56.9	58.5	62.3*	72.0*	66.3	59.8	73.2	71.6	1.0	1.6

(continued)

Table 1.11.11 (continued): Proportion of children aged 5–10 years with no decayed, missing or filled deciduous teeth (dmft = 0), by age and Indigenous status, NSW (2007), SA (2008), NT (2008) and Tas (2008)

	New South Wales		South Australia		Northern Territory		Tasmania		NSW, SA, Tas & NT			
Age	Indig. %	Non-Indig. %	Indig. %	Non-Indig. %	Indig. %	Non-Indig. %	Indig. %	Non-Indig. %	Indig. %	Non-Indig. %	Rate ratio[(a)]	Rate difference[(b)]
						Decayed, missing & filled (dmft)						
5 years	35.5*	61.1*	29.5*	56.3*	27.2*	43.2*	50.1	51.2	33.7*	59.3*	0.6*	–25.6*
6 years	34.8*	63.8*	25.5*	48.5*	26.9*	60.7*	25.8*	37.4*	32.3*	59.6*	0.5*	–27.3*
7 years	30.7*	58.2*	33.8*	43.8*	12.9*	56.9*	*307	29.5*	31.5*	53.9*	0.6*	–22.4*
8 years	38.9*	54.9*	24.8*	39.5*	23.5	25.9	22.0*	29.4*	28.7*	50.0*	0.6*	–21.3*
9 years	42.9	51.4	23.3*	38.2*	18.2*	47.8*	18.6*	32.9*	36.0*	47.8*	0.8*	–11.8*
10 years	43.6	56.2	36.8*	46.9*	40.9*	63.5*	37.8	39.5	42.5	53.6	0.8	–11.1

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Rate ratio is Indigenous: non-Indigenous.

(b) Rate difference is Indigenous minus non-Indigenous.

Source: AIHW Dental Statistics Research Unit.

Table 1.11.12: Proportion of Indigenous and non-Indigenous children aged 5–10 years with dmft = 0 by residential location, NSW (2007), SA (2008), NT (2008) and Tas (2008)

	Indigenous %	Non-Indigenous %
Major cities		
5 years	40.2*	63.2*
6 years	43.8	63.3
7 years	34.8	58.3
8 years	31.7	53.8*
9 years	48.4	52.8
10 years	45.5	54.9
Inner cities		
5 years	62.4	52.4
6 years	39.3	54.6
7 years	52.6	48.8
8 years	36.2	45.8
9 years	36.4	40.3
10 years	34.0	51.5
Outer cities		
5 years	12.7*	48.2*
6 years	18.9*	45.9*
7 years	18.9	37.9
8 years	21.0	36.7
9 years	21.6	36.1
10 years	44.3	50.9
Remote/very remote		
5 years	19.8	51.4
6 years	28.7*	57.3*
7 years	14.3*	40.8*
8 years	19.6*	44.4*
9 years	14.3*	36.2*
10 years	47.7	50.0

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

Source: AIHW Dental Statistics Research Unit.

d/dmft

- The d/dmft ratio refers to the proportion of untreated teeth with decay in the population. It shows that Indigenous children have a greater unmet need for dental treatment than non-Indigenous children. Indigenous children had higher levels of untreated decay as a percentage of total caries experience than non-Indigenous children across all age groups (Table 1.11.13). Across all age groups, Indigenous children in Outer cities and remote/very remote areas had markedly higher proportions of d/dmft than non-Indigenous counterparts in Major cities and Inner cities areas.

Table 1.11.13: Children aged 5–10 years with decayed deciduous teeth as a proportion of total children with decayed, missing or filled deciduous teeth (d/dmft), by age and Indigenous status, metropolitan and rural areas, NSW (2007), SA (2008), NT (2008) and Tas (2008)

	Indigenous	Non-Indigenous
	mean % d/dmft	
Major cities		
5 years	49.8*	28.6*
6 years	41.5	25.4
7 years	49.7*	25.4*
8 years	48.4*	23.9*
9 years	29.8	26.8
10 years	39.3	23.7
Inner cities		
5 years	29.3	31.6
6 years	41.0	29.4
7 years	28.0	29.5
8 years	36.2	27.4
9 years	37.4	29.8
10 years	39.6	22.9
Outer cities		
5 years	70.9	30.2
6 years	54.8	32.1
7 years	36.3	26.4
8 years	45.3*	21.9*
9 years	36.4	22.2
10 years	30.2	17.4
Remote/very remote		
5 years	40.9	26.5
6 years	33.5	17.3
7 years	47.6*	22.3*
8 years	37.8*	17.2*
9 years	43.1	20.4
10 years	27.1	16.7

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

Source: AIHW Dental Statistics Research Unit.

Permanent teeth

Mean DMFT

- In New South Wales, South Australia and the Northern Territory, the mean numbers of decayed, filled and missing permanent teeth for Indigenous children aged 6–15 years were higher than for non-Indigenous children at all ages except at age 15 years for filled teeth (Table 1.11.14).
- As with deciduous teeth, children in New South Wales had likely lower mean numbers of decayed, filled or missing permanent teeth than children in South Australia and the Northern Territory.
- Among New South Wales, South Australia and the Northern Territory, Indigenous children in the South Australia had the highest mean number of decayed teeth, while Indigenous children in the Northern Territory had the highest mean number of filled teeth.

Table 1.11.14: Mean number of decayed, missing and filled permanent teeth for children aged 6–15 year, by age and Indigenous status, NSW (2007), SA (2008) and NT (2008)

	New South Wales		South Australia		Northern Territory		NSW, SA & NT	
Age	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**
				Decayed				
6 years	0.07	0.08	0.11*	0.04*	0.11	0.03	0.08	0.07
7 years	0.24	0.18	0.18	0.13	0.17	0.09	0.22	0.17
8 years	0.43	0.17	0.35*	0.15*	0.44*	0.07*	0.42*	0.17*
9 years	0.38	0.22	0.46*	0.17*	0.29	0.18	0.37	0.22
10 years	0.56	0.31	0.4*	0.21*	0.27	0.17	0.51	0.29
11 years	0.69	0.32	0.5*	0.28*	0.44*	0.08*	0.64	0.32
12 years	0.66	0.40	0.82*	0.36*	0.51	0.32	0.64	0.41
13 years	. .	. .	0.99*	0.45*	0.97[(a)]	0.02	0.99[(a)]	0.48
14 years	. .	. .	1.59*	0.58*	1.06[(a)]	0.32	1.21[(a)]	0.62
15 years	. .	. .	1.3*	0.7*	2.2*[(b)]	0.37*[(a)]	1.99*[(a)]	0.74*
				Filled				
6 years	0.01	0.00	0.01	0.01	0.01	0.27	0.00	0.00
7 years	0.02	0.05	0.06	0.03	0.24	0.49	0.08	0.00
8 years	0.04	0.11	0.14	0.08	0.40	0.37	0.05	0.00
9 years	0.12*	0.14*	0.21	0.19	1.10	0.59	0.06	0.01
10 years	0.19	0.23	0.46	0.27*	0.99	1.24	0.02	0.02
11 years	0.47	0.31	0.45	0.40	1.40	1.34	0.08	0.02
12 years	0.43	0.28	0.68	0.59	1.50[(a)]	1.33[(a)]	0.06	0.04
13 years	. .	. .	0.72	0.72	1.86[(b)]	1.66[(a)]	0.19	0.07

(continued)

Table 1.11.14 (continued): Mean number of decayed, missing and filled permanent teeth for children aged 6–15 year, by age and Indigenous status, NSW (2007), SA (2008) and NT (2008)

	New South Wales		South Australia		Northern Territory		NSW, SA & NT	
Age	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**
14 years	. .	. .	1.40	0.89*	1.37[a]	2.31[b]	0.08	0.08
15 years	. .	. .	1.19	1.12	1.44[a]	2.07[b]	0.07	0.10
				Missing				
6 years	4.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
7 years	0.13	0.01	0.01	0.00	0.00	0.00	0.08	0.05
8 years	0.06	0.00	0.02	0.00	0.00	0.08	0.12	0.11
9 years	0.07	0.01	0.06	0.00	0.00	0.03	0.30	0.16
10 years	0.02	0.01	0.03	0.01	0.03	0.10	0.33	0.26
11 years	0.08	0.02	0.04	0.02	0.06	0.00	0.60	0.35
12 years	0.03	0.03	0.05	0.04	0.16	0.10	0.69	0.38
13 years	. .	. .	0.05	0.03	0.26	0.55[a]	1.48[a]	0.77
14 years	. .	. .	0.15	0.07	0.03	0.03	1.35	0.96
15 years	. .	. .	0.07	0.06	0.06	0.27	1.36[a]	1.18
				Decayed, missing & filled (DMFT)				
6 years	4.00	0.08	0.12	0.05	0.13	0.29	0.09	0.08
7 years	0.39	0.23	0.25*	0.16*	0.41	0.58	0.38	0.23
8 years	0.53	0.28	0.50*	0.24*	0.84	0.52	0.59	0.28
9 years	0.57	0.37	0.74*	0.36*	1.38[a]	0.80	0.73*	0.39*
10 years	0.77	0.55	0.89*	0.50*	1.29	1.51	0.86	0.57
11 years	1.23	0.65	0.99*	0.70*	1.90[a]	1.42	1.32*	0.69*
12 years	1.12	0.72	1.54*	0.99*	2.17[a]	1.76[a]	1.4*	0.82*

(continued)

Table 1.11.14 (continued): Mean number of decayed, missing and filled permanent teeth for children aged 6–15 year, by age and Indigenous status, NSW (2007), SA (2008) and NT (2008)

	New South Wales		South Australia		Northern Territory		NSW, SA & NT	
Age	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**
13 years	. .	. .	1.76*	1.20*	3.09[(a)]	2.23[(a)]	2.66*[(b)]	1.33*
14 years	. .	. .	3.15*[(a)]	1.54*	2.46[(b)]	2.65[(b)]	2.65*[(a)]	1.66*
15 years	. .	. .	2.56*[(a)]	1.88*	3.71[(b)]	2.71[(b)]	3.43*[(a)]	2.02*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Estimate has a relative standard error of 25% to 50% and should be used with caution.

(b) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

Source: AIHW Dental Statistics Research Unit.

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- The mean DMFT of Indigenous and non-Indigenous children aged 6–14 years by residential location is presented in Table 1.11.15. Indigenous children had higher DMFT than non-Indigenous children across all age groups and residential location except children aged 6 and12 years in Inner cities, and children aged 14 years in remote/very remote area.
- Across all age groups, Indigenous children in Outer and Remote/very remote area had greater DMFT than their counterparts in Major and Inner cities. The mean DMFT increased with increasing age for all children.

Table 1.11.15: Mean DMFT of Indigenous and non-Indigenous children aged 6–14 years by residential location, NSW (2007), SA (2008), NT (2008) and Tas (2008)

	Indigenous	Non-Indigenous	Rate ratio[(a)]	Rate difference[(b)]
Major cities				
6 years	0.08	0.06	1.3	0.0
7 years	0.32	0.22	1.5	0.1
8 years	0.63[(c)]	0.25	2.5	0.4
9 years	0.38	0.35	1.1	0.0
10 years	0.67*[(c)]	0.54*	1.2*	0.1*
11 years	1.18[(c)]	0.65	1.8	0.5
12 years	1.08[(c)]	0.76	1.4	0.3
13 years	1.77[(c)]	1.14	1.6	0.6
14 years	2.98*[(c)]	1.36*	2.2*	1.6*
15 years	1.77[(c)]	1.69	1.0	0.1
Inner cities				
6 years	0.02	0.13	0.2	–0.1
7 years	0.23	0.21	1.1	0.0
8 years	0.39	0.36	1.1	0.0
9 years	0.61	0.45	1.4	0.2
10 years	0.97[(c)]	0.58	1.7	0.4
11 years	1.20[(c)]	0.69	1.7	0.5
12 years	0.73	0.83	0.9	–0.1
13 years	1.48[(c)]	1.36	1.1	0.1
14 years	2.77[(d)]	1.73	1.6	1.0
15 years	2.96[(d)]	2.20	1.3	0.8
Outer cities				
6 years	0.13	0.12	1.1	0.0
7 years	0.55	0.31	1.8	0.2
8 years	0.47	0.31	1.5	0.2
9 years	1.15[(c)]	0.40	2.9	0.8
10 years	0.76	0.68	1.1	0.1
11 years	1.82*[(c)]	0.93*	2.0*	0.9*
12 years	1.75[(c)]	1.07	1.6	0.7
13 years	3.58[(d)]	1.60	2.2	2.0
14 years	3.03[(d)]	1.99	1.5	1.0
15 years	3.66[(d)]	2.20	1.7	1.5

(continued)

Table 1.11.15 (continued): Mean DMFT of Indigenous and non-Indigenous children aged 6–14 years by residential location, NSW (2007), SA (2008), NT (2008) and Tas (2008)

	Indigenous	Non-Indigenous	Rate ratio[(a)]	Rate difference[(b)]
Remote/very remote				
6 years	0.15	0.09	1.7	0.1
7 years	0.50	0.44	1.1	0.1
8 years	0.99	0.45	2.2	0.5
9 years	1.43*[(c)]	0.6*	2.4*	0.8*
10 years	1.45*	0.68*	2.1*	0.8*
11 years	1.27[(c)]	1.09	1.2	0.2
12 years	2.39[(c)]	2.08[(c)]	1.1	0.3
13 years	2.64[(d)]	1.59[(c)]	1.7	1.1
14 years	2.42[(d)]	2.57[(d)]	0.9	–0.2
15 years	3.78[(d)]	3.00[(d)]	1.3	0.8

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Rate ratio is Indigenous: non-Indigenous.

(b) Rate difference is Indigenous minus non-Indigenous.

(c) Estimate has a relative standard error of 25% to 50% and should be used with caution.

(d) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

Source: AIHW Dental Statistics Research Unit.

The mean DMFT of Indigenous and non-Indigenous children aged 6–14 years by the SEIFA Index of Relative Advantage/Disadvantage is presented in Table 1.11.16.

- There was no clear pattern in mean DMFT by index of disadvantage among Indigenous children aged 6–14 years, however many of the DMFT scores presented in Table 1.11.6 have high Relative Standard Errors due to small numbers and should be treated with caution.
- Across most age groups, Indigenous children had higher mean DMFT than non-Indigenous children in the most disadvantaged categories, while the reverse was true for the least disadvantaged category (SEIFA Category 5).

Table 1.11.16: Mean DMFT for Indigenous and non-Indigenous aged 6–14 years children by SEIFA Index of Relative Advantage/Disadvantage[(a)], NSW (2007), SA (2008), NT (2008) and Tas (2008)

Age	SEIFA index	Indigenous	Non-Indigenous
6 years	1	0.14	0.07
	2	0.03	0.10
	3	0.09	0.08
	4	0.03	0.10
	5	0.00	0.05
7 years	1	0.44	0.30
	2	0.35	0.23
	3	0.43	0.25
	4	0.03	0.14
	5	0.00	0.17
8 years	1	0.88[(b)]	0.38
	2	0.40	0.28
	3	0.45	0.27
	4	0.54[(b)]	0.26
	5	0.02*	0.22*
9 years	1	0.75	0.52
	2	0.79	0.42
	3	0.59[(b)]	0.38
	4	1.45[(c)]	0.34
	5	0.01*	0.24*
10 years	1	0.66	0.67
	2	1.26[(b)]	0.57
	3	0.86[(b)]	0.55
	4	0.94[(c)]	0.55
	5	0.00	0.49
11 years	1	1.31	0.84
	2	1.33[(b)]	0.77
	3	1.46*[(b)]	0.59*
	4	1.11[(c)]	0.61
	5	0.65[(c)]	0.63
12 years	1	1.75[(b)]	0.98
	2	1.27[(b)]	0.87
	3	1.30[(b)]	0.79
	4	0.47[(b)]	0.81
	5	0.50[(b)]	0.65

(continued)

Table 1.11.16 (continued): Mean DMFT for Indigenous and non-Indigenous aged 6–14 years children by SEIFA Index of Relative Disadvantage[(a)], NSW (2007), SA (2008), NT (2008) and Tas (2008)

Age	SEIFA index	Indigenous	Non-Indigenous
13 years	1	2.63[(c)]	1.51
	2	1.84[(c)]	1.33
	3	3.57[(c)]	1.36
	4	2.99*[(c)]	1.23*
	5	1.33[(c)]	0.91
14 years	1	2.46[(b)]	1.88
	2	2.87[(c)]	1.70
	3	3.27[(c)]	1.78
	4	4.30[(c)]	1.33
	5	0.95[(b)]	1.10

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) 1 = most disadvantaged and 5 = least disadvantaged.

(b) Estimate has a relative standard error of 25% to 50% and should be used with caution.

(c) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

Source: AIHW Dental Statistics Research Unit.

DMFT= 0

- The proportion of Indigenous children in New South Wales, South Australia, the Northern Territory and Tasmania free of caries in their permanent teeth decreased with increasing age. At each age level, fewer Indigenous children had no caries experience than
  non-Indigenous children (Table 1.11.17).
- Across all age groups the proportion of children with no evidence of dental disease experience in their permanent teeth was highest among non-Indigenous groups in major cities and among Indigenous in Inner cities (Table 1.11.18). The highest proportion of children who were caries-free in their permanent teeth was non-Indigenous children aged 6 years in outer cities (98.3%). The proportion of children with DMFT = 0 generally decreased with increasing age across Indigenous and non-Indigenous groups.

Table 1.11.17: Proportion of children aged 6–14 years with no decayed, missing or filled permanent teeth (DMFT= 0), by age and Indigenous status, NSW (2007), SA (2008), NT (2008) and Tas (2008)

	New South Wales		South Australia		Northern Territory		Tasmania		NSW, SA, Tas & NT	
Age	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.
					No decayed, missing & filled (DMFT= 0)					
6 years	93.58	94.95	92.83*	96.41*	96.17*	86.55*	92.94	94.75	93.89	95.03
7 years	69.43	85.89*	83.21*	89.37*	79.33*	75.69*	70.94*	86.11*	73.42*	86.35*
8 years	75.52	84.00	72.48*	85.11*	68.6*	78.82*	54.48*	79.41*	73.56	83.81
9 years	69.77	78.75	63.11*	78.31*	52.06*	66.33*	62.24*	74.62*	65.83*	78.2*
10 years	60.51	68.77	53.88*	72.4*	41.28*	53.13*	55.40*	68.3*	56.89	69.09
11 years	47.52	68.12	49.67*	65.21*	46.66	48.36	45.06*	57.04*	47.51*	66.49*
12 years	59.53	66.16	41.57*	54.96*	36.7*	48.89*	35.75*	48.58*	52.54	62.59
13 years	n.a.	n.a.	39.27*	51.04*	33.72	32.43	30.08*	46.90*	34.92*	48.98*
14 years	n.a.	n.a.	24.02*	45.63*	38.65	36.85	33.13*	42.89*	34.75	44.47
15 years	n.a.	n.a.	24.69*	39.69*	6.14*	40.72*	19.93*	34.04*	11.19*	38.39*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

Source: AIHW Dental Statistics Research Unit.

Table 1.11.18: Proportion of Indigenous and non-Indigenous children aged 6–14 years with DMFT= 0 by residential location NSW (2007), SA (2008), NT (2008) and Tas (2008)

	Indigenous	Non-Indigenous
Major cities		
6 years	93.89	95.96
7 years	73.20	86.25
8 years	73.58	85.57
9 years	65.92	79.04
10 years	56.89	68.29
11 years	47.46	68.08
12 years	52.43	63.78
13 years	34.94*	52.22*
14 years	34.75*	49.96*
15 years	11.23	41.68
Inner cities		
6 years	92.53	93.30
7 years	73.49	87.34
8 years	78.37	79.45
9 years	79.02	76.04
10 years	67.33	70.94
11 years	52.20	66.59
12 years	63.43	62.61
13 years	35.49	48.60
14 years	19.53	42.16
15 years	35.09	36.66
Outer cities		
6 years	98.32	92.89
7 years	78.91	84.21
8 years	75.93	84.71
9 years	60.02*	79.71*
10 years	51.67	69.35
11 years	51.54*	58.07*
12 years	69.80	56.99
13 years	50.14*	44.05*
14 years	31.25	39.32
15 years	20.08*	35.35*

(continued)

Table 1.11.18 (continued): Proportion of Indigenous and non-Indigenous children aged 6–14 years with DMFT= 0 by residential location NSW (2007), SA (2008), NT (2008) and Tas (2008)

	Indigenous	Non-Indigenous
Remote/very remote		
6 years	91.29	94.93
7 years	63.17	86.12
8 years	69.21	73.90
9 years	52.24	67.87
10 years	53.32*	73.30*
11 years	25.81	56.86
12 years	28.39	41.70
13 years	16.60	44.97
14 years	30.16	33.28
15 years	3.14	34.40

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

Source: AIHW Dental Statistics Research Unit.

D/DMFT

- At all ages between 6 and 14 years, there was a higher proportion of Indigenous children with untreated permanent decayed teeth as a percentage of those with decayed, missing or filled teeth (D/DMFT) than non-Indigenous children, except children 6 years in inner cities and children 13 year in remote/very remote area (Table 1.11.19). The differences between Indigenous and non-Indigenous children with untreated permanent decayed teeth were most marked in outer cities.

Table 1.11.19: Children aged 6–14 years with decayed deciduous teeth as a proportion of total children with decayed, missing or filled permament teeth (D/DMFT), by age and Indigenous status, metropolitan and rural areas, NSW (2007), SA (2008), NT (2008) and Tas (2008)

	Indigenous	Non-Indigenous
Major cities		
6 years	7.47	3.69
7 years	16.55*	10.92*
8 years	18.05*	9.49*
9 years	17.66	14.00
10 years	29.77	16.83
11 years	25.21	15.53
12 years	22.94	18.08
13 years	29.37*	16.18*
14 years	24.08	16.83
15 years	36.69*	19.51*
Inner cities		
6 years	1.42*	6.21*
7 years	20.43	9.67
8 years	20.17	12.56
9 years	23.83	14.19
10 years	29.15	15.35
11 years	20.68	17.8
12 years	20.12	18.18
13 years	29.22	21.51
14 years	39.94	23.33
15 years	32.36	24.71
Outer cities		
6 years	7.64	5.01
7 years	17.92	10.50
8 years	17.84	8.46
9 years	26.73	7.97
10 years	22.42	10.97
11 years	36.61*	15.57*
12 years	35.96*	14.04*
13 years	28.92	15.34
14 years	23.00	22.71
15 years	39.24	19.89

(continued)

Table 1.11.19 (continued): Children aged 6–14 years with decayed deciduous teeth as a proportion of total children with decayed, missing or filled permament teeth (D/DMFT), by age and Indigenous status, metropolitan and rural areas, NSW (2007), SA (2008), NT (2008) and Tas (2008)

	Indigenous	Non-Indigenous
Remote/very remote		
6 years	4.70	0.91
7 years	11.94	2.50
8 years	15.41	13.04
9 years	10.34	6.36
10 years	16.20	6.79
11 years	8.70	5.75
12 years	15.48	13.43
13 years	15.67	15.86
14 years	19.72	16.01
15 years	53.38*	9.06*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

Source: AIHW Dental Statistics Research Unit.

dmft and DMFT scores of Indigenous children in remote communities

Data on the oral health of Indigenous children in remote communities come from a study undertaken in 2000–2003 by the Australian Research Centre for Population Oral Health in collaboration with the Far West Area Health Service (New South Wales), the remote Indigenous communities of Nganampa lands (South Australia), and various remote communities around Alice Springs (Northern Territory). There was a total of 831 children in the sample, whose ages ranged from 2 to 16 years.

The mean dmft and DMFT scores of Indigenous children in remote locations by age group are presented in Table 1.11.20. Overall, the mean DMFT score for Indigenous children aged 6–15 years was 1.89 and the mean dmft score for Indigenous children aged 5–10 years was 3.74.

Indigenous children aged 6–9 years had lower mean DMFT score than those in older age groups (0.76 of aged 6–9 years compared with 2.18 and 3.78 of ages 10–14 years and 15 years respectively).

Table 1.11.20: Mean dmft and DMFT scores of remote Indigenous children, by age group, 2008

	Age group			
	5–10 years	**10–14 years**	**15 years**	**All children (5–10 years)**
Mean dmft score (baby teeth)	3.74	n.a.	n.a.	3.74
	6–9 years	**10–14 years**	**15 years**	**All children (6–15 years)**
Mean DMFT score (permanent teeth)	0.76	2.18	3.78	1.89

Notes

1. mean dmft is calculated for children from 5–10 year old children.
2. mean DMFT is calculated for children from 6 and greater than 6 year olds children.

Source: AIHW Dental Statistics Research Unit.

Comparison of remote Indigenous child oral health and state/territory and national dental disease levels

A comparison of caries experience of remote Indigenous children compared with children in South Australia, the Northern Territory and total Australia is shown in Table 1.11.21.

Dental disease experience in primary teeth was greater for remote Indigenous children (dmft = 4.25 for 5–6 years) compared with children in South Australia, the Northern Territory and total Australia (dmft = 2.13 to 2.23 for 5–6 years). The proportion of children with caries in both deciduous and permanent teeth was greater for children living in remote Indigenous communities.

Table 1.11.21: Caries experience of remote Indigenous children compared with South Australia, the Northern Territory and total Australia child populations

Population	mean dmft (5–6 years old)	% dmft > 0 (5–6 year old)	DMFT (12–15 year old)	% DMFT > 0 (12–15 year old)
Remote Indigenous[(a)]	4.25	73.96	2.77	66.58
SA	2.13	48.61	1.43	52.71
NT	2.23	52.78	2.60	65.95
Australia	2.15	49.81	1.46	49.90

(a) Includes remote or very remote.

Source: AIHW Dental Statistics Research Unit.

Comparison of remote Indigenous child oral health and state/territory Indigenous oral health

Indigenous children aged 6 years in remote communities had lowest dmft levels (dmft = 2.34) than non-remote Indigenous children in New South Wales, the Northern Territory and South Australia (Table 1.11.22). However, average DMFT level for Indigenous children aged 12 years in remote communities was highest at 3.82, compared with those in the Northern Territory (DMFT = 2.17), in south Australia (DMFT = 1.54) and lowest among those in New South Wales (DMFT = 1.12).

Table 1.11.22: Remote and state/territory caries experience of Indigenous children

Population	dmft (6 years old)	% dmft > 0	DMFT (12 years old)	% DMFT> 0
Remote Indigenous[(a)]	2.34	68.7	3.82	59.89
NSW Indigenous	2.74	65.2	1.12	40.50
SA Indigenous	4.90	74.5	1.54	58.43
NT Indigenous	3.90	73.1	2.17	63.30

(a) Estimate for remote indigenous is not including NSW.

Source: AIHW Dental Statistics Research Unit.

Dental characteristics of Indigenous children in remote communities

Data on the oral health of Indigenous children in remote communities come from a study undertaken in 2000–2003 by the Australian Research Centre for Population Oral Health in collaboration with the Far West Area Health Service (New South Wales), the remote Indigenous communities of Nganampa lands (South Australia), and various remote communities around Alice Springs (Northern Territory).

Dental characteristics of remote Indigenous children are presented in Table 1.11.23. Almost one-third were classified as 'high caries risk' and just over one-fifth were in the 'moderate' gingivitis risk group. One-quarter had 'moderate' hypoplasia on permanent teeth and one-quarter had 'mild' fluorosis on permanent teeth.

Table 1.11.23: Dental characteristics of remote Indigenous children, 2000–2003

	Number	Per cent
Caries risk status		
Low	366	44.0
Moderate	193	23.2
High	265	31.9
Gingivitis risk status		
Low	541	65.1
Moderate	171	20.6
High	56	6.7
Hypoplasia on permanent teeth		
None	92	25.4
Mild	127	35.1
Moderate	88	24.3
Severe	55	15.2
Fluorosis on permanent teeth		
None	120	58.3
Mild	50	24.3
Moderate	33	16.0
Severe	3	1.5

Source: Jamieson et al. 2007.

Dental characteristics of remote Indigenous children by age group are presented in Table 1.11.24. Less than 4% of children aged less than 5 years brushed their teeth at home, compared with almost one-quarter of those aged 10–14 years (23%). Children aged less than 5 years and 5–9 years were at the highest caries risk (37% and 39% respectively), and those aged 15–16 years were at the highest gingivitis risk (25%). The prevalence of hypoplasia and fluorosis on permanent teeth was higher among children in the older age groups.

Table 1.11.24: Dental characteristics of remote Indigenous children, by age group, 2000–2003

	< 5 years		5–9 years		10–14 years		15–16 years	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Brush teeth school	11	21.2	78	20.5	52	14.6	5	20.8
Brush teeth home	2	3.8	79	20.7	80	22.5	3	12.5
Caries risk status								
Low	28	53.8	130	34.1	192	54.1	10	41.7
Moderate	5	9.6	98	25.7	76	21.4	8	33.3
High	19	36.5	150	39.4	84	23.7	6	25.0
Gingivitis risk status								
Low	38	73.1	290	76.1	198	55.8	8	33.3
Moderate	3	5.8	56	14.7	97	27.3	10	41.7
High	—	—	10	2.6	39	11.0	6	25.0
Hypoplasia on permanent teeth								
None	3	100.0	49	26.1	31	20.0	3	42.9
Mild	—	—	72	38.3	54	34.8	1	14.3
Moderate	—	—	45	23.9	42	27.1	1	14.3
Severe	—	—	22	11.7	28	18.1	2	28.6
Fluorosis on permanent teeth								
None	3	100.0	55	61.8	55	54.5	—	—
Mild	—	—	21	23.6	26	25.7	2	40.0
Moderate	—	—	11	12.4	19	18.8	3	60.0
Severe	—	—	2	2.2	1	1.0	—	—

Source: Jamieson et al. 2007.

Hospitalisations for dental problems

- For the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were 66,968 hospitalisations for dental problems, of which 3,224 (5%) were Aboriginal and Torres Strait Islander people.
- Indigenous children aged 0–4 and 5–14 years had higher hospitalisation rates for dental problems (dental caries and tooth extractions) than non-Indigenous children of the same age. Between the ages of 15–24 years and 35–44 years, the hospitalisation rate for dental problems among Indigenous Australians was similar to that of non-Indigenous Australians. Non-Indigenous Australians aged 45 years and over had a higher hospitalisation rate than Indigenous Australians (Table 1.11.25).
- After adjusting for differences in age structure between the two population groups, Indigenous and non-Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised at similar rates for dental problems, 2 per 1,000 and 1.6 per 1,000, respectively (the Crude rates were respective at 3.1 per 1,000 and 1.6 per 1,000) (Table 1.11.25).

Table 1.11.25: Age-specific hospitalisation rates (separations per 1,000 population) for dental problems, by Indigenous status, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [(a)(b)(c)]

									All ages	
	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65+	Crude	Age std.[(d)]
Males										
Indigenous	10.1	6.7	0.5	0.6	0.6	0.5	0.5	0.4	3.2	2.0
Non-Indigenous	4.4	4.5	0.6	0.7	0.8	0.9	1.2	1.1	1.5	1.6
Rate ratio[(e)]	2.3	1.5	0.8	0.8	0.8	0.5	0.4	0.4	2.1	1.3
Rate difference[(f)]	5.8	2.2	–0.1	–0.1	–0.2	–0.4	–0.7	–0.7	1.7	0.4
Females										
Indigenous	8.6	6.3	0.7	0.8	0.8	0.7	0.4	0.2	2.9	1.9
Non-Indigenous	4.1	4.3	0.8	0.7	0.9	1.2	1.3	1.0	1.6	1.6
Rate ratio[(e)]	2.1	1.5	0.9	1.1	0.9	0.6	0.3	0.2	1.9	1.2
Rate difference[(f)]	4.5	2.0	–0.1	0.1	–0.1	–0.5	–0.9	–0.8	1.4	0.3
Persons										
Indigenous	9.4	6.5	0.6	0.7	0.7	0.6	0.4	0.3	3.1	2.0
Non-Indigenous	4.2	4.4	0.7	0.7	0.8	1.0	1.2	1.0	1.6	1.6
Rate ratio[(e)]	2.2	1.5	0.8	1.0	0.8	0.5	0.4	0.3	2.0	1.2
Rate difference[(f)]	5.2	2.1	–0.1	0.0	–0.1	–0.5	–0.8	–0.7	1.5	0.4

(a) Data are reported by state/territory of usual residence of the patient hospitalised. Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(d) Directly age-standardised using the Australian 2001 standard population.

(e) Rate ratio Indigenous: non-Indigenous Australians.

(f) Rate difference Indigenous minus non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Northern Territory Emergency Response Child Health Check Initiative

Over the course of the CHCI (CtG) Program (August 2007 to 30 June 2012), 17,169 dental clinic services were provided through CHCI and then the CHCI (CtG) Program. A total of 9,281 children received dental services, which is approximately 57% of the Indigenous population aged under 16 in the Northern Territory prescribed areas (AIHW 2012).

About 20% of these children's families did not give consent for sharing information with the AIHW, and this accounts for about 13% of services provided. Data are presented for the 7,376 children who received services for whom consent was provided.

Forty-eight per cent of all children, accounting for around one-quarter of all occasions of service, received one dental service (Table 1.11.26). A further 52% of children received two or more occasions of dental services, accounting for around three quarters of total occasions of service.

Table 1.11.26: Number of dental services per child, Indigenous children who had a dental service, August 2007 to June 2012

	Dental services		Children	
Dental services per child with consent	Number	Per cent of all services	Number	Per cent of children
1 dental service[(a)]	3,569	23.8	3,569	48.4
2 or more dental services	11,396	76.2	3,807	51.6
Total services with consent	**14,965**	**100.0**	**7,376**	**100.0**

(a) Where invalid or missing HRN, reported as 1 dental service received.

Note: Data is presented only for children whose families provided consent for sharing detailed information with the AIHW.

Source: AIHW analysis of Child Health Check dental dataset for dental services provided on or before 30 June 2012.

Children aged 6–11 accounted for more than half (55%) of those who received a dental service, as they were more easily accessible through local schools (Table 1.11.27). Less than a quarter of services were provided to very young children (0–5 years), while only a very small proportion of children were aged 16 and over. A similar proportion of males and females received dental services.

Table 1.11.27: Number of Indigenous children who received dental services, by age and sex, August 2007 to June 2012

	Number	Per cent
Age group (years)		
0–5	1,615	21.9
6–11	4,068	55.2
12–15	1,472	20.0
16+	183	2.5
Not recorded	38	0.5
Total	**7,376**	**100.0**
Sex		
Male	3,633	49.3
Female	3,736	50.7
Not recorded	7	0.1
Total	**7,376**	**100.0**

Note: Data is presented only for children whose families provided consent for sharing detailed information with the AIHW. This table reflects the age of children at their most recent dental service.

Source: AIHW analysis of Child Health Check dental dataset for dental services provided on or before 30 June 2012.

Type of dental clinical management

Of the children who attended a dental service, 96% received a diagnostic service. About 79% of children received a preventive service, restorative services (47%) and dental surgery (17%). Only a very small proportion of children received endodontic (2%), periodontic (1%) or other services (<1%). Around one in three children (28%) still required follow-up and/or ongoing clinical services to manage and treat existing dental conditions when they received last dental services in the CHCI (CtG) Program (Table 1.11.28).

Table 1.11.28: Type of clinical dental management received by Indigenous children (per cent), August 2007 to June 2012

Dental services provided	Per cent
Diagnostic	96
Health preventative	79
Restorative	47
Surgery	17
Surgery under general anaesthetic	*4*
Endodontic	2
Periodontic	1
Require follow-up dental services	28
Other	1
Total number of children	**100**

Notes

1. Data include cases where Hospital Record Number (HRN) is unknown.
2. This is a multiple response item. Children may have received more than one treatment.
3. Surgery under general anaesthetic is a subset of surgery.
4. Data is presented only for those children whose parent or guardian provided consent for sharing information with AIHW.

Source: AIHW analysis of Child Health Check dental dataset for dental services provided on or before 30 June 2012.

Oral health problems treated

Among the 7,376 children who received a dental service, 4,393 (60%) were treated for at least one oral health problem. Untreated caries was the most prominent oral health condition, requiring treatment in 52% of children (Table 1.11.29). Mouth infections or sores were treated in 5% of children, as were dental abscesses. Treatments for conditions such as gum disease, abnormal teeth growth, broken or chipped teeth due to trauma and missing teeth were less common. Other dental problems accounted for 15% of treatments provided.

Table 1.11.29: Types of dental problems of Indigenous children that were treated at their last dental check, August 2007 to June 2012

	Total number of children	
Problem treated	**Number**	**Per cent**
Untreated caries	3,863	52.4
Dental abscess	383	5.2
Mouth infection or mouth sore	366	5.0
Gum disease	175	2.4
Broken or chipped teeth due to trauma	88	1.2
Abnormal teeth growth	83	1.1
Missing teeth[(a)]	15	0.2
Other	1,075	14.6
Sub-total number of children treated for at least one dental problem during dental service[(b)]	*4,393*	*59.6*
Sub-total number of children who did not received treatment or no dental health problem diagnosed during dental service	*2,983*	*40.4*
Total number of children who received dental service	**7,376**	**100.0**

(a) Missing teeth are reported as a type of dental problem rather than a problem treated as missing teeth are not replaced.

(b) The sum of the columns does not add up to the sub-total because one child can receive treatment for multiple conditions.

Note: Data is presented only for children whose families provided consent for sharing detailed information with the AIHW.

Source: AIHW analysis of Child Health Check dental dataset for dental services provided on or before 30 June 2012.

Changes in oral health conditions over time

Table 1.11.30 shows changes in the prevalence of the most common oral health conditions among children who received two or more courses of dental care.

- About 52% of children who had more than one course of dental care had at least one oral health problem diagnosed during their first course of care, and this had decreased to 41% by the last course of care.
- At their last course of care, there was a decrease of 12 percentage points for untreated caries and about 5 percentage points for mouth infections or mouth sores. Furthermore, the prevalence of no oral health conditions increased by 12 percentage points between the first and last dental checks.

Table 1.11.30: Changes in oral health conditions among children who received two or more courses of dental care, August 2007 to June 2012

Oral health condition[c]	First course of dental care[a]		Last course of dental care[b]		Change in prevalence
	Number of children	Per cent	Number of children	Per cent	
Children who received two or more courses of dental care	1,916	100.0	1,916	100.0	n.a.
Children with at least one dental problem	1,003[d]	52.3	778[d]	40.6	–11.7
Untreated caries	961	50.2	733	38.3	–11.9
Mouth infection or mouth sores	118	6.2	24	1.3	–4.9
Other oral health conditions	119	6.2	127	6.6	0.4
Children with no oral health conditions	913	47.7	1,138	59.4	11.7
Total[d]	**1,916**	**100.0**	**1,916**	**100.0**	**n.a.**

(a) Refers to a child's first dental service and all other services received within 90 days of the first service.

(b) Refers to a child's last dental service and all other services received up to 90 days prior to the latest service.

(c) Refers to oral health condition treated during any occasion of service in one course of dental care.

(d) Children can be treated for more than one oral health condition, therefore the sum of oral health conditions does not add up to the total of children with at least one oral health condition.

Note: Data is presented only for children whose families provided consent for sharing detailed information with the AIHW.

Source: AIHW analysis of Child Health Check dental dataset for dental services provided on or before 30 June 2012.

Adult oral health

The National Survey of Adult Oral Health collected information on the oral health status, dental care and oral health perceptions of Indigenous and non-Indigenous Australians. This information is presented below.

Oral health status

In 2004–06, approximately 12% of Indigenous persons aged 15 years and over wore dentures, 57% reported untreated coronal decay (compared with 25% of non-Indigenous persons), 8% had untreated root decay and only 4% had no dental decay (compared with 10% of non-Indigenous persons). In addition, 21% of Indigenous persons reported having periodontitis, 21% reported periodontal pockets of depth of 4 mm and 27% reported gingival inflammation (Table 1.11.31).

Table 1.11.31: Oral health status of persons aged 15 years and over, Australia, 2004–06

	Indigenous	Non-Indigenous
	Per cent	
Fewer than 21 teeth[a]	10.4[b]	11.4
Wear dentures[a]	11.5[b]	15.0
Untreated coronal decay[a]	57.0[b]	25.1
Untreated root decay[a]	7.7[c]	6.7
One or more filled teeth[a]	82.5	83.9
No dental decay[a]	3.8[c]	10.0
Moderate or severe periodontitis[d]	29.0[b]	22.9
Periodontitis[d]	21.2[b]	19.0
4mm periodontal pocket depth[d]	21.4[b]	19.7
2+mm gingival recession[d]	56.1[b]	52.8
Gingival inflammation[d]	26.8[b]	19.6

(a) Excludes those with no natural teeth.

(b) Estimate has a relative standard error of 25% to 50% and should be used with caution.

(c) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

(d) Includes those who were periodontally examined only.

Source: Roberts-Thomson & Do 2007.

DMFT

- In 2004–06, the mean number of decayed, missing or filled teeth for Indigenous adults aged 15 years and over was 14.8, compared with 12.8 for non-Indigenous persons of the same age. The mean numbers of decayed and missing teeth were higher for Indigenous adults across all age groups from 15 to 74 years, and the mean number of filled teeth was higher for non-Indigenous adults in the age groups 35–54 and 55–74 years (Table 1.11.32).
- Overall, a higher percentage of Indigenous persons aged 15 years and over had no natural teeth (7.9%) than non-Indigenous persons aged 15 years and over (6.4%) (Table 1.11.33). This difference is observed in all age groups over 35 years of age and is particularly marked in the 35–54 age group where Indigenous adults were around five times as likely to have no natural teeth as non-Indigenous adults.

Table 1.11.32: Mean number of decayed, missing or filled teeth for adults, by age group and Indigenous status, 2004–06

	Age group				
	15–34	35–54	55–74	> 75+	All ages (15+)
Mean no. of decayed teeth					
Indigenous	1.7[a]	4.1[a]	1.4[a]	n.p.	2.7[a]
Non-Indigenous	0.9	0.8	0.5	0.6[b]	0.8
Mean no. of missing teeth					
Indigenous	4.0[b]	7.4[b]	13.1[b]	n.p.	7.4
Non-Indigenous	3.5	5.3	10.2	14.2	6.1
Mean no. of filled teeth[c]					
Indigenous	1.3	4.3	8.8	n.p.	4.7
Non-Indigenous	0.1	8.2	11.5	9.6	5.9
Mean no. of filled tooth surfaces					
Indigenous	8.0[a]	15.9[b]	26.5[b]	n.p.	16.6[b]
Non-Indigenous	5.6	24.5	34.7	30.3	19.9
Mean no. of decayed, missing or filled teeth					
Indigenous	7.0[a]	15.8	23.3	n.p.	14.8
Non-Indigenous	4.5	14.3	22.2	24.4	12.8

(a) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

(b) Estimate has a relative standard error of 25% to 50% and should be used with caution.

(c) No relative standard error estimates for mean number of filled teeth available.

Note: Excludes those with no natural teeth.

Source: Roberts-Thomson & Do 2007.

Table 1.11.33: Persons aged 15 years and over with no natural teeth (complete tooth loss), by Indigenous status, 2004–06

	Indigenous	Non-Indigenous
15–34	0.0	0.0
35–54	7.6	1.6
55–74	20.8	13.8
75+	40.4	35.7
Total	**7.9**	**6.4**

Source: Roberts-Thomson & Do 2007.

Dental care

Information on the dental care of Indigenous and non-Indigenous Australians is presented in Table 1.11.34.

- In 2004–06, approximately 51% of Indigenous persons aged 15 years and over reported they had visited a dentist in the last 12 months and 15% reported their last dental visit was at least 5 years ago compared with 60% and 12% of non-Indigenous Australians respectively.
- Indigenous persons were less likely to have attended a private dental practice at the last dental visit (66%), to have paid for their last dental visit (80%), to usually visit a dentist at least once a year (43%), to have a regular dentist (72%) and to usually visit a dentist for a check-up (45%) than non-Indigenous persons (83%, 92%, 53%, 79% and 56% respectively).
- Indigenous Australians were more likely to report that they had avoided or delayed dental care (38%), that cost had prevented recommended dental treatment (34%) and that they would have a lot of difficulty paying a $100 dental bill (27%) than non-Indigenous Australians.

Table 1.11.34: Dental care of Indigenous and non-Indigenous adults, 2004–06

	Indigenous	Non-Indigenous
	Per cent	
Visit dentist in last 12 months	50.7	59.5
Last dental visit at least 5 years ago	14.5[a]	11.8
Attended private dental practice at last dental visit	66.2	83.4
Paid for last dental visit[b]	79.8	91.5
Usually visit dentist at least once a year[c]	43.4	53.3
Have a regular dentist[d]	72.1	78.7
Usually visit dentist for check-up	44.6	56.4
Avoided or delayed dental care	37.7	29.9
Reported cost had prevented recommended dental treatment[e]	33.7[a]	20.5
Would have a lot of difficulty paying $100 dental bill	26.9[a]	18.1

(a) Estimate has a relative standard error of 25% to 50% and should be used with caution.
(b) People who visited dentist within last 5 years.
(c) Excludes those with no natural teeth.
(d) People who visited dentist in last 5 years. Excludes those with no natural teeth.
(e) People who visited dentist within last 2 years.

Source: Spencer & Harford 2007.

Oral health perceptions

Information on the dental care of Indigenous and non-Indigenous Australians is presented in Table 1.11.35.

- In 2004–06, Indigenous persons were more likely than non-Indigenous Australians to report their oral health as fair or poor (25% compared with 16%), to experience toothache (27% compared with 15%), to need dentures (16% compared with 7%), to need an extraction or filling (49% compared with 33%) and to need oral treatment within 3 months (83% compared with 69%).

Table 1.11.35: Oral health perceptions of Indigenous and non-Indigenous adults, 2004–06

	Indigenous	Non-Indigenous
	Per cent	
Avoid foods due to dental problems	34.9	17.1
Self-assessed fair/poor oral health[(a)]	25.1[(b)]	16.3
Experiences toothache[(a)]	27.0[(b)]	15.0
Experiences orofacial pain	27.1[(b)]	22.5
Needs dentures	15.8[(b)]	7.1
Need an extraction or filling[(a)]	48.8	32.6
Perceive a need for a check-up[(a)]	58.1	59.6
Perceive need for treatment within 3 months[(a)(c)]	82.9	69.1

(a) Excludes those with no natural teeth.

(b) Estimate has a relative standard error of 25% to 50% and should be used with caution.

(c) People who need an extraction or filling.

Source: Harford & Spencer 2007.

NATSIH data

Dental consultations and oral health actions

Information on the dentist consultations and oral health actions of Indigenous Australians was also collected in the 2004–05 NATSIHS and yielded similar findings to the Adult Dental Health Survey. This information is summarised below.

- In 2004–05, approximately 4% of Indigenous Australians and 6% of non-Indigenous Australians aged 2 years and over reported they had visited a dentist in the last two weeks.
- Approximately 89% of Indigenous Australians aged 15 years and over reported they had visited a health professional about their teeth at some point in their lives. A higher proportion of Indigenous people living in remote areas had visited a health professional about their teeth than Indigenous people living in non-remote areas (94% compared with 76%).
- In 2004–05, approximately 10% of Indigenous Australians aged 15 years and over reported wearing dentures and 6% reported they required dentures. A higher proportion of Indigenous Australians in non-remote areas reported wearing dentures than those living in remote areas (12% compared with 5%), whereas a higher proportion of Indigenous people in remote areas reported they required dentures (8%) than those living in non-remote areas (6%).

For more detailed information on oral health actions of Indigenous Australians from the NATSIHS, see the 2006 edition of this report (detailed analyses).

Western Australian Aboriginal Child Health Survey

Dental health problems of Aboriginal children

Information on dental problems among Aboriginal children was collected in the Western Australian Aboriginal Child Health Survey between 2001 and 2002. Carers of Aboriginal

children were asked whether their child currently had a number of dental problems including cavities and dental fillings.

- Overall, carers assessed approximately 38% of Aboriginal children aged 0–17 years as having one or more dental problems (tooth decay, tooth removals or fillings). Almost half of children aged 4–17 years had experienced one or more dental problems at the time of the survey (47%). The proportion of children who had dental problems varied by level of relative isolation, with children living in Perth metropolitan areas twice as likely to have tooth decay, a tooth removal or filling (52%) than children living in areas of extreme isolation (25%).
- Carers assessed approximately 19% of Aboriginal children aged 0–17 years as having holes in their teeth. Prevalence of cavities was lowest for children aged 0–3 years (8%) and highest for children aged 4–7 years (31%).
- Around 9% of Aboriginal children were reported to have ever had a tooth removed. Children aged over 3 years were more likely to have had a tooth extraction for dental decay.
- Over one-quarter (28%) of children aged 0–17 years were reported to have had dental fillings. A greater proportion of older children were reported to have ever had a tooth filled than younger children. Less than 1% of children aged 0–3 years had ever had a dental filling compared with around 40% of children aged 8–11 years and 12–17 years.
- An estimated 6% of Aboriginal children aged 0–17 years were reported to have a problem with sore and bleeding gums. The prevalence of sore and bleeding gums was highest for children aged 12–17 years (8%).

Water fluoridation and children's oral health

Water fluoridation is the process of adjusting the level of fluoride in drinking water to achieve a concentration of approximately 1 part per million (ppm). That concentration is effective in preventing decay but it does not cause appreciable levels of dental fluorosis, a discolouration of the enamel that, in severe cases, creates a chalky appearance on the tooth surface. Fluoride reduces dental decay by making teeth less susceptible to the acids formed by micro-organisms living on and around the teeth. Fluoride can also assist in reversing the process of decay once it has begun. Some small communities in Australia have drinking water that contains naturally occurring fluoride in a concentration of around 1 ppm; that concentration is achieved by water fluoridation in most larger communities and cities (Jamieson et al. 2007).

Non-fluoridated water supplies are more likely in rural and remote areas, where a significant proportion of the population is Indigenous, and there is evidence that children in these areas are more likely to have poorer dental health (Armfield 2006). Data from the Child Dental Health Survey showed that children from fluoridated areas had less dental decay than children from non-fluoridated areas (Jamieson et al. 2007). Within each jurisdiction, children from areas with fluoride concentrations at or above 0.7 ppm had fewer dmft per child, on average, than did children residing in areas with relatively low fluoride concentrations. The proportion of Australians who had access to fluoridated water in 2006 ranged from 5% in Queensland to 100% in the Australian Capital Territory (Australian Dental Association 2006).

International comparisons

Information is available on the oral health of Maori children in New Zealand, First Nation children in Canada and Native American children in the United States of America.

Indigenous child oral health in New Zealand

There is no national survey data that describe the oral health status of Maori children in New Zealand. However, regional studies suggest that Maori children experience higher levels of dental disease than non-Maori children (Thomson 1993, cited in Jamieson et al. 2007), and that this disparity is widening (Lee & Dennison 2004; Thomson et al. 2002, cited in Jamieson et al. 2007). In a survey of 3,283 5-year-olds in one region, the proportion of Maori children identified as having dental caries severe enough to warrant treatment under a general anaesthetic was over twice that of non-Maori children (Thomson 1993, cited in Jamieson et al. 2007). Another report found that 66% of children receiving dental care under a general anaesthetic in one region were Maori, and that demand for this form of care was increasing (Broughton 2000; Thomson 1994, cited in Jamieson et al. 2007).

Indigenous child oral health in Canada

Although dental health is improving among Canadian children in the general population, the same cannot be said for First Nation Canadian children. A comparison of two national oral health surveys of First Nation Canadian children conducted in 1990–91 and 1996–97 respectively showed that deft (decayed, extracted, filled deciduous teeth) scores for 6-year-old children had increased from 8.2 to 8.7, and mean dmft scores had increased from 0.7 to 0.8. This was in contrast to the overall Canadian child population in these age groups, where a decrease in dental disease experience was noted (Peressini et al. 2004, cited in Jamieson et al. 2007). Other regional reports of First Nation Canadian child oral health show similar trends (Harrison & Davis 1993; Harrison & White 1997; Klooz 1988, cited in Jamieson et al. 2007).

Indigenous child oral health in the United States of America

Findings from the 1991 Indian Health Service Patient Oral Health Status and Treatment Needs Survey revealed that Native American children experienced a much higher prevalence of dental caries in their primary and permanent teeth than the general US child population (Niendorff & Jones 2000, cited in Jamieson et al. 2007). Grim et al. (1994) reported that of 1,667 public school students dentally examined in Oklahoma, Native American children had over double the dmfs (decayed, missing, and filled surfaces) and DMFS scores of their non-Native American counterparts. The mean dmfs for children aged 5–6 years was 10.4 for Native American children and 5.1 for non-Native American children, and the mean DMFS for children aged 15–17 years was 10.1 for Native American children and 6.0 for non-Native American children (Jamieson et al. 2007). A review of several large-scale oral health epidemiologic surveys found that Native American children had greater caries experience than non-Native American children, with risk factors including rural residence, minimal exposure to fluoride, and coming from less educated or poorer families (Caplan & Weintraub 1993, cited in Jamieson et al. 2007).

Data quality issues

National Aboriginal and Torres Strait Islander Social Survey

The NATSISS is conducted in all states and territories and includes remote and non-remote areas. The 2008 sample was 13,300 persons in 6900 households, with a response rate of 82% of households. Up to three randomly selected Indigenous people were chosen from selected households to participate in the survey. Trained ABS interviewers conducted the survey using face-to-face interviews. In non-remote areas interviewers used a notebook computer to record responses, while in remote areas a paper questionnaire was used. Interviewers obtained the consent of a parent or guardian before interviewing those aged 15 to 17 years. Indigenous persons usually resident in non-private dwellings such as hotels, motels, hostels, hospitals, short-stay caravan parks, prisons and other correctional facilities were excluded.

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians.

Information recorded in this survey is 'as reported' by respondents, and therefore may differ from information available from other sources or collected using different methodologies.

Data on health related indicators have been age-standardised to the 2001 total Australian population to account for differences in the age structures of the states and territories and the Indigenous and non-Indigenous population.

Time series comparisons for the 2008 survey are available through the 1994 National Aboriginal and Torres Strait Islander Survey and the 2002 NATSISS. However not all data elements align across the three (1994, 2001 and 2008) NATSISS surveys, hence care is required when reviewing results across the three surveys. There are no strictly comparable non-Indigenous results available for the 2008 NATSISS because the latest General Social Survey (which has been used in the past to compare with Indigenous results from the NATSISS) was run in 2006, with the next being run in 2010. Data from other ABS surveys run in 2008 may, however, be used to obtain rough non-Indigenous comparisons for some data items. Where possible, the ABS has provided recommendations for non-Indigenous data comparisons these have been adopted in this report.

The 2008 NATSISS has a relatively large level of under-coverage when compared to other ABS surveys. There was also an increase in under-coverage compared to previous ABS Indigenous surveys. For example, the estimated under-coverage in the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) was 42%. The overall under-coverage rate for the 2008 NATSISS is approximately 53% of the in-scope population at the national level. This rate varies across the states and territories (ABS 2010).

Further information on NATSISS data quality issues can be found in the 2008 NATSISS User's guide (ABS 2010).

Child Dental Health Survey

The Child Dental Health Survey monitors the dental health of children enrolled in school dental services that health departments or authorities in each state and territory operate. Therefore, this survey will miss those children not attending these programs. There are some variations among state and territory programs with respect to priority age groups and the nature of the services provided, such as dental examinations, preventive services and restorative treatment. Caution is required in interpreting statistics for those over the age of 12 years, as many programs only include primary school children.

Children in the CDHS were sampled by a number of strategies, using systematic sampling based on selecting children with certain birth dates. The sample has not been specifically designed to measure Indigenous children and therefore caution is needed in interpreting the results. Data on Indigenous status are collected from the patient's treatment card or medical history. Problems have been identified in the accurate recording of Indigenous status in this data (Armfield et al. 2003).

Indigenous status is obtained for all children except those from Western Australia, and the Australian Capital Territory because of incomplete 'Indigenous status' data collected in these jurisdictions. Although Queensland and Victoria collect information on Indigenous status, the small numbers of Aboriginal and Torres Strait Islander children sampled in Victoria and the poor compliance with collection of Indigenous status in Queensland meant that these states were unable to provide reliable statistics. For these reasons, analyses of Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander children were confined to collections from New South Wales, South Australia, Tasmania and the Northern Territory only. It is important to note that there was no service provision for pre-school children for South Australia and the Northern Territory.

The latest available data for Indigenous children is for 2007 for New South Wales and 2008 for South Australia, Tasmania and the Northern Territory.

Indigenous Child Oral Health in Remote Communities Study

Indigenous child oral health data were collected from remote Indigenous communities in all jurisdictions in the 2000–2003 period. Dental health professionals providing services to these communities collected the data. Because of issues of confidentiality, specific location details were unable to be included in the analysis. The sample included 831 Indigenous children aged 2–16 years. The sample was equally distributed by sex.

National Survey of Adult Oral Health

The 2004–06 National Survey of Adult Oral Health included computer-assisted telephone interviews with 14,123 people aged 15–97 years, 5,505 of which were also dentally examined. The survey included 229 people who identified as Aboriginal or Torres Strait Islander (1.6%). Indigenous identity was based on responses to the question 'Are you of Aboriginal or Torres Strait Islander origin?' People who responded 'yes, Aboriginal', 'yes, Torres Strait Islander' or 'yes, Torres Strait Islander & Aboriginal' were classified as Indigenous. People who responded 'no' were classified as non-Indigenous. Twelve interviewees did not respond or said 'don't know' and they were excluded from estimates for the two subgroups. Results of Indigenous Australians should be interpreted with care because of the small sample size.

Under-identification

Also, the survey had a higher percentage of people that identified themselves as non-Indigenous compared to the general population. This is explained by the fact that a greater percentage of respondents did not state their Indigenous identity.

National Hospital Morbidity Database

The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free-standing day hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included. The NHMD does not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

For 2009–10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2,400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10,600 separations for one private hospital.

Separations

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay or a portion of a hospital stay beginning or ending in a change of type of care) and not patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set.

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Separations with care types of *Newborn* episodes that did not include qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded as these activities are not considered to be admitted patient care.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections.

Approximately 2% of hospital records have missing Indigenous status information.

Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. In 2007, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data.

It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Interpretation of results should take into account the relative quality of the data from the jurisdictions. The proportion of the Indigenous population covered by these six jurisdictions is 96%. Tasmania and the Australian Capital Territory data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions.

From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level. Adjustments for Indigenous under-identification have been made at the national level for the total number of hospital separations using an adjustment factor of 89%. No adjustments for under-identification have been made at the state/territory level or principal diagnosis level.

The 2007 AIHW study indicated acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in *Major cities* to 97% in *Remote* and *Very remote* areas.

The quality of data supports analyses for hospitalisations by remoteness areas at the national level only.

In 2011–12, the AIHW commenced another study to re-assess the level of under-identification in public hospitals data. All states and territories have participated in the study to assess improvements in data quality. A report on the findings is expected to be published in mid-2013 which will include new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

Northern Territory Emergency Response Child Health Check Initiative – dental data collection

Data coverage for the CHCI Dental data collection is limited to data collected from the dental services provided by the NT DHF and six Aboriginal Community Controlled Health Organisations (ACCHOs) that received funding from the Australian government. However, the data from ACCHOs has not been complete. Furthermore, the scope of this collection is limited to children between the ages of 0 and 15 at the time of their dental check, unless they had received a previous health check at which they had been aged 15 years or less.

It should be also noted that some children who received the dental services did not give consent for sharing their oral health information with the AIHW. As such, the NTER CHCI data in this indicator are only derived from dental service information for which consent was obtained.

When interpreting data from this collection, it should be noted that the children who received a dental check were not a random sample. Firstly, dental checks were only provided to children who volunteered for them. Secondly, although all Indigenous children in prescribed areas of the Northern Territory were eligible to receive a CHCI Dental check, children with dental referrals from the CHC data collection were targeted for follow-up by the dental outreach teams. Thus, the findings from the Dental data collection are not representative of the Northern Territory Indigenous child population or the Indigenous population of children within prescribed areas of the NTER CHCI. More information about data quality and interpretation can be found in Appendix G of *Northern Territory Emergency Response Child Health Check Initiative: follow-up services for oral and ear health, final report, August 2007–June 2012* (AIHW 2012).

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians. It therefore overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The Australian Bureau of Statistics (ABS) makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators.

Nevertheless, imperfect recall or individual interpretation of survey questions may affect some responses.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in *Major cities* and *Regional and remote* areas, but *Very remote* areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 National Health Survey.

In remote communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

Western Australian Aboriginal Child Health Survey

Survey data are subject to sampling and non-sampling errors. Confidence intervals are published with the data to provide a guide to the reliability of the estimates. Non-sampling errors can occur in surveys owing to questionnaire design problems, respondent difficulty recalling information/lack of appropriate records, and errors made in the recording and processing of the data. Every effort was made to minimise non-sample errors in this survey.

List of symbols used in tables

n.a.	not available
–	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.12 HIV/AIDS, hepatitis and sexually transmissible infections

The rate of notified sexually transmissible infections (STIs) for chlamydia, gonorrhoea, syphilis, hepatitis C, hepatitis B and HIV/AIDS for Aboriginal and Torres Strait Islander people expressed as a rate by age group, sex, age-standardised rate and ratio

Data sources

Data are available from the National Notifiable Diseases Surveillance System held at the Department of Health and Ageing, and the National AIDS Registry. The National HIV database was held at the Kirby Institute for Infection and immunity in society which was formerly known as National Centre in HIV Epidemiology and Clinical Research (NCHECR).

National Notifiable Diseases Surveillance System

A set of 65 diseases and conditions are notifiable nationally to the National Notifiable Diseases Surveillance System (NNDSS), which is managed by the Australian Government Department of Health and Ageing.

Although data on hepatitis C is included in this indicator, sexual transmission is not considered the main route of transmission, hepatitis C primarily occurs among those with a history of injecting drug use. Data for hepatitis C included in this indicator are for 'newly acquired' and 'unspecified' notifications.

Three years have been combined for reporting due to the small number of Indigenous and non-Indigenous notifications for some STIs each year.

Other Australians includes notifications for non-Indigenous Australians and those for whom Indigenous status is not stated.

National Centre in HIV Epidemiology and Clinical Research

Notifications of HIV infections are forwarded to the National Centre in HIV Epidemiology and Clinical Research (NCHECR).

Notifications for which Indigenous status was not reported have been included with notifications data for non-Indigenous people under the 'other' category.

Data are presented for the 3-year period 2008–2010 because notifications of some diseases are too small to present for a single year.

Analyses

Age-standardised rates and ratios have been used as a measure of morbidity in the Indigenous population relative to other Australians. Ratios of this type illustrate differences between the rates of morbidity among Indigenous people and those of other Australians, taking into account differences in age distributions.

Notification rates by age and sex

Chlamydia, syphilis, gonorrhoea, hepatitis C and hepatitis B

Age-specific notification rates for chlamydia, syphilis, gonorrhoea, hepatitis C and hepatitis B are presented in Table 1.12.1.

- During the 3-year period, from 2009–2011, there were approximately 19,000 notifications for Chlamydia, approximately 1,000 notifications for syphilis , and approximately 11,000 notifications for Gonorrhoea among Indigenous Australians in the jurisdictions with adequate Indigenous identification for these diseases. For the same period, there were approximately 500 new notifications for hepatitis B and 700 notifications for hepatitis C among Indigenous Australians.
- For the 3-year period 2009–2011, in states/territories where Indigenous status for chlamydia, syphilis, gonorrhoea, hepatitis C and hepatitis B patients were available and significant to report, the notification rates among Indigenous persons were higher than among other persons across all age groups, except for rates of gonorrhoea in females aged 65+, hepatitis C in males aged 65+ and females aged 0–14, and hepatitis B in males aged 0–14.
- Among these diseases, chlamydia was the most frequently reported condition among Indigenous and other persons for the 3-year period 2009–2011.
- Rates for chlamydia and gonorrhoea were highest among persons aged 15–24 years for both Indigenous and other Australians. Rates of syphilis were highest among those aged 35–44 years, and rates of hepatitis B were highest among those aged 25–34 years for both Indigenous and other Australians. Rates of hepatitis C were highest among Indigenous persons aged 55–64, and among other Australians were highest among those aged 25–34 years.
- Rate ratios between Indigenous and Other Australians were generally highest among males and females aged 0–14 years for chlamydia, syphilis and gonorrhoea. Chlamydia notification rates among Indigenous males and females aged 0–14 years were respectively 28 and 16 times the rates for other males and females; syphilis notification rates were respectively 18 and 44 times as high; gonorrhoea notification rates were respective 112 and 122 times as high. For hepatitis C among females and hepatitis B among males, a higher rate for other Australians than Indigenous Australians was observed for the 0–14 year age group.
- Rate differences were highest among Indigenous males and females aged 15–24 years for Chlamydia and Gonorrhoea. For syphilis, rate differences were highest among Indigenous males and females aged 35–44 years.

Table 1.12.1: Age-specific notification rates per 100,000 for chlamydia, syphilis, gonorrhoea, hepatitis C and hepatitis B, by Indigenous status and sex, 2009–2011[(a)(b)]

	Males				Females				Persons			
	Indig.	Other[(c)]	Rate ratio[(d)(e)]	Rate difference[(d)]	Indig.	Other[(c)]	Rate ratio[(d)(e)]	Rate difference[(d)]	Indig.	Other[(c)]	Rate ratio[(d)(e)]	Rate difference[(d)]
						Chlamydia[(f)]						
0–14	68.3	2.5	27.5*	65.8*	322.2	19.6	16.4*	302.6*	192.8	10.9	17.7*	181.9*
15–24	3,597.9	1,003.8	3.6*	2,594.1*	7,351.7	2,052.5	3.6*	5,299.2*	5,433.8	1,514.4	3.6*	3,919.4*
25–34	1,651.9	593.0	2.8*	1,058.9*	2,519.8	592.4	4.3*	1,927.4*	2,087.8	593.9	3.5*	1,493.9*
35–44	535.8	181.3	3.0*	354.5*	708.2	125.0	5.7*	583.2*	625.0	153.2	4.1*	471.8*
45–54	192.8	83.2	2.3*	109.6*	182.7	33.2	5.5*	149.5*	187.6	58.1	3.2*	129.5*
55–64	82.1	34.6	2.4*	47.5*	60.7	8.9	6.9*	51.8*	70.7	21.7	3.3*	49.0*
65+	43.5	9.0	4.8*	34.5*	22.8	1.6	14.1*	21.2*	31.6	5.2	6.0*	26.4*
Total age standardised[(c)(m)]	**863.6**	**263.4**	**3.3***	**600.2***	**1,565.3**	**394.7**	**4.0***	**1,170.6***	**1,208.2**	**327.3**	**3.7***	**880.9***
						Syphilis[(g)]						
0–14	2.0	0.1	17.5*	1.9*	4.5	0.1	43.7*	4.4*	3.4	0.1	31.2*	3.3*
15–24	71.3	10.8	6.6*	60.5*	79.9	3.3	24.5*	76.6*	75.8	7.2	10.5*	68.6*
25–34	109.7	26.3	4.2*	83.4*	79.6	7.6	10.5*	72.0*	94.6	17.1	5.5*	77.5*
35–44	143.0	30.2	4.7*	112.8*	89.0	5.5	16.2*	83.5*	114.9	17.9	6.4*	97.0*
45–54	128.0	24.0	5.3*	104.0*	84.7	3.3	25.4*	81.4*	105.4	13.6	7.7*	91.8*
55–64	94.7	14.4	6.6*	80.3*	97.5	3.0	32.7*	94.5*	97.3	8.7	11.2*	88.6*
65+	110.3	12.5	8.8*	97.8*	77.8	5.8	13.4*	72.0*	91.8	8.9	10.4*	82.9*
Total age standardised[(c)(m)]	**88.8**	**16.2**	**5.5***	**72.6***	**68.0**	**3.9**	**17.6***	**64.1***	**78.0**	**10.0**	**7.8***	**68.0***

(continued)

Table 1.12.1 (continued): Age-specific notification rates per 100,000 for chlamydia, syphilis, gonorrhoea, hepatitis C and hepatitis B, by Indigenous status and sex, 2009–2011[(a)(b)]

	Males				Females				Persons			
	Indig.	Other[(c)]	Rate ratio[(d)(e)]	Rate difference[(d)]	Indig.	Other[(c)]	Rate ratio[(d)(e)]	Rate difference[(d)]	Indig.	Other[(c)]	Rate ratio[(d)(e)]	Rate difference[(d)]
						Gonorrhoea[(h)]						
0–14	42.7	0.4	112.3*	42.3*	184.3	1.5	122.3*	182.8*	112.1	1.0	117.7*	111.1*
15–24	2,363.8	94.5	25.0*	2,269.3*	3,181.0	46.4	68.6*	3,134.6*	2,763.9	71.5	38.7*	2,692.4*
25–34	1,752.8	98.4	17.8*	1,654.4*	1,596.8	21.1	75.6*	1,575.7*	1,675.3	60.4	27.8*	1,614.9*
35–44	665.9	59.8	11.1*	606.1*	473.1	8.6	54.9*	464.5*	566.1	34.2	16.6*	531.9*
45–54	232.9	34.6	6.7*	198.3*	109.7	4.2	26.0*	105.5*	168.7	19.3	8.7*	149.4*
55–64	81.0	17.2	4.7*	63.8*	21.0	2.1	10.1*	18.9*	49.3	9.6	5.1*	39.7*
65+	6.2	3.9	1.6	2.3	0.0	0.5	0.0	–0.5	2.6	2.0	1.3	0.6
Total age standardised[(c)(m)]	**727.5**	**43.0**	**16.9***	**684.5***	**791.8**	**11.9**	**66.7***	**779.9***	**757.1**	**27.6**	**27.4***	**729.5***
						Hepatitis C[(i)(j)]						
0–14	4.9	0.8	6.2*	4.1*	0.0	1.0	0.0*	–1.0	2.5	0.9	2.8*	1.6*
15–24	174.3	27.0	6.5*	147.3*	105.8	29.7	3.6*	76.1*	140.8	28.3	5.0*	112.5*
25–34	319.5	93.3	3.4*	226.2*	212.5	59.8	3.6*	152.7*	265.7	77.0	3.5*	188.7*
35–44	343.8	102.5	3.4*	241.3*	181.8	50.0	3.6*	131.8*	260.1	76.5	3.4*	183.6*
45–54	179.0	102.4	1.7*	76.6*	126.1	48.0	2.6*	78.1*	151.5	75.2	2.0*	76.3*
55–64	68.7	41.6	1.7	27.1	55.0	17.2	3.2*	37.8*	61.4	29.4	2.1*	32.0*
65+	0.0	8.3	0.0	–8.3	9.0	5.9	1.5	3.1	5.2	7.0	0.8	–1.8
Total age standardised[(c)(m)]	**155.2**	**52.5**	**3.0***	**102.7***	**97.6**	**29.6**	**3.3***	**68.0***	**126.0**	**41.2**	**3.1***	**84.8***

(continued)

Table 1.12.1 (continued): Age-specific notification rates per 100,000 for chlamydia, syphilis, gonorrhoea, hepatitis C and hepatitis B, by Indigenous status and sex, 2009–2011[(a)(b)]

	Males				Females				Persons			
	Indig.	Other[(c)]	Rate ratio[(d)(e)]	Rate difference[(d)]	Indig.	Other[(c)]	Rate ratio[(d)(e)]	Rate difference[(d)]	Indig.	Other[(c)]	Rate ratio[(d)(e)]	Rate difference[(d)]
						Hepatitis B[(k)(l)]						
0–14	1.9	5.2	0.4	–3.3	6.0	3.5	1.7	2.5	3.9	4.4	0.9	–0.5
15–24	58.7	33.3	1.8*	25.4*	50.0	27.5	1.8*	22.5*	54.5	30.6	1.8*	23.9*
25–34	146.8	69.1	2.1*	77.7*	83.9	64.8	1.3	19.1	115.3	67.0	1.7*	48.3*
35–44	192.3	53.2	3.6*	139.1*	108.9	33.5	3.2*	75.4*	149.2	43.4	3.4*	105.8*
45–54	156.4	38.6	4.1*	117.8*	99.2	22.4	4.4*	76.8*	126.6	30.5	4.2*	96.1*
55–64	214.3	23.3	9.2*	191.0*	191.4	13.0	14.8*	178.4*	202.2	18.1	11.2*	184.1*
65+	247.0	9.7	25.4*	237.3*	160.3	5.5	29.0*	154.8*	196.6	7.5	26.3*	189.1*
Total age standardised[(c)(m)]	**132.2**	**32.8**	**4.0***	**99.4***	**88.7**	**24.1**	**3.7***	**64.6***	**109.1**	**28.5**	**3.8***	**80.6***

* Represents results with statistically significant differences in the Indigenous/Other Australian comparisons at the $p < 0.05$ level.

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Rates are calculated using the sum of notifications divided by the sum of the populations for the relevant years.

(c) Includes notifications for non-Indigenous Australians and those for whom Indigenous status was not stated.

(d) Rate ratio is Indigenous: Other. Rate difference is Indigenous: Other.

(e) Because of the very high rates of syphilis and gonorrhoea in the Indigenous population and low rates of these STIs in the other population, rate ratios are large and may vary between reports, as fairly minor changes in rates can result in large changes in the resulting ratios.

(f) Data are reported for Vic, Qld, WA, SA, Tas and the NT. These six jurisdictions are considered to have adequate levels of Indigenous identification in these data. They do not represent a quasi-Australian figure.

(g) Data are reported for Australia. All eight jurisdictions are considered to have adequate levels of Indigenous identification in these data. NSW syphilis data excludes the category < 2 years duration due to low completeness of Indigenous status for this data category.

(h) Data are reported for Vic, Qld, WA, SA, Tas, the ACT and the NT. These seven jurisdictions are considered to have adequate levels of Indigenous identification in these data. They do not represent a quasi-Australian figure.

(i) Data are reported for WA, SA, Tas and the NT. These four jurisdictions are considered to have adequate levels of Indigenous identification in these data. They do not represent a quasi-Australian figure.

(j) Hepatitis C data includes 'newly acquired' and 'unspecified' infections identified under two disease codes '040' and '053'.

(k) Data are reported for WA, SA, Tas, the ACT and the NT. These five jurisdictions are considered to have adequate levels of Indigenous identification in these data. They do not represent a quasi-Australian figure.

(l) Hepatitis B data includes 'newly acquired' and 'unspecified' infections identified under two disease codes '039' and '052'.

(m) Directly age-standardised using the Australian 2001 standard population using age 5 year age groups up to 65+.

Source: AIHW analyses of NNDSS data.

Notification rates by state/territory

Notification rates for chlamydia, syphilis, gonorrhoea, hepatitis C and hepatitis B for the period 2009–2011 for selected states and territories with adequate identification of Indigenous notifications are presented in Table 1.12.2.

Chlamydia

- For the period 2009–2011, there were 161,055 notifications of chlamydia in Victoria, Queensland, Western Australia, South Australia, Tasmania and the Northern Territory combined, 11.6% of which were notifications of Aboriginal and Torres Strait Islander people. The percentage of notifications that occurred among Indigenous people ranged from less than 1% in Victoria to 57% in the Northern Territory.
- Notification rates of chlamydia among Indigenous persons were about four times that of other persons.
- Notification rates of Chlamydia were highest for Indigenous persons in the Northern territory followed Western Australia and Queensland.
- Rate ratios for chlamydia were highest in Queensland and Western Australia for both males (3.4 in Western Australia, 3.3 in Queensland) and females (4.0 in Western Australia, 4.1 in Queensland), and lowest in Tasmania (0.2 for males and 0.4 for females).

Syphilis

- For the period 2009–2011, there were 7,648 notifications of syphilis in Australia, 14% of which were notifications of Aboriginal and Torres Strait Islander people. The percentage of notifications that occurred among Indigenous people was largest in the Northern Territory (75%).
- The notification rate for syphilis among Indigenous persons was nearly 8 times the rate for other persons.
- Notification rates for syphilis were highest for Indigenous persons in the Northern territory (177 per 100,000) followed by Queensland (123 per 100,000) and Western Australia (73 per 100,000).
- The rates for syphilis among Indigenous males and females were higher than those among other males and females in all states/territories, except males in Tasmania. Rate ratios were highest in South Australia for males (14.5) and females (36).
- Notification rates for syphilis among Indigenous males and females were close (89 and 68 per 100,000 respectively); however the notification rate for other males was four times the rate for other females (16.2 compared with 3.9). This, in general, indicates that syphilis infections occur predominately through heterosexual contact in the Indigenous population, whereas in the other population transmission is generally through men who have sex with men (NCHECR 2010).

Gonorrhoea

- For the period 2009–2011, there were 23,390 notifications of gonorrhoea in Victoria, Queensland, Western Australia, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory combined, 48% of which were notifications of Aboriginal and Torres Strait Islander people. The percentage of notifications that

occurred among Indigenous people was largest in the Northern Territory (92%) followed by Western Australia (63%).

- Notification rates of gonorrhoea among Indigenous males and females were 17 and 67 times the rates of other males and females respectively.
- Notification rates for gonorrhoea were highest for Indigenous persons in the Northern territory (2,001 per 100,000) followed by Western Australia (1,008 per 100,000).
- Rates of gonorrhoea among Indigenous females were much higher than among other females in Western Australia and South Australia (87 times as high). Rate ratios for males were 28 and 26 for these jurisdictions respectively.
- Notification rates for gonorrhoea among Indigenous males and females were close (728 and 792 per 100,000 respectively); however the notification rate for other males was around four times the rate for other females (43 compared with 12). This, in general, indicates that gonorrhoea infections occur predominately through heterosexual contact in the Indigenous population, whereas in the other population transmission is generally through men who have sex with men (NCHECR 2010).

Hepatitis C

- For the period 2009–2011, there were 6,159 notifications of hepatitis C in Western Australia, South Australia, Tasmania and the Northern Territory combined, 11.4% of which were notifications of Aboriginal and Torres Strait Islander people. The percentage of notifications that occurred among Indigenous people was largest in the Northern Territory (18%).
- Indigenous males and females were around 3 times as likely to contract hepatitis C as other males and females.
- Notification rates for hepatitis C were highest for Indigenous persons in South Australia (194 per 100,000) followed by Western Australia (185 per 100,000).
- Rate ratios of hepatitis C notifications were highest in South Australia for both males and females (5.9 7.4 respectively).

Hepatitis B

- For the period 2009–2011, there were 4,527 notifications of hepatitis B in Western Australia, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory combined, 10% of which were notifications of Aboriginal and Torres Strait Islander people. The percentage of notifications that occurred among Indigenous people was largest in the Northern Territory (48%).
- Indigenous males and females were around 4 times as likely to contract hepatitis B as other males and females.
- Notification rates for hepatitis B were highest for Indigenous persons in the Northern Territory (161 per 100,000) followed by South Australia (117 per 100,000).
- Rate for hepatitis B among Indigenous males and females were higher than those among other males and females an all states/territories, except females in Tasmania.

Table 1.12.2: Notification rates for Chlamydia, syphilis, gonorrhoea, hepatitis C and hepatitis B, by Indigenous status and state/territory, 2009–2011[a][b]

		Males						Females				Persons			
		Proportion		Rate per 100,000[c]				Rate per 100,000[c]				Rate per 100,000[c]			
	No.	Indig.	Other[d]	Indig.	Other[d]	Rate ratio[e][f]	Rate difference[e]	Indig.	Other[d]	Rate ratio[e][f]	Rate difference[e]	Indig.	Other[c]	Rate ratio[e][f]	Rate difference[e]
Chlamydia[g]															
Vic	49,516	0.7	99.3	158.1	241.2	0.7*	–83.1*	280.1	337.9	0.8*	–57.8*	219.6	288.6	0.8*	–69.0*
Qld	54,559	15.7	84.3	893.9	270.1	3.3*	623.7*	1,784.0	431.8	4.1*	1,352.1*	1,329.7	349.1	3.8*	980.7*
WA	30,689	14.5	85.5	1,068.1	316.3	3.4*	751.8*	1,845.3	457.2	4.0*	1,388.1*	1,444.4	383.5	3.8*	1,060.8*
SA	13,214	5.9	94.1	526.9	212.0	2.5*	315.0*	815.4	326.4	2.5*	489.0*	670.6	267.5	2.5*	403.1*
Tas	5,244	2.1	97.9	60.0	276.2	0.2*	–216.2*	184.5	510.7	0.4*	–326.2*	121.5	391.4	0.3*	–269.9*
NT	7,833	56.7	43.3	1,307.7	527.6	2.5*	780.1*	2,175.3	804.6	2.7*	1,370.7*	1,735.6	657.5	2.6*	1,078.1*
Vic, Qld, WA, SA, Tas & NT	**161,055**	**11.6**	**88.4**	**863.6**	**263.4**	**3.3***	**600.2***	**1,565.3**	**394.7**	**4.0***	**1,170.6***	**1,208.2**	**327.3**	**3.7***	**880.9***
Syphilis[h]															
NSW	2,428	3.8	96.2	29.9	18.6	1.6*	11.3*	22.2	3.5	6.3*	18.7*	25.8	11.0	2.3*	14.7*
Syphilis < 2 years	*1,370*	*1.7*	*98.3*	*n.p.*	*n.p.*	*n.p.*	*..*	*n.p.*	*n.p.*	*n.p.*	*..*	*n.p.*	*n.p.*	*n.p.*	*n.p.*
Syphilis > 2 years or unspecified duration	*1,048*	*6.5*	*93.5*	*22.0*	*5.9*	*3.7**	*16.0**	*18.7*	*3.0*	*6.2**	*15.7**	*20.1*	*4.5*	*4.5**	*15.6**
Vic	2,542	0.9	99.1	35.8	23.6	1.5	12.2	17.9	6.2	2.9*	11.7*	28.8	14.9	1.9*	13.9*
Qld	1,441	32.9	67.1	147.1	11.8	12.5*	135.3*	101.8	3.0	33.6*	98.7*	123.2	7.4	16.7*	115.8*
WA	562	25.6	74.4	79.9	9.5	8.4*	70.4*	66.9	2.8	23.7*	64.0*	72.6	6.2	11.7*	66.3*
SA	130	20.8	79.2	51.0	3.5	14.5*	47.5*	26.0	0.7	36.0*	25.2*	38.0	2.1	17.9*	35.9*
Tas	75	5.3	94.7	0.0	7.9	0.0	–7.9	16.2	2.3	7.1*	14.0*	8.8	5.1	1.7	3.7
ACT	95	4.2	95.8	26.1	12.7	2.0*	13.3*	41.8	4.4	9.5	37.4	33.1	8.5	3.9*	24.6*
NT	375	74.7	25.3	191.9	26.8	7.2*	165.1*	165.2	9.9	16.6*	155.3*	177.3	19.0	9.3*	158.3*

(continued)

Table 1.12.2 (continued): Notification rates for Chlamydia, syphilis, gonorrhoea, hepatitis C and hepatitis B, by Indigenous status and state/territory, 2009–2011[a][b]

		Males						Females				Persons			
		Proportion		Rate per 100,000[c]				Rate per 100,000[c]				Rate per 100,000[c]			
	No.	Indig.	Other[d]	Indig.	Other[d]	Rate ratio[e][f]	Rate difference[e]	Indig.	Other[d]	Rate ratio[e][f]	Rate difference[e]	Indig.	Other[c]	Rate ratio[e][f]	Rate difference[e]
Syphilis[h]															
Australia	**7,648**	**13.7**	**86.3**	**88.8**	**16.2**	**5.5***	**72.6***	**68.0**	**3.9**	**17.6***	**64.1***	**78.0**	**10.0**	**7.8***	**68.0***
Gonorrhoea[i]															
Vic	5,114	0.7	99.3	35.3	50.3	0.7	–14.9	21.6	9.9	2.2*	11.7*	28.3	30.3	0.9	–1.9
Qld	6,605	38.3	61.7	355.9	45.9	7.8*	310.0*	444.6	16.1	27.6*	428.4*	398.9	31.2	12.8*	367.7*
WA	4,554	63.8	36.2	1,014.4	36.3	28.0*	978.2*	1,008.1	11.6	87.2*	996.6*	1,008.6	24.3	41.6*	984.3*
SA	1,281	47.8	52.2	575.7	22.2	25.9*	553.4*	573.3	6.6	87.4*	566.7*	573.0	14.5	39.7*	558.6*
Tas	60	1.7	98.3	2.1	7.6	0.3	–5.5	0.0	1.4	0.0	–1.4	1.1	4.5	0.3	–3.4
ACT	239	2.5	97.5	72.5	33.0	2.2*	39.5*	0.0	6.0	0.0	–6.0	37.5	19.7	1.9*	17.8*
NT	5,537	91.7	8.3	1,908.2	117.6	16.2*	1,790.6*	2,111.7	63.2	33.4*	2,048.5*	2,000.8	91.9	21.8*	1,909.0*
Vic, Qld, WA, SA, Tas, ACT & NT	**23,390**	**47.7**	**52.3**	**727.5**	**43.0**	**16.9***	**684.5***	**791.8**	**11.9**	**66.7***	**779.9***	**757.1**	**27.6**	**24.7***	**729.4***
Hepatitis C[j][k]															
WA	3,293	12.8	87.2	246.3	55.1	4.5*	191.2*	123.0	30.4	4.0*	92.6*	184.5	42.9	4.3*	141.6*
SA	1,543	9.9	90.1	215.9	36.3	5.9*	179.6*	172.0	23.4	7.4*	148.7*	193.9	29.8	6.5*	164.1*
Tas	774	4.4	95.6	75.1	72.6	1.0	2.5	60.9	40.3	1.5	20.6	67.6	56.1	1.2	11.4
NT	549	17.5	82.5	51.0	113.2	0.5*	–62.2*	52.1	52.5	1.0	–0.4	51.9	84.5	0.6*	–32.6*
WA, SA, Tas & NT	**6,159**	**11.4**	**88.6**	**155.2**	**52.5**	**3.0***	**102.7***	**97.6**	**29.6**	**3.3***	**68.0***	**126.0**	**41.2**	**3.1***	**84.8***

(continued)

Table 1.12.2 (continued): Notification rates for Chlamydia, syphilis, gonorrhoea, hepatitis C and hepatitis B, by Indigenous status and state/territory, 2009–2011[(a)(b)]

		Males						Females				Persons			
		Proportion		Rate per 100,000[(c)]				Rate per 100,000[(c)]				Rate per 100,000[(c)]			
	No.	Indig.	Other[(d)]	Indig.	Other[(d)]	Rate ratio[(e)(f)]	Rate difference[(e)]	Indig.	Other[(d)]	Rate ratio[(e)(f)]	Rate difference[(e)]	Indig.	Other[(c)]	Rate ratio[(e)(f)]	Rate difference[(e)]
							Hepatitis B[(l)(m)]								
WA	2,235	6.4	93.6	130.0	37.5	3.5*	92.5*	55.9	25.1	2.2*	30.9*	90.8	31.4	2.9*	59.5*
SA	1,300	5.5	94.5	147.3	28.2	5.2*	119.1*	91.1	24.9	3.7*	66.3*	116.8	26.5	4.4*	90.3*
Tas	195	2.6	97.4	17.7	16.7	1.1	1.0	4.4	13.0	0.3	–8.6	10.8	14.9	0.7	–4.1
ACT	296	2.0	98.0	40.9	29.9	1.4	11.1	24.7	22.3	1.1	2.4	33.4	26.1	1.3	7.3
NT	501	47.9	52.1	170.0	59.2	2.9*	110.9*	151.5	40.9	3.7*	110.6*	160.5	50.5	3.2*	110.0*
WA, SA, Tas, ACT & NT	**4,527**	**10.3**	**89.7**	**132.2**	**32.8**	**4.0***	**99.4***	**88.7**	**24.1**	**3.7***	**64.6***	**109.1**	**28.5**	**3.8***	**80.6***

* Represents results with statistically significant differences in the Indigenous/other Australian comparisons at the $p < 0.05$ level.

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Rates are calculated using the sum of notifications divided by the sum of the populations for the relevant years.

(c) Directly age-standardised using the Australian 2001 standard population using age 5 year age groups up to 65+.

(d) Includes notifications for non-Indigenous Australians and those for whom Indigenous status was not stated.

(e) Rate ratio is Indigenous: Other. Rate difference is Indigenous: Other.

(f) Because of the very high rates of syphilis and gonorrhoea in the Indigenous population and low rates of these STIs in the other population, rate ratios are large and may vary between reports, as fairly minor changes in rates can result in large changes in the resulting ratios.

(g) Data are reported for Vic, Qld, WA, SA, Tas and the NT. These six jurisdictions are considered to have adequate levels of Indigenous identification in these data. They do not represent a quasi-Australian figure

(h) Data are reported for Australia. All eight jurisdictions are considered to have adequate levels of Indigenous identification in these data. NSW syphilis data excludes the category < 2 years duration due to low completeness of Indigenous status for this data category.

(i) Data are reported for Vic, Qld, WA, SA, Tas, the ACT and the NT. These seven jurisdictions are considered to have adequate levels of Indigenous identification in these data. They do not represent a quasi-Australian figure.

(j) Data are reported for WA, SA, Tas and the NT. These four jurisdictions are considered to have adequate levels of Indigenous identification in these data. They do not represent a quasi-Australian figure.

(k) Hepatitis C data includes 'newly acquired' and 'unspecified' infections identified under two disease codes '040' and '053'.

(l) Data are reported for WA, SA, Tas, the ACT and the NT. These five jurisdictions are considered to have adequate levels of Indigenous identification in these data. They do not represent a quasi-Australian figure.

(m) Hepatitis B data includes 'newly acquired' and 'unspecified' infections identified under two disease codes '039' and '052'.

Source: AIHW analyses of NNDSS data.

Time series analysis

Notification rates, rate ratios and rate differences between Indigenous and other Australians for syphilis, chlamydia and gonorrhoea for the period 1994–1996 to 2009–2011, hepatitis C for the period 1995–1996 to 2009–2011 and hepatitis B for the period 2005–2006 to 2009–2011 are presented in the following tables and figures. Data are presented in 2- to 3-year groupings because of the small number of notifications each year.

In interpreting these data it is important to note that changes in notifications over time may not solely reflect changes in disease prevalence or incidence. Changes in testing policies; screening programs, including the preferential testing of high risk populations; the use of less invasive and more sensitive diagnostic tests; and periodic awareness campaigns, may influence the number of notifications that occur over time.

Chlamydia

- During the period 1994–1996 to 2009–2011 in Western Australia, South Australia and the Northern Territory combined, there were significant increases in notification rates for chlamydia among Indigenous Australians. An average yearly increase in the age-standardised rate of around 64 per 100,000 was observed. This is equivalent to a 212% increase in the age-standardised rate over the period (Table 1.12.3). Significant increases in age-standardised rates for chlamydia were evident for both Indigenous males and females.
- There were also significant increases in notification rates for chlamydia among other Australian males and females during the same period (605% increase for males and 637% increase for females) (Table 1.12.3).
- Notification rate ratios between Indigenous and other Australians for chlamydia decreased significantly around 0.4 annually over the period. This is equivalent to a 67% decrease (Figure 1.12.1).
- Although rate ratios showed a decrease over the period, the difference in notification rates between Indigenous and other Australians increased significantly for both males and females.

Table 1.12.3: Age-standardised notification rates, rate ratios and rate differences for Chlamydia[a], WA, SA and NT, 1994–96 to 2009–11

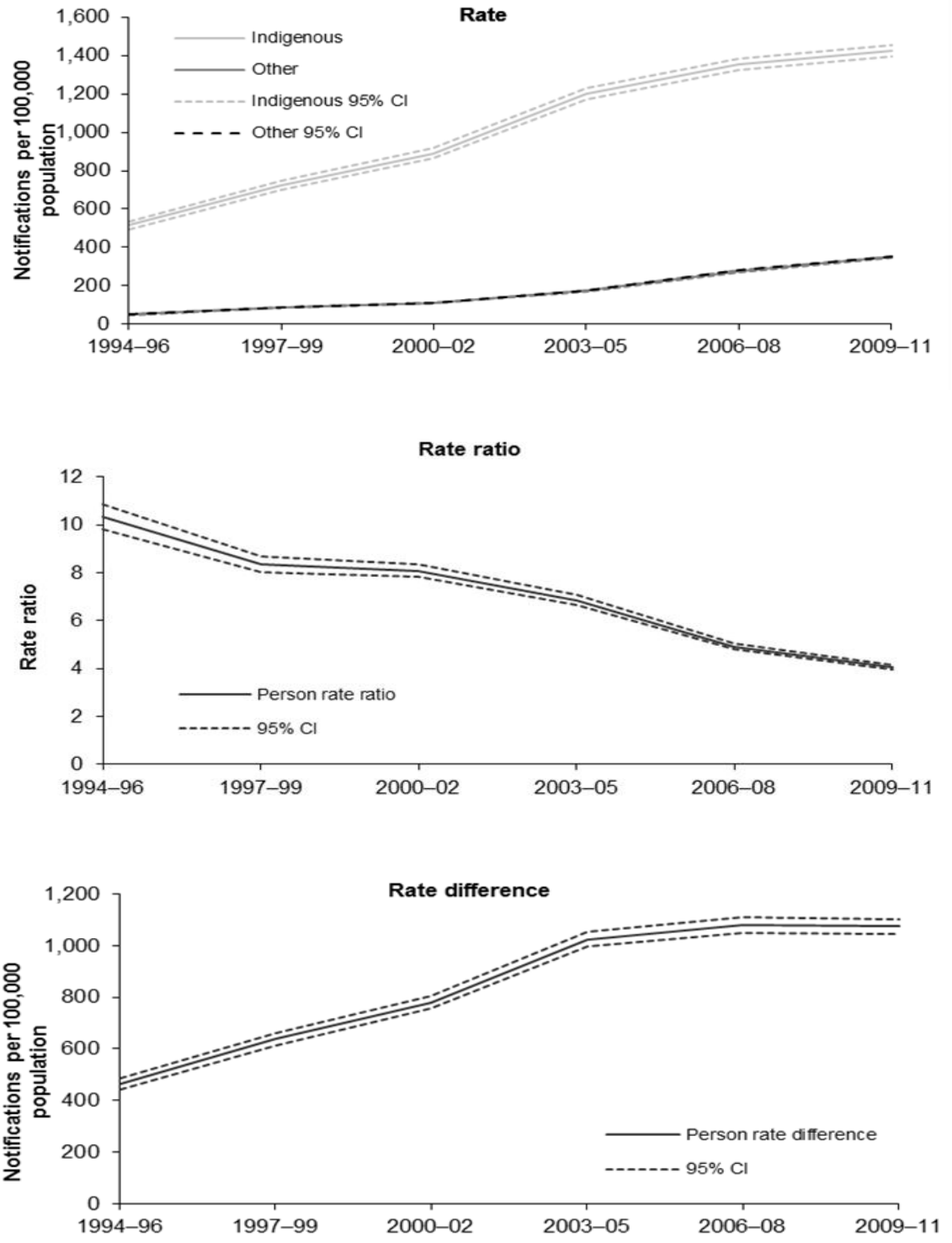
	1994–1996	1997–1999	2000–2002	2003–2005	2006–2008	2009–2011	Annual change[b]	% change over period[c]
Indigenous notifications								
Males	822	1,327	1,704	2,520	3,220	3,536	191*	395.2*
Females	1,671	2,379	3,160	4,472	5,252	6,129	307*	312.2*
Persons	2,495	3,706	4,864	6,992	8,472	9,665	498*	339.2*
Other Australian notifications[d]								
Males	1,915	3,720	4,784	7,740	12,895	17,829	1,048*	930.4*
Females	3,299	5,322	6,623	10,766	17,941	24,241	1,397*	720.0*
Persons	5,248	9,053	11,417	18,513	30,836	42,071	2,443*	791.5*
Indigenous crude rate per 100,000								
Males	429.4	645.2	772.5	1,074.7	1,299.8	1,350.9	65.5*	259.2*
Females	862.6	1,146.6	1,420.7	1,889.4	2,098.2	2,318.9	101.0*	199.0*
Persons	647.8	897.0	1,097.9	1,483.9	1,701.1	1,837.2	83.3*	218.6*
Indigenous age-standardised rate per 100,000								
Males	365.4	542.1	657.4	908.4	1,074.0	1,069.1	51.1*	237.7*
Females	666.7	908.9	1,126.7	1,498.0	1,647.2	1,793.4	78.3*	199.6*
Persons	515.6	725.1	891.5	1,200.9	1,355.0	1,424.7	64.2*	211.8*
Other Australian age-standardised rate per 100,000[e]								
Males	35.6	69.7	90.7	143.9	225.4	285.8	16.9*	805.2*
Females	64.3	105.1	131.0	208.3	330.5	419.8	24.1*	637.1*
Persons	49.9	86.9	110.3	175.1	276.0	350.1	20.3*	692.5*
Rate ratio[f]								
Males	10.3	7.8	7.2	6.3	4.8	3.7	–0.4*	–67.2*
Females	10.4	8.6	8.6	7.2	5.0	4.3	–0.4*	–66.9*
Persons	10.3	8.3	8.1	6.9	4.9	4.1	–0.4*	–67.1*
Rate difference[g]								
Males	329.7	472.4	566.7	764.4	848.5	783.3	34.2*	176.5*
Females	602.4	803.8	995.7	1,289.7	1,316.8	1,373.6	54.2*	152.9*
Persons	465.8	638.2	781.2	1,025.8	1,079.0	1,074.6	43.9*	160.3*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1994–1996 to 2009–2011.

(a) The supplied data for Chlamydia diseases for NT is for genital infections only.
(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(c) Per cent change between 1994–1996 and 2009–2011 based on the annual rate of change over the period.
(d) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.
(e) Directly age-standardised using the Australian 2001 standard population using age 5 year age groups up to 65+.
(f) Notification rate for Indigenous Australians divided by the notification rate for other Australians.
(g) Notification rate for Indigenous Australians minus the notification rate for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian population.

Source: AIHW analyses of NNDSS data.



Source: AIHW analyses of NNDSS data.

Figure 1.12.1: Age-standardised notification rates, rate differences and rate ratios for chlamydia, WA, SA and NT, 1994–1996 to 2009–2011

Syphilis

- Over the period 1994–1996 to 2009–20011 in Western Australia, South Australia and the Northern Territory combined, there were significant decreases in notification rates for syphilis among Indigenous Australians. The fitted trend line shows an average yearly decline in the age-standardised rate of around 13 per 100,000 which is equivalent to a 71% reduction in the rate over the period (Table 1.12.4).
- There were significant increases in notification rates for syphilis only among other Australians during the same period. The fitted trend line showed an average yearly increase in the rate of around 0.2 per 100,000 which was equivalent to a 141% increase in the rate over the period (Table 1.12.4 and Figure 1.12.2).
- There were significant declines in notification rate ratios and rate differences between Indigenous and other Australians for syphilis. The rate ratio decreased from 147 to 21, with an average yearly decline of around 8. The rate difference decreased from 347 to 103, with an average yearly decline of 13 per 100,000.

Table 1.12.4: Age-standardised notification rates, rate ratios and rate differences for syphilis, WA, SA and NT, 1994–96 to 2009–11

	1994–1996	1997–1999	2000–2002	2003–2005	2006–2008	2009–2011	Annual change[(a)]	% change over period[(b)]
Indigenous notifications								
Males	674	570	700	564	530	235	–23*	–58.9*
Females	651	533	672	566	563	216	–21*	–54.5*
Persons	1,328	1,104	1,374	1,130	1,094	451	–44*	–56.8*
Other Australian notifications[(c)]								
Males	138	193	252	237	468	482	24*	296.8*
Females	99	79	113	100	109	134	2*	41.2*
Persons	237	273	369	337	577	616	26*	189.6*
Indigenous crude rate per 100,000								
Males	352.1	277.1	317.3	240.5	213.9	89.8	–15.0*	–72.6*
Females	336.1	256.9	302.1	239.1	224.9	81.7	–13.6*	–68.9*
Persons	344.8	267.2	310.1	239.8	219.7	85.7	–14.4*	–70.8*
Indigenous age-standardised rate per 100,000								
Males	377.5	336.1	377.7	301.9	285.5	119.1	–14.5*	–65.2*
Females	324.3	251.2	313.8	265.8	255.8	98.7	–11.1*	–58.0*
Persons	349.3	291.1	343.5	281.4	267.4	107.9	–12.8*	–62.1*
Other Australian age-standardised rate per 100,000[(c)]								
Males	2.8	3.7	4.8	4.3	8.2	7.9	0.4*	223.8*
Females	2.0	1.5	2.2	1.9	2.0	2.3	0.0	20.7
Persons	2.4	2.7	3.5	3.1	5.1	5.1	0.2*	140.9*
Rate ratio[(d)]								
Males	135.8	90.7	78.7	69.8	34.8	15.1	–7.4*	–93.0*
Females	163.4	162.3	143.6	139.5	131.0	42.8	–6.7*	–69.4*
Persons	147.1	109.8	97.2	90.4	52.4	21.1	–7.7*	–89.1*
Rate difference[(e)]								
Males	374.7	332.4	372.9	297.6	277.3	111.3	–14.8*	–67.3*
Females	322.3	249.7	311.6	263.9	253.9	96.4	–11.1*	–58.5*
Persons	347.0	288.5	340.0	278.3	262.3	102.8	–13.0*	–63.5*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1994–1996 to 2009–2011.

(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(b) Per cent change between 1994–1996 and 2009–2011 based on the annual rate of change over the period.

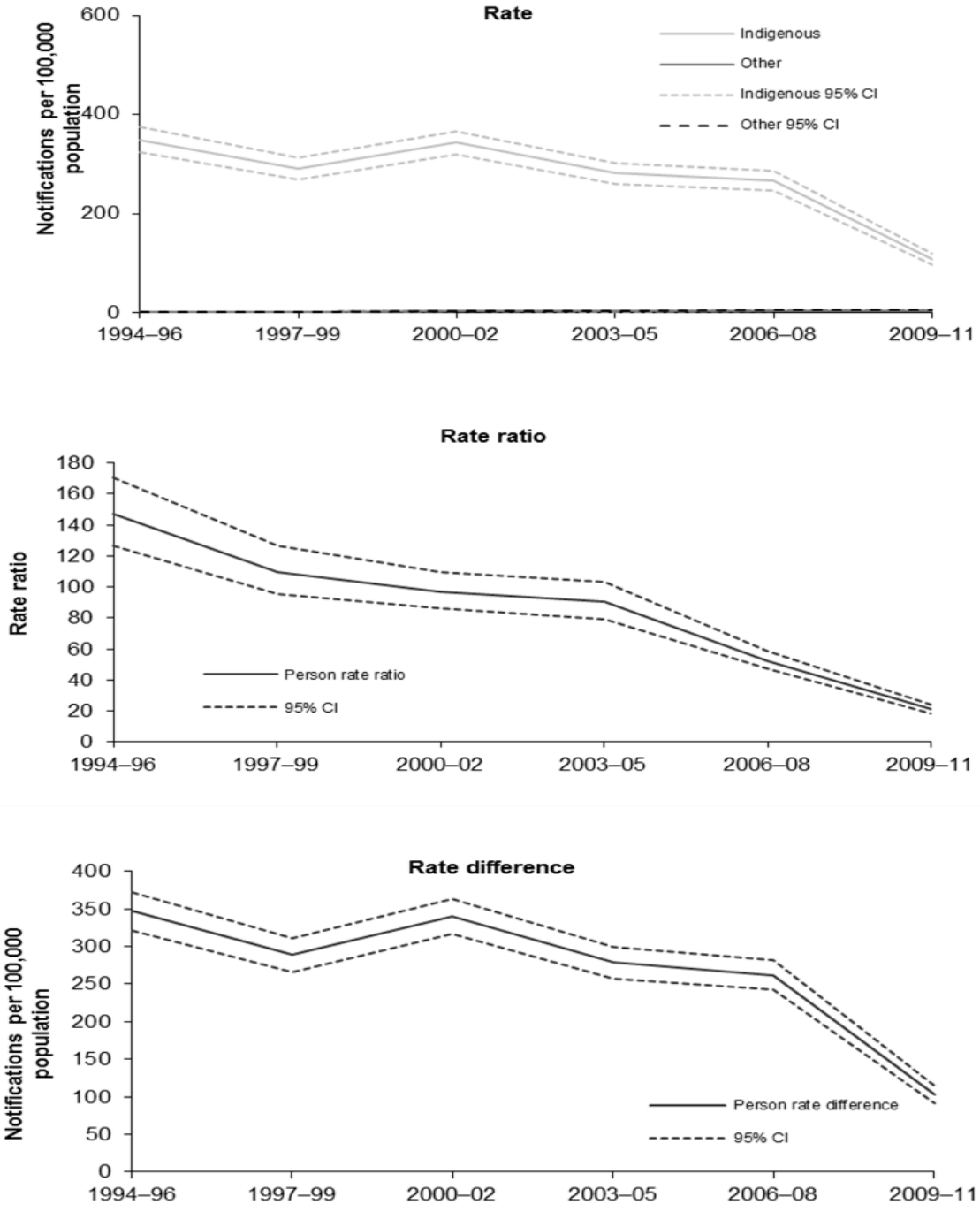
(c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(d) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

(e) Notification rate for Indigenous Australians minus the notification rate for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian population.

Source: AIHW analyses of NNDSS data.



Source: AIHW analyses of NNDSS data.

Figure 1.12.2: Age-standardised notification rates, rate differences and rate ratios for syphilis, WA, SA and NT, 1994–1996 to 2009–2011

Gonorrhoea

- During the period 1994–1996 to 2009–2011 in Western Australia, South Australia and the Northern Territory combined, there were significant increases in notification rates for gonorrhoea among Indigenous Australians. The fitted trend line shows an average yearly increase in the age-standardised rate of around 28 per 100,000 which is equivalent to a 48% increase in the rate over the period (Table 1.12.5). There were significant increases in the age-standardised rates for both Indigenous males and females.
- There was also significant increase in notification rates for gonorrhoea among other males during the same period. There were no significant changes for other females.
- Notification rate ratios between Indigenous and other Australians for gonorrhoea showed no significant changes for males or females over the 17-year period (Table 1.12.5 and Figure 1.12.3).
- There were significant increases in the notification rate differences between Indigenous and other Australians for gonorrhoea over the period, with an average yearly increase in the rate difference of around 27 per 100,000 (47% increase). These increases were only statistically significant for females, but not for males.

Table 1.12.5: Age-standardised notification rates, rate ratios and rate differences for gonorrhoea, WA, SA and NT, 1994–96 to 2009–11

	1994–1996	1997–1999	2000–2002	2003–2005	2006–2008	2009–2011	Annual change[a]	% change over period[b]
Indigenous notifications								
Males	2,587	2,772	3,049	3,763	4,347	4,051	122*	79.9*
Females	1,848	2,954	3,408	4,210	4,598	4,544	183*	168.3*
Persons	4,446	5,727	6,457	7,973	8,945	8,595	304*	116.2*
Other Australian notifications[c]								
Males	968	1,515	1,599	1,736	1,915	2,106	67*	117.5*
Females	388	830	793	578	631	670	6	25.0
Persons	1,368	2,359	2,400	2,316	2,547	2,777	72*	89.1*
Indigenous crude rate per 100,000								
Males	1,351.4	1,347.8	1,382.2	1,604.8	1,754.7	1,547.6	23.1*	29.0*
Females	954.0	1,423.7	1,532.2	1,778.7	1,836.9	1,719.2	50.6*	90.1*
Persons	1,154.4	1,386.2	1,457.5	1,692.2	1,796.0	1,633.8	36.8*	54.2*
Indigenous age-standardised rate per 100,000								
Males	1,197.2	1,184.0	1,216.3	1,381.9	1,520.0	1,289.6	15.6*	22.1
Females	772.0	1,165.9	1,246.2	1,428.2	1,496.4	1,368.6	39.6*	87.2*
Persons	981.0	1,171.2	1,228.4	1,400.4	1,503.2	1,324.6	27.5*	47.6*
Other Australian age-standardised rate per 100,000[c]								
Males	18.5	28.7	30.1	32.1	33.6	34.4	0.9*	84.4*
Females	7.5	16.2	15.5	11.2	11.7	11.6	0.0	5.0
Persons	13.2	22.6	22.9	21.8	22.8	23.2	0.5	61.3
Rate ratio[d]								
Males	64.7	41.3	40.4	43.0	45.2	37.5	–1.2	–30.5
Females	102.4	71.8	80.5	127.6	128.3	117.9	2.8	46.5
Persons	74.5	51.8	53.6	64.3	65.9	57.0	–0.3	–7.5
Rate difference[e]								
Males	1,178.7	1,155.3	1,186.2	1,349.7	1,486.4	1,255.2	14.7	21.1
Females	764.5	1,149.6	1,230.7	1,417.1	1,484.7	1,357.0	39.6*	88.0*
Persons	967.8	1,148.6	1,205.5	1,378.7	1,480.4	1,301.3	27.0*	47.4*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1994–1996 to 2009–2011.

(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(b) Per cent change between 1994–1996 and 2009–2011 based on the annual rate of change over the period.

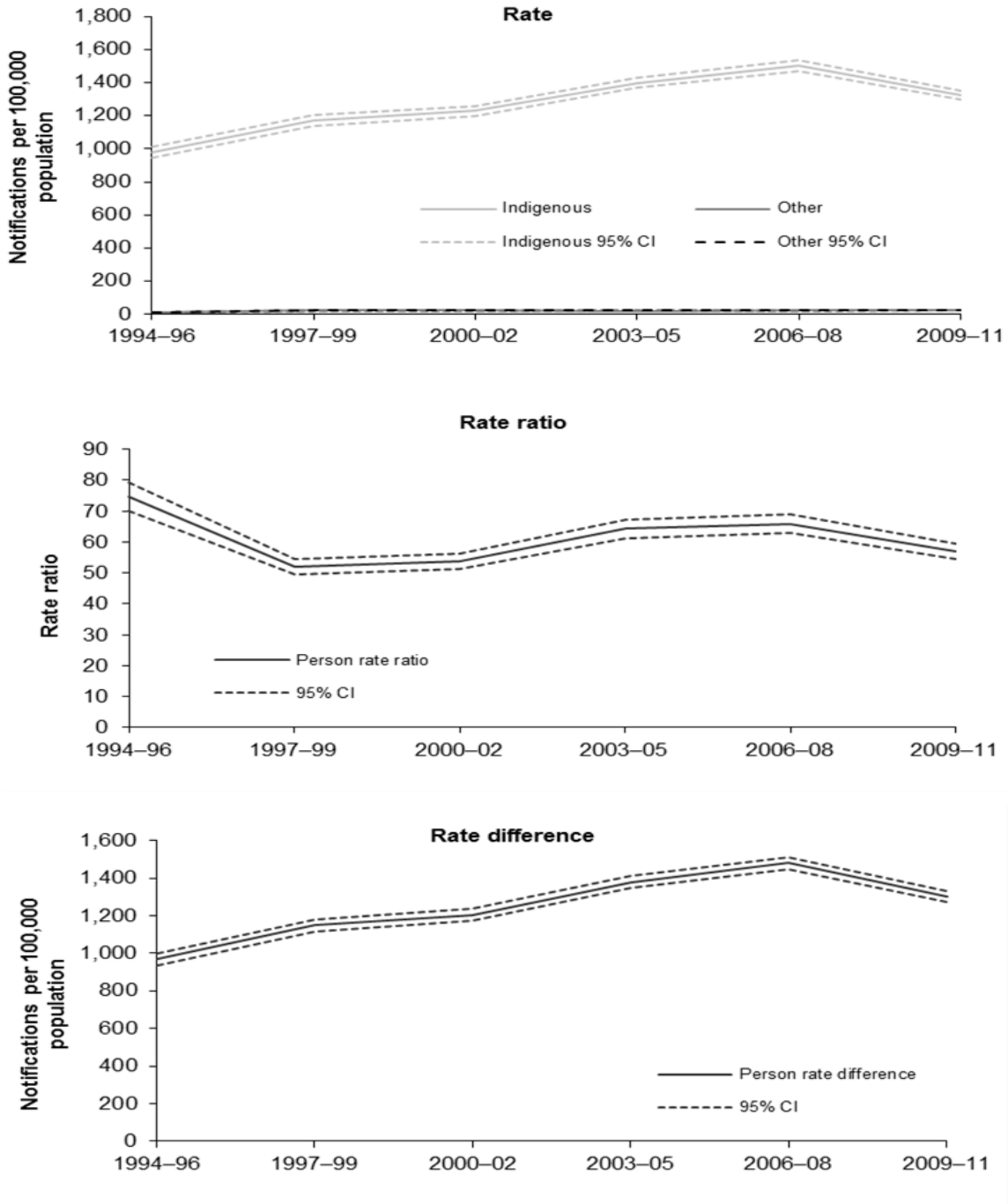
(c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(d) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

(e) Notification rate for Indigenous Australians minus the notification rate for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian population.

Source: AIHW analyses of NNDSS data.



Source: AIHW analyses of NNDSS data.

Figure 1.12.3: Age-standardised notification rates, rate differences and rate ratios for gonorrhoea, WA, SA and NT, 1994–1996 to 2009–2011

Hepatitis C

Time trends data for hepatitis C notifications are presented for the period 1995–1996 to 2009–2011, as complete and consistent data on hepatitis C notifications are not available before 1995 in the three states and territories.

- During the period 1995–1996 to 2009–2011 in Western Australia, South Australia and the Northern Territory combined, there were no significant changes in the age-standardised notification rates for hepatitis C among Indigenous Australians (Table 1.12.6).
- Over the same period there was a significant decrease in notification rates for hepatitis C for both other Australian males and females.
- There was a significant increase in notification rate ratios between Indigenous and other Australians for hepatitis C for males or females over the 16-year period (Table 1.12.6 and Figure 1.12.4).
- There was also a significant increase in the notification rate difference between Indigenous and other Australians for hepatitis C over the period, with an average yearly increase in the rate difference of around 4 per 100,000 (218% increase).

Table 1.12.6: Age-standardised notification rates, rate ratios and rate differences for hepatitis C[(a)], WA, SA and NT, 1995–96 to 2009–11[(b)]

	1995–1996	1997–1999	2000–2002	2003–2005	2006–2008	2009–2011	Annual change[(c)]	% change over period[(d)]
Indigenous notifications								
Males	253	336	364	391	362	414	9*	55.4*
Females	111	222	271	259	270	257	8*	118.3*
Persons	365	558	635	650	632	671	17*	74.1*
Other Australian notifications[(e)]								
Males	4,855	5,389	4,209	3,403	3,576	3,037	–151*	–49.6*
Females	2,354	2,909	2,360	1,985	1,962	1,674	–66*	–44.6*
Persons	7,217	8,333	6,585	5,389	5,538	4,714	–218*	–48.2*
Indigenous crude rate per 100,000								
Males	195.9	163.4	165.0	166.7	146.1	158.2	–2.3*	–18.6*
Females	84.9	107.0	121.8	109.4	107.9	97.2	0.5	8.5
Persons	140.4	135.1	143.3	138.0	126.9	127.5	–0.9*	–10.5*
Indigenous age-standardised rate per 100,000								
Males	188.0	154.1	169.1	167.0	154.9	164.0	–1.1	–9.5*
Females	83.2	98.7	115.0	108.0	111.9	101.9	1.2	22.9
Persons	136.6	126.2	141.2	137.1	133.0	132.6	0.0	–0.3
Other Australian age-standardised rate per 100,000[(e)]								
Males	141.6	103.3	80.0	63.3	63.4	50.5	–5.7*	–64.6*
Females	69.7	56.6	45.6	37.7	35.6	28.5	–2.7*	–61.6*
Persons	105.8	80.4	63.0	50.6	49.6	39.6	–4.2*	–63.7*
Rate ratio[(f)]								
Males	1.3	1.5	2.1	2.6	2.4	3.2	0.1*	152.7*
Females	1.2	1.7	2.5	2.9	3.1	3.6	0.2*	213.7*
Persons	1.3	1.6	2.2	2.7	2.7	3.3	0.1*	170.2*
Rate difference[(g)]								
Males	46.4	50.7	89.1	103.7	91.5	113.5	4.6*	158.4*
Females	13.5	42.1	69.4	70.3	76.2	73.4	3.9*	458.1*
Persons	30.7	45.8	78.2	86.4	83.4	93.0	4.2*	218.0*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1995–1996 to 2009–2011.

(a) Hepatitis C data includes 'newly acquired' and 'unspecified' infections identified under two disease codes '040' and '053'.

(b) Complete and consistent data on hepatitis C notifications are not available before 1995.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 1995–1996 and 2009–2011 based on the annual rate of change over the period.

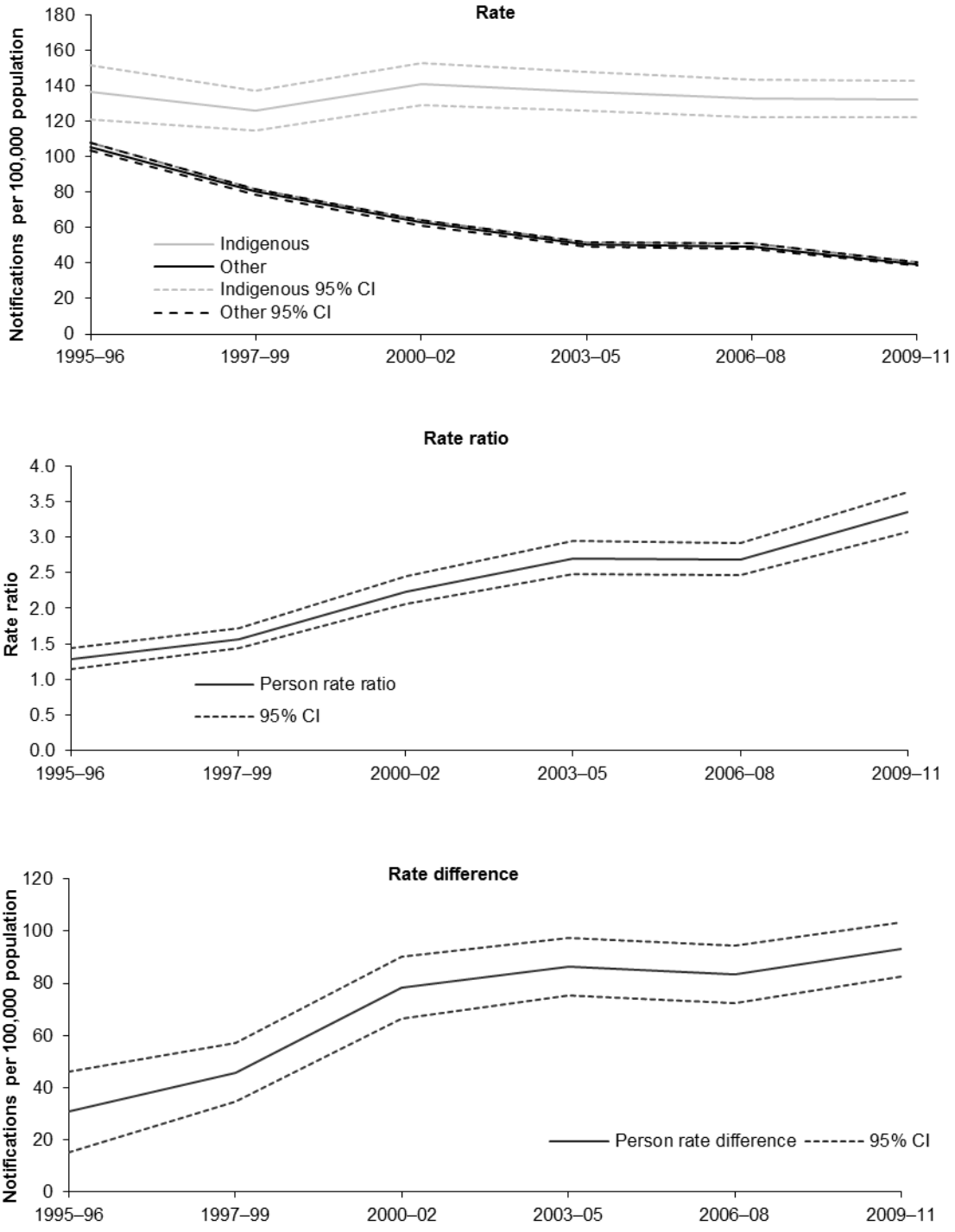
(e) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(f) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

(g) Notification rate for Indigenous Australians minus the notification rate for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian population.

Source: AIHW analyses of NNDSS data.



Source: AIHW analyses of NNDSS data.

Figure 1.12.4: Age-standardised notification rates, rate differences and rate ratios for hepatitis C, WA, SA and NT, 1995–1996 to 2009–2011

Hepatitis B

Time trends data for hepatitis B notifications are presented for the period 2005–2006 to 2009–2011, as complete and consistent data on hepatitis B notifications are not available before 2005 in the three states and territories.

- During the period 2005–2006 to 2009–2011 in Western Australia, South Australia and the Northern Territory combined, there was a significant decrease in the age-standardised notification rate for hepatitis B among Indigenous Australians. The fitted trend line shows an average yearly decrease in the age-standardised rate of 23 per 100,000 which is equivalent to a 62% decrease in the rate over the period. There were significant decreases in the age-standardised rate for both Indigenous males and females (Table 1.12.7 and Figure 1.12.5).
- Over the same period there was a significant increase in notification rates for hepatitis B for other Australian males, but no significant change for other Australian females.
- There was a significant decrease in notification rate ratios between Indigenous and other Australians for hepatitis B for males or females over the six-year period (Table 1.12.7 and Figure 1.12.5).
- There was also a significant decrease in the notification rate difference between Indigenous and other Australians for hepatitis B over the period, with an average yearly increase in the rate difference of around 25 per 100,000 (73% decrease).

Table 1.12.7: Age-standardised notification rates, rate ratios and rate differences for hepatitis B[(a)], WA, SA and NT, 2005–06 to 2009–11[(b)]

	2005–2006	2007–2008	2009–2011	Annual change[(c)]	% change over period[(d)]
Indigenous notifications					
Males	335	260	262	–16	–27.8
Females	196	180	193	0	–1.3
Persons	531	440	455	–16	–18.0
Other Australian notifications[(e)]					
Males	918	1,249	2,099	266*	173.6*
Females	698	1,036	1,482	174*	149.9*
Persons	1,616	2,285	3,581	440*	163.4*
Indigenous crude rate per 100,000					
Males	208.5	156.0	100.1	–24.0*	–69.1*
Females	120.8	106.9	73.0	–10.7*	–53.3*
Persons	164.4	131.3	86.5	–17.3*	–63.3*
Indigenous age-standardised rate per 100,000					
Males	312.1	237.3	148.4	–36.4*	–69.9*
Females	150.5	143.0	98.3	–11.9*	–47.3*
Persons	224.2	185.0	121.0	–23.0*	–61.7*
Other Australian age-standardised rate per 100,000[(e)]					
Males	25.2	32.8	34.8	2.1*	49.7*
Females	19.8	28.2	25.6	1.2	36.2
Persons	22.5	30.5	30.3	1.6	43.7
Rate ratio[(f)]					
Males	12.4	7.2	4.3	–1.8*	–86.3*
Females	7.6	5.1	3.8	–0.8*	–64.9*
Persons	9.9	6.1	4.0	–1.3*	–78.5*
Rate difference[(g)]					
Males	286.9	204.5	113.6	–38.4*	–80.4*
Females	130.7	114.8	72.7	–13.1*	–59.9*
Persons	201.7	154.5	90.8	–24.7*	–73.4*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2005–2006 to 2009–2011.

(a) Hepatitis B data includes 'newly acquired' and 'unspecified' infections identified under two disease codes '039' and '052'.

(b) Complete and consistent data on hepatitis B notifications are not available before 2005.

(c) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(d) Per cent change between 2005–2006 and 2009–2011 based on the annual rate of change over the period.

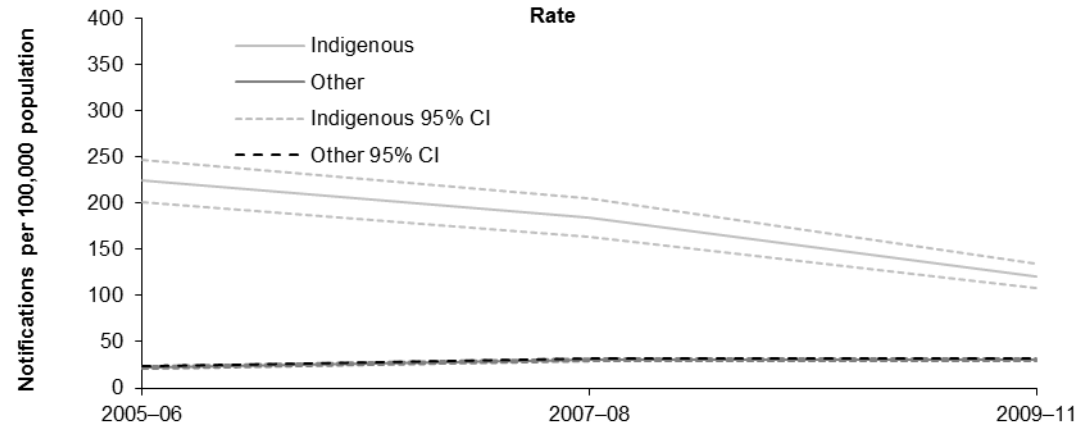
(e) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

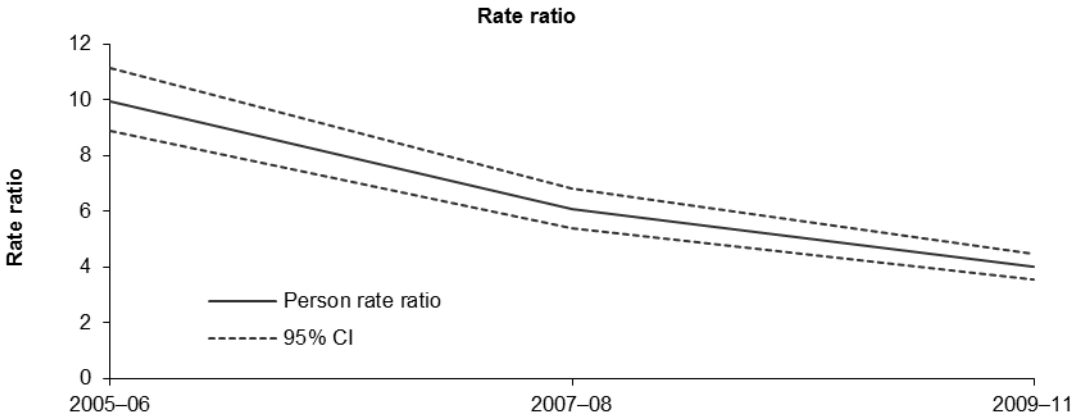
(f) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

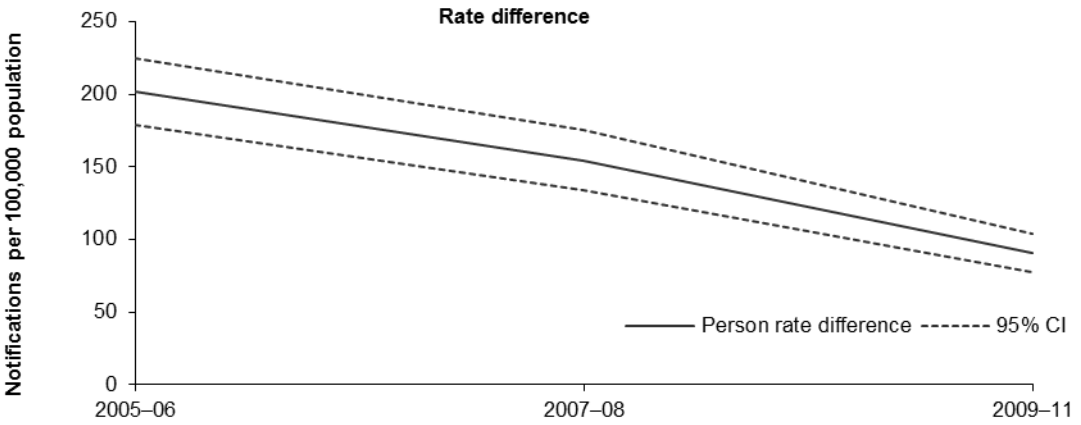
(g) Notification rate for Indigenous Australians minus the notification rate for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian population.

Source: AIHW analyses of NNDSS data.







Source: AIHW analyses of NNDSS data.

Figure 1.12.5: Age-standardised notification rates, rate differences and rate ratios for hepatitis B, WA, SA and NT, 2005–2006 to 2009–2011

HIV and AIDS

- Over the period 2008–2010, there were 2,949 HIV notifications in Australia (excluding Tasmania), 2% of which were notifications of Indigenous Australians. There were 418 AIDS notifications, less than 5 of which were for Indigenous Australians (Table 1.12.9).
- After adjusting for differences in age structure, notification rates for HIV were similar among Indigenous males and other males for the period 2008–10. HIV notification rates for Indigenous females were around twice those for other females over the same period

Notification rates by age and sex

Age-specific notification rates for AIDS and HIV are presented in Table 1.12.8 below.

- For the period 2008–2010, the rates of newly diagnosed HIV infections were similar for Indigenous and other persons across all age groups. The notification rate for Indigenous females was significantly higher than for other Australian females in the 35–44 year age group.
- Between 2008 and 2010, notification rates for AIDS for Indigenous males and females were similar to the notification rates for other Australians males and females, respectively.

Table 1.12.8: Age-specific notification rates per 100,000 for HIV and AIDS, by Indigenous status and sex, 2008–2010[a][b]

	Males				Females				Persons			
	Indig.	Other[c]	Rate ratio[d]	Rate difference[e]	Indig.	Other[c]	Rate ratio[d]	Rate difference[e]	Indig.	Other[c]	Rate ratio[d]	Rate difference[e]
						HIV[f]						
0–14	0.0	0.2	0.0	–0.2	0.0	0.2	0.0	–0.2	0.0	0.2	0.0	0
15–24	3.6	5.2	0.7	–1.6	0.0	1.4	0.0	–1.4	1.9	3.4	0.5	–1.5
25–34	11.7	17.4	0.7	–5.6	6.3	3.7	1.7	2.6	9.0	10.6	0.8	–1.6
35–44	20.0	17.8	1.1	2.1	5.8	2.1	2.7*	3.7*	12.6	9.9	1.3	2.7
45–54	11.5	10.0	1.2	1.5	2.6	0.8	3.3	1.8	6.9	5.4	1.3	1.5
55–64	0.0	4.9	0.0	–4.9	0.0	0.4	0.0	–0.4	0.0	2.7	0.0	–2.7
65+	0.0	1.5	0.0	–1.5	0.0	0.0	0.0	0.0	0.0	0.7	0.0	–0.7
Total crude	**5.8**	**7.9**	**0.7**	**–2.2**	**1.9**	**1.2**	**1.5**	**0.7**	**3.8**	**4.6**	**0.8**	**–0.8**
Total age-standardised[g]	**6.8**	**8.0**	**0.8**	**–1.2**	**2.2**	**1.3**	**1.8***	**0.9***	**4.4**	**4.7**	**0.9**	**–0.3**
						AIDS[h]						
Total crude rate	**0.9**	**1.1**	**0.7**	**–0.3**	**0.2**	**0.1**	**1.9**	**0.1**	**0.5**	**0.6**	**0.9**	**–0.1**

* Represents results with statistically significant differences in the Indigenous/other Australian comparisons at the $p < 0.05$ level.

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Age-specific rates are calculated using the average Indigenous June population for the relevant years.

(c) Includes notifications for non-Indigenous Australians and those for whom Indigenous status was not stated.

(d) Rate ratio Indigenous: other.

(e) Rate difference is Indigenous minus Other

(f) Excludes data from Tasmania, data not available due to incompleteness.

(g) Directly age-standardised using the Australian 2001 standard population using age 5 year age groups up to 65+.

(h) Since the numbers for Indigenous are very small, rates by age-groups and age-standardised totals are not calculated.

Source: AIHW analyses of National AIDS Registry and National HIV database.

Notification rates by state/territory

Table 1.12.9 presents HIV and AIDS notifications for each state/territory over the period 2008–2010.

- New South Wales is the only state/territory for which numbers of HIV notifications are large enough to report rates for Indigenous Australians. Over the period 2008–2010, HIV was notified at a rate of 6 per 100,000 among Indigenous Australians in New South Wales, which was similar to the rate among other Australians in New South Wales.
- Over the period 2008–2010, there were nine cases of AIDS among Indigenous Australians, six of which were in New South Wales.

Table 1.12.9: Notification rates for HIV and AIDS, by Indigenous status, sex and state/territory, 2008–2010[a]

				Males				Females				Persons			
		Proportion (%)[b]		No. per 100,000[c]				No. per 100,000[c]				No. per 100,000[c]			
	No.	Indig.	Other[d]	Indig.	Other[d]	Ratio[e]	Rate difference[f]	Indig.	Other[d]	Ratio[e]	Rate difference[f]	Indig.	Other[d]	Ratio[e]	Rate difference[f]
HIV															
NSW	966	2.4	97.6	9.6	8.3	1.2	1.3	. .	0.9	. .	. .	5.9	4.6	1.3	1.3
Vic	855	0.4	99.6	. .	9.4	. .	. .	. .	1.2	. .	. .	. .	5.3	. .	. .
Qld	651	2.6	97.4	. .	8.5	. .	. .	. .	1.5	. .	. .	. .	5.0	. .	. .
WA	272	3.3	96.7	. .	5.8	. .	. .	. .	2.3	. .	. .	. .	4.1	. .	. .
SA	141	5.0	95.0	. .	5.1	. .	. .	. .	0.8	. .	. .	. .	2.9	. .	. .
NT	33	6.1	93.9	. .	8.9	. .	. .	. .	3.2	. .	. .	. .	6.3	. .	. .
ACT	31	0.0	100.0	. .	4.7	. .	. .	. .	1.0	. .	. .	. .	2.8	. .	. .
Total[g]	**2,949**	**2.1**	**97.9**	**6.8**	**8.0**	**0.8**	**–1.2**	**2.2**	**1.3**	**1.8***	**0.9***	**4.4**	**4.7**	**0.9**	**–0.3**
AIDS															
NSW	134	4.5	95.5	. .	1.1	. .	. .	. .	. .	. .	. .	. .	0.6	. .	. .
Vic	155	n.p.	n.p.	. .	1.8	. .	. .	. .	. .	. .	. .	. .	1.0	. .	. .
Qld	59	0.0	100.0	. .	0.8	. .	. .	. .	. .	. .	. .	. .	0.5	. .	. .
WA	40	n.p.	n.p.	. .	1.0	. .	. .	. .	. .	. .	. .	. .	0.6	. .	. .
SA	15	0.0	100.0	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
NT	n.p.	n.p.	n.p.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Tas	0	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
ACT	n.p.	n.p.	n.p.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Australia	**413**	**2.2**	**97.8**	**. .**	**1.1**	**. .**	**. .**	**. .**	**0.1**	**. .**	**. .**	**. .**	**0.6**	**. .**	**. .**

(continued)

Table 1.12.9 (continued): Notification rates for HIV and AIDS, by Indigenous status, sex and state/territory, 2008–2010[(a)]

* Represents results with statistically significant differences in the Indigenous/other Australian comparisons at the p < 0.05 level.

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.
(b) Rate are calculated using the sum of notifications divided by the sum of the populations for the relevant years.
(c) Directly age-standardised using the Australian 2001 standard population using 5 year age groups up to 65+.
(d) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.
(e) Rate ratio Indigenous: other.
(f) Rate difference is Indigenous minus Other.
(g) Excludes data from Tasmania, data not available due to incompleteness.

Note: Where the number of notifications were less than 20 age standardised rates were not calculated.

Source: AIHW analyses of National AIDS Registry and National HIV database.

Exposure categories

Table 1.12.10 presents HIV and AIDS notifications in Australia by exposure category over the period 2008–2010.

- For the period 2008–2010, the most common way of contracting HIV among Indigenous Australians was male homosexual/bisexual contact (49%) followed by injecting drug use (20%), and heterosexual contact (16%). The most common ways of contracting HIV among other Australians was male homosexual/bisexual contact (63%) and heterosexual contact (26%).

Table 1.12.10: Exposure categories for HIV/AIDS, by Indigenous status, 2008–2010[a]

Exposure category	Number		Per cent[b]		No. per 100,000[b]		Ratio[d]	Rate difference[d]
	Indigenous	Other[c]	Indigenous	Other[c]	Indigenous	Other[c]		
				HIV				
Male homosexual/bisexual contact	30	1,837	49.2	63.0	2.0	2.9	0.7	–0.9
Male homosexual/bisexual contact and injecting drug use	n.p.	85	n.p.	2.9	. .	0.1	. .	. .
Heterosexual contact	10	762	16.4	26.1	. .	1.2	. .	. .
Injecting drug use	12	64	19.7	2.2	. .	0.1	. .	. .
Mother with/at risk of HIV infection	0	22	0.0	0.8	. .	0.0	. .	. .
Other[e]	n.p.	147	n.p.	5.0	. .	0.2	. .	. .
Total	**61**	**2,917**	**100.0**	**100.0**	**4.1**	**4.6**	**0.9**	**–0.5**
				AIDS				
Male homosexual/bisexual contact	n.p.	225	n.p.	55.6	. .	0.4	. .	. .
Male homosexual/bisexual contact and injecting drug use	n.p.	17	n.p.	4.2	. .	. .	. .	. .
Heterosexual contact	n.p.	109	n.p.	26.9	. .	0.2	. .	. .
Injecting drug use	n.p.	13	n.p.	3.2	. .	. .	. .	. .
Mother with/at risk of HIV infection	0	5	0.0	1.2	. .	. .	. .	. .
Other[e]	n.p.	36	n.p.	8.9	. .	0.1	. .	. .
Total	**9**	**405**	**100.0**	**100.0**	**. .**	**0.6**	**. .**	**. .**

(continued)

Table 1.12.10 (continued): Exposure categories for HIV/AIDS, by Indigenous status, 2008–2010[(a)]

* Represents results with statistically significant differences in the Indigenous/other Australian comparisons at the $p < 0.05$ level.

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.
(b) Directly age-standardised using the Australian 2001 standard population using age 5 year age groups up to 65+.
(c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.
(d) Rate ratio Indigenous: other. Rate difference Indigenous: other.
(e) Includes: Haemophilia/coagulation disorder, receipt of blood/tissue, and exposure category undetermined.

Source: AIHW analyses of National AIDS Registry and National HIV database.

Time series analysis

HIV and AIDS notifications for the period 1998–2000 to 2008–10 are also presented below. Data are presented in 2 or 3-year groupings because of the small number of notifications in single years.

HIV

- Over the period 1998–2000 to 2008–2010 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there was no significant change in the rate of HIV notifications among Indigenous Australians. Over the same period, there was a significant increase in the notification rate for other Australians (31%) (Table 1.12.11, Figure 1.12.6).
- There were no significant changes in the notification rate ratios and rate differences between Indigenous and other Australians for HIV between 1998–2000 and 2008–10.

Table 1.12.11: Crude and age-standardised notification rates, rate ratios and rate differences for HIV[(a)], NSW, Vic, Qld, WA, SA and NT combined 1998–2000 to 2008–2010

	1998–2000	2001–03	2004–06	2007–08	2008–10	Annual change[(b)]	% change over period[(c)]
Indigenous notifications	34	61	58	36	61	1.1	38.5
Other Australian notifications[(d)]	2,082	2,388	2,766	1,984	2,850	41.5	23.9
Indigenous crude rate per 100,000	2.7	4.5	4	3.5	3.9	0.1	26.6
Indigenous age-standardised rate per 100,000	3.1	5	4.3	4	4.4	0.1	25.8
Other Australian age-standardised rate per 100,000[(d)]	3.9	4.3	4.9	5.1	4.7	0.1*	30.8*
Rate difference[(e)]	–0.7	0.7	–0.6	–1.1	–0.3	0.0	71.8
Rate ratio[(f)]	0.8	1.2	0.9	0.8	0.9	0.0	–7.3

* Represents results with statistically significant increases or declines at the p < 0.05 level over the period 1998–2000 to 2008–2010.

(a) Calender year reporting. Data are presented in 2 or 3-year groupings because of small numbers each year.

(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(c) Per cent change between 1998–2000 and 2008–2010 based on the annual rate of change over the period

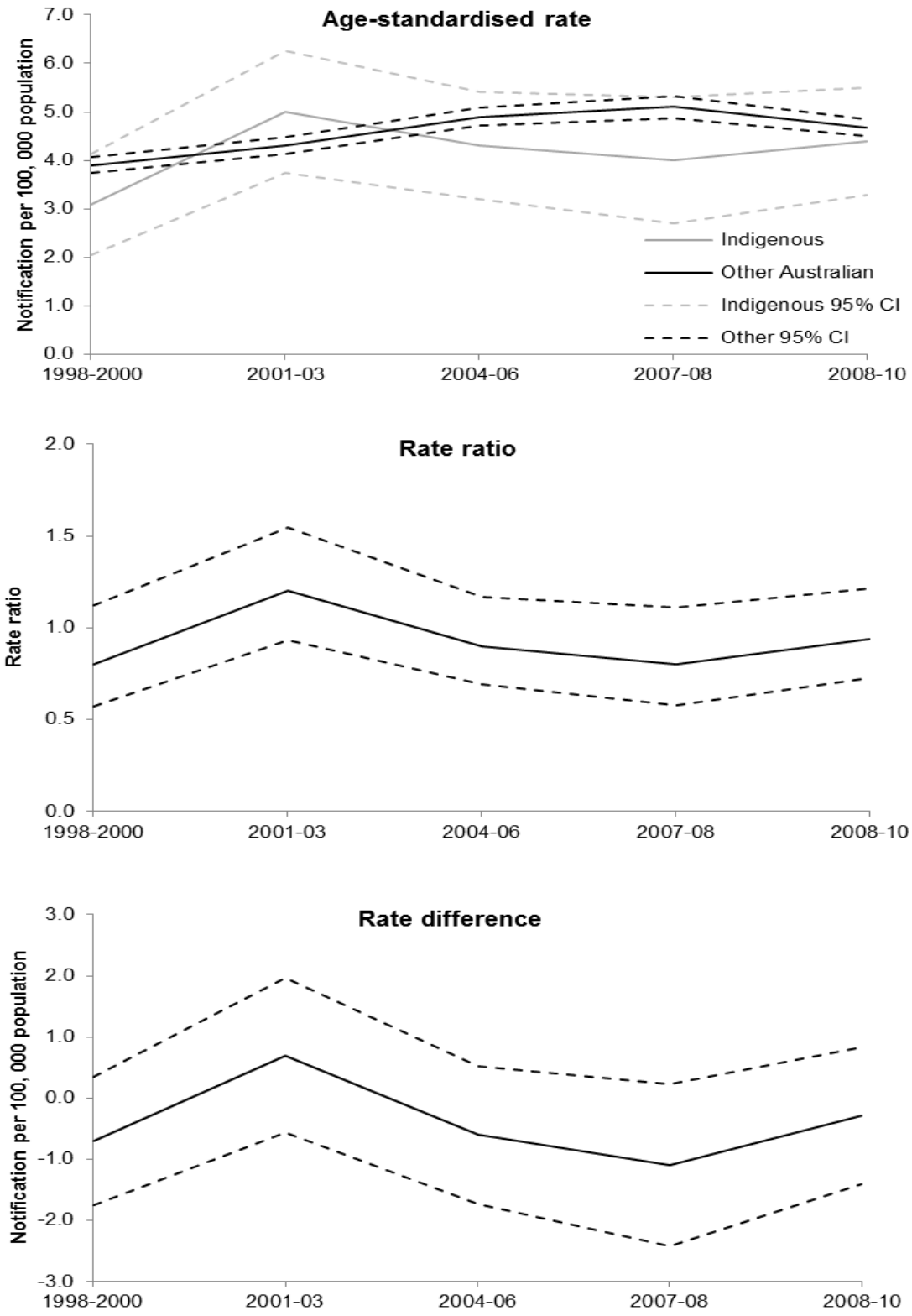
(d) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(e) Notification rate for Indigenous Australians minus the notification rate for other Australians.

(f) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian population.

Source: AIHW analyses of National AIDS Registry and National HIV database.



Source: AIHW analyses of National AIDS Registry and National HIV database.

Figure 1.12.6: Age-standardised notification rates, rate ratios and rate differences for HIV, NSW, Vic, Qld, WA, SA and NT combined, 1998–2000 to 2008–2010

AIDS

- Over the period 1998–2000 to 2008–10 in Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined there was no significant change in the age standardised AIDS notification rate among Indigenous Australians (Table 1.12.12, Figure 1.12.7).
- Over the period 1998–2000 to 2008–10, there was significant decrease in notification rates for AIDS among other Australians. The average yearly increase in the age-standardised rate was around 0.02 per 100,000 which is equivalent to a 31% decrease in the rate.
- There were non-significant changes in both the rate ratio and rate difference between Indigenous and other Australians for AIDS between 1998–2000 and 2008–10.

Table 1.12.12: Age-standardised notification rates, rate ratios and rate differences for AIDS, Vic, Qld, WA, SA and NT, 1998–2000 to 2008–10[(a)]

	1998–2000	2001–03	2004–06	2007–08	2008–10	Annual change[(b)]	% change over period[(c)]
Indigenous crude rate per 100,000	1.4	1.5	1.5	0.4	0.3	–0.1*	–105.8*
Indigenous age-standardised rate per 100,000	1.5	1.6	1.9	0.4	n.p.	–0.1	–106.1
Other Australian age-standardised rate per 100,000[(d)]	0.9	0.9	0.8	0.7	0.7	–0.02*	–31.3*
Rate difference[(e)]	0.6	0.7	1.1	–0.3	n.p.	–0.05	–105.2
Rate ratio[(f)]	1.6	1.8	2.4	0.6	n.p.	–0.04	–33.5

* Represents results with statistically significant increases or declines at the p < 0.05 level over the period 1998–2000 to 2008–2010.

(a) Calender year reporting. Data are presented in 2 or 3-year groupings because of small numbers each year.

(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(c) Per cent change between 1998–2000 and 2008–2010 based on the annual rate of change over the period.

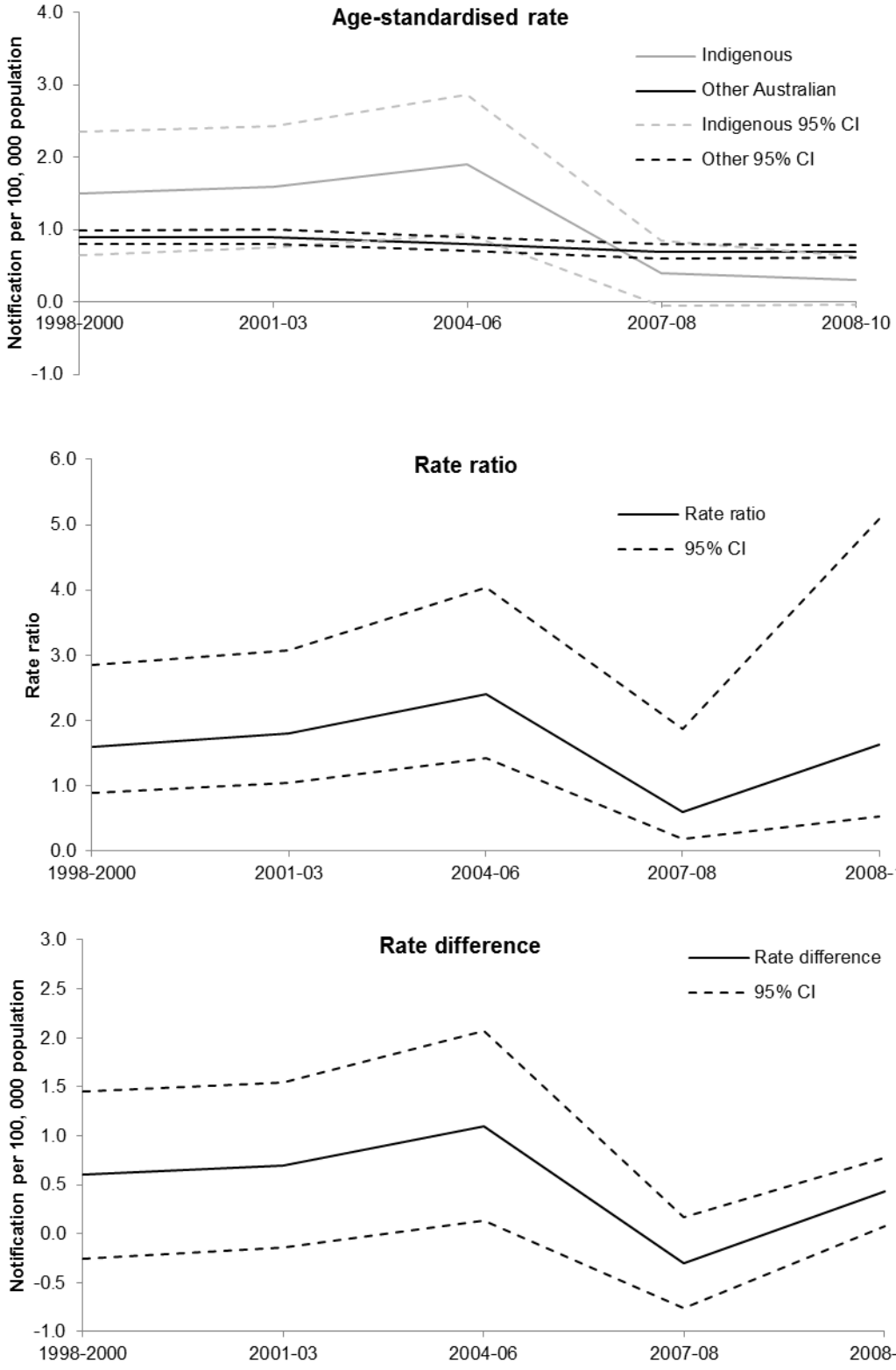
(d) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(e) Notification rate for Indigenous Australians minus the notification rate for other Australians.

(f) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian population.

Source: AIHW analyses of National AIDS Registry and National HIV database.



Source: AIHW analyses of National AIDS Registry and National HIV database.

Figure 1.12.7: Age-standardised notification rates, rate ratios and rate differences for AIDS, Vic, Qld, WA, SA and NT, 1998–2000 to 2008–10

Data quality issues

National Notifiable Diseases Surveillance System

Notifications

Incidence of sexually transmissible infections is one indicator of unsafe sexual practices. It does not measure all cases, just those involving sexually transmissible infections.

Notification statistics do not measure the incidence or prevalence of these infections in the community. Under-reporting of these infections can occur at a number of stages:

- a person infected may not have symptoms
- a person may not seek medical care
- no testing performed
- a false negative result may occur
- there may be a positive test result but for some reason a notification may not occur
- the case may not be reported to the NNDSS (for more information see Figure 1 in NNDSS 2008).

The level of under-reporting can vary by disease, jurisdiction and by time. The method of surveillance can vary between jurisdictions with different requirements for notification by medical practitioners, laboratories and hospitals. These can also change over time.

Notification statistics can provide insights into the health of the population which has been diagnosed with a notifiable illness and changes over time.

Notification statistics do not necessarily capture the mode of transmission, NNDSS data on the diseases discussed in this indicator are known to include infections acquired through non-sexual modes of transmission. For example, although data on hepatitis C is included in this indicator, sexual transmission is not considered the main route of transmission, hepatitis C primarily occurs among those with a history of injecting drug use.

Due to the high proportion of asymptomatic presentations of STI infections, diagnoses are heavily influenced by testing patterns. High rates of STI diagnoses in Indigenous populations may be due to higher levels of screening and not necessarily associated with increased levels of transmission among Indigenous persons.

Under-identification

The incompleteness of Indigenous identification means the number of notifications recorded as Indigenous is likely to be an under-estimate of Aboriginal and Torres Strait Islander notifications rates.

The completeness of Indigenous identification in notifiable disease registries varies between the states and territories and by disease. Information on the occurrence of sexually transmitted infections is included in this indicator if information on Indigenous status was reported for at least 50% of diagnoses in a state or territory health jurisdiction for the period 2009–2011. Based on this cut-off, Western Australia, South Australia, Tasmania and the Northern Territory were assessed to have adequate identification for chlamydia, syphilis, gonorrhoea, hepatitis B and hepatitis C. Of the remaining states/territories, Queensland and Victoria had adequate identification for syphilis, gonorrhoea and chlamydia; the Australian Capital Territory had adequate identification for syphilis, gonorrhoea and hepatitis B; and New South Wales had adequate identification for syphilis only.

Numerator and denominator

Rate and ratio calculations rely on good population estimates. The changes in the completeness of identification of Indigenous people in notification records may take place

at different rates from changes in the identification of Indigenous people in the population estimates. Denominators used here are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

AIDS and HIV notifications

Notifications of HIV infections and AIDS are forwarded to the National Centre in HIV Epidemiology and Clinical Research (NCHECR).

Information on Aboriginal and Torres Strait Islander status was routinely sought at diagnosis of HIV infection and AIDS in the Northern Territory, Queensland, South Australia, Tasmania and Western Australia. Information on Aboriginal and Torres Strait Islander status was available for cases of HIV infection and AIDS newly diagnosed in New South Wales from January 1992 and from June 1998 in Victoria. Information on Aboriginal and Torres Strait Islander status was available for cases of HIV/AIDS diagnosed in the Australian Capital Territory from January 2005. Nationally, information on Aboriginal and Torres Strait Islander status at HIV/AIDS diagnosis was sought prospectively from May 1995. For HIV/AIDS diagnoses prior to 1995, Aboriginal and Torres Strait Islander status was obtained retrospectively through State/Territory health authorities. In 1997 – 2006, Aboriginal and Torres Strait Islander status was reported at HIV diagnosis by State/Territory health authorities other than the Australian Capital Territory prior to January 2005 and Victoria prior to June 1998 in 98% of Australian born cases (NCHECR 2010).

The level of completeness of HIV and AIDS notifications is not known however recording of Indigenous status in the NCHECR data is considered reliable in all states and territories.

List of symbols used in tables

n.a.	not available
–	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.13 Community functioning

Analysis of factors to describe community functioning for Aboriginal and Torres Strait Islander people

Data sources

Data for this measure come from the 2008National Aboriginal and Torres Strait Islander Social Survey.

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The Australian Bureau of Statistics (ABS) conducted the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) between August 2002 and April 2003. The 2008 NATSISS was conducted between August 2008 and April 2009. The survey provides information about the Aboriginal and Torres Strait Islander populations of Australia for a wide range of social issues including health, education, culture and labour force participation. The 2008 NATSISS included for the first time children aged under 15. The NATSISS will be conducted every six years, with the next survey planned for 2014.

The 2008 NATSISS collected information by personal interview from 13,300 Indigenous Australians across all states and territories of Australia, including those living in remote areas. The sample covered persons aged 15 years and over who are usual residents in selected private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice.

Analyses

Measures of community functionality

This indicator is defined as the ability and freedom of Aboriginal and Torres Strait Islander community members and communities to determine the context of their lives (for example social, cultural, spiritual and organisational aspects) and to translate their knowledge, skills, and understanding (capabilities) into positive actions towards a valued life. It incorporates a range of methods and analyses:

- A qualitative method to determine thematic descriptors of functionality that Aboriginal and Torres Strait Islander people developed. Each measure of functionality was given a numeric value, with the total sum of community functionality themes equalling 100. Subsequent to this, a similar qualitative process was undertaken to weight data items derived from the 2008 NATSISS within each theme, that is data items within each measure of functionality were to add to 100 but some items were given more weight than others.
- Collated survey results of community functionality measures to show the number and proportion of people who were affirmative in their response to the data items within

each measure of functionality e.g. 72% of Aboriginal and Torres Strait Islander people recognise their homelands.

- Presentation of the distribution of community functioning scores, which vary by age groups, remoteness, state/territory and gender.
- Summary survey results of community functioning themes for ages 0–14 years and over 15 years, showing the number and proportion of Aboriginal and Torres Strait Islander people who were affirmative in their responses to selected data, by gender, age groups, remoteness, state/territory.

Development of community functionality themes

Workshops drawing together Aboriginal and Torres Strait Islander participants from across Australia were held in 2008 and 2010 to develop key features of functioning in families and communities. Participants were invited from all jurisdictions and a range of sectors to enhance diversity of participants. Participants at the workshops described the various factors they believed were necessary for Aboriginal and Torres Strait Islander people to have functioning families and communities. At the workshops in 2008 and 2010 similar themes were identified as being important to community functionality (Box 13.1.1). Following the 2010 workshop, survey data were mapped with the themes in order to create the indicator of community functioning.

For detailed specifications of the performance measure see <www.health.gov.au/indigenous-hpf>.

The major difference in results between the 2008 and 2010 workshops was the mapping of available data to the themes. At the workshops in 2008 the data were sourced from the 2002 NATSISS and the Community Housing Infrastructure Needs Survey (CHINS). The workshops in 2010 focused on 2008 NATSISS data. Despite these differences, the fundamental elements described by participants were similar.

Box 1.13.1: Community functioning themes identified at workshops

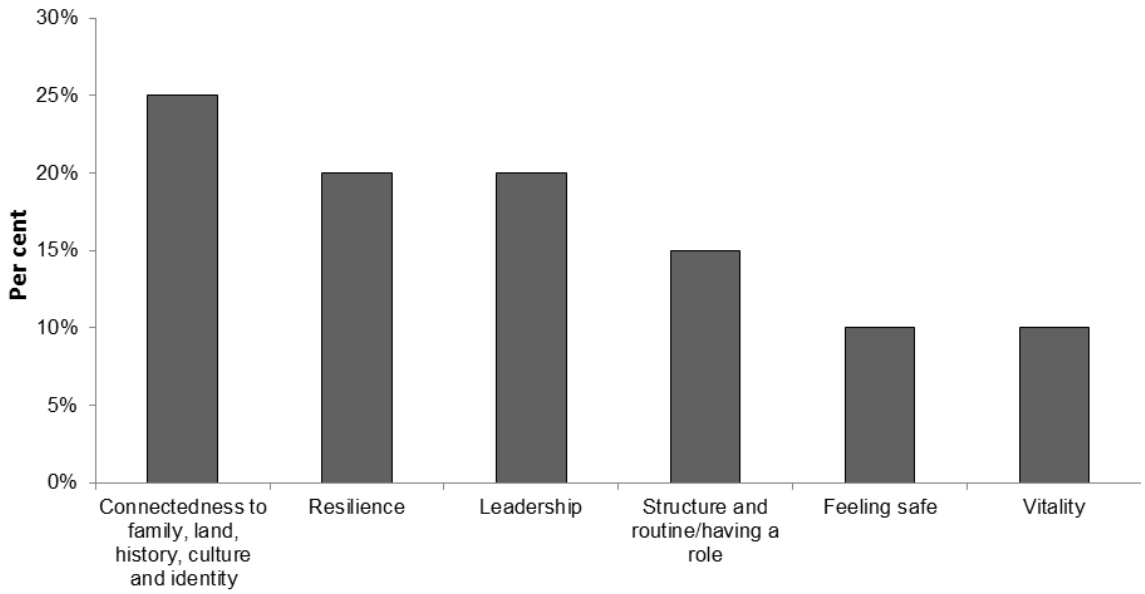
2008 workshop themes

- Power to control choices and options
- Connectedness to family, land, and history
- Health, chronic disease and substance use
- Culture, identity
- Employment, education, income
- Infrastructure and community
- Coping with the internal and external world
- Structure and routine

2010 workshop themes

- Connectedness to country, land and history; culture; identity
- Resilience
- Leadership
- Having a role, structure and routine
- Feeling safe
- Vitality

Workshop participants ranked measures of functionality in order of importance, then a weight was applied to each theme in order to produce a score out of 100. Within each theme, each data item available was also given a weight (out of 100) to produce overall 'scores' for community functioning. The weighting of each measure of functionality is important to consider in interpreting prevalence of an issue in comparison to how it contributes to the measure of community functionality. For example, 72% of Aboriginal and Torres Strait Islander people recognise their homelands. This data item sits within the measure of 'connectedness to family, land, history, culture and identity' which contributes 25% of the weight to a score of community functioning. Therefore, the contribution of this data item to the weighted community functioning scores is much greater than the strength of standard measures of socioeconomic disadvantage/advantage such as income, which sit within the theme of 'vitality' (weighted at 10%). Note that the community functioning theme 'leadership' is given with a weighting of 20%, however as there were no suitable data items for persons aged 15 years and over, this theme was measured for children only.



Source: ABS analysis of 2008 NATSISS.

Figure 1.13.1: Themes contributing to community functioning for Aboriginal and Torres Strait Islander persons, Australia 2008

Table 1.13.1: Description of themes contributing to community functionality for Aboriginal and Torres Strait Islander persons, Australia 2008

Measure of functioning	Descriptor	Weight
Connectedness to country, land and history; culture; identity	• Being connected to country, land, family and spirit. • Strong and positive social networks with Aboriginal and Torres Strait Islander people. • Strong sense of identity and being part of a collective (i.e. knowing where you are from, who is your family). • Sharing; giving and receiving; trust; love; looking out for others. • Engaged/communicative.	25%
Resilience	• Coping with the internal and external world. • Power to control choices and options. • Ability to proceed in public without shame. • Optimising what you have. • Challenge injustice and racism, stand up when required. • Cope well with difference, flexibility and accommodating. • Ability to walk in two worlds. • Engaged in decision making. • External social contacts.	20%
Leadership	• Strong Elders in family and community, both male and female. • Role models both male and female. • Strong direction, vision. • The 'rock', someone who has time to listen and advise.	20%
Having a role, structure and routine	• Having a role for self: participation, contributing through paid and unpaid roles. • Capabilities and skills derived through social structures and experience through non-formal education. • Knowing boundaries and acceptable behaviours. • Sense of place—knowing your place in family and society. • Being valued and acknowledged. • Disciplined.	15%
Feeling safe	• Lack of physical and lateral violence. • Safe places. • Emotional security. • Cultural competency. • Relationships that can sustain disagreement.	10%
Vitality	• Infrastructure of community. • Access to services. • Education. • Health. • Income. • Employment.	10%

Selected findings

Within each theme of functionality, a range of data is available to describe capabilities contributing to the community functionality scores. A summary of select findings from tables 1.13.2 to 1.13.7 are outlined below:

Connectedness to country, land and history, culture, identity

- 72% of Aboriginal and Torres Strait Islander people aged 15 years and over recognised their homelands.
- 62% identified with a clan or language group, up from 54% in 2002.
- 89% 'feel able to have a say with family and friends' some, most or all of the time.
- 94% had contact with family or friends outside the household at least once per week.
- 75% had friends to confide in.
- 51% provided support to relatives outside the household.
- 63% had attended a cultural event in the last 12 months.

Resilience

- 69% of Aboriginal and Torres Strait Islander people aged 15 years and over reported that they did not avoid situations due to past discrimination.
- 80% agreed that their doctor can be trusted and 69% agreed that the local school could be trusted.
- 89% felt they were able to find general support from outside the household.
- 56% had provided support to someone outside their household in the last four weeks.
- 89% had participated in sport, social or community activities in the three months prior to the survey.
- 54% in non-remote areas knew someone in an organisation they would feel comfortable contacting.
- 44% of employed people said work allowed them to fulfil cultural responsibilities.

Leadership

- 42% of children aged 3 to 14 years had spent time with an Indigenous leader or Elder in the last week. In remote areas this increased to 63%.

Having a role, structure and routine

- 78% of Aboriginal and Torres Strait Islander people had lived in only one dwelling in the last 12 months.
- 73% were in household that had not experienced cash flow problems in the last 12 months.
- 86% were in households in which there had been no days without money for basic living expenses in the last two weeks.
- Most children aged 0 to 14 years (94%) had participated in informal learning activities with their main carer.

Feeling safe

- 75% of Aboriginal and Torres Strait Islander people had not experienced physical and/or threatened violence in the last 12 months.
- 80% felt safe at home alone after dark.
- In the five years prior to the survey, 97% of Aboriginal and Torres Strait Islander people had not been incarcerated (91% had never been incarcerated in their lifetime).

Vitality

- Half of Aboriginal and Torres Strait Islander people aged 15 years and over had no disability or long-term health condition.
- 68% of those aged 15 years and over had experienced low/moderate levels of psychological distress in the four weeks prior to the survey.
- 76% of children aged 0 to 14 years did not have problems sleeping.
- 74% of children aged 4 to 14 years spent at least 60 minutes every day being physically active.
- 74% of people aged 15 years and over said they can easily get to places as needed.
- 41% of those aged 15 years and over (who were not currently studying) intended to study in the future.
- Education was the main purpose of internet use for children (54%), while 30% of those aged 15 years and over reported using the internet for education of study.

Community and individual aspects contributing to community functionality scores

Table 1.13.2: Variables contributing to community functionality measure 'Connectedness to family, land and history, culture, identity' for Aboriginal and Torres Strait Islander persons[(a)], Australia 2008 and 2002

Connectedness to family land and history, culture, identity		2008 No.	2008 (%)	2002 (%)
Access to traditional lands	Recognises homelands	234,383	72	70
	Lives in homelands	82,607	25	22
Removal	Respondent not removed from natural family	293	90	87
	Relatives not removed from natural family	157,767	48	44
	Has seen relatives since being removed from family	22,337	7	. .
Protection and maintenance of culture	Main language spoken at home is Aboriginal language/Torres Strait Islander language	37,552	12	12
	Speaks an Aboriginal/Torres Strait Islander language	62,629	19	21
Participation in cultural events	Attended Aboriginal and Torres Strait Islander cultural event in last 12 months:	205,674	63	68
	– Attended ceremony	52,435	16	24
	– Attended NAIDOC week activities	116,849	36	. .
	– Attended sports carnival (excluding NAIDOC week activities)	79,658	24	30
	– Attended festival/carnival involving arts, crafts, music or dance	75,272	23	36
	– Involved with Aboriginal/Torres Strait Islander organisation	59,516	18	. .
	– Funerals/Sorry business	126,693	39	47
Identity	Identifies with clan group or language group	203,106	62	54
Sense of efficacy	Feels able to have a say with family and friends some, most or all of the time	292,375	89	. .
	Feels able to have a say within community on important issues some, most or all of the time	157,312	48	. .
Social networks	Contact with family or friends outside household at least once per week	307,515	94	. .
	Face-to-face contact with family or friends outside household at least once a week	274,681	84	. .
	Made other types of contact with family or friends outside household in the last 3 months:	294,163	90	. .
	– Landline phone	183,766	56	. .
	– Mobile phone for calls	230,008	70	. .
	– Mobile phone for SMS	151,134	46	. .
	– Internet	88,840	27	. .
	– Mail or fax	28,211	9	. .
	– Other forms of contact	1,508	1	. .
	Has family members can confide in outside household	251,534	77	. .
	Has friends can confide in	246,649	75	. .

(continued)

Table 1.13.2 (continued): Variables contributing to community functionality measure 'Connectedness to family, land and history, culture, identity' for Aboriginal and Torres Strait Islander persons[(a)], **Australia 2008 and 2002**

Connectedness to family land and history, culture, identity		2008 No.	2008 (%)	2002 (%)
Social support (See also 'Resilience')	Able to get support in time of crisis from outside household—from family member	261,506	80	. .
	Provides support to relatives outside household	166,892	51	. .
	Provides support to anyone outside household in last 4 weeks—type of support for example:			
	– Provided transport or running errands	95,786	29	. .
	– Unpaid child care	53,471	16	. .
	– Emotional support	93,700	29	. .
Used informal child care in last week (0–12 years) (See also 'Resilience')	Used informal child care in last week 0–12 years—carer who usually looks after child for example:	83,971	50	. .
	Mother living elsewhere	3,757	5	. .
	Father living elsewhere	10,147	12	. .
	Grandparent	43,984	52	. .
	Brother or sister	7,523	9	. .
	Any other relative	25,880	31	. .
Education—child (2–14 years)	Types of assistance that would help child in secondary school complete Year 12 for example:			
	– A relative to support if goes away to boarding school	4,100	12	. .

(a) Ages 15 and over unless otherwise stated.

Source: ABS analysis of 2008 NATSISS.

Table 1.13.3: Variables contributing to community functionality measure 'Resilience' for Aboriginal and Torres Strait Islander persons[(a)], Australia 2008 and 2002

Resilience		2008 No.	2008 (%)	2002 (%)
Power to control choices and options	Did not feel discriminated against in last 12 months	237,812	73	. .
	Did not avoid situations due to past discrimination	225,507	69	. .
	Can visit homelands	146,017	45	46
	Involvement with Aboriginal/Torres Strait Islander organisation	59,516	18	26
	Work allows for cultural responsibilities—can meet responsibilities	75,028	23	22
	Used strategies to meet living expenses	119,147	36	49
Household finances	Has a bank account	309,547	95	94
	Could raise $2,000 within a week	150,004	46	41
Community problems	No community problems reported	84,327	26	25
	Community problems reported, but less than three types:	73,788	23	. .
	– No problems reported for theft	192,535	59	57
	– No problems reported for alcohol	192,138	59	67
	– No problems reported for illicit drugs	208,039	64	68
	– No problems reported for family violence	245,938	75	79
	– No problems reported for assault	253,009	77	80
	– No problems reported for sexual assault	288,926	88	92
	Total persons who reported a community problem	232,592	71	74
Stressors	No stressors reported in last 12 months	74,413	23	18
	Less than three types of stressors reported in the last 12 months:	116,369	36	. .
	– No stressors reported for death of a family member or close friend	200,011	61	54
	– No stressor reported for serious disability	305,205	93	. .
	– No stressor reported for serious illness	233,202	71	. .
	– No stressors reported for not able to get a job	255,386	78	73
	– No stressors reported for witness to violence	299,054	91	84
	– No stressors reported for member of family sent to jail/currently in jail	287,458	88	81
	Total persons who reported a stressor	252,503	77	82
Trust	Agrees that most people can be trusted	118,975	36	. .
	Agrees that their doctor can be trusted	260,777	80	. .
	Agrees that the hospital can be trusted	204,189	62	. .
	Agrees that police in the local area can be trusted	170,317	52	. .
	Agrees that police outside the local area can be trusted	133,362	41	. .
	Agrees that the local school can be trusted	224,734	69	. .

(continued)

Table 1.13.3 (continued): Variables contributing to community functionality measure 'Resilience' for Aboriginal and Torres Strait Islander persons, Australia 2008 an**d 2002**

Resilience		2008 No.	2008 (%)	2002 (%)
Sense of efficacy	Does know a member of parliament/comfortable contacting	65,670	20	. .
	Knows someone in organisation/comfortable contacting	132,011	54	. .
	Types of organisations would feel comfortable contacting—non-remote only:			
	– State or territory government department	32,644	13	. .
	– Federal government department	18,952	8	. .
	– Local council	38,606	16	. .
	– Legal system	35,824	15	. .
	– Healthcare	51,057	21	. .
	– Trade union	13,296	5	. .
	– Political party	11,681	5	. .
	– Media	12,732	5	. .
	– University/TAFE/Business college	34,805	14	. .
	– Religious/Spiritual group	29,822	12	. .
	– School-related group	33,766	14	. .
	– Big business	14,447	6	. .
	– Small business	31,418	13	. .
Social contact	Adult participated in sport/social/community activities in last 3 months for example:	289,381	89	. .
(See also 'Structure and routine/having a role')	– Attended sporting event as a spectator	127,180	39	. .
	– Recreational or cultural group	46,263	14	. .
	– Attended a native title meeting	18,504	6	. .
	– Community or special interest group activities	42,274	13	. .
	– Church or religious activities	49,393	15	24
	– Went out to a cafe, restaurant or bar	171,233	52	57
	– Visited library, museum or art gallery	85,306	26	. .
	– Attended movies, theatre or concert	102,056	31	. .
	– Visited park, botanic gardens, zoo or theme park	101,152	31	. .
	– Watched Indigenous TV	177,695	54	. .
	– Listened to Indigenous radio	85,682	26	. .

(continued)

Table 1.13.3 (continued): Variables contributing to community functionality measure 'Resilience' for Aboriginal and Torres Strait Islander persons[(a)], Australia 2008 and 2002

Resilience		2008 No.	2008 (%)	2002 (%)
Social support	Able to get general support from outside household	291,459	89	. .
(See also 'Connectedness')	Able to get support in time of crisis from outside household—source of support for example:	290,463	89	. .
	– Friend	208,326	64	. .
	– Neighbour	90,117	28	. .
	– Work colleague	62,338	19	. .
	– Community, charity or religious organisation	42,538	13	. .
	– Local council or other government service	19,708	6	. .
	– Health, legal or financial professional	29,798	9	. .
	Provides support to anyone outside household in last 4 weeks	184,537	57	. .
	– Domestic work, home maintenance or gardening	80,045	25	. .
	– Teaching, coaching or practical advice	37,496	12	. .
	– Other support	20,543	6	. .
Health—child (0–14 years)	No selected stressors experienced by children aged 0–3 years in last 12 months	30,146	56	. .
	No selected stressors experienced by children aged 4–14 years in the last 12 months	49,058	35	. .
Used Informal Child care in last week (0–12 years) (See also 'Connectedness')	Used informal child care in last weeks—carer who usually looks after child:			
	– Family friend	5,292	6	. .
	– Baby sitter	368	0.5	. .
	– Nanny	n.p.	n.p.	. .
	– Neighbour	999	1	. .
	– Any other person	733	1	. .
	– An organisation (other than formal care)	482	1	. .
Education—child (2–14 years)	Child usually attends school	138,426	83	. .
	– Children aged 2–4 years	13,964	36	. .
	– Children aged 5–14 years	124,462	98	. .
	Did not miss days at school/preschool/kindergarten in last week	99,913	60	. .
	Types of assistance that would help child in secondary school complete Year 12:			
	– Support from family, friends and school	28,273	83	. .
	– Provision of coaches or mentors	8,104	24	. .
	– Career guidance	12,341	36	. .
	– Assistance for students with a disability	2,711	8	. .
	– Support networks	8,575	25	. .

(a) Ages 15 and over unless otherwise stated.

Source: ABS analysis of 2008 NATSISS.

Table 1.13.4: Variables contributing to community functionality measure 'Having a role, structure and routine' for Aboriginal and Torres Strait Islander persons[(a)], Australia 2008 and 2002

Structure and routine/having a role		2008 No.	2008 (%)	2002 (%)
Structure and routine	Can communicate with English speakers without difficulty (Indigenous language is main language spoken at home)	27,179	8	. .
	In the last 12 months, has lived in only one dwelling	255,157	78	69
	No days without money for basic living expenses in the last 12 months	233,805	72	56
	No days without money for basic living expenses in the last 2 weeks	281,429	86	68
	Did not have a cash flow problem	238,750	73	46
Social contact (See also 'Resilience')	Adult participated in sport/social/community activities in last 3 months:			
	– Coach, instructor or teacher	28,152	9	. .
	– Referee, umpire or official	15,218	5	. .
	– Committee member or administrator	22,850	7	. .
	– Took part in sport or physical activities	82,227	25	60
Education—child	Activities were undertaken with child doing informal learning activities in the last week	180,736	94	. .
	Types of assistance that would help child in secondary school complete Year 12:			
	– More discipline	5,354	16	. .
Health—child	Child cleans teeth once or twice per day (children aged 0–14 years)	137,034	71	. .

(a) Ages 15 and over unless otherwise stated.

Source: ABS analysis of 2008 NATSISS

Table 1.13.5: Variables contributing to community functionality measure 'Leadership' for Aboriginal and Torres Strait Islander persons aged 0–14 years, Australia 2008 and 2002

Leadership		2008 No.	2008 (%)	2002 (%)
Social contact	Child spent time with an Indigenous leader or elder in last week (children aged 3–14 years)	65,035	42	. .
Education—child	Types of assistance that would help child in secondary school complete Year 12:			
	– Encouragement from elders and council (children aged 2–14 years)	7,504	22	. .

Source: ABS analysis of 2008 NATSISS.

Table 1.13.6: Variables contributing to community functionality measure 'Feeling safe' for Aboriginal and Torres Strait Islander persons[(a)], Australia 2008 and 2002

Feeling safe		2008 No.	2008 (%)	2002 (%)
Safety	Felt safe at home alone during the day	305,892	94	. .
	Felt safe at home alone after dark	261,414	80	. .
	Felt safe walking alone in local area after dark	172,047	53	. .
Crime and justice	Not a victim of physical or threatened violence in the last 12 months	246,372	75	76
	Has not been a victim of physical violence in last 12 months	278,880	85	. .
	Has not been a victim of threatened physical violence in last 12 months	267,344	82	. .
	Did not use legal services in the last 12 months	269,938	83	80
	Not arrested by police in the last 5 years	277,702	85	84
	Not incarcerated in the last 5 years	316,033	97	93
	Has never been incarcerated in lifetime	297,030	91	. .
Cultural identification, participation and education	Indigenous culture taught at school (children aged 2–14 years)	87,833	53	. .
	Was taught Indigenous culture at school or as part of further studies	148,592	45	. .
	Where Indigenous cultural education was received:			
	– Primary school	81,630	25	. .
	– Secondary school	88,285	27	. .
	– University/Other higher education	15,586	5	. .
	– TAFE/Technical college	14,682	5	. .
	– Business college	136	0	. .
	– Adult or community education centre	2,576	1	. .
	– Industry skills centre	417	0.1	. .
	– Other organisation	4,993	2	. .
	– None of the above	998	0.3	. .
	Learnt about own Indigenous clan / language	55,947	17	. .
Education—child	Child neither bullied nor treated unfairly at school because Indigenous (children aged 2–14 years)	112,159	81	. .

(a) Ages 15 and over unless otherwise stated.

Source: ABS analysis of 2008 NATSISS.

Table 1.13.7: Variables contributing to community functionality measure 'Vitality' for Aboriginal and Torres Strait Islander persons[(a)], Australia 2008 and 2002

Vitality		2008 No.	2008 (%)	2002 (%)
Child health	Not concerned about child's learning due to health (1–14 years)	153,971	86	. .
	Child does not have eye or sight problems (0–14 years)	177,125	92	. .
	Child does not have ear or hearing problems (0–14 years)	175,065	91	. .
	Child does not have teeth or gum problems (0–14 years)	121,177	63	. .
	Child born on time (37–41 weeks) (0–3 years)	29,998	56	. .
	Child weighed between 2,500 grams and 4,500 grams at birth (0–3 years)	39,560	73	. .
	Child's mother had regular check-ups while pregnant (0–3 years)	47,014	87	. .
	Child's mother did not have diabetes or sugar problems (0–3 years)	47,149	88	. .
	Child's mother did not have high blood pressure (0–3 years)	43,806	81	. .
	Child's mother took folate prior to and during pregnancy (0–3 years)	8,257	15	. .
	Child's mother took medications or supplements during pregnancy (0–3 years)	22,381	42	. .
	Child's mother did not drink alcohol during pregnancy (0–3 years)	34,359	64	. .
	Child's mother did not smoke/chew tobacco during pregnancy (0–3 years)	24,781	46	. .
	Child's mother did not use illicit drugs/substances during pregnancy (0–3 years)	40,649	75	. .
	Child was breastfed (0–3 years)	40,696	76	. .
	Child usually eats two or more serves of fruit per day—non Remote —(1–14 years)	82,580	60	. .
	Child usually eats five or more serves of vegetables per day—non Remote —(1–14 years)	6,979	5	. .
	Child does not spend more than 2 hours per day being inactive (5–14 years)	42,887	34	. .
	Child spent 60 minutes or more per day being physically active in last week (4–14 years)	103,279	74	. .
	Child did not have problems sleeping in last 4 weeks (0–14 years)	146,366	76	. .
Adult health, social and emotional wellbeing, chronic disease and substance use	Self-assessed health status excellent or very good	143,004	44	44
	Has no disability or long-term health condition	164,157	50	64
	Has not consumed alcohol in last 12 months at risky/high-risk levels	266,458	82	84
	Has not used substances illicitly in last 12 months	228,799	70	71
	Does not have an education restriction due to disability	142,632	46	. .
	Does not have an employment restriction due to disability	125,599	40	. .
	Low/ moderate level of psychological distress (5–11 K5 score)	221,717	68	. .
Smoking	Not a regular smoker	176,408	54	51
	– Tried to quit smoking	39,539	12	. .
	– Tried to reduce smoking	26,313	8	. .
	– Tried both	27,069	8	. .
	No current daily smoker(s) in household—all ages	171,617	33	. .
	No household members smoke inside the house—all ages	372,379	72	. .
Continuing employment	Employed	169,098	52	. .
	2 years or more in current job	90,372	28	. .
	Current job is permanent	129,786	40	. .

(continued)

Table 1.13.7 (continued): Variables contributing to community functionality measure 'Vitality' for Aboriginal and Torres Strait Islander persons(a), Australia 2008 and 2002

Vitality		2008 No.	2008 (%)	2002 (%)
Unemployed and main difficulty finding work	Transport problems/distance	4,674	14	15
	No jobs at all	2,739	8	11
	No jobs in local area or line of work	4,908	15	11
	Insufficient education, training, skills	6,214	19	26
	Own ill health or disability	2,328	7	6
	Racial discrimination[(b)]	1,466	4	2
	Age[(b)]	589	2	6
	Have criminal record	811	2	. .
	Don't have driver's licence	2,214	7	. .
	Unable to find suitable child care	979	3	. .
	Total with difficulties	29,679	89	91
Unemployed and use of employment support services in last 12 months	Used services	22,402	67	68
	Did not use services	10,994	33	32
	Needed services	2,482	7	9
	Did not need services	8,512	26	23
Education	Year 12 highest year of school completed, not currently attending secondary school	66,220	20	18
	Total persons 15 years and over not at school	299,689	92	. .
	Has a non-school qualification (persons aged 25–64)	83,257	40	32
Education—adult	Intends to study in the future and currently not studying	109,245	41	. .
	Reasons for future educational intentions:			
	– To gain a promotion	5,874	2	. .
	– To get a better job	32,528	10	. .
	– To get a job	23,693	7	. .
	– Requirement of current job	3,576	1	. .
	– Update training	12,505	4	. .
	– Improve knowledge or skills	47,768	15	. .
	– Improve qualifications	34,584	11	. .
	– Interest	15,568	5	. .
Education—child (2–14 years)	Types of assistance that would help child in secondary school complete Year 12 (cont.) eg:			
	– Greater access to apprenticeships	8,391	25	. .
	– More individual tutoring	11,064	32	. .
	– Schools suitable for culture and/or beliefs	5,901	17	. .
	– Suitable or reliable transport	5,048	15	. .
	– Accessible secondary schools	3,505	10	. .
	– Subsidies or grants to help affordability	8,667	25	. .

(continued)

Table 1.13.7 (continued): Variables contributing to community functionality measure 'Vitality' for Aboriginal and Torres Strait Islander persons[(a)], Australia 2008 and 2002

Vitality		2008 No.	2008 (%)	2002 (%)
Used child care(informal and formal care) in last week (0–12 years)		93,838	56	. .
	Used formal child care in last week 0–4 years	14,356	22	. .
	Used formal child care in last week 5–12 years	9,389	9	. .
	Total used formal child care in last week (0–12 years)	23,745	14	. .
Main reasons attends child care	Parental work commitments	12,408	52	. .
	Parental study commitments	977	4	. .
	Parent looking for work	537	2	. .
	Parental sport/social/volunteer/community activities	319	1	. .
	To give parent a break or some time alone	2,352	10	. .
	A good way to prepare child for school	1,665	7	. .
	Good for child's intellectual or language development	739	3	. .
	Good for child's social development	3,930	17	. .
Housing (all age groups)	Living in a dwelling that has no major structural problems	370,606	71	60
	Dwelling not overcrowded (Canadian National Occupancy Standard)	375,341	72	74
	Working household facilities for:			
	– Washing people	507,710	98	99
	– Washing clothes and bedding	483,623	93	98
	– Storing/preparing foods	473,942	91	92
	– Sewerage facilities	508,071	98	98
Communication services	Household members used telephone(s) in last month	317,203	97	. .
	Used computer in last 12 months	218,006	67	56
	Used Internet in last 12 months	192,852	59	41
Information Technology—adult	Working computer in home—all ages	299,854	58	. .
	Computer connected to Internet—all ages	224,024	43	. .
	Reasons for using computer in last 12 months—persons aged 15 years and over:			
	– Work or business	95,495	29	. .
	– Education or Study	75,712	23	. .
	– Volunteer or community group activities	14,795	5	. .
	– Personal or private	187,012	57	. .
	Purpose of Internet use in last 12 months—persons aged 15 years and over:			
	– Work/business	79,101	17	. .
	– To pay bills	51,434	11	. .
	– Education/study	135,646	30	. .
	– Volunteer/community groups	12,404	3	. .
	– Buying goods online new/used goods	48,457	11	. .
	– Entertainment or leisure online or general browsing	154,270	34	. .
	– Talking/ communicating with people emails/chat rooms	125,142	28	. .
	– Personal/ private reasons	88,461	20	. .

Table 1.13.7 (continued): Variables contributing to community functionality measure 'Vitality' for Aboriginal and Torres Strait Islander persons[(a)], Australia 2008 and 2002

Vitality		2008 No.	2008 (%)	2002 (%)
Information Technology—child	Reasons for using computer in last 12 months—child (5–14 years):			
	– School work	98,030	77	. .
	– Playing games	82,542	65	. .
	– Hobbies/non-school activities	36,054	29	. .
	Purpose of Internet use in last 12 months children (5 to 14 years):			
	– Education/ study	68,072	54	. .
	– Entertainment or leisure on-line or general browsing	52,450	41	. .
	– Talking/communicating with people emails/chat rooms	22,729	18	. .
	– Personal/ private reasons	12,420	10	. .
	Total used Internet all persons	281,009	62	. .
Transport	Has access to motor vehicles whenever needed	215,689	66	55
	Holds a current driver's licence—18+ years	184,117	63	. .
	Can easily get to places needed	241,481	74	70
	Used transport in last 2 weeks	317,084	97	. .
	Used public transport in last 2 weeks	91,673	28	. .
	Main reasons for not using public transport:			
	– Prefer to use own transport (or walk)	100,311	31	29
	– No service available (to destination)	3,509	1	. .
	– No service available/convenient time	10,495	3	4
	– Cost considerations	2,819	1	1
	– Takes too long	3,461	1	. .
	– Health reasons	3,106	1	. .
Income	Equivalised gross household income 3rd quintile or above	92,063	35	25
Main current source of personal income	CDEP	15,023	5	10
	Other wages/salaries	131,781	40	29
	Government pensions and allowances	132,841	41	50
	Other sources	6,948	2	. .
	Total in labour force	202,511	62	60
Total persons aged 15 years and over		327,001	100	. .

(a) Ages 15 and over unless otherwise stated.

(b) Estimate has a relative standard error between 25% and 50% and should be used with caution.

Source: ABS analysis of 2008 NATSISS.

Score distribution

Figures 1.13.2 through to 1.13.9 show the distribution of the calculated community functioning scores for Aboriginal and Torres Strait Islander persons aged 0–14 years of age and 15 years and over. The total area under the curve is 100, whereby the weight for each theme and the weight of data items within each theme have been taken into account. The greater the score, the stronger the community's functioning. Medians have been noted in text to illustrate the midpoint of a distribution.

- Community functioning scores vary by age, with the strongest scores being in the 35 to 54 year age group (median score 45).
- Community functioning scores do not have major differences by sex for persons aged 0 to 14 years (median score 20 for male, 21 for females), and for persons aged 15 years and over (median score 44 for males, 43 for females).
- Community functioning scores are greater for persons aged 0 to 14 years in *Remote* (median score 23) than in non-remote areas (median score 20), and are slightly greater for persons aged 15 years and over in remote areas (median score 44) than in non-remote area (median score 43).
- Community functioning scores vary by jurisdiction. Scores are strongest for persons age 0 to 14 years in the Northern Territory (median score 23) and strongest in the Australian Capital Territory (median score 49) for persons aged 15 years and over.

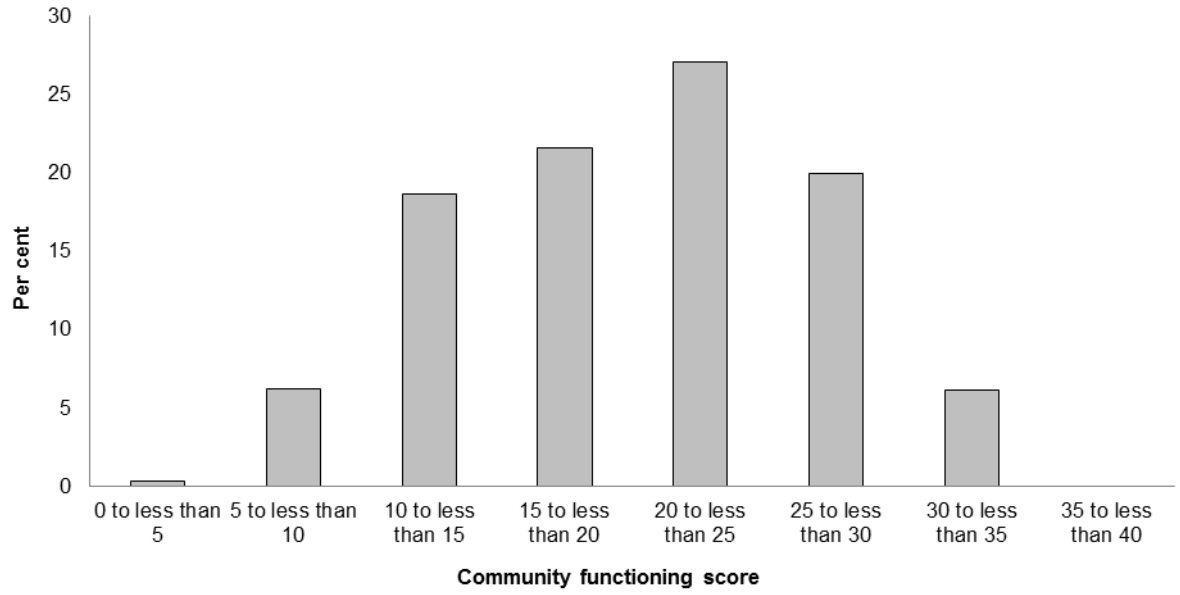
Select variables contributing to community functioning scores for 0–14 year olds and for persons aged 15 years and over are provided in tables 1.13.9 to 1.13.12.

Table 1.13.8: Median community functioning scores for Aboriginal and Torres Strait Islander persons, by age group, Australia 2008

Median score by sex	0–14	15+	Median score by age group	
Male	20	44	0–14	21
Female	21	43	15–34	43
			35–54	45
			55+	42

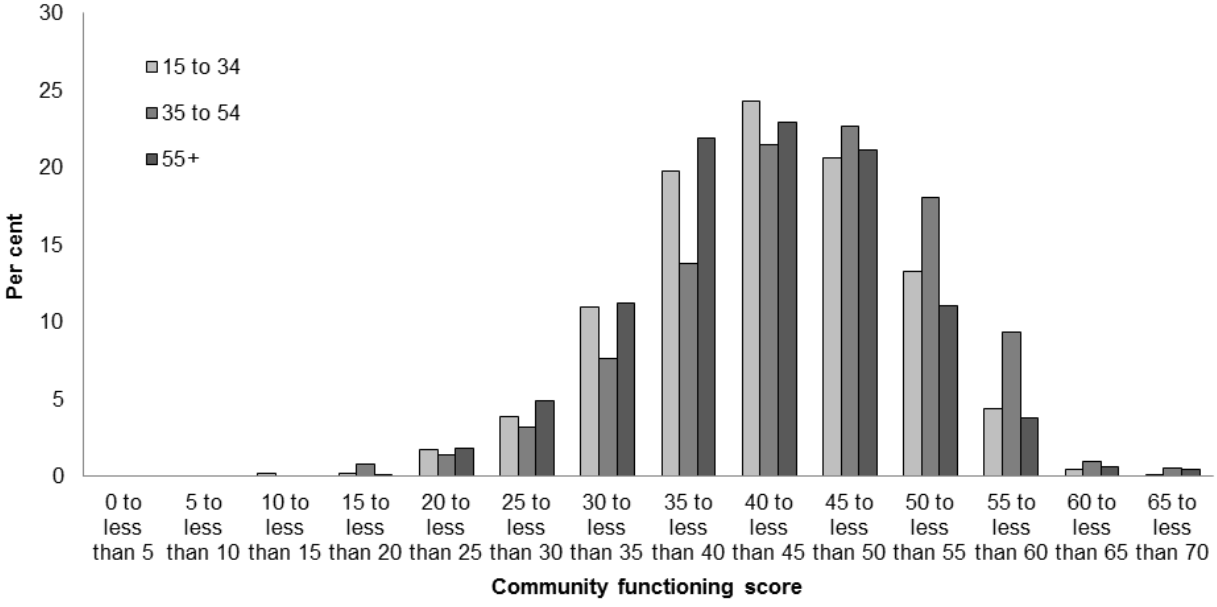
Median score by state	0–14	15+	Median score by remoteness	0–14	15+
New South Wales	20	42	*Major cities* of Australia	20	44
Victoria	19	44	*Inner regional* Australia	20	43
Queensland	21	44	*Outer regional* Australia	20	43
South Australia	21	44	*Remote* Australia	22	44
Western Australia	20	44	*Very remote* Australia	23	45
Tasmania	19	43	Non-remote	20	43
Northern Territory	23	45	Remote	23	44
Australian Capital Territory	21	49			

Source: ABS analysis of 2008 NATSISS.



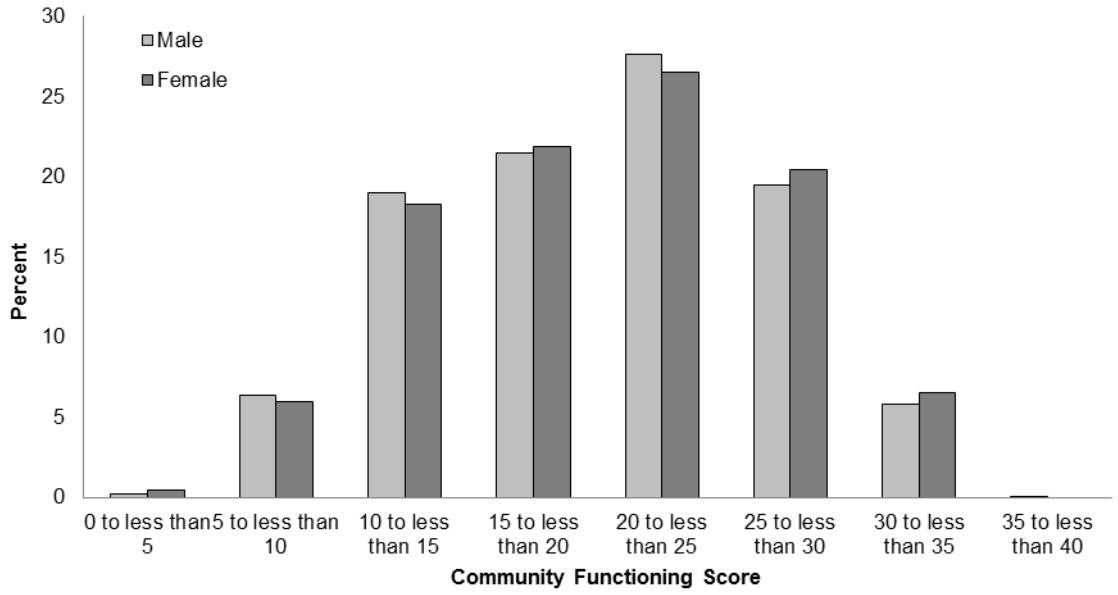
Source: ABS analysis of 2008 NATSISS.

Figure 1.13.2: Distribution of community functioning scores for Aboriginal and Torres Strait Islander persons aged 0–14 years, Australia 2008



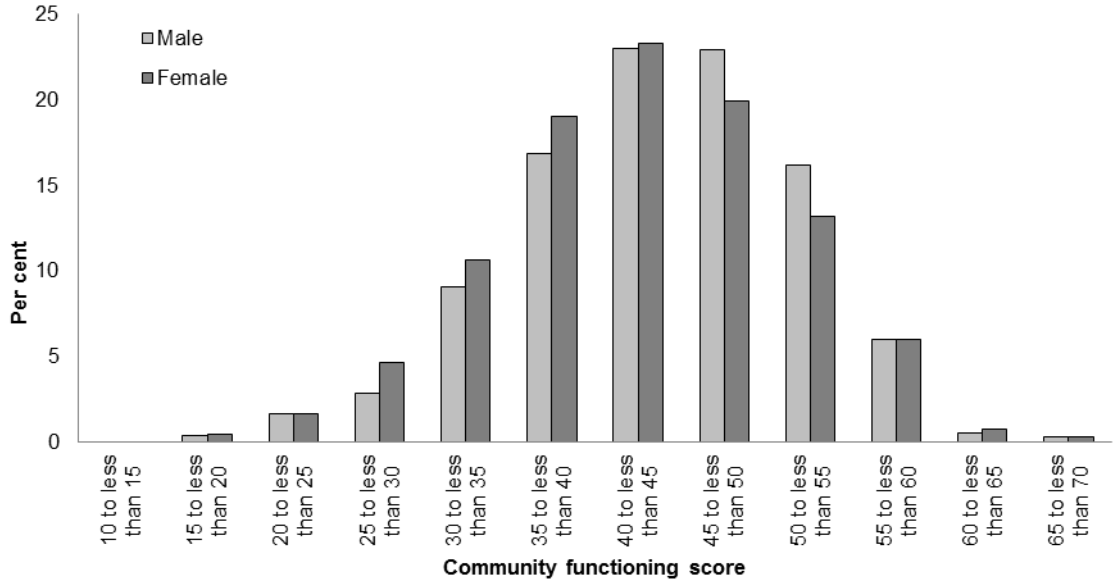
Source: ABS analysis of 2008 NATSISS.

Figure 1.13.3: Distribution of community functioning scores for Aboriginal and Torres Strait Islander persons aged 15 years and over, Australia 2008



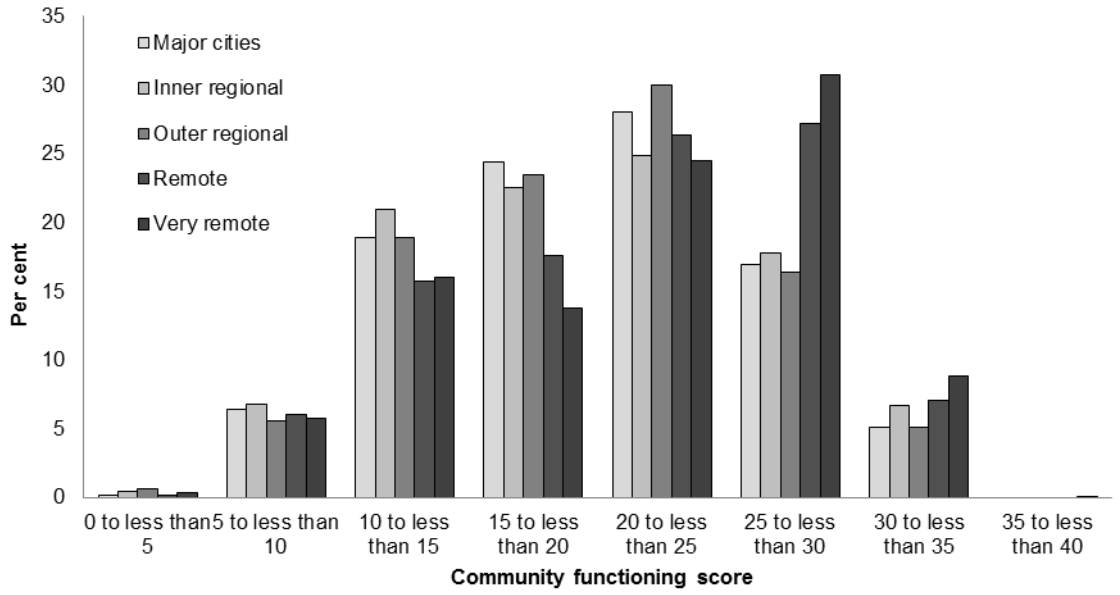
Source: ABS analysis of 2008 NATSISS.

Figure 1.13.4: Distribution of community functioning scores for Aboriginal and Torres Strait Islander persons aged 0–14 years, by sex, Australia 2008



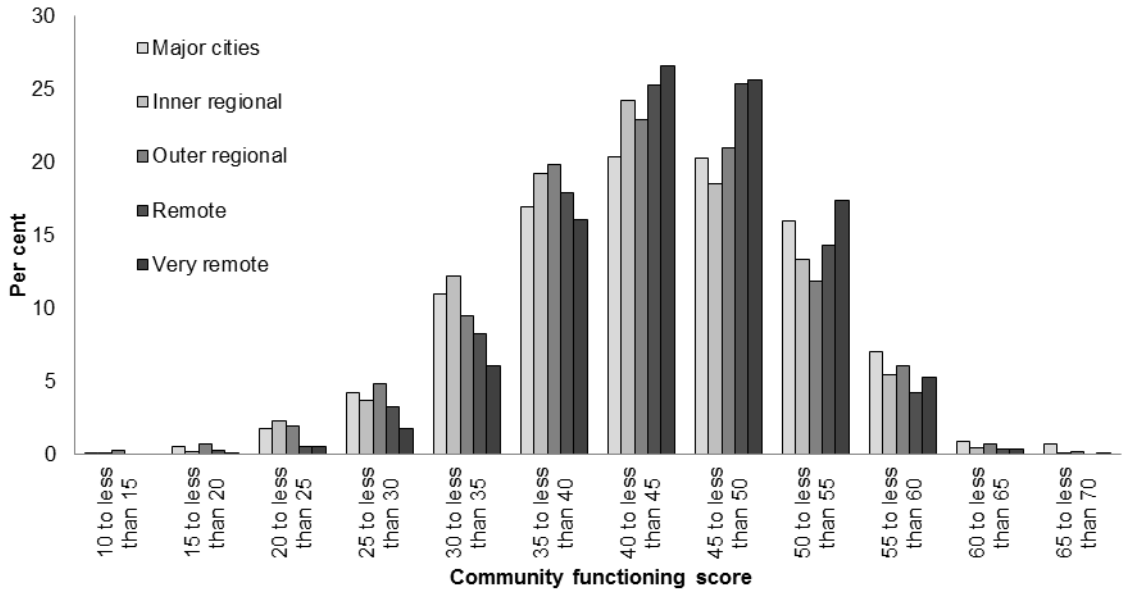
Source: ABS analysis of 2008 NATSISS.

Figure 1.13.5: Distribution of community functioning scores for Aboriginal and Torres Strait Islander persons aged 15 years and over, by sex, Australia 2008



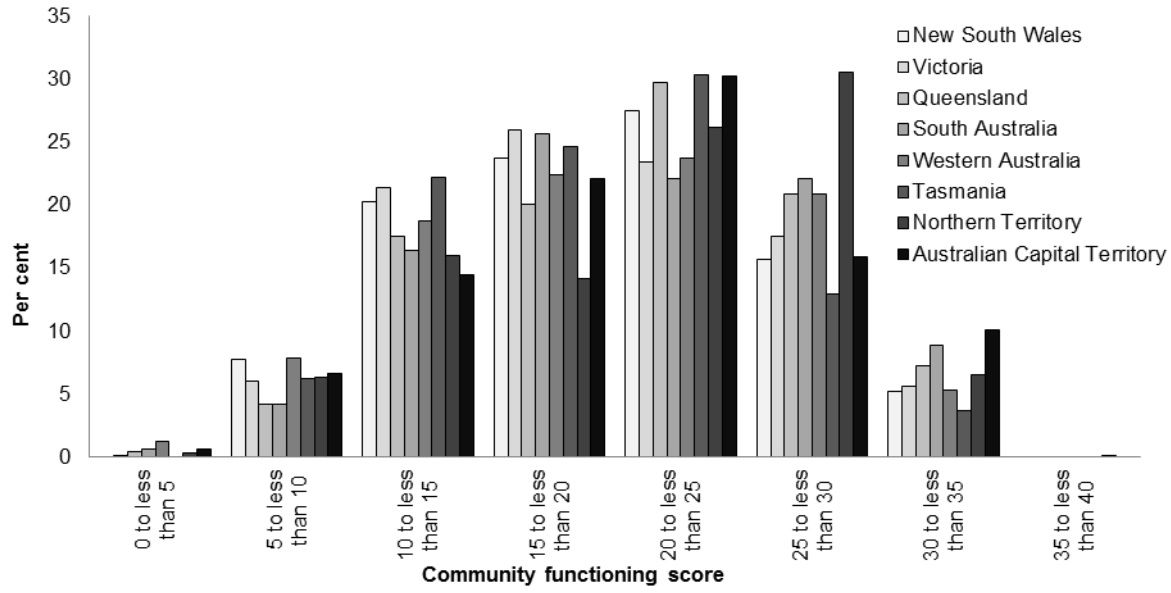
Source: ABS analysis of 2008 NATSISS.

Figure 1.13.6: Distribution of community functioning scores for Aboriginal and Torres Strait Islander persons aged 0–14 years, by remoteness, Australia 2008



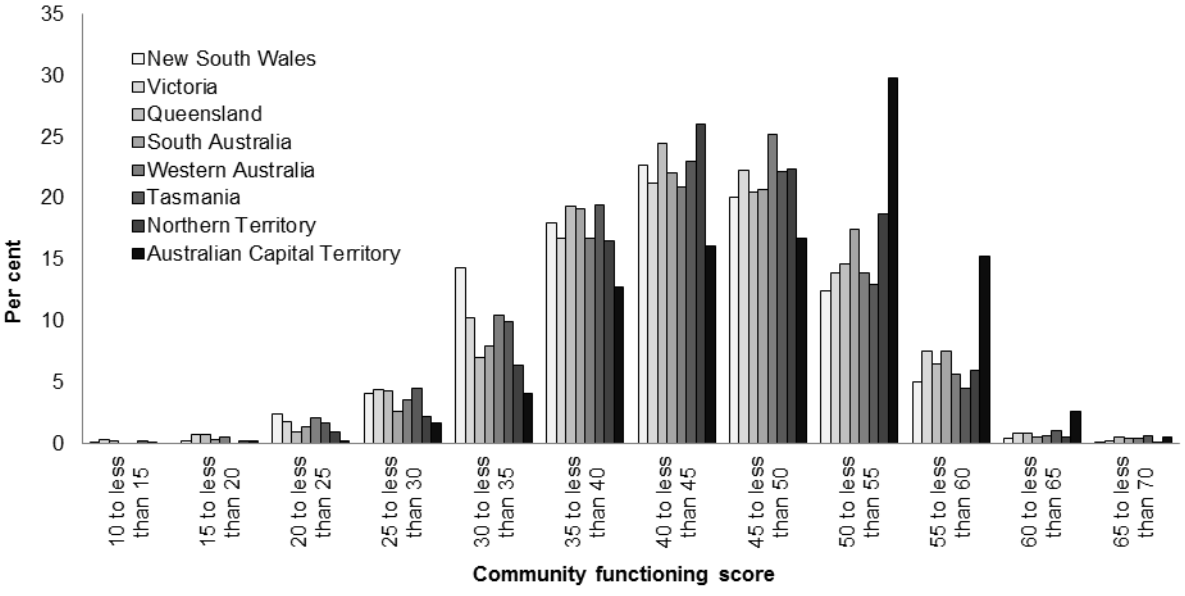
Source: ABS analysis of 2008 NATSISS

Figure 1.13.7: Distribution of community functioning scores for Aboriginal and Torres Strait Islander persons aged 15 years and over, by remoteness, Australia 2008



Source: ABS analysis of 2008 NATSISS

Figure 1.13.8: Distribution of community functioning scores for Aboriginal and Torres Strait Islander persons aged 0–14 years, by state/territory, Australia 2008



Source: ABS analysis of 2008 NATSISS

Figure 1.13.9: Distribution of community functioning scores for Aboriginal and Torres Strait Islander persons aged 15 years and over, by state/territory, Australia 2008

Table 1.13.9: Community functioning for Aboriginal and Torres Strait Islander persons, by age group, Australia 2008

	15 to 34		35 to 54		55 and over		Total 15+	
	No.	%	No.	%	No.	%	No.	%
Connectedness to family land and history, culture, identity								
Recognises homelands	113,764	66	87,918	79	32,700	77	234,383	72
Speaks an Aboriginal/Torres Strait Islander language	29,738	17	23,105	21	9,787	23	62,629	19
Attended Aboriginal and Torres Strait Islander cultural event in last 12 months	108,638	63	72,084	65	24,952	59	205,674	63
Identifies with clan group or language group	97,157	56	77,812	70	28,138	66	203,106	62
Feels able to have a say with family and friends some, most or all of the time	153,957	89	100,991	91	37,427	88	292,375	89
Contact with family or friends outside household at least once per week	166,284	96	102,217	92	39,014	92	307,515	94
Has friends can confide in	136,084	78	80,530	73	30,034	71	246,649	75
Able to get support in time of crisis from outside household—from family member	141,102	81	88,227	80	32,177	76	261,506	80
Provides support to relatives outside household	74,459	43	71,281	64	21,152	50	166,892	51
Resilience								
Did not feel discriminated against in last 12 months	125,838	72	77,102	70	34,872	82	237,812	73
Did not avoid situations due to past discrimination	119,322	69	72,855	66	33,330	78	225,507	69
Can visit homelands[(a)]	67,801	70	56,649	73	21,566	77	146,017	72
Involvement with Aboriginal/Torres Strait Islander organisation	23,361	13	27,545	25	8,611	20	59,516	18
Work allows for and can meet cultural responsibilities[(b)]	35,923	41	32,534	47	6,571	55	75,028	44
Used strategies to meet living expenses	71,078	41	37,359	34	10,711	25	119,147	36
No community problems reported	46,208	27	24,621	22	13,498	32	84,327	26
No problems reported for alcohol	101,512	58	61,953	56	28,674	67	192,138	59
No problems reported for illicit drugs	109,330	63	68,697	62	30,012	70	208,039	64
No problems reported for family violence	132,287	76	80,209	72	33,442	79	245,938	75
No problems reported for sexual assault	154,233	89	95,411	86	39,281	92	288,926	88
Agrees that most people can be trusted	62,102	36	40,184	36	16,689	39	118,975	36
Agrees that their doctor can be trusted	138,253	80	86,543	78	35,980	84	260,777	80
Agrees that the hospital can be trusted	114,324	66	61,636	56	28,229	66	204,189	62
Agrees that police in the local area can be trusted	88,337	51	57,187	52	24,793	58	170,317	52
Agrees that police outside the local area can be trusted	72,504	42	43,389	39	17,470	41	133,362	41

(continued)

Table 1.13.9 (continued): Community functioning for Aboriginal and Torres Strait Islander persons, by age group, Australia 2008

	15 to 34		35 to 54		55 and over		Total 15+	
	No.	%	No.	%	No.	%	No.	%
Agrees that the local school can be trusted	120,787	70	76,510	69	27,437	64	224,734	69
Knows someone in organisation/comfortable contacting	59,944	35	53,218	48	18,849	44	132,011	40
Adult participated in sport/social/community activities in last 3 months	156,169	90	97,358	88	35,855	84	289,381	89
Leadership								
Child spent time with an Indigenous leader or elder in last week (children aged 3–14 years)	. .	. .	. .	. .	. .	. .	65,035	42
Encouragement from elders and council would help child (2–14 years) complete Year 12	. .	. .	. .	. .	. .	. .	7,504	5
Structure and routine/having a role								
Can communicate with English speakers without difficulty (Indigenous language is main language spoken at home)	13,999	8	9,020	8	4,159	10	27,179	8
In the last 12 months, has lived in only one dwelling	124,532	72	92,545	84	38,080	89	255,157	78
Activities were undertaken with child doing informal learning activities in the last week (0–14 years)	. .	. .	. .	. .	. .	. .	180,736	94
Feeling safe								
Felt safe at home alone during the day	162,309	93	103,883	94	39,701	93	305,892	94
Felt safe at home alone after dark	133,812	77	93,873	85	33,729	79	261,414	80
Felt safe walking alone in local area after dark	95,346	55	59,863	54	16,838	40	172,047	53
Not a victim of physical or threatened violence in the last 12 months	121,750	70	85,553	77	39,069	92	246,372	75
Indigenous culture taught at school (2–14 years attending school)	. .	. .	. .	. .	. .	. .	87,833	63
Was taught Indigenous culture at school or as part of further studies	102,907	59	39,118	35	6,567	15	148,592	45
Learnt about own Indigenous clan / language	35,203	20	17,818	16	2,926	7	55,947	17
Child neither bullied nor treated unfairly at school because Indigenous (2–14 years attending school excl. home school)	. .	. .	. .	. .	. .	. .	112,159	81
Vitality								
Self-assessed health status excellent or very good	95,001	55	38,609	35	9,394	22	143,004	44
Has no disability or long term-health condition	107,629	62	46,932	42	9,597	23	164,157	50
Does not have an education restriction due to disability[(c)]	60,671	92	63,065	99	19,965	99	143,701	96
Does not have an employment restriction due to disability[(c)]	56,721	86	52,128	82	17,831	88	126,681	84
Low/ moderate level of psychological distress (5–11 K5 score)	119,341	69	73,076	66	29,301	69	221,717	68

(continued)

Table 1.13.9 (continued): Community functioning for Aboriginal and Torres Strait Islander persons, by age group, Australia 2008

	15 to 34		35 to 54		55 and over		Total 15+	
	No.	%	No.	%	No.	%	No.	%
Employed[(d)]	87,546	78	69,604	89	11,948	96	169,098	84
Living in a dwelling that has no major structural problems	121,544	70	79,248	72	32,160	75	232,951	71
Household members used telephone(s) in last month	169,038	97	107,196	97	40,968	96	317,203	97
Used computer in last 12 months	134,313	77	70,066	63	13,627	32	218,006	67
Used Internet in last 12 months	122,876	71	60,184	54	9,793	23	192,852	59
Has access to motor vehicles whenever needed	98,481	57	88,115	80	29,093	68	215,689	66
Can easily get to places needed	122,099	70	86,247	78	33,135	78	241,481	74
Equivalised gross household income in 3rd quintile or above	85,690	49	48,259	44	25,313	59	159,261	49
Total persons aged 15 years and over	**173,711**	**100**	**110,763**	**100**	**42,627**	**100**	**327,101**	**100**

(a) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders who identify with a clan group.

(b) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders who are employed.

(c) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders who have a disability.

(d) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders in the labour force.

Source: ABS analysis of 2008 NATSISS.

Table 1.13.10: Community functioning for Aboriginal and Torres Strait Islander persons aged 15 years and over[a][b], by sex, Australia 2008

	Males		Females		Total	
	No.	%	No.	%	No.	%
Connectedness to family land and history, culture, identity						
Recognises homelands	114,402	73	119,981	70	234,383	72
Speaks an Aboriginal/Torres Strait Islander language	31,994	21	30,636	18	62,629	19
Attended Aboriginal and Torres Strait Islander cultural event in last 12 months	91,804	59	113,871	67	205,674	63
Identifies with clan group or language group	98,781	63	104,325	61	203,106	62
Feels able to have a say with family and friends some, most or all of the time	138,155	89	154,220	90	292,375	89
Contact with family or friends outside household at least once per week	144,391	93	163,124	95	307,515	94
Has friends can confide in	114,720	74	131,929	77	246,649	75
Able to get support in time of crisis from outside household—from family	122,982	79	138,523	81	261,506	80
Provides support to relatives outside household	77,654	50	89,238	52	166,892	51
Resilience						
Did not feel discriminated against in last 12 months	112,582	72	125,230	73	237,812	73
Did not avoid situations due to past discrimination	107,002	69	118,505	69	225,507	69
Can visit homelands[c]	70,387	71	75,629	72	146,017	72
Involvement with Aboriginal/Torres Strait Islander organisation	24,411	16	35,105	21	59,516	18
Work allows for cultural responsibilities—can meet responsibilities[d]	41,488	44	33,541	45	75,028	44
Used strategies to meet living expenses	53,036	34	66,112	39	119,147	36
No community problems reported	42,324	27	42,003	25	84,327	26
No problems reported for alcohol	90,537	58	101,601	59	192,138	59
No problems reported for illicit drugs	98,665	63	109,374	64	208,039	64
No problems reported for family violence	119,543	77	126,395	74	245,938	75
No problems reported for sexual assault	138,589	89	150,337	88	288,926	88
Agrees that most people can be trusted	62,527	40	56,448	33	118,975	36
Agrees that their doctor can be trusted	122,755	79	138,022	81	260,777	80
Agrees that the hospital can be trusted	103,454	66	100,735	59	204,189	62
Agrees that police in the local area can be trusted	79,367	51	90,950	53	170,317	52
Agrees that police outside the local area can be trusted	64,110	41	69,251	41	133,362	41
Agrees that the local school can be trusted	107,062	69	117,672	69	224,734	69
Knows someone in organisation/comfortable contacting	60,920	39	71,091	42	132,011	40
Adult participated in sport/social/community activities in last 3 months	136,826	88	152,555	89	289,381	89

(continued)

Table 1.13.10 (continued): Community functioning for Aboriginal and Torres Strait Islander persons aged 15 years and over[a][b], by sex, Australia 2008

	Males		Females		Total	
	No.	%	No.	%	No.	%
Leadership						
Child spent time with an Indigenous leader or elder in last week (children aged 3–14 years)	33,483	43	31,552	42	65,035	42
Encouragement from elders and council would help child (2–14 years)complete year 12	3,623	4	3,881	5	7,504	5
Structure and routine/having a role						
Can communicate with English speakers without difficulty (Indigenous language is main language spoken at home)	12,962	8	14,217	8	27,179	8
In the last 12 months, has lived in only one dwelling	121,703	78	133,454	78	255,157	78
Feeling safe						
Felt safe at home alone during the day	150,733	97	155,159	91	305,892	94
Felt safe at home alone after dark	142,431	91	118,983	70	261,414	80
Felt safe walking alone in local area after dark	112,743	72	59,305	35	172,047	53
Not a victim of physical or threatened violence in the last 12 months:	117,868	76	128,504	75	246,372	75
Was taught Indigenous culture at school or as part of further studies	69,089	44	79,504	47	148,592	45
Learnt about own Indigenous clan / language	25,817	17	30,129	18	55,947	17
Vitality						
Self-assessed health status excellent or very good	72,507	47	70,497	41	143,004	44
Has no disability or long term-health condition	80,396	52	83,761	49	164,157	50
Does not have an education restriction due to disability[e]	67,946	96	75,754	95	143,701	96
Does not have an employment restriction due to disability[e]	58,482	83	68,198	86	126,681	84
Low/ moderate level of psychological distress (5–11 K5 score)	111,245	71	110,473	65	221,717	68
Employed[f]	94,464	84	74,633	83	169,098	84
Living in a dwelling that has no major structural problems	112,896	72	120,056	70	232,951	71
Household members used telephone(s) in last month	151,574	97	165,629	97	317,203	97
Used computer in last 12 months	98,348	63	119,659	70	218,006	67
Used Internet in last 12 months	87,879	56	104,973	61	192,852	59
Has access to motor vehicles whenever needed	105,546	68	110,142	64	215,689	66
Can easily get to places needed	118,978	76	122,503	72	241,481	74
Equivalised gross household income in 3rd quintile or above	70,680	45	88,582	52	159,261	49
Total persons aged 15 years and over	**156,052**	**100**	**171,049**	**100**	**327,101**	**100**

(a) Unless otherwise indicated, data are for Aboriginal and Torres Strait Islander population aged 15 years and over.

(b) Unless otherwise indicated, proportions are of the estimated total Aboriginal and Torres Strait Islander population aged 15 years and over. Where another population is indicated, this has been used to calculate proportions.

(c) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders aged 15 years and over who identify with a clan group.

(d) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders aged 15 years and over who are employed.

(e) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders aged 15 years and over who have a disability.

(f) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders aged 15 years and over in the labour force.

Source: ABS analysis of 2008 NATSISS.

Table 1.13.11: Community functioning for Aboriginal and Torres Strait Islander persons aged 15 years and over[a][b], by remoteness, Australia, 2008

	Major cities		Inner regional		Outer regional		Non remote		Remote		Very remote		Total Remote		Australia	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Connectedness to family land and history, culture, identity																
Recognises homelands	70,638	67	42,750	63	50,847	70	164,235	67	23,877	80	46,271	90	70,148	86	234,383	72
Speaks an Aboriginal/Torres Strait Islander language	8,274	8	2,373	4	8,369	12	19,017	8	9,406	32	34,207	66	43,613	54	62,629	19
Attended Aboriginal and Torres Strait Islander cultural event in last 12 months	59,370	56	35,423	53	45,307	62	140,100	57	22,393	75	43,181	84	65,574	81	205,674	63
Identifies with clan group or language group	60,403	57	35,259	52	42,008	58	137,670	56	21,372	72	44,065	85	65,437	80	203,106	62
Feels able to have a say with family and friends some, most or all of the time	95,217	91	62,342	93	64,657	89	222,216	91	26,512	89	43,647	85	70,159	86	292,375	89
Contact with family or friends outside household at least once per week	98,999	94	63,159	94	68,578	94	230,735	94	28,391	95	48,389	94	76,779	94	307,515	94
Has friends can confide in	85,855	82	54,594	81	55,993	77	196,442	80	21,871	73	28,336	55	50,207	62	246,649	75
Able to get support in time of crisis from outside household—from family member	83,858	80	53,940	80	56,615	78	194,413	79	25,763	86	41,330	80	67,092	82	261,506	80
Provides support to relatives outside household	52,796	50	28,219	42	36,624	50	117,639	48	17,728	59	31,525	61	49,253	60	166,892	51
Resilience																
Did not feel discriminated against in last 12 months	75,139	71	50,498	75	52,115	71	177,752	72	20,913	70	39,148	76	60,060	74	237,812	73
Did not avoid situations due to past discrimination	71,270	68	48,861	73	49,053	67	169,185	69	19,746	66	36,576	71	56,322	69	225,507	69
Can visit homelands[c]	58,248	96	23,890	68	30,581	73	112,719	82	13,672	64	19,626	45	33,297	51	146,017	72

(continued)

Table 1.13.11 (continued): Community functioning for Aboriginal and Torres Strait Islander persons aged 15 years and over[(a)(b)], by remoteness, Australia 2008

	Major cities		Inner regional		Outer regional		Non remote		Remote		Very remote		Total Remote		Australia	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Involvement with Aboriginal/Torres Strait Islander organisation	22,346	21	12,277	18	12,280	17	46,903	19	5,051	17	7,563	15	12,613	16	59,516	18
Work allows for cultural responsibilities—can meet responsibilities[(d)]	21,091	35	11,840	36	14,683	41	47,614	37	7,508	54	19,906	75	27,414	68	75,028	44
Used strategies to meet living expenses	40,081	38	22,070	33	25,663	35	87,815	36	12,816	43	18,517	36	31,333	38	119,147	36
No community problems reported	22,107	21	20,618	31	22,745	31	65,469	27	5,993	20	12,864	25	18,857	23	84,327	26
No problems reported for alcohol	64,327	61	46,305	69	43,932	60	154,564	63	12,834	43	24,741	48	37,575	46	192,138	59
No problems reported for illicit drugs	64,970	62	46,642	69	49,584	68	161,196	66	16,913	57	29,930	58	46,843	58	208,039	64
No problems reported for family violence	82,384	78	55,264	82	56,829	78	194,477	79	18,707	63	32,754	63	51,461	63	245,938	75
No problems reported for sexual assault	92,713	88	62,427	93	65,184	89	220,324	90	25,505	86	43,096	83	68,601	84	288,926	88
Agrees that most people can be trusted	37,951	36	22,682	34	23,487	32	84,120	34	11,431	38	23,424	45	34,855	43	118,975	36
Agrees that their doctor can be trusted	85,133	81	56,331	84	56,829	78	198,293	81	23,214	78	39,270	76	62,484	77	260,777	80
Agrees that the hospital can be trusted	62,001	59	41,123	61	41,062	56	144,185	59	20,145	68	39,859	77	60,004	74	204,189	62
Agrees that police in the local area can be trusted	55,047	52	35,192	52	32,474	45	122,713	50	15,888	53	31,716	61	47,604	58	170,317	52
Agrees that police outside the local area can be trusted	45,966	44	29,363	44	24,705	34	100,034	41	10,498	35	22,829	44	33,327	41	133,362	41

(continued)

Table 1.13.11 (continued): Community functioning for Aboriginal and Torres Strait Islander persons aged 15 years and over[(a)(b)], by remoteness, Australia 2008

	Major cities		Inner regional		Outer regional		Non remote		Remote		Very remote		Total Remote		Australia	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Agrees that the local school can be trusted	69,805	66	42,575	63	48,244	66	160,625	65	21,607	72	42,503	82	64,110	79	224,734	69
Knows someone in organisation/comfortable contacting	57,279	54	34,891	52	39,841	55	132,011	54	. .	. .	. .	. .	. .	. .	132,011	40
Adult participated in sport/ social/community activities in last 3 months	92,036	88	59,611	88	63,525	87	215,172	88	27,128	91	47,081	91	74,209	91	289,381	89
Leadership																
Child spent time with an Indigenous leader or elder in last week (children aged 3–14 years)	16,218	33	13,334	38	12,616	38	42,167	36	7,773	52	15,094	70	22,867	63	65,035	42
Encouragement from elders and council would help child (2–14 years) complete year 12	2,556	5	1,262	3	1,273	4	5,090	4	635	4	1,779	8	2,414	6	7,504	5
Structure and routine/having a role																
Can communicate with English speakers without difficulty (Indigenous language is main language spoken at home)	524	1	119	0	2,408	3	3,051	1	4,015	14	20,113	39	24,127	30	27,179	8
In the last 12 months, has lived in only one dwelling	83,802	80	49,366	73	57,751	79	190,919	78	23,509	79	40,729	79	64,237	79	255,157	78
Feeling safe																
Felt safe at home alone during the day	97,045	92	62,775	93	68,344	94	228,164	93	28,191	95	49,537	96	77,729	95	305,892	94
Felt safe at home alone after dark	83,590	79	53,426	79	57,915	79	194,931	79	23,284	78	43,199	84	66,483	82	261,414	80

(continued)

Table 1.13.11 (continued): Community functioning for Aboriginal and Torres Strait Islander persons aged 15 years and over[(a)(b)], by remoteness, Australia 2008

	Major cities		Inner regional		Outer regional		Non remote		Remote		Very remote		Total Remote		Australia	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Felt safe walking alone in local area after dark	53,476	51	31,413	47	37,718	52	122,607	50	15,807	53	33,633	65	49,440	61	172,047	53
Not a victim of physical or threatened violence in the last 12 months	77,391	74	51,088	76	54,334	75	182,813	74	22,331	75	41,229	80	63,559	78	246,372	75
Was taught Indigenous culture at school or as part of further studies	47,953	46	29,875	44	30,048	41	107,877	44	12,782	43	27,933	54	40,716	50	148,592	45
Learnt about own Indigenous clan / language	12,621	12	7,763	12	9,433	13	29,816	12	6,777	23	19,353	38	26,130	32	55,947	17
Vitality																
Self-assessed health status excellent or very good	45,988	44	32,847	49	28,430	39	107,265	44	11,565	39	24,174	47	35,739	44	143,004	44
Has no disability or long term-health condition	48,867	46	36,272	54	37,262	51	122,402	50	14,333	48	27,422	53	41,755	51	164,157	50
Does not have an education restriction due to disability[(e)]	49,251	93	27,877	96	31,607	97	108,736	95	13,791	98	21,174	97	34,965	98	143,701	96
Does not have an employment restriction due to disability[(e)]	42,489	80	25,904	90	27,796	85	96,190	84	12,493	89	17,998	83	30,491	85	126,681	84
Low/ moderate level of psychological distress (5–11 K5 score)	71,015	68	47,349	70	48,290	66	166,654	68	19,981	67	35,082	68	55,063	68	221,717	68
Employed[(f)]	59,986	83	32,762	81	35,745	84	128,493	83	13,927	82	26,677	87	40,605	85	169,098	84
Living in a dwelling that has no major structural problems	79,594	76	54,273	81	49,679	68	183,546	75	19,667	66	29,738	58	49,405	61	232,951	71
Household members used telephone(s) in last month	104,137	99	67,080	100	71,694	98	242,911	99	27,686	93	46,606	90	74,291	91	317,203	97

(continued)

Table 1.13.11 (continued): Community functioning for Aboriginal and Torres Strait Islander persons aged 15 years and over[(a)(b)], by remoteness, Australia 2008

	Major cities		Inner regional		Outer regional		Non remote		Remote		Very remote		Total Remote		Australia	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Used computer in last 12 months	85,626	81	50,771	75	46,467	64	182,864	75	14,133	47	21,009	41	35,142	43	218,006	67
Used Internet in last 12 months	77,637	74	45,903	68	41,111	56	164,652	67	11,801	40	16,400	32	28,201	35	192,852	59
Has access to motor vehicles whenever needed	74,416	71	45,288	67	49,885	68	169,589	69	17,931	60	28,168	55	46,100	57	215,689	66
Can easily get to places needed	83,514	79	50,059	74	53,876	74	187,449	76	21,115	71	32,917	64	54,032	66	241,481	74
Equivalised gross household income in 3rd quintile or above	42,126	40	35,491	53	38,444	53	116,061	47	15,056	51	28,144	55	43,200	53	159,261	49
Total persons	**105,217**	**100**	**67,416**	**100**	**72,967**	**100**	**245,600**	**100**	**29,839**	**100**	**51,662**	**100**	**81,501**	**100**	**327,101**	**100**

(a) Unless otherwise indicated, data are for Aboriginal and Torres Strait Islander population aged 15 years and over.

(b) Unless otherwise indicated, proportions are of the estimated total Aboriginal and Torres Strait Islander population aged 15 years and over. Where another population is indicated, this has been used to calculate proportions.

(c) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders aged 15 years and over who identify with a clan group.

(d) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders aged 15 years and over who are employed.

(e) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders aged 15 years and over who have a disability.

(f) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders aged 15 years and over in the labour force.

Source: ABS analysis of 2008 NATSISS.

Table 1.13.12: Community functioning for Aboriginal and Torres Strait Islander persons aged 15 years and over[a][b], by state/territory, Australia 2008

	NSW		Vic		Qld		SA		WA		Tas		ACT		NT		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Connectedness to family land and history, culture, identity																		
Recognises homelands	62,120	65	14,917	68	66,089	73	14,374	80	32,705	75	5,717	46	2,151	77	36,309	88	234,383	72
Speaks an Aboriginal/Torres Strait Islander language	3,056	3	1,342	6	17,316	19	4,648	26	9,907	23	198	2	326	12	25,837	63	62,629	19
Attended Aboriginal and Torres Strait Islander cultural event in last 12 months	53,100	55	11,711	53	59,051	65	11,665	65	30,673	70	3,887	32	2,033	72	33,554	81	205,674	63
Identifies with clan group or language group	49,842	52	12,952	59	58,122	64	13,046	73	27,325	62	4,571	37	1,983	71	35,265	85	203,106	62
Feels able to have a say with family and friends some, most or all of the time	87,059	90	19,578	89	82,323	91	16,095	90	39,019	89	11,536	93	2,658	95	34,107	83	292,375	89
Contact with family or friends outside household at least once per week	91,738	95	20,299	93	83,605	92	17,368	97	41,515	95	11,978	97	2,733	97	38,278	93	307,515	94
Has friends can confide in	78,095	81	17,501	80	70,146	77	13,845	77	30,901	71	10,324	84	2,334	83	23,503	57	246,649	75
Resilience																		
Did not feel discriminated against in last 12 months	72,679	75	15,874	72	64,923	72	12,149	68	29,042	66	11,205	91	1,803	64	30,136	73	237,812	73
Did not avoid situations due to past discrimination	70,442	73	14,709	67	61,503	68	11,128	62	26,719	61	10,837	88	1,662	59	28,508	69	225,507	69
Can visit homelands[c]	31,698	64	10,473	81	49,716	86	10,711	82	19,223	70	3,024	66	1,895	96	19,277	55	146,017	72
Involvement with Aboriginal/Torres Strait Islander organisation	16,907	18	5,954	27	16,493	18	3,880	22	7,143	16	1,084	9	1,169	42	6,886	17	59,516	18
Work allows for cultural responsibilities—can meet responsibilities[d]	16,923	39	3,831	33	21,573	42	4,396	49	12,558	53	1,488	21	797	40	13,462	67	75,028	44
Used strategies to meet living expenses	35,055	36	8,347	38	30,020	33	7,094	40	18,393	42	3,649	30	811	29	15,778	38	119,147	36
No community problems reported	22,155	23	5,572	25	26,566	29	4,354	24	10,116	23	3,369	27	717	26	11,478	28	84,327	26
No problems reported for alcohol	55,245	57	13,780	63	56,040	62	10,967	61	22,229	51	8,763	71	2,063	73	23,052	56	192,138	59

(continued)

Table 1.13.12 (continued): Community functioning for Aboriginal and Torres Strait Islander persons aged 15 years and over[(a)(b)], by state/territory, Australia 2008

	NSW		Vic		Qld		SA		WA		Tas		ACT		NT		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
No problems reported for illicit drugs	56,777	59	14,575	66	60,459	67	11,917	66	25,281	58	8,707	71	2,120	75	28,203	68	208,039	64
No problems reported for family violence	71,788	75	17,662	81	72,392	80	13,847	77	28,906	66	10,909	88	2,422	86	28,012	68	245,938	75
No problems reported for sexual assault	83,117	86	19,885	91	80,626	89	16,341	91	38,433	88	11,746	95	2,642	94	36,136	88	288,926	88
Agrees that most people can be trusted	35,105	36	7,473	34	31,669	35	6,038	34	15,158	35	4,918	40	1,127	40	17,486	42	118,975	36
Agrees that their doctor can be trusted	79,460	83	17,622	80	71,202	79	14,253	79	34,625	79	10,882	88	2,333	83	30,399	74	260,777	80
Agrees that the hospital can be trusted	56,586	59	12,623	58	54,747	60	12,293	69	29,138	67	7,861	64	1,656	59	29,286	71	204,189	62
Agrees that police in the local area can be trusted	47,827	50	11,313	52	44,837	50	9,750	54	23,225	53	8,369	68	1,545	55	23,452	57	170,317	52
Agrees that police outside the local area can be trusted	38,633	40	9,249	42	34,923	39	6,686	37	18,771	43	7,588	61	1,078	38	16,434	40	133,362	41
Agrees that the local school can be trusted	61,921	64	14,170	65	61,065	67	11,906	66	32,502	74	8,478	69	1,816	65	32,877	80	224,734	69
Knows someone in organisation/comfortable contacting	45,275	47	14,109	64	36,582	40	8,667	48	13,358	31	7,080	57	1,711	61	5,228	13	132,011	40
Adult participated in sport/social/community activities in last 3 months	81,452	85	19,740	90	82,146	91	16,132	90	38,040	87	11,081	90	2,661	95	38,129	92	289,381	89
Leadership																		
Child spent time with an Indigenous leader or elder in last week (children aged 3–14 years)	15,914	35	3,627	37	18,549	41	4,135	51	10,183	50	1,219	23	513	42	10,895	62	65,035	42
Encouragement from elders and council would help child (2–14 years) complete year 12	1,545	3	542	5	1,843	4	451	5	1,574	7	248	4	37	3	1,264	7	7,504	5
Structure and routine/having a role																		
Can communicate with English speakers without difficulty (Indigenous language is main language spoken at home)	. .	. .	. .	. .	7,732	9	1,204	7	2,974	7	. .	. .	. .	. .	15,110	37	27,179	8
In the last 12 months, has lived in only one dwelling	77,568	81	17,242	79	67,796	75	14,060	78	33,537	77	9,853	80	2,302	82	32,798	80	255,157	78

(continued)

Table 1.13.12 (continued): Community functioning for Aboriginal and Torres Strait Islander persons aged 15 years and over[(a)(b)], by state/territory, Australia 2008

	NSW		Vic		Qld		SA		WA		Tas		ACT		NT		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Feeling safe																		
Felt safe at home alone during the day	89,826	93	20,290	93	85,420	94	16,510	92	40,690	93	11,773	95	2,643	94	38,739	94	305,892	94
Felt safe at home alone after dark	76,426	79	17,165	78	73,439	81	13,609	76	35,438	81	10,197	83	2,305	82	32,836	80	261,414	80
Felt safe walking alone in local area after dark	47,930	50	10,978	50	47,219	52	9,352	52	25,112	57	6,765	55	1,497	53	23,194	56	172,047	53
Not a victim of physical or threatened violence in the last 12 months	72,095	75	15,616	71	70,726	78	13,538	75	31,678	72	9,037	73	1,948	69	31,734	77	246,372	75
Was taught Indigenous culture at school or as part of further studies	43,392	45	9,418	43	36,090	40	8,535	48	20,770	47	6,315	51	1,326	47	22,747	55	148,592	45
Learnt about own Indigenous clan/language	11,505	12	3,361	15	12,211	14	3,658	20	8,293	19	932	8	313	11	15,673	38	55,947	17
Vitality																		
Self-assessed health status excellent or very good	41,492	43	10,489	48	39,433	44	6,778	38	17,407	40	6,591	53	1,297	46	19,517	47	143,004	44
Has no disability or long-term health condition	45,911	48	9,684	44	47,136	52	8,113	45	23,736	54	6,189	50	1,231	44	22,159	54	164,157	50
Does not have an education restriction due to disability[(e)]	43,524	95	10,838	95	38,549	96	8,673	95	17,944	97	5,344	94	1,437	96	17,392	98	143,701	96
Does not have an employment restriction due to disability[(e)]	40,353	88	9,514	84	32,463	81	7,632	84	15,856	86	4,876	86	1,153	77	14,832	84	126,681	84
Low/ moderate level of psychological distress (5–11 K5 score)	65,839	68	14,111	64	62,433	69	11,526	64	29,206	67	8,776	71	1,991	71	27,836	67	221,717	68
Employed[(f)]	43,857	79	11,503	83	51,785	87	8,894	81	23,775	83	7,101	89	1,969	90	20,215	83	169,098	84
Living in a dwelling that has no major structural problems	69,843	73	15,734	72	66,682	74	12,434	69	29,752	68	9,518	77	2,413	86	26,575	64	232,951	71

(continued)

Table 1.13.12 (continued): Community functioning for Aboriginal and Torres Strait Islander persons aged 15 years and over[(a)(b)], by state/territory, Australia 2008

	NSW		Vic		Qld		SA		WA		Tas		ACT		NT		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Household members used telephone(s) in last month	95,488	99	21,595	98	87,635	97	17,555	98	42,253	96	12,307	100	2,796	100	37,573	91	317,203	97
Used computer in last 12 months	69,588	72	17,707	81	60,620	67	12,621	70	27,555	63	9,017	73	2,553	91	18,346	44	218,006	67
Used Internet in last 12 months	62,543	65	15,544	71	54,037	60	11,231	63	23,892	55	8,248	67	2,425	86	14,931	36	192,852	59
Has access to motor vehicles whenever needed	62,768	65	15,481	71	61,436	68	12,356	69	29,699	68	9,457	77	2,212	79	22,280	54	215,689	66
Can easily get to places needed	69,293	72	16,119	74	72,521	80	12,825	72	31,000	71	9,538	77	2,287	81	27,899	68	241,481	74
Equivalised gross household income in 3rd quintile or above	53,329	55	9,997	46	39,924	44	9,383	52	20,730	47	6,801	55	585	21	18,513	45	159,261	49
Total persons aged 15 years and over	**96,367**	**100**	**21,938**	**100**	**90,587**	**100**	**17,948**	**100**	**43,826**	**100**	**12,351**	**100**	**2,810**	**100**	**41,274**	**100**	**327,101**	**100**

(a) Unless otherwise indicated, data are for Aboriginal and Torres Strait Islander population aged 15 years and over.

(b) Unless otherwise indicated, proportions are of the estimated total Aboriginal and Torres Strait Islander population aged 15 years and over. Where another population is indicated, this has been used to calculate proportions.

(c) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders aged 15 years and over who identify with a clan group.

(d) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders aged 15 years and over who are employed.

(e) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders aged 15 years and over who have a disability.

(f) Proportions calculated in relation to number of Aboriginal and Torres Strait Islanders aged 15 years and over in the labour force.

Source: ABS analysis of 2008 NATSISS.

Data quality issues

National Aboriginal and Torres Strait Islander Social Survey

The NATSISS is conducted in all states and territories and includes remote and non-remote areas. The 2008 sample was 13,300 persons in 6900 households, with a response rate of 82% of households. Up to three randomly selected Indigenous people were chosen from selected households to participate in the survey. Trained ABS interviewers conducted the survey using face-to-face interviews. In non-remote areas interviewers used a notebook computer to record responses, while in remote areas a paper questionnaire was used. Interviewers obtained the consent of a parent or guardian before interviewing those aged 15 to 17 years. Indigenous persons usually resident in non-private dwellings such as hotels, motels, hostels, hospitals, short-stay caravan parks, prisons and other correctional facilities were excluded.

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians.

Information recorded in this survey is 'as reported' by respondents, and therefore may differ from information available from other sources or collected using different methodologies.

Data on health related indicators have been age-standardised to the 2001 total Australian population to account for differences in the age structures of the states and territories and the Indigenous and non-Indigenous population.

Time series comparisons for the 2008 survey are available through the 1994 National Aboriginal and Torres Strait Islander Survey and the 2002 NATSISS. However not all data elements align across the three (1994, 2001 and 2008) NATSISS surveys, hence care is required when reviewing results across the three surveys. There are no strictly comparable non-Indigenous results available for the 2008 NATSISS because the latest General Social Survey (which has been used in the past to compare with Indigenous results from the NATSISS) was run in 2006, with the next being run in 2010. Data from other ABS surveys run in 2008 may, however, be used to obtain rough non-Indigenous comparisons for some data items. Where possible, the ABS has provided recommendations for non-Indigenous data comparisons these have been adopted in this report.

The 2008 NATSISS has a relatively large level of under-coverage when compared to other ABS surveys. There was also an increase in under-coverage compared to previous ABS Indigenous surveys. For example, the estimated under-coverage in the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) was 42%. The overall under-coverage rate for the 2008 NATSISS is approximately 53% of the in-scope population at the national level. This rate varies across the states and territories (ABS 2010).

Further information on NATSISS data quality issues can be found in the 2008 NATSISS User's guide (ABS 2010).

List of symbols used in tables

n.a. not available

– rounded to zero (including null cells)

0 zero

. . not applicable

n.e.c. not elsewhere classified

n.f.d. not further defined

n.p. not available for publication but included in totals where applicable, unless otherwise indicated

References

ABS (Australian Bureau of Statistics) 2010. National Aboriginal and Torres Strait Islander Social Survey: Users' Guide. ABS Cat. no. 4720.0. Canberra: ABS.

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1.14 Disability

The prevalence of disability among Aboriginal and Torres Strait Islander people, including children with special needs, and users of disability support services

Data sources

Data for this measure come from the 2008 National Aboriginal and Torres Strait Islander Social Survey, the 2006 Census of Population and Housing, the 2009–10 Disability Services National Minimum Data Set and the Western Australian Aboriginal Child Health Survey.

National Aboriginal and Torres Strait Islander Social Survey

The Australian Bureau of Statistics (ABS) conducted the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) between August 2002 and April 2003. The 2008 NATSISS was conducted between August 2008 and April 2009. The survey provides information about the Aboriginal and Torres Strait Islander populations of Australia for a wide range of social issues including health, education, culture and labour force participation. The 2008 NATSISS included for the first time children aged under 15. The NATSISS will be conducted every six years, with the next survey planned for 2014.

The 2008 NATSISS collected information by personal interview from 13,300 Indigenous Australians across all states and territories of Australia, including those living in remote areas. The sample covered persons aged 15 years and over who are usual residents in selected private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice.

Census of Population and Housing

The Census of Population and Housing is conducted by the ABS at 5-yearly intervals, and is designed to include all Australian households. The Census uses the ABS standard Indigenous status question for each household member.

The 2011 Census is the most recent, however data for the Indigenous population was not yet released at the time of writing this report. Therefore data included in this report come from the 2006 Census. In 2006, the ABS enhanced the sample for the Post-Enumeration Survey to include remote areas. The measured undercount for Indigenous Australians was 11.5%.

Disability Services National Minimum Data Set

The purpose of the Disability Services National Minimum Data Set (DS NMDS) collection is to facilitate the annual collation of nationally comparable data about disability services, and to obtain reliable, consistent data with minimal load on the disability services field. Under the National Disability Agreement (NDA), the Disability Administrators in all Australian jurisdictions are responsible for ensuring that DS NMDS information will be comparable across all jurisdictions and years.

Services within the scope of the collection are those for which funding has been provided, during the specified period, by a government organisation operating under the NDA.

Therefore, if a service type outlet did not receive NDA funding for the 2009–10 collection (i.e. its NDA funding dollars for the financial year are zero), then details of this outlet should not be included in the data collection.

A funded agency may receive funding from multiple sources. Where a funded agency is unable to differentiate service users and/or staff according to funding source (i.e. NDA or other), they are asked to provide details of all service users and staff (for each service type).

Most agencies funded under the NDA are asked to provide information about:

- each of the service types they are funded to provide (i.e. service type outlets they operate);
- all service users who received support over a specified reporting period; and
- the DS NMDS service type(s) the service user received.

The level of information a funded agency is asked to provide varies according to the particular service type (i.e. for each service type outlet).

Western Australian Aboriginal Child Health Survey

This survey was a large-scale investigation into the health of 5,289 Western Australian Aboriginal and Torres Strait Islander children aged 0–17 years. It was undertaken in 2001 and 2002 by the Telethon Institute for Child Health Research in conjunction with the Kulunga Research Network. The survey was the first to gather comprehensive health, educational and developmental information on a population-based sample of Aboriginal and Torres Strait Islander children and their families and communities.

The survey findings were published in four volumes between June 2004 and November 2006.

Analyses

NATSISS data

In the 2008 NATSISS, the questions used to ascertain disability status differed for people living in remote and non-remote areas. In remote areas, the wording of questions to establish disability status was less detailed and people were not specifically asked whether they had any mental illness for which help or supervision was required.

Responses provided about the type/s of condition/s, whether any condition restricted everyday activities and whether help or supervision was ever required were used to categorise a person by disability status. In non-remote areas people who nominated the condition 'any mental illness for which help or supervision is required' were also included.

The NATSISS included the following categories for disability status:

- profound or severe core-activity limitation - a specified condition for which the person requires help or supervision in one or more core activities (e.g. self-care, mobility or communication);
- unspecified limitation or restriction - a specified condition that may or may not have restricted the person's everyday activities; or
- no disability or long-term health condition - the person does not have any of the specified conditions.

Other than people with a profound or severe core-activity limitation, the severity of restrictions for people with a disability or long term health condition was not determined.

Non-Indigenous comparisons are available through the 2007–08 National Health Survey (NHS). The 2007–08 NHS collected information on persons aged 18 years and over and included data on psychological disability in line with the non-remote data collected in the 2008 NATISS, therefore comparisons between Indigenous and non-Indigenous Australians are limited to those aged 18 years and over in non-remote areas.

Disability status

- In 2008, an estimated 162,900 (50%) of Indigenous Australians aged 15 years and over reported having a disability or a long-term health condition. The proportion of Indigenous Australians with a disability or long-term health condition, was similar for males (49%) and females (51%) (Table 1.14.1).
- Approximately 8% of Indigenous males and females aged 15 years and over had a profound or severe core-activity limitation in 2008.
- Comparable data on the disability status of non-Indigenous Australians is only available for non-remote areas. In 2008, after adjusting for differences in age-structure, Indigenous Australians were 1.4 times as likely as non-Indigenous Australians to have a disability or long-term health condition, and more than twice as likely to have a profound or severe core-activity limitation (Table 1.14.4).

Table 1.14.1: Disability status, by sex, Indigenous persons aged 15 years and over, 2008

Disability status	Male	Female	Persons
		Per cent	
Has profound or severe core-activity limitation	7.8	8.1	7.9
Has unspecified limitation or restriction	40.7	43.0	41.9
Total with disability or long-term health condition	*48.5*	*51.0*	*49.8*
Has no disability or long-term health condition	51.5	49.0	50.2
Total	**100.0**	**100.0**	**100.0**
Total number	**156,052**	**171,048**	**327,101**

Source: AIHW analysis of 2008 NATSISS.

Disability status by age

- The rate of reported disability or long-term health condition increased with age. Approximately 78% of people aged 55 years and over had a disability or long-term health condition in 2008 (Table 1.14.2). This proportion was 32% for Indigenous Australians aged 15 to 18 years (Table 1.14.3).
- Indigenous Australians in non-remote areas had a higher rate of profound and severe core-activity limitation than non-Indigenous Australians across all age groups (Table 1.14.4).

Table 1.14.2: Disability type[(a)], by age group, Indigenous persons aged 15 years and over, 2008

Disability status	15–24 years	18–24 years	25–34 years	35–44 years	45–54 years	55 years and over	Total (15+)	Total (18+)
				Per cent				
Has profound or severe core-activity limitation	5.0	5.8	5.6	6.6	10.0	18.7	7.9	8.5
Has unspecified limitation or restriction	30.0	32.3	36.9	44.7	56.3	58.8	41.9	43.9
Total with disability or long-term health condition	*35.1*	*38.1*	*42.5*	*51.3*	*66.2*	*77.5*	*49.8*	*52.4*
Has no disability or long-term health condition	65.0	61.9	57.5	48.7	33.8	22.5	50.2	47.6
Total[(b)]	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total number	**103,780**	**67,616**	**69,931**	**63,851**	**46,912**	**42,627**	**327,101**	**290,937**

(a) Excluding psychological disability.

(b) Includes disability type not specified. Note that more than one disability type may be reported and thus the sum of the components may add to more than the total.

Source: AIHW analysis of 2008 NATSISS.

Table 1.14.3: Disability status, Indigenous persons aged 15–18 years, 2008

Disability status	Number	Proportion
Has profound or severe core-activity limitation	2,206	4.5
Has unspecified limitation or restriction	13,612	27.7
Total with disability or long-term health condition	*15,818*	*32.1*
Has no disability or long-term health condition	33,392	67.9
Total	**49,210**	**100.0**

Source: AIHW analysis of 2008 NATSISS.

Table 1.14.4: Disability status, by Indigenous status and age group, persons aged 15 years and 18 years and over, non-remote only, 2008[(a)(b)]

Disability status		Profound/severe core-activity limitation	Has unspecified limitation or restriction	Total with disability or long-term health condition	No disability or long-term health condition	Total number
				Per cent		
15–24	Indigenous	5.3*	32.2*	37.5*	62.5*	80,759
	Non-Indig.	2.5*	19.6*	22.1*	77.9*	2,756,721
18–24	Indigenous	6.3*	35.0*	41.3*	58.7*	50,947
	Non-Indig.	3.0*	21.5*	24.4*	75.6*	1,940,093
25–34	Indigenous	6.2*	37.2*	43.4*	56.6*	49,599
	Non-Indig.	2.4*	25.8*	28.2*	71.8*	2,778,351
35–44	Indigenous	6.2*	44.6*	50.9*	49.1*	48,391
	Non-Indig.	3.0*	30.7*	33.7*	66.3*	2,958,313
45–54	Indigenous	10.2*	56.0*	66.2*	33.8*	35,701
	Non-Indig.	4.1*	38.3*	42.4*	57.6*	2,813,981
55 and over	Indigenous	17.7*	60.1*	77.8*	22.2*	31,151
	Non-Indig.	8.5*	53.3*	61.8*	38.2*	4,871,400
Total (18+)	**Indigenous**	**8.6***	**44.8***	**53.3***	**46.7***	***215,788***
Total 18+ age-standardised[(b)]	**Indigenous**	**10.3***	**48.6***	**58.9***	**41.1***	**215,788**
	Non-Indig.	**4.7***	**36.5***	**41.2***	**58.8***	**15,362,137**
Rate ratio		2.2	1.3	1.4	0.7	. .
Rate difference		5.6	12.1	17.7	–17.7	. .
Total (15+)	**Indigenous**	**8.0***	**42.7***	**50.6***	**49.4***	***245,600***
Total 15+ age-standardised[(b)]	**Indigenous**	**9.9***	**47.4***	**57.3***	**42.7***	**245,600**
	Non-Indig.	**4.5***	**35.4***	**40.0***	**60.0***	**16,178,766**
Rate ratio		2.2	1.3	1.4	0.7	. .
Rate difference		5.4	12.0	17.3	–17.3	. .

* Differences between Indigenous and non-Indigenous rates are statistically significant at the $p < 0.05$ level for all categories.

(a) Includes psychological disability.

(b) Directly age-standardised proportions.

Notes

1. This variable is only appropriate for comparison with other surveys where the population is limited to non-remote areas, where questions on mental illness were included.
2. Non-Indigenous data are from the 2007–08 NHS.

Source: NATSISS 2008 and NHS 07–08.

Disability status by remoteness

- In 2008, there was little difference between the proportion of Indigenous Australians aged 15 years and over reporting a disability or long-term condition in non-remote and remote areas (50% and 49% respectively) (Table 1.14.5).
- The proportion of Indigenous Australians reporting a profound or severe core-activity limitation also did not vary much by remoteness ranging from 6.7% in *Remote* areas to 9.0% in *Major cities*.
- Of Indigenous Australians aged 18 years and over in non-remote areas who reported a disability or long-term health condition, 19% living in *Major cities*, 16% in *Inner regional*, and 15% in *Outer regional* areas, had a profound or severe core-activity limitation. This compared with 11%, 11% and 13% for non-Indigenous Australians living in these areas respectively (Table 1.14.6).

Table 1.14.5: Disability status, by remoteness, Indigenous persons aged 15 years and over, 2008

Disability status	Major cities		Inner regional		Outer regional		Sub-total non-remote		Remote		Very remote		Sub-total remote	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Has profound or severe core-activity limitation	9,419	9.0	4,690	7.0	5,268	7.2	**19,377**	**7.9**	1,999	6.7	4,593	8.9	**6,593**	**8.1**
Has unspecified limitation or restriction	46,931	44.6	26,454	39.2	30,436	41.7	**103,821**	**42.3**	13,506	45.3	19,647	38.0	**33,153**	**40.7**
Total with disability or long-term health condition	*56,350*	*53.6*	*31,144*	*46.2*	*35,704*	*48.9*	*123,198*	*50.2*	*15,506*	*52.0*	*24,240*	*46.9*	*39,746*	*48.8*
Has no disability or long-term health condition	48,867	46.4	36,272	53.8	37,262	51.1	**122,402**	**49.8**	14,333	48.0	27,422	53.1	**41,755**	**51.2**
Total	**105,217**	**100.0**	**67,416**	**100.0**	**72,967**	**100.0**	**245,600**	**100.0**	**29,839**	**100.0**	**51,662**	**100.0**	**81,501**	**100.0**

Note: This variable is only appropriate for Indigenous persons. Even then, the population is limited to the criteria used to identify disability in remote area (no questions on mental illness).

Source: NATSISS 2008.

Table 1.14.6: Disability status, by Indigenous status, persons aged 18 years and over, non-remote areas, age-standardised per cent, 2008

	Major cities				Inner regional				Outer regional				Sub-total non-remote			
	Indig.	Non-Indig.	Rate ratio	Rate difference	Indig.	Non-Indig.	Rate ratio	Rate difference	Indig.	Non-Indig.	Rate ratio	Rate difference	Indig.	Non-Indig.	Rate ratio	Rate difference
Has profound or severe core activity restriction (%)	18.8	10.5	1.8	8.3	16.1	11.1	1.5	5.0	14.6	13.0	1.1	1.6	16.7	10.8	1.5	5.9
Disability/restriction not defined (%)	81.2	89.5	0.9	–8.3	83.9	88.9	0.9	–5.0	85.4	87.0	1.0	–1.6	83.3	89.2	0.9	–5.9
Total with disability or long-term health condition (%)	**100.0**	**100.0**	**. .**	**. .**	**100.0**	**100.0**	**. .**	**. .**	**100.0**	**100.0**	**. .**	**. .**	**100.0**	**100.0**	**. .**	**. .**
Total number with disability or long-term health condition	**52,037**	**4,269,634**	**. .**	**. .**	**28,785**	**1,568,924**	**. .**	**. .**	**34,270**	**638,190**	**. .**	**. .**	**115,092**	**6,476,749**	**. .**	**. .**

Source: NATSISS 2008 and NHS 07–08.

Disability status by state/territory

- In 2008, Indigenous Australians aged 18 years and over in non-remote areas had higher rates of disability or long-term health conditions than non-Indigenous Australians in all states and territories (rate ratios of between 1.2 and 1.6) (Table 1.14.7).
- Indigenous Australians also had higher rates of profound or severe core activity limitation than non-Indigenous Australians in all states and territories for which data were available. The greatest disparity was in Tasmania (rate ratio of 3.3; rate difference of 10.9%) (Table 1.14.7).

Table 1.14.7: Disability status (age standardised), by Indigenous status and state/territory, persons aged 18 years and over in non-remote areas, 2008

			Profound/ severe core activity limitation	Has unspecified limitation or restriction	*Total with disability or long-term health condition*	No disability or long-term health condition	Total number ('000)
NSW	Indig.	%	10.9	48.5	59.5	40.5	80
	Non-Indig.	%	4.5*	35.1*	39.6*	60.4	5,093
	Rate ratio[(a)]		2.4	1.4	1.5	0.7	. .
	Rate difference[(b)]		6.4	13.4	19.9	–19.9	. .
Vic	Indig.	%	11.0	51.1	62.1	37.9	19
	Non-Indig.	%	4.9*	36.3*	41.2*	58.8*	3,967
	Rate ratio[(a)]		2.2	1.4	1.5	0.6	. .
	Rate difference[(b)]		6.1	14.8	20.9	–20.9	. .
Qld	Indig.	%	7.5	45.6	53.1	46.9	62
	Non-Indig.	%	4.5	39.9*	44.5*	55.5*	3,017
	Rate ratio[(a)]		1.7	1.1	1.2	0.8	. .
	Rate difference[(b)]		3.0	5.7	8.6	–8.6	. .
WA	Indig.	%	8.0	44.3	52.3	42.7	22
	Non-Indig.	%	4.9	34.0*	38.9*	61.1*	1,485
	Rate ratio[(a)]		1.6	1.3	1.3	0.7	. .
	Rate difference[(b)]		3.1	10.3	13.4	–18.4	. .
SA	Indig.	%	12.5	50.5	63.0	37.0	13
	Non-Indig.	%	5.0*	37.2*	42.3*	57.7*	1,146
	Rate ratio[(a)]		2.5	1.4	1.5	0.6	. .
	Rate difference[(b)]		7.5	13.3	20.7	–20.7	. .
Tas	Indig.	%	15.6	45.8	57.2	42.8	10
	Non-Indig.	%	4.7*	37.8*	42.5*	57.5*	345.3
	Rate ratio[(a)]		3.3	1.2	1.3	0.7	. .
	Rate difference[(b)]		10.9	8.0	14.7	–14.7	. .
ACT	Indig.	%	12.4	50.5	62.9	37.1	3
	Non-Indig.	%	n.p.	n.p.	43.0*	57.0*	255.7
	Rate ratio[(a)]		n.a	n.a	1.5	0.7	. .
	Rate difference[(b)]		n.a	n.a	19.9	–19.9	. .
NT	Indig.	%	n.a	44.8	56.0	44.0	8
	Non-Indig.	%	n.p.	n.p.	35.7*	64.3	88.7
	Rate ratio[(a)]		n.a	n.a	1.6	0.7	. .
	Rate difference[(b)]		n.a	n.a	20.3	–20.3	. .

(continued)

Table 1.14.7 (continued): Disability status (age-standardised), by Indigenous status and state/territory, persons aged 18 years and over in non-remote areas, 2008

			Profound/ severe core activity limitation	Has unspecified limitation or restriction	*Total with disability or long-term health condition*	No disability or long-term health condition	Total number ('000)
Australia	Indig.	%	9.9	47.4	57.3	42.7	215.8
	Non-Indig.	%	4.7	36.5*	41.2*	58.8*	15,398
	Rate ratio[(a)]		2.1	1.3	1.4	0.73	. .
	Rate difference[(b)]		7.8	46.1	55.9	42.0	. .

* Differences between Indigenous and non-Indigenous rates are statistically significant at the p < 0.05 level for these categories.

(a) Rate ratio is Indigenous/non-Indigenous.

(b) Rate difference is Indigenous minus non-Indigenous.

Notes

1. Proportions are age-standardised.
2. This variable is only appropriate for comparison with other surveys where the population is limited to non-remote areas, where questions on mental illness were included.

Source: NATSISS 2008 and NHS 07–08.

Disability type

Disabilities and long-term health conditions have been grouped into broad disability types: physical, sensory/speech (sight, hearing or speech) and intellectual.

- In 2008, 33% of Indigenous Australians aged 15 years and over had a physical disability, 17% had a sensory/speech disability and 8% had an intellectual disability (Table 1.14.8).
- The proportions of Indigenous Australians with a sensory/speech or physical disability were higher in the older age groups. In the 55 years and over age group, 31% of Indigenous Australians reported a sensory/speech disability, 59% reported a physical disability and 6% reported an intellectual disability (Table 1.14.8).

Table 1.14.8: Disability type[(a)], by age group, Indigenous persons aged 15 years and over, 2008

Disability type	15–24 years	18–24 years	25–34 years	35–44 years	45–54 years	55 years and over	Total (15+)	Total (18+)
				Per cent				
Sight, hearing, speech	9.7	10.3	12.5	17.1	27.1	30.9	17.0	18.1
Physical	18.5	22.0	25.5	34.8	47.4	59.3	32.6	35.2
Intellectual	9.2	9.4	6.3	6.2	9.7	6.1	7.7	7.5
Total with a disability or long-term health condition[(b)]	*35.1*	*38.1*	*42.5*	*51.3*	*66.2*	*77.5*	*49.8*	*52.4*
Total with no disability or long-term health condition	65.0	61.9	57.5	48.7	33.8	22.5	50.2	47.6
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total number	**103,780**	**67,616**	**69,931**	**63,851**	**46,912**	**42,627**	**327,101**	**290,937**

(a) Excluding psychological disability.

(b) Includes disability type not specified. Note that more than one disability type may be reported and thus the sum of the components may add to more than the total.

Source: AIHW analysis of 2008 NATSISS.

Disability status by selected population characteristics

Data on disability status of Indigenous Australians aged 15 years and over in non-remote areas with selected population characteristics are presented in Tables 1.14.9 and 1.14.10. Data are based on the broader criteria used to identify persons with a disability in non-remote areas. Table 1.14.9 presents distributions of disability status ("Has disability or long-term health condition" or "Has no disability or long-term health condition") among the sub-categories for each of the selected population characteristic category, while Table 1.14.10 presents proportions of disability status by sub-categories of the selected population characteristics.

- In 2008, in non-remote areas, around 62% of Indigenous Australians aged 15 years and over with a disability or long-term condition did not have a non-school qualification. Around 44% of Indigenous Australians with a disability reported the highest year of school completed was Year 9 or below (Table 1.14.9).
- Approximately 53% of Indigenous Australians in non-remote areas with a disability or long-term health condition had household income in the lowest quintile, and for 55% their principal source of income was government cash, pensions or allowances (Table 1.14.9).
- Approximately 88% of Indigenous Australians in non-remote areas with a disability or long-term health condition reported they had been involved in social activities in the last 3 months and 87% were able to get support in a time of crisis. Around 61% of Indigenous Australians with a disability or long-term condition had been removed, or had a relative that had been removed, from their natural family and 25% currently lived on their homelands (Table 1.14.9).
- Indigenous Australians with a disability or long-term health condition were more likely than those without a disability or long-term health condition to be in the lowest income quintile, have competed year 9 as the highest year of school completed, to be not in the labour force and to have difficulty getting to places when needed (Table 1.14.9).
- In 2008, in non-remote areas, around 63% of Indigenous Australians aged 15 years and over who reported completing Year 9 as their highest year of schooling completed had a disability or long-term condition. This compared with 41% of Indigenous Australians who reported completing Year 12 as their highest year completed (Table 1.14.10).
- Approximately 59% of Indigenous Australians aged 15 years and over in non-remote areas who were not in the labour force had a disability or long-term condition. This compared with 44% of Indigenous Australians who were employed (Table 1.14.10).

Table 1.14.9: Proportion of selected population characteristics by disability status, Indigenous persons aged 15 years and over, non-remote areas, 2008

	Has disability or long-term health condition	Has no disability or long-term health condition
	Per cent	
Education		
Attending post-school education institution	10.1	11.2
Non-school qualification[(a)]		
Has a non-school qualification	38.0	42.8
Does not have a non-school qualification	62.0	57.2
Highest school qualification attained[(b)]		
Completed Year 12	15.6	24.6
Completed Year 10/11	40.5	47.7
Completed Year 9 or below	43.9	27.7
Household income		
1st quintile	52.8	41.2
5th quintile	7.6	12.2
Total	60.4	53.4
Principle source of personal income		
Community Development Employment Program (CDEP)	4.3	6.2
Employee income	37.9	54.5
Government cash, pensions, allowances	55.0	37.3
Unincorporated business income	0.7	0.4
Other sources of income	2.1	1.7
Subtotal received income[(c)]	*94.1*	*89.7*
Did not receive personal income	5.9	10.3
Employment		
Employed		
Full time	26.5	32.3
Part time	7.7	8.4
Casual	9.3	14.6
Shiftwork	1.3	1.9
Not known	0.5	0.7
Total employed	45.4	58.0
Unemployed	9.6	10.8
Not in the labour force	45.0	31.2

(continued)

Table 1.14.9 (continued): Proportion of selected population characteristics by disability status, Indigenous persons aged 15 years and over, non-remote areas, 2008

	Has disability or long-term health condition	Has no disability or long-term health condition
	Per cent	
Transport access		
Can easily get to places needed	69.1	78.5
Sometimes has difficulty getting to the places needed	17.0	13.0
Cannot, or often has difficulty, getting to places needed	13.3	8.4
Never go out and housebound	0.6	0.2
Family and culture		
Involved in social activities in last 3 months	87.6	89.3
Able to get support in time of crisis from someone outside the household	86.7	90.9
Has been removed from natural family	11.1	5.8
Relatives removed from natural family	49.7	39.1
Currently lives in homelands	25.4	25.1
Attended cultural event(s) in last 12 months	60.4	59.7
Total	**100.0**	**100.0**
Total number	**162,944**	**164,157**

(a) Rate for persons aged 25–64 years.
(b) Excludes persons still at school.
(c) Includes both positive and negative income.

Note: Data based on the broader criteria for disability.

Source: AIHW analysis of 2008 NATSISS.

Table 1.14.10: Proportion of disability status, by selected population characteristics, Indigenous persons aged 15 years and over, non-remote areas, 2008

	Has disability or long-term health condition	Has no disability or long-term health condition	Total number
	Per cent		
Education			
Attending post-school education institution[(a)]	47.1	52.9	34,801
Non-school qualification[(b)]			
Has a non-school qualification	51.9	48.1	83,257
Does not have a non-school qualification	56.8	43.2	124,085
Highest school qualification attained[(c)]			
Completed Year 12	40.8	59.2	52,774
Completed Year 10/11	48.0	52.0	116,479
Completed Year 9 or below[(d)]	63.2	36.8	95,635
Principle source of personal income			
Community Development Employment Program (CDEP)	42.3	57.7	15,023
Employee income	42.2	57.8	131,781
Government cash, pensions, allowances	60.8	39.2	132,841
Unincorporated business income	63.8	36.2[(e)]	1,507
Other sources of income	57.6	42.4	5,441
Did not receive personal income	36.6	63.4	25,163
Employment			
Employed	43.7	56.3	169,098
Full time	44.1	55.9	102,767
Part time	43.2	56.8	66,330
Unemployed	46.9	53.1	33,414
Not in the labour force	58.9	41.1	124,590
Perceived level of difficulty with transport			
Can easily get to places needed	46.6	53.4	241,481
Sometimes have difficulty getting to the places needed	56.5	43.5	48,942
Cannot, or often has difficulty, getting to places needed	61.2	38.8	35,322
Never go out and housebound	75.5	n.p.	1,356[(e)]
Family and culture			
Participated in social activities in last 3 months	49.3	50.7	289,381
Able to get support in time of crisis from someone outside the household	48.6	51.4	290,463
Has been removed from natural family	65.4	34.6	26,885
Relatives removed from natural family	55.6	44.4	125,710
Currently lives in homelands	50.2	49.8	82,607
Participated in cultural activities in last 12 months	50.1	49.9	196,428
Total persons aged 15 years and over	**162,944**	**164,157**	**327,101**

(continued)

Table 1.14.10 (continued): Disability status, by selected population characteristics, Indigenous persons aged 15 years and over, 2008

(a) Includes university/other higher institution; TAFE/Technical college; business college, industry skills centre; other organisations.

(b) Rate for persons aged 25–64 years.

(c) Excludes persons still at school.

(d) Includes persons who never attended school.

(e) Estimate has a relative standard error between 25% and 50% and should be used with caution.

Note: Data based on the broader criteria for disability.

Source: 2008 NATSISS.

Census data

The 2006 Census collected data on one element of disability, those reporting the need for assistance with core activities.

Disability status

- According to the 2006 Census, 19,613 Indigenous Australians (4% of the total Indigenous population) had a core-activity need for assistance. After adjusting for differences in the age structures of the Indigenous and non-Indigenous populations, Indigenous Australians were almost twice as likely as non-Indigenous Australians to have a core-activity need for assistance in 2006 (Table 1.14.11).

Disability status by age and sex

- The prevalence of core-activity need for assistance increased noticeably with the increasing of age from about 35 years of age onwards for both Indigenous men and women. The disability rate ranged from 1.1% of Indigenous children aged 0–4 years to 38% of Indigenous people aged 75 years and over (Table 1.14.11).
- Indigenous Australians had a higher rate of core-activity need for assistance than non–Indigenous Australians across all age groups. The greatest disparities occurred in the age groups 50–54 years and 65–69, where Indigenous Australians reported a core-activity need for assistance around three times the rate of non-Indigenous Australians (Table 1.14.11).
- Indigenous males were more likely than Indigenous females to have a core-activity need for assistance (4.5% compared with 4.1%). In comparison, non-Indigenous females were more likely than non-Indigenous males to have a core-activity need for assistance (4.6% compared with 3.9%) (Table 1.14.11).

Table 1.14.11: Persons with core activity need for assistance, by Indigenous status, sex and age group, 2006

Age group (yrs)	Indigenous						Non-Indigenous						Rate ratio			Rate difference		
	Males		Females		Persons		Males		Females		Persons							
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Males	Females	Persons	Males	Females	Persons
0–4	388	1.4	238	0.9	628	1.1	6,421	1.1	3,828	0.7	10,249	0.9	1.2	1.3	1.2	0.3	0.2	0.2
5–9	963	3.3	525	1.9	1,487	2.6	16,422	2.7	8,017	1.4	24,439	2.1	1.2	1.3	1.2	0.6	0.5	0.5
10–14	970	3.3	556	2.0	1,528	2.7	15,799	2.5	8,175	1.4	23,974	1.9	1.3	1.5	1.4	0.8	0.6	0.8
15–19	697	2.8	422	1.8	1,117	2.3	11,191	1.8	7,081	1.2	18,272	1.5	1.6	1.5	1.5	1.0	0.6	0.8
20–24	461	2.5	318	1.7	779	2.1	8,464	1.4	6,403	1.1	14,867	1.2	1.8	1.6	1.8	1.1	0.6	0.9
25–29	381	2.6	308	1.9	688	2.2	7,759	1.3	6,272	1.1	14,031	1.2	1.9	1.8	1.8	1.3	0.8	1.0
30–34	482	3.2	351	2.1	833	2.6	9,404	1.5	7,979	1.2	17,383	1.3	2.1	1.8	2.0	1.7	0.9	1.3
35–39	572	4.0	562	3.4	1,135	3.7	11,819	1.8	10,428	1.5	22,247	1.6	2.2	2.3	2.3	2.2	1.9	2.1
40–44	711	5.6	689	4.8	1,400	5.2	14,661	2.2	13,328	1.9	27,989	2.0	2.6	2.5	2.6	3.4	2.9	3.2
45–49	742	6.9	786	6.6	1,527	6.8	17,062	2.6	16,780	2.4	33,842	2.5	2.7	2.7	2.7	4.3	4.2	4.3
50–54	773	9.0	817	8.7	1,590	8.8	19,558	2.8	19,617	3.1	39,175	3.2	2.8	2.8	2.8	6.2	5.6	5.6
55–59	796	12.7	787	11.3	1,583	12.0	27,660	4.8	23,793	4.1	51,453	4.4	2.6	2.8	2.7	7.9	7.2	7.6
60–64	688	16.3	717	15.1	1,405	15.6	29,695	6.6	22,383	5.0	52,078	5.8	2.5	3.0	2.7	9.7	10.1	9.8
65–69	500	18.5	578	17.4	1,077	17.9	23,405	6.7	22,483	6.3	45,888	6.5	2.8	2.8	2.8	11.8	11.1	11.4
70–74	382	21.6	581	25.0	962	23.5	24,813	9.1	30,308	10.1	55,121	9.6	2.4	2.5	2.4	12.5	14.9	13.9
75 and over	642	33.3	1232	40.3	1,874	37.6	108,098	22.7	221,711	32.1	329,809	28.2	1.5	1.3	1.3	10.6	8.2	9.4
Total (crude)	**10,147**	**4.5**	**9,468**	**4.1**	**19,613**	**4.3**	**352,231**	**3.9**	**428,586**	**4.6**	**780,817**	**4.3**	**1.2**	**0.9**	**1.0**	**0.6**	**–0.5**	**0.0**
Total—age-standardised[(a)]	**. .**	**7.5**	**. .**	**7.2**	**. .**	**7.4**	**. .**	**3.9**	**. .**	**4.2**	**. .**	**4.1**	**1.9**	**1.7**	**1.8**	**3.6**	**3.0**	**3.3**

(a) Age-standardised to the 2001 Australian standard population.

Source: ABS & AIHW analysis of 2006 Census data; ABS & AIHW 2008.

Disability status by remoteness

- In 2006, rates of core-activity need for assistance were higher among Indigenous Australians living in *Major cities* and *Inner regional* areas (around 5%), than among Indigenous Australians living in *Remote* (3.7%) and *Very remote* (3.1%) areas (Table 1.14.12).
- After adjusting for differences in age structure, in 2006, Indigenous Australians had higher rates of core-activity need for assistance than non-Indigenous Australians across all remoteness categories. The proportion of Indigenous Australians with core-activity need for assistance was 2.5 times that of non-Indigenous Australians in *Very remote* areas (Table 1.14.12).

Disability status by state/territory

- Rates of core-activity need for assistance among Indigenous Australians ranged from 3.3% in the Northern Territory to 5.3% in Victoria.
- In 2006, after adjusting for differences in age structure, Indigenous Australians had higher rates of core-activity need for assistance than non-Indigenous Australians in all states and territories. The proportion of Indigenous Australians with core-activity need for assistance ranged from 1.7 times (Queensland and Tasmania) to 2.2 times (Northern Territory) that for non-Indigenous Australians (Table 1.14.13).

Table 1.14.12: Persons with core-activity need for assistance, by Indigenous status and remoteness, 2006

	Indigenous			Non-Indigenous				
	Number	Per cent	Age standardised proportion[(a)]	Number	Per cent	Age standardised proportion[(a)]	Age standardised rate ratio	Age standardised rate difference
Major cities	7,007	4.8	7.5	520,953	4.1	4.0	1.8	3.5
Inner regional	4,824	4.9	7.7	175,193	4.8	4.3	1.8	3.4
Outer regional	4,105	4.2	7.1	74,279	4.5	4.1	1.8	3.0
Remote	1,466	3.7	7.3	7,212	3.1	3.3	2.3	4.0
Very remote	2,127	3.1	6.7	1,711	2.3	2.7	2.5	4.0
Australia[(b)]	**19,613**	**4.3**	**7.4**	**780,817**	**4.3**	**4.1**	**1.8**	**3.3**

(a) Age-standardised to the 2001 Australian standard population.

(b) Australia total includes No Usual Address.

Source: ABS & AIHW analysis of 2006 Census data.

Table 1.14.13: Persons with core-activity need for assistance, by Indigenous status and state/territory, 2006

	Indigenous			Non-Indigenous				
	Number	Per cent	Age standardised proportion[(a)]	Number	Per cent	Age standardised proportion[(a)]	Age standardised rate ratio	Age standardised rate difference
NSW	6,907	5.0	7.7	263,724	4.4	4.1	1.9	3.6
Vic	1,588	5.3	7.8	201,714	4.4	4.1	1.9	3.7
Qld	4,812	3.8	6.7	146,041	4.1	4.0	1.7	2.7
WA	2,278	3.9	7.5	64,471	3.6	3.6	2.1	3.9
SA	1,250	4.9	8.1	70,397	5.0	4.4	1.8	3.7
Tas	871	5.2	7.7	21,735	5.0	4.5	1.7	3.2
ACT	150	3.9	6.8	9,897	3.2	3.7	1.8	3.1
NT	1,750	3.3	7.2	2,795	2.3	3.3	2.2	3.9
Australia[(b)]	**19,613**	**4.3**	**7.4**	**780,817**	**4.3**	**4.1**	**1.8**	**3.3**

(a) Age-standardised to the 2001 Australian standard population.

(b) Australia total includes other territories.

Source: ABS & AIHW analysis of 2006 Census data.

Prevalence of disability among Indigenous children

- In 2006, approximately 2.2% of Indigenous children aged 0–18 years had a core activity need for assistance.
- Among Indigenous children aged 0–18 years, a higher proportion of males than females required assistance with core activities (Table 1.14.14).
- Indigenous children aged 0–4 years were more likely to have a core-activity need for assistance than non-Indigenous children of the same age (ratios of 1.2 for males and 1.3 for females).
- Approximately 2.6% of Indigenous children aged 5–18 years had a core-activity need for assistance. Indigenous males and females in this age group were 1.3 and 1.5 times as likely to have a profound or severe disability as non-Indigenous males and females of the same age.

Table 1.14.14: Indigenous children aged 0–18 years with a core-activity need for assistance, by sex, 2006

Age group (years)	Males		Females		Persons		Indigenous to non-Indigenous rate ratios		
	Number	Per cent	Number	Per cent	Number	Per cent	Males	Females	Persons
0–4	388	1.4	238	0.9	626	1.2	1.2	1.3	1.2
5–18	2,526	3.2	1,436	1.9	3,962	2.6	1.3	1.5	1.4
0–18	2,914	2.7	1,674	1.6	4,588	2.2	1.3	1.4	1.3

Note: Data exclude those for whom whether needed assistance with core activities was not stated (7% for Indigenous and 2% for non-Indigenous all ages).

Source: ABS & AIHW analysis of 2006 Census data; ABS & AIHW 2008.

Data relating to disability in Indigenous children were also collected in the Western Australia Aboriginal Child Health Survey of Aboriginal children and a small number of Torres Strait Islander children in Western Australia over 2001 and 2002. Parents and carers were asked a number of questions in relation to their child's health and special needs.

An estimated 2% of Indigenous children aged 4–17 years in Western Australia needed help with activities of daily living such as eating, dressing, bathing and going to the toilet. Four per cent of children of the same age experienced limitations in vigorous activity. Approximately 8% of Indigenous children did not have normal vision in both eyes, and 7% did not have normal hearing in both ears (ABS & AIHW 2005).

Disability status by labour force status

- In 2006, approximately 80% of Indigenous Australians aged 15–64 years reporting core activity restrictions were not in the labour force, compared with 38% of those not reporting core activity restrictions (Table 1.14.15).

Table 1.14.15: Indigenous persons aged 15–64 years, by whether has core-activity need for assistance and labour force status, 2006

	Needs assistance with core activities	
	Per cent	**No.**
Employed	12.5	1,502
Unemployed	3.3	394
In the labour force	*15.7*	*1,896*
Not in the labour force	80.4	9,698
Total[(a)]	**100.0**	**12,058**
Unemployment rate[(b)]	20.8	. .
	Does not need assistance with core activities	
	Per cent	**No.**
Employed	49.7	118,318
Unemployed	9.1	21,690
In the labour force	*58.8*	*140,008*
Not in the labour force	38.1	90,714
Total[(a)]	**100.0**	**237,955**
Unemployment rate[(b)]	15.5	. .

(a) Includes persons for whom labour force status was not known.

(b) Unemployed persons as a proportion of those in the labour force.

Source: ABS & AIHW analysis of 2006 Census data; ABS & AIHW 2008.

Living arrangements for those with a disability

- Approximately 10% of Indigenous Australians who needed assistance with a core activity were living in a hospital, a residential care facility, hostel for the disabled or another non-private dwelling, compared with 19% of non-Indigenous Australians (Table 1.14.16).

Table 1.14.16: Persons with core-activity need for assistance, by Indigenous status and living arrangements, 2006

	Indigenous		Non-Indigenous	
	No.	**Per cent**	**No.**	**Per cent**
Private dwellings	17,691	90.2	630,208	80.7
Non-private dwellings				
Hospital	380	1.9	15,797	2.0
Nursing home or accommodation for the retired or aged (not self-contained)	954	4.9	119,157	15.3
Hostel for the disabled	194	1.0	7,655	1.0
Other non-private dwelling	391	2.0	7,934	1.0
Total	*1,919*	*9.8*	*150,543*	*19.3*
Total[(a)]	**19,616**	**100.0**	**480,817**	**100.0**

(a) Includes persons in offshore and migratory CDs.

Source: ABS & AIHW analysis of 2006 Census data; ABS & AIHW 2008.

Disability support service use

Tables 1.14.17 to 1.14.24 present data from the 2009–10 Disability Services National Minimum Data Set on the use of disability support services by Indigenous and non-Indigenous Australians aged less than 65 years.

- In 2009–10, Indigenous Australians aged less than 65 years used disability support services at around twice the rate of non-Indigenous Australians of the same age (28 per 1,000 compared with 13 per 1,000) (Table 1.14.17).

Users of disability support services by age and sex

- In 2009–10, Indigenous males had higher rates of disability support service use than Indigenous females (33 compared with 22 per 1,000).
- Indigenous males and females had higher rates of using disability support services than non-Indigenous males and females across all age groups (Table 1.14.17).
- The greatest ratio in rates of using disability support services between Indigenous and non-Indigenous Australians occurred in the 55–64 year age group for both males (ratio of 2.6) and females (ratio of 2.7). The greatest rate difference was observed in the 45–54 year age group for males (22.7 per 1,000 population) and in the 55–64 year age group for females (17.8 per 1,000) (Table 1.14.17).

Table 1.14.17: Age specific rates of disability support service use by Indigenous status and sex, persons aged under 65 years, 2009–10

	0–4	5–14	15–24	25–34	35–44	45–54	55–64	Age std. total
Males								
Indigenous	19.2	24.9	38.5	32.2	37.3	38.2	35.1	33.2
Non-Indigenous	17.3	16.5	18.6	15.6	15.5	15.5	13.4	16.1
Rate ratio	1.1	1.5	2.1	2.1	2.4	2.5	2.6	2.1
Rate difference	1.9	8.4	19.9	16.6	21.8	22.7	21.7	17.1
Females								
Indigenous	11.8	13.0	22.9	20.2	26.0	28.3	27.9	22.0
Non-Indigenous	9.1	7.7	11.4	10.0	11.3	13.6	10.2	10.6
Rate ratio	1.3	1.7	2.0	2.0	2.3	2.1	2.7	2.1
Rate difference	2.7	5.3	11.4	10.2	14.7	14.7	17.8	11.4
Persons								
Indigenous	15.6	19.1	30.9	26.2	31.4	33.1	31.3	27.6
Non-Indigenous	13.3	12.2	15.2	12.8	13.4	14.6	11.8	13.4
Rate ratio	1.2	1.6	2.0	2.0	2.3	2.3	2.7	2.1
Rate difference	2.3	6.9	15.8	13.4	18.0	18.5	19.5	14.2

Notes

1. Rate ratio is the rate for Indigenous Australians divided by the rate for non-Indigenous Australians.
2. Rate difference is the rate for Indigenous Australians minus the rate for non-Indigenous Australians.
3. Total is directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group.

Source: Unpublished data from the 2009–10 Disability Services National Minimum Data Set.

Users of disability support services by state/territory

- The Northern Territory had the highest rate (178 per 1,000) and the Australian Capital Territory had the lowest rate (2 per 1,000) of Indigenous Australians using disability support services in 2009–10 (Table 1.14.18).
- In all states and territories except for Tasmania and the Australian Capital Territory, rates of disability support service use were higher than Indigenous than non-Indigenous Australians (Table 1.14.18). The greatest difference in rates between Indigenous and non-Indigenous Australians was observed in the Northern Territory (rate difference of 175 per 1,000 population; rate ratio of 82.3).

Users of disability support services by remoteness

- In 2009–10, rates of Indigenous Australians aged under 65 years using disability support services were highest in *Inner regional* areas (34 per 1,000) and lowest in *Very remote* areas (11 per 1,000) (Table 1.14.19).
- Indigenous Australians were more likely to use disability support services than non-Indigenous Australians in all remoteness categories. The greatest disparity was observed in *Major cities*, where Indigenous Australians used disability support services at almost 3 times the rate of non-Indigenous Australians, and a rate difference of 24 per 1,000 (Table 1.14.19).

Users of disability support services by primary disability group

- In 2009–10, for both Indigenous and non-Indigenous Australians who were users of disability support services, the top three most common primary disability groups were Intellectual (9 and 4 per 1,000 population, respectively), physical (6 and 2 per 1,000, respectively) and psychiatric (5 and 3 per 1,000, respectively) (Table 1.14.20).
- Rates of Indigenous Australians were higher than those of non-Indigenous Australians across all primary disability groups, except for Autism (rate difference –0.1) (Table 1.14.20).

Table 1.14.18: Users of disability support services, by Indigenous status, state/territory and sex, persons aged under 65 years, 2009–10

	Indigenous					Non-Indigenous					
	Number	Crude no. per 1,000	Age std. no. per 1,000	LCL 95%	UCL 95%	Number	Age std. no. per 1,000	LCL 95%	UCL 95%	Rate ratio	Rate difference
NSW											
Males	2,894	36.6	35.1	33.8	36.4	45,659	15.2	15.0	15.3	2.3*	19.9*
Females	1,736	22.1	22.0	20.9	23.0	28,584	9.5	9.4	9.6	2.3*	12.4*
Persons	4,631	29.4	28.5	27.7	29.3	74,251	12.4	12.3	12.5	2.3*	16.1*
Vic											
Males	1,536	88.2	99.7	94.7	104.7	46,907	19.8	19.6	20.0	5.0*	79.9*
Females	1,020	58.3	67.6	63.4	71.7	32,594	13.7	13.6	13.9	4.9*	53.8*
Persons	2,557	73.3	83.5	80.3	86.7	79,551	16.8	16.7	16.9	5.0*	66.7*
Qld											
Males	1,686	21.9	25.5	24.3	26.7	23,849	12.6	12.4	12.8	2.0*	12.9*
Females	1,063	13.8	16.3	15.3	17.3	15,576	8.3	8.2	8.5	2.0*	8.0*
Persons	2,750	17.9	20.8	20.0	21.6	39,451	10.5	10.4	10.6	2.0*	10.3*
WA											
Males	1,147	31.0	31.7	29.8	33.5	12,468	12.8	12.6	13.0	2.5*	18.8*
Females	778	21.5	23.8	22.1	25.4	7,584	8.2	8.0	8.3	2.9*	15.6*
Persons	1,925	26.3	27.8	26.6	29.0	20,052	10.6	10.4	10.7	2.6*	17.2*
SA											
Males	647	44.9	50.3	46.4	54.1	14,440	21.2	20.9	21.6	2.4*	29.0*
Females	383	26.1	29.6	26.6	32.5	9,600	14.0	13.8	14.3	2.1*	15.5*
Persons	1,030	35.4	39.6	37.2	42.0	24,040	17.7	17.5	17.9	2.2*	22.0*

(continued)

Table 1.14.18 (continued): Users of disability support services, by Indigenous status, state/territory and sex, persons aged under 65 years, 2009–10

	Indigenous					Non-Indigenous					
	Number	Crude no. per 1,000	Age std. no. per 1,000	LCL 95%	UCL 95%	Number	Age std. no. per 1,000	LCL 95%	UCL 95%	Rate ratio	Rate difference
Tas											
Males	188	19.5	20.2	17.3	23.1	4,683	23.3	22.6	24.0	0.9	–3.1*
Females	115	12.0	12.3	10.0	14.5	2,991	14.8	14.3	15.4	0.8*	–2.5*
Persons	303	15.8	16.1	14.3	17.9	7,674	19.1	18.7	19.5	0.8*	–3.0*
ACT											
Males	114	49.8	43.2	35.3	51.1	3,119	21.0	20.2	21.7	2.1*	22.2*
Females	49	21.5	17.9	12.9	23.0	1,758	11.8	11.3	12.4	1.5*	6.1*
Persons	163	35.7	30.1	25.5	34.7	4,877	16.5	16.0	17.0	1.8*	13.6*
NT											
Males	354	10.8	12.8	11.5	14.1	390	5.0	4.5	5.5	2.6*	7.8*
Females	303	9.1	11.0	9.7	12.2	296	4.2	3.7	4.6	2.6*	6.8*
Persons	657	10.0	11.9	11.0	12.8	686	4.6	4.2	4.9	2.6*	7.3*
Australia											
Males	8,472	31.4	33.2	32.5	33.9	150,896	16.1	16.0	16.2	2.1*	17.1*
Females	5,398	20.1	22.0	21.4	22.5	98,614	10.6	10.5	10.7	2.1*	11.4*
Persons	13,873	25.8	27.6	27.1	28.0	249,594	13.4	13.3	13.5	2.1*	14.2*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

Notes

1. Residential postcode used to define state territory of disability service user.
2. Rate ratio is the rate for Indigenous Australians divided by the rate for non-Indigenous Australians.
3. Rate difference is the rate for Indigenous Australians minus the rate for non-Indigenous Australians.
4. Rates are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group.

Source: Unpublished data from the 2009–10 Disability Services National Minimum Data Set.

Table 1.14.19: Users of disability support services, by Indigenous status and remoteness, persons aged under 65 years, 2009–10

	Indigenous					Non-Indigenous					
	Number	Crude no. per 1,000	Age std. no. per 1,000	LCL 95%	UCL 95%	Number	Age std. no. per 1,000	LCL 95%	UCL 95%	Rate ratio	Rate difference
Major cities	5,456	33.8	36.9	35.8	37.9	160,667	13.1	13.0	13.2	2.8*	23.8*
Inner regional	3,771	35.1	37.7	36.4	39.1	59,322	18.1	17.9	18.2	2.1*	19.7*
Outer regional	2,691	24.5	27.7	26.6	28.9	22,023	14.2	14.0	14.3	2.0*	13.6*
Total non-remote	*11,918*	*31.5*	*34.4*	*33.7*	*35.1*	*242,012*	*14.1*	*14.0*	*14.1*	*2.4**	*20.4**
Remote	835	18.0	20.8	19.3	22.4	2,039	8.7	8.3	9.1	2.4*	12.1*
Very remote	857	11.2	13.9	12.8	14.9	486	6.6	6.0	7.2	2.1*	7.2*
Total remote	*1,692*	*13.8*	*16.5*	*15.6*	*17.3*	*2,525*	*8.2*	*7.9*	*8.5*	*2.0**	*8.3**
Total[(a)]	**13,873**	**27.7**	**30.4**	**29.8**	**31.0**	**249,594**	**14.3**	**14.2**	**14.3**	2.1*	16.1*

(a) Includes service users whose remoteness area is unknown (service user postcodes provided by all services attended were not stated or not collected).

Notes

1. Residential postcode used to define remoteness area of disability service user.
2. Rate ratio is the rate for Indigenous Australians divided by the rate for non-Indigenous Australians.
3. Rate difference is the rate for Indigenous Australians minus the rate for non-Indigenous Australians.
4. Rates are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group.
5. Rates for Indigenous are calculated using the 2006 population estimates based on the 2006 Census (Series B).

Source: Unpublished data from the 2009–10 Disability Services National Minimum Data Set.

Table 1.14.20: Users of disability support services, by Indigenous status and primary disability group, persons aged under 65 years, 2009–10

	Indigenous					Non-Indigenous					
	Number	Crude no. per 1,000	Age std. no. per 1,000	LCL 95%	UCL 95%	Number	Age std. no. per 1,000	LCL 95%	UCL 95%	Rate ratio	Rate difference
Intellectual	4,762	8.8	8.6	8.4	8.9	75,512	4.1	4.0	4.1	2.1*	4.6*
Specific learning/ADD	667	1.2	1.0	0.9	1.1	9,811	0.5	0.5	0.5	1.9*	0.5*
Autism	673	1.2	0.9	0.8	1.0	17,902	1.0	1.0	1.0	0.9*	–0.1*
Physical	2,352	4.4	5.7	5.5	5.9	43,636	2.3	2.3	2.3	2.5*	3.4*
Acquired brain injury	748	1.4	1.9	1.7	2.0	9,374	0.5	0.5	0.5	3.8*	1.4*
Neurological	459	0.9	1.0	0.9	1.1	10,722	0.6	0.6	0.6	1.8*	0.4*
Deaf/blind	31	0.1	0.1	0.0	0.1	492	0.0	0.0	0.0	2.1*	0.03*
Vision	219	0.4	0.5	0.4	0.6	5,966	0.3	0.3	0.3	1.6*	0.2*
Hearing	233	0.4	0.5	0.4	0.6	4,593	0.2	0.2	0.2	2.0*	0.2*
Speech	208	0.4	0.3	0.2	0.3	2,958	0.2	0.2	0.2	1.6*	0.1*
Psychiatric	2,234	4.1	5.4	5.2	5.6	46,317	2.5	2.4	2.5	2.2*	2.9*
Developmental delay	539	1.0	0.6	0.6	0.7	8,190	0.5	0.5	0.5	1.3*	0.2*
Total	**13,125**	**24.4**	**26.4**	**26.0**	**26.9**	**235,473**	**12.6**	**12.6**	**12.7**	**2.1***	**13.8***
Presence of additional disability											
Yes	6,452	12.0	13.1	12.8	13.4	109,082	5.8	5.8	5.9	2.2*	7.3*
No	6,673	12.4	13.3	13.0	13.6	126,391	6.8	6.7	6.8	2.0*	6.5*
Not stated	748	1.4	1.1	1.1	1.2	14,121	0.8	0.8	0.8	1.5*	0.4*

(continued)

Table 1.14.20 (continued): Users of disability support services, by Indigenous status and primary disability group, persons aged under 65 years, 2009–10

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

Notes

1. Rate ratio is the rate for Indigenous Australians divided by the rate for non-Indigenous Australians.
2. Rate difference is the rate for Indigenous Australians minus the rate for non-Indigenous Australians.
3. Rates are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group.
4. Disability groups defined by the DS NMDS 2009–10 Data guide page 67.
5. Presence of additional disability refers to a yes in one or more of the categories listed for "other significant disability group(s)",DS NMDS 2009–10 Data guide page 70.

Source: Unpublished data from the 2009–10 Disability Services National Minimum Data Set.

Users of disability support services by service group

- In 2009–10, the most common disability support services used by Indigenous Australians were community support (14 per 1,000) followed by employment (9 per 1,000) (Table 1.14.21).
- For all disability service groups, the usage rate was higher for Indigenous Australians than for non-Indigenous Australians. The greatest difference in rates was for community support (rate difference of 7 per 1,000) for which usage rate was over twice as high for Indigenous Australians. Usage rate for accommodation support for Indigenous Australians was 2.6 times as high as for non-Indigenous Australians (Table 1.14.21).

Users disability support services by labour force status

- In 2009–10, of Indigenous Australians aged 15–64 years, those who were unemployed or not in the labour force had higher usage rates of disability support services than those employed (12 and 11 per 1,000 compared with 6 per 1,000 respectively) (Table 1.14.22).
- Across all labour force status types, Indigenous Australians had higher rates of use of disability support services than non-Indigenous Australians. The greatest disparity was for Australians not in the labour force (rate difference of 7.2 per 1,000; rate ratio of 2.9) (Table 1.14.22).

Users of disability support services by main source of income

- In 2009–10 the main sources of income for both Indigenous and non-Indigenous users of disability support services aged 16 to 64 years were the Disability Support Pension (19 and 8 per 1,000, respectively), other pension or benefit (6.2 and 2.6 per 1,000, respectively) and paid employment (1.5 and 1.2 per 1,000, respectively) (Table 1.14.23).
- Indigenous users of disability support services were over twice as likely as non-Indigenous users to report having no income.

Cessation of using disability support services

- In 2009–10, Indigenous Australians aged less than 65 years were over twice as likely to have ceased using disability support services as non-Indigenous Australians of the same age (Table 1.14.24).
- For both Indigenous and non-Indigenous Australians 'no longer needs assistance' was the main reason for the cessation of use of disability support services in 2009–10 (3.1 and 1.4 per 1,000 respectively) (Table 1.14.24).

Table 1.14.21: Users of disability support services by Indigenous status, sex and service group, persons aged under 65 years, 2009–10

	Indigenous					Non-Indigenous					
	Number	Crude no. per 1,000	Age std. no. per 1,000	LCL 95%	UCL 95%	Number	Age std. no. per 1,000	LCL 95%	UCL 95%	Rate ratio	Rate difference
					Males						
Accommodation support	1,088	4.0	5.3	5.0	5.7	18,695	2.0	1.9	2.0	2.7*	3.4*
Community support	4,621	17.1	15.6	15.2	16.1	64,129	7.0	6.9	7.1	2.2*	8.6*
Community access	1,209	4.5	5.4	5.1	5.7	25,464	2.7	2.6	2.7	2.0*	2.7*
Respite	1,269	4.7	4.4	4.2	4.7	17,907	1.9	1.9	2.0	2.3*	2.5*
Total state/territory services	*5,973*	*22.2*	*21.9*	*21.3*	*22.4*	*92,072*	*10.0*	*9.9*	*10.0*	*2.2**	*11.9**
Employment	2,991	11.1	13.4	12.9	13.9	68,582	7.2	7.1	7.2	1.9*	6.2*
Total	**8,472**	**31.4**	**33.2**	**32.5**	**33.9**	**150,896**	**16.1**	**16.0**	**16.2**	**2.1***	**17.1***
					Females						
Accommodation support	794	2.9	3.7	3.4	4.0	13,987	1.5	1.4	1.5	2.5*	2.2*
Community support	2,819	10.5	10.1	9.7	10.5	39,938	4.4	4.4	4.5	2.3*	5.7*
Community access	907	3.4	3.9	3.6	4.1	19,454	2.1	2.0	2.1	1.9*	1.8*
Respite	839	3.1	3.1	2.9	3.3	12,382	1.4	1.3	1.4	2.3*	1.7*
Total state/territory services	*3,834*	*14.2*	*14.6*	*14.2*	*15.1*	*60,761*	*6.6*	*6.6*	*6.7*	*2.2**	*8.0**
Employment	1,873	7.0	8.6	8.2	9.0	44,138	4.6	4.6	4.7	1.9*	4.0*
Total	**5,398**	**20.1**	**22.0**	**21.4**	**22.5**	**98,614**	**10.6**	**10.5**	**10.7**	**2.1***	**11.4***

(continued)

Table 1.14.21 (continued): Users of disability support services by Indigenous status, sex and service group, persons aged under 65 years, 2009–10

	Indigenous					Non-Indigenous					
	Number	Crude no. per 1,000	Age std. no. per 1,000	LCL 95%	UCL 95%	Number	Age std. no. per 1,000	LCL 95%	UCL 95%	Rate ratio	Rate difference
					Persons						
Accommodation support	1,882	3.5	4.5	4.3	4.7	32,689	1.7	1.7	1.7	2.6*	2.8*
Community support	7,442	13.8	12.9	12.6	13.2	104,122	5.7	5.7	5.8	2.2*	7.1*
Community access	2,117	3.9	4.6	4.4	4.8	44,927	2.4	2.3	2.4	1.9*	2.2*
Respite	2,108	3.9	3.8	3.6	3.9	30,304	1.7	1.6	1.7	2.3*	2.1*
Total state/territory services	*9,810*	*18.2*	*18.2*	*17.9*	*18.6*	*152,917*	*8.3*	*8.3*	*8.4*	*2.2**	*9.9**
Employment	4,864	9.0	11.0	10.7	11.3	112,720	5.9	5.9	6.0	1.9*	5.1*
Total	**13,873**	**25.8**	**27.6**	**27.1**	**28.0**	**249,594**	**13.4**	**13.3**	**13.5**	**2.1***	**14.2***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

Notes

1. Rate ratio is the rate for Indigenous Australians divided by the rate for non-Indigenous Australians.
2. Rate difference is the rate for Indigenous Australians minus the rate for non-Indigenous Australians.
3. Rates are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group.

Source: Unpublished data from the 2009–10 Disability Services National Minimum Data Set.

Table 1.14.22: Users of disability support services, by Indigenous status and labour force status, persons aged 15–64 years, 2009–10

	Indigenous					Non-Indigenous					
	Number	Crude no. per 1,000	Age std. no. per 1,000	LCL 95%	UCL 95%	Number	Age std. no. per 1,000	LCL 95%	UCL 95%	Rate ratio	Rate difference
Labour force status											
Employed	2,091	6.1	6.2	6.0	6.5	59,388	4.1	4.06	4.13	1.5*	2.1*
Unemployed	3,992	11.7	11.8	11.4	12.1	73,023	5.0	4.95	5.03	2.4*	6.8*
Not in the labour force	3,664	10.7	11.0	10.6	11.3	55,516	3.8	3.76	3.82	2.9*	7.2*
Total[(a)]	**9,747**	**28.6**	**29.0**	**28.4**	**29.6**	**187,927**	**12.9**	**12.82**	**12.93**	**2.3***	**16.1***
Service type											
Open employment	4,221	12.4	12.4	12.0	12.7	93,524	6.4	6.37	6.45	1.9*	5.9*
Supported employment	701	2.1	2.2	2.0	2.3	20,219	1.4	1.38	1.42	1.6*	0.8*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Excludes labour force status not stated.

Notes

1. Rate ratio is the rate for Indigenous Australians divided by the rate for non-Indigenous Australians.
2. Rate difference is the rate for Indigenous Australians minus the rate for non-Indigenous Australians.
3. Rates are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group.

Source: Unpublished data from the 2009–10 Disability Services National Minimum Data Set.

Table 1.14.23: Users of disability support services by Indigenous status and main source of income, persons aged 16– 64 years, 2009–10

	Indigenous					Non-Indigenous					
	Number	Crude no. per 1,000	Age std. no. per 1,000	LCL 95%	UCL 95%	Number	Age std. no. per 1,000	LCL 95%	UCL 95%	Rate ratio	Rate difference
Disability Support Pension	6,185	18.1	19.0	18.6	19.5	115,273	7.9	7.9	7.9	2.4	11.1
Other pension or benefit	2,129	6.2	6.3	6.0	6.5	37,807	2.6	2.6	2.6	2.4	3.7
Paid employment	527	1.5	1.5	1.4	1.7	17,552	1.2	1.2	1.2	1.3	0.3
Compensation payments	33	0.1	0.1	0.1	0.1	453	0.0	0.0	0.0	3.3	0.1
Other income	71	0.2	0.2	0.2	0.3	2,977	0.2	0.2	0.2	1.2	0.0
Nil income	354	1.0	0.9	0.8	1.0	5,513	0.4	0.4	0.4	2.3	0.5
Not known/stated/collected	813	2.4	2.1	1.9	2.2	16,606	1.1	1.1	1.2	1.8	0.9
Total	**10,112**	**29.6**	**30.1**	**29.5**	**30.7**	**196,181**	**13.4**	**13.4**	**13.5**	**2.2**	**16.7**

Notes

1. Rate ratio is the rate for Indigenous Australians divided by the rate for non-Indigenous Australians.
2. Rate difference is the rate for Indigenous Australians minus the rate for non-Indigenous Australians.
3. Rates are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group.

Source: Unpublished data from the 2009–10 Disability Services National Minimum Data Set.

Table 1.14.24: Service users with an exit date, main reason for cessation of services by Indigenous status, persons aged under 65 years, 2009–10

	Indigenous					Non-Indigenous					
Main reason for cessation of services	**Number**	**Crude no. per 1,000**	**Age std. no. per 1,000**	**LCL 95%**	**UCL 95%**	**Number**	**Age std. no. per 1,000**	**LCL 95%**	**UCL 95%**	**Rate ratio**	**Rate difference**
No longer needs assistance - moved to mainstream services	425	0.8	0.8	0.7	0.9	12,122	0.7	0.7	0.7	1.3*	0.2*
No longer needs assistance - other reason	1,161	2.2	2.3	2.2	2.5	13,690	0.8	0.7	0.8	3.1*	1.6*
Moved to residential institutional or supported accommodation setting	71	0.1	0.1	0.1	0.2	825	0.0	0.0	0.0	3.4*	0.1*
Needs have increased - other service type required	60	0.1	0.1	0.1	0.2	1,030	0.1	0.1	0.1	2.4*	0.1*
Services terminated due to budget/staffing constraints	78	0.1	0.2	0.11	0.2	1,681	0.1	0.1	0.1	2.1*	0.1*
Services terminated due to OHS reasons[(a)]	4	0.0	—	—	—	62	0.0	0.0	0.0	2.2	0.0
Service user moved out of area	255	0.5	0.5	0.5	0.5	2,677	0.1	0.1	0.2	3.1*	0.3*
Service user died	87	0.2	0.2	0.2	0.3	1,198	0.1	0.1	0.1	3.5*	0.2*
Service user terminated service	388	0.7	0.9	0.8	0.9	8,250	0.4	0.4	0.5	2.0*	0.4*
Other reason	2,368	4.4	4.7	4.5	4.9	39,491	2.2	2.1	2.2	2.2*	2.6*
Reason not stated	115	0.2	0.2	0.2	0.3	3,274	0.2	0.2	0.2	1.2	0.0
Total number of services uses with an exit date	**5,012**	**9.3**	**10.1**	**9.8**	**10.4**	**84,300**	**4.6**	**4.6**	**4.6**	**2.2***	**5.6***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

Notes

1. Rate ratio is the rate for Indigenous Australians divided by the rate for non-Indigenous Australians.
2. Rate difference is the rate for Indigenous Australians minus the rate for non-Indigenous Australians.
3. Rates are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group.

Source: Unpublished data from the 2009–10 Disability Services National Minimum Data Set.

Additional information

Indigenous carers

Information on Indigenous carers of persons with a disability, long-term health condition or problems related to old age is available from the 2006 Census. These data are presented below.

- In 2006, after adjusting for differences in the age structures of the Indigenous and non-Indigenous populations, Indigenous Australians were more likely than non-Indigenous Australians to be caring for another person with a disability, long-term illness or problems related to old age (Table 1.14.25).
- The median age of Indigenous carers was 37 years, compared with 49 years for non-Indigenous carers (ABS & AIHW 2008). The age group 45–54 years had the highest proportion of Indigenous carers and the age group 55–64 years had the highest proportion of non-Indigenous carers (Table 1.14.25).
- Indigenous Australians aged 15–34 years were over one and a half times as likely as non-Indigenous Australians of the same age to be carers in 2006. The proportion of persons aged 45 years and over who were carers was similar for Indigenous and non-Indigenous Australians (Table 1.14.25).

Table 1.14.25: Carers[(a)] by Indigenous status and age, 2006

Age group (years)	Indigenous	Non–Indigenous	Rate ratio	Rate difference
	Per cent			
15–24	7.9	4.5	1.7	3.4
25–34	12.1	7.5	1.6	4.6
35–44	14.7	11.2	1.3	3.5
45–54	15.3	15.0	1.0	0.3
55–64	14.0	16.5	0.9	–2.5
65 and over	10.4	10.4	1.0	0.0
Total[(b)]	**11.9**	**10.8**	**1.1**	**1.1**
Total—age-standardised[(c)]	**12.4**	**10.5**	**1.2**	**1.9**
Total carers[(a)]	**31,600**	**1,532,057**	**. .**	**. .**

(a) Persons aged 15 years and over living in private dwellings who provided unpaid care, help or assistance to another person because of their disability, long-term illness or problems related to old age.

(b) Rates are age-specific so will not add to 100%.

(c) Age-standardised to the 2001 final estimated resident population

Source: ABS & AIHW 2008.

Western Australian Aboriginal Child Health Survey

Information on the carers of Indigenous children with a disability, chronic illness or pain is available from the Western Australian Aboriginal Child Health Survey. In the survey, carers of Indigenous children were asked whether each child placed a burden on them and the family as a result of any disability, chronic illness or pain. Carers reported that around 5% of children placed a 'little or some' burden on their carers and families, and 3% children placed 'quite a lot or very much' burden on their carers and families. The experience of burden on carers and families declined with increasing level of relative isolation. Burden was reported to be particularly high in families where children were reported to have impairments in self-care (e.g. activities of daily living). Just over half of the carers of the 380 children who needed special help with eating, dressing, bathing or toileting reported that this placed 'quite a lot' or 'very much' burden on the family (Zubrick et al. 2004).

Data quality issues

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The NATSISS is conducted in all states and territories and includes remote and non-remote areas. The 2008 sample was 13,300 persons in 6900 households, with a response rate of 82% of households. Up to three randomly selected Indigenous people were chosen from selected households to participate in the survey. Trained ABS interviewers conducted the survey using face-to-face interviews. In non-remote areas interviewers used a notebook computer to record responses, while in remote areas a paper questionnaire was used. Interviewers obtained the consent of a parent or guardian before interviewing those aged 15 to 17 years. Indigenous persons usually resident in non-private dwellings such as hotels, motels, hostels, hospitals, short-stay caravan parks, prisons and other correctional facilities were excluded.

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians.

Information recorded in this survey is 'as reported' by respondents, and therefore may differ from information available from other sources or collected using different methodologies.

Data on health related indicators have been age-standardised to the 2001 total Australian population to account for differences in the age structures of the states and territories and the Indigenous and non-Indigenous population.

Time series comparisons for the 2008 survey are available through the 1994 National Aboriginal and Torres Strait Islander Survey and the 2002 NATSISS. However not all data elements align across the three (1994, 2001 and 2008) NATSISS surveys, hence care is required when reviewing results across the three surveys. There are no strictly comparable non-Indigenous results available for the 2008 NATSISS because the latest General Social Survey (which has been used in the past to compare with Indigenous results from the NATSISS) was run in 2006, with the next being run in 2010. Data from other ABS surveys run in 2008 may, however, be used to obtain rough non-Indigenous comparisons for some data items. Where possible, the ABS has provided recommendations for non-Indigenous data comparisons these have been adopted in this report.

The 2008 NATSISS has a relatively large level of under-coverage when compared to other ABS surveys. There was also an increase in under-coverage compared to previous ABS Indigenous surveys. For example, the estimated under-coverage in the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) was 42%. The overall under-coverage rate for the 2008 NATSISS is approximately 53% of the in-scope population at the national level. This rate varies across the states and territories (ABS 2010).

Further information on NATSISS data quality issues can be found in the 2008 NATSISS User's guide (ABS 2010).

Census of Population and Housing

The Census uses the National health data dictionary standard Indigenous status question and it is asked for each household member. Measures that are drawn from Census data are subject to broad data concerns relating to the unexplainable growth in the Aboriginal and Torres Strait Islander population since the 1991 Census, and the limitations of self-identification. Other Census data issues relate to the accuracy of the Census count itself; for example, whether people are counted more than once, or are undercounted (ABS 1996).

Although the Census data are adjusted for undercounts at the person level to arrive at the estimated resident population, no such adjustment is done at the household level. This

affects the accuracy of the person counts at the household level to provide adjusted household estimates.

Disability Services National Minimum Data Set (DS NMDS)

The DS NMDS collects information on services and clients where funding has been provided, during the specified period, by a government organisation operating under the NDA. The scope of services varies across jurisdictions for programs that receive NDA funding. For example, in 2009–10 in Victoria and Queensland, specialist psychiatric disability services were provided under the NDA. However, in all other jurisdictions specific mental health services were funded and provided under health, rather than disability, portfolios

A statistical linkage key enables the number of service users to be estimated from data collected from service type outlets and agencies. A statistical linkage key is a derived variable used to link data for statistical and research purposes that is generated from elements of an individual's personal demographic data and attached to de-identified data relating to the services received by that individual. A service type outlet is a unit of an agency that provides a particular NDA service type at, or from, a designated location. During any given financial year, a service user can receive services from more than one service type outlet, more than one agency, and multiple jurisdictions. In each of these cases, unique service user counts can be estimated by using the statistical linkage key.

Some of the data for which Indigenous status continues to be missing in the DS NMDS relate to service type 3.02 (recreational/holiday), for which Indigenous status of clients is not required to be collected.

In 2009–10, the proportion of not stated Indigenous status in the DS NMDS was 5.1% nationally. Work is under way to improve the identification of Indigenous clients in the DS NMDS.

Western Australian Aboriginal Child Health Survey

Survey data are subject to sampling and non-sampling errors. Confidence intervals are published with the data to provide a guide to the reliability of the estimates. Non-sampling errors can occur in surveys owing to questionnaire design problems, respondent difficulty recalling information/lack of appropriate records, and errors made in the recording and processing of the data. Every effort was made to minimise non-sample errors in this survey.

List of symbols used in tables

n.a.	not available
–	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.15 Ear health

This indicator includes a number of measures of children's hearing including prevalence rates and hospitalisation rates for diseases of the ear and mastoid process, and rates of ear and hearing problems managed at consultations with general practitioners

Data sources

Data for this measure come from the National Aboriginal and Torres Strait Islander Social Survey, the National Aboriginal and Torres Strait Islander Health Survey, the AIHW National Hospital Morbidity Database, Deadly ears program, the Bettering the Evaluation and Care of Health survey and data from the Northern Territory Emergency Response Child Health Check Initiative audiology and ENT follow-up services.

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The Australian Bureau of Statistics (ABS) conducted the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) between August 2002 and April 2003. The 2008 NATSISS was conducted between August 2008 and April 2009. The survey provides information about the Aboriginal and Torres Strait Islander populations of Australia for a wide range of social issues including health, education, culture and labour force participation. The 2008 NATSISS included for the first time children aged under 15. The NATSISS will be conducted every six years, with the next survey planned for 2014.

The 2008 NATSISS collected information by personal interview from 13,300 Indigenous Australians across all states and territories of Australia, including those living in remote areas. The sample covered persons aged 15 years and over who are usual residents in selected private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians. This included information on health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. The survey provides comparisons over time in the health of Indigenous Australians. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

It is planned to repeat the NATSIHS at 6-yearly intervals, with the next survey to be conducted during 2012–13 as part of the Australian Health Survey (will be called the Australian Aboriginal and Torres Strait Islander Health Survey (ATSIHS)).

National Hospital Morbidity Database

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Hospitalisation data are presented for the 2-year period from July 2008 to June 2010. An aggregate of 2 years of data has been used, because the number of hospitalisations for some conditions is likely to be small for a single year.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individual, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question. For example, it is not possible to identify whether one patient was admitted 5 times or five patients were admitted once. People who receive treatment at hospital but are not admitted are not counted in hospital records. Hospital separation data are also affected by variations in admission practices, and the availability of and access to hospital and non-hospital services.

Care types 7.3, 9 and 10 (Newborn – unqualified days only; organ procurement; hospital border) have been excluded from analysis.

Data are presented for the six jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalisations in 2006–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. National totals include separations for people resident in these six jurisdictions only and are not necessarily representative of the jurisdictions not included. Indigenous status data are reported for Tasmania and the Australian Capital Territory (public hospitals only) with caveats until further audits of the quality of data in these jurisdictions are completed. Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Data are presented by state/territory of usual residence of the patient.

The following caveats have been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).
- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

Deadly Ears Program in Queensland

Deadly Ears is a Queensland state-wide Aboriginal and Torres Strait Islander Ear Health Program managed from within the Children's Health Services District. It is a multi-disciplinary program targeting the prevention and management of ear disease and its

associated impacts in Aboriginal and Torres Strait Islander children. The program has been screening Indigenous children across Queensland and collating the results since 2006. Data are collected on clients who report to outreach clinics after being identified as having ear health issues through screening or referrals from other health services.

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey, which was conducted by the AIHW Australian General Practice Statistics and Classification Centre, in the Family Medicine Research Centre (FMRC) at the University of Sydney until March 2012, when the AIHW ceased its involvement in the BEACH program . The FMRC continues to run BEACH the results are now published by the University of Sydney. The most recent annual reports can be found at http://ses.library.usyd.edu.au/handle/2123/7771.

Information is collected from every changing random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive GP–patient encounters is collected by each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated because some GPs might not ask the question on Indigenous status, or the patient may choose not to identify themselves (AIHW 2002).

Data are presented for the 5-year period 2006–07 to 2010–11, during which there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.2% of total GP encounters.

Northern Territory Emergency Response Child Health Check Initiative (NTER CHCI)- audiology and ENT follow-up services

In response to the extensive ear and hearing problems found among Indigenous children in prescribed areas of the Northern Territory who received health checks as part of the Northern Territory Emergency Response (NTER) Child Health Check initiative (CHCI), the Australian Government funded the Northern Territory Government to provide follow-up audiology and ENT services from the middle of 2007. The audiology follow-up services assessed the middle ear condition of the child, tested for hearing loss and recommended rehabilitation. The ENT follow-up services comprised both consultation and surgery.

The focus of this program was to provide follow-up audiology and ENT services to children with a referral from their child health check (CHC). Although priority was given to such children, if possible and if funding allowed, services were also provided to other children in need or who sought services. Children living in prescribed areas of the NT were eligible for these services if they received a CHC or were under 16 years of age.

Since July 2009, the follow-up audiology and ENT services were funded as part of the Closing the Gap (CtG) initiatives of the Northern Territory National Partnership Agreement signed by the Australian and Northern Territory governments. Data reported in this indicator covers services provided under both the CHCI and CtG programs.

Analysis

Self-reported prevalence

Self-reported data from the National Aboriginal and Torres Strait Islander Social Survey (NATSISS) on the prevalence of diseases of the ear and mastoid are presented in Tables 1.15.1 to 1.15.4. Table 1.15.5 provides data using both the NATSIHS and NATSISS. Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) on the prevalence of diseases of the ear and mastoid are presented in Tables 1.15.6 and 1.15.7.

Prevalence by sex

- In 2008, ear or hearing problems were reported for approximately 9% of Indigenous children aged 0–14 years. Around 3% of children had total or partial hearing loss, and 3% of children had otitis media (Table 1.15.1).
- The prevalence was similar (around 9%) for both Indigenous males and females.

Table 1.15.1: Proportion of Indigenous children reporting ear/hearing problems, by sex, 2008

Type of ear/hearing problem	Males	Females	Australia
		Per cent	
Total has ear/hearing problems[(a)]	*8.6*	*8.7*	*8.6*
Total or partial hearing loss	2.8	2.7	2.8
Runny ears or glue ear (otitis media)	3.2	2.9	3.1
Other	2.5	2.9	2.7
Does not have ear/hearing problems	91.4	91.3	91.4
Total[(b)]	**100.0**	**100.0**	**100.0**
Total number	**97,460**	**94,083**	**191,543**
Not known	1.0[(a)]	0.8[(a)]	0.9

(a) Estimate has a relative standard error of between 25% and 50% and should be used with caution.

(b) Excludes not known responses.

Source: AIHW analyses of 2008 NATSISS.

Prevalence by state/territory

- The Northern Territory had the highest proportion of Indigenous children reporting ear and hearing problems (12%), followed by New South Wales (10%) (Table 1.15.2).
- Victoria had the lowest proportion of Indigenous children reporting ear and hearing problems (6%).

Table 1.15.2: Proportion of Indigenous children reporting ear/hearing problems, by state/territory, 2008

	NSW	Vic	Qld	WA	SA	Tas/ACT	NT	Aust.
				Per cent				
Type of ear/hearing problem								
Total has ear/hearing problems[(a)]	*9.6*	*5.6*	*6.9*	*9.0*	*7.8*	*7.8*	*12.1*	*8.6*
Total or partial hearing loss	2.6	1.2[(a)]	3.0[(a)]	2.3[(a)]	2.7[(a)]	2.8[(a)]	3.9	2.8
Runny ears or glue ear (otitis media)	4.2	1.7[(a)]	1.9[(a)]	4.7	2.0[(a)]	2.4[(a)]	2.7[(a)]	3.1
Other	2.7	2.6[(a)]	2.3[(a)]	1.6[(a)]	2.8[(a)]	2.6[(a)]	4.5	2.7
Does not have ear/hearing problems	90.4	94.4	93.1	91.0	92.2	92.2	87.9	91.4
Total[(c)]	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total number	**57,708**	**12,186**	**55,688**	**25,395**	**10,246**	**8,343**	**21,977**	**191,543**
Not known	1.0[(a)]	1.3[(a)]	1.0[(a)]	0.7[(a)]	0.5[(b)]	0.1[(b)]	0.5[(b)]	0.9

(a) Estimate has a relative standard error of between 25% and 50% and should be used with caution.

(b) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

(c) Excludes not known responses.

Source: AIHW analyses of 2008 NATSISS.

Prevalence by remoteness

Tables 1.15.3 and 1.15.4 present the proportion of Indigenous children with ear or hearing problems by remoteness. The type of ear or hearing problem is presented in Table 1.15.3 and the type of treatment received is presented in Table 1.15.4.

- In remote areas, 10% of Indigenous children aged 0–14 had some type of ear or hearing problem, compared with 8% in non-remote areas (Table 1.15.3).
- There was a significant difference between remote (4%) and non-remote (2%) areas for Indigenous children aged 0–14 years with total or partial hearing loss (Table 1.15.3).
- During 2008, in remote areas 23% of Indigenous children with an ear or hearing problem received treatment from a hearing specialist, compared with 40% in non-remote areas (Table 1.15.4).
- In remote areas, 16% of Indigenous children with ear or hearing problems did not receive treatment as it was either not sought, treatment was unavailable or too expensive. This is in comparison to 9% of Indigenous children with ear or hearing problems in non-remote areas of Australia (Table 1.15.4).

Table 1.15.3: Number and proportion of Indigenous children aged 0–14 years with reported ear or hearing problems, by type of ear or hearing problem and remoteness, 2008

	Non-remote		Remote		Australia	
Type of ear/hearing problem	**Number**	**Per cent**	**Number**	**Per cent**	**Number**	**Per cent**
Total or partial hearing loss	3,503	2.4*	1,780	3.9*	5,283	2.8
Runny ears or glue ear (otitis media)	4,701	3.2	1,147	2.5	5,848	3.1
Other[(a)]	4,052	2.8	1,796	4.0	5,848	3.1
Total has ear/hearing problems[(b)]	*11,833*	*8.1*	*4,644*	*10.3*	*16,478*	*8.6*
Does not have ear/hearing problems	134,581	91.9	40,485	89.7	175,065	91.4
Total[(c)]	**146,414**	**100.0**	**45,129**	**100.0**	**191,543**	**100.0**
Total number	**147,946**	**. .**	**45,303**	**. .**	**193,249**	**. .**
Not known	1,532	. .	174	. .	1,706	. .

* Represents results with statistically significant differences at the p < 0.05 level in the Indigenous/non-Indigenous comparisons.

(a) Comprises tinnitus, otitis (external) and other hearing problems n.f.d.

(b) Total will be less than the sum of the components as a child may have had more than one type of ear/hearing problem.

(c) Excludes not known responses.

Source: AIHW analyses of 2008 NATSISS.

Table 1.15.4: Proportion of Indigenous children reporting ear/hearing problems who received treatment, by remoteness, 2008

Type of treatment received	Non-remote	Remote	Australia
		Per cent	
Medication (including eardrops)	45.7	48.9	46.6
Checked by an ear or hearing specialist	40.3	22.9	35.4
Surgery	25.6	18.6	23.6
Other	16.0	10.9[(a)]	14.6
Total received treatment	*91.2*	*83.7*	*89.1*
No treatment sought/unable to afford treatment/no treatment available	8.8[(a)]	16.3	10.9
Total who have ear/hearing problems	**100.0**	**100.0**	**100.0**
Total number	**11,833**	**4,644**	**16,478**

(a) Estimate has a relative standard error of between 25% and 50% and should be used with caution.

Source: AIHW analyses of 2008 NATSISS.

Time series

- In 2008, prevalence of diseases of the ear and mastoid process was higher among Indigenous children aged 0–14 years in remote areas (11% males and 10% females) than those in non-remote areas (8% for both males and females) (Table 1.15.5).
- Overall, there has been slight decrease in the prevalence of ear and hearing problems among Indigenous children aged 0–14 years between 2001 and 2008, in both remote and non-remote areas. The decline in remote areas over this period for Indigenous males was from 18% to 11%, and for Indigenous females it was from 18% to 10%.

Table 1.15.5: Indigenous children aged 0–14 years with ear/hearing problems, by remoteness, 1995, 2001, 2004–05, and 2008

	1995[a]			2001			2004–05			2008		
	Males	**Females**	**Persons**	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
						Per cent						
Remote[b][c]	n.a.	n.a.	n.a.	17.5	17.9	17.7	12.0	13.3	12.6	10.5	10.1	10.3
Non-remote	7.2	4.5	5.9	6.4[d]	10.8	8.5	8.7	8.3	8.5	7.9	8.3	8.1
Total[c]	**n.a.**	**n.a.**	**n.a.**	**9.6**	**12.9**	**11.2**	**9.6**	**9.5**	**9.5**	**8.5**	**8.7**	**8.6**
Total no.	**54,392**	**52,401**	**106,793**	**90,615**	**85,878**	**176,493**	**92,767**	**87,902**	**180,699**	**97,731**	**93,812**	**191,543**

(a) Data for the National Aboriginal and Torres Strait Islander Health Survey 1995 are available for non-remote areas only.

(b) Difference between 2001 and 2008 male rates is statistically significant at the $p < 0.05$ level.

(c) Difference between 2001 and 2008 female rates is statistically significant at the $p < 0.05$ level.

(d) Estimate has a relative standard error between 25% and 50% and should be used with caution.

Source: ABS and AIHW analysis of 1995 & 2001 NHS (Indigenous supplement), 2004–05 NATSIHS; and 2008 NATSISS.

Prevalence by selected population and health characteristics

Tables 1.15.6 and 1.15.7 present the proportion of Indigenous children aged 0–14 years who had ear or hearing problems by selected demographic characteristics and risk factors using data from the 2004–05 NATSIHS.

- In 2004–05, approximately 10% of Indigenous children aged 0–14 years reported having ear or hearing problems compared with 3% of non-Indigenous children of the same age (Table 1.15.6).
- Diseases of the ear and mastoid were more prevalent among Indigenous children aged 5–14 years (12%) than among Indigenous children aged 0–4 years (6%) (Table 1.15.6).
- Complete or partial deafness/ hearing loss and otitis media were both more prevalent among Indigenous children than among non-Indigenous children. Approximately 5% of Indigenous children aged 0–14 years reported complete or partial hearing loss or deafness compared with 1% of non-Indigenous children. Approximately 4% of Indigenous children of the same age reported otitis media compared with 2% of non-Indigenous children. Otitis media is infection and inflammation of the middle ear space and eardrum. Symptoms include earache, fever and, in some cases, diminished hearing.
- In 2004–05, among Indigenous children aged 0–14 years, a higher proportion of those who lived in households with regular smokers who smoked indoors at home reported having ear and hearing problems than those who did not live with regular smokers who smoked indoors at home (13% compared with 8%) (Table 1.15.7).
- Indigenous children who lived in overcrowded households or in lowest SES group where more likely to have ear and hearing problems (both 15%) than Indigenous children who did not live in overcrowded households (8%) or were in highest SES group (11%)(Table 1.15.7).
- A higher proportion (21% and 14%) of Indigenous children aged 12–14 years who reported they did not eat vegetables daily and/or did not eat fruit daily reported ear and hearing problems than Indigenous children who did eat fruit and vegetables daily (both 8%)(Table 1.15.7).
- Approximately 11% of Indigenous children whose last consultation with a GP or specialist was less than 3 months ago reported ear and hearing problems compared with 8% of Indigenous children who whose last GP or specialist consultation was 3 or more months ago (Table 1.15.7).

Table 1.15.6: Children reporting diseases of the ear and mastoid, by Indigenous status and age group, Australia, 2004–05[a]

Age (years)	0–4		5–14		0–14	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
			Per cent			
Complete or partial deafness/ hearing loss	2[b]	1[b]	6*	2*	5*	1*
Otitis media	4*	2*[b]	5*	1*	4*	2*
Other diseases of the ear and mastoid	—[b]	—[c]	2[b]	1	1[b]	—
Total[d][e]	**6***	**2***	**12***	**3***	**10***	**3***
Total number	**60,183**	**1,198,038**	**120,486**	**2,561,973**	**180,669**	**3,760,010**

* Represents results with statistically significant differences at the $p < 0.05$ level in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05 and National Health Survey 2004–05.

(b) Estimates having a relative standard error of between 25% and 50% and should be used with caution.

(c) Estimate having a relative standard error greater than 50% are considered too unreliable for general use.

(d) Includes 'Type of ear/hearing problem' not known.

(e) Components may not add to total as persons may have reported more than one type of condition.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.

Table 1.15.7: Proportion of Indigenous children aged 0–14 years with ear/hearing problems, by selected demographic characteristics and risk factors, 2004–05

	Has ear/ hearing problems	Does not have ear/ hearing problems
	Per cent	
Lives in households with regular smokers		
Yes	10.4	89.6
No	8.0	92.0
Lives in households with regular smokers who smoke at home indoors		
Yes	13.0	87.0
No	8.3	91.7
Overcrowding in housing		
Yes	14.5	85.5
No	8.3	92.0
SEIFA—index of socioeconomic status (SES)		
Lowest SES	14.7	85.3
Highest SES	10.6	89.4
Eats vegetables daily[(a)]		
Yes	7.7	92.3
No	20.8	79.2
Eats fruit daily[(a)]		
Yes	7.8	92.2
No	13.8	86.2
Time since consulted GP/specialist		
Less than 3 months	11.0	89.0
3 months or more	8.4	91.6
Total (per cent)	**9.5**	**90.5**
Total number	**17,097**	**163,572**

(a) Children aged 12–14 years.

Source: AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Hospitalisations

- For the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, there were 56,614 hospitalisations from diseases of the ear and mastoid process among children aged 0–14 years, around 6% of which were hospitalisations of Aboriginal and Torres Strait Islander children.
- Diseases of the ear and mastoid process accounted for 5% of total hospitalisations among Indigenous children aged 0–14 years.
- Indigenous children aged 0–14 years were hospitalised for diseases of the ear and mastoid at 1.3 times the rate of non-Indigenous children. For Indigenous persons aged 15 years and over, the rate ratio was also 1.3.

Hospitalisations by state/territory

Age-standardised rates and ratios have been used for this indicator as a measure of morbidity in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of morbidity among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

Table 1.15.8 presents hospitalisations for diseases of the ear and mastoid process for children aged 0–14 years for the 2-year period July 2008 to June 2010 by state and territory.

- The Northern Territory had the highest hospitalisation rates of Indigenous children aged 0–14 for diseases of the ear and mastoid process, followed by Western Australia.
- Indigenous persons were hospitalised for diseases of the ear and mastoid process at higher rates than non-Indigenous persons in New South Wales, Queensland, Western Australia, the Northern Territory and the Australian Capital Territory. The highest rate ratio between Indigenous and non-Indigenous hospitalisations was observed in the Northern Territory, at 5.6 times. The lowest rate ratio was in South Australia, at 0.7 times (Table 1.15.8). The Northern Territory also had the largest rate difference.

Table 1.15.9 presents hospitalisations for diseases of the ear and mastoid process for children aged 15 years and over for the 2-year period July 2008 to June 2010 by state and territory.

- The Northern Territory had the highest hospitalisation rates of Indigenous persons aged 15 years and over for diseases of the ear and mastoid process, followed by South Australia.
- In all states/territories except for Victoria, Indigenous persons aged 15 years and over were hospitalised for diseases of the ear and mastoid process at higher rates than non-Indigenous persons of the same age. The highest rate ratio between Indigenous and non-Indigenous hospitalisations was observed in the Northern Territory, at 3.3 times. The lowest rate ratio was in Victoria, at 0.8 times (Table 1.15.9). The Northern Territory also had the largest rate difference.

Table 1.15.8: Hospitalisations for diseases of the ear and mastoid process, for children aged 0–14 years, by Indigenous status and sex and jurisdiction, July 2008–June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
NSW						
Males	417	6.9	9,462	7.1	1.0	–0.2
Females	321	5.6	6,109	4.8	1.2*	0.8*
Persons	738	6.2	15,571	6.0	1.0	0.3
Vic						
Males	78	6.0	8,291	8.0	0.8*	–1.9*
Females	64	5.0	5,818	5.9	0.9	–0.9
Persons	142	5.5	14,112	7.0	0.8*	–1.4*
Qld						
Males	493	8.3	6,216	7.2	1.2*	1.1*
Females	354	6.2	4,020	4.9	1.2*	1.2*
Persons	847	7.2	10,236	6.1	1.2*	1.1*
WA						
Males	369	13.8	3,699	8.6	1.6*	5.2*
Females	281	11.0	2,480	6.1	1.8*	4.9*
Persons	650	12.5	6,179	7.4	1.7*	5.1*
SA						
Males	104	9.7	4,126	14.3	0.7*	–4.6*
Females	65	6.3	2,820	10.2	0.6*	–3.9*
Persons	169	8.0	6,946	12.3	0.7*	–4.2*
NT						
Males	429	18.5	133	4.1	4.5*	14.4*
Females	390	17.9	72	2.4	7.6*	15.5*
Persons	819	18.2	205	3.3	5.6*	14.9*
NSW, Vic, Qld, WA, SA and NT[(h)]						
Males	**1,890**	**9.8**	**31,927**	**8.0**	**1.2***	**1.8***
Females	**1,475**	**8.0**	**21,319**	**5.6**	**1.4***	**2.4***
Persons	**3,365**	**8.9**	**53,249**	**6.8**	**1.3***	**2.1***
Tas						
Males	17	2.4	236	2.5	1.0	–0.1
Females	9	1.4	185	2.1	0.7	–0.7
Persons	26	1.9	422	2.3	0.8	–0.4

(continued)

Table 1.15.8 (continued): Hospitalisations for diseases of the ear and mastoid process, for children aged 0–14 years, by Indigenous status and sex and jurisdiction, July 2008–June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
ACT						
Males	7	4.5	192	2.9	1.6	1.7
Females	6	3.6	99	1.6	2.3	2.0
Persons	13	4.0	291	2.2	1.8*	1.8

* Represents results with statistically significant differences at the $p < 0.05$ level in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patient hospitalised.

(d) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+.

(e) Directly age-standardised using the Australian 2001 standard population.

(f) Rate ratio Indigenous: non-Indigenous.

(g) Rate difference Indigenous minus non-Indigenous.

(h) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Table 1.15.9: Hospitalisations for diseases of the ear and mastoid process, for persons aged 15 years and over, by Indigenous status and sex and jurisdiction, July 2008–June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
NSW						
Males	115	1.1	6,524	1.2	0.9	–0.1
Females	152	1.6	7,213	1.2	1.4*	0.4*
Persons	267	1.4	13,737	1.2	1.2*	0.2*
Vic						
Males	9	0.4	5,617	1.3	0.3*	–0.9*
Females	43	1.8	7,121	1.5	1.2	0.3
Persons	52	1.1	12,738	1.4	0.8	–0.3
Qld						
Males	122	1.3	5,214	1.5	0.9	–0.2
Females	196	2.2	6,048	1.7	1.3*	0.5*
Persons	318	1.8	11,262	1.6	1.1	0.2
WA						
Males	62	1.5	2,414	1.4	1.1	0.1
Females	100	2.2	2,566	1.4	1.6*	0.8*
Persons	162	1.9	4,980	1.4	1.3*	0.5*
SA						
Males	30	3.8	1,902	1.4	2.7*	2.4*
Females	42	2.2	2,463	1.7	1.3	0.5
Persons	72	2.7	4,365	1.5	1.8*	1.2*
NT						
Males	**111**	**2.8**	**116**	**1.0**	**3.0***	**1.9***
Females	200	3.6	94	0.9	4.0*	2.7*
Persons	311	3.1	210	0.9	3.3*	2.2*
NSW, Vic, Qld, WA, SA and NT[(h)]						
Males	**449**	**1.5**	**21,787**	**1.3**	**1.2***	**0.2***
Females	**733**	**2.2**	**25,505**	**1.4**	**1.5***	**0.7***
Persons	**1,182**	**1.9**	**47,292**	**1.4**	**1.3***	**0.5***
Tas						
Males	10	0.8	206	0.5	1.5	0.3
Females	10	0.6	301	0.7	0.8	–0.1
Persons	20	0.7	507	0.6	1.1	0.1

(continued)

Table 1.15.9 (continued): Hospitalisations for diseases of the ear and mastoid process, for persons aged 15 years and over, by Indigenous status and sex and jurisdiction, July 2008–June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
ACT						
Males	0	0.0	178	0.7	. .	–0.7*
Females	5	1.4	204	0.7	1.9	0.7
Persons	5	0.7	382	0.7	1.0	0.0

* Represents results with statistically significant differences at the p < 0.05 level in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patient hospitalised.

(d) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+.

(e) Directly age-standardised using the Australian 2001 standard population.

(f) Rate ratio Indigenous: non-Indigenous.

(g) Rate difference Indigenous minus non-Indigenous.

(h) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Table 1.15.10 presents hospitalisations for diseases of the ear and mastoid process for persons of all ages for the 2-year period July 2008 to June 2010.

- The Northern Territory had the highest hospitalisation rates of Indigenous persons for diseases of the ear and mastoid process, followed by Western Australia.
- In all states/territories except for Victoria, Indigenous persons were hospitalised for diseases of the ear and mastoid process at higher rates than non-Indigenous persons of the same age. The highest rate ratio between Indigenous and non-Indigenous person was observed in the Northern Territory, at 4.4 times. The lowest rate ratio was in Victoria and Australian Capital Territory, both at 0.8 times (Table 1.15.10).

Table 1.15.10: Hospitalisations for diseases of the ear and mastoid process, by Indigenous status and sex and jurisdiction, July 2008–June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
NSW						
Males	532	2.3	15,986	2.4	1.0	–0.1
Females	473	2.4	13,322	1.9	1.3*	0.5*
Persons	1,005	2.4	29,308	2.2	1.1*	0.2*
Vic						
Males	87	1.5	13,908	2.7	0.6*	–1.1*
Females	107	2.5	12,939	2.4	1.0	0.1
Persons	194	2.0	26,850	2.6	0.8*	–0.5*
Qld						
Males	615	2.8	11,430	2.7	1.0	0.1
Females	550	3.0	10,068	2.4	1.3*	0.6*
Persons	1,165	2.9	21,498	2.5	1.1*	0.4*
WA						
Males	431	4.0	6,113	2.9	1.4*	1.2*
Females	381	4.0	5,046	2.4	1.7*	1.6*
Persons	812	4.1	11,159	2.6	1.5*	1.4*
SA						
Males	134	5.0	6,028	4.1	1.2	0.9
Females	107	3.0	5,283	3.4	0.9	–0.4
Persons	241	3.8	11,311	3.7	1.0	0.1
NT						
Males	540	6.0	249	1.6	3.8*	4.4*
Females	590	6.6	166	1.2	5.4*	5.4*
Persons	1,130	6.2	415	1.4	4.4*	4.8*
NSW, Vic, Qld, WA, SA and NT[(h)]						
Males	**2,339**	**3.2**	**53,714**	**2.7**	**1.2***	**0.5***
Females	**2,208**	**3.4**	**46,824**	**2.3**	**1.5***	**1.1***
Persons	**4,547**	**3.3**	**100,541**	**2.5**	**1.3***	**0.8***
Tas						
Males	27	1.1	442	0.9	1.2	0.2
Females	19	0.8	486	1.0	0.8	–0.2
Persons	46	0.9	929	1.0	1.0	0

(continued)

Table 1.15.10 (continued): Hospitalisations for diseases of the ear and mastoid process, by Indigenous status and sex and jurisdiction, July 2008–June 2010[(a)(b)(c)(d)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(e)]	Number	Rate per 1,000[(e)]	Ratio[(f)]	Difference[(g)]
ACT						
Males	7	0.9	370	1.1	0.8	–0.2
Females	11	1.9	303	0.9	2.1*	1
Persons	18	1.4	673	1.0	1.4	0.4

* Represents results with statistically significant differences at the $p < 0.05$ level in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Financial year reporting.

(c) Data are reported by state/territory of usual residence of the patient hospitalised.

(d) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+.

(e) Directly age-standardised using the Australian 2001 standard population.

(f) Rate ratio Indigenous: non-Indigenous.

(g) Rate difference Indigenous minus non-Indigenous.

(h) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by age and principal diagnosis

- For the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were 1,274 hospitalisations for diseases of the ear and mastoid process among Indigenous children aged 0–4 years, and 2,091 hospitalisations for these diseases among those aged 5–14 years. This represented 3.0% and 8.1% of total hospitalisations among Indigenous children respectively (Table 1.15.11).
- While Indigenous children aged 0–4 years were less likely to be hospitalised for diseases of the ear and mastoid process than non-Indigenous children, Indigenous children aged 5–14 years were twice as likely as to be hospitalised for these diseases.
- The large majority of hospitalisations of Indigenous children for diseases of the ear and mastoid process were for diseases of the middle ear and mastoid, which includes otitis media. Indigenous children aged 5–14 were hospitalised for these diseases at twice the rate of non-indigenous children of the same age.

Hospitalisations for tympanoplasty procedures

For the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, rates of tympanoplasty procedures for hospitalisations with a principal diagnosis of otitis media were over 7 times higher for Indigenous children aged 0–14 years than for non-Indigenous children of the same age. Differences observed in hospitalisations from otitis media may be due to the chronic nature of the disease among Indigenous children resulting in greater damage to the eardrum.

Table 1.15.11: Hospitalisations for diseases of the ear and mastoid process, by Indigenous status, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

	Number		Per cent[(e)]		Indigenous			Non-Indigenous				
	Indig.	Non-Indig.	Indig.	Non-Indig.	No. per 1,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	No. per 1,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Rate ratio[(i)]	Rate difference[(j)]
Aged 0–4 years												
Diseases of middle ear and mastoid (H65–H75)	1,164	29,725	2.8	5.1	9.0	8.5	9.5	11.4	11.3	11.6	0.8*	–2.4*
Other disorders of ear (H90–H95)	56	1,448	0.1	0.2	0.4	0.3	0.5	0.6	0.5	0.6	0.8	–0.1*
Diseases of the external ear (H60–H62)	n.p.	515	n.p.	0.1	n.p.	0.3	0.5	0.2	0.2	0.2	n.p.	n.p.
Diseases of inner ear (H80–H83)	n.p.	39	n.p.	0.0	n.p.	0.0	0.0	0.0	0.0	0.0	n.p.	n.p.
Total	**1,274**	**31,727**	**3.0**	**5.4**	**9.9**	**9.3**	**10.4**	**12.2**	**12.1**	**12.3**	**0.8***	**–2.3***
Aged 5–14 years												
Diseases of middle ear and mastoid (H65–H75)	1,956	19,521	7.6	4.6	7.9	7.5	8.2	3.9	3.8	3.9	2.0*	4.0*
Other disorders of ear (H90–H95)	70	921	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.2	1.6*	0.1*
Diseases of the external ear (H60–H62)	n.p.	997	n.p.	0.2	n.p.	0.2	0.3	0.2	0.2	0.2	n.p.	n.p.
Diseases of inner ear (H80–H83)	n.p.	83	n.p.	0.0	n.p.	0.0	0.0	0.0	0.0	0.0	n.p.	n.p.
Total	**2,091**	**21,522**	**8.1**	**5.1**	**8.4**	**8.1**	**8.8**	**4.3**	**4.2**	**4.3**	**2.0***	**4.2***
Aged 0–14 years												
Diseases of middle ear and mastoid (H65–H75)	3,120	49,246	4.6	4.9	8.3	8.0	8.5	6.3	6.3	6.4	1.3*	1.9*
Other disorders of ear (H90–H95)	126	2,369	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.3	1.1	0.0
Diseases of the external ear (H60–H62)	113	1,512	0.2	0.2	0.3	0.2	0.4	0.2	0.2	0.2	1.5*	0.1*
Diseases of inner ear (H80–H83)	6	122	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Total	**3,365**	**53,249**	**5.0**	**5.3**	**8.9**	**8.6**	**9.2**	**6.8**	**6.8**	**6.9**	**1.3***	**2.1***

(continued)

Table 1.15.11 (continued): Hospitalisations for diseases of the ear and mastoid process, by Indigenous status, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

	Number		Per cent[(e)]		Indigenous			Non-Indigenous				
	Indig.	Non-Indig.	Indig.	Non-Indig.	No. per 1,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	No. per 1,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Rate ratio[(i)]	Rate difference[(j)]
Aged 15 years and over												
Diseases of middle ear and mastoid (H65–H75)	737	17,307	0.3	0.1	1.0	0.9	1.1	0.5	0.5	0.5	1.9*	0.5*
Other disorders of ear (H90–H95)	60	4,333	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.8	0.0
Diseases of the external ear (H60–H62)	243	9,447	0.1	0.1	0.4	0.4	0.5	0.3	0.3	0.3	1.5*	0.1*
Diseases of inner ear (H80–H83)	142	16,205	0.1	0.1	0.4	0.3	0.4	0.5	0.5	0.5	0.8*	–0.1*
Total	**1,182**	**47,292**	**0.4**	**0.4**	**1.9**	**1.7**	**2.0**	**1.4**	**1.4**	**1.4**	**1.3***	**0.5***
All ages												
Diseases of middle ear and mastoid (H65–H75)	3,857	66,553	1.2	0.5	2.5	2.4	2.6	1.7	1.7	1.7	1.4*	0.8*
Other disorders of ear (H90–H95)	186	6,702	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.9	0.0
Diseases of the external ear (H60–H62)	356	10,959	0.1	0.1	0.4	0.3	0.5	0.3	0.3	0.3	1.5*	0.1*
Diseases of inner ear (H80–H83)	148	16,327	0.0	0.1	0.3	0.2	0.3	0.4	0.4	0.4	0.8*	–0.1*
Total	**4,547**	**100,541**	**1.4**	**0.8**	**3.3**	**3.2**	**3.4**	**2.5**	**2.5**	**2.5**	**1.3***	**0.8***

(continued)

Table 1.15.11 (continued): Hospitalisations for diseases of the ear and mastoid process, by Indigenous status, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

* Represents a statistically significant difference at the p < 0.05 level in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification of Health 2010); ICD-10-AM codes H60–95.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised and are for New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland only. These six jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Proportion of total hospitalisations for Indigenous and non-Indigenous people in that age group for the period 2008–09 to 2009–10.

(f) Age specific rates for 0–4 and 5–14 years age groups. Age standardised rates for 0–14, 15 years and over and All ages, directly age standardised using the Australian 2001 standard population by five-year age groups to 75+.

(g) LCL = Lower confidence limit.

(h) UCL = Upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous.

(j) Rate difference Indigenous minus non-Indigenous.

Notes

1. Population estimates are based on the 2006 Census (series B for Indigenous).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by remoteness

Hospitalisation rates for diseases of the ear and mastoid process in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory are presented by Australian Standard Geographical Classification (ASGC) in Table 1.15.12, covering the period July 2008 to June 2010.

- Hospitalisation rates for diseases of the ear and mastoid process were highest for Indigenous children aged 0–14 years living in very remote areas (at 17.6 per 1,000) and lowest in major cities (6.1 per 1,000). The same pattern was evident for all Indigenous persons and Indigenous persons aged 15 years and over.
- Indigenous persons had higher hospitalisation rates for diseases of the ear and mastoid process than non-Indigenous persons for all remoteness areas except for major cities where the ratio was 0.9. In remote and very remote areas, Indigenous persons were hospitalised at more than twice the rate of non-Indigenous persons for these diseases.

Table 1.15.12: Hospitalisations for diseases of the ear and mastoid process by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous					
	Number	No. per 1,000[(g)]	LCL 95%[(h)]	UCL 95%[(i)]	Number	No. per 1,000[(g)]	LCL 95%[(h)]	UCL 95%[(i)]	Ratio[(j)]	Difference[(k)]
Persons aged 0–14 years										
Major cities	755	6.1	5.7	6.6	37,987	7.0	6.9	7.1	0.9*	–0.9*
Inner regional	645	7.8	7.2	8.4	10,436	7.0	6.8	7.1	1.1*	0.9*
Outer regional[(l)]	554	6.7	6.1	7.2	3,931	5.6	5.4	5.7	1.2*	1.1*
Remote[(m)]	450	13.0	11.8	14.2	647	5.6	5.2	6.0	2.3*	7.4*
Very remote	960	17.6	16.5	18.7	245	6.6	5.8	7.4	2.7*	11*
Total 0–14 years[(n)]	**3,365**	**8.9**	**8.6**	**9.2**	**53,249**	**6.8**	**6.8**	**6.9**	**1.3***	**2.1***
Persons aged 15 years and over										
Major cities	233	1.3	1.1	1.4	32,826	1.4	1.4	1.4	0.9	–0.1
Inner regional	221	1.8	1.6	2.1	9,531	1.4	1.4	1.4	1.3*	0.4*
Outer regional[(l)]	220	1.6	1.4	1.9	4,120	1.3	1.3	1.4	1.2*	0.3*
Remote[(m)]	201	2.9	2.5	3.4	618	1.5	1.4	1.6	2.0*	1.5*
Very remote	306	2.4	2.1	2.7	183	1.4	1.2	1.6	1.8*	1*
Total 15 years and over[(n)]	**1,182**	**1.8**	**1.7**	**1.9**	**47,292**	**1.4**	**1.4**	**1.4**	**1.3***	**0.4***

(continued)

Table 1.15.12 (continued): Hospitalisations by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous					
	Number	No. per 1,000[(g)]	LCL 95%[(h)]	UCL 95%[(i)]	Number	No. per 1,000[(g)]	LCL 95%[(h)]	UCL 95%[(i)]	Ratio[(j)]	Difference[(k)]
					All persons					
Major cities	988	2.3	2.1	2.4	70,813	2.5	2.5	2.6	0.9*	–0.3*
Inner regional	866	3.1	2.8	3.3	19,967	2.5	2.5	2.6	1.2*	0.5*
Outer regional[(l)]	774	2.7	2.4	2.9	8,051	2.2	2.2	2.2	1.2*	0.5*
Remote[(m)]	651	5.0	4.5	5.4	1,265	2.3	2.2	2.4	2.2*	2.7*
Very remote	1,266	5.5	5.2	5.9	428	2.5	2.2	2.7	2.3*	3.1*
Total all ages[(n)]	**4,547**	**3.3**	**3.2**	**3.4**	**100,541**	**2.5**	**2.5**	**2.5**	**1.3***	**0.8***

* Indicates a significant difference at the p <0.05 level.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification of Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(e) Directly age-standardised using the Australian 2001 standard population, by 5 year age groups to 65+.

(f) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(g) Directly age-standardised using the Australian 2001 standard population by five-year age groups to 65+.

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio Indigenous: non-Indigenous.

(k) Rate difference Indigenous- non-Indigenous.

(l) Includes remote Victoria.

(m) Excludes remote Victoria.

(n) Total includes hospitalisations where ASGC is missing.

Notes

1. Rates are calculated using the remoteness distribution by Indigenous status, age and sex based on the 2006 ERP and applied to the 2008–10 population projections (Series B) based on the 2006 Census.
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data from 1998–99 to 2009–10 are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations over this period—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population (Table 1.15.13).

Additional trend analysis has also been presented for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined from 2004–05 to 2009–10 for Indigenous and non-Indigenous Australians. New South Wales and Victoria have been assessed as having adequate identification of Indigenous hospitalisations from 2004–05. These six jurisdictions represent approximately 96% of the Indigenous population of Australia.

Diseases of the ear and mastoid process—1998–99 to 2009–10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for diseases of the ear and mastoid process over the period of 1998–99 to 2009–10 are presented in Table 1.15.13 and Figure 1.15.1. Data are presented for children aged 0–14; persons aged 15 years and over, and all persons.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there was no significant change in hospitalisation rates for diseases of the ear and mastoid process for Indigenous persons aged 0–14, 15 years and over or all ages during the period 1998–99 to 2009–10.
- Over the same period, there were significant declines in hospitalisation rates for diseases of the ear and mastoid process among non-Indigenous persons (20% decline for children aged 0–14; and 12% decline for all ages), resulting in a significant increase in the gap, as measured by the rate ratio and rate difference.

Note that changes in the level of accuracy of Indigenous identification in hospital records will result in changes in the level of reported hospital separations for Indigenous Australians, as will changes in access, hospital policies and practices over time. Caution should be used in interpreting changes over time, as it is not possible to ascertain whether a change in reported hospitalisation is due to changes in the accuracy of Indigenous identification or real changes in the rates at which Indigenous people are hospitalised. An increase in hospitalisation rates may also reflect increased use of admitted patient hospital services rather than a worsening of health.

Table 1.15.13: Age-standardised hospitalisation rates, rate ratios and rate differences from diseases of the ear and mastoid process, by age group, Qld, WA, SA and NT, 1998–99 to 2009–10[a]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[b]	Per cent change[c]
								0–14 years						
Indigenous separations														
Males	556	568	574	520	469	532	490	504	472	511	688	707	7	14.7
Females	466	459	446	484	411	434	417	389	384	416	564	526	3	6.7
Persons	1,022	1,027	1,020	1,004	880	966	907	893	856	927	1,252	1,233	10	11
Non-Indigenous separations														
Males	7,257	7,235	7,348	6,968	6,907	6,790	6,842	6,821	6,534	6,575	7,387	6,787	–41	–6.1
Females	4,910	5,069	5,085	4,821	4,576	4,554	4,513	4,475	4,461	4,411	4,889	4,503	–45*	–10.2*
Persons	12,167	12,304	12,433	11,789	11,483	11,344	11,355	11,296	10,995	10,986	12,276	11,290	–86*	–7.8*
Indigenous rate per 1,000														
Males	9.9	10.1	10.0	8.9	8.0	9.0	8.3	8.5	7.9	8.6	11.5	11.7	0.1	7.2
Females	9.0	8.8	8.3	8.9	7.4	7.8	7.4	6.9	6.8	7.3	9.9	9.1	0.0	–3.4
Persons	9.5	9.4	9.2	8.9	7.7	8.4	7.9	7.7	7.4	7.9	10.7	10.4	0.0	2.1
Non-Indigenous rate per 1,000														
Males	10.2	10.1	10.3	9.7	9.6	9.4	9.4	9.2	8.7	8.5	9.2	8.3	–0.2*	–18.2*
Females	7.3	7.5	7.5	7.1	6.7	6.6	6.5	6.4	6.2	6.0	6.5	5.8	–0.1*	–21.4*
Persons	8.8	8.8	8.9	8.4	8.2	8.1	8.0	7.8	7.5	7.3	7.9	7.1	–0.2*	–19.5*
Rate ratio[d]														
Males	1.0	1.0	1.0	0.9	0.8	1.0	0.9	0.9	0.9	1.0	1.2	1.4	0.03*	30.0*
Females	1.2	1.2	1.1	1.3	1.1	1.2	1.1	1.1	1.1	1.2	1.5	1.6	0.0	20.4
Persons	1.1	1.1	1.0	1.1	0.9	1.0	1.0	1.0	1.0	1.1	1.4	1.5	0.02*	25.1*

(continued)

Table 1.15.13 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences from diseases of the ear and mastoid process, by age group, Qld, WA, SA and NT, 1998–99 to 2009–10[a]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[b]	Per cent change[c]
Rate difference[e]														
Males	–0.3	–0.1	–0.3	–0.8	–1.6	–0.4	–1.1	–0.7	–0.7	0.1	2.3	3.4	0.2*	–991.7*
Females	1.7	1.3	0.8	1.8	0.7	1.1	0.9	0.5	0.5	1.3	3.4	3.3	0.1	71.3
Persons	0.7	0.6	0.3	0.4	–0.5	0.4	–0.1	–0.1	–0.1	0.7	2.8	3.4	0.2*	263.2*
							15 years and over							
Indigenous separations														
Males	103	116	94	113	94	106	109	109	118	169	155	170	5.9*	63.0*
Females	185	208	169	180	185	216	205	212	241	265	284	254	8.7*	51.8*
Persons	288	324	263	293	279	322	314	321	359	434	439	424	14.6*	55.8*
Non-Indigenous separations														
Males	4,012	3,979	4,043	4,039	3,928	4,101	4,147	4,412	4,342	4,641	4,688	4,958	83.9*	23.0*
Females	4,295	4,276	4,282	4,525	4,357	4,711	4,689	5,159	5,139	5,255	5,550	5,621	134.0*	34.3*
Persons	8,307	8,255	8,325	8,564	8,285	8,812	8,836	9,572	9,481	9,896	10,238	10,579	217.9*	28.8*
Indigenous rate per 1,000														
Males	1.3	1.8	1.3	1.5	1.1	1.5	1.3	1.1	1.3	2.2	1.5	2.3	0.0	37.9
Females	2.5	2.6	2.0	2.1	2.1	2.3	2.4	2.3	2.5	2.7	2.7	2.3	0.0	10.7
Persons	1.9	2.2	1.6	1.8	1.7	1.9	1.9	1.8	1.9	2.5	2.1	2.3	0.0	18.9
Non-Indigenous rate per 1,000														
Males	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.5	1.4	1.5	1.4	1.5	–0.01*	–5.6*
Females	1.6	1.6	1.5	1.6	1.5	1.6	1.5	1.6	1.6	1.6	1.6	1.6	0.0	4.9
Persons	1.6	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.6	0.0	–0.2

(continued)

Table 1.15.13 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences from diseases of the ear and mastoid process, by age-group, Qld, WA, SA and NT, 1998–99 to 2009–10[a]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[b]	Per cent change[c]
Rate ratio[d]														
Males	0.9	1.2	0.8	1.0	0.8	1.0	0.9	0.8	0.9	1.5	1.0	1.6	0.0	46.7
Females	1.6	1.7	1.3	1.4	1.4	1.5	1.6	1.4	1.6	1.7	1.6	1.4	0.0	6.2
Persons	1.2	1.4	1.1	1.2	1.1	1.3	1.3	1.1	1.3	1.6	1.4	1.5	0.0	19.7
Rate difference[e]														
Males	–0.2	0.2	–0.3	0.0	–0.3	0.1	–0.1	–0.3	–0.1	0.7	0.1	0.8	0.1	–271.6
Females	0.9	1.0	0.5	0.6	0.7	0.8	0.9	0.7	0.9	1.2	1.0	0.7	0.0	21.4
Persons	0.4	0.6	0.1	0.3	0.2	0.4	0.4	0.2	0.4	0.9	0.6	0.7	0.0	103.0
							All ages							
Indigenous separations														
Males	659	684	668	633	563	638	599	613	590	680	843	877	13.3	22.2
Females	651	667	615	664	596	650	622	601	625	681	848	780	11.5*	19.5*
Persons	1,310	1,351	1,283	1,297	1,159	1,288	1,221	1,214	1,215	1,361	1,691	1,657	24.9*	20.9*
Non-Indigenous separations														
Males	11,269	11,214	11,391	11,007	10,835	10,891	10,989	11,233	10,876	11,216	12,075	11,745	43.3	4.2
Females	9,205	9,345	9,367	9,346	8,933	9,265	9,202	9,634	9,600	9,666	10,439	10,124	88.7*	10.6*
Persons	20,474	20,559	20,758	20,353	19,768	20,156	20,191	20,868	20,476	20,882	22,514	21,869	132.0*	7.1*
Indigenous rate per 1,000														
Males	3.1	3.5	3.1	3.0	2.5	3.0	2.8	2.6	2.6	3.5	3.5	4.3	0.1	17.8
Females	3.8	3.9	3.3	3.5	3.2	3.5	3.4	3.3	3.4	3.7	4.2	3.7	0.0	3.9
Persons	3.5	3.7	3.2	3.3	2.9	3.3	3.1	3.0	3.1	3.6	3.9	3.9	0.0	9.5

(continued)

Table 1.15.13 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences from diseases of the ear and mastoid process, by age-group, Qld, WA, SA and NT, 1998–99 to 2009–10[a]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[b]	Per cent change[c]
Non-Indigenous rate per 1,000														
Males	3.3	3.3	3.3	3.2	3.1	3.1	3.1	3.1	2.9	2.9	3.0	2.9	–0.04*	–13.5*
Females	2.8	2.8	2.7	2.7	2.5	2.6	2.5	2.6	2.5	2.5	2.6	2.5	–0.02*	–9.4*
Persons	3.1	3.0	3.0	2.9	2.8	2.8	2.8	2.8	2.7	2.7	2.8	2.7	–0.03*	–11.6*
Rate ratio[d]														
Males	0.9	1.1	0.9	1.0	0.8	1.0	0.9	0.9	0.9	1.2	1.2	1.5	0.03*	36.3*
Females	1.4	1.4	1.2	1.3	1.3	1.3	1.4	1.2	1.3	1.5	1.6	1.5	0.02*	14.0*
Persons	1.1	1.2	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.3	1.4	1.5	0.02*	23.4*
Rate difference[e]														
Males	–0.2	0.2	–0.3	–0.1	–0.6	0.0	–0.3	–0.4	–0.3	0.6	0.5	1.4	0.1*	439.4*
Females	1.1	1.1	0.5	0.8	0.7	0.8	0.9	0.7	0.9	1.2	1.5	1.2	0.0	38.3
Persons	0.4	0.6	0.2	0.3	0.1	0.4	0.3	0.2	0.3	0.9	1.0	1.3	0.1*	158.1*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2009–10.

(a) Data are reported by state/territory of usual residence of the patient hospitalised. Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(c) Per cent change between 1998–99 and 2009–10 based on the average annual change over the period.

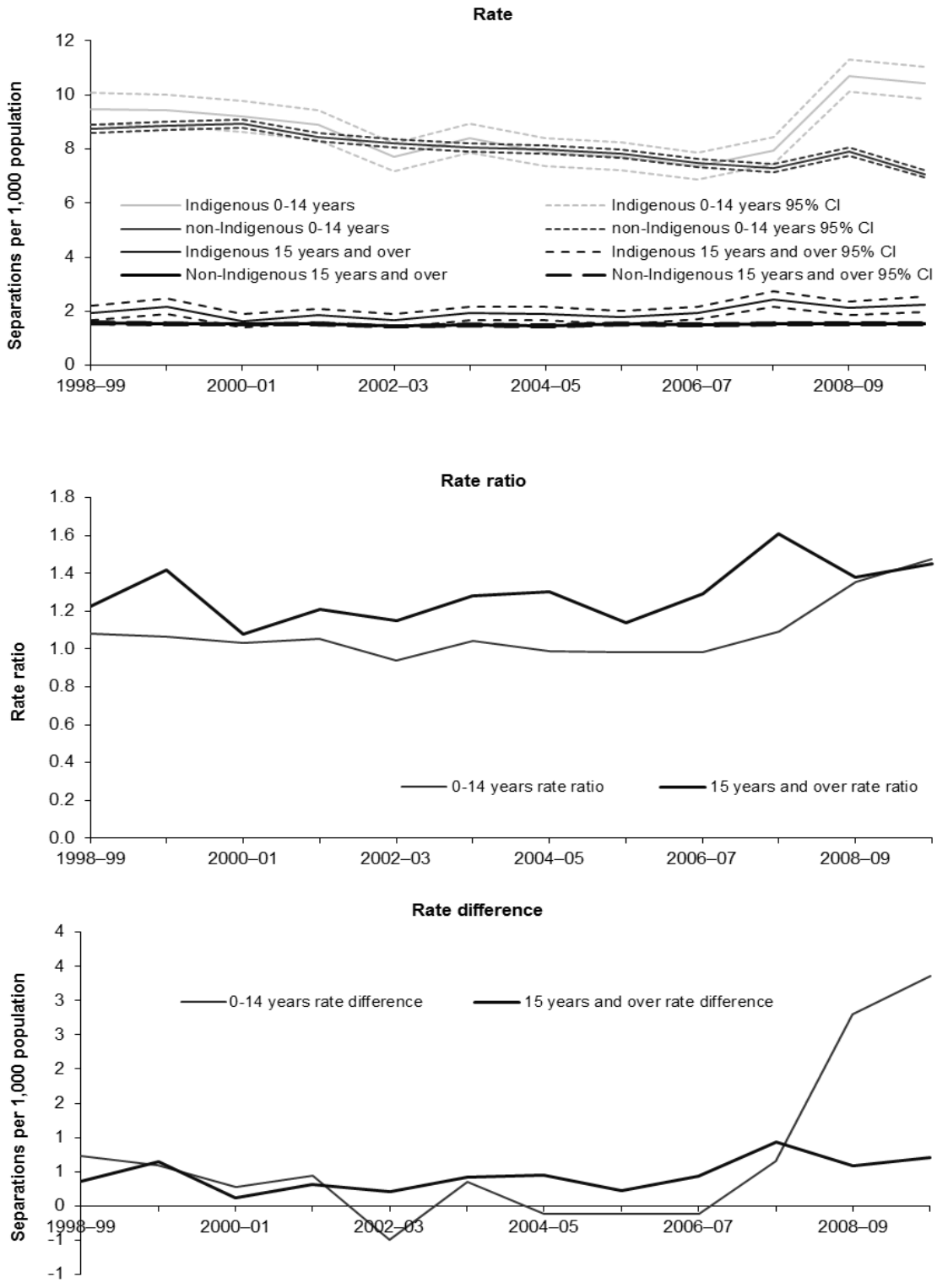
(d) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(e) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.15.1: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous persons aged 0–14years and 15 years and over from diseases of the ear and mastoid process, Qld, WA, SA and NT, 1998–99 to 2009–10

Diseases of the ear and mastoid process—2004–05 to 2009–10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for diseases of the ear and mastoid process over the 6-year period 2004–05 to 2009–10 are presented in Table 1.15.14 and Figure 1.15.2. Data are presented for children aged 0–14; persons aged 15 years and over, and all persons.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there was a significant increases in hospitalisation rates for diseases of the ear and mastoid process among Indigenous children aged 0–14 years, for both males and females during the period 2004–05 to 2009–10. Overall, there was an average yearly increase in the rate of around 0.4 per 1,000 population, which was equivalent to a 32% increase in the rate over the period.
- Over the same period, there was a significant increase in hospitalisation rates for diseases of the ear and mastoid process among Indigenous Australians aged 15 years and over of 21%. The increase was significant for males but not for females.
- Between 2004–05 and 2009–10, there was no significant change in hospitalisation rates for diseases of the ear and mastoid process among non-Indigenous persons aged 0–14 years or 15 years and over. This resulted in a significant increase in the gap between Indigenous and non-Indigenous hospitalisation rates as measured by the rate ratio and rate difference.

Note that changes in the level of accuracy of Indigenous identification in hospital records will result in changes in the level of reported hospital separations for Indigenous Australians, as will changes in access, hospital policies and practices over time. Caution should be used in interpreting changes over time, as it is not possible to ascertain whether a change in reported hospitalisation is due to changes in the accuracy of Indigenous identification or real changes in the rates at which Indigenous people are hospitalised. An increase in hospitalisation rates may also reflect increased use of admitted patient hospital services rather than a worsening of health.

Table 1.15.14: Age-standardised hospitalisation rates, rate ratios and rate differences from diseases of the ear and mastoid process, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[(a)]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(b)]	Per cent change[(c)]
				0–14 years				
Indigenous separations								
Males	720	722	718	768	922	968	54*	37.5*
Females	594	563	563	607	750	725	36*	30.3*
Persons	1,314	1,285	1,281	1,375	1672	1693	90*	34.2*
Non-Indigenous Australian separations								
Males	16,264	15,406	14,721	15,143	16,318	15,609	–3	–0.1
Females	10,665	10,263	9,908	10,099	11032	10287	17	0.8
Persons	26,929	25,669	24,629	25,242	27350	25899	14	0.3
Indigenous rate (separations per 1,000)								
Males	7.6	7.6	7.5	8.0	9.6	9.9	0.5*	34.8*
Females	6.5	6.2	6.2	6.6	8.2	7.8	0.4*	27.9*
Persons	7.1	6.9	6.8	7.3	8.9	8.9	0.4*	31.7*
Non-Indigenous Australian rate (separations per 1,000)								
Males	8.7	8.2	7.7	7.8	8.2	7.7	–0.1	–7.8
Females	6.0	5.8	5.5	5.5	5.9	5.4	–0.1	–6.6
Persons	7.4	7.0	6.6	6.7	7.1	6.6	–0.1	–7.3
Rate ratio[(d)]								
Males	0.9	0.9	1.0	1.0	1.2	1.3	0.1*	47.3*
Females	1.1	1.1	1.1	1.2	1.4	1.5	0.1*	37.5*
Persons	1.0	1.0	1.0	1.1	1.3	1.4	0.1*	42.9*
Rate difference[(e)]								
Males	–1.2	–0.6	–0.2	0.2	1.3	2.2	0.7*	285.1*
Females	0.5	0.4	0.7	1.1	2.3	2.5	0.4*	429.4*
Persons	–0.3	–0.1	0.2	0.6	1.8	2.3	0.6*	804.4*
				15 years and over				
Indigenous separations								
Males	156	153	162	213	216	233	17.9*	57.2*
Females	288	277	320	331	380	353	18.4*	32.0*
Persons	444	430	482	544	596	586	36.3*	40.9*
Non-Indigenous Australian separations								
Males	9,699	10,270	10,218	10,491	10,675	11,112	244.4*	12.6*
Females	11,284	12,118	11,852	12,185	12439	13066	291.6*	12.9*
Persons	20,983	22,389	22,070	22,676	23114	24178	535.9*	12.8*

(continued)

Table 1.15.14 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences from diseases of the ear and mastoid process, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[a]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[b]	Per cent change[c]
Indigenous rate (separations per 1,000)								
Males	1.2	1.1	1.1	1.6	1.3	1.7	0.1*	45.8*
Females	2.0	1.9	2.1	2.1	2.3	2.1	0.0	9.8
Persons	1.6	1.5	1.6	1.9	1.8	1.9	0.1*	20.9*
Non-Indigenous Australian rate (separations per 1,000)								
Males	1.3	1.3	1.3	1.3	1.3	1.3	0.0	0.5
Females	1.4	1.5	1.4	1.4	1.4	1.5	0.0	1.7
Persons	1.3	1.4	1.4	1.4	1.4	1.4	0.0	1.1
Rate ratio[d]								
Males	0.9	0.8	0.9	1.2	1.0	1.3	0.1*	44.2*
Females	1.4	1.3	1.5	1.5	1.6	1.4	0.0	7.9
Persons	1.2	1.1	1.2	1.4	1.3	1.4	0.05*	19.2*
Rate difference[e]								
Males	–0.1	–0.3	–0.2	0.3	0.0	0.4	0.1*	586.7*
Females	0.6	0.5	0.7	0.7	0.8	0.6	0.0	27.9
Persons	0.3	0.1	0.3	0.5	0.4	0.5	0.1*	113.3*
				All ages				
Indigenous separations								
Males	876	875	880	981	1138	1201	71.9*	41.0*
Females	882	840	883	938	1130	1078	54.4*	30.9*
Persons	1,758	1,715	1,763	1,919	2268	2279	126.3*	35.9*
Non-Indigenous Australian separations								
Males	25,963	25,676	24,939	25,634	26,993	26,721	241.0	4.6
Females	21,949	22,381	21,760	22,284	23471	23353	309.0*	7.0*
Persons	47,912	48,058	46,699	47,918	50464	50077	550.3*	5.7*
Indigenous rate (separations per 1,000)								
Males	2.5	2.4	2.4	2.9	3.0	3.4	0.2*	39.0*
Females	3.0	2.8	2.9	3.1	3.5	3.3	0.1*	18.0*
Persons	2.8	2.6	2.7	3.0	3.3	3.3	0.1*	26.6*
Non-Indigenous Australian rate (separations per 1,000)								
Males	2.8	2.7	2.6	2.6	2.7	2.6	0.0	–4.8
Females	2.4	2.4	2.2	2.3	2.3	2.3	0.0	–2.7
Persons	2.6	2.6	2.4	2.5	2.5	2.5	0.0	–3.9
Rate ratio[d]								
Males	0.9	0.9	0.9	1.1	1.1	1.3	0.1*	46.4*
Females	1.3	1.2	1.3	1.4	1.5	1.4	0.1*	21.1*
Persons	1.1	1.0	1.1	1.2	1.3	1.4	0.1*	31.7*

(continued)

Table 1.15.14 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences from diseases of the ear and mastoid process, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[a]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[b]	Per cent change[c]
Rate difference[e]								
Males	–0.3	–0.3	–0.2	0.3	0.3	0.8	0.2*	356.2*
Females	0.6	0.5	0.7	0.8	1.1	1.0	0.1*	98.6*
Persons	0.2	0.1	0.3	0.5	0.7	0.9	0.2*	522.6*

* Represents results with statistically significant increases or declines at the p < 0.05 level over the period 2004–05 to 2009–10.

(a) Data are reported by state/territory of usual residence of the patient hospitalised. Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(c) Per cent change between 2004–05 and 2009–10 based on the average annual change over the period.

(d) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(e) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

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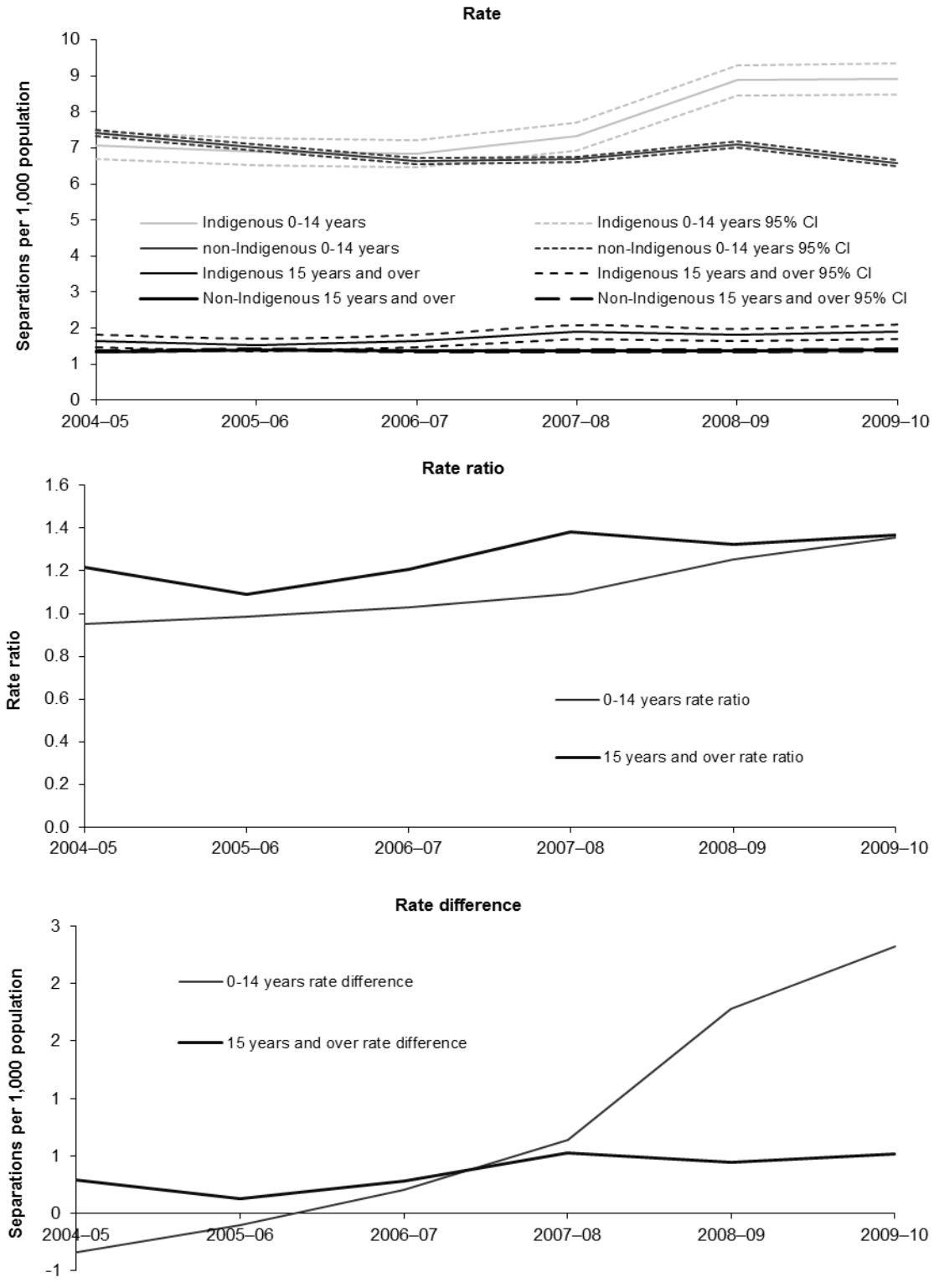

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.15.2: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous persons aged 0–14 years and 15 years and over from diseases of the ear and mastoid process, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10

Deadly Ears

Deadly Ears is a Queensland state-wide Aboriginal and Torres Strait Islander Ear Health Program targeting the prevention and management of ear disease and its associated impacts in Aboriginal and Torres Strait Islander children.

- In 2007–11, 33% of Indigenous children aged 0–4 years and 41% of Indigenous children aged 5–14 years reporting to Deadly Ears outreach clinics were assessed as having bilateral hearing loss (Table 1.15.15).
- In 2011, 25% of Indigenous children aged 0–4 years and 11% of Indigenous children aged 5–14 years reporting to Deadly Ears outreach clinics had Chronic suppuratives otitis media (Table 1.15.16).

Table 1.15.15: Proportion of Deadly Ears program clients by hearing loss and age group, 2007–2011

	Clients	Hearing within normal limits	Unilateral hearing loss	Bilateral hearing loss
Year	Number	Per cent	Per cent	Per cent
		0–4 years		
2007	n.a.	n.a.	n.a.	n.a.
2008	42	45	17	38
2009	117	59	14	26
2010	127	41	13	43
2011	120	64	7	28
Total	406	53	12	33
		5–14 years		
2007	n.a.	n.a.	n.a.	n.a.
2008	96	39	22	38
2009	238	38	23	39
2010	241	31	20	49
2011	354	41	21	38
Total	929	37	21	41

Source: Deadly Ears Program data.

Table 1.15.16: Proportion of Deadly Ears program clients with otitis media, by age, 2007–2011

	Clients	Chronic supporative otitis media	Otitis media
Year	Number	Per cent	Per cent
		0–4 years	
2008	183	21.5	43.2
2009	230	24.0	39.5
		5–14 years	
2008	394	19.0	24.7
2009	541	21.5	28.8

Source: Deadly Ears program data.

General practitioner encounters with children

Information about general practitioner (GP) encounters is available from the BEACH survey. Information is collected from a random sample of approximately 1,000 general practitioners from across Australia each year. A sample of 100 consecutive encounters is collected from each GP. Data for the 5-year BEACH reporting period April 2006–March 2007 to April 2010–March 2011 are presented in Table 1.15.17.

- In the period April 2006–March 2007 to April 2010–March 2011, ear and hearing problems were responsible for 9.5% of total problems managed among Indigenous patients aged 0–14 years and 8.5% of total problems managed among other patients of the same age.
- Ear and hearing problems were managed at GP encounters with Indigenous children aged 0–14 at a rate of 117.7 per 1,000 and with other children aged 0–14 at a rate of 99.7 per 1,000.
- Acute otitis media/myringitis was the most common ear and hearing problem managed at GP encounters with Indigenous children, responsible for 6.1% of total problems managed among Indigenous patients aged 0–14 years. It made up a greater proportion of problems managed in the 0–4 year age group (7.6%).
- Acute otitis media/myringitis, other infections of the ear and hearing loss were managed at GP encounters with Indigenous children at similar rates to other children.

Table 1.15.17: Ear and hearing problems[a] managed by general practitioners among children aged 1–14 years (by age group), by Indigenous status of patient, BEACH years April 2006–March 2007 to April 2010–March 2011[b][c]

	Number		Per cent total problems[d]		Indigenous			Other[e]				
	Indig.	Other[e]	Indig.	Other[e]	Rate per 1,000 encounters[f]	95% LCL[g]	95% UCL[h]	Rate per 1,000 encounters[f]	95% LCL[g]	95% UCL[h]	Rate ratio[i]	Rate difference[j]
0–4 years (Indigenous n = 780; Non-Indigenous n = 35,073)												
Acute otitis media/ myringitis	59	2,395	7.6	6.8	93.7	67.6	119.7	80.5	76.6	84.3	1.2	13.2
Other infections of ear	13	374	1.7	1.1	20.6	8.2	33.1	12.6	11.1	14.0	1.6	8.0
Subtotal infections of ear	*72*	*2,769*	*9.2*	*7.9*	*114.3*	*88.1*	*140.5*	*93.0*	*88.9*	*97.1*	*1.2*	*21.3*
Hearing loss	0	14	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.7	0.0	–0.5
Other diseases of the ear	10	386	1.3	1.1	15.9	5.5	26.3	13.0	11.6	14.4	1.2	2.9
Total ear problems	**82**	**3,169**	**10.5**	**9.0**	**130.2**	**101.8**	**158.5**	**106.5**	**102.1**	**110.8**	**1.2**	**23.7**
5–14 years (Indigenous n = 678; Non-Indigenous n = 28,905)												
Acute otitis media/ myringitis	30	1,212	4.4	4.2	54.4	33.5	75.4	49.2	46.3	52.1	1.1	5.2
Other infections of ear	12	638	1.8	2.2	21.8	9.2	34.3	25.9	23.6	28.2	0.8	–4.1
Subtotal infections of ear	*42*	*1,850*	*6.2*	*6.4*	*76.2*	*53.3*	*99.2*	*75.1*	*71.5*	*78.8*	*1.0*	*1.1*
Hearing loss	1	24	0.1	0.1	1.8	0.0	5.4	1.0	0.6	1.4	1.8	0.8
Other diseases of the ear	14	379	2.1	1.3	25.4	10.1	40.7	15.4	13.8	16.9	1.6	10.0
Total ear problems	**57**	**2,253**	**8.4**	**7.8**	**103.4**	**72.6**	**134.3**	**91.5**	**87.5**	**95.5**	**1.1**	**11.9**

(continued)

Table 1.15.17 (continued): Ear and hearing problems[a] managed by general practitioners, by Indigenous status of patient, BEACH years April 2006–March 2007 to April 2010–March 2011[b][c]

	Number		Per cent total problems[d]		Indigenous			Other[e]				
	Indig.	Other[e]	Indig.	Other[e]	Rate per 1,000 encounters[f]	95% LCL[g]	95% UCL[h]	Rate per 1,000 encounters[f]	95% LCL[g]	95% UCL[h]	Rate ratio[i]	Rate difference[j]
0–14 years (Indigenous n = 1,458; Non-Indigenous n = 63,978)												
Acute otitis media/ myringitis	89	3,607	6.1	5.6	75.4	58.8	91.9	66.3	63.7	68.9	1.1	9.1
Other infections of ear	25	1,012	1.7	1.6	21.2	12.6	29.8	18.6	17.3	19.9	1.1	2.6
Subtotal infections of ear	*114*	*4,619*	*7.8*	*7.2*	*96.5*	*80.2*	*112.9*	*84.9*	*82.0*	*87.8*	*1.1*	*11.6*
Hearing loss	1	38	0.1	0.1	0.8	0.0	2.5	0.7	0.5	0.9	1.1	0.1
Other diseases of the ear	24	765	1.6	1.2	20.3	11.1	29.5	14.1	13.0	15.1	1.4	6.2
Total ear problems	**139**	**5,422**	**9.5**	**8.5**	**117.7**	**98.4**	**137.0**	**99.7**	**96.6**	**102.8**	**1.2**	**18.0**

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) ICPC–2 codes: H00–H99. Acute otitis media/myringitis = H71; other ear infections = H70, H72, H73, H74; hearing loss = H28, H84, H85, H86; other diseases of the ear = H01–H27, H29–H69, H75–H83, H87–H99.

(b) Data from five combined BEACH years April 2006–March 2007 to April 2010–March 2011 inclusive.

(c) Data for Indigenous and other Australians have not been weighted.

(d) Per cent of total problems within age group.

(e) 'Other' includes non-Indigenous patients and patients for whom Indigenous status was not stated.

(f) Age-specific rate (no. per 100 encounters). Figures do not add to 100 as more than one problem can be managed at each encounter.

(g) LCL = lower confidence interval.

(h) UCL = upper confidence interval.

(i) Rate ratio Indigenous: Other.

(j) Rate difference Indigenous rate minus Other (non-Indigenous) rate.

Source: Family Medicine Research Centre, University of Sydney analysis of BEACH data.

Child hearing screening in the Northern Territory

Table 1.15.18 presents data derived from the Northern Territory Child Health Check Initiative audiology and ENT follow-up services data collections. Services include audiology services provided between August 2007 and June 2012, and ENT services provided between August 2007 and December 2010 as part of Child Health Check Initiative /Closing the Gap Program (CHCI (CtG)).

- During the course of the CHCI (CtG) Program, a total of 5,474 children received ENT consultations or audiology services. At least one type of middle ear condition was diagnosed in around 67% of children who received an audiology or ENT service. The most common middle ear condition was OME (26.1% of children), followed by dry perforation (14.5%) and CSOM (12.3%). Eleven per cent of children were diagnosed with eustachian tube dysfunction (ETD) and 6.9% were diagnosed with AOM (Table 1.15.18).

Table 1.15.18: Type of middle ear condition[(a)], Indigenous children in prescribed areas of the Northern territory who received an audiology or ENT service

Type of middle ear condition	Number	Per cent
At least one type of middle ear condition[(b)]	3,650	66.7
Otitis media with effusion (OME)	1,431	26.1
Dry perforation	791	14.5
Chronic suppurative otitis media (CSOM)	676	12.3
Eustachian tube dysfunction (ETD)	600	11.0
Acute otitis media (AOM)	380	6.9
Foreign body	55	1.0
Other	373	6.8
No middle ear condition[(c)]	1,691	30.9
Missing[(d)]	133	2.4
Total children who received an audiology or ENT service	**5,474**	**100.0**

(a) Middle ear condition at most recent ENT service or, if only received audiology service, most recent audiology service.

(b) Because one child can have more than one middle ear condition, the column does not add up to sub-total.

(c) Where no middle ear condition reported for both ears.

(d) Includes cases where there is a missing value for one ear, and no middle ear condition in the other ear. Missing includes not stated, unsure, invalid and not tested responses.

Notes

1. Data are only provided for services where children's families have provided consent to share information with the AIHW.
2. Services include only those which were provided through the CHCI (CtG) Program.

Source: AIHW analysis of Child Health Check audiology and ENT dataset for audiology services provided on or before 30 June 2012 and ENT services provided on or before 31 December 2010.

Data quality issues

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The NATSISS is conducted in all states and territories and includes remote and non-remote areas. The 2008 sample was 13,300 persons in 6900 households, with a response rate of 82% of households. Up to three randomly selected Indigenous people were chosen from selected households to participate in the survey. Trained ABS interviewers conducted the survey using face-to-face interviews. In non-remote areas interviewers used a notebook computer to record responses, while in remote areas a paper questionnaire was used. Interviewers obtained the consent of a parent or guardian before interviewing those aged 15 to 17 years. Indigenous persons usually resident in non-private dwellings such as hotels, motels, hostels, hospitals, short-stay caravan parks, prisons and other correctional facilities were excluded.

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians.

As with other surveys, the NATSISS is subject to sampling and non-sampling errors

Care has been taken to ensure that the results of this survey are as accurate as possible. Trained ABS officers conducted all the interviews. However, some factors may affect the reliability of the data.

Information recorded in this survey is 'as reported' by respondents, and therefore may differ from information available from other sources or collected using different methodologies.

Data on health-related indicators have been age-standardised to the 2001 total Australian population to account for differences in the age structures of the states and territories and the Indigenous and non-Indigenous population.

Time series comparisons for the 2008 survey are available through the 1994 National Aboriginal and Torres Strait Islander Survey and the 2002 NATSISS. However not all data elements align across the three (1994, 2001 and 2008) NATSISS surveys, hence care is required when reviewing results across the three surveys. There are no strictly comparable non-Indigenous results available for the 2008 NATSISS because the latest General Social Survey (which has been used in the past to compare with Indigenous results from the NATSISS) was run in 2006, with the next being run in 2010–11. Data from other ABS surveys run in 2008 may, however, be used to obtain rough non-Indigenous comparisons for some data items. Where possible, the ABS has provided recommendations for non-Indigenous data comparisons and these have been adopted in this report.

The 2008 NATSISS has a relatively large level of under-coverage when compared to other ABS surveys. There was also an increase in under-coverage compared to previous ABS Indigenous surveys. For example, the estimated under-coverage in the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) was 42%. The overall under-coverage rate for the 2008 NATSISS is approximately 53% of the in-scope population at the national level. This rate varies across the states and territories (ABS 2010).

Further information on NATSISS data quality issues can be found in the 2008 NATSISS User's guide (ABS 2010).

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians. It therefore overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS

is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The Australian Bureau of Statistics (ABS) makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, imperfect recall or individual interpretation of survey questions may affect some responses.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in *Major cities*, *Inner and outer regional* areas and *Remote and very remote* areas, but very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 NHS.

In *Remote and very remote* communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

National Hospital Morbidity Database

The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free-standing day hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included. The NHMD does not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

For 2009–10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2,400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10,600 separations for one private hospital.

Separations

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay or a portion of a hospital stay beginning or ending in a change of type of care) and not patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set.

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Separations with care types of *Newborn* episodes that did not include qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded as these activities are not considered to be admitted patient care.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections.

Approximately 2% of hospital records have missing Indigenous status information.

Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. In 2007, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data.

It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Interpretation of results should take into account the relative quality of the data from the jurisdictions. The proportion of the Indigenous population covered by these six jurisdictions is 96%. Tasmania and the Australian Capital Territory data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions.

From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level. Adjustments for Indigenous under-identification have been made at the national level for the total number of hospital separations using an adjustment factor of 89%. No adjustments for under-identification have been made at the state/territory level or principal diagnosis level.

The 2007 AIHW study indicated acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in *Major cities* to 97% in *Remote* and *Very remote* areas. The quality of data supports analyses for hospitalisations by remoteness areas at the national level only.

In 2011–12, the AIHW commenced another study to re-assess the level of under-identification in public hospitals data. All states and territories have participated in the study to assess improvements in data quality. A report on the findings is expected to be published in mid-2013 which will include new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

Deadly Ears

Deadly Ears clients report to outreach clinics after they have already been identified as having ear health issues through screening or referrals from other health services. Deadly Ears data do not necessarily reflect population-level hearing statistics for the communities they work with.

General Practitioner Data (BEACH)

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. Although the questionnaire contains an Indigenous identifier, it is unknown whether all GPs ask their patients this question. In the BEACH survey, 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners. Further detailed analyses of this issue are covered in *General practice in Australia, heath priorities and policies 1998 to 2008* (Britt & Miller 2009:101).

'The findings of a BEACH substudy confirmed this suspected under-identification. In the data period reported here, 1.4% of patients encountered identified themselves as Indigenous. In contrast, in a BEACH substudy that asked 9,245 patients a complete set of questions about their cultural background (including Indigenous status) 2.2% (95% CI: 1.6–2.9) of respondents identified themselves as Indigenous (Britt et al. 2007). This rate is similar to the ABS estimates of Indigenous Australians as a proportion of the total population (ABS 2006).

However, the BEACH substudy included Indigenous Australians seen at Community Controlled Health Services funded through Medicare claims, and the estimate of 2.2% could have been an overestimate for the proportion of encounters that are with Indigenous patients in general practice as a whole. Deeble et al. (2008) conducted further investigations on this data and estimated that the BEACH encounter identification was an underestimate of about 10%, and that a more reliable estimate of the Indigenous population would be about 1.6% of all encounters (Deeble et al. 2008).

The findings of these studies are that some GPs are not routinely asking patients at the encounter about their Indigenous status, even when this is a variable specifically collected for each patient encountered, as it is in BEACH encounter data.'

Northern Territory Emergency Response Child Health Check Initiative –audiology and ENT follow-up services data collections

Data coverage for the CHCI audiology data collection is limited to data collected from the audiology services provided through CHCI (CtG) Program which was funded by the Australian Government. Audiology services provided through other funding sources (for example services funded by the NT Government or private sector) are not included (except for a small amount of these services data in the audiology referral sections)

Some children who received these services did not give consent for sharing their hearing health information with the AIHW. As such, data reported in this indicator are only derived from service information for which consent was obtained.

When interpreting data from this collection, it should be noted that the children who received an audiology or ENT service were not a random sample. Firstly, audiology and ENT services were only provided to children who volunteered for them. Secondly, although all Indigenous children in prescribed areas of the Northern Territory were eligible to receive a CHCI (CtG) audiology or ENT service, children with referrals as a result of their CHC

were targeted for follow-up by the outreach teams. Thus, the findings are not representative of the Northern Territory Aboriginal child population or the Aboriginal population of children within prescribed areas of the NTER CHCI. More information about data quality and interpretation can be found in Appendix G of *Northern Territory Emergency Response Child Health Check Initiative: follow-up services for oral and ear health*, final report, August 2007–June 2012 (AIHW 2012).

List of symbols used in tables

n.a.	not available
—	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.16 Eye health

This indicator includes prevalence rates of eye health issues including low vision, blindness, refractive error, cataract, diabetic retinopathy and trachoma for Aboriginal and Torres Strait Islander people.

Data sources

Data for this measure come from the National Indigenous Eye Health Survey 2008, National Aboriginal and Torres Strait Islander Health Survey 2004–05, National Aboriginal and Torres Strait Islander Social Survey 2008, the Trachoma surveillance report 2010, the Bettering the Evaluation and Care of Health (BEACH) survey and the AIHW National Hospital Morbidity Database.

The National Indigenous Eye Health Survey

The National Indigenous Eye Health survey (NIEHS) was conducted in 2008 by the Indigenous Eye Health Unit at the University of Melbourne in collaboration with the Centre for Eye Research Australia and the Vision Cooperative Research Centre. The survey used a multi-stage, random cluster sampling methodology. The sample sites for the NIEHS were selected using the Australian Indigenous Geographical Classification, and were grouped according to the Accessibility/Remoteness Index of Australia into five categories; Major cities, Inner regional, Outer regional, Remote and Very remote (Fox *et al*. 2010). The Very remote category was divided into Very remote coastal and Very remote inland. Within each of the six categories, five sample areas were randomly selected to yield a total of 30 geographic areas each containing about 300 Indigenous Australians.

The survey was designed to assess the prevalence of the main eye conditions causing vision loss including cataract, diabetic retinopathy, refractive error and trachoma/ trichiasis, as well as the prevalence of glaucoma and age-related macular degeneration. An additional component of the examination was a self-administered questionnaire adapted from that used in The Vision Initiative to obtain demographic information and information about the utilization of eye care services.

At the time of the survey, an informal census was done to establish the size of the eligible population of Indigenous children aged 5 to 15 years and adults aged 40 years and above. Sources included community and local council housing lists, health service and hospital lists, Aboriginal housing or legal aid records, and local informants.

Standardised demographic data were collected, and a standardised eye examination was done on all participants. Overall, 1,694 children aged 5 to 15 years (84% of those eligible) and 1,189 adults aged 40 years and above (72% of those eligible) were examined.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of

Australia and collected a range of information from Indigenous Australians. This included information on health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. The survey provides comparisons over time in the health of Indigenous Australians. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

It is planned to repeat the NATSIHS at 6-yearly intervals, with the next survey to be conducted during 2012–13 as part of the Australian Health Survey (will be called the Australian Aboriginal and Torres Strait Islander Health Survey (ATSIHS)).

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The Australian Bureau of Statistics (ABS) conducted the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) between August 2002 and April 2003. The 2008 NATSISS was conducted between August 2008 and April 2009. The survey provides information about the Aboriginal and Torres Strait Islander populations of Australia for a wide range of social issues including health, education, culture and labour force participation. The 2008 NATSISS included for the first time children aged under 15. The NATSISS will be conducted every six years, with the next survey planned for 2014.

The 2008 NATSISS collected information by personal interview from 13,300 Indigenous Australians across all states and territories of Australia, including those living in remote areas. The sample covered persons aged 15 years and over who are usual residents in selected private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice.

Trachoma surveillance

In 2006 the Australian Government awarded a tender to the Centre for Eye Research Australia (CERA) to establish the National Trachoma Surveillance and Reporting Unit (NTSRU) with the responsibility of providing information on trachoma prevalence based on data received from state and territory jurisdictions. CERA presented three reports based on screening done between 2006 and 2008. In 2009, CERA sub-contracted with the Centre for Molecular, Environmental, Genetic and Analytic (MEGA) Epidemiology, School of Population Health, The University of Melbourne for the preparation of the 2009 report. Since the end of 2010, the NTSRU has been based at The Kirby Institute at the University of New South Wales (The Kirby Institute for infection and immunity in society 2010).

The latest report published in 2011, presents an overview from data collected from screening in remote Aboriginal communities during 2010 in the Northern Territory, South Australia and Western Australia where trachoma was identified by states and territory as present.

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey, which was conducted by the AIHW Australian General Practice Statistics and Classification Unit until 2008–09, and by the Family Medicine Research Centre, University of Sydney in collaboration with the AIHW in 2009–10 and 2010–11. On 30 June 2011, the AIHW ceased its involvement in the BEACH program and ceased publishing annual BEACH reports. The

survey continues to be run and the results are now published by the University of Sydney. The most recent annual reports can be found at http://ses.library.usyd.edu.au/handle/2123/7771.

Information is collected from a random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive GP–patient encounters is collected from each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated because some GPs might not ask the question on Indigenous status, or the patient may choose not to identify themselves (AIHW 2002).

Before the late inclusion of a 'not stated' category of Indigenous status in 2001–02, 'not stated' responses were included with non-Indigenous encounters. Since then, GP encounters for which Indigenous status was not reported have been included with encounters for non-Indigenous people under the 'other' category.

Data are presented for the 5-year period 2006–07 to 2010–11, during which there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.2% of total GP encounters.

National Hospital Morbidity Database

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Hospitalisation data are presented for the 2-year period from July 2008 to June 2010. An aggregate of 2 years of data has been used, because the number of hospitalisations for some conditions is likely to be small for a single year.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individual, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question. For example, it is not possible to identify whether one patient was admitted 5 times or five patients were admitted once. People who receive treatment at hospital but are not admitted are not counted in hospital records. Hospital separation data are also affected by variations in admission practices, and the availability of and access to hospital and non-hospital services.

Care types 7.3, 9 and 10 (Newborn – unqualified days only; organ procurement; hospital border) have been excluded from analysis.

Data are presented for the six jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalisations in 2006–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. National totals include separations for people resident in these six jurisdictions only and are not necessarily representative of the jurisdictions not included. Indigenous status data are reported for Tasmania and the Australian Capital Territory (public hospitals only) with caveats until further audits of the quality of data in these jurisdictions are completed. Hospitalisations for which the Indigenous status of the patient was not reported

are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Data are presented by state/territory of usual residence of the patient.

The following caveats have been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).
- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

Data analysis

The World Health Organization (WHO) and the Australian Government have identified eye health as an important health area. Although often being undiagnosed, eye illnesses affect a large proportion of Australians of all ages (AIHW 2008). Indigenous Australian are reported to be at higher risk of vision loss than the general population since blindness rates among Indigenous population are six times those in mainstream Australian (AIHW 2011).

National Indigenous Eye Health Survey

The 2008 National Indigenous Eye Health Survey included a sample of 2,883 Indigenous adults and 62% of the sample from this survey was in remote areas. Due to the small sample size, survey results should be interpreted with caution. The survey found that about 9% of Indigenous adults had vision impairment and 2% suffered from blindness (Centre for Eye Research Australia 2009).

- The leading causes of vision loss for Indigenous adults were refractive error, cataract, and diabetic, the leading cause of blindness for Indigenous adults were cataract, optic atrophy, refractive error and diabetic retinopathy (Table 1.16.1).
- Cataract was the principal cause of vision loss in 3% of the Indigenous adults and results showed that 57% to 75% of those with vision loss from cataract had received surgery. Vision loss caused by cataract occurred more commonly in very remote areas (Very Remote Inland 5%; Very Remote Coastal 4%).
- Vision loss due to refractive error was the highest among Indigenous adults in remote Australia whilst vision loss due to cataract was the highest among Indigenous adults in very remote areas (Figure 1.16.1)

Table 1.16.1: Leading cause of vision loss and blindness among Indigenous Adults, 2008

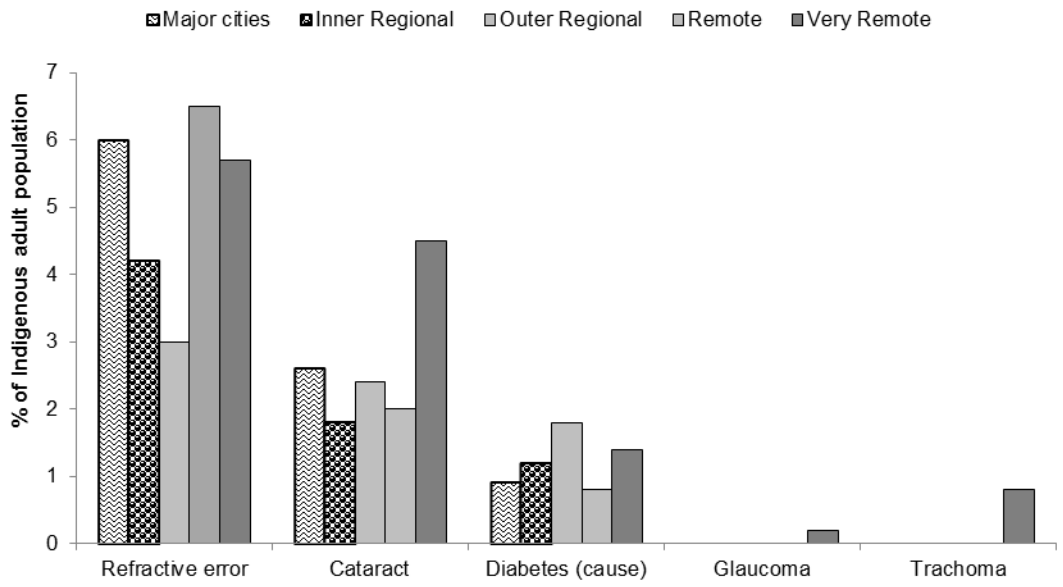
	Vision loss		Blindness	
Causes of Vision Loss/Blindness	**Number**	**Per cent**	**Number**	**Per cent**
Refractive Error	60	54.0	3	14.0
Cataract	30	27.0	7	32.0
Diabetic Retinopathy	13	12.0	2	9.1
Glaucoma	1	0.9	0	0.0
Trachoma	2	1.8	1	9.1
Optic Atrophy	1	0.9	3	14.0

Source: National Indigenous Eye Health Survey 2008

Table 1.16.2: Percentage of Indigenous Adults affected by cataract who have had cataract surgery, by remoteness, 2008

	Adults surveyed	Vision loss due to cataract		Cataract surgery coverage
	Number	**Number**	**Per cent**	**Per cent**
Major city	117	3	2.6	57
Inner regional	167	3	1.8	75
Outer regional	168	4	2.4	60
Remote	245	5	2.1	67
Very Remote Coastal	263	10	3.8	66
Very Remote Inland	229	12	5.3	63

Source: National Indigenous Eye Health Survey 2008.



Source: National Indigenous Eye Health Survey 2008.

Figure 1.16.1: Proportion of Indigenous adults with vision loss, by cause and remoteness

National Aboriginal and Torres Strait Islander Health Survey- Self-reported eye or sight problems

The 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) is the largest health survey of Indigenous Australians conducted by the Australian Bureau of Statistics (ABS). The survey found that about 30% of the Indigenous population reported eye or sight problems. Long sightedness and short sightedness were the most common problems reported (16% and 10% respectively) (ABS 2006).

National Aboriginal and Torres Strait Islander Social Survey- Self-reported eye or sight problems

- The 2008 NATSISS found that about 8% of Indigenous children aged 1 to 14 years reported eye or sight problems, among which 37% had long sightedness, 28% had short sightedness and 44% experienced other problems including blindness, cataracts, glaucoma, trachoma, retinopathy and lazy eye (Table 1.16.3).

Table 1.16.3: Proportion of Indigenous children aged 1–14 years reporting eye or sight problems, by sex, 2008

	Males		Females		Persons	
Type of eye or sight problem	**No.**	**Per cent**	**No.**	**Per cent**	**No.**	**Per cent**
Has eye or sight problems[a]						
Long sightedness	2,345	36.8	2,764	37.8	5,109	37.3
Short sightedness	1,611	25.3	2,228	30.4	3,839	28.1
Other[b]	3,005	47.2	2,940	40.2	5,945	43.5
Total children with eye or sight problems	*6,364*	*100.0*	*7,317*	*100.0*	*13,682*	*100.0*
Does not have eye or sight problems	83,660	. .	79,978	. .	163,638	. .
Total children aged 1–14 years[c]	**91,144**	**. .**	**88,110**	**. .**	**179,254**	**. .**

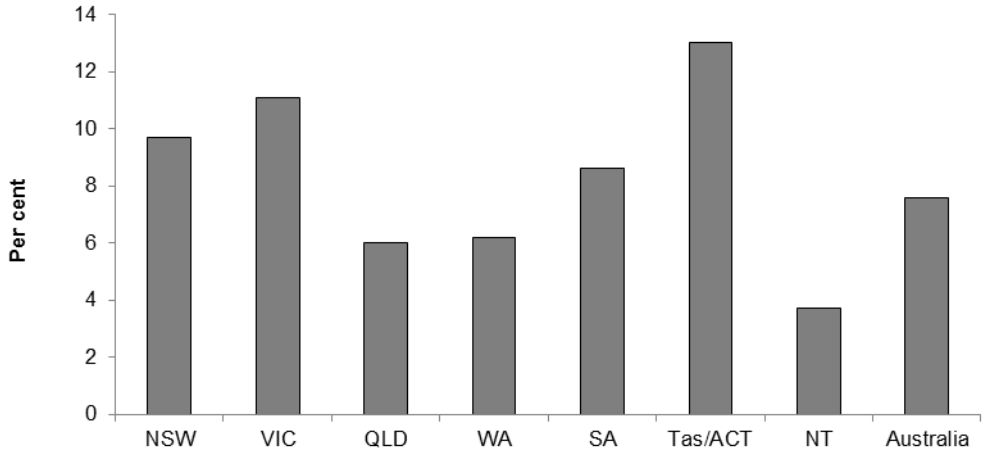
(a) Total does not add to 100 per cent as people may record more than one eye or sight problem.

(b) Includes blindness, cataracts, glaucoma, trachoma, retinopathy, lazy eye, unknown eyesight problem and other eye sight problems.

(c) Includes not known responses.

Source: ABS 2008 NATSISS.

- The Northern Territory had the lowest proportion of Indigenous children in the age group 1–14 reporting eye or sight problem (3.7%) and Victoria had the highest proportion (11%) (Figure 1.16.2).
- Indigenous children aged 1–14 years in Major cities reported more other eye or sight problems such as blindness, cataracts, glaucoma, trachoma, retinopathy, lazy eye than Indigenous children in Inner/outer regional and remote/very remote areas (51% compared with 35% and 46% respectively). Long sightedness was more common among Indigenous children aged 1–14 years in Inner/outer regional areas (48%) than in major cities (31%), and remote/very remote areas (24%) (Table 1.16.4).
- Indigenous children reporting eye or sight problem were more likely to come from households in the least disadvantage quintile: 13% of children aged 1–14 from households in the 4th/5th (least disadvantaged) quintile reported eye or sight problem whilst only 6% of children from households in the 1st (most disadvantaged) quintile reported eye or sight problem (Table 1.16.5).



Source: AIHW analysis of ABS 2008 NATSISS.

Figure 1.16.2: Proportion of Indigenous children aged 1–14 years reporting eye or sight problems, by jurisdiction, 2008

Table 1.16.4: Proportion of Indigenous children aged 1–14 years reporting eye or sight problems, by remoteness, 2008

	Major cities		Inner/outer regional		Total non-remote		Total remote/very remote		Australia	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Has eye or sight problems[(a)]										
Long sightedness	1,796	30.8	2,904	47.6	4,700	39.4	409*	23.5*	5,109	37.3
Short sightedness	1487*	25.5	1,752	28.7	3,239	27.1	600*	34.4*	3,839	28.1
Other[(b)]	3,000	51.4	2,144	35.1	5,144	43.1	801*	46.0	5,945	43.5
Total children with eye or sight problems[(c)]	*5,840*	*100.0*	*6,099*	*100.0*	*11,939*	*100.0*	*1,743*	*100.0*	*13,682*	*100.0*
Does not have eye or sight problems	50,674	. .	73,000	. .	123,674	. .	39,964	. .	163,638	. .
Total children aged 1–14 years[(c)]	**57,320**	**. .**	**79,803**	**. .**	**137,123**	**. .**	**42,131**	**. .**	**179,254**	**. .**

* Relative standard error is between 25 and 50 and data should be used with caution.

(a) Total does not add to 100 per cent as people may record more than one eye or sight problem.

(b) Includes blindness, cataracts, glaucoma, trachoma, retinopathy, lazy eye, unknown eyesight problem and other eye sight problems.

(c) Includes not known responses.

Source: ABS 2008 NATSISS.

Table 1.16.5: Proportion of Indigenous children aged 1–14 years reporting eye or sight problems, by selected demographic characteristics and risk factors, 2008

	Has eye or sight problems		Does not have eye or sight problems		Total[(a)]	
	No.	Per cent	No.	Per cent	No.	Per cent
Current daily smoker in household						
Yes	7,871	7.0	103,796	92.0	112,771	100.0
No	5,417	8.8	55,106	89.9	61,324	100.0
Total excluding not stated	**13,288**	**7.6**	**158,902**	**91.3**	**174,095**	**100.0**
Household member usually smokes inside the house						
Yes	2,213	5.8	35,362	93.1	38,000	100.0
No	10,948	8.1	122,128	90.8	134,544	100.0
Total excluding not stated	**13,161**	**7.6**	**157,489**	**91.3**	**172,543**	**100.0**
Index of disparity						
1st quintile (most disadvantaged)	5,668	6.4	81,728	92.4	88,487	100.0
2md quintile	2,846	7.6	34,098	91.2	37,407	100.0
3rd quintile	2,441	8.4	26,448	90.9	29,089	100.0
4th/5th quintile (least disadvantaged)	2,647	13.2	17,281	85.9	20,108	100.0
Total excluding not stated	**13,602**	**7.8**	**159,556**	**91.1**	**175,092**	**100.0**
Housing utilisation						
1 or more bedrooms required	3,097	5.6	51,934	93.5	55,549	100.0
None required/None spare	5,164	7.8	59,894	91.0	65,854	100.0
1 or more bedrooms spare	5,394	9.5	50,949	89.4	56,964	100.0
Total excluding not known	**13,655**	**7.7**	**162,778**	**91.3**	**178,367**	**100.0**

(a) Includes not known.

Source: ABS 2008 NATSISS.

Trachoma surveillance

- Overall, 150 (63%) of 240 at-risk communities were screened for trachoma during 2010. Within these communities, 6,777 (11.6%) of 58,429 resident children estimated to be at risk of trachoma were screened (Table 1.16.6).
- The screened proportion of children in at-risk communities was 45% for the Northern Territory, 37% for Western Australia and 3% for South Australia .The prevalence of trachoma among children screened in at-risk communities was 11%. The prevalence of trachoma was 19% in South Australia, 12% in the Northern Territory and 9% in Western Australia. The prevalence of trachoma was 13% in the 1–9 year age group (Table 1.16.6).
- Trichiasis screening coverage was low in all jurisdictions, with a total of 1,036 adults of an estimated at-risk population of 12,557 reported to have been screened across the Northern Territory, South Australia and Western Australia. Nine cases of trichiasis were reported in South Australia, 13 cases in the Northern Territory and none in Western Australia, giving an overall prevalence among adults screened of 2% (Table 1.16.7).
- No data were available regarding the extent of surgery for trichiasis in 2010.

Table 1.16.6: Trachoma screening coverage and prevalence by jurisdiction, 2010

	At-risk communities[(a)]			
	NT	**SA**	**WA**	**Total**
		Number		
Estimated Indigenous population at risk	30,784	9,503	18,142	58,429
Communities at-risk	86	71	83	240
Communities screened	64	11	75	150
Children examined for trachoma	4,441	86	2,250	6,777
Children with active trachoma	526	16	208	750
		Per cent		
Screening coverage (%)	45	3	37	35
Active trachoma prevalence (%)	12	19	9	11
Trachoma prevalence 1–9 years (%)	**14**	**n.a.**	**10**	**13**

(a) Communities were classified as at-risk or not at-risk by jurisdictions.

Source: National trachoma surveillance and reporting unit. Trachoma surveillance report 2010.

Table 1.16.7: Trichiasis screening coverage, prevalence and treatment among Aboriginal and Torres Strait Islander adults age over 40 years, by jurisdiction, 2010

	At risk communities[(a)]							
	NT		SA		WA		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Estimated adult population of at-risk communities	6,509	n.a.	2,297	n.a.	3,751	n.a.	12,557	n.a.
Number of communities at-risk	86	n.a.	32	n.a.	83	n.a.	201	n.a.
Number of communities screened for trichiasis	18	21	12	38	14	17	44	22
Adults examined (% of total estimated population)	221	3	438	19	377	10	1,036	8
With trichiasis	13	6	9	2	0	n.a.	22	2
Offered ophthalmic consultation	12	n.a.	0	n.a.	0	n.a.	12	n.a.
Surgery in past 12 months	1	n.a.	0	n.a.	1	n.a.	1	n.a.

(a) Communities were classified as at-risk or not at-risk by jurisdictions.

Source: National trachoma surveillance and reporting unit. Trachoma surveillance report 2010.

General Practitioner encounters

- According to the BEACH survey, during the period of April 2006-March 2011, eye problems were managed in 1% of GP encounters with Indigenous patients. Overall rates of eye problems managed were similar to those for other Australians. However, Indigenous Australians had higher rates of Trachoma and lower rates of Refractive error problems managed at GP encounters than other Australians (Table 1.16.8).

Table 1.16.8: Problems managed relating to eye health[a] managed by general practitioners, by Indigenous status of the patient, BEACH survey years April 2006–March 2007 to April 2010–March 2011 inclusive[b][c]

	Number		Per cent		Crude rate (no. per 1,000 encounters)						Age-standardised rate (no. per 1,000 encounters)[d]			
Problem managed	Indig.	Other[e]	Indig.	Other[e]	Indig.	95% LCL[f]	95% UCL[g]	Other	95% LCL[f]	95% UCL[g]	Indig.	Other[e]	Ratio[h]	Rate difference[i]
Retinopathy (F83)	2	69	0.02	0.01	0.3	0.0	0.8	0.1	0.1	0.2	0.5	0.1	3.7	0.4
Macular degeneration (F84)	1	271	0.01	0.04	0.2	0.0	0.5	0.6	0.5	0.6	0.8	0.6	1.4	0.2
Trachoma (F86)	1	2	0.01	0.00	0.2	0.0	0.5	0.0	0.0	0.0	0.1	0.0	24.2	0.1
Refractive error (F91)	2	175	0.02	0.02	0.3	0.0	0.8	0.4	0.3	0.4	0.3	0.4	0.7	–0.1
Cataract (F92)	9	734	0.10	0.10	1.5	0.6	2.4	1.5	1.4	1.7	3.3	1.5	2.2	1.8
Glaucoma (F93)	4	877	0.04	0.12	0.7	0.0	1.3	1.8	1.7	2.0	2.5	1.8	1.4	0.7
Blindness (F94)	1	74	0.01	0.01	0.2	0.0	0.5	0.2	0.1	0.2	0.2	0.2	1.1	0.0
Other Eye Problems[j]	99	10,116	1.08	1.36	16.6	12.9	20.2	21.2	20.7	21.6	18.0	21.2	0.9	–3.2
Total eye problems (F01–99)	*119*	*12,318*	*1.29*	*1.65*	*19.9*	*16.0*	*23.8*	*25.8*	*25.2*	*26.3*	*25.7*	*25.7*	*1.0*	*–0.1*
Other problems managed	9,077	733,306	98.71	98.35	1,520.2	1,479.4	1,560.9	1,534.0	1,525.2	1,542.9	1,613.4*	1,532.8*	1.1*	80.6*
Total problems	**9,196**	**745,624**	**100.00**	**100.00**	**1,540.1**	**1,499.0**	**1,581.2**	**1,559.8**	**1,550.9**	**1,568.7**	**1,639.1***	**1,558.6***	**1.1***	**80.5***

* Represents results with statistically significant at $p < 0.05$ level.

(a) Classified according to ICPC–2 chapter codes (Classification Committee of the World Organization of Family Doctors (WICC) 1998).

(b) Data from five combined BEACH years April 2006–March 2007 to April 2010–March 2011 inclusive.

(c) Data for Indigenous and other Australians have not been weighted.

(d) Directly age-standardised rate (no. per 1,000 encounters). Figures do not add to 100 as more than one problem can be managed at each encounter.

(e) 'Other' includes non-Indigenous patients and patients for whom Indigenous status was not stated.

(f) LCL = lower confidence interval.

(g) UCL = upper confidence interval.

(h) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for other Australians.

(i) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for other Australians.

(j) ICPC–2 codes: F01-F82, F85, 95-F99.

Source: Family Medicine Research Centre, University of Sydney analysis of BEACH data.

Hospitalisations

Age-standardised rates and ratios have been used as a measure of hospitalisations in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of hospital admissions among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

Hospitalisations for diseases of the eye and adnexa

- In the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous people had lower hospitalisation rates with a principal diagnosis of diseases of the eye and adnexa than non-Indigenous people (about 7 per 1,000 population compared with 10 per 1,000 population) (Table 1.16.9).
- Hospitalisation rates with a principal diagnosis of disease of the eye and adnexa increased with age for both Indigenous and non-Indigenous Australians (Table 1.16.9).
- The gap between Indigenous and non-Indigenous hospitalisation rates with a principal diagnosis of disease of the eye and adnexa was greatest in the 65 years and over age group (30 per 1,000 population) (Table 1.16.9).

Table 1.16.9: Age-specific hospitalisations rates per 1,000 people for principal diagnosis of diseases of the eye and adnexa, by Indigenous status and sex NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)]

	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65+	Total (crude)	Total (age standardised)[(f)]
Males										
Indigenous	2.1	0.9	0.4	0.9	1.9	4.1	9.4	33.4	2.7	6.9
Non-Indigenous	2.0	0.8	0.7	1.1	1.8	4.4	12.5	56.4	9.8	9.8
Rate ratio[(g)]	1.0	1.1	0.6	0.8	1.1	0.9	0.8	0.6	0.3	0.7
Rate difference[(h)]	0.0	0.0	–0.2	–0.3	0.2	–0.3	–3.1	–23.0	–7.1	–2.9
Females										
Indigenous	2.2	0.7	0.6	1.0	1.2	3.2	11.0	30.5	2.9	6.3
Non-Indigenous	2.0	0.7	0.6	1.2	1.8	4.8	14.7	65.9	12.8	10.9
Rate ratio[(g)]	1.1	1.0	0.9	0.8	0.7	0.7	0.7	0.5	0.2	0.6
Rate difference[(h)]	0.2	0.0	0.0	–0.3	–0.6	–1.6	–3.7	–35.4	–9.9	–4.6
Persons[(i)]										
Indigenous	2.1	0.8	0.5	0.9	1.5	3.6	10.3	31.8	2.8	6.6
Non-Indigenous	2.0	0.8	0.7	1.2	1.8	4.6	13.6	61.6	11.3	10.4
Rate ratio[(g)]	1.1	1.0	0.8	0.8	0.9	0.8	0.8	0.5	0.2	0.6
Rate difference[(h)]	0.1	0.0	–0.1	–0.3	–0.2	–0.9	–3.4	–29.8	–8.5	–3.8

(a) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(b) Data are from public and most private hospitals. Data are not available for private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised.

(e) Data are reported for NSW, Vic, Qld, WA, SA and NT only. These jurisdictions are considered to have adequate levels of Indigenous identification in hospitalisation data, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(f) Directly age-standardised using the Australian 2001 standard population.

(g) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for non-Indigenous Australians.

(h) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for non-Indigenous Australians.

(i) Includes hospitalisations for which sex was indeterminate or not stated.

Notes

1. Rates for Indigenous Australians are calculated using the 2006 population estimates based on the 2006 Census (Series B).
2. Care types 7.3, 9 & 10 (Newborn - unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by state/territory

Table 1.16.10 presents hospitalisations with a principal diagnosis of diseases of the eye and adnexa for the 2-year period July 2008 to June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Data for Tasmania and the Australian Capital Territory are also included with caveats.

- Over the period July 2008 to June 2010, Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised for diseases of the eye and adnexa at 0.6 times the rate of non-Indigenous Australians (Table 1.16.10).
- Western Australia had the highest hospitalisation rate for Indigenous persons (8 per 1,000) and Victoria had the lowest hospitalisation rate for Indigenous persons (5 per 1,000) (Table 1.16.10).

Table 1.16.10: Hospitalisations for principal diagnosis of diseases of the eye and adnexa, by Indigenous status, sex and jurisdiction, July 2008 to June 2010 [(a)(b)(c)(d)(e)]

	Indigenous		Non-Indigenous			
	Number	No. per 1,000[(f)]	Number	No. per 1,000[(f)]	Rate ratio[(g)]	Rate difference[(h)]
NSW						
Males	363	5.1	75,075	10.6	0.5*	–5.5*
Females	481	6.9	98,758	11.6	0.6*	–4.7*
Persons[(i)]	844	6.1	173,833	11.1	0.6*	–5.0*
Vic						
Males	59	3.8	45,150	8.5	0.5*	–4.7*
Females	81	5.2	63,109	9.8	0.5*	–4.6*
Persons[(i)]	140	4.7	108,259	9.2	0.5*	–4.5*
Qld						
Males	423	8.7	43,090	10.5	0.8*	–1.8*
Females	420	6.6	53,495	11.6	0.6*	–4.9*
Persons[(i)]	843	7.5	96,585	11.1	0.7*	–3.5*
WA						
Males	267	9.9	21,452	10.7	0.9	–0.8
Females	244	6.3	27,585	12.1	0.5*	–5.8*
Persons[(i)]	511	7.7	49,037	11.4	0.7*	–3.7*
SA						
Males	83	5.7	14,578	8.3	0.7*	–2.6*
Females	90	5.4	19,674	9.2	0.6*	–3.8*
Persons[(i)]	173	5.5	34,252	8.8	0.6*	–3.3*
NT						
Males	206	7.3	757	6.8	1.1	0.5
Females	205	5.4	599	6.5	0.8	–1.1*
Persons[(i)]	411	6.1	1,356	6.7	0.9	–0.6
NSW, Vic, Qld, WA, SA & NT[(j)]						
Males	**1,401**	**6.9**	**200,102**	**9.8**	**0.7***	**–2.9***
Females	**1,521**	**6.3**	**263,220**	**10.9**	**0.6***	**–4.6***
Persons[(i)]	**2,922**	**6.6**	**463,322**	**10.4**	**0.6***	**–3.8***
Tas						
Males	21	2.2	869	1.6	1.4	0.6
Females	19	2.2	1,111	1.8	1.2	0.3
Persons[(i)]	40	2.2	1,980	1.7	1.3	0.4

(continued)

Table 1.16.10 (continued): Hospitalisations for principal diagnosis of diseases of the eye and adnexa, by Indigenous status, sex and jurisdiction, July 2008 to June 2010 [(a)(b)(c)(d)(e)]

	Indigenous		Non-Indigenous			
	Number	No. per 1,000[(f)]	Number	No. per 1,000[(f)]	Rate ratio[(g)]	Rate difference[(h)]
ACT						
Males	n.p.	n.p.	1,025	3.6	0.1*	–3.1*
Females	n.p.	n.p.	1,501	4.6	0.4*	–2.6*
Persons[(i)]	9	1.3	2,526	4.1	0.3*	–2.8*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparison at the $p < 0.05$ level.

(a) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(b) Data are from public and most private hospitals. Data are not available for private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised.

(e) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+.

(f) Directly age-standardised using the Australian 2001 standard population.

(g) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for non-Indigenous Australians.

(h) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for non-Indigenous Australians.

(i) Includes hospitalisations for which sex was indeterminate or not stated.

(j) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

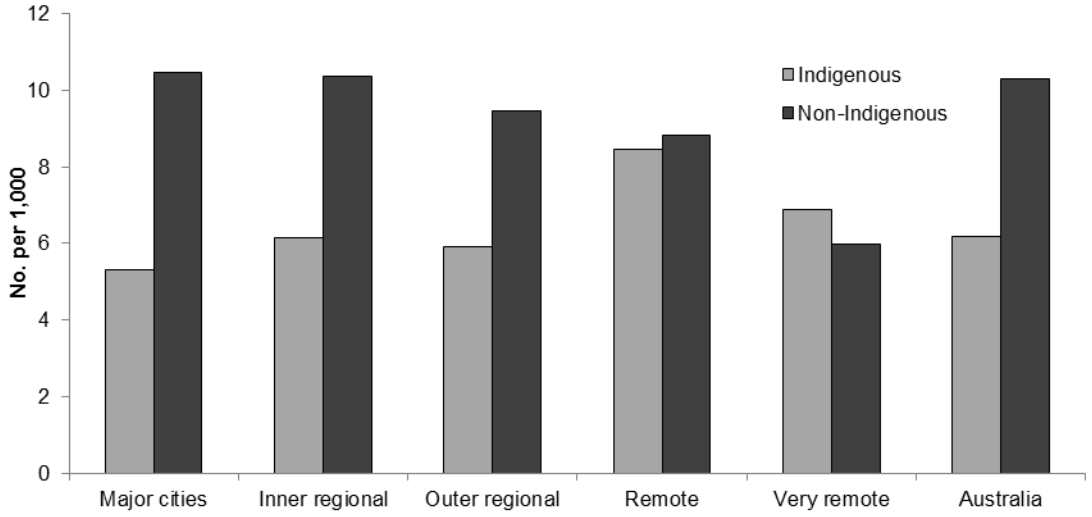
Notes

1. Rates for Indigenous Australians are calculated using the 2006 population estimates based on the 2006 Census (Series B).
2. Care types 7.3, 9 & 10 (Newborn - unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by remoteness area

- *Remote* areas had the highest hospitalisations rate of Indigenous persons for principal diagnosis of diseases of the eye and adnexa during the 2-year period July 2008 to June 2010 (8 per 1,000 population) and *Major cities* had the highest hospitalisation rate of non-Indigenous people (11 per 1,000) (Figure 1.16.3).
- Indigenous Australians had lower rates of hospitalisation for diseases of the eye and adnexa for all remoteness categories except for very remote areas, where rates for Indigenous persons were slightly higher (7 compared with 6 per 1,000) (Figure 1.16.3).



Note: Outer regional includes Victoria.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.16.3: Hospitalisations for principal diagnosis of diseases of the eye and adnexa, by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010

Hospitalisations by principal diagnosis

- Over the 2-year period July 2008 to June 2010, there were 12 main principal diagnoses for people hospitalised for diseases of the eye and adnexa. Disorders of lens was the most common principal diagnosis, accounting for 50% of Indigenous people (including 7% senile cataract and 42% other cataract) and 68% of non-Indigenous people (including 13% senile cataract and 54% other cataract) who were hospitalised for diseases of the eye and adnexa (Table 1.16.11).
- Disorders of conjunctiva was the second most common principal diagnosis for Indigenous people (13%) while disorders of choroid and retina was the second most common diagnosis for non-Indigenous people (13%) (Table 1.16.11).
- After adjusting for differences in age structure, the Indigenous hospitalisation rate per 1,000 populations were higher than the non-Indigenous hospitalisation rate in five diagnoses, including: Disorders of conjunctiva and Disorders of sclera, cornea, iris and ciliary body (Table 1.16.11).

Table 1.16.11: Hospitalisations of Indigenous persons for principal diagnosis of diseases of the eye and adnexa, by principal diagnosis and Indigenous status NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [a][b][c][d][e]

	Number		Per cent[f]		Indigenous				Non-Indigenous				
Principal diagnosis	Indig.	Non-Indig.	Indig.	Non-Indig.	Crude no. per 1,000	No. per 1,000[g]	95% LCL[h]	95% UCL[i]	No per 1,000[g]	95% LCL[h]	95% UCL[i]	Rate ratio[j]	Rate difference[k]
Disorders of eyelid, lacrimal system and orbit (H00–H06)	294	36,264	9.9	7.8	0.3	0.6	0.5	0.7	0.8	0.8	0.8	0.7*	–0.2*
Disorders of conjunctiva (H10–H13)	378	15,836	12.7	3.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	1.3*	0.1*
Disorders of sclera, cornea, iris and ciliary body (H15–H22)	158	6,576	5.3	1.4	0.2	0.2	0.2	0.2	0.2	0.1	0.2	1.4*	0.1*
Disorders of lens (H25–H28)	1,493	315,494	50.2	68.1	1.4	4.5	4.3	4.7	7.0	7.0	7.1	0.6*	–2.5*
Other cataract (H26)	*1,254*	*251,981*	*42.2*	*54.4*	*1.2*	*3.7*	*3.5*	*3.9*	*5.6*	*5.6*	*5.6*	*0.7**	*–1.9**
Senile cataract (H25)	*202*	*61,674*	*6.8*	*13.3*	*0.2*	*0.7*	*0.6*	*0.8*	*1.4*	*1.4*	*1.4*	*0.5**	*–0.7**
Disorders of choroid and retina (H30–H36)	179	58,142	6.0	12.5	0.2	0.3	0.2	0.3	1.3	1.3	1.3	0.2*	–1.0*
Glaucoma (H40–H42)	60	6,734	2.0	1.5	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.7	–0.04*
Disorders of vitreous body and globe (H43–H45)	61	3,597	2.1	0.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.3	0.0
Disorders of optic nerve and visual pathways (H46–H48)	21	1,366	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6*	–0.01*
Disorders of ocular muscles, binocular movement, accommodation and refraction (H49–H52)	160	13,787	5.4	3.0	0.2	0.1	0.1	0.1	0.3	0.3	0.3	0.3*	–0.2*
Visual disturbances and blindness (H53–H54)	65	2,956	2.2	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.3	0.0
Other disorders of eye and adnexa (H55–H59)	53	2,570	1.8	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.2	0.0
Diabetes with eye health complication (E10.3 and E11.4)	51	4,434	1.7	1.0	0.0	0.1	.	. .	0.2	. .	. .	1.0	0.0
Total	**2,973**	**463,322**	**100.0**	**100.0**	**2.8**	**6.7**	**6.4**	**6.9**	**10.4**	**10.4**	**10.4**	**0.6***	**–3.7***

(continued)

Table 1.16.11 (continued): Hospitalisations of Indigenous persons for principal diagnosis of diseases of the eye and adnexa, by principal diagnosis and Indigenous status NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [(a)(b)(c)(d)(e)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparison at the p < 0.05 level.

(a) Categories are based on the ICD–10–AM sixth edition (National Centre for Classification in Health 2010).

(b) Data are from public and most private hospitals. Data are not available for private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised.

(e) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(f) Proportion of male, female and total hospitalisations of Indigenous persons in the two year period 2008–09 to 2009–10.

(g) Directly age-standardised using the Australian 2001 standard population, by 5-year age group to 75+.

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for non-Indigenous Australians.

(k) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for non-Indigenous Australians.

Notes

1. Rates for Indigenous Australians are calculated using the 2006 population estimates based on the 2006 Census (Series B).
2. Care types 7.3, 9 & 10 (Newborn - unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

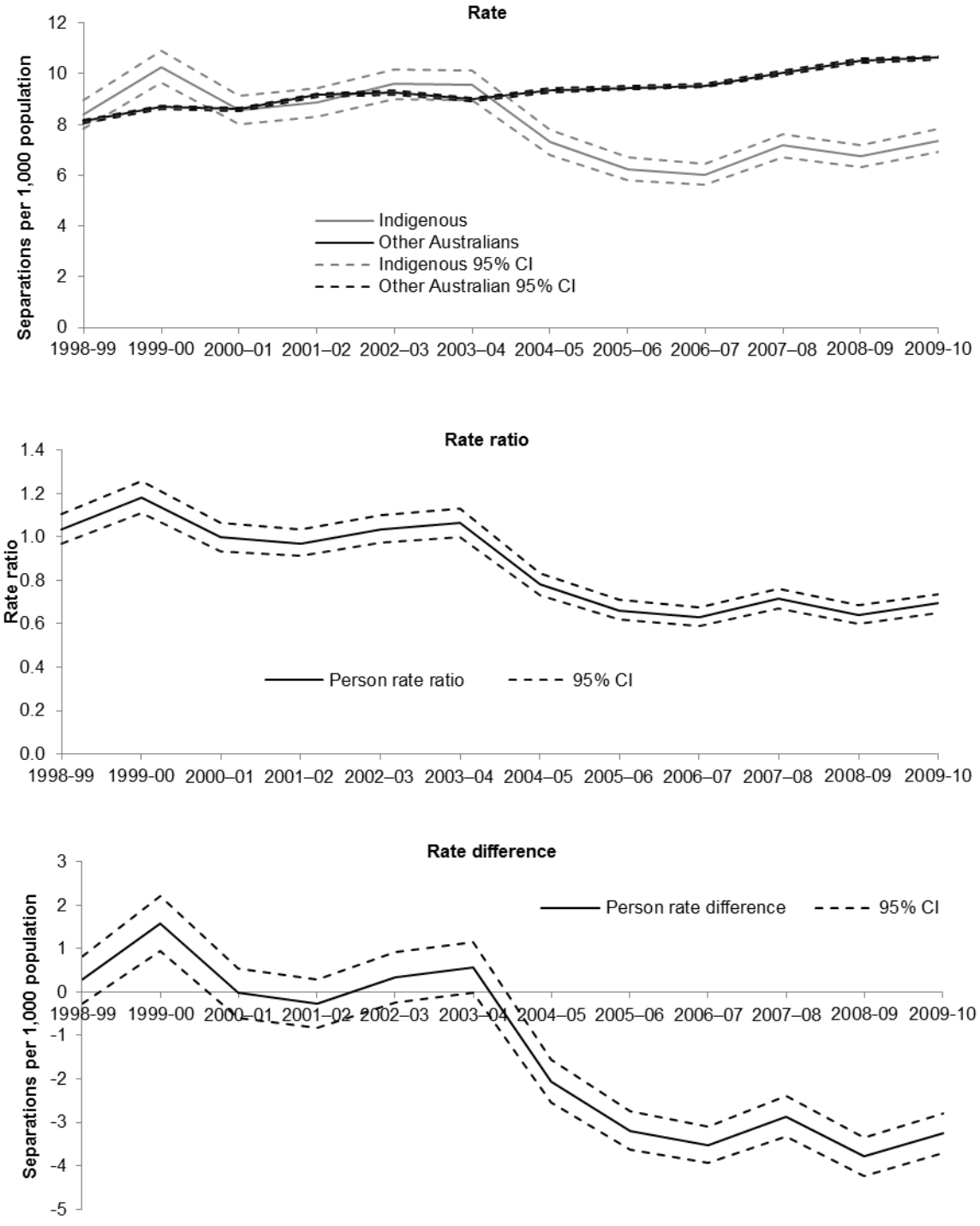
Time series data from 1998–99 to 2009–10 are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations over this period—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population.

Additional trend analysis has also been presented for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined from 2004–05 to 2009–10 for Indigenous and non-Indigenous Australians. New South Wales and Victoria have been assessed as having adequate identification of Indigenous hospitalisations from 2004–05. These six jurisdictions represent approximately 96% of the Indigenous population of Australia.

Note that changes in the level of accuracy of Indigenous identification in hospital records will result in changes in the level of reported hospital separations for Indigenous Australians, as will changes in access, hospital policies and practices over time. Caution should be used in interpreting changes over time, as it is not possible to ascertain whether a change in reported hospitalisation is due to changes in the accuracy of Indigenous identification or real changes in the rates at which Indigenous people are hospitalised. An increase in hospitalisation rates may also reflect increased use of admitted patient hospital services rather than a worsening of health.

Diseases of the eye and adnexa — 1998–99 to 2009–10

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there was a significant decrease in the age-standardised hospitalisation rates from diseases of the eye and adnexa among Indigenous people over the period 1998–99 to 2009–10. The fitted trend implies an average yearly decrease in the rate of 0.3 per 1,000. This is equivalent to a 36% decrease in the rate over the period (Figure 1.16.4).
- Over the same period there was a significant increase in the age-standardised hospitalisation rates for diseases of the eye and adnexa among non-Indigenous people with an average yearly increase in the rate of 0.2 per 1,000, which is equivalent to a 27% increase in the rate over the period (Figure 1.16.4).
- There were significant decreases in the hospitalisation rate ratios and differences between Indigenous and non-Indigenous persons over the period 1998–99 to 2009–10 (Figure 1.16.4).

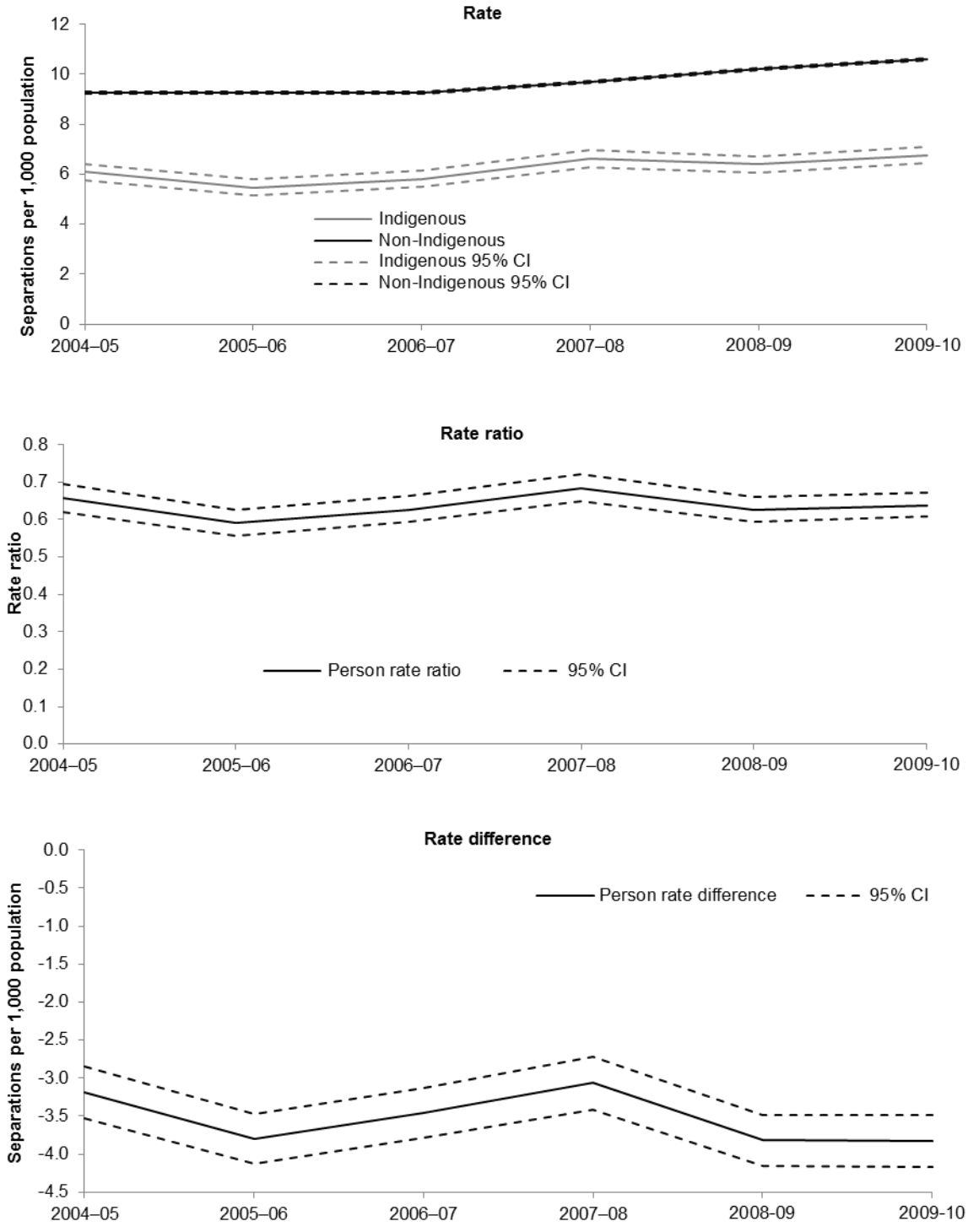


Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.16.4: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for diseases of the eye and adnexa, Qld, WA, SA and NT, 1998–1999 to 2009–2010

Diseases of the eye and adnexa — 2004–05 to 2009–10

- Over the period 2004–05 to 2009–10, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there was a significant increase in the age-standardised hospitalisation rates from diseases of the eye and adnexa among Indigenous people. The fitted trend implies an average yearly increase in the rate of 0.2 per 1,000. This is equivalent to a 16% increase in the rate over the period (Figure 1.16.5).
- Over the same period there was also a significant increase in the age-standardised hospitalisation rates for diseases of the eye and adnexa among non-Indigenous people with an average yearly increase in the rate of 0.3 per 1,000, which is equivalent to a 15% increase in the rate over the period (Figure 1.16.5).
- There were no significant changes in the hospitalisation rate ratios and differences between Indigenous and non-Indigenous persons over the period 2004–05 to 2009–10 (Figure 1.16.5).

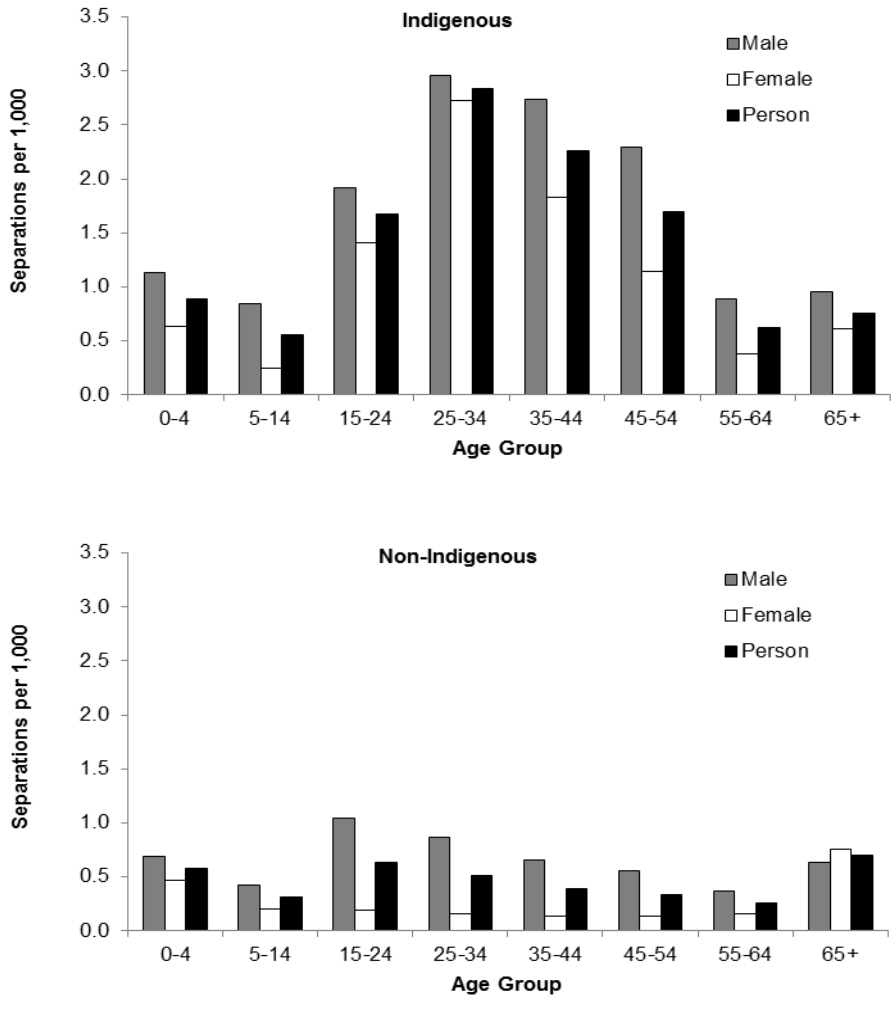


Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.16.5: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for diseases of the eye and adnexa, NSW, Vic, Qld, WA, SA and NT, 2004–2005 to 2009–2010

Hospitalisations for eye injury

- In the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined the hospitalisation rate for a principal diagnosis of eye injury was higher for Indigenous than for non-Indigenous people (1.5 per 1,000 population compared with 0.5 per 1,000 population, respectively) (Figure 1.16.6).
- The greatest relative disparity was for females aged 25–34 years; Indigenous females in this age group were hospitalised for eye injury at 17 times the rate of non-Indigenous females (Figure 1.16.6).
- The greatest rate difference between Indigenous and non-Indigenous Australians occurred in the 35–44 years age group for males (2.1 per 1,000 population), and in the 25–34 year age group for females (2.6 per 1,000 population) (Figure 1.16.6).



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.16.6: Age-specific hospitalisation rates for principal diagnosis of eye injury by Indigenous status and age, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010

Hospitalisations by type of eye injury

Table 1.16.12 presents hospitalisations of Indigenous people for principal diagnosis of eye injury by type of injury and sex for the 2-year period July 2008 to June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- For the period July 2008 to June 2010 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of all hospitalisations of Indigenous persons with a principal diagnosis of eye injury, about 29% were for open wounds of eyelid & periocular area and 25% were for periorbital fractures. These were also the two most common principal diagnoses for non-Indigenous people hospitalised with a principal diagnosis of eye injury, accounting for 24% and 35%, respectively (Table 1.16.12).
- Hospitalisation rates for all types of eye injury were higher for Indigenous persons than non-Indigenous persons, except for injury related to 'foreign body in external eye' (Table 1.16.12).

Table 1.16.12: Principal diagnosis for eye injury hospitalisations by sex and Indigenous status, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)]

	Number		Per cent		Indigenous				Non-Indigenous				
	Indig.	Non-Indig.	Indig.	Non-Indig.	Crude no. per 1,000	No. per 1,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	No per 1,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	Rate ratio[(i)]	Rate difference[(j)]
Periorbital fracture	411	6,795	25.2	34.5	0.4	0.4	0.4	0.4	0.2	0.2	0.2	2.4*	0.2*
Superficial injuries of eyelid & periocular area	221	1,604	13.6	8.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0	5.7*	0.2*
Open wound of eyelid & periocular area	469	4,722	28.8	24.0	0.4	0.5	0.5	0.6	0.1	0.1	0.1	4.4*	0.4*
Foreign body in external eye	45	1,382	2.8	7.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.2	0.0
Contusion of eyeball & orbital tissues	85	984	5.2	5.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	3.5*	0.1
Penetrating wound	60	877	3.7	4.5	0.1	0.0	0.0	0.1	0.0	0.0	0.0	2.2*	0.0
Other eye injuries	338	3,325	20.7	16.9	0.3	0.3	0.3	0.4	0.1	0.1	0.1	4.0*	0.2*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparison at the $p < 0.05$ level.

(a) Categories are based on the ICD-10-AM sixth edition (National Centre for Classification in Health 2010).

(b) Data are from public and most private hospitals. Data are not available for private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised.

(e) Data are reported for NSW, Vic, Qld, WA, SA and NT only. These jurisdictions are considered to have adequate levels of Indigenous identification in hospitalisation data, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(f) Directly age-standardised using the Australian 2001 standard population, by 5-year age group to 75+.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio is the age-standardised rate for Indigenous Australians divided by the age-standardised rate for non-Indigenous Australians.

(j) Rate difference is the age-standardised rate for Indigenous Australians minus the age-standardised rate for non-Indigenous Australians.

Notes

1. Rates for Indigenous Australians are calculated using the 2006 population estimates based on the 2006 Census (Series B).
2. Care types 7.3, 9 & 10 (Newborn - unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Data quality issues

The National Indigenous Eye Health Survey

At the time of the survey, an informal census was done to establish the size of the eligible population of Indigenous children aged 5 to 15 years and adults aged 40 years and above. Sources included community and local council housing lists, health service and hospital lists, Aboriginal housing or legal aid records, and local informants.

A multi-staged random cluster sample was selected after consultation with the ABS using data from the 2006 Census. 30 clusters containing 300–400 people were selected. In each cluster, all children aged 5 to 15 years and all adults over 40 years were examined. Additional ineligible people were examined at their request. In two remote and very remote communities, a sample of non-Indigenous adults was also examined.

Standardised demographic data were collected, and a standardised eye examination was done on all participants. Overall, 1,694 children aged 5 to 15 years (84% of those eligible) and 1,189 adults aged 40 years and above (72% of those eligible) were examined.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians. It therefore overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The Australian Bureau of Statistics (ABS) makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, imperfect recall or individual interpretation of survey questions may affect some responses.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in *Major cities*, *Inner and outer regional* areas and *Remote and very remote* areas, but very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 NHS.

In *Remote and very remote* communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The NATSISS is conducted in all states and territories and includes remote and non-remote areas. The 2008 sample was 13,300 persons in 6900 households, with a response rate of 82% of households. Up to three randomly selected Indigenous people were chosen from selected households to participate in the survey. Trained ABS interviewers conducted the survey using face-to-face interviews. In non-remote areas interviewers used a notebook computer to record responses, while in remote areas a paper questionnaire was used. Interviewers obtained the consent of a parent or guardian before interviewing those aged 15 to 17 years. Indigenous persons usually resident in non-private dwellings such as hotels, motels,

hostels, hospitals, short-stay caravan parks, prisons and other correctional facilities were excluded.

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians.

As with other surveys, the NATSISS is subject to sampling and non-sampling errors

Care has been taken to ensure that the results of this survey are as accurate as possible. Trained ABS officers conducted all the interviews. However, some factors may affect the reliability of the data.

Information recorded in this survey is 'as reported' by respondents, and therefore may differ from information available from other sources or collected using different methodologies.

Data on health-related indicators have been age-standardised to the 2001 total Australian population to account for differences in the age structures of the states and territories and the Indigenous and non-Indigenous population.

Time series comparisons for the 2008 survey are available through the 1994 National Aboriginal and Torres Strait Islander Survey and the 2002 NATSISS. However not all data elements align across the three (1994, 2001 and 2008) NATSISS surveys, hence care is required when reviewing results across the three surveys. There are no strictly comparable non-Indigenous results available for the 2008 NATSISS because the latest General Social Survey (which has been used in the past to compare with Indigenous results from the NATSISS) was run in 2006, with the next being run in 2010–11. Data from other ABS surveys run in 2008 may, however, be used to obtain rough non-Indigenous comparisons for some data items. Where possible, the ABS has provided recommendations for non-Indigenous data comparisons and these have been adopted in this report.

The 2008 NATSISS has a relatively large level of under-coverage when compared to other ABS surveys. There was also an increase in under-coverage compared to previous ABS Indigenous surveys. For example, the estimated under-coverage in the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) was 42%. The overall under-coverage rate for the 2008 NATSISS is approximately 53% of the in-scope population at the national level. This rate varies across the states and territories (ABS 2010).

Further information on NATSISS data quality issues can be found in the 2008 NATSISS User's guide (ABS 2010).

Trachoma Surveillance

Caution must be taken when quoting trachoma prevalence as screening took place in predominantly remote and very remote communities designated as being at-risk of endemic trachoma.

Interpretation of coverage data is limited by the accuracy of community population estimates, the school-based approach to screening and the designation of communities at risk. Community population estimates are based upon projections from the Census data. Although this approach is current best practice, the estimates may not accurately reflect populations at the time of screening, given the small size and mobility of some communities.

Designation of at-risk status does not appear to have been systematically reviewed in any jurisdiction. Data collected in Western Australia in 2010, as well as previous Annual National Trachoma Reports and the National Indigenous Eye Health Survey have all demonstrated that communities considered not at-risk may in fact have endemic trachoma.

Bettering the Evaluation and Care of Health (BEACH) survey

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample frame has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. Although the questionnaire contains an Indigenous identifier, it is unknown whether all GPs ask their patients this question. In the BEACH survey, 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners. Further detailed analyses of this issue are covered in *General practice in Australia, heath priorities and policies 1998 to 2008*, (Britt & Miller 2009:101):

'The findings of a BEACH substudy confirmed this suspected under-identification. In the data period reported here, 1.4% of patients encountered identified themselves as Indigenous. In contrast, in a BEACH substudy that asked 9,245 patients a complete set of questions about their cultural background (including Indigenous status) 2.2% (95% CI: 1.6–2.9) of respondents identified themselves as Indigenous (Britt et al. 2007). This rate is similar to the ABS estimates of Indigenous Australians as a proportion of the total population (ABS 2006).

However, the BEACH substudy included Indigenous Australians seen at Community Controlled Health Services funded through Medicare claims, and the estimate of 2.2% could have been an overestimate for the proportion of encounters that are with Indigenous patients in general practice as a whole. Deeble et al. (2008) conducted further investigations on this data and estimated that the BEACH encounter identification was an underestimate of about 10%, and that a more reliable estimate of the Indigenous population would be about 1.6% of all encounters (Deeble et al. 2008).

The findings of these studies are that some GPs are not routinely asking patients at the encounter about their Indigenous status, even when this is a variable specifically collected for each patient encountered, as it is in BEACH encounter data.'

National Hospital Morbidity Database

The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free-standing day hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included. The NHMD does not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

For 2009–10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2,400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10,600 separations for one private hospital.

Separations

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay or a portion of a hospital stay beginning or ending in a change of type of care) and not patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set.

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Separations with care types of *Newborn* episodes that did not include qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded as these activities are not considered to be admitted patient care.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections.

Approximately 2% of hospital records have missing Indigenous status information.

Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. In 2007, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data.

It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Interpretation of results should take into account the relative quality of the data from the jurisdictions. The proportion of the Indigenous population covered by these six jurisdictions is 96%. Tasmania and the Australian Capital Territory data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions.

From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level. Adjustments for Indigenous under-identification have been made at the national level for the total number of hospital separations using an adjustment factor of 89%. No adjustments for under-identification have been made at the state/territory level or principal diagnosis level.

The 2007 AIHW study indicated acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in *Major cities* to 97% in *Remote* and *Very remote* areas. The quality of data supports analyses for hospitalisations by remoteness areas at the national level only.

In 2011–12, the AIHW commenced another study to re-assess the level of under-identification in public hospitals data. All states and territories have participated in the study to assess improvements in data quality. A report on the findings is expected to be published in mid-2013 which will include new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

List of symbols used in tables

n.a. not available

— rounded to zero (including null cells)

0 zero

. . not applicable

n.e.c. not elsewhere classified

n.f.d. not further defined

n.p. not available for publication but included in totals where applicable, unless otherwise indicated

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1.17 Perceived health status

Self-reported, self-assessed health status of Aboriginal and Torres Strait Islander Australians

Data sources

Data for this indicator come from the 2008 National Aboriginal and Torres Strait Islander Social Survey and the 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The Australian Bureau of Statistics (ABS) conducted the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) between August 2002 and April 2003. The 2008 NATSISS was conducted between August 2008 and April 2009. The survey provides information about the Aboriginal and Torres Strait Islander populations of Australia for a wide range of areas of social concern including health, education, culture and labour force participation. The 2008 NATSISS included for the first time children aged under 15. The NATSISS will be conducted every six years, with the next survey planned for 2014.

The 2008 NATSISS collected information by personal interview from 13,300 Indigenous Australians across all states and territories of Australia, including those living in remote areas. The sample covered persons aged 15 years and over who are usual residents in selected private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice.

National Aboriginal and Torres Strait Islander Health Survey

The 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians. This included information on health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. The survey provides comparisons over time in the health of Indigenous Australians. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

It is planned to repeat the NATSIHS at 6-yearly intervals, with the next survey to be conducted during 2012–13 as part of the Australian Health Survey (will be called the Australian Aboriginal and Torres Strait Islander Health Survey (ATSIHS)).

Analyses

Age-standardised rates and ratios have been used for this indicator as an indicator of morbidity in the Indigenous population relative to other Australians. Ratios of this type

illustrate differences between the rates of morbidity among Indigenous people and those of other Australians, taking into account differences in age distributions.

Self-assessed health status

- In 2008, around 57% of the Indigenous population across all age groups reported their health as very good or excellent, 28% reported their health as good and 15% reported their health as fair or poor (Table 1.17.1).
- After adjusting for differences in age structure between the Indigenous and non-Indigenous populations, Indigenous Australians were almost twice as likely as non-Indigenous Australians to report their health as fair or poor (Table 1.17.2).

Self-assessed health status by age and sex

- The proportion of Indigenous Australians aged 15–24 years reporting fair or poor health was 10% compared with 47% of those aged 55 years and over (Table 1.17.1).
- Indigenous females and males reported similar levels of fair or poor health; however Indigenous males were more likely than Indigenous females to report excellent or very good health (40% compared with 36%) (Table 1.17.3).

Table 1.17.1: Indigenous self-assessed health status by age group, 2008

	0–14[(a)]	15–24	25–34	35–44	45–54	55 and over	Total
				Per cent			
Self-assessed health status							
Excellent	46.4	25.2	16.4	12.7	10.6	5.7	27.4
Very good	32.2	32.8	33.4	26.1	19.0	16.4	29.3
Subtotal excellent/very good	*78.7*	*58.0*	*49.8*	*38.7*	*29.6*	*22.0*	*56.7*
Good	17.6	32.2	35.1	37.6	34.2	31.3	27.9
Fair	2.9	7.6	10.7	18.0	22.6	26.5	10.5
Poor	0.8	2.1	4.4	5.7	13.6	20.2	4.9
Subtotal fair/poor	*3.7*	*9.8*	*15.1*	*23.7*	*36.2*	*46.7*	*15.4*
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total persons	**193,249**	**103,780**	**69,931**	**63,851**	**46,912**	**42,627**	**520,350**

(a) Self-assessed health status reported by parent/carer.

Source: ABS and AIHW analysis of 2008 NATSISS.

Table 1.17.2: Self-assessed health status, by Indigenous status and age group, 2008

	15–24		25–34		35–44		45–54		55 and over		Total age-standardised			
	Indig	Non-Indig	Indig	Non-Indig	Indig	Non-Indig	Indig	Non-Indig	Indig	Non-Indig	Indig	Non-Indig	Rate ratio	Rate difference
							Per cent							
Self assessed health status														
Excellent	25.2	26.9	16.4	24.8	12.7	22.7	10.6	19.2	5.7	13.7	13.2	20.7	0.6*	–7.5*
Very good	32.8	40.8	33.4	39.4	26.1	38.5	19.0	36.3	16.4	28.3	24.7	35.9	0.7*	–11.2*
Subtotal excellent/very good	*58.0*	*67.7*	*49.8*	*64.2*	*38.7*	*61.2*	*29.6*	*55.6*	*22.0*	*42.1*	*37.9*	*56.6*	*0.7**	*–18.7**
Good	32.2	25.8	35.1	28.1	37.6	28.3	34.2	28.8	31.3	31.7	33.9	28.8	1.2*	5.1*
Fair	7.6	5.3	10.7	6.6	18.0	7.8	22.6	11.5	26.5	18.0	18.0	10.6	1.7*	7.4*
Poor	2.1	1.2	4.4	1.1	5.7	2.7	13.6	4.2	20.2	8.2	10.2	3.9	2.6*	6.3*
Subtotal fair/poor	*9.8*	*6.5*	*15.1*	*7.7*	*23.7*	*10.5*	*36.2*	*15.7*	*46.7*	*26.2*	*28.2*	*14.5*	*1.9**	*13.7**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**. .**
Total persons	**103,780**	**2,783,949**	**69,931**	**2,819,126**	**63,851**	**2,987,518**	**46,912**	**2,864,016**	**42,627**	**4,919,592**	**327,101**	**16,374,202**	**. .**	**. .**

* Represents results with statistically significant differences at the $p < 0.05$ level in the Indigenous/non-Indigenous comparisons.

Source: ABS and AIHW analysis of 2008 NATSISS.

Table 1.17.3: Self-assessed health status, persons aged 15 years and over, by sex and Indigenous status, 2008

	Non-age-standardised				Age-standardised						
	Males		Females		Males			Females			
Self-assessed health status	Indig	Non-Indig	Indig	Non-Indig	Indig	Non-Indig	Ratio	Indig	Non-Indig	Ratio	Rate difference
	%	%	%	%	%	%		%	%	%	
Excellent	17.9	19.7	14.7	21.2	14.0	19.9	0.7*	12.4	21.6	0.6*	–9.2*
Very good	28.6	35.3	26.5	35.9	25.7	35.6	0.7*	23.8	36.2	0.7*	–12.4*
Subtotal excellent/very good	*46.5*	*55.1*	*41.2*	*57.1*	*39.7*	*55.4*	*0.7**	*36.3*	*57.7*	*0.6**	*–21.4**
Good	32.0	29.5	35.9	28.4	32.2	29.4	1.1	35.4	28.3	1.3*	7.1*
Fair	13.8	11.4	15.9	10.4	16.7	11.2	1.5*	19.1	10.1	1.9*	9.0*
Poor	7.7	4.1	7.0	4.1	11.4	4.0	2.9*	9.2	3.9	2.4*	5.3*
Subtotal fair/poor	*21.5*	*15.5*	*22.9*	*14.5*	*28.2*	*15.2*	*1.9**	*28.3*	*14.0*	*2.0**	*14.3**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**. .**	**100.0**	**100.0**	**. .**	**. .**
Total persons	**156,052**	**8,079,875**	**171,049**	**8,294,327**	**. .**	**. .**	**. .**	**. .**	**. .**	**. .**	**. .**

* Represents results with statistically significant differences at the p < 0.05 level in the Indigenous/non-Indigenous comparisons.

Source: ABS and AIHW analysis of 2008 NATSISS.

Self-assessed health status by state/territory and remoteness

- Indigenous Australians were approximately twice as likely as non-Indigenous Australians to report fair or poor health across all states and territories (Table 1.17.4).
- A higher proportion of Indigenous Australians aged 15 years and over in non-remote areas reported fair or poor health (30%) than Indigenous Australians in remote areas (24%) (Table 1.17.5). Indigenous Australians were around twice as likely to report their health as fair or poor as non-Indigenous Australians across all remoteness categories (Table 1.17.5).

Table 1.17.4: Self-assessed health status[(a)], by Indigenous status and state/territory, persons aged 15 years and over, 2008

	NSW		Vic		Qld		WA		SA		Tas		ACT		NT		Australia	
Self-assessed health status	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig[(b)]**	**Indig.**	**Non-Indig[(b)]**
									Per cent									
Excellent	14.3*	21.5*	15.1*	22.8*	12.9*	16.5*	11.5*	21.3*	11.0*	20.9*	17.5*	22.4*	15.0	18.7	11.5	16.0(c)	13.2*	20.7*
Very good	22.7*	34.9*	28.5*	37.8*	24.8*	35.5*	23.7*	36.6*	20.3*	33.2*	30.9	35.1	27.8*	37.4*	28.2*	48.3*	24.7*	35.9*
Total excellent/very good	*37.1**	*56.4**	*43.6**	*60.6**	*37.7**	*52.1**	*35.3**	*57.9**	*31.3**	*54.1**	*48.4**	*57.5**	*42.7*	*56.1*	*39.8**	*64.3**	*37.9**	*56.6**
Good	30.7	29.1	26.4	26.0	37.7*	32.0*	38.3*	29.7*	34.5	28.8	23.3	26.4	30.5	31.1	36.0*	21.7*	33.9*	28.8*
Fair	18.9*	11.1*	20.0*	9.4*	17.8*	11.7*	17.8*	8.4*	23.3*	12.1*	17.9*	11.7*	14.8	n.p.	13.6	n.p.	18.0*	10.6*
Poor	13.4*	3.4*	10.0*	4.0*	6.8	4.2	8.6*	4.0*	10.9*	4.9*	10.4*	4.4*	12.0[(c)]	n.p.	10.6	n.p.	10.2*	3.9*
Total fair/poor	*32.3**	*14.6**	*30.0**	*13.4**	*24.6**	*15.9**	*26.4**	*12.4**	*34.2**	*17.1**	*28.3**	*16.1**	*26.9**	*12.9**	*24.2*	*14.0[(c)]*	*28.2**	*14.5**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

* Represents results with statistically significant differences at the $p < 0.05$ level in the Indigenous/non-Indigenous comparisons.

(a) Data are age-standardised.

(b) Households in collection districts defined as Very remote were excluded from the National Health Survey 2007–08. This has only a minor impact on aggregate estimates for non-Indigenous data, except in the Northern Territory where such households account for approximately 22% of the population.

(c) Estimate has a relative standard error between 25% and 50% and should be used with caution.

Source: ABS and AIHW analysis of 2008 NATSISS and 2007–08 NHS.

Table 1.17.5: Self-assessed health status[a], by Indigenous status and remoteness, persons aged 15 years and over, 2008

		Excellent	Very good	Total excellent/ very good	Good	Fair	Poor	Total fair/poor	Total number ('000)
Major cities	Indig.	14.4	22.8	37.2	31.4	18.4	13.0	31.4	105,217
	Non-Indig.	21.5	35.6	57.1	28.9	10.2	3.7	13.9	11,284
	Rate ratio[b]	0.7*	0.6*	0.7*	1.1	1.8*	3.5*	2.3*	. .
	Rate difference[c]	–7.1*	–12.8*	–19.9*	2.5*	8.2*	9.3*	17.5*	. .
Inner regional	Indig.	14.1	27.8	41.9	29.5	20.2	8.4	28.7	67,416
	Non-Indig.	20.1	35.9	56.1	28.5	11.3	4.2	15.5	3,466
	Rate ratio[b]	0.7*	0.8*	0.7*	1.0	1.8*	2.0*	1.9*	. .
	Rate difference[c]	–6.0*	–8.1*	–14.2*	1.0	8.9*	4.2*	13.2*	. .
Outer regional	Indig.	11.1	23.4	34.5	36.4	18.5	10.6	29.1	72,967
	Non-Indig.	16.1	37.2	53.3	30.2	11.9	4.6	16.6	1,465
	Rate ratio[b]	0.7*	0.6*	0.6*	1.2*	1.6*	2.3*	1.8*	. .
	Rate difference[c]	–5	–13.8	–18.8	6.2	6.6	6	12.5	. .
Total non-remote	Indig.	13.2	24.4	37.7	32.7	18.8	10.8	29.7	245,600
	Non-Indig.	20.8	35.9	56.6	28.9	10.6	3.9	14.5	16,216
	Rate ratio[b]	0.6*	0.7	0.7	1.1	1.8*	2.8*	2.0	. .
	Rate difference[c]	–7.6	–11.5	–18.9	3.8	8.2	6.9	15.2	. .
Remote	Indig.	11.7	22.4	34.1	38.0	16.8	11.2	28.0	29,839
	Non-Indig	18.3	38.9	57.2	25.5	12.5	4.8	17.3	157.3
	Rate ratio[b]	0.6	0.6*	0.6*	1.5*	1.3	2.3*	1.6*	. .
	Rate difference[c]	–6.6	–16.5	–23.1	12.5	4.3	6.4	10.7	. .
Very remote	Indig.	13.7	27.3	41.0	37.2	15.0	6.8	21.8	51,662
	Non-Indig.	. .	. .	. .	. .	. .	. .	. .	. .
	Rate ratio[b]	. .	. .	. .	. .	. .	. .	. .	. .
	Rate difference[c]	. .	. .	. .	. .	. .	. .	. .	. .
Total remote	Indig.	13.0	25.4	38.4	37.4	15.7	8.5	24.2	81,501
	Non-Indig.	. .	. .	. .	. .	. .	. .	. .	. .
	Rate ratio[b]	. .	. .	. .	. .	. .	. .	. .	. .
	Rate difference[c]	. .	. .	. .	. .	. .	. .	. .	. .
Australia	Indig.	13.2	24.7	37.9	33.9	18.0	10.2	28.2	327,101
	Non-Indig.	20.7	35.9	56.6	28.8	10.6	3.9	14.5	16,374
	Rate ratio[b]	0.6*	0.7*	0.7*	1.2*	1.7*	2.6*	1.9*	. .
	Rate difference[c]	–7.5	–11.2	–18.7	5.1	7.4	6.3	13.7	. .

(a) Data are age-standardised.

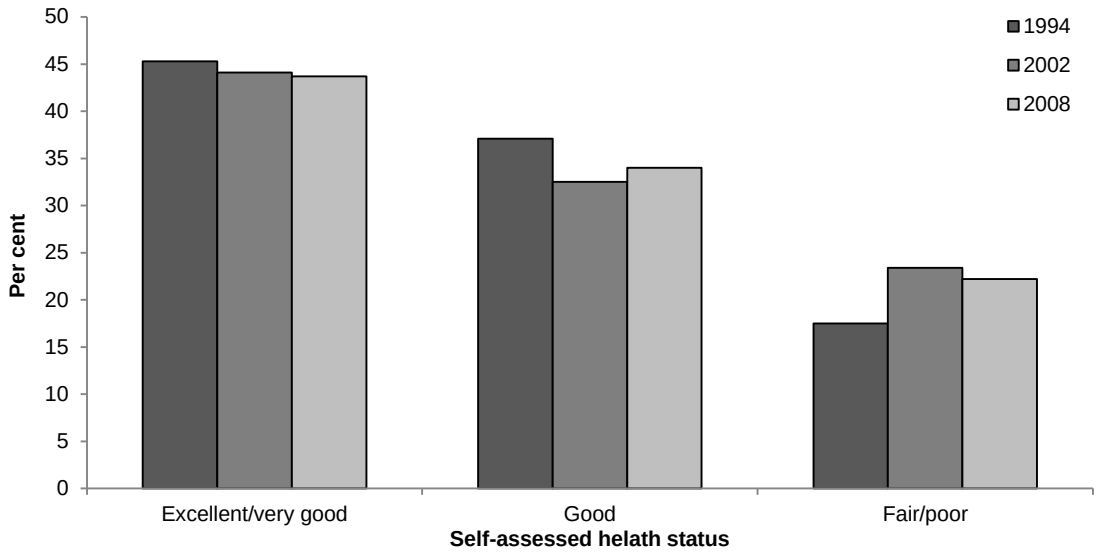
(b) Rate ratios is Indigenous/non-Indigenous.

(c) Rate difference is Indigenous minus non-Indigenous.

Sources: ABS and AIHW analysis of 2008 NATSISS and 2007–08 NHS.

Time series analysis

- There was an increase in Indigenous Australians reporting their health as fair or poor between 1994 (18%) and 2002 (23%) followed by a slight decrease in 2008 (22%) (Figure 1.17.1; Table 1.17.6).
- After adjusting for differences in age structure, Indigenous Australians were more likely than non-Indigenous Australians to report their health as fair or poor for every survey time period (Table 1.17.7).



Sources: ABS and AIHW analysis of NATSISS 1994, NATSISS 2002 and NATSISS 2008.

Figure 1.17.1: Self-assessed health status, Indigenous persons aged 15 years and over, 1994, 2002 and 2008

Table 1.17.6: Self-assessed health status, Indigenous persons aged 15 years and over, 1994, 2002 and 2008

	1994	2002	2008
Excellent/very good	45.3	44.1	43.7
Good	37.1	32.5	34.0
Fair/poor	17.5	23.4	22.2
Total[(a)]	**100.0**	**100.0**	**100.0**
Total persons[(a)]	**214,626**	**282,205**	**327,101**

(a) Totals for 1994 and 2002 include health status not stated.

Sources: ABS and AIHW analysis of NATSISS 1994, NATSISS 2002 and NATSISS 2008.

Table 1.17.7: Self-assessed health status[a], by Indigenous status, persons aged 15 years and over, 2002, 2004–05 and 2008

	2001–2002[b]		2004–05[c]		2008[d]	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
			Per cent			
Excellent/very good	37.1*	51.7*	36*	56.8*	37.9*	56.6*
Good	31.6	30.3	34.8*	27.7*	33.9*	28.8*
Fair/poor	31.1*	18*	29.1*	15.5*	28.2*	14.5*
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

* Represents results with statistically significant differences at the $p < 0.05$ level in the Indigenous/non-Indigenous comparisons.

(a) Data are age-standardised.

(b) Indigenous data from 2002 NATSISS; non-Indigenous data from 2001 NHS.

(c) Indigenous data from 2004–05 NATSIHS; non-Indigenous data from 2004–05 NHS.

(d) Indigenous data from 2008 NATSISS; non-Indigenous data from 2008 NHS.

Sources: ABS and AIHW analysis of NATSISS 2002 and 2008; NATSIHS 2004–05; NHS 2001, 2004–05 and 2007–08.

Self-assessed health status by population, health and social/cultural characteristics

Table 1.17.8 presents data on the association between the self-assessed health status of Indigenous Australians and a number of summary population characteristics.

- In 2008, Indigenous Australians aged 15 years and over who reported their highest year of schooling was Year 9 or below were more likely to report their health as fair or poor (47%) than Indigenous Australians who had completed Year 12 (14%) as their highest year of schooling (Table 1.17.8).
- Indigenous Australians who have a non-school qualification were less likely (31%) than Indigenous Australians who do not have a non-school qualification (69%) to report fair or poor health.
- A higher proportion of Indigenous Australians who were employed reported their health as excellent or very good (61%) than Indigenous Australians who were unemployed (7%) or not in the labour force (32%).
- Indigenous Australians who were in the lowest (1st) quintile of household income and index of disparity were more likely to report their health as fair or poor (62% and 52%) than Indigenous Australians in the highest (5th) quintile for these characteristics (both 3%).

Table 1.17.8: Self-assessed health status, by selected population characteristics and Indigenous status, persons aged 15 years and over, age-standardised rates, 2008

	Excellent/very good				Good				Fair/poor				Total			
	Indig.	Non-Indig.	Rate ratio	Rate difference	Indig.	Non-Indig.	Rate ratio	Rate difference	Indig.	Non-Indig.	Rate ratio	Rate difference	Indig.	Non-Indig.	Rate ratio	Rate difference
	%	%			%	%			%	%						
Main language spoken at home																
English	85.4	90.6	0.9	–5.2	86.2	88.7	1.0	–2.5	89.6	89.1	1.0	0.5	86.6	89.3	1	–2.7
Indigenous language	13.2	. .	. .		12.8	. .	. .		9.5	. .	. .		12.3	. .	. .	. .
Other	1.5[(a)]	. .	. .		1.0[(a)]	. .	. .		0.9[(a)]	. .	. .		1.2	. .	. .	. .
Total other	14.6	9.4	1.5	5.2	13.8	11.3	1.2	2.5	10.5	10.9	1.0	–0.4	13.4	10.7	1.3	2.7
Total	**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**	**. .**
Total persons	**143,004**	**9,185,375**	**. .**		**111,368**	**4,737,396**	**. .**		**72,729**	**2,451,431**	**. .**		**327,101**	**16,374,202**	**. .**	**. .**
Highest year of school completed[(b)]																
Year 12	22.3	58.3	0.4	–36.0	18.4	48.2	0.4	–29.8	13.6	38.9	0.3	–25.3	18.9	52.6	0.4	–33.7
Year 11	12.2	10.0	1.2	2.2	11.6	10.4	1.1	1.2	10.7	9.6	1.1	1.1	11.2	9.8	1.1	1.4
Year 10	28.2	21.1	1.3	7.1	30.5	25.6	1.2	4.9	28.3	28.1	1.0	0.2	28.8	22.9	1.3	5.9
Year 9 or below[(c)]	37.3	10.6	3.5	26.7	39.5	15.8	2.5	23.7	47.4	23.3	2.0	24.1	41.1	14.7	2.8	26.4
Total	**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**	**. .**
Total persons	**124,961**	**8,666,839**	**. .**		**103,333**	**4,589,253**	**. .**		**71,395**	**2,423,332**	**. .**		**299,689**	**15,679,425**	**. .**	**. .**
Whether has non-school qualification																
Has a non-school qualification	38.8	56.6	0.7	–17.8	32.3	51.8	0.6	–19.5	31.1	43.7	0.7	–12.6	33.5	53.0	0.6	–19.5
Does not have a non-school qualification	61.2	43.4	1.4	17.8	67.7	48.2	1.4	19.5	68.9	56.3	1.2	12.6	66.5	47.0	1.4	19.5
Total	**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**	**. .**
Total persons	**143,004**	**9,185,375**	**. .**		**111,368**	**4,737,396**	**. .**		**72,729**	**2,451,431**	**. .**		**327,101**	**16,374,202**	**. .**	**. .**

(continued)

Table 1.17.8 (continued): Self-assessed health status, by selected population characteristics and Indigenous status, persons aged 15 years and over, age-standardised rates, 2008

	Excellent/very good				Good				Fair/poor				Total			
	Indig.	Non-Indig.	Rate ratio	Rate difference	Indig.	Non-Indig.	Rate ratio	Rate difference	Indig.	Non-Indig.	Rate ratio	Rate difference	Indig.	Non-Indig.	Rate ratio	Rate difference
	%	%			%	%			%	%						
Employment																
Employed	60.9	72.6	0.8	–11.7	51.1	66.4	0.8	–15.3	34.5	50.1	0.7	–15.6	49.2	66.8	0.7	–17.6
Unemployed	7.0	2.0	3.5	5.0	7.9	2.9	2.7	5.0	10.2	4.4	2.3	5.8	7.9	2.5	3.2	5.4
Not in the labour force	32.1	25.4	1.3	6.7	41.0	30.7	1.3	10.3	55.3	45.5	1.2	9.8	42.8	30.7	1.4	12.1
Total	**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**	**. .**
Total persons	**143,004**	**9,185,375**	**. .**		**111,368**	**4,737,396**	**. .**		**72,729**	**2,451,431**	**. .**		**327,101**	**16,374,202**	**. .**	**. .**
Household income[(d)]																
1st quintile	44.0	11.1	4.0	32.9	50.6	15.0	3.4	35.6	61.7	27.9	2.2	33.8	51.6	15.4	3.4	36.2
5th quintile	6.1	25.1	0.2	–19.0	4.8	18.6	0.3	–13.8	2.5	14.1	0.2	–11.6	4.6	21.3	0.2	–16.7
Total excluding income not stated	**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**	**. .**
Total persons	**114,934**	**7,758,877**	**. .**		**87,853**	**4,034,621**	**. .**		**58,325**	**2,128,393**	**. .**		**261,112**	**13,921,890**	**. .**	**. .**
Index of disparity[(e)]																
1st quintile	49.8	13.7	3.6	36.1	51.2	17.1	3.0	34.1	51.6	27.1	1.9	24.5	50.9	16.7	3	34.2
5th quintile	4.3	26.0	0.2	–21.7	3.3[(a)]	20.0	0.2	–16.7	3.1[(a)]	13.8	0.2	–16.7	3.8	22.4	0.2	–18.6
Total excluding not stated	**100.0**	**100.0**	**. .**		**100.0**	**100.0**			**100.0**	**100.0**	**. .**		**100.0**	**100.0**	**. .**	**. .**
Total persons	**139,262**	**9,154,387**	**. .**		**108,103**	**4,708,952**			**70,675**	**2,434,510**	**. .**		**318,041**	**16,297,848**	**. .**	**. .**

(continued)

Table 1.17.8 (continued): Self-assessed health status, by selected population characteristics and Indigenous status, persons aged 15 years and over, age-standardised rates, 2008

	Excellent/very good				Good				Fair/poor				Total			
	Indig.	Non-Indig.	Rate ratio	Rate difference	Indig.	Non-Indig.	Rate ratio	Rate difference	Indig.	Non-Indig.	Rate ratio	Rate difference	Indig.	Non-Indig.	Rate ratio	Rate difference
	%	%			%	%			%	%						
Location																
Remote	26.1	. .	. .		28.1	. .	. .		20.7	. .	. .		25.5	. .	. .	. .
Non-remote	73.9	. .	. .		71.9	. .	. .		79.3	. .	. .		74.5	. .	. .	. .
Total	**100.0**	. .	. .		**100.0**	. .	. .		**100.0**	. .	. .		**100.0**	. .	. .	. .
Total persons	**143,004**	. .	. .		**111,368**	. .	. .		**72,729**	. .	. .		**327,101**	. .	. .	. .

(a) Estimate has a relative standard error between 25% and 50% and should be used with caution.

(b) Excludes those who are still attending secondary school.

(c) Includes persons who never attended school.

(d) Equivalised income of household.

(e) Index of Relative Socio-economic Advantage and Disadvantage.

Sources: ABS and AIHW analysis of 2008 NATSISS and 2007–08 NHS.

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Additional information

Data on the association between self-assessed health status and other health and social/cultural characteristics are presented in a number of other health performance indicators included in this framework. These data come from the 2004–05 NATSIHS and the 2008 NATSISS and are summarised below.

- In 2008, approximately 40% of Indigenous Australians aged 15 years and over who reported their health as fair/poor had been formally charged by the police compared with 30% of Indigenous Australians who reported their health as excellent or very good (Indicator 2.11).
- In 2004–05, the proportion of Indigenous Australians who reported that they usually went to the same GP or medical service was similar for those with reported excellent/very good/good health and those with fair/poor health (89% and 90% respectively) (Indicator 3.17).
- In 2008, approximately 19% of Indigenous Australians aged 15 years and over who reported they did not recognise or live on their homeland/traditional country reported their health as fair/poor compared with 20% of Indigenous Australians who reported they recognised and lived on their homeland (Indicator 2.14).
- In 2004–05, a higher proportion of Indigenous Australians who reported fair/poor health accessed health care in the last 12 months than Indigenous Australians who reported excellent/very good or good health (64% compared with 44%) (Indicator 3.14).
- In 2004–05, the proportion of Indigenous Australians aged 18 years who drank at short-term or long-term risky/high-risk levels and reported their health as fair/poor was similar to the proportion of Indigenous Australians in the total population who reported their health as fair/poor (25% for both groups) (Indicator 2.16).
- Approximately 58% of Indigenous Australians in non-remote areas with fair/poor health status reported exercising at sedentary levels compared with 48% of Indigenous Australians with excellent/very good/good health status in 2004–05 (Indicator 2.18).
- In 2008, approximately 58% of Indigenous Australians aged 15–64 years with reported excellent/very good/good health were employed in the labour force compared with 45% of Indigenous Australians with reported fair/poor health (Indicator 2.07).
- A higher proportion of both Indigenous and non-Indigenous Australians aged 18 years who could not get to places when needed reported fair/poor health status (38% and 55%) than Indigenous and non-Indigenous Australians who could easily get to places when needed (26% and 12%) (Indicator 2.13).

Data quality issues

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The NATSISS is conducted in all states and territories and includes remote and non-remote areas. The 2008 sample was 13,300 persons in 6,900 households, with a response rate of 82% of households. Up to three randomly selected Indigenous people were chosen from selected households to participate in the survey. Trained ABS interviewers conducted the survey using face-to-face interviews. In non-remote areas interviewers used a notebook computer to record responses, while in remote areas a paper questionnaire was used. Interviewers obtained the consent of a parent or guardian before interviewing those aged 15 to 17 years. Indigenous persons usually resident in non-private dwellings such as hotels, motels, hostels, hospitals, short-stay caravan parks, prisons and other correctional facilities were excluded.

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians.

As with other surveys, the NATSISS is subject to sampling and non-sampling errors.

Care has been taken to ensure that the results of this survey are as accurate as possible. Trained ABS officers conducted all interviews. However, some factors may affect the reliability of the data.

Information recorded in this survey is 'as reported' by respondents, and therefore may differ from information available from other sources or collected using different methodologies.

Data on health-related indicators have been age-standardised to the 2001 total Australian population to account for differences in the age structures of the states and territories and the Indigenous and non-Indigenous population.

Time series comparisons for the 2008 survey are available through the 1994 National Aboriginal and Torres Strait Islander Survey and the 2002 NATSISS. However not all data elements align across the three (1994, 2002 and 2008) NATSISS surveys, hence care is required when reviewing results across the three surveys. There are no strictly comparable non-Indigenous results available for the 2008 NATSISS because the latest General Social Survey (which has been used in the past to compare with Indigenous results from the NATSISS) was run in 2006, with the next being run in 2010–11. Data from other ABS surveys run in 2008 may, however, be used to obtain rough non-Indigenous comparisons for some data items. Where possible, the ABS has provided recommendations for non-Indigenous data comparisons and these have been adopted in this report.

The 2008 NATSISS has a relatively large level of under-coverage when compared to other ABS surveys. There was also an increase in under-coverage compared to previous ABS Indigenous surveys. For example, the estimated under-coverage in the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) was 42%. The overall under-coverage rate for the 2008 NATSISS is approximately 53% of the in-scope population at the national level. This rate varies across the states and territories (ABS 2010).

Further information on NATSISS data quality issues can be found in the 2008 *NATSISS: User's guide* (ABS 2010).

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians. It therefore overcomes the problem inherent in most national surveys

with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Imperfect recall or individual interpretation of survey questions may nevertheless affect some responses.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in *Major cities*, *Inner* and *Outer regional* areas and *Remote* and *Very remote* areas, but *Very remote* areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 NHS.

In *Remote* and *Very remote* communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

List of symbols used in tables

n.a.	not available
–	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

References

ABS (Australian Bureau of Statistics) 2006. National Aboriginal and Torres Strait Islander Health Survey 2004–05. ABS Cat. no. 4715.0. Canberra: ABS.

ABS 2010. National Aboriginal and Torres Strait Islander Social Survey: Users' guide. ABS Cat. no. 4720.0. Canberra: ABS.

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1.18 Social and emotional wellbeing

The social and emotional wellbeing of Aboriginal and Torres Strait Islander people expressed as a percentage by age group, age-standardised rate and ratio

Data sources

Data for this measure come from the National Aboriginal and Torres Strait Islander Health Survey, the National Aboriginal and Torres Strait Islander Social Survey, the Western Australian Aboriginal Child Health Survey, the Bettering the Evaluation and Care of Health survey, the Australian Institute of Health and Welfare (AIHW) National Hospital Morbidity Database, the AIHW National Mortality Database, the AIHW National Community Mental Health Care Database, and the AIHW National Residential Mental Health Care Database.

National Aboriginal and Torres Strait Islander Health Survey

The 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians. This included information on health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. The survey provides comparisons over time in the health of Indigenous Australians. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

It is planned to repeat the NATSIHS at 6-yearly intervals, with the next survey to be conducted during 2012–13 as part of the Australian Health Survey (will be called the Australian Aboriginal and Torres Strait Islander Health Survey (ATSIHS)).

National Aboriginal and Torres Strait Islander Social Survey

The Australian Bureau of Statistics (ABS) conducted the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) between August 2002 and April 2003. The 2008 NATSISS was conducted between August 2008 and April 2009. The survey provides information about the Aboriginal and Torres Strait Islander populations of Australia for a wide range of social issues including health, education, culture and labour force participation. The 2008 NATSISS included for the first time children aged under 15. The NATSISS will be conducted every six years, with the next survey planned for 2014.

The 2008 NATSISS collected information by personal interview from 13,300 Indigenous Australians across all states and territories of Australia, including those living in remote areas. The sample covered persons aged 15 years and over who are usual residents in selected private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice.

Western Australian Aboriginal Child Health Survey

This survey was a large-scale investigation into the health of 5,289 Western Australian Aboriginal and Torres Strait Islander children aged 0–17 years. It was undertaken in 2001 and 2002 by the Telethon Institute for Child Health Research in conjunction with the Kulunga Research Network. The survey was the first to gather comprehensive health, educational and developmental information on a population-based sample of Aboriginal and Torres Strait Islander children and their families and communities.

The survey findings were published in four volumes between June 2004 and November 2006.

Bettering the Evaluation and Care of Health survey

Information about encounters in general practice is available from the BEACH survey, which was conducted by the AIHW Australian General Practice Statistics and Classification Centre, in the Family Medicine Research Centre (FMRC) at the University of Sydney until March 2012, when the AIHW ceased its involvement in the BEACH program . The FMRC continues to run BEACH the results are now published by the University of Sydney. The most recent annual reports can be found at http://ses.library.usyd.edu.au/handle/2123/7771.

Information is collected from every changing random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive GP–patient encounters is collected by each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated because some GPs might not ask the question on Indigenous status, or the patient may choose not to identify themselves (AIHW 2002).

Data are presented for the 5-year period 2006–07 to 2010–11, during which there were around 6,000 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.2% of total GP encounters.

National Hospital Morbidity Database

The National Hospital Morbidity Database is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments.

Hospitalisation data are presented for the 2-year period from July 2008 to June 2010. An aggregate of 2 years of data has been used, because the number of hospitalisations for some conditions is likely to be small for a single year.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individual, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question. For example, it is not possible to identify whether one patient was admitted 5 times or five patients were admitted once. People who receive treatment at hospital but are not admitted are not counted in hospital records. Hospital separation data are also affected by variations in admission practices, and the availability of and access to hospital and non-hospital services.

Care types 7.3, 9 and 10 (Newborn – unqualified days only; organ procurement; hospital border) have been excluded from analysis.

Data are presented for the six jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalisations in 2006–08—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). These six jurisdictions represent approximately 96% of the Indigenous population of Australia. National totals include separations for people resident in these six jurisdictions only and are not necessarily representative of the jurisdictions not included. Indigenous status data are reported for Tasmania and the Australian Capital Territory (public hospitals only) with caveats until further audits of the quality of data in these jurisdictions are completed. Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Data are presented by state/territory of usual residence of the patient.

The following caveats have been recommended for analysis of hospitalisation data from selected jurisdictions (AIHW 2010a):

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from New South Wales and South Australia, and relatively marked Indigenous under-identification in data from Queensland and Victoria).
- Interpretation of time series analysis should take into account the possible contribution of changes over time in ascertainment of Indigenous status. This will be reflected in Indigenous patient changes in hospitalisation rates for Indigenous people.

National Mortality Database

The National Mortality Database is a national collection of de-identified unit record level data. It comprises most of the information recorded on death registration forms and medical (cause of death) certificates, including Indigenous status. The database is maintained by the Australian Institute of Health and Welfare (AIHW). Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the Australian Bureau of Statistics (ABS). Information on the cause of death is supplied by the medical practitioner certifying the death, or by a coroner. The data are updated each calendar year and are presented by state/territory of usual residence rather than state/territory where death occurs.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander people are registered. However, a proportion of these deceased are not reported as Aboriginal or Torres Strait Islander by the family, health worker or funeral director during the death registration process. That is, while data are provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked of relatives and friends of the deceased by the funeral director.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to 3 jurisdictions (Western Australia, South Australia and the Northern Territory) with adequate identification of Indigenous deaths in their recording systems from 1991 onwards. The quality of the time-series data is also influenced by the late inclusion of a not stated

category for Indigenous status in 1998. Prior to this time, the not stated responses were probably included with the non-Indigenous.

Deaths registered in 2010 with a usual residence of Queensland have been adjusted to exclude deaths registered in 2010 that occurred prior to 2007. This is to minimise the impact of late registration of deaths due to recent changes in the timeliness of death registrations in Queensland.

Western Australian Aboriginal and Torres Strait Islander deaths for 2007, 2008 and 2009, have been revised to correct for a data quality issue which resulted in the over-reporting of Indigenous deaths during this period.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2006–2010 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years.

National Community Mental Health Care Database

Information on the use of community mental health services by Indigenous people is available from the AIHW National Community Mental Health Care Database (NCMHCD). The NCMHCD is a collation of data on specialised mental health services provided to non-admitted patients, in both government-operated community and hospital-based ambulatory care services. For example, community mental health services, outpatient clinics and day clinics.

The quality of the Indigenous identification in this database varies by jurisdiction and should be interpreted with caution. All state and territory health authorities provided information on the quality of the data for the NCMHCD 2009–10. New South Wales, Victoria, Western Australia, Tasmania, and the Australian Capital Territory considered the quality of Indigenous status data to be acceptable. Queensland reported that the quality of Indigenous status data was acceptable at the broad level, however, there are quality issues regarding the coding of more specific details (that is, Aboriginal, Torres Strait Islander, or Both Aboriginal and Torres Strait Islander). Northern Territory considered the quality to be below the previous year's standard as a result of lack of compliance with non-mandated data collection items by new external (non-mental health) health service provider data entry. South Australia indicated that the quality of these data is uncertain at this stage.

National Residential Mental Health Care Database

Information on the use of residential mental health services by Indigenous people is available from the AIHW National Residential Mental Health Care Database (NRMHCD). The information collected in the database is a nationally agreed set of common data elements collected by service providers and based on the National Minimum Data Set for Residential Mental Health Care.

The quality of Indigenous identification in this database varies by jurisdiction.

As with hospitalisation data, service contacts for which the Indigenous status of the client was not reported have been included with hospitalisations for non Indigenous people under the 'other' category.

Analyses

Age-standardised rates and ratios have been used for this indicator as a measure of the Indigenous population relative to other Australians. Ratios of this type illustrate differences between the rates among Indigenous people and those of other Australians, taking into account differences in age distributions.

Self-reported prevalence

Self-reported data on the social and emotional wellbeing of Aboriginal and Torres Strait Islander people are available from the 2008 NATSISS and 2004–05 NATSIHS. Data from these surveys are outlined below.

Psychological distress

Five questions from the Kessler Psychological Distress Scale were used to measure psychological distress in the 2008 NATSISS. The responses to these five psychological distress items were scored and summed to create a 'Kessler-5' (K5) psychological distress score.

- In 2008, overall, 67% of Indigenous people reported low/moderate psychological distress levels and 32% reported feelings associated with high/very high levels of psychological distress. Indigenous females were more likely than Indigenous males to report high/very high levels of distress (35% and 28%, respectively) (Table 1.18.1).

Table 1.18.1: Proportion of Indigenous people aged 18 years and over who reported psychological distress, by level of psychological distress, by demographic characteristics, 2008

	Low/ moderate	High/ very high	Number of persons[(a)]
		Per cent	
Sex			
Male	70.0	27.8	137,653
Female	63.8	35.2	153,284
Age			
18–24 years	64.9	32.9	67,616
25–34 years	68.4	30.6	69,931
35–44 years	66.4	32.4	63,851
45–54 years	65.4	33.1	46,912
55 years and over	68.7	29.0	42,627
Remoteness			
Non-remote	66.5	32.5	215,788
Remote	67.4	29.3	75,149
Total	66.7	31.7	290,937
Total number of Indigenous persons	**194,115**	**92,225**	**290,937**

(a) Includes not stated.

Source: AIHW analysis of the 2008 NATSISS.

Psychological distress by age and remoteness

By using data from both the 2004–05 NATSIHS and the 2004–05 NHS, the level of psychological distress among Indigenous and non-Indigenous Australians can be compared.

- In 2004–05, after adjusting for age differences between the Indigenous and non-Indigenous populations, Indigenous Australians were twice as likely as non-Indigenous Australians to report high or very high levels of psychological distress (Table 1.18.2).
- Across all age groups, with the exception of the age group 18–24 years, the rate of high levels of psychological distress for Indigenous Australians was at least twice that of non-Indigenous Australians (Table 1.18.2).
- Differences by Indigenous status were observed for each of the three remoteness categories for which there were data, with the largest difference observed for those in *Outer regional* areas, where 2.3 Indigenous adults reported high/very high psychological distress levels for every one non-Indigenous adult who reported the same level of psychological distress (Table 1.18.3).

Table 1.18.2: Number and proportion of people aged 18 years and over who reported high or very high levels of psychological distress, by Indigenous status, by age, 2004–05

	Indigenous		Non-Indigenous			
	Number	Per cent[(a)]	Number	Per cent[(a)]	Rate ratio[(b)]	Rate difference
18–24 years	14,727	26.0	299,556	16.1	1.6	9.9
25–34 years	18,935	27.1	338,165	12.2	2.2	14.9
35–44 years	17,231	29.2	389,503	13.4	2.2	15.8
45–54 years	11,656	29.4	369,117	13.6	2.2	15.8
55 years and over	7,620	23.0	528,206	11.7	2.0	11.3
Total	*70,168*	*26.6*	*1,924,547*	*13.1*	*2.0*	*13.5*
Total no. of people[(c)]	**258,297**	**..**	**14,753,256**	**..**	**..**	**..**

(a) The rates for total persons were directly age-standardised, and the rates for each age group are crude rates.

(b) Rate ratio Indigenous: non-Indigenous.

(c) Includes missing responses.

Source: AIHW analysis of the 2004–05 NATSIHS and 2004 NHS.

Table 1.18.3: Number and proportion of people aged 18 years and over who reported high or very high levels of psychological distress, by Indigenous status, by remoteness[a], 2004–05

	Indigenous		Non-Indigenous			
	Number	Per cent[b]	Number	Per cent[b]	Rate ratio[c]	Rate difference
Major cities	19,871	25.4	1,301,362	12.9	2.0	12.5
Inner regional	14,995	27.9	403,581	13.9	2.0	14.0
Outer regional	16,383	29.0	198,968	12.8	2.3	16.2
Total[d]	*70,168*	*26.6*	*1,924,547*	*13.1*	*2.0*	*13.5*
Total no. of people[d][e]	**258,297**	**. .**	**14,753,256**	**. .**	**. .**	**. .**

(a) Since the remote sample of the NHS did not have the same scope and coverage as that of the NATSIHS, comparisons of psychological distress can be made only between Indigenous and non-Indigenous people living in non-remote areas of Australia.

(b) Directly age-standardised using the Australian 2001 standard population.

(c) Rate ratio Indigenous: non-Indigenous.

(d) Includes those living in Remote or Very remote areas.

(e) Includes missing responses.

Source: AIHW analysis of the 2004–05 NATSIHS and 2004–NHS.

Impact of psychological distress

Visits to health professional

- In 2008, the majority (85%) of those who reported a level of psychological distress (a score of more than 5) did not see a doctor or other health professional about their feelings of distress in the 4-week period prior to the 2008 National Aboriginal and Torres Strait Islanders Social Survey (Table 1.18.4).
- During the 4 weeks before interview, those who did seek help visited a health professional 2.8 times on average.
- Indigenous females were more likely than Indigenous males to have visited health professionals about their distress (17% compared with 12%, respectively).
- The proportion to have seen a health professional about their distress increased with age. Around 23% of Indigenous persons aged 55 years and over who reported a level of psychological distress had seen a health professional about their distress during the 4 weeks before interview, compared with 8% of those aged 18–24 years.

Table 1.18.4: Proportion of Indigenous people aged 18 years and over who reported a level of psychological distress[(a)(b)], by whether saw a health professional because of psychological distress, by demographic characteristics, 2008

	Did not see a health professional	Saw a health professional (at least once)	Total number[(c)]	Average number of visits in last 4 weeks
Males	87.7	12.3	104,413	2.8
Females	83.0	16.9	126,349	2.9
18 to 24 years	91.7	8.3	54,768	3.1
25 to 34 years	86.7	13.2	55,257	2.5
35 to 44 years	85.4	14.6	51,761	2.9
45 to 54 years	79.6	20.4	37,479	2.8
55 years and over	77.3	22.7	31,497	2.9
Major cities	84.2	15.8	77,791	2.9
Inner regional	84.1	15.9	47,275	2.7
Outer regional	87.4	12.4	51,381	2.5
Remote/Very remote	85.3	14.7	54,316	3.0
Total	**85.2**	**14.8**	**230,762**	**2.8**

(a) Based on the Kessler-5 (K5) measure of psychological distress. Overall levels of distress are based on frequency responses to the following five questions about feelings in the last 4 weeks: About how often did you feel nervous?; About how often did you feel without hope?; About how often did you feel restless or jumpy?; About how often did you feel everything was an effort?; and About how often did you feel so sad that nothing could cheer you up?

(b) Excludes persons whose only response(s) to K5 question(s) were 'none of the time'.

(c) Includes a small number of refusals to question about whether visited a health professional.

Source: ABS and AIHW analysis of 2008 NATSISS.

Population characteristics

Table 1.18.5 presents the level of psychological distress for Indigenous persons aged 18 years and over by selected population characteristics.

- In 2008, a higher proportion of Indigenous persons with fair/poor health reported high/very high levels of psychological distress than Indigenous persons with excellent or very good health (52% compared with 20%).
- Levels of high/very high psychological distress increased steadily with the number of stresses reported. Indigenous persons who reported between 12 and 24 stressors were more likely to have high/very high levels of psychological distress (58%) than those who reported three or fewer stressors (29%).
- A higher proportion of Indigenous persons in the lowest income quintile reported high/very high levels of psychological distress than Indigenous persons in the highest income quintile (37% compared with 21%).
- Approximately 35% of Indigenous persons who were renters reported high/very high levels of psychological distress compared with 24% of Indigenous persons who were home owners.
- Indigenous persons who completed Year 9 or below as their highest year of school completed were more likely to have high/very high levels of psychological distress (37%) than persons who completed Year 12 (26%).
- Psychological distress was similar for both Indigenous persons with a non-school qualification and without a non-school qualification (31% and 32% respectively).
- Approximately 46% of Indigenous persons who were unemployed reported high/very high levels of psychological distress compared with 25% of Indigenous persons who were employed.

Table 1.18.5: Proportion of people who reported psychological distress, by level of psychological distress[a], by selected population characteristics, Indigenous persons aged 18 years and over, 2008

	Low / moderate (5–11)[b]	High / very high (12–25)
	Per cent	
Self-assessed health		
Excellent/very good	78.1	20.3
Good	67.3	31.2
Fair/poor	46.7	51.7
Number of stressors		
1 to 3	70.1	28.5
4 to 7	54.8	44.2
8 to 11	53.5	44.9
12 to 24	40.8	57.7
Total reporting selected stressor(s)	*63.1*	*35.6*
None of the selected stressors reported	80.6	17.0
Personal income		
First quintile (lowest)	59.9	37.2
Fifth quintile (highest)	78.8	20.5
Housing		
Owner/purchaser[c]	75.3	24.2
Renter	63.1	34.9
Educational attainment		
Highest year of school completed[d]		
Year 9 or below	60.4	37.1
Year 10	69.3	29.9
Year 11	64.0	35.3
Year 12	73.3	25.5
Year 12/Certificate II or above		
Has Year 12/Certificate II or above	69.8	29.4
Without Year 12/Certificate II or above	64.5	33.4
Non-school qualification		
Has a non-school qualification	68.3	31.0
Does not have a non-school qualification	65.9	32.1
Labour force status		
Employed	74.3	24.7
Unemployed	53.7	45.9
Not in the labour force	58.9	38.3
Total persons aged 18 years and over	**66.7**	**31.7**
Total persons aged 18 years and over (number)	**194,115**	**92,225**

(continued)

Table 1.18.5 (continued): Proportion of people who reported psychological distress, by level of psychological distress[(a)], by selected population characteristics, Indigenous persons aged 18 years and over, 2008

(a) Based on the Kessler-5 (K5) measure of psychological distress. Overall levels of distress are based on frequency responses to the following five questions about feelings in the last 4 weeks: About how often did you feel nervous?; About how often did you feel without hope?; About how often did you feel restless or jumpy?; About how often did you feel everything was an effort?; and About how often did you feel so sad that nothing could cheer you up?.

(b) Includes persons who said they had not had any of these feelings in the last 4 weeks (score of 5).

(c) Comprises persons living in a dwelling that was owned without a mortgage, owned with a mortgage or being purchased under a rent/buy scheme.

(d) Excludes persons who were attending secondary school.

Source: ABS and AIHW analysis of 2008 NATSISS.

Life stressors

Respondents of the 2008 NATSISS were asked to indicate which (if any) of the listed stressors they, their family and/or friends had experienced during the last 12 months.

- In 2008, approximately 79% of Indigenous people aged 18 years and over reported that they had experienced at least one stressor in the last 12 months. The most common stressors reported were the death of a family member or close friend (40%), serious illness or disability (33%), unable to get a job (23%), and alcohol-related problems (21%) (Table 1.18.6).
- The types of stressors reported by respondents differed according to remoteness area. For example, Indigenous adults who lived in *Remote* or *Very Remote* areas were more likely than other Indigenous adults to have reported a death of a family member or close friend, have alcohol related problems and gambling problems. Overall, the average number of stressors reported was similar independent of remoteness (4 to 5).

Table 1.18.6: Proportion of Indigenous people aged 18 years and over reporting stressors experienced by self, family or friends in last 12 months, by remoteness, 2008

	Major cities	Inner regional	Outer regional	Remote/ very remote	Australia
Experienced selected stressor(s)					
Really bad illness	36.5	30.1	27.5	24.9	30.2
Really bad disability	8.2	6.4	8.5	5.6	7.2
Total illness or disability	38.9	32.1	30.7	26.9	32.6
Really bad accident	11.1	7.7	8.8	11.0	9.9
Mental illness	22.1	17.8	17.8	9.8	17.1
Getting married / marriage	8.2	4.4	5.8	3.6	5.7
Pregnancy	22.2	20.4	14.5	9.9	16.9
New family member	12.8	11.2	9.7	5.5	9.9
Overcrowding at home	12.6	9.6	10.8	16.7	12.7
Getting back together with a spouse	5.3	4.4[(a)]	4.4	3.2	4.4
Divorce or separation	11.3	10.3	12.3	6.0	10.0
Death of family member or close friend	40.2	34.7	40.6	44.9	40.4
Not able to get a job	23.6	22.7	24.6	19.3	22.5
Lost job / made redundant / sacked / retired	14.6	8.9	9.9	6.3	10.3
Started a new job / changed jobs	13.9	9.4	8.9	7.2	10.2
Pressure to fulfil cultural responsibilities	6.2	4.4	4.9	4.1	5.0
Alcohol-related problems	21.3	17.8	19.1	22.9	20.5
Drug-related problems	17.8	13.8	13.1	15.0	15.3
Gambling problems	13.0	10.2	10.2	14.0	12.1
Witness to violence	10.3	7.7	8.1	9.0	9.0
Abuse or violent crime	9.1	6.7	7.2	6.6	7.6
You, a family member or friend spent time in jail	12.9	12.9	12.3	12.9	12.8
Trouble with the police	15.1	15.0	14.2	14.3	14.7
Treated badly / discrimination	12.6	10.1	10.5	7.1	10.2
Unwelcome at child's school	2.0[(a)]	1.5[(a)]	1.2[(a)]	0.6[(a)]	1.4
Total reporting stressor(s)	81.9	78.8	79.7	75.0	79.0
Did not report any of the selected stressors	**18.1**	**21.1**	**20.2**	**24.9**	**20.9**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Average number of stressors[(b)]	**4.9**	**4.3**	**4.3**	**4.2**	**4.5**

(a) Estimate has a relative standard error between 25% and 50% and should be used with caution.

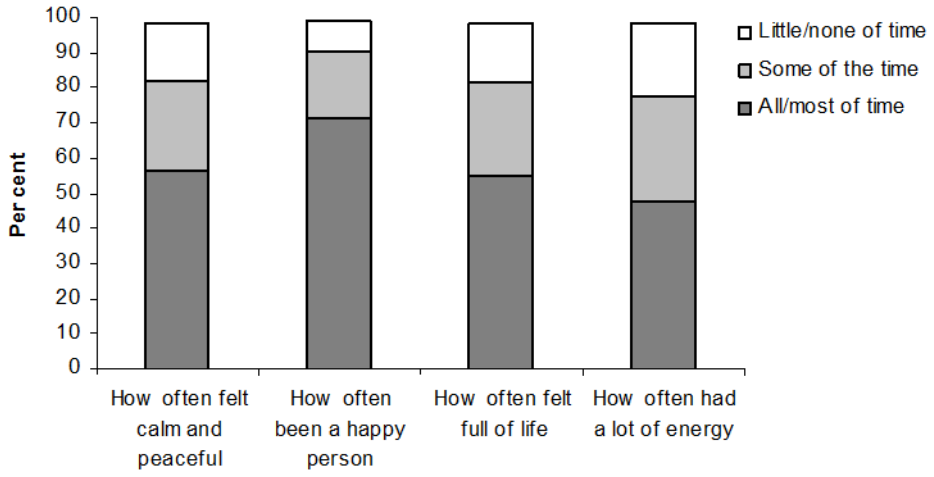
(b) Based on all persons reporting stressor(s).

Source: ABS and AIHW analysis of 2008 NATSISS.

Positive wellbeing

Four items were selected from the mental health and vitality scales of the Medical Outcome Short Form Health Survey (SF-36) to provide a measure of positive wellbeing in the 2004–05 NATSIHS. These items measured the extent to which respondents felt calm/peaceful, happy, full of life, and had lots of energy.

- More than half of the adult Indigenous population reported being happy (71%), calm and peaceful (56%) and/or full of life (55%) all or most of the time, and just under half (47%) said they had a lot of energy all or most of the time (Figure 1.18.1).



Note: Percentages exclude missing responses.

Source: AIHW analysis of the 2004–05 NATISHS.

Figure 1.18.1: Positive wellbeing of Indigenous Australians aged 18 years and over, 2004–05

Positive life events

The 2008 NATSISS collected information about whether Indigenous children had experienced positive life events, which were defined as whether child had received an award, prize or other recognition; whether child had a positive experience with the police; or whether the child went on a holiday or trip away in the last 12 months.

- In 2008, the majority (62%) of Indigenous children aged 4 to 14 years reported experiencing a positive life event (Table 1.18.7).
- A higher proportion of Indigenous children living in non-remote areas reported experiencing a positive life event (63%) compared with Indigenous children in remote areas (58%) (Table 1.18.7).

Table 1.18.7: Indigenous children[(a)] experiencing positive life events[(b)], by state, remoteness and sex, 2008

	Number	Per cent
State		
New South Wales	24,886	59.0
Victoria	6,426	71.4
Queensland	26,483	66.6
South Australia	4,478	59.1
Western Australia	11,900	63.3
Tasmania/ACT	3,778	64.0
Northern Territory	8,565	53.2
Remoteness		
Remote	19,267	57.9
Non-remote	67,249	63.4
Sex		
Males	43,084	60.6
Females	43,432	63.7
Total	**86,516**	**62.1**

(a) Children aged 4 to 14 years.

(b) A positive life event was defined as whether child received an award, prize or other recognition; whether child had a positive experience with the police; or whether child went on a holiday or trip away in the last 12 months.

Source: AIHW analysis of the 2008 NATSISS.

Cultural, family and community attachments

The 2008 NATSISS collected information on a range of social issues relevant to the social and emotional wellbeing of Indigenous Australians including cultural, family and community attachments.

- In 2008, approximately 47% of Indigenous people aged 18 years and over reported that they or a relative had been removed from their natural family. In addition those Indigenous people reported Moderate, High and Very high levels of psychological distress between 51% and 58% (Table 1.18.8).
- In 2008, 72% of Indigenous Australians 35–44 years old, reported they identified with a clan or tribal group, compared with 51% of Indigenous 15–24 year olds. Of those Indigenous Australians who recognised their homelands or traditional country, 26% of Indigenous Australians lived in traditional lands (see *Indicator 2.14 Indigenous people with access to their traditional lands* for more information).

Table 1.18.8: Removal from natural family by psychological distress[a], Indigenous persons aged 18 years and over, 2008

	Low (5 to 8)[b]	Moderate (9 to 11)	High (12 to 15)	Very high (16 to 25)	Total
			Per cent		
Individual removed from family (with or without relative(s))	7.1	9.6	7.5	15.1	8.8
Relative(s) only removed from family	34.0	41.0	44.8	43.1	38.6
Neither individual nor relative(s) removed from family	58.9	49.4	47.7	41.8	52.6
Total fully responding persons[c]	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Total no. of Indigenous people aged 18 years and over	**130,768**	**63,348**	**56,217**	**36,008**	**290,937**

(a) Based on the Kessler-5 (K5) measure of psychological distress. Overall levels of distress are based on frequency responses to the following five questions about feelings in the last 4 weeks: About how often did you feel nervous?; About how often did you feel without hope?; About how often did you feel restless or jumpy?; About how often did you feel everything was an effort?; and About how often did you feel so sad that nothing could cheer you up?.

(b) Includes persons who said they had not had any of these feelings in the last 4 weeks (score of 5).

(c) Excludes persons who did not respond to questions about removal from natural family.

Source: ABS and AIHW analysis of 2008 NATSISS.

Alcohol and other substance use

The 2004–05 NATSIHS and the 2008 NATSISS collected information on the alcohol consumption and substance use of Aboriginal and Torres Strait Islander people. These data are summarised below.

- In 2004–05, after adjusting for differences in age structure, Indigenous Australians were twice as likely as non-Indigenous Australians to drink at short-term risky/high-risk levels at least once a week in the last 12 months, but equally as likely to drink at long-term risky/high-risk levels in the week before the survey (15% and 14% respectively). Indigenous adults were twice as likely as non-Indigenous Australians to have abstained from alcohol consumption in the last 12 months (see *Indicator 2.16 Risky and high-risk alcohol consumption* for more information).
- In 2008, approximately 23% of Indigenous Australians aged 15 years and over reported illicit substance use in the 12 months before the survey. In addition, around 43% of Indigenous Australians aged 15 years and over reported illicit substance use at least once in their lifetime. The substances most commonly used in the last 12 months were marijuana (17%), pain killers or analgesics (for non-medicinal use) (5%) and amphetamines or speed (4%) (see *Indicator 2.17: Drug and other substance use* for more information).
- The 2008 NATSISS reported that in non-remote areas of Australia approximately 3% of Indigenous Australians aged 15 years and over reported they had ever used heroin, 5% had ever used cocaine, 7% had ever used LSD or other synthetic hallucinogens, 9% had ever used ecstasy or designer drugs, 3% had sniffed petrol and 3% had used other inhalants (see *Indicator 2.17: Drug and other substance use* for more information).

Financial stress

The 2008 NATSISS also collected data on financial stress.

- In 2008, about half (47%) of all Indigenous persons aged 15 years and over reported they were living in households in which they could not raise $2,000 within a week in a time of crisis (see *Indicator 2.08: Income* for more information).

Law and justice

- Approximately 19% of Indigenous people aged 18 years and over reported they had used legal services in the last 12 months, 16% had been arrested by the police in the last five years, 3.5% had been incarcerated in the last 5 years, and 21% had been a victim of physical or threatened violence in the last 12 months. After adjusting for age differences between the Indigenous and non-Indigenous populations, Indigenous Australians aged 18 years and over experienced double the victimisation rate of non-Indigenous persons (see *Indicator 2.10: Community safety* for more information).
- The National Inquiry into the Human Rights of People with Mental Illness (HREOC 1993) found that anti-social and self-destructive behaviour—often the result of lack of acceptance, choice and opportunity, the history of dispossession, assimilation, cultural and community genocide and/or undiagnosed mental and social distress—brought Indigenous people into frequent contact with the criminal justice system. Not only may mental illness and/or emotional distress cause Indigenous and other Australians to come into contact with the criminal justice system, but also incarceration may be a risk factor for mental illness (HREOC 1993). Indigenous prisoners frequently experience depressive symptoms associated with unresolved anger which can result in suicide attempts (HREOC 1993). The number of Indigenous deaths in custody is also relatively high. Of the 85 deaths in custody in Australia in 2010–11, 21 (25%) were Indigenous people. Indigenous Australians are imprisoned at much higher rates than non-Indigenous Australians. In 2011, the age standardised imprisonment rate for Indigenous people aged 18 years and over was 1,868 per 100,000 compared with 130 per 100,000 for non-Indigenous people (see *Indicator 2.11: Contact with criminal justice system* for more details).

Social and emotional wellbeing of children

The Western Australian Aboriginal Child Health Survey (WAACHS) collected information on the social and emotional wellbeing of Aboriginal children and a small number of Torres Strait Islander children over 2001 and 2002. It found that a variety of health conditions, social circumstances and behaviours experienced by individuals, their carers and families can have an impact on the social and emotional wellbeing of Indigenous children (Zubrick et al. 2005). Some of the findings from the survey are presented below. Note that the term 'Aboriginal' is used here and in the survey but refers to both Aboriginal and Torres Strait Islander children.

Emotional and behavioural difficulties

The Strengths and Difficulties Questionnaire (SDQ), used throughout the world to measure emotional and behavioural difficulties in children, was modified for Aboriginal children in the WAACHS. The SDQ contains questions that explore emotional symptoms, conduct problems, hyperactivity, peer problems and social behaviour.

- Approximately 24% of Aboriginal children aged 4–17 years surveyed were assessed from the SDQ completed by their carers as being at high risk of clinically significant emotional or behavioural difficulties compared with 15% of other children (Zubrick et al. 2005).
- Aboriginal children had higher mean SDQ scores than other children at all ages between 4 and 17 years except for ages 10 and 11 where mean scores were similar (Table 1.18.9).
- Male Aboriginal children were twice as likely as female Aboriginal children to be at high risk of clinically significant emotional or behavioural difficulties.
- Those children living in areas of extreme isolation were less at risk than those living in urban areas.

Table 1.18.9: Mean Strengths and Difficulties Questionnaire (SDQ) total score, by age, Aboriginal and non-Aboriginal children aged 4–17 years, WA, 2001, 2002

	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Aboriginal children	12.6	11.8	11.8	12.0	12.5	11.7	11.6	10.9	11.3	11.0	10.8	10.2	9.4	9.7
Non-Aboriginal children	10.5	10.0	9.1	11.0	8.7	10.4	11.8	10.8	9.3	9.3	7.8	8.0	8.1	7.8

Source: Zubrick et al. 2005; Computer-assisted telephone interview survey conducted for the WAACHS by the Survey Research Centre at the University of Western Australia.

Family and household factors

The WAACHS looked at a range of family and household factors which could affect the social and emotional wellbeing of children. Factors which were found to be associated with high risk of clinically significant emotional or behavioural difficulties in Aboriginal children included the number of stress events that the family experienced in the 12 months before the survey (such as illness, hospitalisation, death of a close family member, family break-up, arrests, job loss, financial difficulties), quality of parenting, family functioning and family care arrangements. Residential mobility, the physical health of the child (speech, hearing and vision problems), the physical health of the carer and the carer's use of mental health services were also associated with an increased risk of clinically significant emotional or behavioural difficulties in children.

- For example, around 22% of children aged 4–17 years in Western Australia were living in families where seven or more life stress events had occurred over the preceding 12 months. Of these children, 39% were at high risk of clinically significant emotional or behavioural difficulties compared with 14% of children in families where two or fewer life stress events had occurred (Table 1.18.10).

Table 1.18.10: Proportion of Aboriginal children aged 4–17 years at low, moderate and high risk of clinically significant emotional or behavioural difficulties, by number of life stress events, WA, 2001, 2002

	Low risk	Moderate risk	High risk
0–2	76.8	9.3	13.9
3–6	64.9	12.2	22.9
7–14	48.4	12.7	38.9
Total	**64.6**	**11.4**	**24.0**

Source: Zubrick et al. 2005.

- Around one-quarter of Aboriginal children were living in families with poor quality of parenting (measured by how often carers praised their children, hit or smacked their children and laughed together with their children) and one-fifth of children were living in families that functioned poorly (families with poor communication and decision making, poor emotional support, limited time spent together and poor family cooperation). These children were over twice as likely to be at high risk of emotional and behavioural difficulties as children living in families with very good quality of parenting or very good family functioning (Zubrick et al. 2005).

Health risk factors

Zubrick et al. 2005 found that a number of health risk factors were also found to be associated with a high risk of clinically significant emotional and behavioural difficulties.

- An estimated 18% of Western Australian Aboriginal young people aged 12–17 years who smoked regularly were at high risk of emotional and behavioural difficulties compared with 7% of non-smokers.
- Approximately 29% of young people aged 12–17 years who used marijuana/cannabis daily were at risk of clinically significant emotional or behavioural difficulties compared with 9% of young people who had never used marijuana/cannabis. Although Indigenous males were more likely to use marijuana than Indigenous females, particularly at age 17

(45% compared with 21%), Indigenous females who used marijuana/cannabis were more likely to be at risk of clinically significant emotional or behavioural difficulties than Indigenous males.

- Young people who did not participate in organised sport were twice as likely to be at high risk of emotional and behaviour difficulties compared with young people who did participate in sport (16% and 8% respectively).
- Those who had been subject to racism in the preceding 6 months were more than twice as likely to be at high risk of emotional and behavioural difficulties as those who had not experienced racism.

Suicidal behaviour

The Telethon Institute administered an additional survey of Aboriginal young people aged 12–17 years to measure rates of suicidal thoughts and suicide attempts.

- Suicidal thoughts were reported by around one in six (16%) Western Australian Aboriginal people aged 12–17 years in the 12 months before the survey.
- Overall, a higher proportion of Aboriginal females reported they had seriously thought about ending their own life than Aboriginal males (20% compared with 12%). This was true for all ages from 12 to 17 years except for those aged 16 where Indigenous males were more likely than females to report having thought about ending their own life (Table 1.18.11).
- Of those who had suicidal thoughts in the 12 months before the survey, 39% reported they had attempted suicide in the same period. This finding is similar to the proportion of the general young population aged 12–16 years who reported suicide attempts in the 1993 Western Australian Child Health Survey (Zubrick et al. 2005).
- Aboriginal young people who had been exposed to family violence were more than twice as likely to have thought about ending their own life (22%) as Aboriginal young people who had not been exposed to family violence (9%).
- A higher proportion of Aboriginal males reported they had thought about ending their own life if they had low self-esteem (21%) than if they had high self-esteem (5%).
- Suicidal thoughts were associated with a number of health risk behaviours. The proportion of Aboriginal young people who reported suicidal thoughts was significantly higher among those who smoked regularly, used marijuana, drank to excess in the 6 months before the survey, were exposed to some form of family violence and who had a friend who had attempted suicide.

Table 1.18.11: Proportion of Aboriginal young people who had seriously thought about ending own life, by sex and age, WA, 2001, 2002

	12	13	14	15	16	17
Males	9.3	12.7	8.3	10.4	16.4	16.2
Females	16.0	21.4	22.5	20.4	14.4	21.1

Source: Zubrick et al. 2005.

Effects of forced separation

- Children of Aboriginal carers who had been forcibly separated from their natural family by past removal policies and practices or removed from country to a welfare institution or a mission were twice as likely to be at high risk of clinically significant emotional or behavioural difficulties as children whose primary carer had not been forcibly separated from their natural family. These children also had higher rates of conduct and hyperactivity problems.
- Children whose primary carers had been forcibly separated from their natural families were over 1.5 times as likely to be at high risk of clinically significant conduct problems and 2.5 times as likely to be at high risk of clinically significant hyperactivity problems (Zubrick et al. 2005).

Hospitalisations

Mental health-related conditions include mental and behavioural disorders (such as schizophrenia and psychoactive substance use) and other mental health conditions (such as Alzheimer's disease and postnatal depression).

- For the 2-year period July 2008 to June 2010, there were 646,051 hospitalisations from mental health-related conditions in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, 24,327 (3.8%) of which were hospitalisations of Aboriginal and Torres Strait Islander people (Table 1.18.13).
- Mental health-related conditions were responsible for around 4% of all hospitalisations of Aboriginal and Torres Strait Islander Australians.
- Over the period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males were hospitalised for mental health-related conditions at 2.2 times the rate of non-Indigenous males; and Indigenous females were hospitalised for mental health-related conditions at 1.5 times the rate of non-Indigenous females.
- Mental and behavioural disorders were the seventh most common group of principal diagnosis for Aboriginal and Torres Strait Islander Australians admitted to hospital, behind care involving dialysis; injury and poisoning; pregnancy, childbirth and the puerperium; diseases of the respiratory system; diseases of the digestive system; symptoms, signs and abnormal clinical and laboratory findings.

Hospitalisations by age and sex

- For the 2-year period July 2008 to June 2010, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males and females had higher hospitalisation rates for mental health-related conditions than non-Indigenous males and females across all age groups from 5–14 years to 55–64 years (Table 1.18.12).
- The greatest rate difference and rate ratio occurred in the 35–44 year age group for males, where Indigenous males were hospitalised for mental health related conditions at 3.3 times the rate of non-Indigenous males (58 per 1,000 compared with 18 per 1,000). For females, the greatest rate difference and rate ratio occurred in the 25–34 year age group, where Indigenous females were hospitalised at 2.1 times the rate of non-Indigenous females (44 per 1,000 compared with 21 per 1,000).

- For Indigenous males, hospitalisation rates for mental health related conditions were highest among those aged 35–44 years, and for Indigenous females, rates were highest among those aged 25–34 years. Among non-Indigenous males, hospitalisation rates were highest for those aged 55–64 years, and 35–44 years for non-Indigenous females.
- Approximately 53% of Indigenous Australians hospitalised for mental health-related conditions were males (12,845) and 47% were females (11,482). Indigenous males had slightly higher hospitalisation rates for these conditions than Indigenous females.

Table 1.18.12: Age-specific hospitalisation rates (per 1,000 population) for a principal diagnosis of mental health related conditions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [(a)(b)(c)(d)]

									All ages	
	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65+	Crude	Age std.[(e)]
Males										
Indigenous	1.1	5.2	23.4	46.0	57.8	39.7	19.8	15.1	24.5	28.9
Non-Indigenous	4.0	2.2	9.5	15.7	17.6	15.6	18.3	17.9	13.2	13.0
Rate ratio[(f)]	0.3	2.4	2.5	2.9	3.3	2.5	1.1	0.8	1.9	2.2
Rate difference[(g)]	–2.9	3.0	13.9	30.3	40.2	24.1	1.5	–2.9	11.3	15.9
Females										
Indigenous	1.0	3.5	24.4	43.8	42.4	30.6	18.9	13.2	21.7	24.6
Non-Indigenous	3.4	1.9	16.4	20.9	24.4	21.6	18.8	19.3	17.1	16.7
Rate ratio[(f)]	0.3	1.8	1.5	2.1	1.7	1.4	1.0	0.7	1.3	1.5
Rate difference[(g)]	–2.4	1.6	8.0	22.9	18.0	9.0	0.1	–6.1	4.6	7.9
Persons										
Indigenous	1.1	4.4	23.9	44.9	49.8	35.0	19.3	14.0	23.1	26.7
Non-Indigenous	3.7	2.0	12.9	18.3	21.0	18.7	18.5	18.7	15.1	14.8
Rate ratio[(f)]	0.3	2.1	1.9	2.5	2.4	1.9	1.0	0.7	1.5	1.8
Rate difference[(g)]	–2.6	2.3	11.1	26.6	28.8	16.3	0.8	–4.7	8.0	11.8

(a) Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD–10–AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised. New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Directly age-standardised using the Australian 2001 standard population.

(f) Rate ratio Indigenous: non-Indigenous Australians.

(g) Rate difference Indigenous minus non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by state/territory

Table 1.18.13 presents hospitalisations for a principal diagnosis of mental health related conditions for the 2-year period July 2008 to June 2010 by state/territory.

- South Australia had the highest rates of hospitalisation of Indigenous Australians for mental health-related conditions (45 per 1,000), followed by Western Australia (34 per 1,000). The Northern Territory had the lowest rates of hospitalisation for mental health – related conditions (15 per 1,000 for Indigenous persons).
- South Australia had the greatest rate difference and rate ratio in hospitalisation for mental health-related conditions between Indigenous and non-Indigenous Australians, where Indigenous males and females were hospitalised at 4.3 times the rate of non-Indigenous Australians (rate difference of 35 per 1,000).

Table 1.18.13: Hospitalisations for principal diagnosis of mental health related conditions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT, July 2008 to June 2010[(a)(b)(c)(d)(e)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(f)]	Number	Rate per 1,000[(f)]	Ratio[(g)]	Difference[(h)]
NSW						
Males	4,989	36.9	99,926	14.4	2.6*	22.5*
Females	4,068	28.5	109,900	15.3	1.9*	13.3*
Persons	9,057	32.5	209,836	14.8	2.2*	17.7*
Vic						
Males	663	22.5	71,213	13.2	1.7*	9.3*
Females	907	30.7	122,465	21.8	1.4*	8.9*
Persons	1,570	26.8	193,702	17.5	1.5*	9.2*
Qld						
Males	2,688	21.2	55,511	12.7	1.7*	8.5*
Females	2,255	16.6	66,656	15.4	1.1*	1.2*
Persons	4,943	18.8	122,167	14.1	1.3*	4.7*
WA						
Males	2,305	35.3	25,357	11.5	3.1*	23.9*
Females	2,220	32.7	33,949	15.7	2.1*	16.9*
Persons	4,525	33.9	59,306	13.6	2.5*	20.3*
SA						
Males	1,160	46.1	16,117	10.1	4.6*	36.0*
Females	1,190	44.6	18,563	11.1	4.0*	33.5*
Persons	2,350	45.3	34,680	10.6	4.3*	34.7*
NT						
Males	1,040	17.4	1,173	7.0	2.5*	10.4*
Females	842	12.8	860	5.9	2.2*	6.9*
Persons	1,882	15.0	2,033	6.5	2.3*	8.5*
NSW, Vic, Qld, WA, SA and NT[(i)]						
Males	**12,845**	**28.9**	**269,297**	**13.0**	**2.2***	**15.9***
Females	**11,482**	**24.6**	**352,393**	**16.7**	**1.5***	**7.9***
Persons	**24,327**	**26.7**	**621,724**	**14.8**	**1.8***	**11.8***
Tas						
Males	109	6.9	3,555	7.8	0.9	–0.8
Females	172	9.0	4,926	9.6	0.9	–0.6
Persons	281	8.0	8,482	8.7	0.9	–0.7

(continued)

Table 1.18.13 (continued): Hospitalisations for principal diagnosis of mental health related conditions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, Tas and ACT, July 2008 to June 2010[(a)(b)(c)(d)(e)]

	Indigenous		Non-Indigenous			
	Number	Rate per 1,000[(f)]	Number	Rate per 1,000[(f)]	Ratio[(g)]	Difference[(h)]
ACT						
Males	72	24.5	2,338	6.8	3.6*	17.7*
Females	70	18.1	2,284	6.4	2.8*	11.7*
Persons	142	20.9	4,622	6.5	3.2*	14.4*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD–10–AM sixth edition (National Centre for Classification in Health 2010); ICD10–AM codes E10–E14.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised.

(e) Age standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been calculated using the direct method, age standardised by 5 year age groups to 75+. Age standardised rates for Tasmania and the Australian Capital Territory have been calculated using the direct method, age standardised by 5 year age group to 65+.

(f) Directly age-standardised using the Australian 2001 standard population.

(g) Rate ratio Indigenous: non-Indigenous.

(h) Rate difference Indigenous minus non-Indigenous.

(i) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by remoteness

Hospitalisation rates for hospitalisations with a principal diagnosis of mental-health related conditions in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined are presented by Australian Standard Geographical Classification (ASGC) in Table 1.18.14, covering the period July 2008 to June 2010.

- The highest hospitalisation rates of Indigenous Australians for mental health-related conditions were observed in *Remote* areas (31 per 1,000), while the lowest rates were observed in *Very remote* areas (16 per 1,000).
- In all remoteness areas, Indigenous Australians were more likely to be hospitalised for mental-health related conditions than non-Indigenous Australians.
- The highest rate difference and rate ratio occurred in *Remote* areas, where Indigenous Australians were hospitalised for mental-health related conditions at more than 3 times the rate of non-Indigenous Australians (rate difference of 21 per 1,000).

Table 1.18.14: Hospitalisations with a principal diagnosis of mental health-related condition, by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010 [(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous					
	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Ratio[(i)]	Difference[(j)]
Major cities	8,742	29.0	28.3	29.7	486,461	16.4	16.4	16.5	1.8*	12.6*
Inner regional	4,714	26.9	26.0	27.7	88,535	11.5	11.4	11.6	2.3*	15.4*
Outer regional[(k)]	5,295	27.5	26.7	28.3	36,449	10.2	10.1	10.3	2.7*	17.4*
Remote[(l)]	2,726	30.6	29.4	31.9	5,070	9.5	9.3	9.8	3.2*	21.1*
Very remote	2,477	15.8	15.1	16.5	1,478	8.9	8.4	9.3	1.8*	6.9*
Total[(m)]	**24,327**	**26.6**	**26.2**	**27.0**	**621,724**	**14.8**	**14.8**	**14.9**	**1.8***	**11.8***

* Indicates a significant difference at the p < 0.05 level.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD–10–AM sixth edition (National Centre for Classification of Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(e) Directly age-standardised using the Australian 2001 standard population, by 5 year age groups to 65+.

(f) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous.

(j) Rate difference Indigenous- non-Indigenous.

(k) Includes remote Victoria.

(l) Excludes remote Victoria.

(m) Total includes hospitalisations where ASGC is missing.

Notes

1. Rates are calculated using the remoteness distribution by Indigenous status, age and sex based on the 2006 ERP and applied to the 2008–10 population projections (Series B) based on the 2006 Census.
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by principal diagnosis

Mental health-related conditions

Table 1.18.15 presents hospitalisations for a principal diagnosis of mental health-related conditions for the 2-year period July 2008 to June 2010 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Mental and behavioural disorders due to psychoactive substance use was the most common mental health-related condition for which Aboriginal and Torres Strait Islander people were hospitalised (36%), followed by schizophrenia, schizotypal and delusional disorders (25%).
- Mental and behavioural disorders due to psychoactive substance use was also the mental health-related condition with the highest rate ratio and rate difference between Indigenous and non-Indigenous hospitalisations. Indigenous Australians were hospitalised for these disorders at 3.7 times the rate of non-Indigenous Australians (rate difference of 7 per 1,000).

- Indigenous males had higher hospitalisation rates than Indigenous females for mental and behavioural disorders due to psychoactive substance use, and for schizotypal and delusional disorders; while Indigenous females had higher hospitalisation rates for mood disorders and neurotic stress-related disorders (Table 1.18.15).

Self-harm

Although self-harm is not included among the mental health-related conditions presented in the tables above, hospitalisations for injuries related to self-harm may be mental health-related and are therefore presented below.

- In July 2008 to June 2010 in the six jurisdictions combined, Indigenous males and females were hospitalised for injuries related to self-harm at 2.9 and 2.1 times the rate of non-Indigenous males and females respectively (Table 1.18.16).

Hospitalisations by remoteness

- Indigenous Australians in all remoteness areas were more likely to be hospitalised for self-harm than non-Indigenous Australians (Table 1.18.17).
- Rates of hospitalisation for self-harm were highest for Indigenous people living in *Remote* areas (4.2 per 1,000). In other areas (*major cities, inner regional, outer regional* and *very remote*), hospitalisation rates for self-harm for Indigenous people were similar 2.6 to 2.8 per 1,000) (Table 1.18.17).
- Rate ratios and rate differences were highest in *Remote* areas, where Indigenous people were hospitalised for self-harm at 3.7 times the rate of non-Indigenous Australians (4.2 per 1,000 compared with 1.1 per 1,000) (Table 1.18.17).

For more information on self-harm see Indicators *1.03 Hospitalisation for injury and poisoning* and *2.10 Community safety*.

Table 1.18.15: Hospitalisations of Indigenous persons for principal diagnosis of mental health related conditions, by type of condition and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

Principal diagnosis	Number	Per cent[(e)]	No per 1,000[(f)]	LCL[(g)]	UCL[(h)]	Ratio[(i)]	Difference[(j)]
				Males			
Mental & behavioural disorders due to psychoactive substance use (F10–F19)	5,290	41.2	12.5	12.1	12.9	4.0*	9.4*
Schizophrenia, schizotypal and delusional disorders (F20–F29)	3,594	28.0	7.4	7.2	7.7	3.2*	5.1*
Mood disorders (F30–F39)	1,439	11.2	3.5	3.3	3.7	1.0	0.1
Neurotic, stress-related disorders (F40–F49)	1,386	10.8	2.9	2.7	3.0	1.2*	0.5*
Disorders of adult personality and behaviour (F60–F69)	229	1.8	0.5	0.4	0.5	2.0*	0.2*
Behavioural and emotional disorders (F90–F98)	299	2.3	0.4	0.3	0.4	1.6*	0.1*
Organic, including symptomatic, mental disorders (F00–F09)	145	1.1	0.9	0.7	1.1	1.5*	0.3*
Behavioural syndromes assoc. with physiological disturbances (F50–F59)	17	0.1	0.0	0.0	0.0	0.5	–0.03
Unspecified mental disorder (F99)	27	0.2	0.1	0.0	0.1	2.9*	0.04*
Mental retardation (F70–F79)	36	0.3	0.1	0.0	0.1	3.0*	0.04*
Disorders of psych. Development (F80–F89)	111	0.9	0.1	0.1	0.2	2.2*	0.1*
Other[(k)]	272	2.1	0.6	0.5	0.7	1.0	0.01
Total	**12,845**	**100.0**	**28.9**	**28.4**	**29.5**	**2.2***	**15.9***
				Females			
Mental & behavioural disorders due to psychoactive substance use (F10–F19)	3,429	29.9	7.3	7.1	7.6	3.4*	5.2*
Schizophrenia, schizotypal and delusional disorders (F20–F29)	2,456	21.4	5.2	5.0	5.4	2.7*	3.3*
Mood disorders (F30–F39)	2,146	18.7	4.8	4.5	5.0	0.7	–1.9
Neurotic, stress-related disorders (F40–F49)	1,908	16.6	3.9	3.7	4.0	1.3*	0.9*
Disorders of adult personality and behaviour (F60–F69)	376	3.3	0.7	0.6	0.8	1.0	–0.02
Behavioural and emotional disorders (F90–F98)	222	1.9	0.3	0.2	0.3	2.6*	0.2*
Organic, including symptomatic, mental disorders (F00–F09)	196	1.7	1.1	0.9	1.2	2.0*	0.5*
Behavioural syndromes assoc. with physiological disturbances (F50–F59)	88	0.8	0.1	0.1	0.2	0.2	–0.7
Unspecified mental disorder (F99)	22	0.2	0.0	0.0	0.1	2.5*	0.02*
Mental retardation (F70–F79)	11	0.1	0.0	0.0	0.0	1.1	0.002
Disorders of psych. Development (F80–F89)	11	0.1	0.0	0.0	0.0	0.5	–0.01
Other[(k)]	617	5.4	1.2	1.1	1.3	1.7*	0.5*
Total	**11,482**	**100.0**	**24.6**	**24.1**	**25.1**	**1.5***	**7.9***

(continued)

Table 1.18.15 (continued): Hospitalisations of Indigenous persons for principal diagnosis of mental health related conditions, by type of condition and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

Principal diagnosis	Number	Per cent[(e)]	No per 1,000[(f)]	LCL[(g)]	UCL[(h)]	Ratio[(i)]	Difference[(j)]
	Persons						
Mental & behavioural disorders due to psychoactive substance use (F10–F19)	8,719	35.8	9.8	9.6	10.0	3.7*	7.1*
Schizophrenia, schizotypal and delusional disorders (F20–F29)	6,050	24.9	6.3	6.1	6.5	3.0*	4.2*
Mood disorders (F30–F39)	3,585	14.7	4.2	4.0	4.3	0.8	–0.9
Neurotic, stress-related disorders (F40–F49)	3,294	13.5	3.4	3.3	3.5	1.3*	0.7*
Disorders of adult personality and behaviour (F60–F69)	605	2.5	0.6	0.5	0.6	1.2*	0.1*
Behavioural and emotional disorders (F90–F98)	521	2.1	0.3	0.3	0.4	1.9*	0.2*
Organic, including symptomatic, mental disorders (F00–F09)	341	1.4	1.0	0.9	1.1	1.8*	0.4*
Behavioural syndromes assoc. with physiological disturbances (F50–F59)	105	0.4	0.1	0.1	0.1	0.2	–0.4
Unspecified mental disorder (F99)	49	0.2	0.0	0.0	0.1	2.7*	0.03*
Mental retardation (F70–F79)	47	0.2	0.0	0.0	0.1	2.1*	0.02*
Disorders of psych. Development (F80–F89)	122	0.5	0.1	0.1	0.1	1.6*	0.03*
Other[(k)]	889	3.7	0.9	0.8	1.0	1.4*	0.3*
Total	**24,327**	**100.0**	**26.7**	**26.3**	**27.0**	**1.8***	**11.8***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous Australian comparisons at the $p < 0.05$ level.

(a) Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD–10–AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised. New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Proportion of male, female and total hospitalisations of Indigenous persons in the period 2008–09 to 2009–10.

(f) Directly age-standardised using the Australian 2001 standard population.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous Australians.

(j) Rate difference Indigenous minus non-Indigenous Australians.

(k) Other includes ICD–10–AM codes relating to mental health: G30, G47.0, G47.1, G47.2, G47.8, G47.9, O99.3, R44, R45.0, R45.1, R45.4, R48, Z00.4, Z03.2, Z04.6, Z09.3, Z13.3, Z50.2, Z50.3, Z54.3, Z61.9, Z63.1, Z63.8, Z63.9, Z65.8, Z65.9, Z71.4, Z71.5, Z76.0.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Table 1.18.16: Hospitalisations of Indigenous persons with principal diagnosis of injury and poisoning and a first reported external cause of self-harm, by sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

Sex	Number	Per cent[(e)]	No per 1,000[(f)]	LCL[(g)]	UCL[(h)]	Ratio[(i)]	Difference[(j)]
Male	1,245	19.2	2.6	2.4	2.7	2.9*	1.7*
Female	1,669	23.7	3.2	3.0	3.3	2.1*	1.7*
Person	**2,914**	**21.6**	**2.9**	**2.8**	**3.0**	**2.4***	**1.7***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous Australian comparisons at the p < 0.05 level.

(a) Data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Categories are based on the ICD–10–AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised. New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(e) Proportion of male, female and total hospitalisations of Indigenous persons in the period 2008–09 to 2009–10.

(f) Directly age-standardised using the Australian 2001 standard population.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous Australians.

(j) Rate difference Indigenous minus non-Indigenous Australians.

Notes

1. Rates for Indigenous are calculated using population estimates based on the 2006 Census (SERIES B).
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Table 1.18.17: Hospitalisations with principal diagnosis of injury and poisoning and other consequences of external causes and a first reported external cause of self-harm, by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous					
	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Number	No. per 1,000	LCL 95%[(g)]	UCL 95%[(h)]	Ratio[(i)]	Difference[(j)]
Major cities	879	2.6	2.4	2.8	33,087	1.1	1.1	1.1	2.3*	1.5*
Inner regional	564	2.8	2.6	3.0	9,722	1.3	1.3	1.4	2.1*	1.5*
Outer regional[(k)]	598	2.8	2.6	3.0	4,142	1.2	1.2	1.3	2.3*	1.6*
Remote[(l)]	421	4.2	3.8	4.6	588	1.1	1.0	1.2	3.7*	3.1*
Very remote	435	2.6	2.3	2.9	146	0.9	0.7	1.0	3.0*	1.8*
Total[(m)]	**2,914**	**2.9**	**2.8**	**3.0**	**47,942**	**1.2**	**1.2**	**1.2**	**2.4***	**1.7***

* Indicates a significant difference at the p < 0.05 level.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Categories are based on the ICD–10–AM sixth edition (National Centre for Classification in Health 2010).

(c) Financial year reporting.

(d) Data are reported by state/territory and remoteness of usual residence of the patient hospitalised.

(e) Directly age-standardised using the Australian 2001 standard population, by 5 year age groups to 65+

(f) New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these six jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous: non-Indigenous Australians.

(j) Rate difference Indigenous- non-Indigenous Australians.

(k) Includes remote Victoria.

(l) Excludes remote Victoria.

(m) Total includes hospitalisations where ASGC is missing.

Notes

1. Rates are calculated using the remoteness distribution by Indigenous status, age and sex based on the 2006 ERP and applied to the 2008–10 population projections (Series B) based on the 2006 Census.
2. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.

Average length of stay in hospital (days)

- For the 2-year period July 2008 to June 2010, the average length of stay in hospital due to mental health-related conditions was similar for Indigenous patients and non-Indigenous patients, at around 8 days (Table 1.18.18).
- On average, males stayed in hospital for longer than females for most types of mental and behavioural disorders.
- Mental retardation (disability characterised by significant limitations both in intellectual functioning and adaptive skills) was responsible for the highest number of bed-days of all mental health-related conditions (41 days for Indigenous patients and 16 days for other patients). Schizophrenia (schizotypal and delusional disorders) and Organic mental disorders (which include dementia, delirium and other mental disorders due to brain damage and dysfunction) were also responsible for a high number of days spent in hospital.
- Other mental health-related conditions, including Alzheimer disease and postnatal depression, were responsible for an average of 4.4 bed-days for Indigenous patients and an average of 7.1 bed-days for non-Indigenous patients.

Table 1.18.18: Average length of stay in hospital (days), mental health related conditions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2008 to June 2010[(a)(b)(c)(d)]

	Indigenous			Non-Indigenous		
Mental health related condition	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Mental retardation (F70–F79)	52.8	2.8	41.1	15.0	17.8	16.3
Schizophrenia (F20–F29)	20.2	14.6	17.9	20.8	15.4	18.3
Organic mental disorders (F00–F09)	16.6	13.9	15.1	17.4	14.7	16.0
Behavioural syndromes (F50–F59)	6.4	8.3	7.9	6.8	7.2	7.1
Mood disorders (F30–F39)	7.7	7.1	7.4	7.5	7.1	7.2
Disorders of adult personality (F60–F69)	6.5	6.8	6.7	6.9	5.2	5.6
Neurotic, stress-related (F40–F49)	3.9	3.7	3.8	3.8	4.4	4.1
Mental disorders due to psychoactive substance use (F10–F19)	3.9	3.1	3.6	4.4	4.2	4.3
Behavioural & emotional disorders (F90–F98)	3.1	2.8	3.0	3.2	4.2	3.5
Unspecified mental disorder (F99)	3.9	1.7	2.9	27.9	10.4	20.3
Disorders of psychological development (F80–F89)	1.6	2.4	1.7	6.4	5.4	6.1
Total mental & behavioural disorders (F00–F99)	*9.3*	*7.0*	*8.2*	*8.8*	*7.4*	*8.0*
Other mental health conditions	3.2	4.9	4.4	7.8	6.6	7.1
Total	**9.1**	**6.9**	**8.1**	**8.7**	**7.4**	**8.0**

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory, the Australian Capital Territory and Tasmania.

(b) Categories are based on the ICD–10–AM sixth edition (National Centre in Health Classification 2010); ICD–10–AM codes F70–F79; F20–F29; F00–F09; F99; F50–F59; F30–F39; F60–F69; F10–F19; F80–F89; F40–F49; F90–F98; F00–F99; G30, G47.0, G47.1, G47.2, G47.8, G47.9, O99.3, R44, R45.0, R45.1, R45.4, R48, Z00.4, Z03.2, Z04.6, Z09.3, Z13.3, Z50.2, Z50.3, Z54.3, Z61.9, Z63.1, Z63.8, Z63.9, Z65.8, Z65.9, Z71.4, Z71.5, Z76.0.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised and are for New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland only. These six jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data from 1998–99 to 2009–10 are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations over this period—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population.

Additional trend analysis has also been presented for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined from 2004–05 to 2009–10 for Indigenous and other Australians. New South Wales and Victoria have been assessed as having adequate identification of Indigenous hospitalisations from 2004–05. These six jurisdictions represent approximately 96% of the Indigenous population of Australia.

Note that changes in the level of accuracy of Indigenous identification in hospital records over this period will result in changes in the level of reported hospital separations for Indigenous Australians. Also, changes in access, hospital policies and practices all affect the level of hospitalisation over time. Caution should be used in interpreting changes over time, as it is not possible to ascertain whether a change in reported hospitalisation is due to changes in the accuracy of Indigenous identification or to real changes in the rates at which Indigenous people are hospitalised. An increase in hospitalisation rates may reflect better hospital access rather than a worsening of health.

Mental health-related conditions - 1998–99 to 2009–10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for mental health-related conditions over the 12-year period 1998–99 to 2009–10 are presented in Table 1.18.19 and Figure 1.18.2.

- In Queensland, Western Australia, South Australia and the Northern Territory, there were significant increases in hospitalisation rates for mental health-related conditions among Indigenous persons with an average yearly decline in the rate of around 0.1 per 1,000 (equivalent to a 6.7% increase) during the period 1998–99 to 2009–10.
- There was no significant change in hospitalisation rates for mental health related conditions among non-Indigenous persons over the same period. However, a significant decline was observed when non-Indigenous males were considered alone with an average yearly decline in the rate of around 0.1 per 1,000 (equivalent to an 8.8% reduction in the rate over the period). There was a non-significant increase in the rate for non-Indigenous females.
- There were significant increases in the hospitalisation rate ratios and rate differences between Indigenous and non-Indigenous Australians during the period 1998–99 to 2009–10 (increase of 10% for rate ratio and 21% for rate difference).

Table 1.18.19: Age-standardised hospitalisation rates, rate ratios and rate differences from mental health-related conditions, Qld, WA, SA and NT, 1998–99 to 2009–10[a]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[b]	Per cent change[c]
Indigenous separations														
Males	2,553	2,667	2,863	2,876	2,888	2,879	2,864	2,983	3,187	3,334	3,511	3,682	87.9*	37.9*
Females	2,200	2,051	2,433	2,564	2,731	2,765	2,855	2,805	2,822	2,964	3,136	3,371	97.8*	48.9*
Persons	4,753	4,718	5,296	5,440	5,620	5,644	5,719	5,788	6,009	6,298	6,647	7,053	185.7*	43.0*
Non-Indigenous separations														
Males	41,375	41,894	43,945	43,496	42,070	43,288	42,541	42,456	46,612	46,369	48,574	49,584	641.2*	17.0*
Females	45,572	49,274	50,879	49,835	52,372	54,144	55,252	54,308	54,291	54,157	60,081	59,947	1,075.3*	26.0*
Persons	86,949	91,169	94,826	93,331	94,444	97,432	97,793	96,764	100,903	100,526	108,655	109,531	1,716.3*	21.7*
Indigenous rate per 1,000														
Males	24.8	24.6	26.1	24.8	24.3	23.7	23.2	24.0	24.4	25.0	25.5	26.4	0.1	2.3
Females	19.8	17.4	20.8	20.7	21.5	21.4	21.4	20.7	20.0	21.0	21.7	22.3	0.2*	11.9*
Persons	22.2	20.8	23.3	22.7	22.8	22.4	22.2	22.2	22.1	22.9	23.6	24.2	0.1*	6.7*
Non-Indigenous rate per 1,000														
Males	12.6	12.4	12.8	12.4	11.8	11.9	11.5	11.2	11.9	11.5	11.8	11.7	–0.1*	–8.8*
Females	13.4	14.3	14.5	14.0	14.4	14.7	14.8	14.2	13.8	13.5	14.6	14.3	0.02	1.5
Persons	12.9	13.3	13.7	13.2	13.2	13.3	13.1	12.7	12.9	12.5	13.2	13.0	–0.04	–3.5
Rate ratio[d]														
Males	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.2	2.2	2.2	0.02*	12.1*
Females	1.5	1.2	1.4	1.5	1.5	1.5	1.5	1.5	1.4	1.6	1.5	1.6	0.01*	9.8*
Persons	1.7	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.8	1.8	1.9	0.02*	10.1*

(continued)

Table 1.18.19 (continued): Age-standardised hospitalisation rates, rate ratios and rate differences from mental health-related conditions, Qld, WA, SA and NT, 1998–99 to 2009–10[(a)]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(b)]	Per cent change[(c)]
Rate difference[(e)]														
Males	12.2	12.2	13.3	12.4	12.4	11.8	11.7	12.8	12.5	13.5	13.8	14.7	0.2*	13.7*
Females	6.5	3.1	6.3	6.7	7.1	6.7	6.6	6.5	6.1	7.5	7.1	8.0	0.2*	33.5*
Persons	9.3	7.5	9.6	9.4	9.7	9.1	9.1	9.6	9.2	10.4	10.3	11.2	0.2*	20.9*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2009–10.

(a) Data are reported by state/territory of usual residence of the patient hospitalised. Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(c) Per cent change between 1998–99 and 2009–10 based on the average annual change over the period.

(d) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(e) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.

Source: AIHW analysis of National Hospital Morbidity Database.

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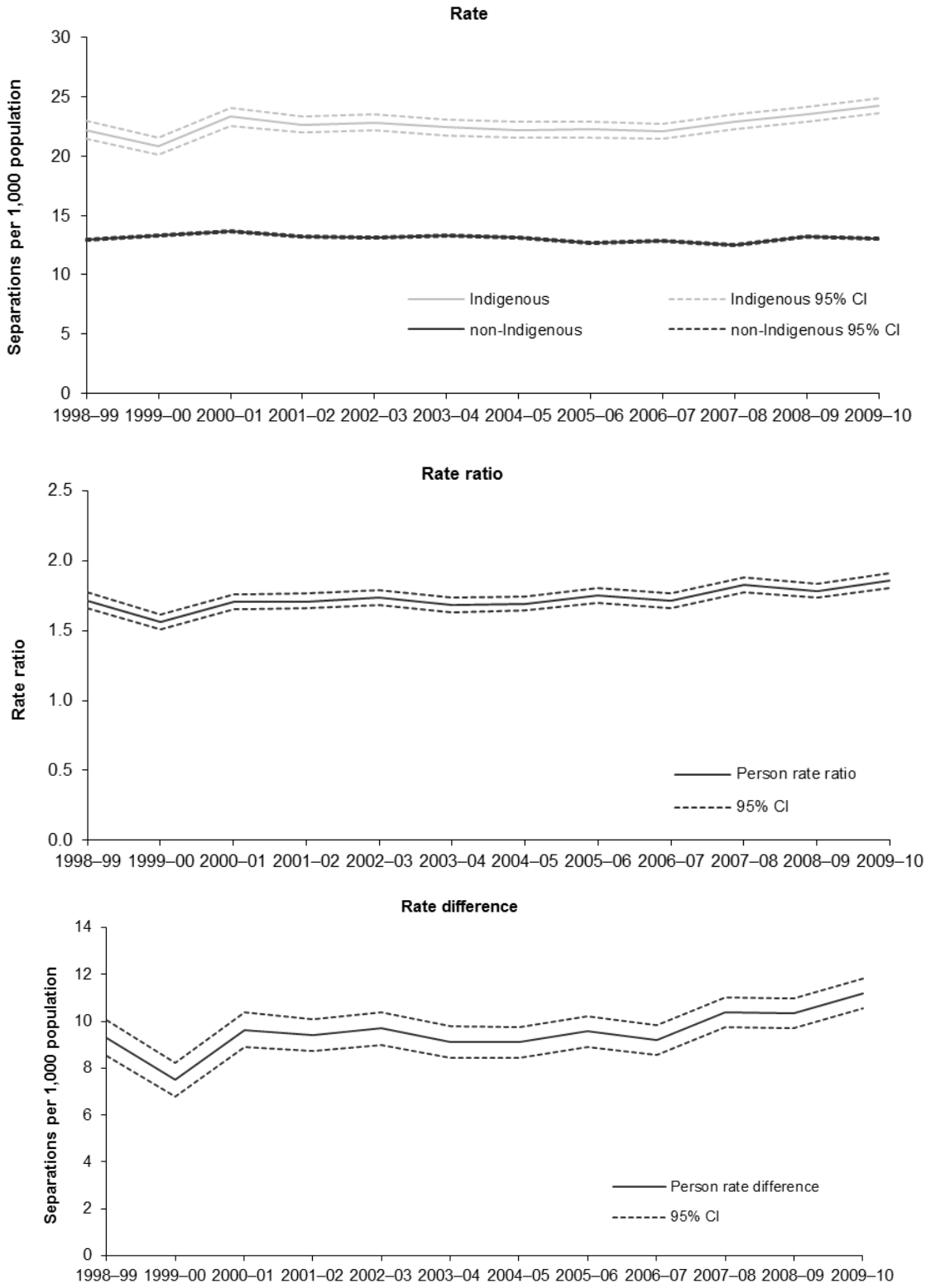


Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.18.2: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australian for mental health-related conditions, Qld, WA, SA and NT, 1998–99 to 2009–10

Mental health-related conditions — 2004–05 to 2009–10

Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians for mental health-related conditions over the six-year period 2004–05 to 2009–10 are presented in Table 1.18.20 and Figure 1.18.3.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates for mental health-related conditions among Indigenous persons during the period 2004–05 to 2009–10. The fitted trend implies an average yearly increase in the rate of around 0.5 per 1,000, which is equivalent to a 9.4% increase in the rate over the period. Significant increases in rates were observed for both males and females.
- There were also significant increases in hospitalisation rates for mental health related conditions among non-Indigenous persons over the same period (9%).
- There were significant increases in both the hospitalisation rate ratios and rate differences between Indigenous and non-Indigenous males and persons, but not for females, during the period 2004–05 to 2009–10. There was a 5.2% increase in the rate ratio and a 17% increase in the rate difference for persons over the period.

Table 1.18.20: Age-standardised hospitalisation rates, rate ratios and rate differences from mental health-related conditions, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10[(a)]

	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	Annual change[(b)]	Per cent change[(c)]
Indigenous separations								
Males	5,160	5,600	5,922	6,168	6,224	6,621	269.2*	26.1*
Females	4,850	4,852	5,119	5,385	5,654	5,828	216.1*	22.3*
Persons	10,010	10,452	11,041	11,553	11,878	12,449	485.3*	24.2*
Non-Indigenous Australian separations								
Males	122,051	121,236	126,486	128,077	132,853	136,444	3,097.3*	12.7*
Females	154,710	157,371	158,308	161,933	169,662	182,731	5,160.1*	16.7*
Persons	276,762	278,607	284,794	290,014	302,521	319,203	8,261.9*	14.9*
Indigenous rate (separations per 1,000)								
Males	26.4	27.8	28.5	28.9	28.4	29.4	0.5*	9.5*
Females	23.3	22.2	22.9	24.0	24.5	24.7	0.4*	8.9*
Persons	24.8	24.8	25.5	26.4	26.4	27.0	0.5*	9.4*
Non-Indigenous Australian rate (separations per 1,000)								
Males	12.9	12.6	12.9	12.8	13.0	13.1	0.04	1.6
Females	15.9	16.0	15.8	15.8	16.2	17.1	0.2*	6.1*
Persons	14.4	14.3	14.3	14.3	14.6	15.1	0.1*	4.1*
Rate ratio[(d)]								
Males	2.0	2.2	2.2	2.3	2.2	2.3	0.03*	7.7*
Females	1.5	1.4	1.5	1.5	1.5	1.4	0.01	2.9
Persons	1.7	1.7	1.8	1.8	1.8	1.8	0.02*	5.2*
Rate difference[(e)]								
Males	13.5	15.2	15.6	16.1	15.4	16.4	0.5*	17.0*
Females	7.4	6.3	7.1	8.2	8.3	7.5	0.2	15.1
Persons	10.4	10.5	11.2	12.0	11.8	11.9	0.3*	16.8*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2004–05 to 2009–10.

(a) Data are reported by state/territory of usual residence of the patient hospitalised. Data are from public and most private hospitals. Jurisdictional data excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory.

(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(c) Per cent change between 2004–05 and 2009–10 based on the average annual change over the period.

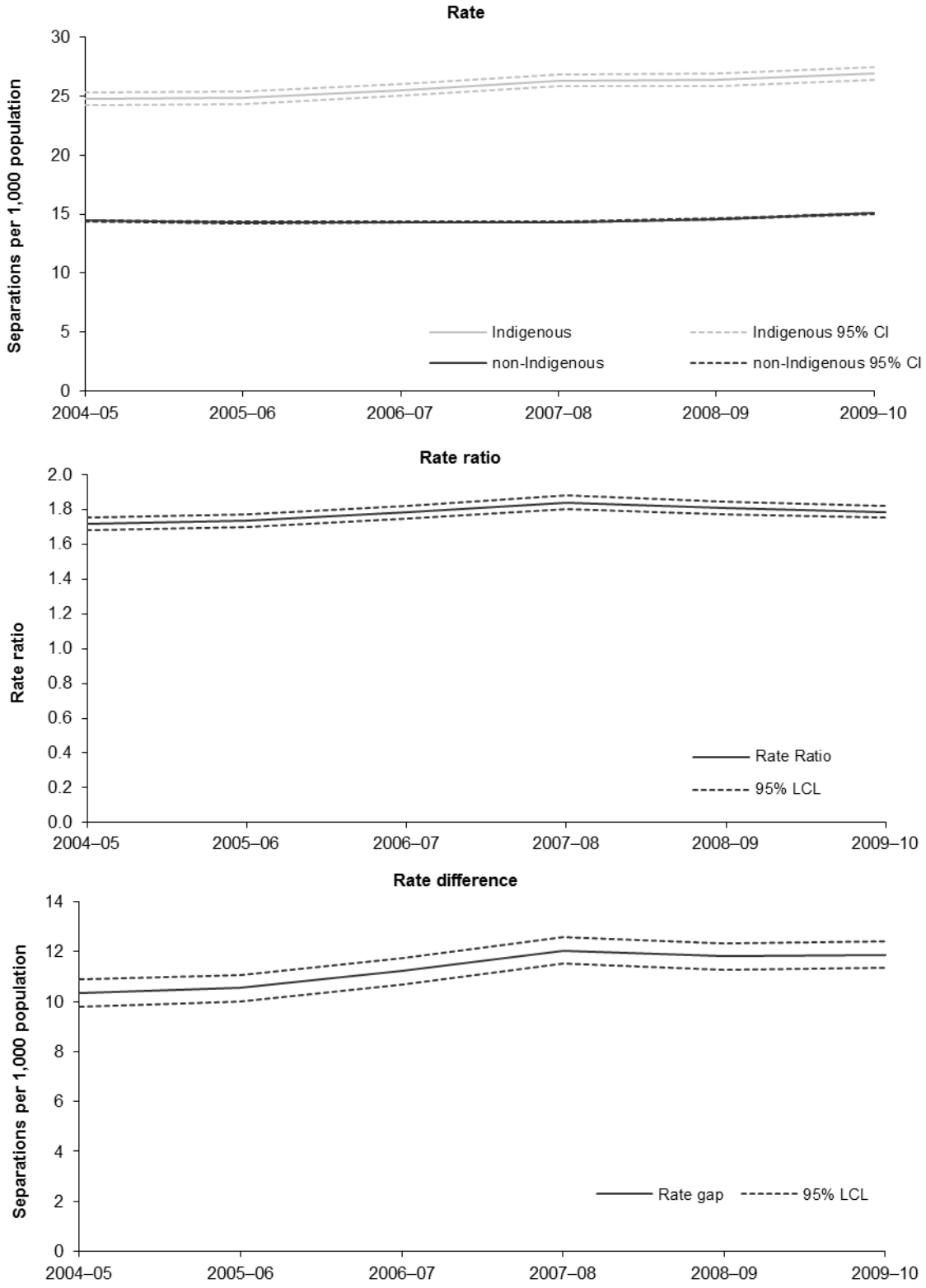
(d) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for non-Indigenous Australians.

(e) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for non-Indigenous Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Population estimates are based on 2006 census.
3. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.18.3: Hospitalisation rates, rate ratios and rate differences between Indigenous and non-Indigenous Australian for mental health related conditions, NSW, Vic, Qld, WA, SA and NT, 2004–05 to 2009–10

Other Services

General practitioner encounters

Information about general practitioner (GP) encounters is available from the BEACH survey.

Mental health-related problems (psychological problems) are among the top five most common type of problems managed at GP encounters with Aboriginal and Torres Strait Islander patients. They were the second most common type of problem managed, behind respiratory diseases, during the period 2005–06 to 2009–10 (AIHW 2011).

Data for the latest 5-year BEACH reporting period April 2006–March 2007 to April 2010–March 2011 are presented below.

- In the reporting period April 2006–March 2007 to April 2010–March 2011 there were 5,971 GP encounters with Indigenous patients recorded in the survey, at which 9,196 problems were managed. Of these, 11.3% (1,037) were mental health-related problems (Table 1.18.21).
- Mental health related problems were managed at a rate of 174 per 1000 GP encounters with Indigenous patients.
- After adjusting for differences in age distribution, mental health-related problems were managed significantly more often at GP encounters with Indigenous patients at 1.4 times the rate of encounters with other patients.
- Depression was the most common mental health-related problem managed at GP encounters with Indigenous patients, followed by drug abuse (licit or illicit), anxiety and alcohol abuse.
- Alcohol and drug abuse were managed significantly more often at GP encounters with Indigenous patients at around four times the rate of encounters with other patients.
- Tobacco abuse, schizophrenia and dementia were also significantly more often managed at GP encounters with Indigenous patients than with other patients (rate ratios of around 2 to 3 times).

Table 1.18.21: Most frequently reported mental health related problems[a] managed by general practitioners, by Indigenous status of patient, BEACH years April 2006–March 2007 to April 2010–March 2011[b][c]

	Number		% of total problems		Crude rate (no. per 1,000 encounters)			Age-standardised rate (no. per 1,000 encounters)[d]							
Problem managed	**Indig.**	**Other[e]**	**Indig.**	**Other[e]**	**Indig.**	**95% LCL[f]**	**95% UCL[g]**	**Indig.**	**95% LCL[f]**	**95% UCL[g]**	**Other[e]**	**95% LCL[f]**	**95% UCL[g]**	**Rate ratio[h]**	**Rate difference[i]**
Depression (P03, P76)	284	21,155	3.1	2.8	47.6	40.7	54.4	42.2	35.6	48.8	44.3	43.3	45.3	1.0	–2.0
Drug abuse (P19)	109	1,601	1.2	0.2	18.3	9.5	27.0	14.2	7.4	20.9	3.4	2.9	3.9	4.2*	10.8*
Anxiety (P01, P74)	100	9,380	1.1	1.3	16.7	12.8	20.7	18.3	13.0	23.6	19.6	19.0	20.3	0.9	–1.3
Alcohol abuse (P15, P16)	90	1,735	1.0	0.2	15.1	10.5	19.6	14.1	9.4	18.8	3.6	3.4	3.9	3.9*	10.5*
Tobacco abuse (P17)	80	3,083	0.9	0.4	13.4	9.5	17.3	12.5	8.9	16.1	6.5	6.2	6.8	1.9*	6.0*
Sleep disturbance (P06)	73	7,449	0.8	1.0	12.2	9.3	15.1	16.0	11.2	20.7	15.5	15.1	16.0	1.0	0.4
Schizophrenia (P72)	63	2,117	0.7	0.3	10.6	6.2	14.9	8.8	5.3	12.3	4.4	4.1	4.7	2.0*	4.4*
Acute stress reaction (P02)	55	3,273	0.6	0.4	9.2	6.3	12.1	9.4	6.2	12.5	6.8	6.5	7.2	1.4	2.5
Affective psychosis (P73)	25	1,227	0.3	0.2	4.2	2.5	5.9	3.8	2.2	5.4	2.6	2.4	2.7	1.5	1.3
Dementia (P70)	24	2,602	0.3	0.3	4.0	2.0	6.0	14.7	7.2	22.3	5.4	4.9	5.9	2.7*	9.3*
Other mental health problems[j]	134	6,973	1.5	0.9	22.4	17.7	27.2	19.2	14.9	23.5	14.6	14.0	15.2	1.3	4.6
Total mental health	**1,037**	**60,595**	**11.3**	**8.1**	**173.7**	**155.2**	**192.1**	**173.2**	**154.9**	**191.5**	**126.7**	**124.3**	**129.2**	**1.4***	**46.5***

*Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Classified according to ICPC–2 codes (Classification Committee of the World Organization of Family Doctors (WICC) 2005).

(b) Data from five combined BEACH years April 2006–March 2007 to April 2010–March 2011 inclusive.

(c) Data for Indigenous and other Australians have not been weighted.

(d) Directly age-standardised rate (no. per 1,000 encounters) using total BEACH encounters in the period as the standard. Figures do not add to 100 as more than one problem can be managed at each encounter.

(e) Other includes non-Indigenous patients and patients for whom Indigenous status was not stated.

(f) LCL = lower confidence interval.

(g) UCL = upper confidence interval.

(h) Rate ratio Indigenous: Other.

(i) Rate difference Indigenous rate minus Other (non-Indigenous) rate.

(j) ICPC–2 codes: P04–P05, P07–P13, P18, P20, P22–P25, P27–P69, P71, P75,P77–P82, P85–P86, P98–P99.

Source: Family Medicine Research Centre, University of Sydney analysis of BEACH data.

Community mental health care services

Community mental health care is defined as care which is provided by specialised public mental health services dedicated to the assessment, treatment, rehabilitation and care of non-admitted clients. This excludes specialised mental health care services for admitted patients, support services that are not provided by specialised mental health care organisations, services provided by non-government organisations, and residential care services.

The number and rate of service contacts per 1,000 population for Aboriginal and Torres Strait Islander people varies among the states and territories. This may reflect variations in completeness of Indigenous identification among patients, varying coverage of service contacts for Aboriginal and Torres Strait Islander people or for the total population, or different patterns of service use by Indigenous and non-Indigenous persons (AIHW 2010b).

- In 2009–10, there were more community mental health care service contacts per 1,000 population for Aboriginal and Torres Strait Islander people than for non-Indigenous Australians (842 per 1,000 and 262 per 1,000, respectively)
- In 2009–10, the rate of service contacts for clients of community mental health services who identified themselves as being of Aboriginal or Torres Strait Islander origin ranged from 217 per 1,000 in the Northern Territory to 1,767 per 1,000 in the Australian Capital Territory. New South Wales had the highest rate ratio and rate difference in Indigenous to non-Indigenous community mental health service contacts.
- In 2009–10, compared with non-Indigenous Australians, a higher proportion of Indigenous people in younger age groups (35–44 and younger) had contacts with mental health services. The proportions were lower in the older age groups (45–55 and older), which may, in part, be associated with the differences in age distribution in these populations (the mean age of Indigenous Australians is around 21 years compared with 36 years for non-Indigenous Australians (ABS 2010)). For example, 23% and 24% of service contacts for Indigenous Australian males and females were for clients aged between 15 and 24 years compared with 14% and 17% of service contacts for non-Indigenous Australian males and females of the same age. Furthermore, the rate ratio between Indigenous and non-Indigenous rate per 1,000 populations ranged between 1.7 and 4.5 across all age groups.
- Rates of service contacts with community mental health care services were much higher for Indigenous males than Indigenous females (1,061 compared with 629 per 1,000 population), and were highest for Indigenous persons aged 25–34 and 35–44.

For more information on community mental health services see Indicator *3.10: Access to mental health services*.

Residential mental health care services

Residential mental health care refers to care provided by a specialised mental health service that:

- employs mental-health-care-trained staff on–site
- provides rehabilitation, treatment or extended care to residents for whom the care is intended to be on an overnight basis and in a domestic–like environment
- encourages the resident to take responsibility for their daily living activities.

These services include those that employ mental-health-trained staff on-site 24 hours per day and other services with less intensive staffing. However, all these services employ on-site

mental-health-trained staff for some part of the day. There are no residential mental-health-care services in Queensland.

- In 2009–10, there were 3,964 residential mental-health-care service episodes provided in Australia, 121 of which (3%) were for Indigenous Australians.
- Nationally, Indigenous Australians were 1.5 times more likely than non-Indigenous people to receive a residential mental-health-care service; however rate ratios were substantially higher in South Australia and New South Wales (4.9 and 4.0 respectively).

For more information on residential mental health services see *Measure 3.10: Access to mental health services.*

Mortality

Mortality due to self-harm (suicide)

- Over the period 2006 to 2010, the mortality rate for intentional self-harm (suicide) for Indigenous Australians was twice the rate for non-Indigenous Australians (21 and 10 per 100,000 population, respectively) (Table 1.18.22).

Mortality by age

- Mortality rates for suicide were higher for Indigenous Australians than non-Indigenous persons across most age groups, with the exception of the 55–64 and 65–74 year old age groups (Table 1.18.22).
- The greatest disparities occurred in the 15–24 and 25–34 age groups, where Indigenous Australians died from self-harm at five and three times the rate of non-Indigenous Australians (Table 1.18.22).

Table 1.18.22: Intentional self harm mortality rates by Indigenous status and age, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	Number		Deaths per 100,000[(g)]			
Age group (years)	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Rate ratio[(h)]	Rate difference[(i)]
0–4 years[(j)]	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
5–14[(j)]	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
15–24	184	849	38.4	8.3	4.7	30.2
25–34	145	1,302	43.1	12.5	3.4	30.5
35–44	97	1,668	32.3	15.5	2.1	16.8
45–54	37	1,488	17.2	14.4	1.2	2.8
55–64	10	994	8.3	11.7	0.7	–3.4
65–74	n.p.	568	n.p.	10.7	n.p.	–6.9
75+	n.p.	590	n.p.	12.6	n.p.	0.2
Total (crude)[(k)]	**491**	**7,472**	**20.4**	**10.1**	**2.0**	**10.4**
Total (age standardised)[(k)(l)]	**491**	**7,472**	**21.0**	**9.9**	**2.1**	**11.1**

(a) Intentional self harm ICD–10 codes X60–X84.

(b) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final), 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) Age-specific death rates per 100,000 using the midpoint populations for the relevant years.

(h) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(i) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(j) Deaths of children aged under 15 years due to intentional self harm are not available.

(k) Totals exclude those for whom age was not stated.

(l) Total death rate is directly age-standardised death rate per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

Notes

1. Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Time series analysis

Longer-term mortality trend data are limited to three jurisdictions—Western Australia, South Australia and the Northern Territory, which have over 20 years of adequate identification of Indigenous deaths in their recording systems. Because of changes in the classification and coding of Causes of death from ICD–9 (used up until 1996) to ICD–10 (used from 1997 onwards) which affect the comparability of the data, the analysis reported for this measure is for two time periods—1991–1996 and 1997–2010.

Because of the late inclusion of a 'not stated' category of Indigenous status in 1998 (before which 'not stated' responses were included with non-Indigenous deaths), Indigenous mortality rates have been compared with the mortality rates of other Australians (which include deaths of both non-Indigenous people and people for whom Indigenous status was not stated).

Mortality rates, rate ratios and rate differences between Indigenous and other Australians for intentional self-harm over the period 1991–1996 and 1997–2010 are presented in Table 1.18.23.

Additional trends analysis has been presented for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from 2001 to 2010 for Indigenous and non-Indigenous Australians (excluding deaths for which Indigenous status was not stated) in Table 1.18.24. Queensland has had adequate identification of Indigenous deaths in its recording systems since 1998; New South Wales has had adequate identification of Indigenous deaths since 2001.

Note that fluctuations in the level of Indigenous mortality over time partly reflect changing levels of coverage of Indigenous deaths and population estimates. Given the volatility in the measures of Indigenous mortality, caution should be exercised in assessing trends in Indigenous mortality over time and comparisons between jurisdictions and with the non-Indigenous population.

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there were significant increases in mortality rates due to intentional self-harm among Indigenous Australians and no significant change in mortality rates due to intentional self-harm among other Australians (Table 1.18.23).
- Over the period 1997–2010 there were significant increases in mortality rates due to intentional self-harm among Indigenous Australians and significant decreases in mortality rates due to intentional self-harm for other Australians. The fitted trend implies an average yearly increase in the rate of 0.8 deaths per 100,000 for Indigenous Australians (a 63% increase) and an average yearly decrease 0.2 deaths per 100,000 for other Australians (a 22% decline). Over the same period, there were significant increases in the mortality rate ratios and rate differences between Indigenous and other Australians from intentional self-harm (Table 1.18.23).
- Over the period 2001–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, there were no significant changes in mortality rates due to intentional self-harm among Indigenous Australians, but a significant decrease for non-Indigenous Australians (15% decline). Over the same period there were no significant changes in the mortality rate ratios and rate differences between Indigenous and non-Indigenous Australians due to intentional self-harm (Table 1.18.24).

Table 1.18.23: Age-standardised mortality rates, rate ratios and rate differences, intentional self-harm (X60–X84), WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

	Indigenous rate (deaths per 100,000)[(e)]	Other rate (deaths per 100,000)[(e)(f)]	Rate ratio[(g)]	Rate difference[(h)]
1991	n.p.	14.1	n.p.	n.p.
1992	n.p.	13.0	n.p.	n.p.
1993	n.p.	12.4	n.p.	n.p.
1994	n.p.	12.0	n.p.	n.p.
1995	16.7	12.9	1.3	3.8
1996	17.7	13.1	1.4	4.6
Annual change[(i)]	**1.0***	**–0.2**	**0.1***	**0.8***
Per cent change[(j)]	**6.0***	**–5.8**	**7.7***	**21.1***
1997	17.0	13.9	1.2	3.1
1998	25.0	15.7	1.6	9.3
1999	19.0	12.8	1.5	6.2
2000	27.6	13.3	2.1	14.3
2001	21.1	13.9	1.5	7.2
2002	30.6	12.0	2.6	18.6
2003	20.7	12.0	1.7	8.7
2004	28.2	10.4	2.7	17.8
2005	26.7	11.7	2.3	15.0
2006	37.7	10.6	3.6	27.1
2007	26.0	12.5	2.1	13.5
2008	30.7	11.8	2.6	18.9
2009	24.1	11.3	2.1	12.8
2010	32.9	12.1	2.7	20.9
Annual change[(i)]	**0.8***	**–0.2***	**0.1***	**1.0***
Per cent change[(j)]	**62.6***	**–21.7***	**107.8***	**446.5***

(continued)

Table 1.18.23 (continued): Age-standardised mortality rates, rate ratios and rate differences, intentional self harm (X60–X84), WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and 1997–2010.

(a) Data are reported for Western Australia, South Australia and the Northern Territory only. These three states and territories are considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these three jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for these jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final), 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(e) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(f) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(g) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(h) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for other Australians.

(i) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the period 1991–2010.

(j) Per cent change between 1991 and 1996 and between 1997 and 2010 based on the average annual change over the period.

Notes

1. 1991–1996 ICD9 codes E950–E959, 1997–2010 ICD–10 codes X60–X84.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.18.24: Age-standardised mortality rates, rate ratios and rate differences, intentional self-harm (X60–X84), NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[(f)]	Per cent change[(g)]
Indigenous rate (deaths per 100,000)[(h)]	23.8	28.4	17.8	18.5	20.1	22.1	20.9	20.3	19.5	22.1	–0.3	–12.8
Non-Indigenous rate (deaths per 100,000)[(h)]	12.4	11.2	10.4	9.5	9.6	9.6	10.3	10.2	9.5	9.9	–0.2*	–14.5*
Rate ratio[(i)]	1.9	2.5	1.7	1.9	2.1	2.3	2.0	2.0	2.1	2.2	0.0	5.5
Rate difference[(j)]	11.4	17.2	7.3	9.0	10.5	12.5	10.5	10.1	10.0	12.2	–0.1	–10.9

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 2001–2010.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(e) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final), 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(g) Per cent change between 2001 and 2010 based on the average annual change over the period.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Mortality due to mental health-related conditions

- Between 2006–2010, the mental health-related mortality rate for Indigenous Australians was 51 per 100,000 population, compared with 36 per 100, 000 for non-Indigenous Australians. This indicates that Indigenous Australians had 1.4 times the mortality rate as non-Indigenous Australians for mental health-related conditions (Table 1.18.25).

Mortality by age

Table 1.18.25 presents age-specific mortality rates for mental health-related conditions for the period 2006–2010 for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Mortality rates for mental health-related conditions were higher for Indigenous Australians than for non-Indigenous persons across most age groups.
- Rate ratios were most marked in the 35–44 and 45–54 year age groups where Indigenous Australians died at 7.5 times and 6.7 times the rates of non-Indigenous persons, respectively. These differences in mortality rates are mainly the result of the high number of deaths from mental and behavioural disorders due to psychoactive substance use among the Indigenous population in these age groups.
- The highest rate difference occurred in the 65–74 age group, where Indigenous Australians died from mental health related conditions at 240 per 100,000 population, while non-Indigenous Australians died from mental health related conditions at 64 per 100,000 population.

Table 1.18.25: Mental health related mortality rates per 100,000, by Indigenous status and age group, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

Age group (years)	Indigenous rate[(g)]	Non-Indigenous rate[(g)]	Rate ratio[(h)]	Rate difference[(i)]
Less than 1	—	n.p.	n.p.	n.p.
1–4	—	0.1	—	–0.1
5–14	—	0.1	—	–0.1
15–24	1.8	0.4	4.7	1.4
25–34	3.0	1.2	2.6	1.9
35–44	19.7	2.6	7.5	17.1
45–54	35.0	5.2	6.7	29.8
55–64	55.0	13.4	4.1	41.6
65–74	239.6	63.9	3.8	175.8
75 and over	633.8	558.3	1.1	75.5
Total[(j)(k)]	**51.2**	**35.5**	**1.4**	**15.7**

(a) ICD–10 codes: F00–F99, G30, G47.0, G47.1, G47.2, G47.8, G47.9, O99.3, R44, R45.0, R45.1, R45.4, R48.

(b) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) Age-specific death rates per 100,000 using the midpoint populations for the relevant years.

(h) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(i) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous/Other Australians.

(j) Total includes age not stated.

(k) Total is directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Mortality by cause of death

Deaths for the period 2006–2010 among Aboriginal and Torres Strait Islander people in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined are presented in Table 1.18.26 by type of mental health-related condition.

- For Indigenous males, the most common cause of death was from mental and behavioural disorders due to psychoactive substance (79 deaths or 54%). For Indigenous females it was organic mental disorders, which include dementia, delirium and other mental disorders due to brain damage and dysfunction (104 deaths or 63%).
- In the five jurisdictions combined, Indigenous males and females died from mental and behavioural disorders due to psychoactive substance use at 5.7 times and 6.7 times the rate of non-Indigenous males and females respectively.

Table 1.18.26: Deaths from mental health related conditions for Indigenous Australians, by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	Males						Females						Persons					
Cause of death	**No.**	**No. per 100,000[(g)]**	**95% LCL[(h)]**	**95% UCL[(i)]**	**Ratio[(j)]**	**Rate difference[(k)]**	**No.**	**No. per 100,000[(g)]**	**95% LCL[(h)]**	**95% UCL[(i)]**	**Ratio[(j)]**	**Rate difference[(k)]**	**No.**	**No. per 100,000[(g)]**	**95% LCL[(h)]**	**95% UCL[(i)]**	**Ratio[(j)]**	**Rate difference[(k)]**
Mental and behavioural disorders due to psychoactive substances use (F10–F19)	79	13.7	10.1	17.3	5.7	11.3	36	5.1	3.2	7	6.7	4.3	115	9	7.1	10.9	5.8	7.5
Organic, including symptomatic mental disorders (F00–F09)	55	29.6	21.5	37.8	1.6	10.8	104	37.7	30.3	45.1	1.4	11.3	159	34.5	28.9	40	1.5	11.3
Other[(l)]	13	5.8	2.3	9.2	0.7	–2.3	25	9	5.4	12.6	0.7	–3.6	38	7.7	5.1	10.3	0.7	–3.0
Total	**147**	**49.1**	**39.6**	**58.7**	**1.7***	**19.8**	**165**	**51.8**	**43.3**	**60.2**	**1.3**	**12.1**	**312**	**51.2**	**44.8**	**57.6**	**1.4**	**15.7**

(continued)

Table 1.18.26 (continued): Deaths from mental health related conditions for Indigenous Australians, by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5–year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final) 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) Directly age-standardised using the 2001 Australian Estimated Resident population, by 5–year age group to 75+.

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(k) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous/Other Australians.

(l) Includes ICD–10 codes: F20–F99, G30, G47.0, G47.1, G47.2, G47.8, G47.9, O99.3, R44, R45.0, R45.1, R45.4, R48.

Notes

1. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.
2. Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

Source: AIHW analysis of ABS Mortality Database.

Data quality issues

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The 2004–05 NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians. It therefore overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in Major cities, Inner and outer regional areas and Remote and very remote areas, but Very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 NHS.

In Remote and very remote communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The NATSISS is conducted in all states and territories and includes remote and non-remote areas. The 2008 sample was 13,300 persons in 6900 households, with a response rate of 82% of households. Up to three randomly selected Indigenous people were chosen from selected households to participate in the survey. Trained ABS interviewers conducted the survey using face-to-face interviews. In non-remote areas interviewers used a notebook computer to record responses, while in remote areas a paper questionnaire was used. Interviewers obtained the consent of a parent or guardian before interviewing those aged 15 to 17 years. Indigenous persons usually resident in non-private dwellings such as hotels, motels, hostels, hospitals, short-stay caravan parks, prisons and other correctional facilities were excluded.

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians.

Information recorded in this survey is 'as reported' by respondents, and therefore may differ from information available from other sources or collected using different methodologies.

Data on health related indicators have been age-standardised to the 2001 total Australian population to account for differences in the age structures of the states and territories and the Indigenous and non-Indigenous population.

Time series comparisons for the 2008 survey are available through the 1994 National Aboriginal and Torres Strait Islander Survey and the 2002 NATSISS. However not all data elements align across the three (1994, 2001 and 2008) NATSISS surveys, hence care is

required when reviewing results across the three surveys. There are no strictly comparable non-Indigenous results available for the 2008 NATSISS because the latest General Social Survey (which has been used in the past to compare with Indigenous results from the NATSISS) was run in 2006, with the next being run in 2010. Data from other ABS surveys run in 2008 may, however, be used to obtain rough non-Indigenous comparisons for some data items. Where possible, the ABS has provided recommendations for non-Indigenous data comparisons these have been adopted in this report.

The 2008 NATSISS has a relatively large level of under-coverage when compared to other ABS surveys. There was also an increase in under-coverage compared to previous ABS Indigenous surveys. For example, the estimated under-coverage in the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) was 42%. The overall under-coverage rate for the 2008 NATSISS is approximately 53% of the in-scope population at the national level. This rate varies across the states and territories (ABS 2010).

Further information on NATSISS data quality issues can be found in the 2008 NATSISS User's guide (ABS 2010).

Western Australian Aboriginal Child Health Survey

Survey data are subject to sampling and non-sampling errors. Confidence intervals are published with the data to provide a guide to the reliability of the estimates. Non-sampling errors can occur in surveys owing to questionnaire design problems, respondent difficulty recalling information/lack of appropriate records, and errors made in the recording and processing of the data. Every effort was made to minimise non-sample errors in this survey.

General Practitioner Data (BEACH)

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. Although the questionnaire contains an Indigenous identifier, it is unknown whether all GPs ask their patients this question. In the BEACH survey, 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners. Further detailed analyses of this issue are covered in General practice in Australia, heath priorities and policies 1998 to 2008, (Britt & Miller 2009:101):

'The findings of a BEACH substudy confirmed this suspected under-identification. In the data period reported here, 1.4% of patients encountered identified themselves as Indigenous. In contrast, in a BEACH substudy that asked 9,245 patients a complete set of questions about their cultural background (including Indigenous status) 2.2% (95% CI: 1.6–2.9) of respondents identified themselves as Indigenous (Britt et al. 2007). This rate is similar to the ABS estimates of Indigenous Australians as a proportion of the total population (ABS 2006).

However, the BEACH substudy included Indigenous Australians seen at Community Controlled Health Services funded through Medicare claims, and the estimate of 2.2% could have been an overestimate for the proportion of encounters that are with Indigenous patients in general practice as a whole. Deeble et al. (2008) conducted further investigations on this data and estimated that the BEACH encounter identification was an underestimate of about 10%, and that a more reliable estimate of the Indigenous population would be about 1.6% of all encounters (Deeble et al. 2008).

The findings of these studies are that some GPs are not routinely asking patients at the encounter about their Indigenous status, even when this is a variable specifically collected for each patient encountered, as it is in BEACH encounter data.'

National Hospital Morbidity Database

The scope of the NMDS is episodes of care for admitted patients in essentially all hospitals in Australia, including public and private acute and psychiatric hospitals, free-standing day hospital facilities, alcohol and drug treatment hospitals and dental hospitals. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not included. Hospitals specialising in ophthalmic aids and other specialised acute medical or surgical care are included. The NHMD does not include episodes of non-admitted patient care provided in outpatient clinics or emergency departments.

For 2009–10 almost all public hospitals provided data for the NHMD, with the exception of all separations for a mothercraft hospital in the Australian Capital Territory and about 2,400 separations for one public hospital in Western Australia. The majority of private hospitals provided data, with the exception of the private day hospital facilities in the Australian Capital Territory and the Northern Territory. In addition, Western Australia was not able to provide about 10,600 separations for one private hospital.

Separations

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay or a portion of a hospital stay beginning or ending in a change of type of care) and not patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set.

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery.

Separations with care types of *Newborn* episodes that did not include qualified days, and records for *Hospital boarders* and *Posthumous* organ procurement have been excluded as these activities are not considered to be admitted patient care.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections.

Approximately 2% of hospital records have missing Indigenous status information.

Hospitalisations for which the Indigenous status of the patient was not reported are excluded from hospitalisations data for non-Indigenous Australians, apart from Western Australia where records with an unknown status are recorded as non-Indigenous.

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. In 2007, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data.

It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland,

Western Australia, South Australia and the Northern Territory. Interpretation of results should take into account the relative quality of the data from the jurisdictions. The proportion of the Indigenous population covered by these six jurisdictions is 96%. Tasmania and the Australian Capital Territory data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions.

From the AIHW study, it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level. Adjustments for Indigenous under-identification have been made at the national level for the total number of hospital separations using an adjustment factor of 89%. No adjustments for under-identification have been made at the state/territory level or principal diagnosis level.

The 2007 AIHW study indicated acceptable levels of Indigenous identification for all remoteness areas, ranging from 80% in Major cities to 97% in Remote and Very remote areas. The quality of data supports analyses for hospitalisations by remoteness areas at the national level only.

In 2011–12, the AIHW commenced another study to re-assess the level of under-identification in public hospitals data. All states and territories have participated in the study to assess improvements in data quality. A report on the findings is expected to be published in mid-2013 which will include new correction factors for the level of Indigenous under-identification in hospital separations data at the national, state/territory and remoteness levels.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in hospital records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used in this analysis are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

Mortality data

Mortality data presented in this report are from the AIHW National Mortality Database. The AIHW National Mortality Database includes information on the factors that caused death, as well as other information about the deceased person, such as age at death, place of death, country of birth, and where applicable, the circumstances of their death. These data are collected in Australia by the Registrars of Births, Deaths and Marriages in each state and territory. The data are then compiled nationally by the ABS, which codes the data according to the International Classification of Diseases (ICD).

Deaths

Although it is considered likely that most deaths of Aboriginal and Torres Strait Islander (Indigenous) Australians are registered, a proportion of these deaths are not registered as Indigenous. Information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred and may differ from the self-identified Indigenous origin of the deceased.

Queensland deaths

In November 2010, the Queensland Registrar of Births, Deaths and Marriages advised the ABS of an outstanding deaths registration initiative undertaken by the Registry. This initiative resulted in the November 2010 registration of 374 previously unregistered deaths which occurred between 1992 and 2006 (including a few for which a date of death was

unknown). Of these, around three-quarters (284) were deaths of Aboriginal and Torres Strait Islander Australians.

The ABS discussed different methods of adjustment of Queensland death registrations data for 2010 with key stakeholders. Following the discussion, a decision was made by the ABS and key stakeholders to use an adjustment method that added together deaths registered in 2010 for usual residents of Queensland which occurred in 2007, 2008, 2009 and 2010. This method minimises the impact on mortality indicators used in various government reports. However, care should still be taken when interpreting Aboriginal and Torres Strait Islander death data for Queensland for 2010.

Western Australia deaths

Indigenous deaths registered in Western Australia in 2007, 2008 and 2009 were corrected by the ABS in mid-2012 due to some non-Indigenous deaths being incorrectly recorded as Indigenous for these years. Data presented in this report are based on the corrected data and will differ from mortality data presented in the 2010 Health Performance Framework report which presented data prior to the ABS corrections.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms.

Under-identification

At present, there is considerable variation across the states and territories in the completeness of mortality data for Indigenous people. Information concerning the number of deaths of Indigenous people is limited by the accuracy with which Indigenous persons are identified in death records. Problems associated with identification result in an underestimation of deaths of Indigenous people and in the gap in mortality between Indigenous and non-Indigenous Australians.

Mortality data for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered to have sufficient coverage to produce reliable statistics on Indigenous Australian deaths for the period 2001–2010.

Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) which are considered to have adequate identification from 1991. Queensland is considered to have sufficient coverage of Indigenous deaths from 1998.

The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.

Indigenous Mortality Quality Study

The ABS conducted a number of quality studies based on the 2006 Census of Population and Housing and other data sets as part of the Census Data Enhancement (CDE) project (ABS 2008). The CDE Indigenous Mortality Quality Study linked Census records with death registration records for the 11-month period following the Census and examined differences in the reporting of Indigenous status across the two data sets.

For the purpose of this study, the linked record was assumed to be an Indigenous record if a positive response was recorded against the Indigenous status question on either the death registration or the corresponding Census record. Following linkage, the number of death

records identified as Indigenous increased from 1,800 to 2,123 records, or from 1.7% to 2.0% of all registered deaths.

'While 323 additional death records were able to be identified as Indigenous from Census records, more may have been expected if all death records had been linked. A key reason records could not be linked appears to be Census undercount, with a corresponding Census record not existing to link to for many Indigenous death records' (ABS 2008).

The results from the study suggested that coverage of Indigenous deaths in death registrations is considerably higher, at least in 2006–07, than previous estimates have indicated. Nationally, the coverage rate was estimated to be 85%. State/territory coverage estimates were: NSW 76%, Vic 74%, Qld 87%, SA 86%, WA 92% and NT 99% (ABS 2008).

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in death records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

National Community Mental Health Care Database

There is some variation in the types of service contacts included across jurisdictions. For example, some jurisdictions include written correspondence as service contacts while others do not. The Northern Territory estimates that there could be a deficit of between 25–35% of service contact records. Coverage for most other jurisdictions is estimated to be between 95–100%.

The numerator includes people who receive a service in one jurisdiction but normally reside in another. There will be some mismatch between numerator and denominator in areas with cross-border flows.

Indigenous under-identification

The Indigenous status data should be interpreted with caution due to the varying and, in some instances, unknown quality of Indigenous identification across jurisdictions. The Other Australians category includes contacts where Indigenous status was missing or not reported (around 7% of all contacts). All states and territories use the standard ABS question of Indigenous status.

National Residential Mental Health Care Database

The scope for this collection is all episodes of residential care for residents in all government-funded and operated residential mental health services in Australia, except those residential care services that are in receipt of funding under the *Aged Care Act 1997* and subject to Commonwealth reporting requirements (that is, they report to the System for the Payment of Aged Residential Care collection). The inclusion of government-funded, non-government-operated services and services that are not staffed for 24 hours a day is optional. Queensland does not have any in-scope government-operated residential mental health services and therefore does not report to this collection.

For the 2009–10 data collection, all but 8 of the facilities reported had mental health trained staff on-site 24 hours a day. Data from 11 non-government organisations were also included in the 2009–10 collection. All jurisdictions reported 100% data coverage in 2009–10.

Data from the NRMHCD on Indigenous status should be interpreted with caution because of the varying quality and completeness of Indigenous identification across all jurisdictions. No formal assessment of the level of under-identification has been conducted for this data

collection, however Western Australia, South Australia, the Northern Territory and the Australian Capital Territory considered their Indigenous status data of acceptable quality in 2009–10. In Victoria and New South Wales, there has been an increasing focus on collecting Indigenous data more accurately in accordance with best practice guidelines. Tasmania reported that the quality of the Indigenous status data collected does require improvement and is being addressed with the implementation of a new mental health information system (AIHW 2011).

List of symbols used in tables

n.a.	not available
—	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.19 Life expectancy at birth

The life expectancy of Aboriginal and Torres Strait Islander males and females for a given period

Data sources

Life expectancy estimates for the years 2005–2007 presented in this measure are from the Australian Bureau of Statistics (ABS) and are based on population estimates from the 2006 Census of Population and Housing.

The Australian Institute of Health and Welfare (AIHW) calculates data on potential years of life lost before age 65, derived from the AIHW National Mortality Database.

Life expectancy estimates

Life expectancy refers to the average number of years a person of a given age and sex can expect to live, if current age- and sex-specific death rates continue to apply throughout his or her lifetime.

Estimates of life expectancy are drawn from life tables. To construct a life table, data on total population, births and deaths are needed, and the accuracy of the life table depends on the completeness of these data. Because of uncertainty about the estimates of these components for Aboriginal and Torres Strait Islander people, experimental methods are used to calculate life expectancies for the Indigenous population. These life expectancies should only be used as an indicative summary measure of life expectancy of the Indigenous population.

The ABS used a direct demographic method to derive 2005–2007 life tables for the Indigenous population by adjusting death registrations data by identification rates obtained from the Census Data Enhancement (CDE) Indigenous Mortality Quality Study. The ABS previously used indirect methods (the Bhat method, with and without unexplained growth, and the Hill method) to derive experimental life tables for Indigenous Australians. These indirect methods require extensive assumptions and often produce implausible outcomes in relation to the apparent undercoverage measures over time. They are also sensitive to the accuracy of population estimates. After extensive consultation, the ABS adopted a direct demographic method for the compilation of Indigenous life tables (ABS 2009).

Unlike the indirect method, the direct method of deriving Indigenous life tables for life expectancy estimates is not reliant on assumptions. That is, instead of relying on indirect and modelled estimates to derive coverage estimates of Indigenous deaths, the direct method enables the calculation of coverage rates by directly comparing the Indigenous status reported on death and Census data for linked records. This data linkage technique ensures consistency across collections and produces life expectancy estimates that are considered more plausible (ABS 2008b). There are however, limitations that must be noted.

The derived Indigenous deaths identification rates relate to a very restricted time frame of 11 months, and there remains a relatively high level of unlinked records for which Indigenous status is unknown (ABS 2008b).

Due to the small number of Indigenous deaths in Victoria, South Australia, Tasmania and the Australian Capital Territory, Indigenous life tables were not produced for these jurisdictions (ABS 2009).

Because different methods of deriving Indigenous life tables were used in the 2006 and 2008 Health performance framework reports, comparisons should not be made and in no way should changes in life expectancy between these reports be interpreted as changes in life expectancy over time.

Indigenous life expectancy estimates derived from the 2011 Census are not anticipated to be available until November 2013.

National Mortality Database

The National Mortality Database is a national collection of de-identified unit record level data. It comprises most of the information recorded on death registration forms and medical (cause of death) certificates, including Indigenous status. The database is maintained by the Australian Institute of Health and Welfare (AIHW). Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the Australian Bureau of Statistics (ABS). Information on the cause of death is supplied by the medical practitioner certifying the death, or by a coroner. The data are updated each calendar year and are presented by state/territory of usual residence rather than state/territory where death occurs.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander people are registered. However, a proportion of these deceased are not reported as Aboriginal or Torres Strait Islander by the family, health worker or funeral director during the death registration process. That is, while data are provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked of relatives and friends of the deceased by the funeral director.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to 3 jurisdictions (Western Australia, South Australia and the Northern Territory) with adequate identification of Indigenous deaths in their recording systems from 1991 onwards. The quality of the time-series data is also influenced by the late inclusion of a not stated category for Indigenous status in 1998. Prior to this time, the not stated responses were probably included with the non-Indigenous.

Deaths registered in 2010 with a usual residence of Queensland have been adjusted to exclude deaths registered in 2010 that occurred prior to 2007. This is to minimise the impact of late registration of deaths due to recent changes in the timeliness of death registrations in Queensland.

Western Australian Aboriginal and Torres Strait Islander deaths for 2007, 2008 and 2009, have been revised to correct for a data quality issue which resulted in the over-reporting of Indigenous deaths during this period.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2006–2010 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years.

Census of Population and Housing

The Census of Population and Housing is conducted by the ABS at 5-yearly intervals, and is designed to include all Australian households. The Census uses the ABS standard Indigenous status question for each household member.

Although the Census data are adjusted for undercount at the person level to arrive at the estimated resident population, no such adjustment is done at the household level. This affects the accuracy of the person counts at the household level to provide adjusted household estimates.

The 2011 Census is the most recent, however data for the Indigenous population was not yet released at the time of writing this report. Therefore data included in this report come from the 2006 Census. In 2006, the ABS enhanced the sample for the Post-Enumeration Survey to include remote areas. The measured undercount for Indigenous Australians was 11.5%.

Analyses

Life expectancy

- Over the period 2005–2007, the life expectancy at birth for Indigenous people was estimated to be around 67 years for males and 73 years for females. This is some 10 years lower than life expectancy estimates for the non-Indigenous population for the same period (79 years for males and 83 years for females) (Table 1.19.1 and Figure 1.19.1).
- Life expectancy was lowest for Indigenous males and females in the Northern Territory (62 years and 69 years, respectively).

A study of causes of the inequality in life expectancy between Indigenous and non-Indigenous Australians in the Northern Territory found that the main contributors to the gaps in life expectancy are non-communicable diseases including conditions such as respiratory diseases, cardiovascular diseases and diabetes. These conditions are more prevalent in ageing populations. The study also found that communicable diseases, maternal, perinatal and nutritional conditions and injury contributed far less to the life expectancy gap (Zhao & Dempsey 2006).

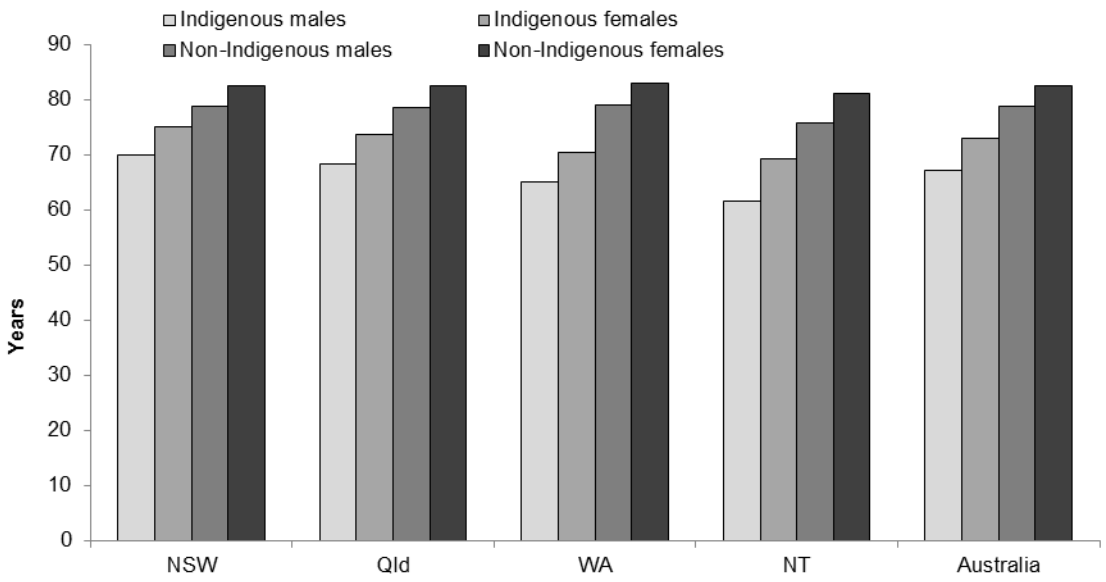
Table 1.19.1: Life expectancy at birth, by Indigenous status and total population 2005–2007, by sex and state/territory[(a)]

	Males	Females
	Indigenous	
New South Wales	69.9	75.0
Queensland	68.3	73.6
Western Australia	65.0	70.4
Northern Territory	61.5	69.2
Australia[(b)]	**67.2**	**72.9**
	Non-Indigenous	
New South Wales	78.7	82.5
Queensland	78.6	82.5
Western Australia	79.0	82.9
Northern Territory	75.7	81.2
Australia[(b)]	**78.7**	**82.6**
	Total population	
New South Wales	78.5	82.4
Queensland	78.4	82.3
Western Australia	78.7	82.5
Northern territory	72.0	77.6
Australia[(b)]	**78.5**	**82.4**

(a) Due to significant changes in methodology, estimates of life expectancy at birth for 2005–07 are not comparable to previously published estimates.

(b) Includes all states and territories.

Source: ABS 2009.



Source: ABS 2009.

Figure 1.19.1: Life expectancy at birth, Indigenous and total population 2005–2007, by sex and state/territory

International comparisons

International indigenous data are available for New Zealand, the United States and Canada.

There are several common issues that adversely affect the quality of Indigenous mortality data in these three countries and Australia. These include the lack of an accurate denominator for the Indigenous population (mainly due to under-counting) and the lack of agreement over which is the best population denominator to use when they exist (for example, whether to use single ethnic response groups or multiple ethnic response groups). There are differences in how Indigenous status is defined in the different countries. There have also been frequent modifications to the ethnicity question recorded in the censuses in some of these countries. These changes in the census ethnicity question have led to difficulties in comparing mortality trends over time and have also produced difficulties in estimating inter-census population denominator counts.

An important issue in relation to the quality of Indigenous mortality data is the under-counting of deaths (the numerator for mortality data). In each of the four countries, the under-counting of Indigenous deaths is likely to lead to an underestimation of the relative size of disparities that exist between Indigenous and non-Indigenous populations. This will affect life expectancy estimates.

The life expectancy estimates presented below are not strictly comparable because of differences in the methods used to estimate life expectancy. Moreover, the populations covered by these estimates are variable across the three countries.

- The life expectancy for Maoris for 2005–07 was 70.4 years for males and 75.1 years for females (Statistics New Zealand 2008) (Table 1.19.2 and Figure 1.19.2).
- As of 2001, average life expectancy at birth for the First Nations population in Canada is estimated to be 71.1 years for males and 76.6 years for females. The Métis population is estimated to have a slightly higher life expectancy at 71.9 years for males and 77.7 years for females (INAC 2007). The Inuit population has the lowest life expectancy across all Aboriginal populations in Canada at 64.4 years for males and 69.8 years for females. In comparison, life expectancy for the Canadian population in general is 77.0 years for males and 82.0 years for females in 2001 (Wilkens et al. 2008).
- Life expectancy at birth is not readily available for American Indians in the United States. The most recent published data on the life expectancy of American Indians are projected life expectancies for 1999. In 1999, the projected life expectancy for American Indian males was 72.8 years compared with 74.0 years for total males, and 82.0 years for American Indian females compared with 79.7 years for total females (based on low series population estimates) (US Census Bureau 2000).

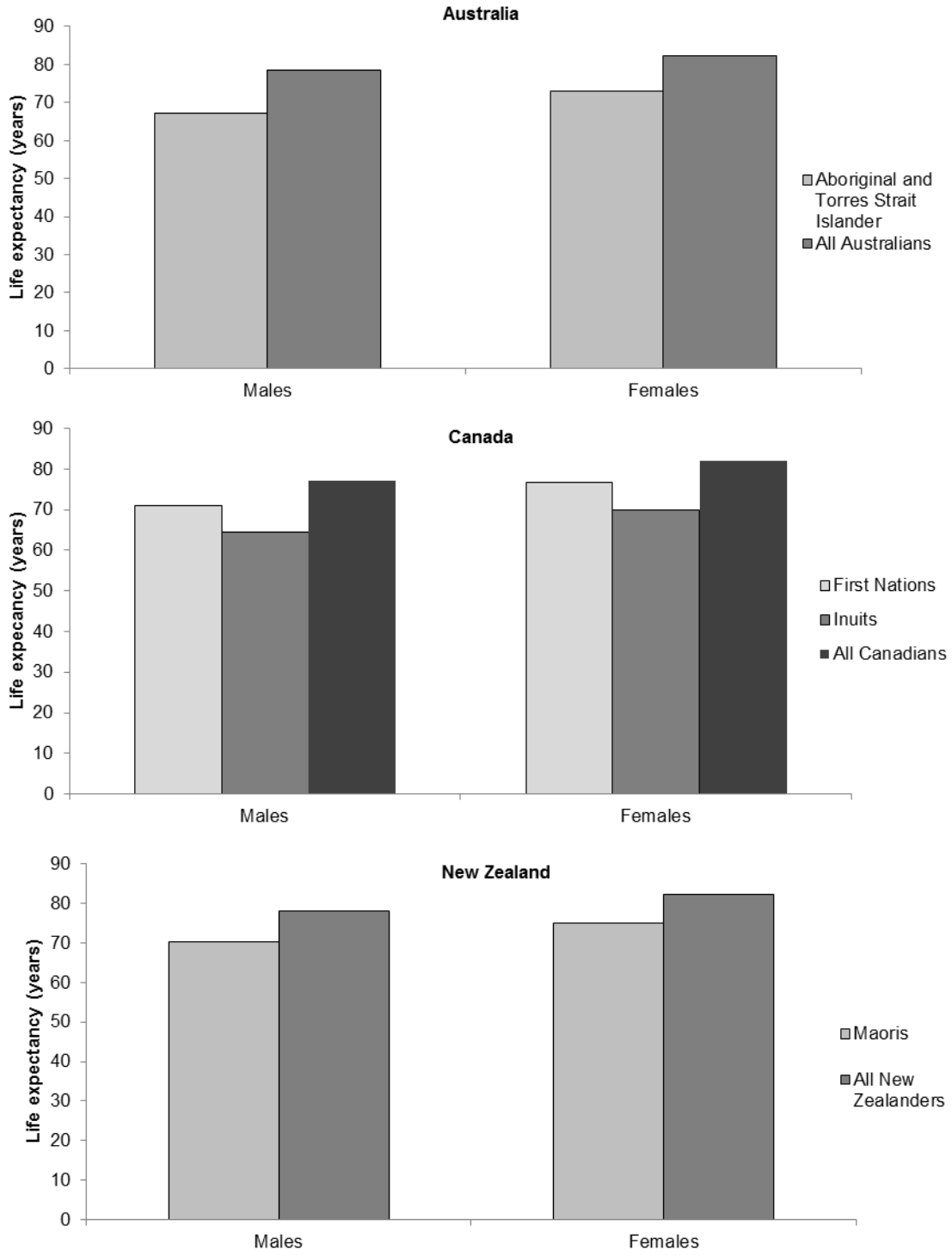
Table 1.19.2: Life expectancy at birth (years of age) for males and females in Australia, Canada and New Zealand, by Indigenous status, various years

	Australia		Canada				New Zealand	
	Aboriginal and Torres Strait Islander	All Australians	First Nations	Métis	Inuits	All Canadians	Maoris	All New Zealanders
Males	67.2	78.5	71.1	71.9	64.4	77.0	70.4	78.0
Females	72.9	82.4	76.6	77.7	69.8	82.0	75.1	82.2

Notes

1. Life expectancy estimates for Aboriginal and Torres Strait Islander people and all Australians are for 2005–2007.
2. Life expectancy estimates for Canada are for 2001. First Nations refers to the total North American Indian population including both Registered Indians and Non-Status Indians. Registered Indians are individuals who are registered under the Indian Act. Métis refers to individuals with mixed Aboriginal and European ancestry. Inuit are the original inhabitants of Arctic Canada.
3. Life expectancy estimates for Maoris and the total New Zealand population are for 2005–2007.

Sources: ABS 2009; INAC 2007; Wilkens et al. 2008; Statistics New Zealand 2008.



Notes

1. Life expectancy estimates for Aboriginal and Torres Strait Islander people and all Australians are for 2005–2007.
2. Life expectancy estimates for Canada are for 2001. First Nations refers to the total North American Indian population including both Registered Indians and Non-Status Indians. Registered Indians are individuals who are registered under the Indian Act. Métis refers to individuals with mixed Aboriginal and European ancestry. Inuit are the original inhabitants of Arctic Canada.
3. Life expectancy estimates for Maoris and the total New Zealand population are for 2005–2007.

Sources: ABS 2009; INAC 2007; Wilkens et al. 2008; Statistics New Zealand 2008.

Figure 1.19.2: Life expectancy at birth for males and females in Australia, Canada and New Zealand, by Indigenous status, various years

Potential years of life lost

Potential years of life lost (PYLL) is a measure of premature or untimely death. It represents the total number of years of life lost before a given age (for example, 65 years). If dying before the age of 65 is considered premature then a person dying at age 55 would have lost 10 years of potential life. This measure gives more importance to the causes of death that occurred at younger ages than those that occurred at older ages.

The PYLL due to death is calculated for each person who died before age 65. Deaths of people aged 65 years and over are not included in the calculation. Potential years of life lost correspond to the sum of the PYLL contributed for each individual. The rate is obtained by dividing total potential years of life lost by the total population less than 65 years of age.

Table 1.19.3 presents the number and rate of potential years of life lost for Indigenous and non-Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory over the period 2006–2010.

- The potential years of life lost before the age of 65 years is much higher for the Indigenous population than the non-Indigenous population (91.5 per 1,000 for Indigenous males compared with 31.1 per 1,000 for non-Indigenous males; and 57.5 per 1,000 for Indigenous females compared with 17.7 per 1,000 for non-Indigenous females).

Table 1.19.3: Potential years of life lost before age 65 years (PYLL), NSW, Qld, WA, SA & NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	Deaths aged under 65 years		PYLL (65)		
	No.[(g)]	% of deaths	No.	PYLL per 1,000[(h)]	No. years per death
Indigenous					
Males	4,354	70.9	106,514	91.5	24.5
Females	2,944	59.0	67,225	57.8	22.8
Non-Indigenous					
Males	59,222	24.0	1,009,467	31.1	17.1
Females	33,840	14.5	562,309	17.7	16.6

(a) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous PYLL.

(b) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Data are presented in 5-year groupings because of small numbers each year.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators. See data quality statements for a more detailed explanation.

(f) These data exclude 1,494 registered deaths where the Indigenous status was not stated for those aged under 65 over the period 2006-2010 - 4Js only, excludes not stateds from WA.

(g) Excludes deaths for which age at death was not stated.

(h) Deaths per 1,000 population.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Additional information

Life expectancy in the Northern Territory

Wilson et al. (2007) undertook a study to assess the extent of changes in life expectancy at birth for Indigenous Australians living in the Northern Territory over the period 1967–2004. Life expectancy at birth figures were calculated via life table calculations using Indigenous mortality data and population data from the Northern Territory.

The study found that the life expectancy at birth of Indigenous Australians has risen considerably in the Northern Territory, increasing from 52 years for males and 54 years for females in the late 1960s to around 60 years for males and 68 years for females in 2004. The gap between Indigenous and total Australian female life expectancy in the Northern Territory has narrowed between 1967 and 2004, but the gap between Indigenous and total Australian male life expectancy has remained the same.

Wilson et al. (2007) reported that declines in infant mortality accounted for a large amount of the increases in life expectancy for the Northern Territory Indigenous population between the late 1960s and mid 1980s, especially for males. A significant proportion of female life expectancy gains in this early period also came from other childhood and adult ages. From the mid 1980s to the early 2000s, declines in mortality at age 45 and over were responsible for the majority of life expectancy gains for both Indigenous males and females in the Northern Territory. For the total Australian population, improvements in middle age and older adult mortality were responsible for the vast majority of gains to Australian life expectancy over the entire period 1967–2004.

The gains in life expectancy for Indigenous males and females in the Northern Territory reported by Wilson et al. (2007) indicate that Indigenous health status has improved considerably in recent decades in the Northern Territory. There is still, however, substantial disparity between life expectancy measures of the Indigenous and non-Indigenous populations.

Data quality issues

Life expectancy estimates

Estimates of life expectancy are drawn from life tables. To construct a life table, data on total population, births and deaths are needed, and the accuracy of the life table depends on the completeness of these data. Because of uncertainty about the estimates of these components for Aboriginal and Torres Strait Islander people, experimental methods are used to calculate life expectancies for the Indigenous population. These experimental life expectancies should only be used as an indicative summary measure of life expectancy of the Indigenous population.

Although the direct demographic method to compile Indigenous life tables and life expectancy estimates is an improvement on indirect methods used earlier by the ABS in that it is data based and does not rely on assumption, there are still limitations to this method. That is, the derived Indigenous deaths identification rates relate to a very restricted time frame of 11 months, and there remains a relatively high level of unlinked records for which Indigenous status is unknown (ABS 2008a).

Population

Indigenous population estimates are calculated from the Census of Population and Housing. The Census uses the National health data dictionary standard Indigenous status question and it is asked for each household member. Measures that are drawn from Census data are subject to broad data concerns relating to the unexplained growth in the Aboriginal and Torres Strait Islander population since the 1991 Census, and the limitations of self-identification. Other Census data issues relate to the accuracy of the Census count itself, for example, whether people are counted more than once, or are undercounted (ABS 1996).

Although the Census data are adjusted for undercounts at the person level to arrive at the estimated resident population, no such adjustment is done at the household level. This affects the accuracy of the person counts at the household level to provide adjusted household estimates.

Births

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their birth registration forms.

Almost all births and deaths in Australia are registered. However, the Indigenous status of the person is not always recorded/recorded correctly. The incompleteness of Indigenous identification means the number of births registered as Indigenous is an underestimate of births occurring in the Aboriginal and Torres Strait Islander population. .

Deaths

Although it is considered likely that most deaths of Aboriginal and Torres Strait Islander (Indigenous) Australians are registered, a proportion of these deaths are not registered as Indigenous. Information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred and may differ from the self-identified Indigenous origin of the deceased.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms.

Under-identification

At present, there is considerable variation across the states and territories in the completeness of mortality data for Indigenous people. Information concerning the number

of deaths of Indigenous people is limited by the accuracy with which Indigenous persons are identified in death records. Problems associated with identification result in an underestimation of deaths of Indigenous people and in the gap in mortality between Indigenous and non-Indigenous Australians.

Mortality data for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered to have sufficient coverage to produce reliable statistics on Indigenous Australian deaths for the period 2001–2010.

Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) which are considered to have adequate identification from 1991. Queensland is considered to have sufficient coverage of Indigenous deaths from 1998.

The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.

Indigenous Mortality Quality Study

The ABS conducted a number of quality studies based on the 2006 Census of Population and Housing and other data sets as part of the Census Data Enhancement (CDE) project (ABS 2008b). The CDE Indigenous Mortality Quality Study linked Census records with death registration records for the 11-month period following the Census and examined differences in the reporting of Indigenous status across the two data sets.

For the purpose of this study, the linked record was assumed to be an Indigenous record if a positive response was recorded against the Indigenous status question on either the death registration or the corresponding Census record. Following linkage, the number of death records identified as Indigenous increased from 1,800 to 2,123 records, or from 1.7% to 2.0% of all registered deaths.

'While 323 additional death records were able to be identified as Indigenous from Census records, more may have been expected if all death records had been linked. A key reason records could not be linked appears to be Census undercount, with a corresponding Census record not existing to link to for many Indigenous death records' (ABS 2008b).

The results from the study suggested that coverage of Indigenous deaths in death registrations is considerably higher, at least in 2006-07, than previous estimates have indicated. Nationally, the coverage rate was estimated to be 85%. State/territory coverage estimates were: NSW 76%, Vic 74%, Qld 87%, SA 86%, WA 92% and NT 99% (ABS 2008b).

Numerator and denominator

To calculate life expectancy estimates using a direct demographic method, it is important to ensure that the classification of records as Indigenous is consistent in both the numerator and denominator (ABS 2008a). However, because the numerator (deaths) and denominator (population) are based on different collections and different collection methods, there is an inconsistency of Indigenous identification between the two. The Census Data Enhancement (CDE) Indigenous Mortality Quality Improvement Study linked Census records with death registration records to examine these inconsistencies, and a method was developed to adjust death registration data by identification rates obtained through this study, to ensure consistency in the Indigenous identification of records across collections. This data linkage

technique enables the direct calculation of identification rates with no assumptions necessary (ABS 2009). There are, however, limitations that must still be noted.

That is, the derived Indigenous deaths identification rates relate to a very restricted time frame (11 months from early August 2006 to the end of June 2007) and the appropriateness of these rates for past or future periods is unknown. In addition, there remains a relatively high level (26%) of unlinked Indigenous death records which may introduce bias to the results if the characteristics or features of these records are different to linked records (ABS 2008a).

International comparisons

International Indigenous data are available for New Zealand, the United States and Canada.

In New Zealand, research has been undertaken that attempts to adjust for this under-counting by a process of probabilistic record linkage of death registration data with census data. This research has produced estimates of the considerable extent of the under-counting of Maori deaths. This adjusted data could not be used in international comparisons unless the data in the other countries were also adjusted (Bramley et al. 2004).

In Canada the national mortality database that Statistics Canada administers does not contain ethnicity data. The regional offices of Health Canada collect mortality data for the indigenous, on-reserve, First Nations population. Via a series of partnerships with each provincial vital statistics registrar, First Nations-specific death certificate information is sent to the regional First Nations and Inuit Health Branch regional office. However, in a number of areas no such relationships exist (for example, the Atlantic, Ontario, and Quebec regions), and therefore data are obtained directly from the local communities, or not at all. The availability of Indigenous mortality data in Canada is further limited by the lack of information for off-reserve, or non-status, Indigenous people.

The varying degrees of completeness and accuracy of the Indigenous mortality databases that exist within the four countries are likely to affect the comparisons.

List of symbols used in tables

n.a.	not available
–	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.20 Infant and child mortality

The mortality rates of Aboriginal and Torres Strait Islander infants and children aged 0–4 years, by cause of death (including SIDS) and over time.

Data sources

Data for this measure come from the National Mortality Database and the National Aboriginal and Torres Strait Islander Social Survey.

National Mortality Database

The National Mortality Database is a national collection of de-identified unit record level data. It comprises most of the information recorded on death registration forms and medical (cause of death) certificates, including Indigenous status. The database is maintained by the Australian Institute of Health and Welfare (AIHW). Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the Australian Bureau of Statistics (ABS). Information on the cause of death is supplied by the medical practitioner certifying the death, or by a coroner. The data are updated each calendar year and are presented by state/territory of usual residence rather than state/territory where death occurs.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander people are registered. However, a proportion of these deceased are not reported as Aboriginal or Torres Strait Islander by the family, health worker or funeral director during the death registration process. That is, while data are provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked of relatives and friends of the deceased by the funeral director.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to 3 jurisdictions (Western Australia, South Australia and the Northern Territory) with adequate identification of Indigenous deaths in their recording systems from 1991 onwards. The quality of the time-series data is also influenced by the late inclusion of a not stated category for Indigenous status in 1998. Prior to this time, the not stated responses were probably included with the non-Indigenous.

Deaths registered in 2010 with a usual residence of Queensland have been adjusted to exclude deaths registered in 2010 that occurred prior to 2007. This is to minimise the impact of late registration of deaths due to recent changes in the timeliness of death registrations in Queensland.

Western Australian Aboriginal and Torres Strait Islander deaths for 2007, 2008 and 2009, have been revised to correct for a data quality issue which resulted in the over-reporting of Indigenous deaths during this period.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2006–2010 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years.

National Aboriginal and Torres Strait Islander Social Survey

The Australian Bureau of Statistics (ABS) conducted the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) between August 2002 and April 2003. The 2008 NATSISS was conducted between August 2008 and April 2009. The survey provides information about the Aboriginal and Torres Strait Islander populations of Australia for a wide range of social issues including health, education, culture and labour force participation. The 2008 NATSISS included for the first time children aged under 15. The NATSISS will be conducted every six years, with the next survey planned for 2014.

The 2008 NATSISS collected information by personal interview from 13,300 Indigenous Australians across all states and territories of Australia, including those living in remote areas. The sample covered persons aged 15 years and over who are usual residents in selected private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice.

Analyses

Child mortality

- Over the period 2006–2010, there were 645 deaths of Indigenous children aged 0–4 years in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined (Table 1.20.1), 533 (12%) of which were infant deaths (Table 1.20.2).
- Indigenous children aged 0–4 years died at over twice the rate of non-Indigenous children (218 per 100,000 compared with 100 per 100,000 population) in the five jurisdictions combined (Table 1.20.1).

Table 1.20.1: Child (0–4 years) mortality, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

	Indigenous				Non-Indigenous					
	Deaths	No. per 100,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	Deaths	No. per 100,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	Rate ratio[(i)]	Rate difference[(j)]
Males	371	244.8	219.9	269.7	2,702	113.0	108.7	117.3	2.2*	131.8*
Females	274	188.9	166.6	211.3	1,973	87.1	83.3	91.0	2.2*	101.8*
Total children aged 0–4 years	**645**	**217.5**	**200.7**	**234.3**	**4,675**	**100.4**	**97.5**	**103.3**	**2.2***	**117.1***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) Rates are crude rates per 100,000 population.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Infant mortality

- Over the period 2006–2010, there were 4,488 deaths of infants in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, 533 (12%) of which were deaths of Aboriginal and Torres Strait Islander infants (Table 1.20.2).
- Indigenous infants died at twice the rate of non-Indigenous infants (8.1 per 1,000 live births compared with 4.1 per 1,000 live births) in the five jurisdictions combined (Table 1.20.2).
- Over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, the mortality rate for Indigenous male infants was 9.2 per 1,000 live births compared with 6.9 per 1,000 live births for Indigenous female infants (Table 1.20.2).

Table 1.20.2: Infant mortality rates per 1,000 live births, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous					
	Deaths	No. per 1,000[(g)]	95% LCL[(h)]	95% UCL[(i)]	Deaths	No. per 1,000[(g)]	95% LCL[(h)]	95% UCL[(i)]	Rate ratio[(j)]	Rate difference[(k)]
Males	313	9.2	8.2	10.2	2,278	4.6	4.4	4.8	2.0*	4.6*
Females	220	6.9	5.9	7.8	1,677	3.6	3.4	3.7	1.9*	3.3*
Total infants	**533**	**8.1**	**7.4**	**8.8**	**3,955**	**4.1**	**3.9**	**4.2**	**2.0***	**4.0***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) 'Infant' includes persons with an age at death of under 1 year.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) Rates are crude rates per 1,000 live births.

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(k) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Infant mortality by state/territory

- For the period 2006–2010, the mortality rate for Indigenous infants was higher than for non-Indigenous infants across all jurisdictions (Table 1.20.3).
- The Indigenous infant mortality rate ranged from 6 per 1,000 live births in South Australia to 13 per 1,000 live births in the Northern Territory (Table 1.20.3).
- The greatest disparity between Indigenous and non-Indigenous infant mortality rates was observed in the Northern Territory (rate difference of 9.3 per 1,000 live births; rate ratio of 3.4).

Table 1.20.3: Infant mortality rates per 1,000 live births, by Indigenous status, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Indigenous				Non-Indigenous					
	Deaths	No. per 1,000[(h)]	95% LCL[(i)]	95% UCL[(j)]	Deaths	No. per 1,000[(h)]	95% LCL[(i)]	95% UCL[(j)]	Rate ratio[(k)]	Rate difference[(l)]
NSW	129	6.5	5.4	7.6	1,835	4.2	4.0	4.4	1.5*	2.3*
Qld[(f)]	182	8.0	6.8	9.2	1,340	4.7	4.4	5.0	1.7*	3.2*
WA	94	8.3	6.6	10.0	416	3.0	2.7	3.3	2.8*	5.3*
SA	26	6.0	3.7	8.3	321	3.4	3.0	3.8	1.8*	2.6*
NT	102	13.1	10.6	15.6	43	3.8	2.7	4.9	3.4*	9.3*
NSW, Qld, WA, SA & NT[(a)]	**533**	**8.1**	**7.4**	**8.8**	**3,955**	**4.1**	**3.9**	**4.2**	**2.0***	**4.0***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate.

(d) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous infant mortality rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous infant mortality rates because of these data quality issues.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) 'Infant' includes persons with an age at death of under 1 year.

(h) Rates are crude rates per 1,000 live births.

(i) LCL = lower confidence limit.

(j) UCL = upper confidence limit.

(k) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous.

(l) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Mortality by cause of death

Infant mortality by cause of death

- Over the period 2006–2010, the most common cause of death of Indigenous infants was conditions originating in the perinatal period such as birth trauma, disorders related to foetal growth, complications of pregnancy, labour and delivery, and respiratory and cardiovascular disorders specific to the perinatal period (4.1 per 1,000 live births). Indigenous infants died at over twice the rate of non-Indigenous infants for these conditions (Table 1.20.4).
- Congenital malformations and sudden infant death syndrome (SIDS) were also leading causes of death among Indigenous infants with rates of 1.3 and 0.6 per 1,000 live births.

Table 1.20.4: Causes of infant death by Indigenous status, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e][f][g]

	Number of deaths			No. per 1,000[h]				
Cause of death	**Indig.**	**Non-Indig.**	**Percentage of deaths – Indig.**	**Indig.**	**Non-Indig.**	**Rate ratio[i]**	**Rate difference[j]**	**Rate difference %[k]**
Certain conditions originating in the perinatal period (P00–P96)	268	1,948	50.3	4.1	2.0	2.1*	2.1*	51.3
Congenital malformations (Q00–Q99)	85	1,026	15.9	1.3	1.0	1.2	0.2	6.0
Signs, symptoms & ill-defined conditions (R00–R99)	77	378	14.4	1.2	0.4	3.0*	0.8*	19.3
SIDS (R95)[l]	*40*	*263*	*7.5*	*0.6*	*0.3*	*2.0**	*0.3**	*7.4*
Injury & poisoning (V01–Y99)	24	120	4.5	0.4	0.1	3.0*	0.2*	6.0
Diseases of the respiratory system (J00–J99)	21	95	3.9	0.3	0.1	3.3*	0.2*	5.5
Diseases of the circulatory system (I00–I99)	16	74	3.0	0.2	0.1	3.2*	0.2*	4.1
Infectious and parasitic diseases (A00–B99)	14	52	2.6	0.2	0.1	4.0*	0.2*	3.9
Other conditions[m]	28	262	5.3	0.4	0.3	1.6*	0.2*	3.9
All causes	**533**	**3,955**	**100.0**	**8.1**	**4.0**	**2.0***	**4.1***	**100.0**

(continued)

Table 1.20.4 (continued): Causes of infant death by Indigenous status, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)(i)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous infants are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous infant deaths and, depending on the under-identification in births, may either underestimate or overestimate the rates. Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

(c) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous infant mortality rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous infant mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(f) 'Infant' includes persons with an age at death of under 1 year.

(g) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(h) Rates are crude rates per 1,000 live births.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(k) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all causes.

(l) Data presented for SIDS are a subset of data presented for signs, symptoms and ill-defined conditions presented in this table.

(m) Other conditions include: neoplasms; diseases of blood and blood-forming organs; endocrine, nutritional and metabolic diseases; mental and behavioural disorders; diseases of the nervous system; diseases of the eye and adnexa; diseases of the ear and mastoid process; diseases of the digestive system; diseases of the musculoskeletal system and connective tissues; diseases of the genitourinary system; and diseases of the skin and subcutaneous tissue.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

SIDS

- Over the period 2006–10, sudden infant death syndrome (SIDS) represented approximately 8% of all deaths of Aboriginal and Torres Strait Islander infants across New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined (Table 1.20.4).
- For the period 2006–2010, there were 303 deaths from SIDS in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, 40 (13%) of which were deaths of Aboriginal and Torres Strait Islander infants (Table 1.20.5).

Table 1.20.5: SIDS mortality rates per 1,000 live births, by Indigenous status, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous					
	Number	Rate[(g)]	95% LCL[(h)]	95% UCL[(i)]	Number	Rate[(g)]	95% LCL[(h)]	95% UCL[(i)]	Rate ratio[(j)]	Rate difference[(k)]
NSW	17	0.9	0.4	1.4	134	0.3	0.2	0.4	2.8*	0.6*
Qld	18	0.8	0.5	1.1	107	0.4	0.3	0.5	2.1*	0.4*
WA	n.p.	n.p.	n.p.	n.p.	12	0.1	0.0	0.2	n.p.	n.p.
SA	n.p.	n.p.	n.p.	n.p.	8	0.1	0.0	0.2	n.p.	n.p.
NT	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
NSW, Qld, WA, SA & NT[(b)]	**40**	**0.6**	**0.3**	**0.9**	**263**	**0.3**	**0.3**	**0.3**	**2.3***	**0.3***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) SIDS - Sudden Infant Death Syndrome, ICD-10 code: R95. SIDS data in this table is for deaths under 1 year of age.

(b) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Although most deaths of Indigenous infants are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) Rates are crude rates per 1,000 live births.

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(k) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

SIDS mortality by age (months)

- The highest mortality rates for SIDS occurred at around the age of 1 month for Indigenous and non-Indigenous infants (0.24 and 0.07 per 1,000 live births respectively) Table 1.20.6).

Table 1.20.6: SIDS mortality rates per 1,000 live births, by age in months and Indigenous status, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)(f)]

Age in months	Indigenous rate[(g)]	Non-Indigenous rate[(g)]	Total
<1	0.11	0.03	0.03
1	0.24	0.07	0.08
2	0.16	0.06	0.07
3	0.11	0.04	0.04
4	0.13	0.03	0.03
5	0.08	0.02	0.02
6	0.07	0.01	0.01
7	n.p.	0.00	0.00
8	n.p.	0.01	0.01
9	n.p.	0.00	0.01
10	n.p.	0.00	0.00
11	n.p.	0.00	0.00

(a) SIDS - Sudden Infant Death Syndrome, ICD–10 code: R95. SIDS data in this table is for deaths under 1 year of age.

(b) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Although most deaths of Indigenous infants are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) Rates are crude rates per 1,000 live births.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Infant mortality by associated causes of death

Table 1.20.7 presents underlying causes of death for Indigenous infants by associated causes of death for the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- In the period 2006–2010, 43% of Indigenous infant deaths were reported with no associated causes of death.
- Deaths of Indigenous infants were most commonly reported with conditions originating in the perinatal period (61%) as an associated cause of death.

Table 1.20.7: Underlying and associated causes of death for Indigenous infants, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)]

	Underlying cause of death					
Associated cause of death	**Conditions originating in perinatal period**	**Signs, symptoms & ill-defined conditions (excluding SIDS)**	**Congenital malformations**	**SIDS**	**Other conditions[(i)]**	**Total**
			Per cent			
Reported alone (no associated causes)	41.4	97.3	16.5	95.0	57.2	42.8
Conditions originating in perinatal period (P00–P96)	100.0	2.7	48.2	2.5	17.7	61.0
Congenital malformations (Q00–Q99)	1.1	—	100.0	—	7.6	17.6
Signs, symptoms & ill-defined conditions (R00–R99)	1.1	100.0	3.5	100.0	19.0	19.1
Other conditions[(i)]	4.9	—	27.1	2.5	100.0	26.1
Total deaths	**268**	**37**	**85**	**40**	**79**	**533**

(continued)

Table 1.20.7 (continued): Underlying and associated causes of death for Indigenous infants, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)]

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous infants are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous infant deaths and, depending on the under-identification in births, may either underestimate or overestimate the rates. Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

(d) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous infant mortality rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous infant mortality rates because of these data quality issues.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) 'Infant' includes persons with an age at death of under 1 year.

(h) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(i) Other conditions include: infectious and parasitic diseases; neoplasms; diseases of blood and blood-forming organs; endocrine, nutritional and metabolic diseases; mental and behavioural disorders; diseases of the nervous system; diseases of the eye and adnexa; diseases of the ear and mastoid process; diseases of the circulatory system; diseases of the respiratory system; diseases of the digestive system; diseases of the musculoskeletal system and connective tissues; diseases of the genitourinary system; injury and poisoning; and diseases of the skin and subcutaneous tissue.

Notes

1. Sum of components may exceed 100% as more than one associated cause of death can be reported for each death.
2. Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.
3. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW and ABS analysis of ABS Mortality Database.

Child mortality by cause of death

Tables 1.20.8 and 1.20.9 present the main causes of death among Indigenous children aged 0–4 years and 1–4 years in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined for the period 2006–2010.

- Indigenous children aged 0–4 and aged 1–4 years in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined died at over twice the rate of non-Indigenous children (Table 1.20.8; Table 1.20.9).
- The most common causes of death among Indigenous children aged 0–4 were conditions originating in the perinatal period (42%), congenital malformations (14%) and symptoms, signs & ill-defined conditions (13%)(Table 1.20.8).
- Indigenous children died at around twice the rate of non-Indigenous children for conditions originating in the perinatal period; at three times the rate of non-Indigenous children for symptoms, signs and ill-defined conditions and for injury and poisoning.
- The most common cause of death among Indigenous and non-Indigenous children aged 1–4 was injury and poisoning (23 and 8 per 100,000 populations, respectively) (Table 1.20.9).

Table 1.20.8: Causes of death among children aged 0–4 years by Indigenous status, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)]

	Number of deaths			No. per 100,000[(i)]				
Cause of death	Indig.	Non-Indig.	Percentage of deaths - Indig.	Indig.	Non-Indig.	Rate ratio[(j)]	Rate difference[(k)]	Rate difference %[(l)]
Certain conditions originating in the perinatal period (P00–P96)	270	1,963	41.9	91.0	42.2	2.2*	48.9*	41.7
Congenital malformations (Q00–Q99)	93	1,093	14.4	31.4	23.5	1.3*	7.9*	6.7
Signs, symptoms & ill-defined conditions (R00–R99)	81	417	12.6	27.3	9.0	3.0*	18.4*	15.7
Injury & poisoning (V01–Y99)	77	399	11.9	26.0	8.6	3.0*	17.4*	14.9
Diseases of the respiratory system (J00–J99)	33	139	5.1	11.1	3.0	3.7*	8.1*	7.0
Diseases of the circulatory system (I00–I99)	24	105	3.7	8.1	2.3	3.6*	5.8*	5.0
Diseases of the nervous system (G00–G99)	19	180	2.9	6.4	3.9	1.7*	2.5*	2.2
Infectious and parasitic diseases (A00–B99)	16	84	2.5	5.4	1.8	3.0*	3.6*	3.1
Other conditions[(m)]	32	295	5.0	10.8	6.3	1.7*	4.5*	3.8
All causes	**645**	**4,675**	**100.0**	**217.5**	**100.4**	**2.2***	**117.1***	**100.0**

(continued)

Table 1.20.8 (continued): Causes of death among children aged 0–4 years by Indigenous status, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)(i)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous children are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous child deaths and, depending on the under-identification in births, may either underestimate or overestimate the rates. Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

(d) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous child mortality rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous child mortality rates because of these data quality issues.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final), 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) Includes all deaths of children aged 0–4 years.

(h) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(i) Rates are crude rates per 100,000 population.

(j) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(k) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(l) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all causes.

(m) Other conditions include: neoplasms; diseases of blood and blood-forming organs; endocrine, nutritional and metabolic diseases; mental and behavioural disorders; diseases of the eye and adnexa; diseases of the ear and mastoid process; diseases of the digestive system; diseases of the musculoskeletal system and connective tissues; diseases of the genitourinary system; and diseases of the skin and subcutaneous tissue.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.20.9: Causes of death among children aged 1–4 years by Indigenous status, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e][f][g][h]

	Number of deaths			No. per 100,000[i]				
Cause of death	**Indig.**	**Non-Indig.**	**Percentage of deaths - Indig.**	**Indig.**	**Non-Indig.**	**Rate ratio[j]**	**Rate difference[k]**	**Rate difference %[l]**
Certain conditions originating in the perinatal period (P00–P96)	n.p.	15	n.p.	n.p.	0.4	n.p.	n.p.	n.p.
Signs, symptoms & ill-defined conditions (R00–R99)	4	39	3.6	1.7	1.1	1.6	0.6	2.3
Congenital malformations (Q00–Q99)	8	67	7.1	3.4	1.8	1.9	1.6	5.7
Injury & poisoning (V01–Y99)	53	279	47.3	22.6	7.5	3.0*	15.0*	53.2
Diseases of the respiratory system (J00–J99)	12	44	10.7	5.1	1.2	4.3*	3.9*	13.9
Diseases of the nervous system (G00–G99)	10	67	8.9	4.3	1.8	2.4*	2.4	87.0
Infectious and parasitic diseases (A00–B99)	n.p.	32	n.p.	n.p.	0.9	n.p.	n.p.	n.p.
Diseases of the circulatory system (I00–I99)	8	31	7.1	3.4	0.8	4.1*	2.6*	9.1
Other conditions[m]	13	146	11.6	5.5	3.9	1.4	1.6	5.6
Total	**112**	**720**	**100.0**	**47.7**	**19.5**	**2.5***	**28.3***	**100.0**

(continued)

Table 1.20.9 (continued): Causes of death among children aged 1–4 years by Indigenous status, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-years groupings because of small numbers each year.

(c) Although most deaths of Indigenous children are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous child mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates. Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

(d) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous infant mortality rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous child mortality rates because of these data quality issues.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) Includes all deaths of children aged 1–4 years.

(h) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(i) Rates are crude rates per 100,000 population.

(j) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(k) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(l) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all causes.

(m) Other conditions include: neoplasms; diseases of blood and blood-forming organs; endocrine, nutritional and metabolic diseases; mental and behavioural disorders; diseases of the eye and adnexa; diseases of the ear and mastoid process; diseases of the digestive system; diseases of the musculoskeletal system and connective tissues; diseases of the genitourinary system; and diseases of the skin and subcutaneous tissue.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Time series analysis

Infant mortality time series

Longer-term mortality trend data are limited to three jurisdictions—Western Australia, South Australia and the Northern Territory, which have over 10 years of adequate identification of Indigenous deaths in their recording systems.

As there is a consistent time series of population estimates from 1991, data for the period 1991–2010 have been used for the analysis of Indigenous mortality in this indicator.

Because of the late inclusion of a 'not stated' category of Indigenous status in 1998 (before which 'not stated' responses were included with non-Indigenous deaths), Indigenous mortality rates have been compared with the mortality rates of other Australians (which include deaths of both non-Indigenous people and people for whom Indigenous status was not stated).

Infant mortality rates, rate ratios and rate differences between Indigenous and other Australian infants over the period 1991–2010 in Western Australia, South Australia and the Northern Territory are presented in Table 1.20.10 and Figure 1.20.1.

- Over the period 1991–2010, there were significant declines in mortality rates for Indigenous infants and other infants in Western Australia, South Australia and the Northern Territory combined. The fitted trend implies an average yearly decline in the rate of around 0.8 per 1,000 births for Indigenous infants (equivalent to a 62% reduction in the rate over the period) and 0.1 per 1,000 births for other infants (equivalent to a 43% reduction in the rate over the period) (Table 1.20.10).
- Over the same period, there were significant declines in the mortality rate ratios and rate differences between Indigenous and other Australian infants of around 35% and 67% respectively (Table 1.20.10).

Fluctuations in the level of Indigenous mortality over time partly reflect changing levels of identification of Indigenous deaths and population estimates. Given the variability in the measures of Indigenous mortality, caution should be exercised in assessing trends in Indigenous mortality over time and comparisons between jurisdictions and with the non-Indigenous population.

Table 1.20.10: Infant mortality rates, rate ratios and rate differences, WA, SA and NT, 1991–2010[(a)(b)(c)(d)(e)]

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Indigenous number																				
Males	45	47	44	26	30	40	31	30	27	41	33	25	27	34	33	26	30	24	21	30
Females	38	41	30	34	31	30	31	27	31	30	23	33	24	16	19	26	18	18	14	15
Persons	83	88	74	60	61	70	62	57	58	71	56	58	51	50	52	52	48	42	35	45
Indigenous rate (no. per 1,000 live births)																				
Males	26.4	26.5	25.3	14.3	17.6	22.0	18.2	17.3	14.8	21.0	16.6	13.2	13.7	17.4	16.2	12.2	12.8	9.5	8.4	12.1
Females	22.7	24.5	17.9	20.9	18.3	18.5	19.1	16.1	17.3	15.6	12.1	18.3	12.5	8.3	9.9	12.5	8.3	7.2	6.0	6.4
Persons	24.5	25.5	21.7	17.4	17.9	20.4	18.7	16.7	16.0	18.3	14.4	15.7	13.1	12.9	13.1	12.4	10.6	8.4	7.2	9.3
Other Australians [(h)] rate (no. per 1,000 live births)																				
Males	6.4	6.3	5.9	5.0	6.3	6.3	5.1	5.0	5.3	4.8	5.0	4.4	3.6	4.0	4.2	3.5	3.3	3.1	3.6	4.1
Females	5.1	5.3	4.3	4.5	3.8	3.9	4.1	3.5	3.0	2.8	4.0	4.1	3.4	2.6	4.7	4.3	2.7	2.7	3.0	2.6
Persons	5.8	5.9	5.1	4.8	5.1	5.1	4.6	4.3	4.2	3.8	4.5	4.3	3.5	3.3	4.4	3.9	3.0	2.9	3.3	3.4
Rate ratio[(i)]																				
Males	4.1	4.2	4.3	2.9	2.8	3.5	3.6	3.4	2.8	4.4	3.3	3.0	3.8	4.3	3.8	3.5	3.9	3.1	2.4	2.9
Females	4.4	4.6	4.2	4.6	4.8	4.8	4.6	4.6	5.8	5.5	3.0	4.5	3.7	3.1	2.1	2.9	3.1	2.6	2.0	2.4
Persons	4.2	4.4	4.2	3.7	3.5	4.0	4.0	3.9	3.8	4.8	3.2	3.7	3.7	3.8	3.0	3.2	3.6	2.9	2.2	2.7
Rate difference[(j)]																				
Males	19.9	20.1	19.4	9.3	11.2	15.7	13.1	12.3	9.5	16.2	11.6	8.8	10.0	13.4	11.9	8.8	9.5	6.4	4.9	8.0
Females	17.6	19.2	13.7	16.3	14.5	14.6	15.0	12.6	14.3	12.7	8.1	14.2	9.1	5.7	5.2	8.2	5.6	4.5	2.9	3.7
Persons	18.7	19.6	16.6	12.6	12.8	15.2	14.0	12.4	11.8	14.5	9.9	11.4	9.6	9.5	8.7	8.5	7.6	5.5	3.9	5.9

(continued)

Table 1.20.10 (continued): Infant mortality rates, rate ratios and rate differences, WA, SA and NT, 1991–2010[a][b][c][d][e]

	Long term 1991–2010		Medium term 1998–2010		Short term 2001–2010	
	Annual change[f]	% change over period[g]	Annual change[f]	% change over period[g]	Annual change[f]	% change over period[g]
Indigenous number						
Males	–0.8*	–34.6*	–0.5	–21.8	–0.5	–14.7
Females	–1.2*	–58.6*	–1.3*	–58.4*	–1.3*	–52.6*
Persons	–2.0*	–45.6*	–1.9*	–39.1*	–1.9*	–30.3*
Indigenous rate (no. per 1,000 live births)						
Males	–0.7*	–51.6*	-0.7*	-45.7*	-0.7*	-37.0*
Females	–0.9*	–73.6*	-1.0*	-71.3*	-1.0*	-72.9*
Persons	–0.8*	–61.7*	-0.8*	-57.6*	-0.8*	-51.6*
Other Australians [h] rate (no. per 1,000 live births)						
Males	–0.2*	–48.5*	-0.1*	-35.8*	-0.1*	-21.0*
Females	–0.1*	–34.9*	0	-14.0*	-0.1	-31.5*
Persons	–0.1*	–42.9*	-0.1*	-27.3*	-0.1*	-25.7*
Rate ratio[i]						
Males	0	–13.9	0	-14.7*	-0.1	-21.8*
Females	–0.1*	–61.7*	-0.3*	-69.3*	-0.2*	-50.0*
Persons	–0.1*	–34.7*	-0.1*	-39.8*	-0.1*	-33.5*
Rate difference[j]						
Males	–0.6*	–52.5*	-0.5*	-49.8*	-0.6*	-44.0*
Females	–0.8*	–84.9*	-0.9*	-87.2*	-0.8*	-93.3*
Persons	–0.7*	–67.4*	-0.7*	-68.1*	-0.7*	-63.4*

(continued)

Table 1.20.10 (continued): Infant mortality rates, rate ratios and rate differences, WA, SA and NT, 1991–2010[(a)(b)(c)(d)(e)]

* Represents results with statistically significant increases or decreases at the $p < 0.05$ level over the selected periods.

(a) Data are reported for Western Australia, South Australia and the Northern Territory only. These three states and territories are considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these three jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for these jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous infants are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous infant deaths and, depending on the under-identification in births, may either underestimate or overestimate the rates.

(c) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous infant mortality rates. It is also difficult to exactly identify the difference between the infant mortality rates for Indigenous and Other Australians because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) 'Infant' includes persons with an age at death of under 1 year.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the specified periods.

(g) Per cent change between the first year and the last year of the specified periods based on the average annual change over the periods.

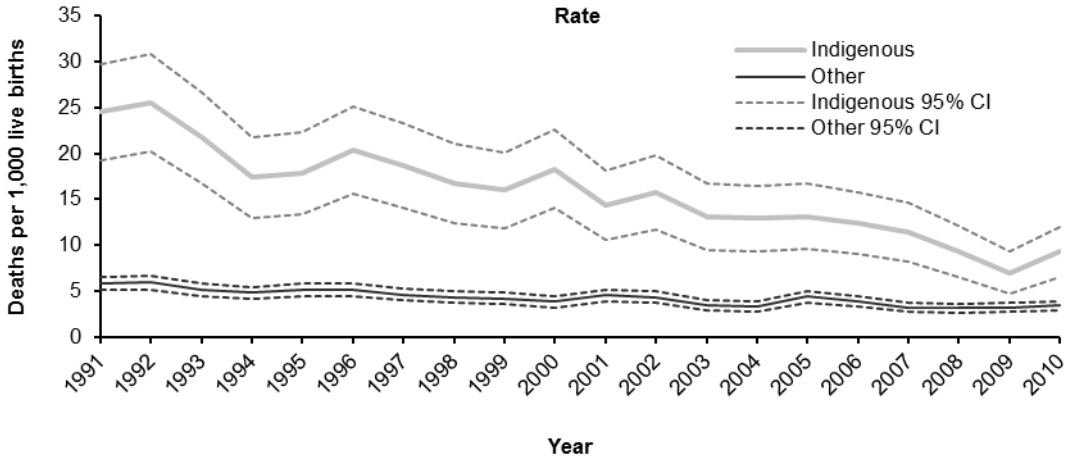
(h) ‘Other Australians’ include deaths of non-Indigenous people and those for whom Indigenous status was not stated.

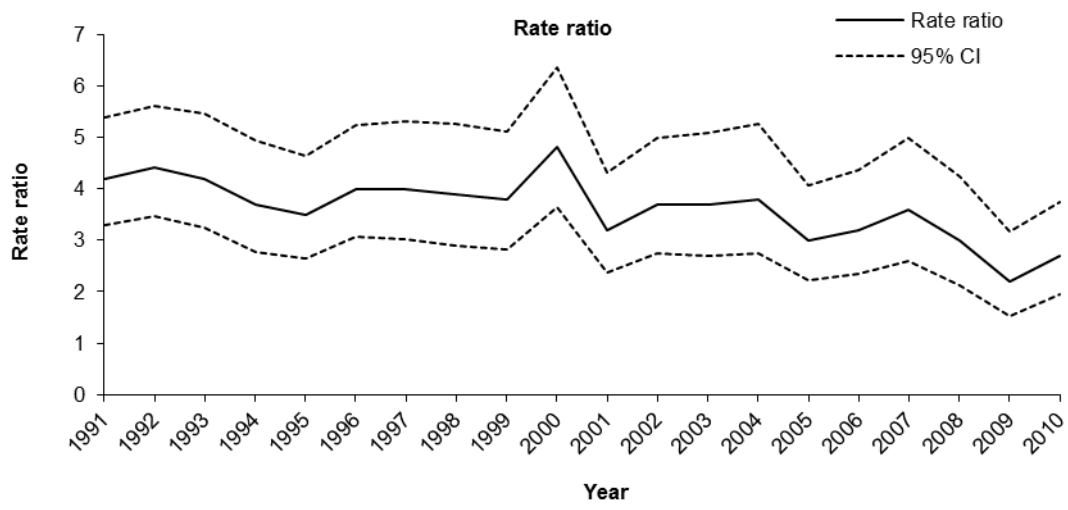
(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

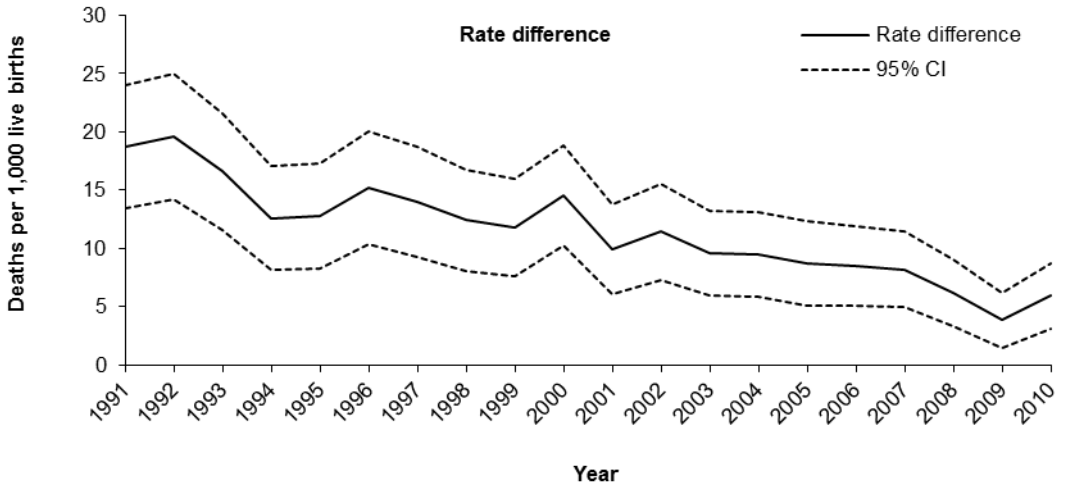
(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for other Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.







Source: AIHW analysis of ABS Mortality Database.

Figure 1.20.1: Infant mortality rates, rate ratios and rate differences between Indigenous and other Australians, WA, SA and NT, 1991–2010

Additional trends analysis has been presented for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from 2001 to 2010 for Indigenous and non-Indigenous infants in Table 1.20.11 and Figure 1.20.2.

- Over the period 2001–2010, there were significant declines in mortality rates for Indigenous and non-Indigenous infants in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined. The fitted trend implies an average yearly decline in the rate of around 0.6 per 1,000 births for Indigenous infants (equivalent to a 46% reduction in the rate over the period) and 0.1 per 1,000 births for non-Indigenous infants (equivalent to an 13% reduction in the rate over the period) (Table 1.20.11).
- Over the same period, there were significant declines in the mortality rate differences between Indigenous and non-Indigenous Australian infants (74%).

Table 1.20.11: Infant mortality rates, rate ratios and rate differences, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)(f)]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[(g)]	% change over period[(h)]
Indigenous number												
Males	70	65	68	72	78	63	66	52	64	68	–0.8	–10.8
Females	46	65	47	39	46	49	48	49	33	41	–1.4	–27.2
Persons	116	130	115	111	124	112	114	101	97	109	–2.2*	–17.3*
Indigenous rate (no. per 1,000 live births)												
Males	13.1	12.2	12.7	12.8	14.1	11.1	10.1	7.6	8.8	9.0	–0.6*	–40.7*
Females	9.2	12.9	9.0	7.5	8.8	8.9	7.8	7.5	4.8	5.9	–0.6*	–55.2*
Persons	11.2	12.5	10.9	10.2	11.5	10.0	9.0	7.5	6.8	7.5	–0.6*	–46.4*
Non-Indigenous rate (no. per 1,000 live births)												
Males	5.5	4.7	4.2	4.7	4.8	5.1	4.2	4.5	4.6	4.7	–0.1*	–7.6*
Females	4.5	4.1	3.8	3.8	4.4	3.8	3.8	3.5	3.7	3.3	–0.2*	–19.4*
Persons	5.0	4.4	4.0	4.3	4.6	4.5	4.0	4.0	4.1	4.0	–0.1*	–12.7*
Rate Ratio[(i)]												
Males	2.4	2.6	3.0	2.7	2.9	2.2	2.4	1.7	1.9	1.9	–0.1	–40.1
Females	2.1	3.1	2.4	2.0	2.0	2.3	2.1	2.2	1.3	1.8	–0.1	–41.6
Persons	2.2	2.8	2.7	2.4	2.5	2.2	2.2	1.9	1.7	1.9	–0.1	–40.5
Rate difference[(j)]												
Males	7.6	7.5	8.5	8.0	9.3	6.1	5.8	3.1	4.2	4.3	–0.4*	–64.8*
Females	4.7	8.8	5.2	3.7	4.4	5.0	4.0	4.0	1.1	2.6	–0.3*	–89.2*
Persons	6.2	8.1	6.9	6.0	6.9	5.5	4.9	3.5	2.7	3.5	–0.4*	–73.5*

(continued)

Table 1.20.11 (continued): Infant mortality rates, rate ratios and rate differences, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)(f)(g)]

* Represents results with statistically significant increases or decreases at the p < 0.05 level over the period 2001–2010.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous infants are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous infant deaths and, depending on the under-identification in births, may either underestimate or overestimate the rates.

(c) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous infant mortality rates. It is also difficult to exactly identify the difference between the Indigenous and other infant mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) 'Infant' includes persons with an age at death of under 1 year.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

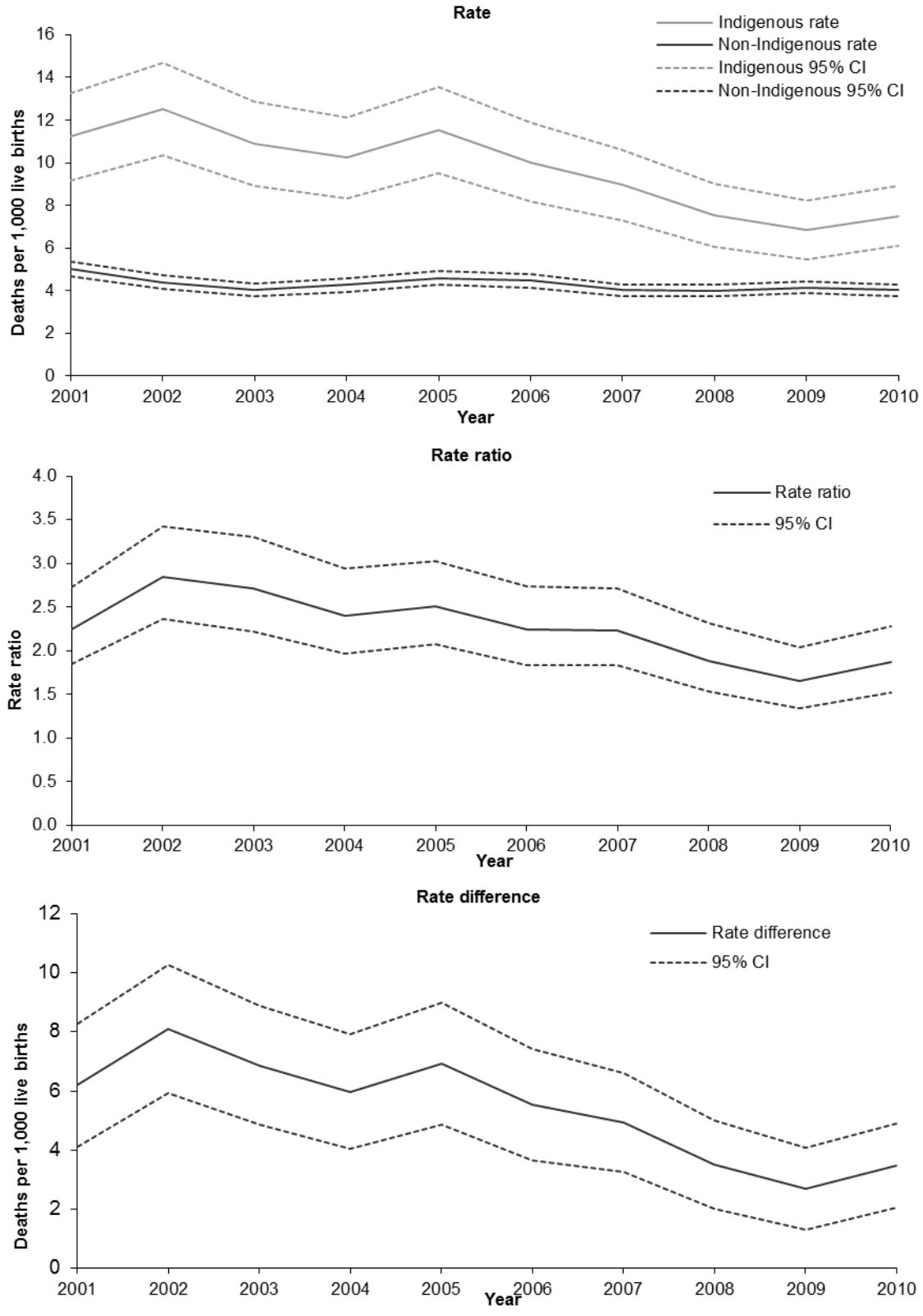
(h) Per cent change between 2001 and 2010 based on the average annual change over the period.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.



Source: AIHW analysis of ABS Mortality Database.

Figure 1.20.2: Infant mortality rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians, NSW, Qld, WA, SA and NT, 2001–2010

Infant mortality time series by state/territory

Table 1.20.12 presents infant deaths, mortality rates and rate ratios for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory with selected periods from 1991–1993 to 2009–2010.

- In general, infant mortality rates for Indigenous babies declined in all of the reported states and territories between each of the selected periods, while for non-Indigenous babies only slight variations in infant mortality rates were observed (Table 1.20.12).
- In particular, in the Northern Territory, the infant mortality rate declined steadily from 27.5 per 1,000 live births in 1991–1993 to 12.3 in 2009–2010. The rate difference between Indigenous and non-Indigenous infant mortality declined from 19.6 in 1991–1993 to 8.6 in 2009–2010 (Table 1.20.12).

Table 1.20.12: Infant mortality rates per 1,000 live births, by Indigenous status, NSW, Qld, WA, SA and NT selected time periods[a][b][c][d][e][f][g]

	Indigenous				Other Australians[h]					
	Deaths	No. per 1,000[i]	LCL[j]	UCL[k]	Deaths	No. per 1,000[i]	LCL[j]	UCL[k]	Rate ratio[l]	Rate difference[m]
					1991–1993					
WA[n]	102	22.1	17.8	26.4	403	5.7	5.1	6.3	3.9*	16.4*
SA	34	20.3	13.5	27.1	296	5.2	4.6	5.8	3.9*	15.1*
NT	109	27.5	22.3	32.7	55	7.9	5.8	10	3.5*	19.6*
					1994–1996					
WA	95	20.6	16.5	24.7	334	4.7	4.2	5.2	4.4*	15.9*
SA	20	12.2	6.9	17.5	278	5	4.4	5.6	2.4*	7.2*
NT	76	18.8	14.6	23	56	8.1	6	10.2	2.3*	10.7*
					1997–1999					
Qld	115	12.6	10.3	14.9	722	5.5	5.1	5.9	2.3*	7.1*
WA	71	15.8	12.1	19.5	300	4.3	3.8	4.8	3.7*	11.5*
SA	13	6.9	3.1	10.7	225	4.3	3.7	4.9	1.6	2.6
NT	93	23.5	18.7	28.3	39	5.7	3.9	7.5	4.1*	17.8*
					2000–2002					
NSW	90	9.5	7.5	11.5	1,203	4.8	4.5	5.1	2.0*	4.7*
Qld	113	11.5	9.4	13.6	737	5.5	5.1	5.9	2.1*	6.0*
WA	79	16.5	12.9	20.1	254	3.7	3.2	4.2	4.5*	12.8*
SA	20	10.4	5.8	15	231	4.5	3.9	5.1	2.3*	5.9*
NT	86	18.1	14.3	21.9	40	6.2	4.3	8.1	2.9*	11.9*
					2003–2005					
NSW	83	8.4	6.6	10.2	1,139	4.6	4.3	4.9	1.8*	3.8*
Qld	114	10.9	8.9	12.9	642	4.6	4.2	5.0	2.4*	6.3*
WA	66	12.8	9.7	15.9	253	3.6	3.2	4.0	3.6*	9.2*
SA	15	7.7	3.8	11.6	195	3.9	3.4	4.4	2.0*	3.8
NT	72	15.6	12	19.2	33	5.2	3.4	7.0	3.0*	10.4*
					2006–2008					
NSW	87	7.7	6.1	9.3	1,136	4.4	4.1	4.7	1.8*	3.3*
Qld	98	7.9	6.3	9.5	797	4.8	4.5	5.1	1.6*	3.1*
WA	62	9.5	7.2	11.9	253	3.1	2.7	3.5	3.1*	6.5*
SA	16	6.4	3.3	9.5	190	3.4	2.9	3.9	1.9*	3.0
NT	64	13.6	10.3	16.9	26	3.8	2.3	5.3	3.6*	9.8*

(continued)

Table 1.20.12 (continued): Infant mortality rates per 1,000 live births, by Indigenous status, NSW, Qld, WA, SA and NT selected time periods[(a)(b)(c)(d)(e)(f)(g)]

	Indigenous				Other Australians[(h)]					
	Deaths	No. per 1,000[(i)]	LCL[(j)]	UCL[(k)]	Deaths	No. per 1,000[(i)]	LCL[(j)]	UCL[(k)]	Rate ratio[(l)]	Rate difference[(m)]
					2009–2010[(f)]					
NSW	42	4.9	3.4	6.4	735	4.1	3.8	4.4	1.2	0.8
Qld	84	8.0	6.3	9.7	600	5.0	4.6	5.4	1.6*	3.0*
WA	32	6.7	4.4	9.0	180	3.1	2.6	3.6	2.2*	3.6*
SA	10	5.5	2.1	8.9	139	3.7	3.1	4.3	1.5	1.8
NT	38	12.3	8.4	16.2	17	3.7	1.9	5.5	3.3*	8.6*

* Represents results with statistically significant differences in individual jurisdictions over time at the $p < 0.05$ level.

(a) Jurisdictions presented for time periods are those considered to have adequate levels of Indigenous identification in mortality data for these periods.

(b) Data are presented in 3- and 2-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate.

(d) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous infant mortality rates. It is also difficult to exactly identify the difference between the Indigenous and other infant mortality rates because of these data quality issues.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) 'Infant' includes persons with an age at death of under 1 year.

(h) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(i) Rates are crude rates per 1,000 live births.

(j) LCL = lower confidence limit.

(k) UCL = upper confidence limit.

(l) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for Other Australians.

(m) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for Other Australians.

(n) Infant mortality rates calculated using reference year births for South Australia and the Northern Territory, and averaged 1993–1995 Western Australia births. This is due to data quality issues in 1991 and 1992 Western Australia births data.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Infant mortality by cause of death time series

Table 1.20.13 presents infant mortality rates by cause of death for the periods 2001–2005 and 2006–2010 for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the periods 2001–2005 and 2006–2010, for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, the three most common causes of death among Indigenous infants were certain conditions originating in the perinatal period, signs, symptoms & ill-defined conditions and congenital malformations.
- Between 2001–2005 and 2006–2010, there were declines in infant mortality rates for all causes of infant death apart from diseases of the circulatory system, which showed a slight increase.

Table 1.20.13: Causes of infant death, by Indigenous status, NSW, Qld, WA, SA and NT, 2001–2005 and 2006–2010[a][b][c][d][e][f][g]

Cause of death	Number of deaths		No. per 1,000[h]		Rate ratio[i]	Rate difference[j]	Rate difference %[k]	Number of deaths		No. per 1,000[i]		Rate ratio[i]	Rate difference[j]	Rate difference %[k]
	Indig.	Non-Indig.	Indig.	Non-Indig.				Indig.	Non-Indig.	Indig.	Non-Indig.			
	2001–2005							2006–2010[g]						
Certain conditions originating in the perinatal period (P00–P96)	257	1,928	4.9	2.3	2.1*	2.6*	37.6	268	1,948	4.1	2.0	2.0*	2.1*	51.3
Signs, symptoms & ill-defined conditions (R00–R99)	138	381	2.6	0.5	5.7*	2.2*	31.6	77	378	1.2	0.4	3.0*	0.8*	19.3
SIDS (R95)[l]	*73*	*240*	*1.4*	*0.3*	*4.8**	*1.1**	*16.1*	*40*	*263*	*0.6*	*0.3*	*2.0**	*0.3**	*7.4*
Congenital malformations (Q00–Q99)	80	878	1.5	1.0	1.4*	0.5*	6.8	85	1,026	1.3	1.0	1.2	0.2	6.0
Diseases of the respiratory system (J00–J99)	39	69	0.7	0.1	9.0*	0.7*	9.6	21	95	0.3	0.1	3.3*	0.2*	5.5
Injury & poisoning (V01–Y99)	29	105	0.5	0.1	4.4*	0.4*	6.2	24	120	0.4	0.1	3.0*	0.2*	6.0
Infectious and parasitic diseases (A00–B99)	19	58	0.4	0.1	5.2*	0.3*	4.3	14	52	0.2	0.1	4.0*	0.2*	3.9
Diseases of the circulatory system (I00–I99)	7	59	0.1	0.1	1.9	0.1	0.9	16	74	0.2	0.1	3.2*	0.2*	4.1
Other conditions[m]	27	259	0.5	0.3	1.7*	0.2*	3.0	28	262	0.4	0.3	1.6*	0.2*	3.9
All causes	**596**	**3,737**	**11.3**	**4.5**	**2.5***	**6.8***	**100.0**	**533**	**3,955**	**8.1**	**4.0**	**2.0***	**4.1***	**100.0**

(continued)

Table 1.20.13 (continued): Causes of infant death, by Indigenous status, NSW, Qld, WA, SA and NT, 2001–2005 and 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are considered to have adequate levels of Indigenous identification in mortality data. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous infants are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous infant deaths and, depending on the under-identification in births, may either underestimate or overestimate the rates. Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

(c) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous infant mortality rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous infant mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(f) 'Infant' includes persons with an age at death of under 1 year.

(g) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(h) Rates are crude rates per 1,000 live births.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(k) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all causes.

(l) Data presented for SIDS are a subset of data presented for signs, symptoms and ill-defined conditions presented in this table.

(m) Other conditions include: neoplasms; diseases of blood and blood-forming organs; endocrine, nutritional and metabolic diseases; mental and behavioural disorders; diseases of the nervous system; diseases of the eye and adnexa; diseases of the ear and mastoid process; diseases of the digestive system; diseases of the musculoskeletal system and connective tissues; diseases of the genitourinary system; and diseases of the skin and subcutaneous tissue.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

SIDS time series

Due to changes in the classification and coding of causes of death from ICD–9 (used until 1996) to ICD–10 (used from 1997 onwards) which affects the comparability of the data, the analysis reported for this indicator has been done for two time periods—1991–1996 and 1997–2010. Data are presented in 3- to 4-year groupings because of low numbers of deaths from SIDS each year.

- Over the period 1991–1993 to 1994–1996, there were non-significant declines in mortality rates for SIDS for Indigenous infants in Western Australia, South Australia and the Northern Territory combined. Over the same period there were significant declines in mortality rates for SIDS for other infants (a decline of around 0.4 deaths per 1,000 live births) (Table 1.20.14).
- Over the period 1997–1999 to 2009–2010, there were significant declines in mortality rates for SIDS for both Indigenous and other infants in Western Australia, South Australia and the Northern Territory combined. The fitted trend implies an average yearly decline in the rate of around 0.3 per 1,000 births for Indigenous infants (equivalent to a 110% decline over the period) and 0.04 per 1,000 births for other infants (equivalent to a 89% decline) (Table 1.20.14).
- Over the same period, there was a significant decline in the mortality rate ratio between Indigenous and other infants of around 0.5 per 1,000 live births. There was also a significant decline in the mortality rate difference of around 0.3 per 1,000 live births.

Analysis of infant mortality data in Western Australia has, in recent years, shifted away from a classification of 'SIDS' towards a classification of 'unascertainable', particularly for Aboriginal infants. This has implications for the analysis of trends in SIDS over time (Freemantle et al. 2005).

Table 1.20.14: SIDS mortality rates, rate ratios and rate differences per 1,000 live births, by Indigenous status, WA, SA and NT, 1991–1993 to 2009–2010[(a)(b)(c)(d)(e)]

	Deaths		No. per 1,000[(f)]			
	Indigenous	Other[(g)]	Indigenous	Other[(g)]	Rate ratio[(h)]	Rate difference[(i)]
1991–1996						
1991–1993	62	149	6.6	1.1	6.0	5.5
1994–1996	44	92	4.3	0.7	6.1	3.6
Difference in rates[(j)]	. .	. .	–2.3	–0.4*	5.8	–1.9
1997–2010						
1997–1999	38	70	3.7	0.5	6.8	3.1
2000–2002	23	35	2.0	0.3	7.2	1.7
2003–2005	6	15	0.5	0.1	4.3	0.4
2006–2008	n.p.	11	n.p.	0.1	n.p.	n.p.
2009–2010	n.p.	13	n.p.	0.1	n.p.	n.p.
Annual change[(k)]	–3.2*	–4.8*	–0.3*	–0.04*	–0.5*	–0.3*
Per cent change over period[(l)]	–109.6*	–89.6*	–107.6*	–88.8*	–92.9*	–110.8*

* Represents results with statistically significant differences at the $p < 0.05$ level over the period 1991–1993 to 1994–1996 and 1997–1999 to 2009–2010.

(a) SIDS - Sudden Infant Death Syndrome, ICD–10 code: R95; ICD9 code 7980.0. SIDS data in this table is for deaths under 1 year of age.

(b) Data are reported for South Australia, Western Australia and the Northern Territory only. These three states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Although most deaths of Indigenous infants are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(f) Rates are crude rates per 1,000 live births.

(g) Other includes non-Indigenous and Indigenous not stated.

(h) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(i) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for other Australians.

(j) Mortality rate for 1994–1996 minus mortality rate for 1991–1993.

(k) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the periods 1997–2010.

(l) Per cent change between 1997 and 2010 based on the average annual change over the period.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Additional trends analysis has been presented for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from 2001 to 2010 for Indigenous and non-Indigenous infants in Table 1.20.15.

- Over the period 2001–2002 to 2009–2010, there were significant declines in mortality rates for SIDS for Indigenous infants in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined (a 79% decline). Over the same period there were no significant changes in mortality rates for SIDS for non-Indigenous infants (Table 1.20.15).
- Over the same period, there was a significant decline in the mortality rate ratio between Indigenous and non-Indigenous infants of around 0.5 per 1,000 live births. There was also a significant decline in the mortality rate difference of around 0.2 per 1,000 live births.

Table 1.20.15: SIDS mortality rates, rate ratios and rate differences per 1,000 live births, by Indigenous status, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)(f)]

	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	Annual change[(g)]	Per cent change[(h)]
Indigenous deaths from SIDS	40	22	24	13	14	–3.1*	–68.6*
Non-Indigenous deaths from SIDS	121	70	102	105	105	0.2	1.1
Indigenous rate per 1,000[(i)]	1.9	1.0	1.1	0.5	0.5	–0.2*	–78.8*
Non-Indigenous rate per 1,000[(i)]	0.4	0.2	0.3	0.3	0.3	–0.01	–25.4
Rate ratio[(j)]	5.4	5.0	3.8	1.9	1.9	–0.5*	–84.1*
Rate difference[(k)]	1.6	0.8	0.8	0.2	0.2	–0.2*	–92.9*

* Represents results with statistically significant differences at the $p < 0.05$ level over the period 2001–2010.

(a) SIDS - Sudden Infant Death Syndrome, ICD–10 code: R95. SIDS data in this table is for deaths under 1 year of age.

(b) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Although most deaths of Indigenous infants are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the periods 2001–2010.

(h) Per cent change between 2001 and 2010 based on the average annual change over the period.

(i) Rates are crude rates per 1,000 live births.

(j) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(k) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Child mortality time series

Child mortality rates, rate ratios and rate differences between Indigenous and other Australian children aged 0–4 years over the period 1991–2010 in Western Australia, South Australia and the Northern Territory are presented in Table 1.20.16.

- Over the period 1991–2010, there were significant declines in recorded mortality rates for Indigenous children and other children in Western Australia, South Australia and the Northern Territory. The fitted trend implies an average yearly decline in the rate of around 15 deaths per 100,000 for Indigenous children (equivalent to a 47% reduction in the rate over the period) and 3 deaths per 100,000 for other infants (equivalent to a 44% reduction in the rate over the period).
- Over the same period, there were also significant declines in the mortality rate ratios (16%) and rate differences between Indigenous and other Australian children (48%).

Table 1.20.16: Mortality rates, rate ratios and rate differences for children aged 0–4 years, WA, SA and NT, 1991–2010[(a)(b)(c)(d)(e)]

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of Indigenous deaths																				
Males	58	53	57	40	37	52	41	32	34	48	40	32	31	39	44	31	33	28	31	34
Females	49	45	37	40	39	36	39	29	35	38	29	42	28	19	30	28	21	26	18	19
Persons	107	98	94	80	76	88	80	61	69	86	69	74	59	58	74	59	54	54	49	53
Indigenous rate (no. per 100,000)[(h)]																				
Males	656.9	577.6	602.2	412.0	378.4	527.2	414.3	321.3	337.5	473.2	385.8	305.1	297.9	381.5	437.7	311.7	333.5	282.2	306.3	329.8
Females	580.6	519.9	414.1	435.8	421.9	387.1	423.7	312.9	374.8	400.1	299.7	427.7	280.1	191.9	309.9	291.1	219.9	272.3	185.8	192.2
Persons	619.6	549.6	510.8	423.5	399.6	459.2	418.7	317.3	355.5	438.0	344.2	364.6	289.3	288.3	375.1	301.6	277.7	277.3	247.4	262.4
Other Australians rate (no. per 100,000)[(h)]																				
Males	144.3	159.6	151.7	119.2	157.0	151.1	132.9	122.0	135.3	115.3	125.1	108.0	97.1	99.7	107.1	87.3	94.3	87.9	91.2	104.3
Females	122.7	136.2	106.2	115.6	97.5	96.8	99.4	90.9	72.6	68.6	92.7	96.3	85.3	64.7	112.3	105.6	61.9	72.5	70.5	64.6
Persons	133.8	148.2	129.6	117.5	128.0	124.7	116.6	106.9	104.7	92.5	109.2	102.3	91.3	82.7	109.6	96.2	78.5	80.4	81.1	84.9
Rate ratio[(i)]																				
Males	4.6	3.6	4.0	3.5	2.4	3.5	3.1	2.6	2.5	4.1	3.1	2.8	3.1	3.8	4.1	3.6	3.5	3.2	3.4	3.2
Females	4.7	3.8	3.9	3.8	4.3	4.0	4.3	3.4	5.2	5.8	3.2	4.4	3.3	3.0	2.8	2.8	3.6	3.8	2.6	3.0
Persons	4.6	3.7	3.9	3.6	3.1	3.7	3.6	3.0	3.4	4.7	3.2	3.6	3.2	3.5	3.4	3.1	3.5	3.4	3.1	3.1
Rate difference[(i)]																				
Males	512.5	418.0	450.4	292.8	221.4	376.1	281.4	199.3	202.2	357.9	260.7	197.1	200.9	281.8	330.5	224.3	239.2	194.3	215.1	225.5
Females	457.9	383.7	307.9	320.2	324.4	290.3	324.3	222.0	302.2	331.5	207.0	331.4	194.7	127.2	197.7	185.6	158.0	199.7	115.3	127.5
Persons	485.8	401.4	381.2	306.1	271.6	334.5	302.2	210.4	250.7	345.5	235.0	262.3	198.0	205.6	265.5	205.4	199.2	196.9	166.3	177.5

(continued)

Table 1.20.16 (continued): Mortality rates, rate ratios and rate differences for children aged 0–4 years, WA, SA and NT, 1991–2010[a][b][c][d][e]

	Long term 1991–2010		Medium term 1998–2010		Short term 2001–2010	
	Annual change[f]	% change over period[g]	Annual change[f]	% change over period[g]	Annual change[f]	% change over period[g]
Number of Indigenous deaths						
Males	–1.1*	–37.6*	–0.5	–19.2	–0.6	–14.6
Females	–1.3*	–51.0*	–1.3*	–55.2*	–1.6*	–49.7*
Persons	–2.5*	–43.7*	–1.8*	–36.3*	–2.2*	–29.3*
Indigenous rate (no. per 100,000)[h]						
Males	–14.1*	–40.7*	–4.8	–17.9	–5.1	–11.9
Females	–16.4*	–53.8*	–14.6*	–56.1*	–16.0*	–48.0*
Persons	–15.2*	–46.7*	–9.6*	–36.4*	–10.4*	–27.3*
Other Australians rate (no. per 100,000)[h]						
Males	–3.6*	–47.5*	–3.1*	–30.3*	–2.3*	–16.9*
Females	–2.5*	–39.2*	–1.1	–14.4	–3.1	–30.1
Persons	–3.1*	–43.8*	–2.1*	–23.7*	–2.7*	–22.3*
Rate ratio[i]						
Males	–0.01	–5.2	0.04	20.4	0.02*	6.6
Females	–0.01*	–30.4*	–0.1*	–50.8*	–0.06	–17.9
Persons	–0.04*	–15.7*	–0.03	–13.2	–0.02	–6.5
Rate difference[j]						
Males	–10.5*	–38.8*	–1.7	–10.3	–2.7	–9.6
Females	–13.9*	–57.7*	–13.5*	–73.2*	–12.9*	–55.9*
Persons	–12.2*	–47.6*	–7.5*	–42.9*	–7.7*	–29.6*

(continued)

Table 1.20.16 (continued): Mortality rates, rate ratios and rate differences for children aged 0–4 years, WA, SA and NT, 1991–2010[(a)(b)(c)(d)(e)]

* Represents results with statistically significant increases or decreases at the $p < 0.05$ level over the selected periods.

(a) Data are reported for Western Australia, South Australia and the Northern Territory only. These three states and territories are considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these three jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for these jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous children are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous child mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates.

(c) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous infant mortality rates. It is also difficult to exactly identify the difference between the infant mortality rates for Indigenous and Other Australians because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Includes all deaths of children aged 0–4 years.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the specified periods.

(g) Per cent change between the first year and the last year of the specified periods based on the average annual change over the specified periods.

(h) Rates are crude rates per 100,000 population.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for other Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Additional trends analysis is presented for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from 2001 to 2010 for Indigenous and non-Indigenous children aged 0–4 years in Table 1.20.17.

- Over the period 2001–2010, there were significant declines in recorded mortality rates for Indigenous children and non-Indigenous children in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined (19% and 10%, respectively).
- Over the same period, there was also a significant decrease in the mortality rate difference between Indigenous and non-Indigenous children (26%).

Table 1.20.17: Mortality rates, rate ratios and rate differences for children aged 0–4 years, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[(f)] 2001–2010	Per cent change[(g)] 2001–2010
Number of Indigenous deaths												
Males	85	77	78	85	95	75	80	62	81	73	–1.2	–12.5
Females	58	74	56	51	61	56	55	63	48	52	–1.2	–18.2
Persons	143	151	134	136	156	131	135	125	129	125	–2.4*	–14.8*
Indigenous rate per 100,000[(h)]												
Males	284.3	257.1	262.4	287.1	321.5	255.3	269.9	205.6	262.8	231.4	–5.1	–16.1
Females	204.5	259.6	196.1	179.6	216.0	198.1	193.7	219.0	163.1	172.4	–5.0	–22.0
Persons	245.5	258.3	229.9	234.5	269.9	227.2	232.6	212.2	214.1	202.6	–5.0*	–18.5*
Non-Indigenous rate per 100,000[(h)]												
Males	127.6	113.7	105.1	116.6	115.0	119.2	110.2	114.3	108.9	112.7	–0.8	–5.8
Females	101.3	93.2	91.0	92.4	101.9	93.9	90.1	86.0	88.8	77.7	–1.7*	–15.2*
Persons	114.8	103.7	98.2	104.8	108.6	106.9	100.4	100.6	99.1	95.6	–1.3*	–9.9*
Rate ratio[(i)]												
Males	2.2	2.3	2.5	2.5	2.8	2.1	2.4	1.8	2.4	2.1	–0.03	–11.5
Females	2.0	2.8	2.2	1.9	2.1	2.1	2.2	2.5	1.8	2.2	–0.01	–6.2
Persons	2.1	2.5	2.3	2.2	2.5	2.1	2.3	2.1	2.2	2.1	–0.02	–9.6
Rate difference[(j)]												
Males	156.7	143.4	157.3	170.6	206.6	136.1	159.7	91.3	153.9	118.7	–4.3	–24.4
Females	103.3	166.3	105.2	87.2	114.1	104.2	103.6	133.0	74.3	94.7	–3.3	–28.7
Persons	130.7	154.6	131.7	129.6	161.3	120.3	132.2	111.6	115.0	106.9	–3.8*	–26.1*

(continued)

Table 1.20.17 (continued): Mortality rates, rate ratios and rate differences for children aged 0–4 years, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2001–2010.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous children are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous child mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates.

(c) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous child mortality rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous child mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(g) Per cent change between 2001 and 2010 based on the average annual change over the period.

(h) Rates are crude rates per 100,000 population.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

International comparisons

International Indigenous data are available for New Zealand, the United States and Canada.

There are several common issues that adversely affect the quality of Indigenous mortality data in these three countries and Australia. These include the lack of an accurate denominator value for the Indigenous population and the lack of agreement over which population denominator values to use if they do exist. There are differences in how Indigenous status is defined in the different countries. There have also been frequent modifications to the ethnicity question recorded in the censuses in some of these countries. These frequent changes in the census ethnicity question have led to difficulties in comparing mortality trends over time and have also produced difficulties in estimating inter-census population denominator counts. Another difficulty is that data are not always available for the same time periods.

The most important issue in relation to the quality of Indigenous mortality data is the under-counting of deaths (the numerator for mortality data). In each of the four countries, the undercounting of Indigenous deaths is likely to lead to an underestimation of the relative size of disparities that exist between Indigenous and non-Indigenous populations.

Note that the figures provided for Australia and New Zealand are based on births according to the race of the parents, whereas those provided for the United States are based on births according to the race of the mother.

Infant mortality

International statistics on infant mortality show that Indigenous infants in the United States, Canada and New Zealand have higher mortality rates than infants in the general population but the gap is not as great as for Aboriginal and Torres Strait Islander infants. Over the period 2006–2010 the infant mortality rate for Aboriginal and Torres Strait Islander infants was twice that for non-Indigenous infants (8.1 per 1,000 live births compared with 4.1 per 1,000 live births) in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined. The latest available data from the United States, Canada and New Zealand are outlined below.

- For the period 2003–2007, the infant mortality rate of babies born to American Indian or Alaskan Native mothers was 8.6 per 1,000 live births, compared with 6.8 per 1,000 live births for babies born to all mothers in the United States (United States Department of Health and Human Services unpublished data).
- For the period 2006–2010 in New Zealand, the mortality rate of Maori infants was 6.7 per 1,000 live births, compared with 4.1 per 1,000 live births for non-Indigenous infants (Statistics New Zealand unpublished data).
- In 2000, the mortality rate of Canadian First Nations infants was 6.4 per 1,000 live births, compared with the 2001 Canadian rate of 5.2 per 1,000 live births (Health Canada 2005).

Time series

Infant mortality data are available from 1996 to 2010 for the Maori population in New Zealand, and from 1995 to 2007 for the American Indian and Alaskan Native populations in the United States. These data are presented in Table 1.20.18 and Figure 1.20.3 along with data for Australia for the period 1995 to 2010. Reliable time series of infant mortality data for Canadian First Nations is not available at present.

- In New Zealand between 1996 and 2010 there was a significant decline in mortality for Maori infants. The fitted trend implies an average yearly decline in the rate of around 0.3 per 1,000 live births, which is equivalent to a 37% reduction in the rate over this period. There were also significant declines in other infant mortality rates between 1996 and 2010 (a reduction of 23%) (Statistics New Zealand unpublished data, Table 1.20.18).
- In the United States between 1995 and 2007 there was no significant change in infant mortality for American Indians and Alaskan Natives. Over the same period there were significant declines in other infant mortality rates (a reduction of 9%) (United States Department of Health and Human Services, unpublished data, Table 1.20.18).

Table 1.20.18: Infant mortality rates per 1,000 live births, by Indigenous status, Australia (1995–2010), New Zealand (1996–2010) and the United States (1995–2007)[(a)]

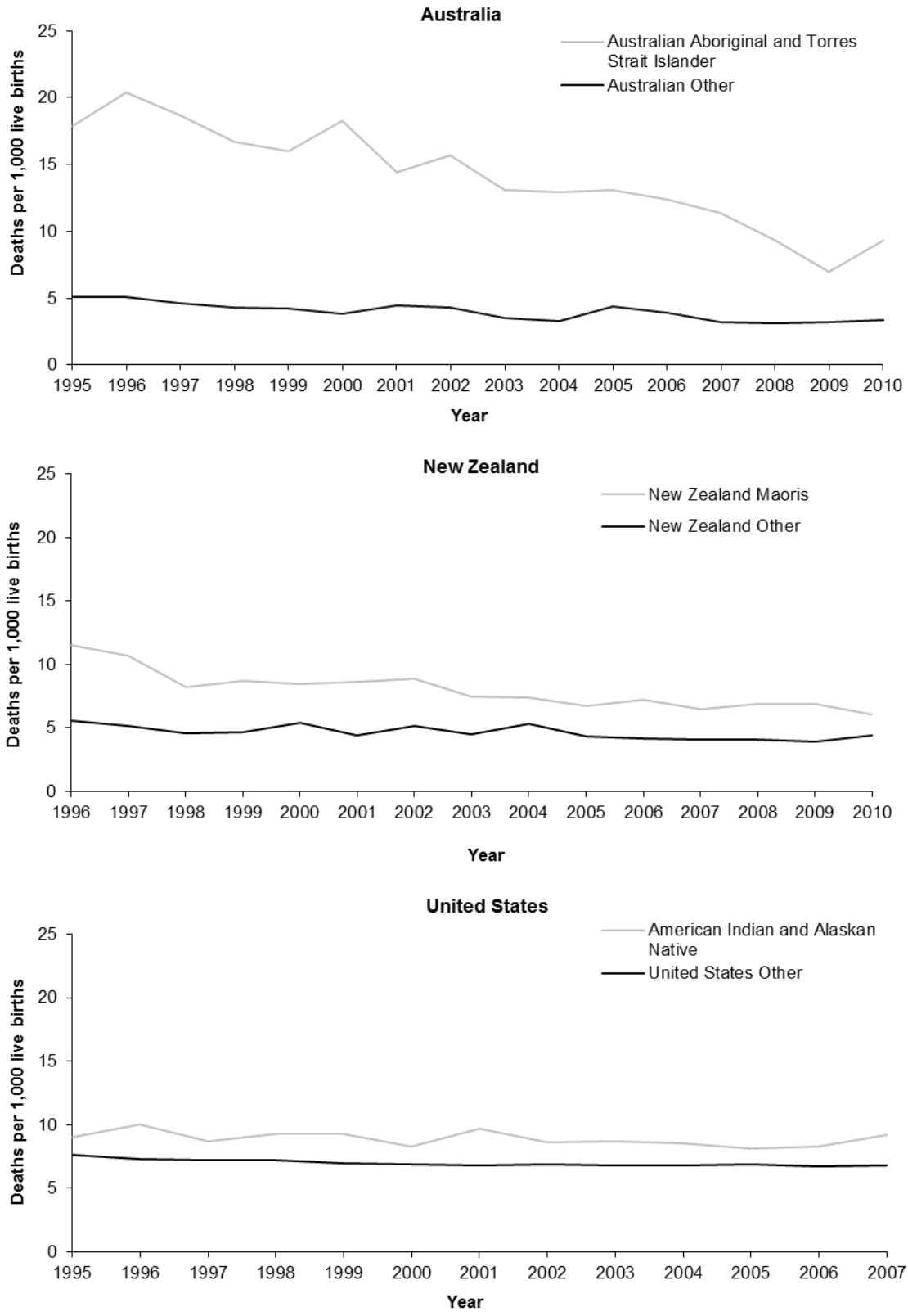
	Australia		New Zealand		United States	
Year	Indigenous	Other	New Zealand Maoris	New Zealand Other	American Indian & Alaskan Native	United States Other
1995	17.9	5.1	. .	. .	9.0	7.6
1996	20.4	5.1	11.5	5.6	10.0	7.3
1997	18.7	4.6	10.7	5.2	8.7	7.2
1998	16.7	4.3	8.2	4.6	9.3	7.2
1999	16.0	4.2	8.7	4.7	9.3	7.0
2000	18.3	3.8	8.5	5.4	8.3	6.9
2001	14.4	4.5	8.6	4.4	9.7	6.8
2002	15.7	4.3	8.9	5.2	8.6	6.9
2003	13.1	3.5	7.5	4.5	8.7	6.8
2004	12.9	3.3	7.4	5.3	8.5	6.8
2005	13.1	4.4	6.7	4.3	8.1	6.9
2006	12.4	3.9	7.2	4.2	8.3	6.7
2007	11.4	3.2	6.5	4.1	9.2	6.8
2008	9.3	3.1	6.9	4.1	n.a.	n.a.
2009	7.0	3.2	6.9	3.9	n.a.	n.a.
2010	9.3	3.4	6.1	4.4	n.a.	n.a.
Annual change	–0.8*	–0.1*	–0.3*	–0.1*	–0.1	–0.1*
% change	–63.2*	–34.6*	–36.8*	–22.8*	–9.5	–9.2*

* Represents statistically significant differences at the $p < 0.05$ level over the reporting period.

(a) Australia, New Zealand and the United States use distinctly different methods for identification and definition of indigenous people, and how statistics are adjusted to allow for known data issues. As such, caution should be used when drawing comparisons between countries.

Note: Australia data is for Western Australia, South Australia & the Northern Territory combined.

Source: AIHW analysis of ABS Mortality Database; Statistics New Zealand; United States Department of Health and Human Services.



Note: Australia data is for Western Australia, South Australia & the Northern Territory combined.

Source: AIHW analysis of ABS Mortality Database; Statistics New Zealand; United States Department of Health and Human Services.

Figure 1.20.3: Infant mortality rates per 1,000 live births, by Indigenous status, Australia (1995–2010), New Zealand (1996–2010) and the United States (1995–2007)

SIDS

International statistics on infant mortality show that Indigenous infants in the United States and New Zealand have higher mortality rates for SIDS than other infants, but the gap is not as great as for Aboriginal and Torres Strait Islander infants. In 2006–2010, the infant mortality rate for SIDS for Aboriginal and Torres Strait Islander infants was twice that for non-Indigenous infants (0.6 per 1,000 live births compared with 0.3 per 1,000 live births) in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined. The latest available data from the United States and New Zealand are outlined below. Data are not provided for Canada, as information on the cause of death of infants is incomplete and not suitable for the calculation of rates.

- During the period 2003–2007, the death rate from SIDS was 1.2 per 1,000 live births among American Indians and Alaskan Natives compared with 0.5 per 1,000 live births for other people in the United States (United States Department of Health and Human Services unpublished data).
- For the period 2004–2008, the mortality rate for SIDS was 1.7 per 1,000 live births among New Zealand Maoris, compared with 0.4 per 1,000 live births among non-Indigenous people in New Zealand (Statistics New Zealand unpublished data).

Time series

SIDS mortality data are available from 1996 to 2008 for the Maori population in New Zealand, and from 1996 to 2007 for the American Indian and Alaskan Native population in the United States. These data are presented in Table 1.20.19 and Figure 1.20.4 along with data for Australia for the period 1996–2010.

- In New Zealand between 1996 and 2008 there were significant declines in mortality from SIDS in the Maori population. The fitted trend implies an average yearly decline in the rate of around 0.2 per 1,000 live births, which is equivalent to a 54% reduction in the rate over this period. There were also significant declines in other SIDS mortality rates between 1996 and 2008 (a reduction of 41%) (Statistics New Zealand unpublished data).
- In the United States between 1996 and 2007 there were significant declines in mortality from SIDS in the American Indian and Alaskan Native population. The fitted trend implies an average yearly decline in the rate of around 0.05 per 1,000 live births, which is equivalent to a 29% reduction in the rate over this period. There were also significant declines in SIDS mortality rates for other persons in the United States between 1996 and 2007 (a reduction of 32%) (United States Department of Health and Human Services unpublished data).

Table 1.20.19: SIDS mortality rates per 1,000 live births, by Indigenous status, Australia (1996–2010) New Zealand (1996–2008), United States (1996–2007)

	Australia		New Zealand		United States	
	Indigenous	Other	NZ Maoris	Other	American Indian and Alaska Native	Other
1996	5.5	0.7	4.6	0.9	2.0	0.8
1997	4.5	0.5	3.6	0.6	1.6	0.8
1998	4.7	0.6	2.7	0.7	1.5	0.7
1999	1.9	0.5	2.9	0.6	1.5	0.7
2000	1.8	0.3	2.7	0.5	1.2	0.6
2001	1.3	0.3	2.0	0.4	1.5	0.5
2002	3.0	0.2	1.8	0.5	1.2	0.6
2003	0.5	0.2	2.4	0.3	1.2	0.5
2004	0.5	0.0	2.1	0.3	1.0	0.5
2005	0.5	0.1	1.6	0.3	1.1	0.5
2006	0.5	0.1	1.6	0.5	1.2	0.5
2007	0.0	0.0	1.4	0.6	1.4	0.6
2008	0.2	0.1	1.6	0.4	n.a	n.a
2009	0.0	0.1	n.a	n.a	n.a	n.a
2010	0.4	0.2	n.a	n.a	n.a	n.a
Annual change[(a)]	–0.4*	–0.04*	–0.2*	–0.03*	–0.05*	–0.02*
Total % change[(b)]	–91.4*	–84.4*	–54.0*	–41.3*	–29.0*	–32.1*

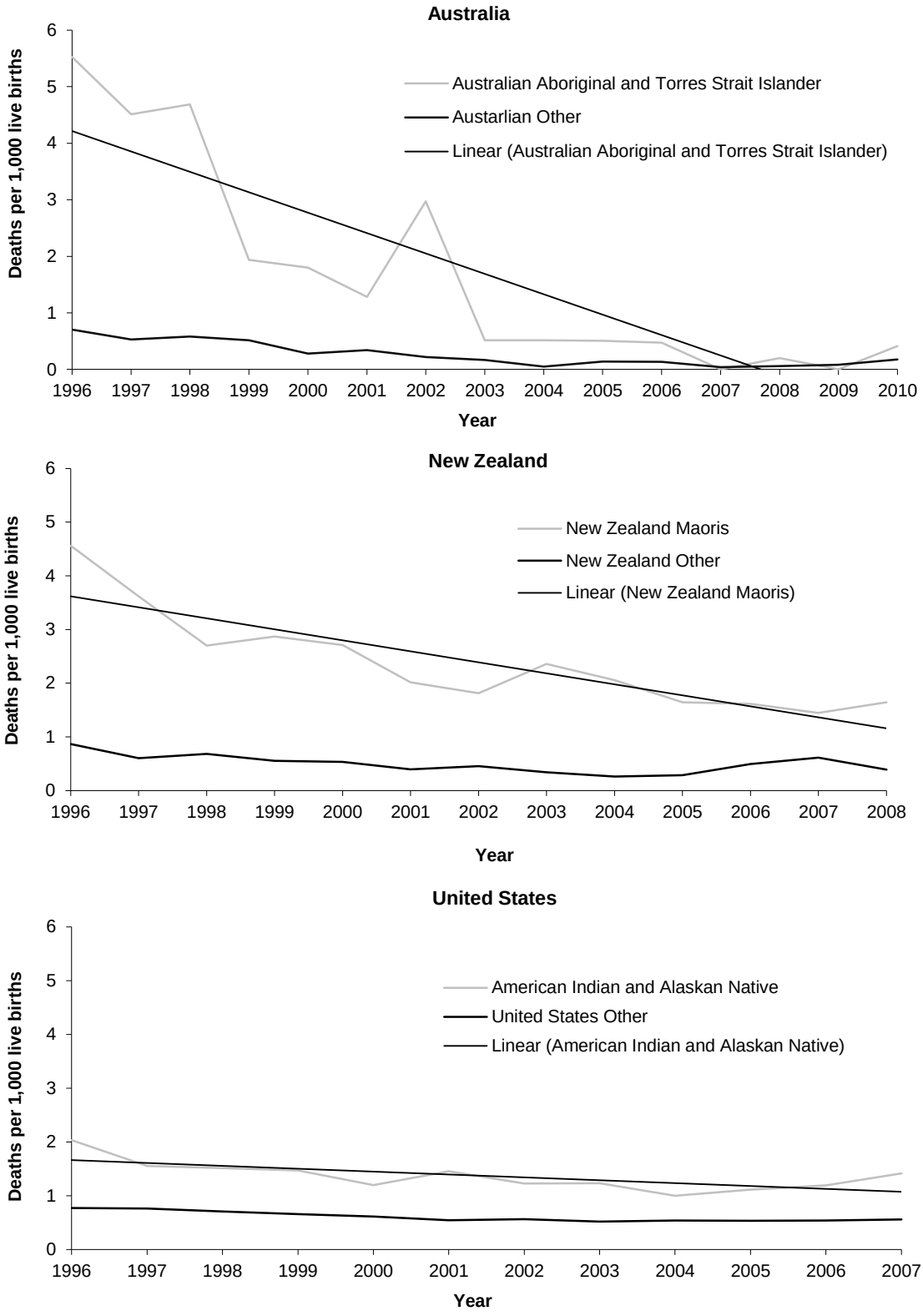
* Represents statistically significant differences at the $p < 0.05$ level over the reported period.

(a) Average annual change in rates determined using linear regression analysis.

(b) Per cent change based on the average annual change over the reported period.

Note: Australia data are for Western Australia, South Australia and the Northern Territory combined.

Source: AIHW analysis of ABS Mortality Database; Statistics New Zealand; United States Department of Health and Human Services.



Source: AIHW analysis of ABS Mortality Database; Statistics New Zealand; United States Department of Health and Human Services.

Figure 1.20.4: SIDS mortality rates per 1,000 live births, by Indigenous status, Australia (1996–2010), New Zealand (1996–2008), United States (1996–2007)

Additional information

Sleeping position

Infants sleeping in the prone (front down) or semi-foetal positions have been associated with an increased risk of SIDS (Dwyer et al. 1991).

Table 1.20.20 presents data from the 2008 NATSISS on the proportion of Indigenous infants that usually slept in various positions.

- The most common sleeping position among Indigenous infants in 2008 was the child sleeping on their back (46%), while the least common sleeping position was sleeping on their tummy.

Table 1.20.20: Usual sleeping position of Indigenous infants[(a)], 2008

	Number	Proportion
Child sleeps on back	24,397	45.9
Child sleeps on side	17,738	33.3
Child sleeps on tummy	11,061	20.8
Total[(b)]	**53,196**	**100.0**
Not known	685	. .

(a) Children aged 0–3 years.

(b) Total excludes unknown responses.

Source: 2008 NATSISS.

Data quality issues

Mortality data

Mortality data presented in this report are from the AIHW National Mortality Database. The AIHW National Mortality Database includes information on the factors that caused death, as well as other information about the deceased person, such as age at death, place of death, country of birth, and where applicable, the circumstances of their death. These data are collected in Australia by the Registrars of Births, Deaths and Marriages in each state and territory. The data are then compiled nationally by the ABS, which codes the data according to the International Classification of Diseases (ICD).

Deaths

Although it is considered likely that most deaths of Aboriginal and Torres Strait Islander (Indigenous) Australians are registered, a proportion of these deaths are not registered as Indigenous. Information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred and may differ from the self-identified Indigenous origin of the deceased.

Queensland deaths

In November 2010, the Queensland Registrar of Births, Deaths and Marriages advised the ABS of an outstanding deaths registration initiative undertaken by the Registry. This initiative resulted in the November 2010 registration of 374 previously unregistered deaths which occurred between 1992 and 2006 (including a few for which a date of death was unknown). Of these, around three-quarters (284) were deaths of Aboriginal and Torres Strait Islander Australians.

The ABS discussed different methods of adjustment of Queensland death registrations data for 2010 with key stakeholders. Following the discussion, a decision was made by the ABS and key stakeholders to use an adjustment method that added together deaths registered in 2010 for usual residents of Queensland which occurred in 2007, 2008, 2009 and 2010. This method minimises the impact on mortality indicators used in various government reports. However, care should still be taken when interpreting Aboriginal and Torres Strait Islander death data for Queensland for 2010.

Western Australia deaths

Indigenous deaths registered in Western Australia in 2007, 2008 and 2009 were corrected by the ABS in mid-2012 due to some non-Indigenous deaths being incorrectly recorded as Indigenous for these years. Data presented in this report are based on the corrected data and will differ from mortality data presented in the 2010 Health Performance Framework report which presented data prior to the ABS corrections.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms.

Under-identification

At present, there is considerable variation across the states and territories in the completeness of mortality data for Indigenous people. Information concerning the number of deaths of Indigenous people is limited by the accuracy with which Indigenous persons are identified in death records. Problems associated with identification result in an underestimation of deaths of Indigenous people and in the gap in mortality between Indigenous and non-Indigenous Australians.

Mortality data for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered to have sufficient coverage to produce reliable statistics on Indigenous Australian deaths for the period 2001–2010.

Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) which are considered to have adequate identification from 1991. Queensland is considered to have sufficient coverage of Indigenous deaths from 1998.

The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.

Indigenous Mortality Quality Study

The ABS conducted a number of quality studies based on the 2006 Census of Population and Housing and other data sets as part of the Census Data Enhancement (CDE) project (ABS 2008). The CDE Indigenous Mortality Quality Study linked Census records with death registration records for the 11-month period following the Census and examined differences in the reporting of Indigenous status across the two data sets.

For the purpose of this study, the linked record was assumed to be an Indigenous record if a positive response was recorded against the Indigenous status question on either the death registration or the corresponding Census record. Following linkage, the number of death records identified as Indigenous increased from 1,800 to 2,123 records, or from 1.7% to 2.0% of all registered deaths.

'While 323 additional death records were able to be identified as Indigenous from Census records, more may have been expected if all death records had been linked. A key reason records could not be linked appears to be Census undercount, with a corresponding Census record not existing to link to for many Indigenous death records' (ABS 2008).

The results from the study suggested that coverage of Indigenous deaths in death registrations is considerably higher, at least in 2006–07, than previous estimates have indicated. Nationally, the coverage rate was estimated to be 85%. State/territory coverage estimates were: NSW 76%, Vic 74%, Qld 87%, SA 86%, WA 92% and NT 99% (ABS 2008).

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in death records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021 (ABS 2009).

National Aboriginal and Torres Strait Islander Social Survey

The NATSISS is conducted in all states and territories and includes remote and non-remote areas. The 2008 sample was 13,300 persons in 6900 households, with a response rate of 82% of households. Up to three randomly selected Indigenous people were chosen from selected households to participate in the survey. Trained ABS interviewers conducted the survey using face-to-face interviews. In non-remote areas interviewers used a notebook computer to record responses, while in remote areas a paper questionnaire was used. Interviewers obtained the consent of a parent or guardian before interviewing those aged 15 to 17 years.

Indigenous persons usually resident in non-private dwellings such as hotels, motels, hostels, hospitals, short-stay caravan parks, prisons and other correctional facilities were excluded.

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians.

Information recorded in this survey is 'as reported' by respondents, and therefore may differ from information available from other sources or collected using different methodologies.

Data on health related indicators have been age-standardised to the 2001 total Australian population to account for differences in the age structures of the states and territories and the Indigenous and non-Indigenous population.

Time series comparisons for the 2008 survey are available through the 1994 National Aboriginal and Torres Strait Islander Survey and the 2002 NATSISS. However not all data elements align across the three (1994, 2001 and 2008) NATSISS surveys, hence care is required when reviewing results across the three surveys. There are no strictly comparable non-Indigenous results available for the 2008 NATSISS because the latest General Social Survey (which has been used in the past to compare with Indigenous results from the NATSISS) was run in 2006, with the next being run in 2010. Data from other ABS surveys run in 2008 may, however, be used to obtain rough non-Indigenous comparisons for some data items. Where possible, the ABS has provided recommendations for non-Indigenous data comparisons these have been adopted in this report.

The 2008 NATSISS has a relatively large level of under-coverage when compared to other ABS surveys. There was also an increase in under-coverage compared to previous ABS Indigenous surveys. For example, the estimated under-coverage in the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) was 42%. The overall under-coverage rate for the 2008 NATSISS is approximately 53% of the in-scope population at the national level. This rate varies across the states and territories (ABS 2010).

Further information on NATSISS data quality issues can be found in the 2008 NATSISS User's guide (ABS 2010).

List of symbols used in tables

n.a.	not available
–	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.21 Perinatal mortality

The number of Aboriginal and Torres Strait Islander babies who die in the perinatal period, expressed as a rate (per 1,000 births)

Data sources

Data for this measure come from the Australian Bureau of Statistics (ABS) Deaths Registration Database.

Deaths Registration Database

The ABS Deaths Registration Database contains details of all deaths registered in Australia. This includes information on foetal (stillbirths) and neonatal deaths (deaths occurring in live births up to 28 days of age), by age of the baby, sex, state/territory of birth, Indigenous status and cause of death (ICD-10).

Data from the ABS Deaths Registration Database have been used to report on perinatal mortality for this indicator.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification.

Deaths registered in 2010 with a usual residence of Queensland have been adjusted to exclude deaths registered in 2010 that occurred prior to 2007. This is to minimise the impact of late registration of deaths due to recent changes in the timeliness of death registrations in Queensland.

Western Australian Aboriginal and Torres Strait Islander deaths for 2007, 2008 and 2009, have been revised to correct for a data quality issue which resulted in the over-reporting of Indigenous deaths during this period.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2006–2010 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years.

Analyses

Mortality by sex

- Over the period 2006–2010, there were 810 deaths (462 males, 348 females) of Indigenous perinatal infants and 8,069 deaths (4,364 males, 3,705 females) of non-Indigenous perinatal infants in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.
- The perinatal mortality rate for Indigenous infants was 12 per 1,000 births compared with 8.1 per 1,000 births for non-Indigenous infants.

- Perinatal mortality rates were higher for males than females for both Indigenous and non-Indigenous infants. The perinatal mortality rate for Indigenous males was 13.4 per 1,000 births compared with 10.6 per 1,000 births for Indigenous females. The perinatal mortality rate for non-Indigenous males was 8.6 per 1,000 births compared with 7.6 per 1,000 births for non-Indigenous females (Table 1.21.1).

Table 1.21.1: Perinatal mortality rates per 1,000 births, by Indigenous status and sex, NSW, Qld, WA, SA and NT combined, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)]

	Indigenous		Non-Indigenous			
	Deaths	Number per 1,000 births[(h)]	Deaths	Number per 1,000 births[(h)]	Rate ratio[(i)]	Rate difference[(j)]
Males[(k)]	462	13.4	4,364	8.6	1.6	4.8
Females	348	10.6	3,705	7.6	1.4	2.9
Persons	810	12.0	8,069	8.1	1.5	3.9

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the four jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous children are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous perinatal mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous perinatal mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Causes of death data for 2010 are preliminary and subject to a revisions process. See ABS Causes of Death (cat. no. 3303.0) Australia 2010, Explanatory Notes 35–39 and Technical Notes, Causes of Death Revisions, 2006, Causes of Death Revisions, 2008 and 2009 and Retrospective deaths by cause of death, Queensland, 2010.

(f) These data exclude **364** registered deaths where the Indigenous status was not stated over the period 2006–2010.

(g) Perinatal deaths are all foetal deaths (at least 20 weeks gestation or at least 400 grams birthweight) plus all neonatal deaths.

(h) Foetal death rates and perinatal death rates are calculated per 1,000 all births for the calendar year. Neonatal death rates are calculated per 1,000 live births for the calendar year.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(k) Male deaths include those perinatal deaths of sex indeterminate.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: ABS and AIHW analysis of ABS Deaths Registration Database.

Mortality by state/territory

Perinatal mortality rates per 1,000 births among Indigenous and non-Indigenous babies are presented in Table 1.21.2 for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory for the period 2006–2010.

- In 2006–10 Indigenous babies in the Northern Territory died in the perinatal period at 3.2 times the rate of non-Indigenous babies. In South Australia the perinatal death rate for Indigenous babies was lower than for non-Indigenous babies (rate ratio of 0.8). In New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, the rate ratio was 1.5.
- The majority of perinatal deaths are foetal deaths. In 2006–2010, the foetal death rate was 7 per 1,000 births among Indigenous babies and 5.3 for non-Indigenous babies. The neonatal death rate among Indigenous babies for the same period was 5 per 1,000 live births compared with 2.8 among non-Indigenous babies.

Table 1.21.2: Foetal, neonatal and perinatal mortality rates per 1,000 births, by Indigenous status, NSW, Qld, WA, SA and NT combined, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)(i)]

	Number	No. per 1,000[(j)]	LCL 95%[(k)]	UCL 95%[(l)]	Rate ratio[(m)]	Rate difference[(n)]
	Foetal deaths[(g)]					
NSW						
Indigenous	88	4.4	2.3	6.4	0.9	–0.7
Non-Indigenous	2,293	5.0	4.6	5.5	. .	. .
Qld						
Indigenous	195	8.8	6.0	11.6	1.4*	2.5*
Non-Indigenous	1,863	6.3	5.7	7.0	. .	. .
WA						
Indigenous	75	6.0	3.0	9.1	1.2	1.1
Non-Indigenous	687	5.0	4.1	5.8	. .	. .
SA						
Indigenous	9	1.8	–0.8	4.5	0.4*	–2.3*
Non-Indigenous	393	4.1	3.2	5.0	. .	. .
NT						
Indigenous	105	13.3	7.6	19.0	2.9*	8.8*
Non-Indigenous	54	4.5	1.8	7.2	. .	. .
NSW, Qld, WA, SA & NT[(a)(d)(e)]						
Indigenous	472	7.0	5.6	8.4	1.3*	1.7*
Non-Indigenous	5,290	5.3	5.0	5.6	. .	. .
	Neonatal deaths[(h)]					
NSW						
Indigenous	86	4.3	2.3	6.3	1.4*	1.3*
Non-Indigenous	1,356	3.0	2.6	3.3	. .	. .
Qld						
Indigenous	129	5.8	3.6	8.1	1.8*	2.6*
Non-Indigenous	940	3.2	2.7	3.7	. .	. .
WA						
Indigenous	47	3.8	1.4	6.2	2.0*	1.9*
Non-Indigenous	261	1.9	1.4	2.4	. .	. .
SA						
Indigenous	14	2.9	–0.5	6.2	1.4	0.8
Non-Indigenous	197	2.1	1.4	2.7	. .	. .
NT						
Indigenous	62	7.9	3.5	12.3	3.8*	5.8*
Non-Indigenous	25	2.1	0.3	3.9	. .	. .

(continued)

Table 1.21.2 (continued): Foetal, neonatal and perinatal mortality rates per 1,000 births, by Indigenous status, NSW, Qld, SA and NT combined, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)(i)]

	Number	No. per 1,000[(j)]	LCL 95%[(k)]	UCL 95%[(l)]	Rate ratio[(m)]	Rate difference[(n)]
NSW, Qld, WA, SA & NT[(a)(d)(e)]						
Indigenous	338	5.0	3.8	6.2	1.8*	2.2*
Non-Indigenous	2,779	2.8	2.6	3.0	. .	. .
	Perinatal deaths[(i)]					
NSW						
Indigenous	174	8.7	5.8	11.5	1.1	0.6
Non-Indigenous	3,649	8.0	7.4	8.6	. .	. .
Qld						
Indigenous	324	14.6	11.1	18.2	1.5*	5.1*
Non-Indigenous	2,803	9.5	8.7	10.3	. .	. .
WA						
Indigenous	122	9.8	5.9	13.7	1.4*	3.0*
Non-Indigenous	948	6.8	5.9	7.8	. .	. .
SA						
Indigenous	23	4.7	0.4	9.0	0.8	–1.5
Non-Indigenous	590	6.2	5.1	7.3	. .	. .
NT						
Indigenous	167	21.2	14.0	28.4	3.2*	14.6*
Non-Indigenous	79	6.6	3.4	9.9	. .	. .
NSW, Qld, WA, SA & NT[(a)(d)(e)]						
Indigenous	810	12.0	10.2	13.9	1.5*	3.9*
Non-Indigenous	8,069	8.1	7.7	8.5	. .	. .

(continued)

Table 1.21.2 (continued): Foetal, neonatal and perinatal mortality rates per 1,000 births, by Indigenous status, NSW, Qld, SA and NT combined, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)(i)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous children are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous perinatal mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous perinatal mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Causes of death data for 2010 are preliminary and subject to a revisions process. See ABS Causes of Death (cat. no. 3303.0) Australia 2010, Explanatory Notes 35–39 and Technical Notes, Causes of Death Revisions, 2006, Causes of Death Revisions, 2008 and 2009 and Retrospective deaths by cause of death, Queensland, 2010.

(f) These data exclude 364 registered deaths where the Indigenous status was not stated over the period 2006–2010.

(g) Foetal deaths of at least 20 weeks gestation or with a birthweight of at least 400 grams.

(h) Neonatal death is death of a live-born baby within 28 days of birth.

(i) Perinatal deaths are all foetal deaths (at least 20 weeks gestation or at least 400 grams birthweight) plus all neonatal deaths.

(j) Foetal death rates and perinatal death rates are calculated per 1,000 all births for the calendar year. Neonatal death rates are calculated per 1,000 live births for the calendar year.

(k) LCL = lower confidence limit.

(l) UCL = upper confidence limit.

(m) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(n) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: ABS and AIHW analysis of ABS Deaths Registration Database.

Time series

Perinatal mortality rates per 1,000 births among Indigenous and non-Indigenous babies are presented in Table 1.21.3 for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory for the periods 2001–2005 and 2006–2010.

- Over the two 5-year periods 2001–2005 and 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, the perinatal mortality rate declined for both Indigenous babies (from 14.2 per 1,000 births in 2001–2005 to 12.0 in 2006–2010) and non-Indigenous babies (9.6 to 8.1).
- In South Australia, the perinatal mortality rate for Indigenous infants significantly declined from 17.8 per 1,000 births in 2001–2005 to 4.7 per 1,000 births in 2006–2010. This is mainly a reflection of a large drop in foetal deaths. In New South Wales, Queensland, Western Australia and the Northern Territory, there was no significant change in the perinatal mortality rate for Indigenous infants between these two periods.
- The rate difference between Indigenous and non-Indigenous perinatal mortality was lower in 2006–2010 than in 2001–2005 in the five jurisdictions for which data are reported, except for the Northern Territory in which the rate difference was higher in 2006–2010.

Table 1.21.3: Foetal, neonatal and perinatal mortality rates per 1,000 births, by Indigenous status, NSW, Qld, WA, SA and NT, 2001–2005 to 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)(i)(j)]

	2001–2005						2006–2010[(e)]					
	Number	No. per 1,000[(j)]	LCL 95%[(k)]	UCL 95%[(l)]	Rate ratio[(m)]	Rate difference[(n)]	Number	No. per 1,000[(j)]	LCL 95%[(k)]	UCL 95%[(l)]	Rate ratio[(m)]	Rate difference[(n)]
	Foetal deaths[(g)]											
NSW												
Indigenous	105	6.4	3.7	9.2	1.2	1.0	88	4.4	2.3	6.4	0.9	–0.7
Non-Indigenous	2,266	5.4	4.9	5.9	. .	. .	2,293	5.0	4.6	5.5	. .	. .
Qld												
Indigenous	137	8.0	5.0	11.0	1.1	0.9	195	8.8	6.0	11.6	1.4*	2.5*
Non-Indigenous	1,572	7.1	6.3	7.9	. .	. .	1,863	6.3	5.7	7.0	. .	. .
WA												
Indigenous	76	8.9	4.4	13.4	1.2	1.2	75	6.0	3.0	9.1	1.2	1.1
Non-Indigenous	820	7.7	6.5	8.9	. .	. .	687	5.0	4.1	5.8	. .	. .
SA												
Indigenous	36	12.3	3.3	21.3	1.7*	5.2*	9	1.8	0.0	4.5	0.4*	–2.3*
Non-Indigenous	597	7.1	5.8	8.4	. .	. .	393	4.1	3.2	5.0	. .	. .
NT												
Indigenous	88	10.6	5.7	15.6	1.4*	3.3*	105	13.3	7.6	19.0	2.9*	8.8*
Non-Indigenous	80	7.4	3.8	11.0	. .	. .	54	4.5	1.8	7.2	. .	. .
NSW, Qld, WA, SA & NT[(a)(d)(e)]												
Indigenous	442	8.3	6.6	10.0	1.3*	1.9*	472	7.0	5.6	8.4	1.3*	1.7*
Non-Indigenous	5,335	6.4	6.0	6.7	. .	. .	5,290	5.3	5.0	5.6	. .	. .

(continued)

Table 1.21.3 (continued): Foetal, neonatal and perinatal mortality rates per 1,000 births, by Indigenous status, NSW, Qld, WA, SA and NT, 2001–2005 to 2006–2010[a][b][c][d][e][f][g][h][i][j]

	2001–2005						2006–2010[e]					
	Number	No. per 1,000[j]	LCL 95%[k]	UCL 95%[l]	Rate ratio[m]	Rate difference[n]	Number	No. per 1,000[j]	LCL 95%[k]	UCL 95%[l]	Rate ratio[m]	Rate difference[n]
	Neonatal deaths[h]											
NSW												
Indigenous	67	4.1	1.9	6.3	1.2	0.8	86	4.3	2.3	6.3	1.4*	1.3*
Non-Indigenous	1,384	3.3	2.9	3.7	. .	. .	1,356	3.0	2.6	3.3	. .	. .
Qld												
Indigenous	117	6.9	4.1	9.6	1.9*	3.3*	129	5.8	3.6	8.1	1.8*	2.6*
Non-Indigenous	787	3.6	3.0	4.2	. .	. .	940	3.2	2.7	3.7	. .	. .
WA												
Indigenous	42	5.0	1.6	8.3	1.9*	2.3*	47	3.8	1.4	6.2	2.0*	1.9*
Non-Indigenous	279	2.6	1.9	3.3	. .	. .	261	1.9	1.4	2.4	. .	. .
SA												
Indigenous	16	5.5	0.0	11.6	1.9*	2.7	14	2.9	0.0	6.2	1.4	0.8
Non-Indigenous	237	2.9	2.0	3.7	. .	. .	197	2.1	1.4	2.7	. .	. .
NT												
Indigenous	73	9.0	4.4	13.6	2.4*	5.2*	62	7.9	3.5	12.3	3.8*	5.8*
Non-Indigenous	41	3.8	1.2	6.4	. .	. .	25	2.1	0.3	3.9	. .	. .
NSW, Qld, WA, SA & NT[a][d][e]												
Indigenous	315	6.0	4.5	7.4	1.8*	2.7*	338	5.0	3.8	6.2	1.8*	2.2*
Non-Indigenous	2,728	3.3	3.0	3.5	. .	. .	2,779	2.8	2.6	3.0	. .	. .

(continued)

Table 1.21.3 (continued): Foetal, neonatal and perinatal mortality rates per 1,000 births, by Indigenous status, NSW, Qld, WA, SA and NT, 2001–2005 to 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)(i)(j)]

	2001–2005						2006–2010[(e)]					
	Number	No. per 1,000[(j)]	LCL 95%[(k)]	UCL 95%[(l)]	Rate ratio[(m)]	Rate difference[(n)]	Number	No. per 1,000[(j)]	LCL 95%[(k)]	UCL 95%[(l)]	Rate ratio[(m)]	Rate difference[(n)]
	Perinatal deaths[(i)]											
NSW												
Indigenous	172	10.5	7.0	14.0	1.2*	1.8*	174	8.7	5.8	11.5	1.1	0.6
Non-Indigenous	3,650	8.8	8.1	9.4	. .	. .	3,649	8.0	7.4	8.6	. .	. .
Qld												
Indigenous	254	14.8	10.7	18.9	1.4*	4.1*	324	14.6	11.1	18.2	1.5*	5.1*
Non-Indigenous	2,359	10.7	9.7	11.7	. .	. .	2,803	9.5	8.7	10.3	. .	. .
WA												
Indigenous	118	13.8	8.2	19.4	1.3*	3.5*	122	9.8	5.9	13.7	1.4*	3.0*
Non-Indigenous	1,099	10.3	9.0	11.7	. .	. .	948	6.8	5.9	7.8	. .	. .
SA												
Indigenous	52	17.8	7.0	28.6	1.8*	7.9*	23	4.7	0.4	9.0	0.8	–1.5
Non-Indigenous	834	10.0	8.4	11.5	. .	. .	590	6.2	5.1	7.3	. .	. .
NT												
Indigenous	161	19.4	12.7	26.2	1.7*	8.3*	167	21.2	14.0	28.4	3.2*	14.6*
Non-Indigenous	121	11.1	6.7	15.6	. .	. .	79	6.6	3.4	9.9	. .	. .
NSW, Qld, WA, SA & NT[(a)(d)(e)]												
Indigenous	757	14.2	12.0	16.5	1.5*	4.6*	810	12.0	10.2	13.9	1.5*	3.9*
Non-Indigenous	8,063	9.6	9.1	10.1	. .	. .	8,069	8.1	7.7	8.5	. .	. .

(continued)

Table 1.21.3 (continued): Foetal, neonatal and perinatal mortality rates per 1,000 births, by Indigenous status, NSW, Qld, WA, SA and NT, 2001–2005 to 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)(i)(j)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are considered to have adequate levels of Indigenous identification in mortality data. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous children are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous perinatal mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous perinatal mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Causes of death data for 2010 are preliminary and subject to a revisions process. See ABS Causes of Death (cat. no. 3303.0) Australia 2010, Explanatory Notes 35–39 and Technical Notes, Causes of Death Revisions, 2006, Causes of Death Revisions, 2008 and 2009 and Retrospective deaths by cause of death, Queensland, 2010.

(f) These data exclude **370** registered deaths where the Indigenous status was not stated over the period 2006–2010.

(g) Foetal deaths of at least 20 weeks gestation or with a birthweight of at least 400 grams.

(h) Neonatal death is death of a live-born baby within 28 days of birth.

(i) Perinatal deaths are all foetal deaths (at least 20 weeks gestation or at least 400 grams birthweight) plus all neonatal deaths.

(j) Foetal death rates and perinatal death rates are calculated per 1,000 all births for the calendar year. Neonatal death rates are calculated per 1,000 live births for the calendar year.

(k) LCL = lower confidence limit.

(l) UCL = upper confidence limit.

(m) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(n) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: ABS and AIHW analysis of ABS Deaths Registration Database.

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Mortality by cause of death

Table 1.21.4 presents foetal, neonatal and total perinatal deaths of Indigenous and non-Indigenous babies by main underlying cause of death. Note that perinatal cause of death data should be used with caution as the level of identification by cause is unknown and may not be suitable for the calculation of rates.

- Over the period 2006–2010, in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, of conditions which originate in the foetus or infant, the most common cause of perinatal death among Indigenous babies was "disorders related to length of gestation and foetal growth" which were reported as an underlying cause of death in 39% of deaths of Indigenous babies. 35% of perinatal deaths were caused by "other conditions originating in the perinatal period" (such as birth trauma).
- Of conditions which originate in the mother, the most common cause of perinatal death for Indigenous babies was the 'foetus or newborn affected by complications of the placenta, cord and membranes' which caused 12.5% of perinatal deaths. For approximately 12% of Indigenous perinatal deaths, the 'foetus and newborn affected by maternal complications of pregnancy' was reported as an underlying cause of death.
- For foetal deaths, the most common cause of death for Indigenous babies was "other conditions originating in the perinatal period" (49%), followed by "disorders related to length of gestation and foetal growth" (38%). For neonatal deaths, the most common cause of death for Indigenous babies was "disorders related to length of gestation and foetal growth" (41%), followed by "congenital malformations, deformations and chromosomal abnormalities' (17%).

Table 1.21.4: Main underlying cause of death for perinatal babies, by Indigenous status, NSW, Qld, WA, SA, and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)(i)]

	Foetal deaths[(j)]				Neonatal deaths[(k)]				Perinatal deaths[(l)]			
	Total Number		Per cent		Total Number		Per cent		Total Number		Per cent	
Cause of death	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.
Main condition in the foetus/infant												
Disorders related to length of gestation and foetal growth (P05-P08)	177	1,961	37.5	37.1	137	912	40.5	32.8	314	2,873	38.8	35.6
Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	18	212	3.8	4.0	50	358	14.8	12.9	68	570	8.4	7.1
Infections specific to the perinatal period (P35-P39)	3	32	0.6	0.6	18	89	5.3	3.2	21	121	2.6	1.5
Other conditions originating in the perinatal period (P10-P15 and P50-P96)	231	2,365	48.9	44.7	51	524	15.1	18.9	282	2,889	34.8	35.8
Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	42	704	8.9	13.3	58	722	17.2	26.0	100	1,426	12.3	17.7
Other conditions[(m)]	1	16	0.2	0.3	24	174	7.1	6.3	25	190	3.1	2.4
Total deaths	**472**	**5,290**	**100.0**	**100.0**	**338**	**2,779**	**100.0**	**100.0**	**810**	**8,069**	**100.0**	**100.0**
Main condition in the mother												
Foetus and newborn affected by complications of placental, cord and membranes (P02)	61	718	12.9	13.6	40	294	11.8	10.6	101	1,012	12.5	12.5
Foetus and newborn affected by maternal complications of pregnancy (P01)	46	515	9.7	9.7	49	444	14.5	16.0	95	959	11.7	11.9
Foetus and newborn affected by maternal conditions that may be unrelated to present pregnancy (P00)	40	256	8.5	4.8	22	135	6.5	4.9	62	391	7.7	4.8

(continued)

Table 1.21.4 (continued): Main underlying cause of death for perinatal babies, by Indigenous status, NSW, Qld, WA, SA, and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)(h)(i)]

	Foetal deaths[(j)]				Neonatal deaths[(k)]				Perinatal deaths[(l)]			
	Total Number		Per cent		Total Number		Per cent		Total Number		Per cent	
Cause of death	**Indig.**	**Non-Indig.[(f)]**	**Indig.**	**Non-Indig.[(f)]**	**Indig.**	**Non-Indig.[(f)]**	**Indig.**	**Non-Indig.[(f)]**	**Indig.**	**Non-Indig.[(f)]**	**Indig.**	**Non-Indig.[(f)]**
Foetus and newborn affect by other complications of labour and delivery and noxious influences transmitted via placenta or breast milk (P03-P04)	16	164	3.4	3.1	10	137	3.0	4.9	26	301	3.2	3.7
Total deaths	**472**	**5,290**	**100.0**	**100.0**	**338**	**2,779**	**100.0**	**100.0**	**810**	**8,069**	**100.0**	**100.0**

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are reported for New South Wales, Queensland, South Australia and the Northern Territory only. These four states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the four jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous children are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous perinatal mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous perinatal mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Causes of death data for 2010 are preliminary and subject to a revisions process. See ABS Causes of Death (cat. no. 3303.0) Australia 2010, Explanatory Notes 35–39 and Technical Notes, Causes of Death Revisions, 2006, Causes of Death Revisions, 2008 and 2009 and Retrospective deaths by cause of death, Queensland, 2010.

(f) These data exclude **364** registered deaths where the Indigenous status was not stated over the period 2006–2010.

(g) Causes of death data from 2007 onwards have been revised and are subject to further revisions. See Causes of Death, Australia, 2010 (cat. No. 3303.0).

(h) 2008 data have been subject to a process improvement which has increased the quality of these data. See Causes of Death, Australia, 2008 (cat. No. 3303.0) Technical Note 1: 2008 COD Collection - Process Improvement for further information.

(i) Causes of death data for 2010 are preliminary and subject to a revisions process. See Causes of Death, Australia, 2011 (cat. No. 3303.0)

(j) Foetal deaths of at least 20 weeks gestation or with a birthweight of at least 400 grams.

(k) Neonatal death is death of a live-born baby within 28 days of birth.

(l) Perinatal deaths are all foetal deaths (at least 20 weeks gestation or at least 400 grams birthweight) plus all neonatal deaths.

(m) Includes all other causes of death not already included in the table.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.
Source: ABS and AIHW analysis of ABS Deaths Registration Database.

Time series analysis

Perinatal mortality rates

Perinatal mortality rates, rate ratios and rate differences between Indigenous and other babies for Western Australia, South Australia and the Northern Territory combined over the period 1991–2010 are presented in Table 1.21.5 and Figure 1.21.1.

- Over the period 1991–2010, there were significant declines in perinatal mortality rates of Indigenous babies in Western Australia, South Australia and the Northern Territory combined. The fitted trend implies an average yearly decline in the rate of around 0.9 deaths per 1,000 births, which is equivalent to a 62% decline in the rate over this period.
- Over the same period, there were also significant declines in perinatal mortality rates of other babies, with an average yearly decline in the rate of around 0.2 deaths per 1,000 births, which is equivalent to a 34% decline in the rate over this period.
- There were significant declines in both the mortality rate ratios and mortality rate differences between Indigenous and other babies from 1991 and 2010 (38% decline in the rate ratio and 58% decline in the rate difference).
- There were large declines in the number of Indigenous perinatal deaths in Western Australia in 2002 and 2004, which have resulted in a decline in the perinatal mortality rate for Indigenous infants in the three jurisdictions combined for that year (Figure 1.21.1). It is not known why there were so few Indigenous perinatal deaths in Western Australia in these years.

Table 1.21.5: Perinatal mortality rates, rate ratios and rate differences, WA, SA and NT, 1991–2010[a][b][c][d][e]

	Indigenous rate (no. per 1,000 births)[f]		Other rate (no. per 1,000 births)[f][g]			
	Number	Rate	Number	Rate	Rate ratio[h]	Rate difference[i]
1991	90	26.2	501	11.1	2.4	15.1
1992	104	29.6	495	11.0	2.7	18.6
1993	106	30.5	480	10.5	2.9	20.0
1994	88	25.2	440	9.8	2.6	15.4
1995	70	20.3	505	11.2	1.8	9.1
1996	67	19.3	488	11.0	1.8	8.3
1997	81	24.0	441	10.1	2.4	13.9
1998	72	20.8	365	8.4	2.5	12.4
1999	82	22.4	408	9.5	2.4	12.9
2000	99	25.1	420	9.8	2.6	15.3
2001	76	19.3	411	9.9	1.9	9.4
2002	41	11.0	396	9.5	1.2	1.5
2003	78	19.8	426	10.2	1.9	9.6
2004	57	14.6	401	9.5	1.5	5.1
2005	79	19.7	420	9.5	2.1	10.2
2006	75	17.7	355	7.8	2.3	9.9
2007	57	12.5	327	6.8	1.9	10.7
2008	54	10.7	370	7.2	1.5	9.2
2009	64	13.1	389	7.8	1.7	11.4
2010	62	12.7	362	7.1	1.8	5.6
Annual change[j]	**–1.9***	**–0.9***	**–7.4***	**–0.2***	**–0.05***	**–0.5***
Per cent change[k]	**–39.9***	**–61.9***	**–28.1***	**–34.1***	**–38.0***	**–58.3***

(continued)

Table 1.21.5 (continued): Perinatal mortality rates, rate ratios and rate differences, WA, SA and NT, 1991–2010[(a)(b)(c)(d)(e)]

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1991–2010.

(a) Data are reported for New South Wales, Queensland, South Australia and the Northern Territory only. These four states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the four jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous children are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous perinatal mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates. It is also difficult to exactly identify the difference between the Indigenous and other perinatal mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) ABS to advise appropriate footnote re WA Indigenous deaths for 2007, 2008 and 2009.

(e) Perinatal deaths are all foetal deaths (at least 20 weeks gestation or at least 400 grams birthweight) plus all neonatal deaths (death of a live born baby up to 28 days after birth).

(f) Perinatal death rates are calculated per 1,000 all births for the calendar year.

(g) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the period 1991–2010.

(h) Per cent change between 1991 and 2010 based on the average annual change over the period.

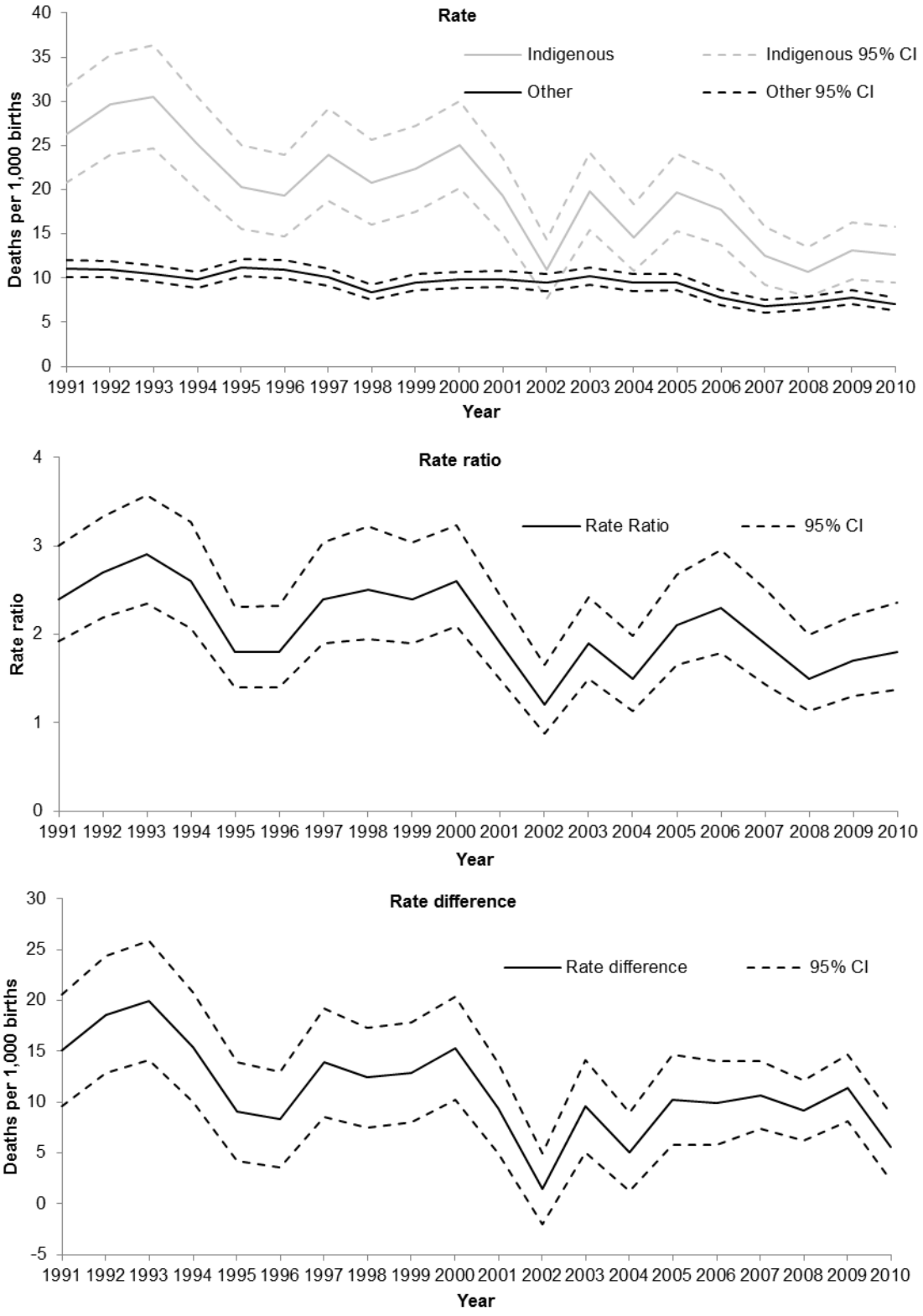
(i) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(j) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(k) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for other Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: ABS and AIHW analysis of ABS Deaths Registration Database.



Source: ABS and AIHW analysis of ABS Deaths Registration Database.

Figure 1.21.1: Perinatal mortality rates, rate ratios and rate differences, Indigenous and Other babies, WA, SA and NT, 1991–2010

Foetal and neonatal mortality rates

Foetal and neonatal mortality rates for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined are available for the period 2001–2010.

- Over the period 2001 to 2010, the foetal mortality rate decreased significantly for both Indigenous and non-Indigenous babies. It decreased by 0.3 per 1,000 births annually (equivalent to a 27% decline over the period) for Indigenous babies and by 0.1 per 1,000 (17% over the period) for non-Indigenous babies.
- Over the same period there were declines in the foetal mortality rate ratios and rate differences rates between Indigenous and non-Indigenous babies, but these were not statistically significant (Table 1.21.6; Figure 1.21.2 and Figure 1.21.3).
- Similar to foetal mortality, the neonatal mortality rate for both Indigenous and non-Indigenous babies significantly decreased over the period 2001 to 2010 (0.2 per 1,000 annually or 22% over the period for Indigenous babies; and 0.1 per 1,000 annually or 17% over the period for non-Indigenous babies). Rate ratios and rate differences decreased but not significantly.

Table 1.21.6: Foetal and neonatal deaths by Indigenous status, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change(f)	Per cent change(g)
Foetal deaths[(h)]												
Indigenous	113	80	91	69	89	103	101	80	97	91	–0.1	–1.2
Non-Indigenous	1,067	1,028	1,020	1,085	1,135	958	1,045	1,084	1,130	1,073	4.8	4.0
Neonatal deaths[(i)]												
Indigenous	66	59	63	56	71	69	71	62	59	77	0.8	11.3
Non-Indigenous	604	539	485	514	586	541	541	557	584	556	1.7	2.5
Foetal mortality number per 1,000 births (live & stillborn)[(h)(j)]												
Indigenous	10.8	7.6	8.5	6.3	8.2	9.1	7.9	5.9	6.8	6.2	–0.3*	–27.4*
Non-Indigenous	6.5	6.1	6.1	6.4	6.5	5.4	5.5	5.4	5.7	5.4	–0.1*	–16.8*
Rate ratio[(k)]	1.7	1.2	1.4	1.0	1.3	1.7	1.4	1.1	1.2	1.2	0.0	–14.1
Rate difference[(l)]	4.3	1.5	2.5	–0.1	1.7	3.7	2.4	0.5	1.1	0.9	–0.2	–43.0
Neonatal mortality number per 1,000 live births[(i)(j)]												
Indigenous	6.3	5.6	5.9	5.1	6.5	6.1	5.5	4.6	4.1	5.3	–0.2*	–21.8*
Non-Indigenous	3.7	3.2	2.9	3.0	3.4	3.0	2.8	2.8	2.9	2.8	–0.1*	–17.2*
Rate ratio[(k)]	1.7	1.8	2.0	1.7	1.9	2.0	1.9	1.6	1.4	1.9	–0.01	–7.4
Rate difference[(l)]	2.7	2.4	3.0	2.1	3.2	3.1	2.7	1.8	1.2	2.5	–0.1	–29.3

(continued)

Table 1.21.6 (continued): Foetal and neonatal deaths by Indigenous status, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

* Represents results with statistically significant increases or declines at the p < 0.05 level over the period 2001–2010.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the four jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous children are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous perinatal mortality and, depending on the under-identification in births, may either underestimate or overestimate the rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous perinatal mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Causes of death data for 2010 are preliminary and subject to a revisions process. See ABS Causes of Death (cat. no. 3303.0) Australia 2010, Explanatory Notes 35–39 and Technical Notes, Causes of Death Revisions, 2006, Causes of Death Revisions, 2008 and 2009 and Retrospective deaths by cause of death, Queensland, 2010.

(e) These data exclude **370** registered deaths where the Indigenous status was not stated over the period 2001–2010.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(g) Per cent change between 2001 and 2010 based on the average annual change over the period.

(h) Foetal deaths of at least 20 weeks gestation or with a birthweight of at least 400 grams.

(i) Neonatal death is death of a live-born baby within 28 days of birth.

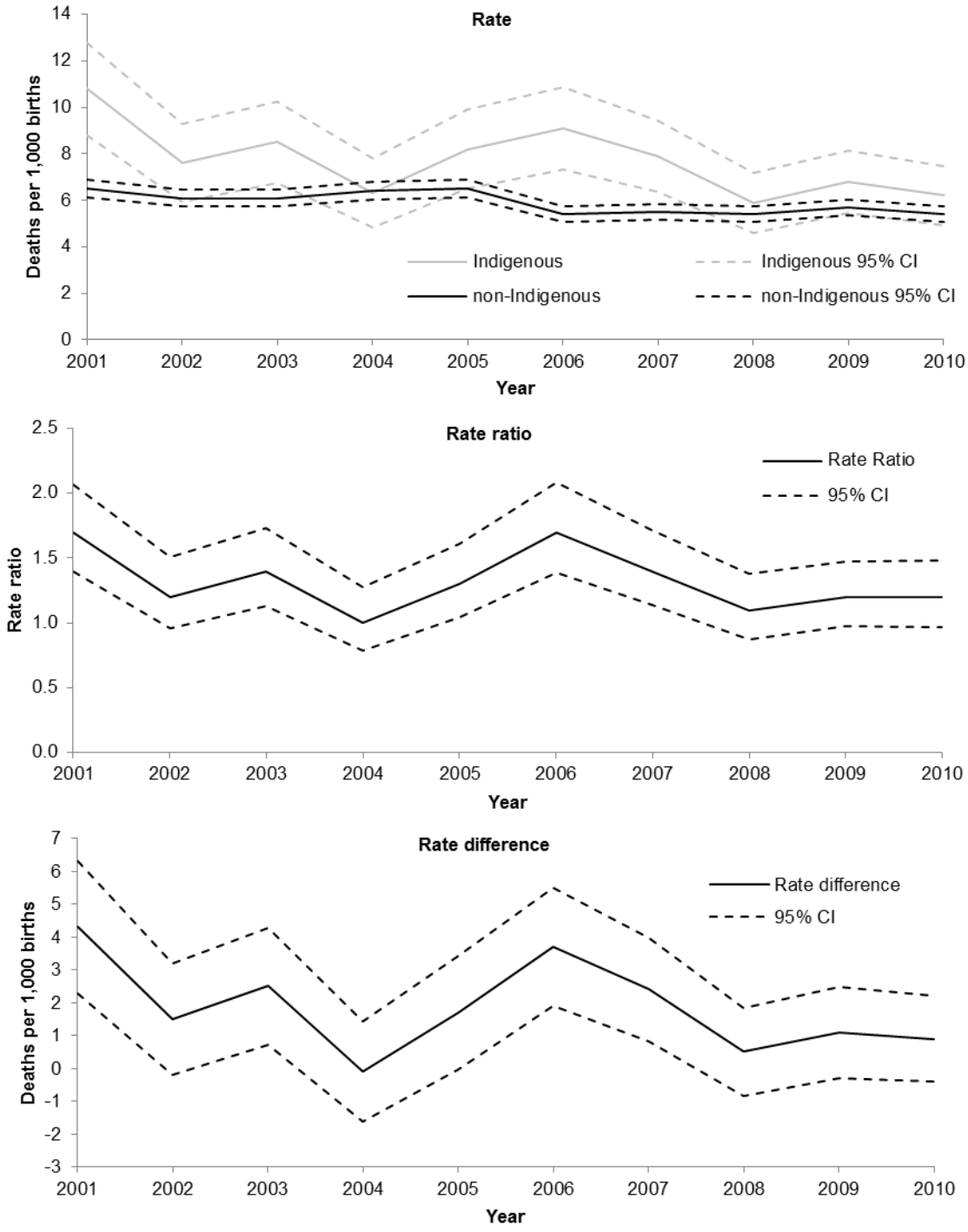
(j) Foetal death rates are calculated per 1,000 all births for the calendar year. Neonatal death rates are calculated per 1,000 live births for the calendar year.

(k) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(l) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

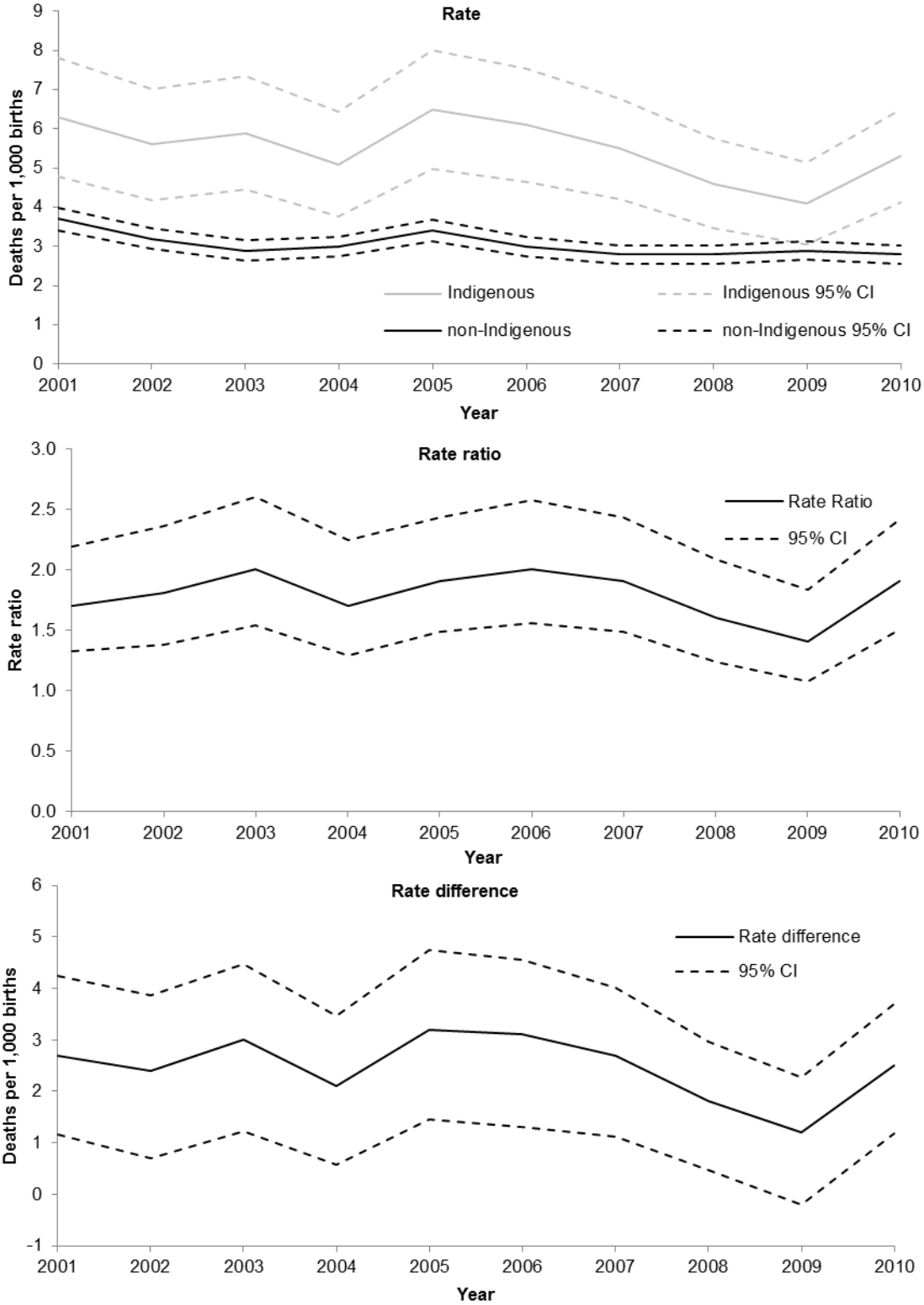
Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: ABS and AIHW analysis of ABS Deaths Registration Database.



Source: ABS and AIHW analysis of ABS Deaths Registration Database.

Figure 1.21.2: Foetal death rates, rate ratios and rate differences, by Indigenous Status, NSW, Qld, WA, SA and NT combined, 2001–2010



Source: ABS and AIHW analysis of ABS Deaths Registration Database.

Figure 1.21.3: Neonatal death rates, rate ratios and rate differences, by Indigenous Status, NSW, Qld, WA, SA and NT combined, 2001–2010

International comparisons

International data are available for New Zealand, the United States and Canada using the World Health Organization (WHO) definition of perinatal mortality. However, the WHO definition differs significantly from the Australian definition of the perinatal period. Australian data include babies of at least 400 grams (or at least 20 weeks if birthweight is unavailable) whereas the WHO definition starts at 500 grams (22 weeks if birthweight is unavailable). In addition, the WHO defines perinatal deaths as less than 7 days whereas Australia includes deaths up to 28 days. Perinatal mortality rates of Aboriginal and Torres Strait Islander babies are therefore not comparable to rates for Indigenous populations in the other countries. Therefore, international comparisons have not been presented here.

Additional information

Influencing factors

The main risk factors for perinatal mortality are low birthweight and pre-term birth. Other factors which may be associated with perinatal mortality are smoking during pregnancy, infection, maternal nutrition and underutilisation of antenatal services. Data on these influencing factors are available from the National Perinatal Data Collection.

Low birthweight

- Over the period 2007–2009, babies born to Indigenous mothers were around twice as likely to be low birthweight as babies born to non-Indigenous mothers (12.3% compared with 5.9%) (see *Indicator 1.01: Low birthweight* for more information on low birthweight infants).

Smoking during pregnancy

- Data on smoking during pregnancy show that in 2009 Indigenous mothers were 3.7 times more likely to smoke during pregnancy than non-Indigenous mothers (52% compared with 13.2%) (see *Indicator 2.21: Health behaviours during pregnancy* for more information on smoking during pregnancy).

Underutilisation of antenatal care services

- In 2009, in New South Wales, Queensland, South Australia and the Northern Territory combined, 97% of Indigenous mothers and 99% of non-Indigenous mothers attended at least one antenatal care session (see *Measure 3.01: Antenatal care* for more information on antenatal care).

Data quality issues

ABS Deaths Registration Database

Data from the ABS Deaths Registration Database has been used to report on perinatal mortality in this indicator.

Deaths

Although it is considered likely that most deaths of Aboriginal and Torres Strait Islander (Indigenous) Australians are registered, a proportion of these deaths are not registered as Indigenous. Information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred and may differ from the self-identified Indigenous origin of the deceased.

Queensland deaths

In November 2010, the Queensland Registrar of Births, Deaths and Marriages advised the ABS of an outstanding deaths registration initiative undertaken by the Registry. This initiative resulted in the November 2010 registration of 374 previously unregistered deaths which occurred between 1992 and 2006 (including a few for which a date of death was unknown). Of these, around three-quarters (284) were deaths of Aboriginal and Torres Strait Islander Australians.

The ABS discussed different methods of adjustment of Queensland death registrations data for 2010 with key stakeholders. Following the discussion, a decision was made by the ABS and key stakeholders to use an adjustment method that added together deaths registered in 2010 for usual residents of Queensland which occurred in 2007, 2008, 2009 and 2010. This method minimises the impact on mortality indicators used in various government reports. However, care should still be taken when interpreting Aboriginal and Torres Strait Islander death data for Queensland for 2010**.**

Western Australia deaths

Indigenous deaths registered in Western Australia in 2007, 2008 and 2009 were corrected by the ABS in mid-2012 due to some non-Indigenous deaths being incorrectly recorded as Indigenous for these years. Data presented in this report are based on the corrected data and will differ from mortality data presented in the 2010 Health Performance Framework report which presented data prior to the ABS corrections.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms.

Under-identification

At present, there is considerable variation across the states and territories in the completeness of mortality data for Indigenous people. Information concerning the number of deaths of Indigenous people is limited by the accuracy with which Indigenous persons are identified in death records. Problems associated with identification result in an underestimation of deaths of Indigenous people and in the gap in mortality between Indigenous and non-Indigenous Australians.

Mortality data for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered to have sufficient coverage to produce reliable statistics on Indigenous Australian deaths for the period 2001–2010.

Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) which are considered to have adequate identification

from 1991. Queensland is considered to have sufficient coverage of Indigenous deaths from 1998.

The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.

Numerator and denominator

The perinatal mortality rate also relies on birth registration data. Unfortunately, as with deaths, some Indigenous births are not correctly identified as Indigenous. It is estimated that Indigenous identification is higher in births data than in deaths data and therefore Indigenous perinatal mortality rates may be under-estimates.

Data quality issues

The numerator and denominator are not based on the same collection or the same method of collection. Births are registered by the parents whereas death registration forms are completed by doctors and funeral directors. Therefore there would be inconsistency of Indigenous identification between the numerator and denominator.

Cause of death coding

Causes of death are based on the 10th revision of the International Classification of Diseases (ICD-10). Mortality coding using ICD-10 was introduced into Australia on 1 January 1997.

International data

International data are available for New Zealand, the United States and Canada using the WHO definition of perinatal mortality. However, the WHO definition differs markedly from the Australian definition of the perinatal period (see above) which was developed to be relevant for the Australian context. Therefore, Australian data include babies of at least at 400 grams (at least 20 weeks if birthweight is unavailable) whereas the WHO definition starts at 500 grams (22 weeks if birthweight is unavailable). In addition, the WHO defines perinatal deaths as less than 7 days whereas Australia includes deaths up to 28 days (Laws & Sullivan 2004). It would be possible to analyse Australian data on the WHO definitional basis, but it is not recommended for this performance measure.

List of symbols used in tables

n.a.	not available
–	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

References

Laws PJ & Sullivan EA 2004. Australia's mothers and babies 2002. Perinatal statistics series no. 15. Cat. no. PER 28. Sydney: AIHW National Perinatal Epidemiology and Statistics Unit.

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1.22 All-causes age-standardised death rates

The number of Aboriginal and Torres Strait Islander Australian deaths, expressed as a rate by age group, age-standardised rate and rate ratio

Data sources

National Mortality Database

The National Mortality Database is a national collection of de-identified unit record level data. It comprises most of the information recorded on death registration forms and medical (cause of death) certificates, including Indigenous status. The database is maintained by the Australian Institute of Health and Welfare (AIHW). Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the Australian Bureau of Statistics (ABS). Information on the cause of death is supplied by the medical practitioner certifying the death, or by a coroner. The data are updated each calendar year and are presented by state/territory of usual residence rather than state/territory where death occurs.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander people are registered. However, a proportion of these deceased are not reported as Aboriginal or Torres Strait Islander by the family, health worker or funeral director during the death registration process. That is, while data are provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked of relatives and friends of the deceased by the funeral director.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to 3 jurisdictions (Western Australia, South Australia and the Northern Territory) with adequate identification of Indigenous deaths in their recording systems from 1991 onwards. The quality of the time-series data is also influenced by the late inclusion of a not stated category for Indigenous status in 1998. Prior to this time, the not stated responses were probably included with the non-Indigenous.

Deaths registered in 2010 with a usual residence of Queensland have been adjusted to exclude deaths registered in 2010 that occurred prior to 2007. This is to minimise the impact of late registration of deaths due to recent changes in the timeliness of death registrations in Queensland.

Western Australian Aboriginal and Torres Strait Islander deaths for 2007, 2008 and 2009, have been revised to correct for a data quality issue which resulted in the over-reporting of Indigenous deaths during this period.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2006–2010 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years.

Analyses

Age-standardised rates and ratios have been used as a measure of mortality in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of mortality among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

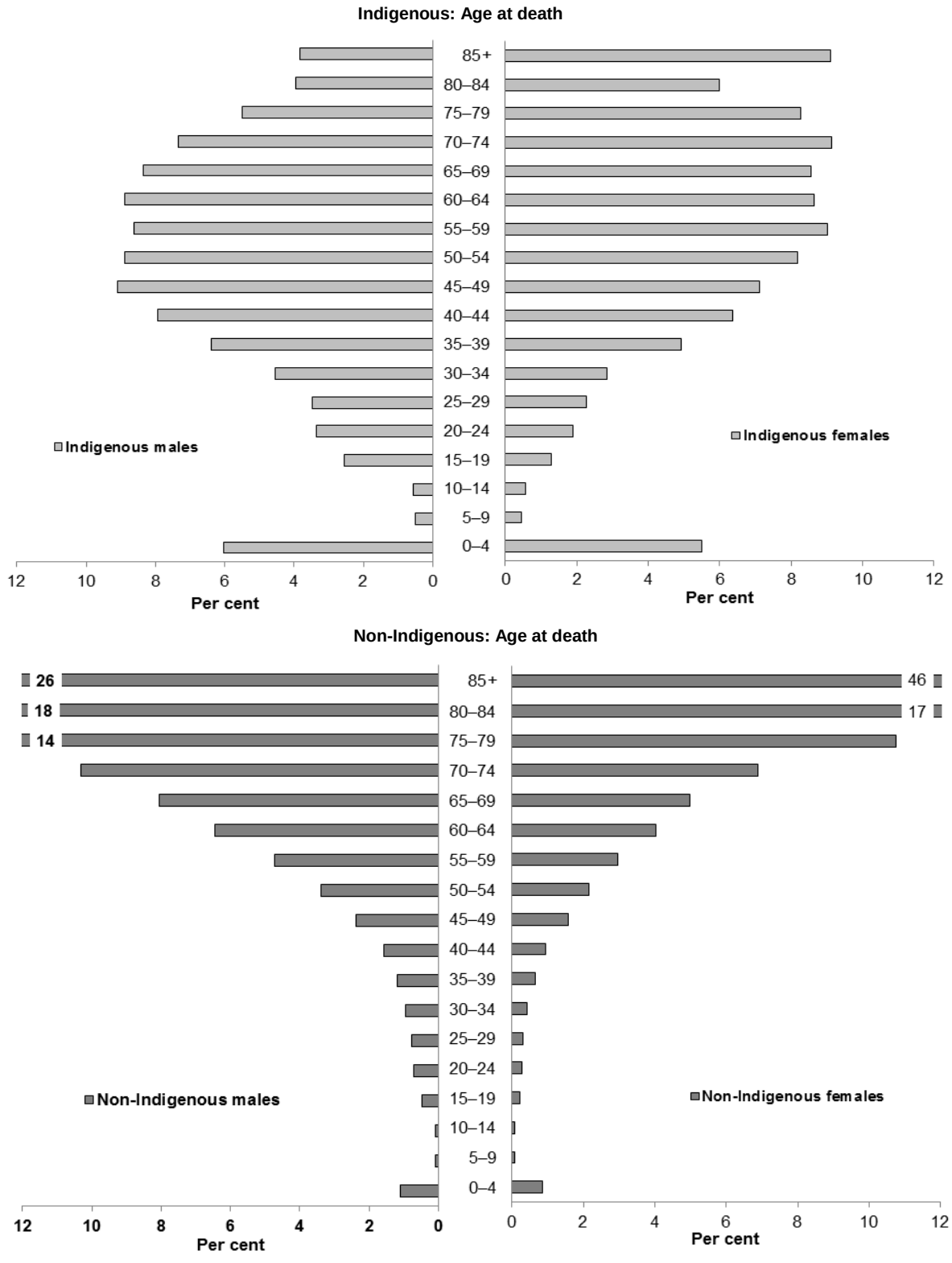
Mortality

- For the period 2006–2010, there were 491,065 deaths in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, 11,132 (2.3%) of which were deaths of people who identified as Aboriginal or Torres Strait Islander origin (Table 1.22.1).

Mortality by age and sex

Figure 1.22.1 and Table 1.22.1 present the age distribution of deaths among Aboriginal and Torres Strait Islander people compared with non-Indigenous Australians, and Table 1.22.2 presents age-specific mortality rates for the period 2006–2010 for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- For the period 2006–2010, the age distribution of deaths among Aboriginal and Torres Strait Islander people is very different from that for non-Indigenous Australians. The Indigenous population has a high proportion of deaths occurring in the lower and middle age groups. In comparison, the non-Indigenous population has the large majority of deaths occurring in the older age groups (Figure 1.22.1; Table 1.22.1). Over 70% of deaths among Indigenous males and nearly 60% of deaths among Indigenous females occur before the age of 65 years, compared with 24% of deaths among non-Indigenous males and about 14% of deaths among non-Indigenous females.
- Indigenous males and females had higher mortality rates than non-Indigenous males and females across all age groups (Table 1.22.2).
- The greatest rate ratios of Indigenous compared with non-Indigenous mortality occurred in the 35–44 year age group where Indigenous people died at about five times (4.8 for males, 5.3 for females and 4.9 for persons) the rate of non-Indigenous people (Table 1.22.2). The greatest rate differences occurred in the 65–74 year age group (2,136 per 100,000).



Source: ABS and AIHW analysis of ABS Mortality Database.

Figure 1.22.1: Age distribution of deaths among Indigenous and non-Indigenous Australians, NSW, Qld, WA, SA and NT, 2006–2010

Table 1.22.1: Number and percentage of deaths by age group, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

	Number of deaths				Percentage of deaths			
	Indigenous		Non-Indigenous		Indigenous		Non-Indigenous	
	Males	Females	Males	Females	Males	Females	Males	Females
<1	313	220	2,278	1,677	5.1	4.4	0.9	0.7
1–4	58	54	424	296	0.9	1.1	0.2	0.1
0–4	*371*	*274*	*2,702*	*1,973*	*6.0*	*5.5*	*1.1*	*0.9*
5–9	32	22	234	181	0.5	0.4	0.1	0.1
10–14	35	28	259	182	0.6	0.6	0.1	0.1
1–14	*125*	*104*	*917*	*659*	*2.0*	*2.1*	*0.4*	*0.3*
15–19	157	64	1,177	517	2.6	1.3	0.5	0.2
20–24	207	94	1,766	631	3.4	1.9	0.7	0.3
25–29	214	113	1,953	750	3.5	2.3	0.8	0.3
30–34	279	142	2,364	949	4.6	2.8	1.0	0.4
35–39	392	246	2,975	1,484	6.4	4.9	1.2	0.6
40–44	488	317	3,920	2,190	8.0	6.4	1.6	0.9
45–49	559	355	5,896	3,695	9.1	7.1	2.4	1.6
50–54	545	408	8,347	5,023	8.9	8.2	3.4	2.2
55–59	529	450	11,700	6,858	8.6	9.0	4.7	3.0
60–64	546	431	15,929	9,407	8.9	8.6	6.4	4.0
65–69	512	427	19,934	11,568	8.3	8.6	8.1	5.0
70–74	451	456	25,522	16,036	7.4	9.1	10.3	6.9
75–79	338	413	35,399	25,040	5.5	8.3	14.3	10.8
80–85	242	299	44,004	40,132	3.9	6.0	17.8	17.3
85+	236	454	63,137	106,060	3.8	9.1	25.5	45.6
Total[(f)]	**6,138**	**4,994**	**247,245**	**232,688**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators. See data quality statements for a more detailed explanation.

(f) The 'Total' includes the number of deaths with age not stated.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.22.2: All causes age-specific mortality rates per 100,000, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

	Males				Females				Persons			
	Indig. rate[(f)]	Non-Indig. rate[(f)]	Rate ratio[(g)]	Rate difference[(h)]	Indig. rate[(f)]	Non-Indig. rate[(f)]	Rate ratio[(g)]	Rate difference[(h)]	Indig. rate[(f)]	Non-Indig. rate[(f)]	Rate ratio[(g)]	Rate difference[(h)]
Less than 1[(f)]	922.0	457.4	2.0*	464.6*	685.5	355.2	1.9*	330.3*	807.1	407.7	2.0*	399.4*
1–4	48.4	22.3	2.2*	26.1*	47.0	16.5	2.8*	30.6*	47.7	19.5	2.4*	28.3*
0–4 years	*244.8*	*113.0*	*2.2**	*131.8**	*188.9*	*87.1*	*2.2**	*101.8**	*217.5*	*100.4*	*2.2**	*117.1**
5–14	22.6	10.3	2.2*	12.3*	17.7	8.0	2.2*	9.8*	20.2	9.2	2.2*	11.1*
1–14 years	*28.0*	*13.8*	*2.0**	*14.2**	*24.4*	*10.5*	*2.3**	*13.9**	*26.3*	*12.2*	*2.2**	*14.01**
15–24	148.4	55.8	2.7*	92.6*	67.6	23.0	2.9*	44.6*	109.0	39.8	2.7*	69.1*
25–34	294.7	82.6	3.6*	212.2*	150.5	33.0	4.6*	117.5*	222.1	57.9	3.8*	164.2*
35–44	611.0	128.6	4.8*	482.4*	359.2	68.1	5.3*	291.1*	479.8	98.2	4.9*	381.6*
45–54	1,071.6	277.4	3.9*	794.2*	680.7	167.4	4.1*	513.3*	867.9	222.0	3.9*	645.9*
55–64	1,904.9	650.8	2.9*	1,254.0*	1,381.6	384.7	3.6*	996.8*	1,627.3	518.1	3.1*	1109.2*
65–74	4,144.4	1,743.8	2.4*	2,400.6*	3,014.0	1,024.1	2.9*	1989.9*	3,514.0	1,377.9	2.6*	2136.1*
75 and over	8,950.3	7,336.4	1.2*	1,613.9*	8,191.7	6,263.4	1.3*	1928.3*	8,487.9	6,709.1	1.3*	1778.7*
Total (crude)	**513.0**	**668.5**	**0.8***	**–155.5***	**413.9**	**624.9**	**0.7***	**–211.0***	**463.2**	**646.6**	**0.7***	**–183.4***
Total (age standardised)[(i)]	**1,316.9**	**690.3**	**1.9***	**626.6***	**1,011.7**	**515.1**	**2.0***	**496.7***	**1,151.1**	**597.0**	**1.9***	**554.0***

(continued)

Table 1.22.2 (continued): All causes age-specific mortality rates per 100,000, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) Age-specific death rates per 100,000 using the midpoint populations for the relevant years. Rates for persons aged less than 1 are per 100,000 live births.

(g) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(h) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(i) Total rates have been directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

Source: AIHW analysis of ABS Mortality Database.

Mortality by state/territory

Table 1.22.3 presents the number of deaths and mortality rates for the five-year period 2006–2010 for Indigenous and non-Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory.

- In New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous Australians died at almost twice the rate of non-Indigenous Australians.
- In New South Wales, Queensland and South Australia, Indigenous Australians died at 1.6 to 1.8 times the rate of non-Indigenous Australians. In Western Australia and the Northern Territory, Indigenous Australians died at around two and a half times the rate of non-Indigenous Australians. The Northern Territory had the greatest absolute difference in mortality rates between Indigenous and non-Indigenous Australians.

Table 1.22.3: All causes mortality, by Indigenous status, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

	Number of deaths			No. per 100,000[(f)]			
State/territory	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Rate ratio[(g)]	Rate difference[(h)]
NSW	2,903	231,732	1,859	961.7	598.3	1.6*	363.4*
Qld	3,031	125,074	2,728	1,089.1	597.2	1.8*	491.9*
WA	2,230	59,276	458	1,431.2	574.2	2.5*	857.0*
SA	710	61,226	371	1,059.9	614.5	1.7*	445.4*
NT	2,258	2,625	25	1,540.7	645.2	2.4*	895.5*
NSW, Qld, WA, SA & NT[(a)]	**11,132**	**479,933**	**5,441**	**1,151.1**	**597.0**	**1.9***	**554.0***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(g) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(h) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Time series analysis

Longer term mortality trend data are limited to three jurisdictions—Western Australia, South Australia and the Northern Territory, which have over 10 years of adequate identification of Indigenous deaths in their recording systems.

As there is a consistent time series of population estimates from 1991, data for the period 1991–2010 have been used for the analysis of Indigenous mortality in this measure.

Because of the late inclusion of a 'not stated' category of Indigenous status in 1998 (before which 'not stated' responses were included with non-Indigenous deaths), Indigenous mortality rates have been compared with the mortality rates of other Australians (which include deaths of both non-Indigenous people and people for whom Indigenous status was not stated).

Mortality rates, rate ratios and rate differences between Indigenous and other Australians over the period 1991–2010 are presented in Table 1.22.4 and Figure 1.22.2.

- Over the period 1991–2010, there were significant declines in both the crude and age-standardised mortality rates in Western Australia, South Australia and the Northern Territory combined for Indigenous Australians. The fitted trend implies an average yearly decline of 7.7 per 100,000 (18% reduction over this period) for the crude mortality rate and 36.6 per 100,000 (33% reduction over the period) for the age-standardised mortality rate. (Table 1.22.4).
- There were also significant declines in age-standardised mortality rates for other persons between 1991 and 2010. The fitted trend implies an average yearly decline around 12 per 100,000 for other Australians (equivalent to a 29% reduction in the rate over this period).
- There were significant declines in the mortality rate ratios between Indigenous females and persons and other females and persons over the period 1991–2010. There were no significant changes in the rate ratios between Indigenous males and other males over the same period.
- There was a significant decrease in the mortality rate difference for males, females and persons over period 1991–2008.

Fluctuations in the level of Indigenous mortality over time partly reflect changing levels of coverage of Indigenous deaths and population estimates. Given the variability in the measures of Indigenous mortality, caution should be exercised in assessing trends in Indigenous mortality over time and comparisons between jurisdictions and with the non-Indigenous population.

Table 1.22.4: Age-standardised mortality rates, rate ratios and rate differences, WA, SA and NT, 1991–2010[(a)(b)(c)(d)]

		Number of Indigenous deaths			Indigenous rate per 100,000 (crude)		
		Males	Females	Persons	Males	Females	Persons
	1991	513	435	948	891.5	746.2	818.4
	1992	480	370	850	812.4	618.3	714.7
	1993	490	383	873	807.6	623.7	715.1
	1994	497	383	880	798.3	607.9	702.5
	1995	521	371	892	816.7	574.5	694.9
	1996	490	326	816	749.4	493.0	620.5
	1997	538	403	941	803.9	596.4	699.7
	1998	533	387	920	777.7	559.7	668.2
	1999	491	374	865	699.4	528.5	613.6
	2000	562	439	1,001	782.2	605.8	693.6
	2001	551	348	899	749.0	469.3	608.6
	2002	499	441	940	663.8	581.8	622.6
	2003	555	355	910	723.3	458.6	590.3
	2004	548	432	980	701.2	547.5	624.0
	2005	574	428	1,002	721.1	532.5	626.4
	2006	577	442	1,019	711.7	539.4	625.1
	2007	583	465	1,048	706.1	557.4	631.4
	2008	595	499	1,094	707.6	587.5	647.2
	2009	540	467	1,007	630.5	539.9	585.0
	2010	581	449	1,030	666.0	509.7	587.4
	Annual change[(i)]	4.9*	4.9*	9.9*	–9.5*	–5.9*	–7.7*
Long term 1991–2010	Per cent change[(j)]	18.3*	21.6*	19.8*	–20.2*	–15.1*	–17.9*
	Annual change[(i)]	5.1*	8.3*	13.4*	–7.4*	–0.3	–3.9
Medium term 1998–2010	Per cent change[(j)]	11.6*	25.6*	17.5*	–11.4*	–0.7	–6.9
	Annual change[(i)]	5.2	11.7*	16.9*	–6.4	4.6	–0.9
Short term 2001–2010	Per cent change[(j)]	8.6	30.2*	16.9*	–7.7	8.7	–1.3

(continued)

Table 1.22.4 (continued): Age-standardised mortality rates, rate ratios and rate differences, WA, SA and NT, 1991–2010[(a)(b)(c)(d)]

		Indigenous rate per 100,000 (age-standardised)[(e)]			Other Australians[(f)] rate per 100,000		
		Males	Females	Persons	Males	Females	Persons
	1991	2,303.6	1,947.6	2,117.2	974.4	626.6	779.5
	1992	2,206.6	1,668.9	1,915.3	950.5	621.3	766.5
	1993	2,104.1	1,710.8	1,888.6	971.8	639.6	786.6
	1994	2,145.0	1,807.1	1,969.3	971.5	623.5	776.5
	1995	2,185.8	1,581.4	1,859.1	913.7	602.9	741.2
	1996	1,984.9	1,277.2	1,603.9	930.3	615.0	755.6
	1997	2,147.1	1,475.4	1,775.9	885.3	599.3	727.3
	1998	2,019.0	1,351.0	1,656.5	858.4	575.6	703.2
	1999	1,777.3	1,370.2	1,560.9	824.8	555.6	677.0
	2000	1,953.1	1,453.7	1,680.1	810.3	547.6	666.1
	2001	1,920.5	1,106.8	1,466.0	777.1	547.9	652.3
	2002	1,673.3	1,278.8	1,451.8	772.6	553.3	653.2
	2003	1,765.5	1,021.7	1,351.4	761.0	541.9	642.0
	2004	1,709.7	1,348.4	1,517.7	716.9	512.4	606.9
	2005	1,644.1	1,158.9	1,379.8	717.8	507.2	605.1
	2006	1,694.7	1,243.6	1,450.1	692.6	510.8	595.6
	2007	1,670.4	1,267.3	1,448.7	714.2	515.4	608.1
	2008	1,679.2	1,283.3	1,459.6	703.3	529.5	611.7
	2009	1,462.8	1,178.1	1,305.6	675.7	513.8	590.4
	2010	1,576.0	1,144.8	1,341.4	679.2	514.1	592.3
	Annual change[(i)]	–39.2*	–33.8*	–36.6*	–17.9*	–7.4*	–11.7*
Long term 1991–2010	Per cent change[(j)]	–32.3*	–33.0*	–32.9*	–35.0*	–22.3*	–28.5*
	Annual change[(i)]	–33.8*	–12.8	–22.4*	–14.5*	–4.8*	–8.8*
Medium term 1998–2010	Per cent change[(j)]	–20.1*	–11.4	–16.2*	–20.3*	–9.9*	–15.0*
	Annual change[(i)]	–30.7*	4.8	–10.5	–11.4*	–3.8*	–6.9*
Short term 2001–2010	Per cent change[(j)]	–14.4*	3.9	–6.5	–13.2*	–6.3*	–9.5*

(continued)

Table 1.22.4 (continued): Age-standardised mortality rates, rate ratios and rate differences, WA, SA and NT, 1991–2010[(a)(b)(c)(d)]

		Rate ratio[(g)]			Rate difference[(h)]		
		Males	Females	Persons	Males	Females	Persons
	1991	2.4	3.1	2.7	1,329.1	1,321.0	1,337.6
	1992	2.3	2.7	2.5	1,256.1	1,047.5	1,148.9
	1993	2.2	2.7	2.4	1,132.4	1,071.2	1,102.0
	1994	2.2	2.9	2.5	1,173.4	1,183.7	1,192.8
	1995	2.4	2.6	2.5	1,272.1	978.6	1,117.9
	1996	2.1	2.1	2.1	1,054.5	662.2	848.3
	1997	2.4	2.5	2.4	1,261.7	876.1	1,048.6
	1998	2.4	2.3	2.4	1,160.6	775.4	953.3
	1999	2.2	2.5	2.3	952.5	814.5	884.0
	2000	2.4	2.7	2.5	1,142.8	906.1	1,014.0
	2001	2.5	2.0	2.2	1,143.5	558.9	813.7
	2002	2.2	2.3	2.2	900.7	725.5	798.6
	2003	2.3	1.9	2.1	1,004.5	479.8	709.4
	2004	2.4	2.6	2.5	992.8	836.0	910.8
	2005	2.3	2.3	2.3	926.3	651.7	774.6
	2006	2.4	2.4	2.4	1,002.1	732.8	854.5
	2007	2.3	2.5	2.4	956.2	751.9	840.6
	2008	2.4	2.4	2.4	975.9	753.8	847.9
	2009	2.2	2.3	2.2	787.1	664.3	715.2
	2010	2.3	2.2	2.3	896.8	630.7	749.1
	Annual change[(i)]	0.0	–0.03*	–0.01*	–21.3*	–26.4*	–24.9*
Long term 1991–2010	Per cent change[(j)]	1.6	–16.6*	–8.1*	–30.4*	–38.0*	–35.4*
	Annual change[(i)]	0.0	0.0	0.0	–19.3*	–8.0	–13.6*
Medium term 1998–2010	Per cent change[(j)]	–1.9	–1.5	–1.4	–20.0*	–12.4	–17.1*
	Annual change[(i)]	0.0	0.0	0.0	–19.3*	8.6	–3.7
Short term 2001–2010	Per cent change[(j)]	–3.2	11.8	4.6	–15.2*	13.8	–4.0

(continued)

Table 1.22.4 (continued): Age-standardised mortality rates, rate ratios and rate differences, WA, SA and NT, 1991–2010[(a)(b)(c)(d)]

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the selected periods.

(a) Data are reported for Western Australia, South Australia and the Northern Territory only. These three states and territories are considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these three jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for these jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(e) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(f) 'Other Australians' include deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(g) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

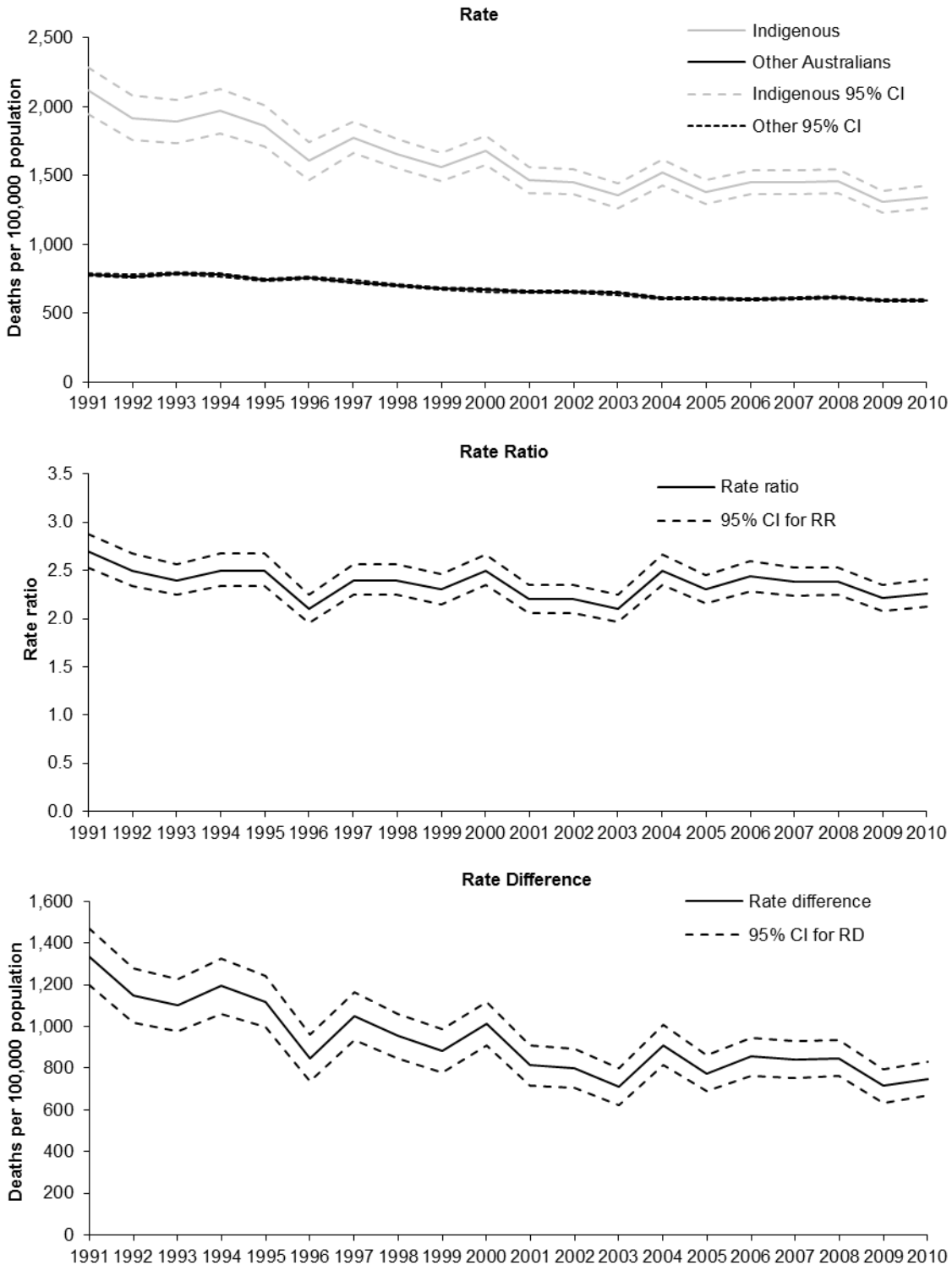
(h) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for other Australians.

(i) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the specified periods.

(j) Per cent change between the first and the last year of the specified periods based on the average annual change over the periods.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.



Source: ABS and AIHW analysis of ABS Mortality Database.

Figure 1.22.2: Age-standardised mortality rates, rate ratios and rate differences between Indigenous and other Australians, WA, SA and NT, 1991–2010

Additional trends analysis is presented for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from 2001 to 2010 for Indigenous and non-Indigenous Australians in Table 1.22.5 and Figure 1.22.3.

- Over the period 2001–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, there was no significant change in the crude mortality rate for Indigenous Australians. Over the same period, there were significant declines in the age-standardised mortality rate for Indigenous Australians (5.4% for the period).
- Over the same period, the age-standardised mortality rate for non-Indigenous Australians declined significantly by 6.5 per 100,000 per year (9.1% for the period).
- There were no significant changes in the mortality rate ratios and rate differences between Indigenous and non-Indigenous Australians over the period 2001–2010.

Table 1.22.5: Age-standardised mortality rates, rate ratios and rate differences, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

	Males	Females	Persons	Males	Females	Persons
	Number of Indigenous deaths			Indigenous rate per 100,000 (crude)		
2001	1,145	791	1,936	557.6	381.7	469.3
2002	1,126	920	2,046	535.7	433.6	484.4
2003	1,177	787	1,964	547.6	362.7	454.7
2004	1,160	889	2,049	528.2	401.1	464.3
2005	1,154	874	2,028	514.2	386.1	449.9
2006	1,213	920	2,133	529.1	397.7	463.1
2007	1,227	1,016	2,243	524.0	430.2	476.9
2008	1,208	1,007	2,215	505.1	417.6	461.1
2009	1,194	1,036	2,230	488.7	420.6	454.5
2010	1,296	1,015	2,311	519.1	403.4	461.0
Annual change[(i)] 2001–2010	13.6*	264*	40.0*	–5.4*	2.9	–1.2
Per cent change[(j)] 2001–2010	10.7*	30.0*	18.6*	–8.7*	6.8	–2.3
Annual change[(i)] 2006–2010	13.3	21.0	34.3	–5.5	0.2	–2.7
Per cent change[(j)] 2006–2010	4.4	9.1	6.4	–4.2	0.2	–2.3
	Indigenous rate per 100,000 (age-standardised)[(f)]			Non-Indigenous rate per 100,000		
2001	1523.7	963.1	1213.3	765.3	531.4	638.1
2002	1415.7	1042.3	1209.4	766.7	545.8	646.8
2003	1432.2	907.3	1143.5	743.8	533.2	630.1
2004	1407.1	1022.2	1194.1	738.1	530.5	626.3
2005	1266.2	952.5	1099.2	702.7	508.5	598.6
2006	1391.0	976.1	1161.0	699.1	512.6	599.2
2007	1351.1	1048.9	1186.2	703.1	518.6	604.5
2008	1326.2	1013.7	1154.3	711.9	532.5	616.5
2009	1229.9	1035.1	1127.1	672.1	504.4	583.0
2010	1298.7	988.1	1132.8	668.3	508.0	583.5
Annual change[(i)] 2001–2010	–23.6*	4.9	–7.3*	–10.9*	–3.2*	–6.5*
Per cent change[(j)] 2001–2010	–14.0*	4.6	–5.4*	–12.9*	–5.5*	–9.1*
Annual change[(i)] 2006–2010	–30.6*	1.0	–11.5*	–9.3*	–2.3	–5.3
Per cent change[(j)] 2006–2010	–8.8*	0.4	–4.0*	–5.3*	–1.8	–3.5

(continued)

Table 1.22.5 (continued): Age-standardised mortality rates, rate ratios and rate differences, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

	Males	Females	Persons	Males	Females	Persons
	Rate ratio[(f)]			Rate difference[(g)]		
2001	2.0	1.8	1.9	758.4	431.7	575.2
2002	1.8	1.9	1.9	649.0	496.5	562.7
2003	1.9	1.7	1.8	688.4	374.0	513.4
2004	1.9	1.9	1.9	669.0	491.7	567.8
2005	1.8	1.9	1.8	563.5	443.9	500.6
2006	2.0	1.9	1.9	691.9	463.5	561.8
2007	1.9	2.0	2.0	648.0	530.3	581.7
2008	1.9	1.9	1.9	614.3	481.3	537.8
2009	1.8	2.1	1.9	557.8	504.4	583.0
2010	1.9	1.9	1.9	630.5	508.0	583.5
Annual change[(h)] 2001–2010	0.0	0.0	0.0	–12.7*	8.6	2.7
Per cent change[(i)] 2001–2010	–1.7	10.6	3.9	–15.1*	17.9	4.2
Annual change[(h)] 2006–2010	0.0	0.0	0.0	–21.3	6.3	4.5
Per cent change[(i)] 2006–2010	–3.7	2.3	–0.5	–12.3	5.4	3.2

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the selected periods.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(e) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(f) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

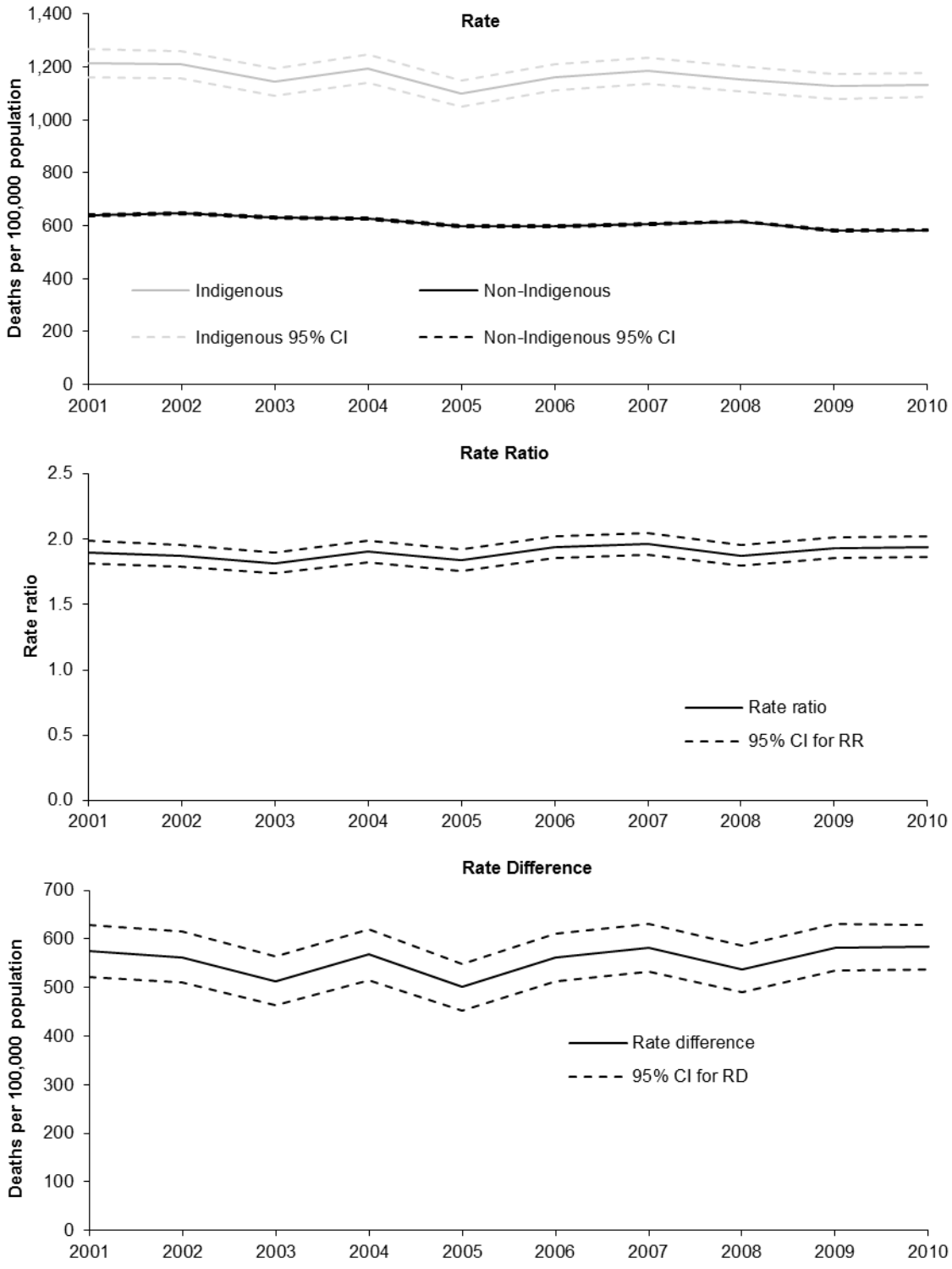
(g) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(h) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the specified periods.

(i) Per cent change between the first and the last year of the specified periods based on the average annual change over the periods.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.



Source: ABS and AIHW analysis of ABS Mortality Database.

Figure 1.22.3: Age- standardised mortality rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians, NSW, Qld, WA, SA and NT, 2001–2010

International comparisons

Numerous studies have indicated that the gap between Indigenous and non-Indigenous people's life expectancy in Australia is greater than in New Zealand, Canada and the United States of America (USA).

However, difficulties related to concepts, data and methods behind such estimates throw doubt on conclusions drawn from country comparison studies. This suggests that the uncertainty associated with indigenous life expectancy estimates could be quite large.

Australia, New Zealand, Canada, and the USA differ in how they define and measure their Indigenous population. The two main differences relate to the 'inclusiveness' of the underlying Indigenous population and the accuracy of Indigenous deaths recorded.

- Australian estimates of the Indigenous population are based on self-identification of Indigenous status from the Census. While Indigenous status is reported in the national mortality database, there are known problems with non-reporting and incorrect reporting of Indigenous deaths.
- In New Zealand, Census respondents are asked what 'ethnic group' they belong to and multiple answers are permitted. The Maori life tables from 1990–1992 include all who identify as Maori, including those who identify with other ethnicities. Since 1995, Maori deaths have been identified in a similar way.
- Life expectancy estimates in the USA are restricted to American Indians and Alaska Natives who live 'on or near reservations'. Based on 2002 Census data, this was around 57% of the estimated American Indians and Alaska Natives population. American Indians and Alaska Natives identification is available on official death certificates, however, unlike the Census, multiple race information was not available before 2003. As of 2007, only 27 of the 52 registration areas collected multiple race information.
- Canadian estimates of the Aboriginal population are obtained from a 20% sample of the five-yearly population Census. Aboriginal status is not collected on the death registration form. Data linkages are used to ascertain Aboriginal deaths. Published life expectancy estimates are restricted to Registered Indians, who account for around one-half of the Aboriginal population.

Countries that adopted the least inclusive definitions of 'Indigenous' in their health and population data collection systems, tended to report the best life expectancy estimates.

In general, cross-country comparisons give little or no consideration to the level of uncertainty associated with the data and methodologies used.

- Most publications present and discuss differences between country estimates of Indigenous life expectancy as though they represent real differences.
- Only a few publications provide general cautions about drawing conclusions in the presence of uncertainties of largely unknown magnitude.

Based on an informed evaluation, this suggests that the uncertainty associated with Indigenous life expectancy estimates could be quite large.

The mortality rates presented below have been directly age-standardised to the WHO World Standard population 2001–2025 to allow for comparisons to be made between the four countries.

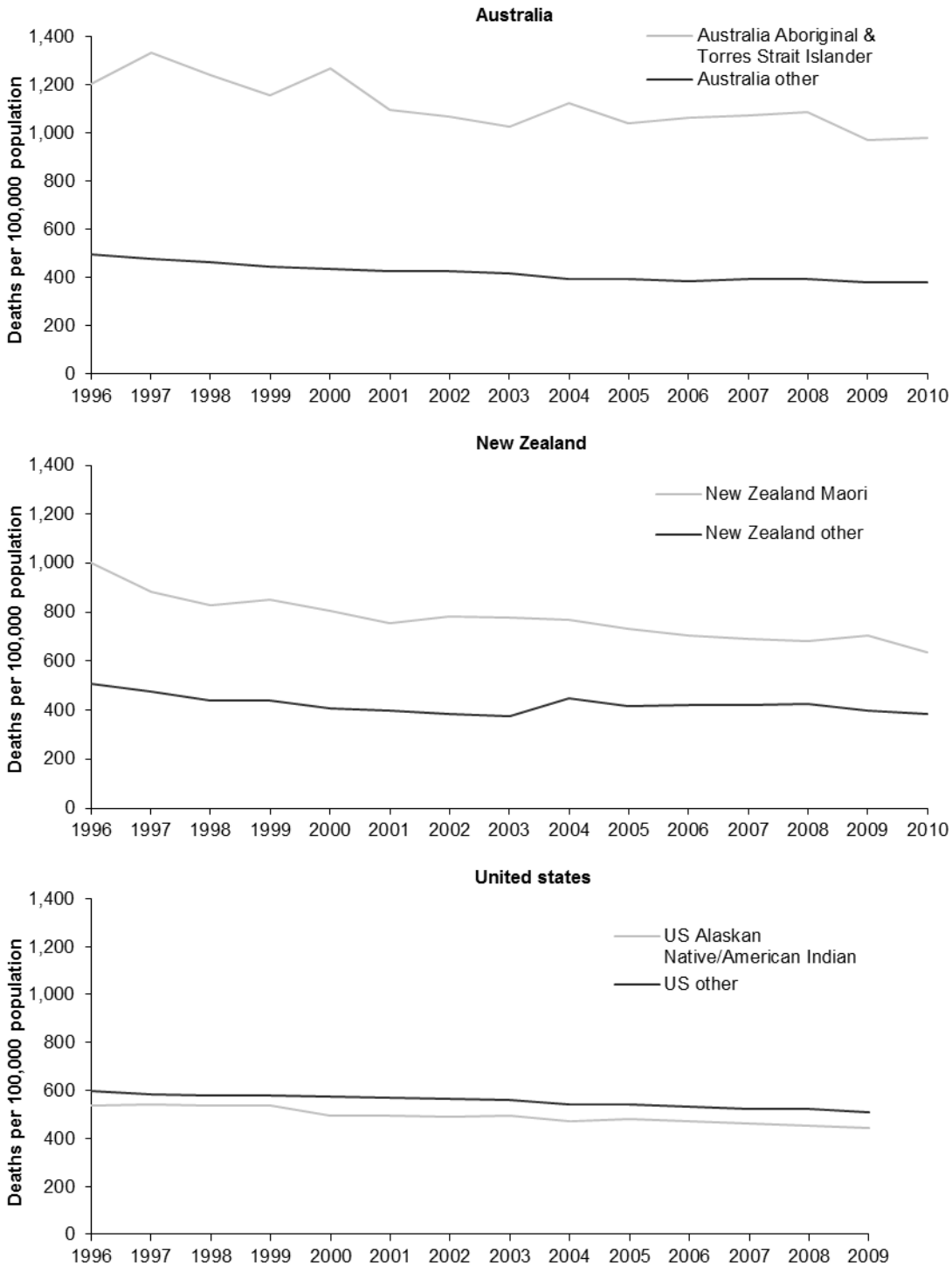
International statistics on all-cause mortality show that indigenous people in the United States have lower mortality rates than the general population, and in Canada and New Zealand, indigenous people have higher mortality rates than the general population, but the gap is not as great as for Aboriginal and Torres Strait Islander Australians. The all-cause mortality rate for Aboriginal and Torres Strait Islander Australians for the period 2006–2010 is around twice that for non-Indigenous Australians (823 per 100,000 compared with 384 per 100,000 for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined when directly age-standardised to the World Standard Population). The latest available data from the United States, New Zealand and Canada are outlined below:

- For the period 2006–2010 in New Zealand, the age-standardised all-cause mortality rate for the Maori population was 674 per 100,000, compared with 402 per 100,000 for other New Zealanders (Statistics New Zealand unpublished data).
- For the period 2005–2009 in the United States, the age-standardised all-cause mortality rate for American Indians/Alaska Natives was 461 per 100,000, which was lower than the age-standardised all-cause mortality rate for non-Indigenous persons over this period (525 per 100,000) (United States Department of Health and Human Services unpublished data).
- For the period 2001–2002 in Canada, the age-standardised all-cause mortality rate for First Nations was 1,062 per 100,000 for males and 754 per 100,000 for females, which was higher than the age-standardised all-cause mortality rate for total Canadian persons over this period (559 per 100,000 for males and 384 per 100,000 for females) (Health Canada unpublished data).

Time series

Figure 1.22.4 and Table 1.22.6 present the age-standardised all-cause mortality rates for the Indigenous and non-Indigenous populations in Australia, New Zealand over the period 1996–2010, and the United States over the period 1996–2009. Reliable time series of mortality data for the First Nations population in Canada is not currently available.

- In New Zealand between 1996 and 2010 there was a significant decline in all-cause mortality rates for the Maori population. The fitted trend implies an average yearly decline in the rate of around 19 per 100,000 which is equivalent to a 27% reduction in the rate over this period. There was also a significant decline in non-Indigenous all-cause mortality rates in New Zealand between 1996 and 2010 (a reduction of 13%).
- In the United States between 1996 and 2009 there was a significant decline in all-cause mortality rates for American Indians/Alaskan Natives. The fitted trend implies an average yearly decline in the rate of around 8 per 100,000 which is equivalent to a 19% reduction in the rate over this period. There was also a significant decline in non-Indigenous all-cause mortality rates in the United States between 1996 and 2009 (a reduction of 14%).
- The age-standardised all-cause mortality rate for Aboriginal and Torres Strait Islander people was higher than that for Maori and Alaskan Natives/American Indians for all years between 1996 and 2009.



Notes

1. Australia data are for Western Australia, South Australia & the Northern Territory combined.
2. Rates are directly age-standardised to the World Standard Population 2001–2025.

Source: AIHW analysis of National Mortality Database; Statistics New Zealand; United States Department of Health and Human Services.

Figure 1.22.4: Age-standardised mortality rates, by Indigenous status, Australia (1996–2010), New Zealand (1996–2010) and the United States (1996–2009)

Table 1.22.6: Age standardised mortality rates, by Indigenous status, Australia[(a)], New Zealand and the United States, 1996–2010[(b)]

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change	Per cent change
									Deaths per 100,000 head of population								
US Alaskan Native/American Indian	535.3	541.0	535.3	539.4	495.9	496.1	491.1	495.3	473.7	480.8	469.4	460.6	454.3	441.8	n.a.	–7.6*	–18.5*
US Other	598.7	585.3	579.2	581.3	575.0	570.1	566.9	559.3	540.8	542.7	531.8	522.3	522.3	508.6	n.a.	–6.5*	–14.2*
New Zealand Maori	1,001.0	885.3	827.7	849.7	807.3	753.6	784.7	777.5	767.1	731.0	706.3	690.8	682.7	703.4	635.0	–19.2*	–26.9*
New Zealand Other	510.5	474.9	440.2	440.8	409.7	400.7	385.4	373.9	449.0	415.8	421.8	422.4	426.2	400.3	384.6	–4.8*	–13.1*
Australia Aboriginal & Torres Strait Islander	1,200.5	1,332.6	1,237.2	1,157.5	1,268.2	1,093.1	1,067.4	1,023.5	1,121.5	1,039.1	1,064.5	1,071.9	1,083.8	967.2	979.4	–19.7*	–23.0*
Australia Other	495.4	475.9	461.9	443.0	435.7	424.8	423.1	416.4	394.2	393.4	384.7	392.3	391.6	379.6	379.3	–7.8*	–22.1*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the reported period.

(a) Australia data is for WA, SA & NT combined

(b) Rates are directly age-standardised to the World Standard Population 2001–2025.

Source: AIHW analysis of National Mortality Database; Statistics New Zealand; United States Department of Health and Human Services.

Data quality issues

Mortality data

Mortality data presented in this report are from the AIHW National Mortality Database. The AIHW National Mortality Database includes information on the factors that caused death, as well as other information about the deceased person, such as age at death, place of death, country of birth, and where applicable, the circumstances of their death. These data are collected in Australia by the Registrars of Births, Deaths and Marriages in each state and territory. The data are then compiled nationally by the ABS, which codes the data according to the International Classification of Diseases (ICD).

Deaths

Although it is considered likely that most deaths of Aboriginal and Torres Strait Islander (Indigenous) Australians are registered, a proportion of these deaths are not registered as Indigenous. Information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred and may differ from the self-identified Indigenous origin of the deceased.

Qld deaths

In November 2010, the Queensland Registrar of Births, Deaths and Marriages advised the ABS of an outstanding deaths registration initiative undertaken by the Registry. This initiative resulted in the November 2010 registration of 374 previously unregistered deaths which occurred between 1992 and 2006 (including a few for which a date of death was unknown). Of these, around three-quarters (284) were deaths of Aboriginal and Torres Strait Islander Australians.

The ABS discussed different methods of adjustment of Queensland death registrations data for 2010 with key stakeholders. Following the discussion, a decision was made by the ABS and key stakeholders to use an adjustment method that added together deaths registered in 2010 for usual residents of Queensland which occurred in 2007, 2008, 2009 and 2010. This method minimises the impact on mortality indicators used in various government reports. However, care should still be taken when interpreting Aboriginal and Torres Strait Islander death data for Queensland for 2010**.**

Western Australia deaths

Indigenous deaths registered in Western Australia in 2007, 2008 and 2009 were corrected by the ABS in mid-2012 due to some non-Indigenous deaths being incorrectly recorded as Indigenous for these years. Data presented in this report are based on the corrected data and will differ from mortality data presented in the 2010 Health Performance Framework report which presented data prior to the ABS corrections.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms.

Under-identification

At present, there is considerable variation across the states and territories in the completeness of mortality data for Indigenous people. Information concerning the number of deaths of Indigenous people is limited by the accuracy with which Indigenous persons are identified in death records. Problems associated with identification result in an underestimation of deaths of Indigenous people and in the gap in mortality between Indigenous and non-Indigenous Australians.

Mortality data for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered to have sufficient coverage to produce reliable statistics on Indigenous Australian deaths for the period 2001–2010.

Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) which are considered to have adequate identification from 1991. Queensland is considered to have sufficient coverage of Indigenous deaths from 1998.

The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.

Indigenous Mortality Quality Study

The ABS conducted a number of quality studies based on the 2006 Census of Population and Housing and other data sets as part of the Census Data Enhancement (CDE) project (ABS 2008). The CDE Indigenous Mortality Quality Study linked Census records with death registration records for the 11-month period following the Census and examined differences in the reporting of Indigenous status across the two data sets.

For the purpose of this study, the linked record was assumed to be an Indigenous record if a positive response was recorded against the Indigenous status question on either the death registration or the corresponding Census record. Following linkage, the number of death records identified as Indigenous increased from 1,800 to 2,123 records, or from 1.7% to 2.0% of all registered deaths.

'While 323 additional death records were able to be identified as Indigenous from Census records, more may have been expected if all death records had been linked. A key reason records could not be linked appears to be Census undercount, with a corresponding Census record not existing to link to for many Indigenous death records' (ABS 2008).

The results from the study suggested that coverage of Indigenous deaths in death registrations is considerably higher, at least in 2006–07, than previous estimates have indicated. Nationally, the coverage rate was estimated to be 85%. State/territory coverage estimates were: NSW 76%, Vic 74%, Qld 87%, SA 86%, WA 92% and NT 99% (ABS 2008).

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in death records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

List of symbols used in tables

n.a. not available

– rounded to zero (including null cells)

0 zero

. . not applicable

n.e.c. not elsewhere classified

n.f.d. not further defined

n.p. not available for publication but included in totals where applicable, unless otherwise indicated

References

ABS (Australian Bureau of Statistics) 2008. Information Paper : Census Data Enhancement - Indigenous Mortality Quality Study. Cat. No. 472 3.0. 2006 – 07

ABS 2009. Experimental estimates and projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021. Cat. no. 3238.0. Canberra: ABS.

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1.23 Leading causes of mortality

Causes of death of Aboriginal and Torres Strait Islander Australians, expressed as a rate by age group, age-standardised rate and rate ratio

Data sources

Data for this measure come from the Australian Institute of Health and Welfare (AIHW) National Mortality Database.

National Mortality Database

The National Mortality Database is a national collection of de-identified unit record level data. It comprises most of the information recorded on death registration forms and medical (cause of death) certificates, including Indigenous status. The database is maintained by the Australian Institute of Health and Welfare (AIHW). Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the Australian Bureau of Statistics (ABS). Information on the cause of death is supplied by the medical practitioner certifying the death, or by a coroner. The data are updated each calendar year and are presented by state/territory of usual residence rather than state/territory where death occurs.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander people are registered. However, a proportion of these deceased are not reported as Aboriginal or Torres Strait Islander by the family, health worker or funeral director during the death registration process. That is, while data are provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked of relatives and friends of the deceased by the funeral director.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to 3 jurisdictions (Western Australia, South Australia and the Northern Territory) with adequate identification of Indigenous deaths in their recording systems from 1991 onwards. The quality of the time-series data is also influenced by the late inclusion of a not stated category for Indigenous status in 1998. Prior to this time, the not stated responses were probably included with the non-Indigenous.

Deaths registered in 2010 with a usual residence of Queensland have been adjusted to exclude deaths registered in 2010 that occurred prior to 2007. This is to minimise the impact of late registration of deaths due to recent changes in the timeliness of death registrations in Queensland.

Western Australian Aboriginal and Torres Strait Islander deaths for 2007, 2008 and 2009, have been revised to correct for a data quality issue which resulted in the over-reporting of Indigenous deaths during this period.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2006–2010 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years.

Analyses

Age-standardised rates and ratios have been used as a measure of mortality in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of mortality among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

Mortality

Mortality by cause of death

Tables 1.23.1 and 1.23.2 present data on the major causes of death of Indigenous Australians over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the period 2006–2010, the most common cause of death among Indigenous Australians was circulatory diseases which caused 26% of deaths, followed by neoplasms (19%) and external causes (15%). Indigenous Australians died from these causes of death at 1.7, 1.4 and 2.3 times the rate of non-Indigenous Australians respectively (Table 1.23.1).
- Among neoplasms, digestive organ cancers were the most common type, which caused 5.3% of deaths of Indigenous Australians. Indigenous Australians died from digestive organ cancers at 1.4 times the rate of non-Indigenous Australians.
- Over the period 2006–2010, Indigenous Australians died from diabetes at 6.7 times the rate of non-Indigenous Australians, and from kidney diseases at 3.5 times the rate of non-Indigenous Australians.
- Indigenous Australians aged 75 years and over had the highest rates of mortality across all major causes of death except for cervical cancer. The highest mortality rate for cervical cancer was in the 65–74 year age group for Indigenous women (Table 1.23.2).
- Mortality rates for external causes of death (which includes assault, suicide and transport accidents) were notably high among Indigenous Australians aged 25–34 and 35–44 (122 and 124 per 100,000 respectively) (Table 1.23.2).

Table 1.23.1: Causes of mortality, by Indigenous status, by sex, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e][f][g]

Underlying cause of death	Number			Per cent			Rate per 100,000[h]				
	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Rate ratio[i]	Rate difference[j]	Rate difference %[k]
						Males					
Circulatory diseases (I00–I99)	1,611	77,292	991	26.2	31.3	32.7	400.6	218.8	1.8*	181.8*	29.0
Neoplasms (C00–C97, D00–D48)	1,078	81,640	643	17.6	33.0	21.2	283.0	223.7	1.3*	59.3*	9.5
Digestive organ cancers (C15–C26)[l]	*334*	*22,143*	*180*	*5.4*	*9.0*	*5.9*	*78.3*	*59.9*	*1.3**	*18.3**	*2.9*
Lung cancer (C34)[l]	*289*	*16,891*	*124*	*4.7*	*6.8*	*4.1*	*81.6*	*45.8*	*1.8**	*35.8**	*5.7*
Cervical cancer (C53)[l][m]	—	—	—	—	—	—	—	—	—	—	—
External causes (V01–Y98)	1,152	19,017	524	18.8	7.7	17.3	119.0	51.8	2.3*	67.1*	10.7
Endocrine, metabolic & nutritional disorders (E00–E89)	454	8,799	107	7.4	3.6	3.5	116.7	24.7	4.7*	92.0*	14.7
Diabetes (E10–E14)[l]	*388*	*6,337*	*74*	*6.3*	*2.6*	*2.4*	*102.0*	*17.8*	*5.7**	*84.2**	*13.4*
Respiratory diseases (J00–J99)	458	20,818	244	7.5	8.4	8.1	135.4	59.4	2.3*	76.0*	12.1
Digestive diseases (K00–K93)	357	8,225	117	5.8	3.3	3.9	62.5	22.6	2.8*	39.9*	6.4
Kidney diseases (N00–N29)	154	4,356	43	2.5	1.8	1.4	41.9	12.6	3.3*	29.3*	4.7
Conditions originating in perinatal period (P00–P96)	155	1,116	38	2.5	0.5	1.3	6.8	3.1	2.2*	3.7*	0.6
Nervous system diseases (G00–G99)	168	8,781	95	2.7	3.6	3.1	32.3	24.8	1.3*	7.5*	1.2
Infectious & parasitic diseases (A00–B99)	141	3,731	34	2.3	1.5	1.1	29.3	10.4	2.8*	18.9*	3.0
Other causes[n]	410	13,470	192	6.7	5.4	6.3	89.5	38.5	2.3*	51.1*	8.1
All causes	**6,138**	**247,245**	**3,028**	**100.0**	**100.0**	**100.0**	**1,316.9**	**690.3**	**1.9***	**626.6***	**100.0**

(continued)

Table 1.23.1 (continued): Causes of mortality, by Indigenous status, by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Number			Per cent			Rate per 100,000[(h)]				
Underlying cause of death	**Indig.**	**Non-Indig.**	**Not stated**	**Indig.**	**Non-Indig.**	**Not stated**	**Indig.**	**Non-Indig.**	**Rate ratio[(i)]**	**Rate difference[(j)]**	**Rate difference %[(k)]**
						Females					
Circulatory diseases (I00–I99)	1,314	85,258	881	26.3	36.6	36.5	308.5	183.6	1.7*	124.9*	25.1
Neoplasms (C00–C97, D00–D48)	1,029	61,929	501	20.6	26.6	20.8	215.5	141.6	1.5*	73.9*	14.9
Digestive organ cancers (C15–C26)[(l)]	*260*	*16,385*	*135*	*5.2*	*7.0*	*5.6*	*58.5*	*37.1*	*1.6**	*21.4**	*4.3*
Lung cancer (C34)[(l)]	*213*	*10,173*	*77*	*4.3*	*4.4*	*3.2*	*43.5*	*23.4*	*1.9**	*20.1**	*4.1*
Cervical cancer (C53)[(l)(m)]	*58*	*793*	*7*	*1.2*	*0.3*	*0.3*	*8.8*	*1.9*	*4.6**	*6.9**	*1.4*
External causes (V01–Y98)	515	9,468	239	10.3	4.1	9.9	52.5	22.7	2.3*	29.8*	6.0
Endocrine, metabolic & nutritional disorders (E00–E89)	530	8,789	99	10.6	3.8	4.1	117.6	19.3	6.1*	98.3*	19.8
Diabetes (E10–E14)[(l)]	*458*	*5,938*	*65*	*9.2*	*2.6*	*2.7*	*101.3*	*13.0*	*7.8**	*88.4**	*17.8*
Respiratory diseases (J00–J99)	400	18,499	213	8.0	8.0	8.8	95.4	40.5	2.4*	54.8*	11.0
Digestive diseases (K00–K93)	302	8,158	82	6.0	3.5	3.4	52.9	18.0	2.9*	34.9*	7.0
Kidney diseases (N00–N29)	169	4,843	35	3.4	2.1	1.5	39.0	10.5	3.7*	28.5*	5.7
Conditions originating in perinatal period (P00–P96)	115	856	23	2.3	0.4	1.0	5.2	2.5	2.1*	2.7*	0.6
Nervous system diseases (G00–G99)	109	10,506	91	2.2	4.5	3.8	21.4	23.1	0.9	–1.7	–0.4
Infectious & parasitic diseases (A00–B99)	117	3,252	31	2.3	1.4	1.3	22.5	7.2	3.1*	15.2*	3.1
Other causes[(n)]	394	21,130	218	7.9	9.1	9.0	81.2	46.1	1.8*	35.2*	7.1
All causes	**4,994**	**232,688**	**2,413**	**100.0**	**100.0**	**100.0**	**1,011.7**	**515.1**	**2.0***	**496.7***	**100.0**

(continued)

Table 1.23.1 (continued): Causes of mortality, by Indigenous status, by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

Underlying cause of death	Number			Per cent			Rate per 100,000[(h)]				
	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Rate ratio[(i)]	Rate difference[(j)]	Rate difference %[(k)]
						Persons					
Circulatory diseases (I00–I99)	2,925	162,550	1,872	26.3	33.9	34.4	351.0	201.0	1.7*	150.0*	27.1
Neoplasms (C00–C97, D00–D48)	2,107	143,569	1,144	18.9	29.9	21.0	244.6	178.0	1.4*	66.6*	12.0
Digestive organ cancers (C15–C26)[(l)]	*594*	*38,528*	*315*	*5.3*	*8.0*	*5.8*	*67.9*	*47.7*	*1.4**	*20.2**	*3.6*
Lung cancer (C34)[(l)]	*502*	*27,064*	*201*	*4.5*	*5.6*	*3.7*	*59.6*	*33.4*	*1.8**	*26.1**	*4.7*
Cervical cancer (C53)[(l)(m)]	*58*	*793*	*7*	*0.5*	*0.2*	*0.1*	*4.8*	*1.0*	*4.8**	*3.8**	*0.7*
External causes (V01–Y98)	1,667	28,485	763	15.0	5.9	14.0	84.3	37.1	2.3*	47.2*	8.5
Endocrine, metabolic & nutritional disorders (E00–E89)	984	17,588	206	8.8	3.7	3.8	117.7	21.8	5.4*	95.8*	17.3
Diabetes (E10–E14)[(l)]	*846*	*12,275*	*139*	*7.6*	*2.6*	*2.6*	*101.8*	*15.2*	*6.7**	*86.6**	*15.6*
Respiratory diseases (J00–J99)	858	39,317	457	7.7	8.2	8.4	112.3	48.7	2.3*	63.6*	11.5
Digestive diseases (K00–K93)	659	16,383	199	5.9	3.4	3.7	57.8	20.3	2.8*	37.5*	6.8
Kidney diseases (N00–N29)	323	9,199	78	2.9	1.9	1.4	40.3	11.4	3.5*	28.9*	5.2
Conditions originating in perinatal period (P00–P96)	270	1,972	61	2.4	0.4	1.1	6.0	2.8	2.2*	3.2*	0.6
Nervous system diseases (G00–G99)	277	19,287	186	2.5	4.0	3.4	26.5	24.0	1.1	2.5	0.4
Infectious & parasitic diseases (A00–B99)	258	6,983	65	2.3	1.5	1.2	25.4	8.7	2.9*	16.7*	3.0
Other causes[(n)]	804	34,600	410	7.2	7.2	7.5	85.1	43.1	2.0*	42.0*	7.6
All causes	**11,132**	**479,933**	**5,441**	**100.0**	**100.0**	**100.0**	**1,151.1**	**597.0**	**1.9***	**554.0***	**100.0**

(continued)

Table 1.23.1 (continued): Causes of mortality, by Indigenous status, by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final), 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) These data exclude **5,441** registered deaths where the Indigenous status was not stated over the period 2006–2010.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(k) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all causes.

(l) Data for lung cancer, cervical cancer and digestive organ cancers are a subset of the data presented for all cancers; data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table.

(m) Data for cervical cancer are for females only.

(n) Includes: diseases of the blood and blood-forming organs and certain disorders involving the immune system, mental & behavioural disorders, diseases of the eye and adnexa, diseases of the ear and mastoid process, diseases of the skin & subcutaneous tissue, diseases of the musculoskeletal system and connective tissue, diseases of the genitourinary system (excluding kidney diseases), pregnancy, childbirth & the puerperium, congenital malformations, deformations and chromosomal abnormalities, symptoms, signs and abnormal clinical findings not elsewhere classified.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.2: Causes of Indigenous mortality rates, by age group, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

Underlying cause of death	Under 1	1–4	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65–74	75 and over	Total[(g)]
	Rate per 1,000 live births	Rate per 100,000 population										
Circulatory diseases (I00–I99)	0.2	3.4	8.1	1.0	7.5	40.1	129.0	259.9	454.2	1,003.2	3,010.6	121.7
Neoplasms (C00–C97, D00–D48)	0.0	1.7	2.4	1.7	3.6	13.1	58.2	179.9	466.7	1,029.8	1,563.1	87.7
Digestive organ cancers (C15–C26)[(h)]	*0.0*	*0.0*	*0.0*	*0.0*	*0.8*	*3.6*	*16.0*	*48.8*	*154.7*	*266.5*	*424.0*	*24.7*
Lung cancer (C34)[(h)]	*0.0*	*0.0*	*0.3*	*0.0*	*0.0*	*0.3*	*8.3*	*47.0*	*119.0*	*285.5*	*346.9*	*20.9*
Cervical cancer (C53)[(h)(i)]	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*2.7*	*4.7*	*3.7*	*11.7*	*19.0*	*12.9*	*2.4*
External causes (V01–Y98)	0.4	22.6	26.0	10.7	83.5	122.3	124.4	92.5	54.9	64.7	175.6	69.4
Endocrine, metabolic & nutritional disorders (E00–E89)	0.0	1.3	2.0	0.2	0.8	4.8	28.6	80.9	223.8	439.7	843.7	41.0
Diabetes (E10–E14)[(h)]	*0.0*	*0.0*	*0.0*	*0.0*	*0.6*	*4.5*	*21.3*	*68.3*	*209.7*	*384.5*	*749.4*	*35.7*
Respiratory diseases (J00–J99)	0.3	5.1	11.1	0.9	2.3	8.6	25.3	49.3	129.8	382.6	1,032.1	35.7
Digestive diseases (K00–K93)	0.2	0.9	4.1	0.0	0.4	9.5	48.2	95.8	100.7	140.9	286.9	27.4
Kidney diseases (N00–N29)	0.0	0.0	0.3	0.2	0.8	0.9	11.0	27.4	65.7	112.3	355.5	13.4
Conditions originating in perinatal period (P00–P96)	4.1	0.9	91.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2
Nervous system diseases (G00–G99)	0.1	4.3	6.4	2.8	3.6	8.3	12.6	14.9	33.3	76.1	201.3	11.5
Infectious & parasitic diseases (A00–B99)	0.2	0.9	5.4	0.4	0.8	5.4	17.3	25.1	29.1	66.6	179.9	10.7
Other causes[(j)]	2.5	6.8	60.7	2.4	5.6	9.2	25.3	42.3	69.1	198.0	839.4	33.5
All causes	**8.1**	**47.7**	**217.5**	**20.2**	**109.0**	**222.1**	**479.8**	**867.9**	**1,627.3**	**3,514.0**	**8,487.9**	**463.3**

(continued)

Table 1.23.2 (continued): Causes of Indigenous mortality rates, by age group, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

(a) Rates for infants (under 1 year) calculated per 1,000 live births; age-specific death rates for age groups calculated per 100,000 estimated resident population for selected age group.

(b) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(g) Includes age not stated.

(h) Data for lung cancer, cervical cancer and digestive organ cancers are a subset of the data presented for all cancers; data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table.

(i) Data for cervical cancer are for females only.

(j) Includes: diseases of the blood and blood-forming organs and certain disorders involving the immune system, mental & behavioural disorders, diseases of the eye and adnexa, diseases of the ear and mastoid process, diseases of the skin & subcutaneous tissue, diseases of the musculoskeletal system and connective tissue, disease of the genitourinary system (excluding kidney diseases), pregnancy, childbirth & the puerperium, congenital malformations, deformations and chromosomal abnormalities, symptoms, signs and abnormal clinical findings not elsewhere classified.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Endocrine, metabolic and nutritional disorders

Tables 1.23.3 and 1.23.4 present data on deaths of Indigenous Australians from endocrine, metabolic and nutritional disorders over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the period 2006–2010, the mortality rate from endocrine, metabolic and nutritional disorders among Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory was 118 per 100,000 population. Indigenous Australians died from endocrine, metabolic and nutritional disorders at 5.4 times the rate of non-Indigenous Australians (Table 1.23.3).
- The mortality rates from endocrine, metabolic and nutritional disorders were similar for Indigenous males and females (117 and 118 per 100,000 respectively).
- Diabetes accounted for 86% of deaths from endocrine, metabolic and nutritional disorders for Indigenous Australians.
- 71% of Indigenous deaths due to endocrine, metabolic and nutritional disorders occurred in the 55 years and older age group (Table 1.23.4).

Table 1.23.3: Deaths of Indigenous Australians from endocrine, metabolic and nutritional disorders, by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

	Number	Per cent	No. per 100,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	Rate ratio[(i)]	Rate difference[(j)]	Rate difference %[(k)]
				Males				
Endocrine, metabolic & nutritional disorders (E00–E89)	454	7.4	116.7	103.7	129.8	4.7	92.0	14.7
Diabetes (E10–E14)[(l)]	*388*	*6.3*	*102.0*	*89.7*	*114.3*	*5.7*	*84.2*	*13.4*
All causes	**6,138**	**100.0**	**1,255.4**	**1,273.8**	**1,360.1**	**1.9**	**626.6**	**100.0**
				Females				
Endocrine, metabolic & nutritional disorders (E00–E89)	530	10.6	117.6	106.4	128.9	6.1	98.3	19.8
Diabetes (E10–E14)[(l)]	*458*	*9.2*	*101.3*	*91.0*	*111.7*	*7.8*	*88.4*	*17.8*
All causes	**4,994**	**100.0**	**1,011.7**	**978.8**	**1,044.7**	**2.0**	**496.7**	**100.0**
				Persons				
Endocrine, metabolic & nutritional disorders (E00–E89)	984	8.8	117.7	109.1	126.2	5.4	95.8	17.3
Diabetes (E10–E14)[(l)]	*846*	*7.6*	*101.8*	*93.9*	*109.7*	*6.7*	*86.6*	*15.6*
All causes	**11,132**	**100.0**	**1,151.1**	**1,124.7**	**1,177.4**	**1.9**	**554.0**	**100.0**

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(f) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(k) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all causes.

(l) Data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.4: Deaths of Indigenous Australians from endocrine, metabolic and nutritional disorders, by age, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75+	Total[(f)]
Endocrine, metabolic & nutritional disorders (E00–E89)	6	0	n.p.	n.p.	n.p.	5	11	35	51	76	98	134	135	117	114	197	984
Diabetes (E10–E14)[(g)]	*0*	*0*	*0*	*0*	*n.p.*	*4*	*11*	*22*	*42*	*64*	*82*	*127*	*124*	*99*	*101*	*168*	*846*
All causes	**645**	**54**	**63**	**221**	**301**	**327**	**421**	**638**	**805**	**914**	**953**	**979**	**977**	**939**	**907**	**1,982**	**11,132**

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(f) Includes age not stated.

(g) Data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Circulatory diseases

Tables 1.23.5 and 1.23.6 present data on deaths of Indigenous Australians from circulatory diseases over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the period 2006–2010, there were 2,925 deaths (351 per 100,000 population) of Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from circulatory diseases. Indigenous Australians died from circulatory diseases at 1.7 times the rate of non-Indigenous Australians (Table 1.23.5).
- The mortality rate from circulatory diseases was higher for Indigenous males than for Indigenous females (401 per 100,000 compared with 309 per 100,000).
- The most common type of circulatory disease causing death for Indigenous Australians was ischaemic heart disease (including acute myocardial infarction), which accounted for 54% of Indigenous deaths from circulatory diseases, followed by cerebrovascular disease (including stroke) (18%). Indigenous Australians died from these diseases at 1.8 and 1.5 times the rate of non-Indigenous Australians, respectively.
- Over the period 2006–2010, Indigenous Australians died from rheumatic heart disease (which predominantly affects children) at 4.7 times the rate of non-Indigenous Australians.
- The largest number of Indigenous deaths due to circulatory diseases occurred in the 75 years and over age group (703, 24%), followed by the 45–54 age group (559, 19%) (Table 1.23.6).

Table 1.23.5: Deaths of Indigenous Australians from circulatory diseases, by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	Number	Per cent	No. per 100,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	Rate ratio[(i)]	Rate difference[(j)]	Rate difference %[(k)]
				Males				
Ischaemic heart disease (I20–I25)	978	60.7	226.1	208.4	243.9	1.9	106.8	58.8
Acute myocardial infarction (I21)[(l)]	*385*	*23.9*	*90.5*	*79.2*	*101.9*	*1.6*	*34.6*	*19.1*
Cerebrovascular disease (I60–I69)	237	14.7	80.7	68.6	92.9	1.7	34.2	18.8
Stroke (I60–I64)[(l)]	*189*	*11.7*	*59.4*	*49.2*	*69.6*	*1.7*	*25.3*	*13.9*
Other heart disease (I26–I52)	261	16.2	58.1	49.0	67.2	1.7	24.5	13.5
Rheumatic heart disease (I00–I09)	29	1.8	3.3	1.9	4.7	3.5	2.4	1.3
Hypertension disease (I10–I15)	49	3.0	16.8	11.3	22.3	2.9	11.0	6.1
Other diseases of the circulatory system (I70–I99)	57	3.5	15.5	10.5	20.5	1.2	2.9	1.6
Total circulatory diseases (I00–I99)	**1,611**	**100.0**	**400.6**	**376.0**	**425.2**	**1.8**	**181.8**	**100.0**
				Females				
Ischaemic heart disease (I20–I25)	589	44.8	135.2	122.9	147.5	1.7	55.8	44.7
Acute myocardial infarction (I21)[(l)]	*253*	*19.3*	*60.6*	*52.3*	*68.9*	*1.5*	*19.9*	*16.0*
Cerebrovascular disease (I60–I69)	282	21.5	73.9	64.2	83.6	1.4	20.3	16.3
Stroke (I60–I64)[(l)]	*225*	*17.1*	*55.6*	*47.3*	*63.8*	*1.4*	*16.5*	*13.2*
Other heart disease (I26–I52)	254	19.3	57.5	49.4	65.7	1.8	25.6	20.5
Rheumatic heart disease (I00–I09)	61	4.6	7.7	5.4	9.9	5.3	6.2	5.0
Hypertension disease (I10–I15)	69	5.3	18.3	13.6	23.1	2.2	9.9	7.9
Other diseases of the circulatory system (I70–I99)	59	4.5	15.9	11.4	20.3	1.8	7.0	5.6
Total circulatory diseases (I00–I99)	**1,314**	**100.0**	**308.5**	**289.6**	**327.5**	**1.7**	**124.9**	**100.0**
				Persons				
Ischaemic heart disease (I20–I25)	1,567	53.6	176.3	166.0	186.7	1.8	78.3	52.2
Acute myocardial infarction (I21)[(l)]	*638*	*21.8*	*74.3*	*67.5*	*81.1*	*1.6*	*26.5*	*17.7*
Cerebrovascular disease (I60–I69)	519	17.7	76.9	69.3	84.4	1.5	26.0	17.4
Stroke (I60–I64)[(l)]	*414*	*14.2*	*57.2*	*50.8*	*63.6*	*1.5*	*20.1*	*13.4*
Other heart disease (I26–I52)	515	17.6	58.6	52.4	64.7	1.8	25.6	17.1
Rheumatic heart disease (I00–I09)	90	3.1	5.7	4.3	7.1	4.7	4.5	3.0
Hypertension disease (I10–I15)	118	4.0	17.7	14.1	21.3	2.4	10.3	6.9
Other diseases of the circulatory system (I70–I99)	116	4.0	15.9	12.5	19.3	1.5	5.3	3.6
Total circulatory diseases (I00–I99)	**2,925**	**100.0**	**351.0**	**335.9**	**366.1**	**1.7**	**150.0**	**100.0**

(continued)

Table 1.23.5 (continued): Deaths of Indigenous Australians from circulatory diseases, by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

(m) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(n) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(o) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(p) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(q) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(r) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(s) LCL = lower confidence limit.

(t) UCL = upper confidence limit.

(u) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(v) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(w) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all circulatory diseases.

(x) Data presented for acute myocardial infarction are a subset of data presented for ischaemic heart disease; data presented for stroke are a subset of data presented for cerebrovascular disease in this table.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.6: Deaths of Indigenous Australians from circulatory diseases, by age, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)]

	Under 1	1–4	*0–4*	5–14	15–24	25–34	35–44	45–54	55–64	65–74	75 and over	Total[(e)]
Ischaemic heart disease (I20–I25)	0	0	*0*	0	6	68	226	344	333	284	305	1,567
Acute myocardial infarction (I21)[(f)]	*0*	*0*	*0*	*n.p.*	*n.p.*	*23*	*91*	*122*	*139*	*126*	*134*	*638*
Cerebrovascular disease (I60–I69)	n.p.	n.p.	*4*	0	7	9	39	82	85	94	199	519
Stroke (I60–I64)[(f)]	*n.p.*	*n.p.*	*n.p.*	*0*	*7*	*9*	*37*	*75*	*74*	*71*	*138*	*414*
Other heart disease (I26–I52)	12	n.p.	*14*	n.p.	13	33	83	86	75	92	115	515
Rheumatic heart disease (I00–I09)	0	4	*4*	n.p.	10	22	18	15	12	5	n.p.	90
Hypertension disease (I10–I15)	0	0	*0*	n.p.	0	n.p.	12	13	22	26	44	118
Other diseases of the circulatory system (I70–I99)	n.p.	n.p.	n.p.	n.p.	0	n.p.	10	19	19	26	n.p.	116
Total circulatory diseases (I00–I99)	**16**	**8**	***24***	**6**	**36**	**135**	**388**	**559**	**546**	**527**	**703**	**2,925**

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(e) Includes age not stated.

(f) Data presented for acute myocardial infarction are a subset of data presented for ischaemic heart disease; data presented for stroke are a subset of data presented for cerebrovascular disease in this table.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

External causes (injury and poisoning)

Tables 1.23.7 and 1.23.8 present data on deaths of Indigenous Australians from external causes poisoning over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the period 2006–2010, there were 1,667 deaths (84 per 100,000) of Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from external causes. Indigenous Australians died from external causes at 2.3 times the rate of non-Indigenous Australians (Table 1.23.7).
- The mortality rate from external causes for Indigenous males was over twice the rate for Indigenous females (119 compared with 53 per 100,000). The ratio of mortality rates from external causes between Indigenous males and non-Indigenous males was the same as between Indigenous and non-Indigenous females.
- The most common type of external cause of death among Indigenous Australians was intentional self-harm (suicide) which accounted for 30% of death from external causes, followed by transport accidents (28%), accidental poisoning by and exposure to noxious substances (10%), and assault (9%).
- Indigenous Australians died from intentional self-harm and transport accidents at 2.1 and three times the rate of non-Indigenous Australians respectively. Indigenous males and females died from assault at 8 and 11 times the rate of non-Indigenous males and females respectively.
- Over the period 2006–2010, the largest number of deaths of Indigenous Australians from external causes occurred in the 20–24 year age group (222 per 100,000, 13.3% of all deaths from external causes), followed by the 30–34 year age group (208, 12.5%) (Table 1.23.8).

Table 1.23.7: Deaths of Indigenous Australians from external causes (injury and poisoning), by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

	Number	Per cent	No. per 100,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	Rate ratio[(i)]	Rate difference[(j)]	Rate difference %[(k)]
				Males				
Intentional self-harm (X60–X84)	377	32.7	33.9	29.8	38.0	2.2	18.4	27.4
Accidents								
Transport accidents (V01–V99)	316	27.4	29.5	25.8	33.3	2.6	18.4	27.4
Accidental drowning or accidental threats to breathing (W65–W84)	49	4.3	5.8	3.3	8.3	2.0	3.0	4.4
Accidental poisoning by and exposure to noxious substances (X40–X49)	109	9.5	10.6	8.5	12.7	2.1	5.5	8.2
Exposure to electric current/smoke/fire/ animals/nature (W85–W99,X00–X39)	34	3.0	4.7	2.5	6.9	5.1	3.8	5.6
Accidental falls (W00–W19)	44	3.8	8.7	5.2	12.2	1.5	2.7	4.1
Exposure to inanimate mechanical forces (W20–W49)	18	1.6	1.5	0.8	2.3	2.0	0.8	1.1
Other external causes of accidental injury (W50–W64 X50–X59)	18	1.6	4.0	1.4	6.7	1.2	0.7	1.0
Assault (X85–Y09)	101	8.8	10.3	8.1	12.5	8.0	9.0	8.8
Complications of medical or surgical care (Y40–Y84)	8	0.7	1.0	0.3	1.6	0.8	–0.2	0.7
Other external causes[(l)]	78	6.8	8.9	6.2	11.6	2.4	5.1	6.8
Total external causes (V01–Y98)	**1,152**	**100.0**	**118.9**	**110.1**	**127.8**	**2.3**	**67.1**	**100.0**

(continued)

Table 1.23.7 (continued): Deaths of Indigenous Australians from external causes (injury and poisoning), by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

	Number	Per cent	No. per 100,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	Rate ratio[(i)]	Rate difference[(j)]	Rate difference %[(k)]
					Females			
Intentional self-harm (X60–X84)	114	22.1	8.9	7.2	10.6	2.0	4.5	14.9
Accidents								
Transport accidents (V01–V99)	147	28.5	13.9	11.3	16.4	4.0	10.4	34.9
Accidental drowning or accidental threats to breathing (W65–W84)	22	4.3	1.5	0.8	2.2	1.2	0.3	1.0
Accidental poisoning by and exposure to noxious substances (X40–X49)	58	11.3	5.8	4.2	7.4	2.7	3.6	12.1
Exposure to electric current/smoke/fire/ animals/nature (W85–W99,X00–X39)	14	2.7	1.6	0.5	2.7	4.0	1.2	4.1
Accidental falls (W00–W19)	22	4.3	4.4	2.3	6.6	1.0	–0.1	–0.2
Exposure to inanimate mechanical forces (W20–W49)	5	1.0	0.4	0.0	0.7	3.5	0.3	0.9
Other external causes of accidental injury (W50–W64 X50–X59)	19	3.7	4.2	1.9	6.4	1.3	0.9	3.0
Assault (X85–Y09)	77	8.8	7.0	5.4	8.6	10.9	6.3	8.8
Complications of medical or surgical care (Y40–Y84)	10	0.7	2.3	0.7	4.0	2.4	1.4	0.7
Other external causes[(l)]	27	6.8	2.6	1.5	3.6	1.7	1.0	6.8
Total external causes (V01–Y98)	**515**	**100.0**	**52.5**	**47.0**	**58.0**	**2.3**	**29.8**	**100.0**

(continued)

Table 1.23.7 (continued): Deaths of Indigenous Australians from external causes (injury and poisoning), by sex, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e]

	Number	Per cent	No. per 100,000[f]	95% LCL[g]	95% UCL[h]	Rate ratio[i]	Rate difference[j]	Rate difference %[k]
	Persons							
Intentional self-harm (X60–X84)	491	29.5	21.0	18.9	23.0	2.1	11.1	23.4
Accidents								
Transport accidents (V01–V99)	463	27.8	21.5	19.3	23.8	3.0	14.2	30.2
Accidental drowning or accidental threats to breathing (W65–W84)	71	4.3	3.4	2.3	4.5	1.7	1.4	3.0
Accidental poisoning by and exposure to noxious substances (X40–X49)	167	10.0	8.2	6.8	9.5	2.2	4.5	9.6
Exposure to electric current/smoke/fire/ animals/nature (W85–W99,X00–X39)	48	2.9	3.0	1.9	4.2	4.6	2.4	5.0
Accidental falls (W00–W19)	66	4.0	6.3	4.4	8.3	1.2	1.1	2.4
Exposure to inanimate mechanical forces (W20–W49)	23	1.4	0.9	0.5	1.3	2.2	0.5	1.1
Other external causes of accidental injury (W50–W64 X50–X59)	37	2.2	4.1	2.4	5.8	1.2	0.8	1.7
Assault (X85–Y09)	178	8.8	8.6	7.2	9.9	8.9	7.6	8.8
Complications of medical or surgical care (Y40–Y84)	18	0.7	1.8	0.8	2.8	1.7	0.8	0.7
Other external causes[l]	105	6.8	5.5	4.2	6.8	2.1	2.9	6.8
Total external causes (V01–Y98)	**1,667**	**100.0**	**84.3**	**79.3**	**89.3**	**2.3**	**47.2**	**100.0**

(continued)

Table 1.23.7 (continued): Deaths of Indigenous Australians from external causes (injury and poisoning), by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(f) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(k) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all external causes.

(l) All other external causes of death not presented elsewhere in this table.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.8: Deaths of Indigenous Australians from external causes (injury and poisoning), by age, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75+	Total[(g)]
Intentional self-harm (X60–X84)	0	0	13	84	100	83	62	60	37	26	11	6	4	n.p.	n.p.	n.p.	491
Accidents																	
Transport accidents (V01–V99)	23	15	12	62	57	46	68	49	43	35	18	12	10	n.p.	6	n.p.	463
Accidental drowning or accidental threats to breathing (W65–W84)	25	n.p.	n.p.	n.p.	n.p.	5	4	8	5	4	n.p.	n.p.	n.p.	n.p.	0	n.p.	71
Accidental poisoning by and exposure to noxious substances (X40–X49)	n.p.	0	n.p.	n.p.	n.p.	23	22	36	25	18	8	n.p.	n.p.	n.p.	0	n.p.	167
Assault (X85–Y09)	n.p.	n.p.	n.p.	9	22	22	22	24	32	20	n.p.	n.p.	5	n.p.	n.p.	0	178
Other external causes[(h)]	21	5	4	16	21	25	30	27	28	27	21	12	9	11	7	31	297
Total external causes (V01–Y98)	**77**	**27**	**35**	**178**	**222**	**204**	**208**	**204**	**170**	**130**	**69**	**34**	**32**	**19**	**15**	**41**	**1,667**

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final), 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) Includes age not stated.

(h) All other external causes of death not presented elsewhere in this table.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Neoplasms (cancer)

Tables 1.23.9 and 1.23.10 present data on deaths of Indigenous Australians from neoplasms (cancer) over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the period 2006–2010, there were 2,107 deaths (245 per 100,000) of Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from cancer. Indigenous Australians died from cancer at 1.4 times the rate of non-Indigenous Australians (Table 1.23.9).
- The most common type of cancer causing mortality among Indigenous Australians was cancer of the digestive organs, which caused 28% of deaths from neoplasms. The ratio of mortality rates for cancer of the digestive organs between Indigenous and non-Indigenous Australians was 1.4.
- The second most common type of cancer causing mortality among Indigenous Australians was cancer of the respiratory and inthrathoracic organs (26%), which comprise predominantly bronchus and lung cancer. Indigenous Australians died from these cancers at almost twice the rate of non-Indigenous Australians.
- Over the period 2006–2010, there were 58 deaths of Indigenous females in the five jurisdictions from cervical cancer. Indigenous females died from cervical cancer at 4.6 times the rate of non-Indigenous Australians.
- Over the same period, the largest number of deaths of Indigenous Australians from cancer was in the 55–64 age group (561 per 100,000 population, 27% of all deaths due to neoplasms), followed by the 65–74 year age group (541 per 100,000 population, 26% of all deaths due to neoplasms) (Table 1.23.10).

Table 1.23.9: Deaths of Indigenous Australians from neoplasms (cancer), by sex, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e][f]

Site of neoplasm	Number	Per cent	No. per 100,000[g]	95% LCL[h]	95% UCL[i]	Rate ratio[j]	Rate difference[k]	Rate difference %[l]
				Males				
Digestive organs (C15–C26)	334	31.0	78.3	68.2	88.4	1.3	18.3	30.9
Bowel cancer(C18–C20)[m]	*69*	*6.4*	*17.0*	*12.1*	*21.9*	*0.8*	*–3.2*	*–5.5*
Respiratory and inthrathoracic organs (C30–C39)	326	30.2	90.3	78.8	101.8	1.9	42.2	71.2
Bronchus & lung (C34)[m]	*289*	*26.8*	*81.6*	*70.6*	*92.7*	*1.8*	*35.8*	*60.4*
Ill-defined, secondary & unspecified site (C76–C80)	71	6.6	19.4	14.0	24.8	1.5	6.6	11.2
Malignant neoplasm, without specification of site (C80)[m]	*61*	*5.7*	*16.6*	*11.7*	*21.6*	*1.4*	*4.9*	*8.3*
Lymphoid, haematopoietic and related tissue (C81–C96)	54	5.0	15.8	10.6	21.0	0.8	–4.8	–8.1
Female genital organs (C51–C58)	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cervix (C53)[m]	*0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Lip, oral cavity and pharynx (C00–C14)	98	9.1	19.4	14.9	23.9	4.2	14.8	24.9
Breast (C50)	0	0.0	0.0	0.0	0.0	0.0	–0.2	–0.4
Malignant neoplasms of urinary tract (C64–C68)	30	2.8	7.6	4.5	10.8	0.6	–4.5	–7.5
Male genital organs (C60–C63)	70	6.5	27.9	20.6	35.2	0.9	–2.5	–4.1
Other malignant neoplasms[n]	65	6.0	16.6	11.6	21.6	0.6	–9.5	–16.1
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	***1,064***	***98.7***	***279.7***	***259.5***	***299.8***	***1.3***	***58.2***	***98.2***
Non-malignant neoplasms (D00–D44, D47.0, D47.2, D47.7–D48)	14	1.3	3.3	1.0	5.7	1.5	1.1	1.8
Total neoplasms	**1,078**	**100.0**	**283.0**	**262.7**	**303.3**	**1.3**	**59.3**	**100.0**

(continued)

Table 1.23.9 (continued): Deaths of Indigenous Australians from neoplasms (cancer), by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

Site of neoplasm	Number	Per cent	No. per 100,000[(g)]	95% LCL[(h)]	95% UCL[(i)]	Rate ratio[(j)]	Rate difference[(k)]	Rate difference %[(l)]
				Females				
Digestive organs (C15–C26)	260	25.3	58.5	50.5	66.4	1.6	21.4	29.0
Bowel cancer(C18–C20)[(m)]	*59*	*5.7*	*12.3*	*8.8*	*15.9*	*0.9*	*–1.3*	*–1.8*
Respiratory and inthrathoracic organs (C30–C39)	221	21.5	45.4	38.8	52.1	1.9	21.6	29.2
Bronchus & lung (C34)[(m)]	*213*	*20.7*	*43.5*	*37.0*	*50.0*	*1.9*	*20.1*	*27.2*
Ill-defined, secondary & unspecified site (C76–C80)	71	6.9	15.8	11.7	19.9	1.6	6.1	8.3
Malignant neoplasm, without specification of site (C80)[(m)]	*61*	*5.9*	*13.3*	*9.6*	*17.0*	*1.5*	*4.6*	*6.2*
Lymphoid, haematopoietic and related tissue (C81–C96)	74	7.2	17.2	12.8	21.6	1.4	4.7	6.4
Female genital organs (C51–C58)	123	12.0	22.9	18.3	27.5	1.9	10.7	14.5
Cervix (C53)[(m)]	*58*	*5.6*	*8.8*	*6.3*	*11.3*	*4.6*	*6.9*	*9.3*
Lip, oral cavity and pharynx (C00–C14)	30	2.9	5.0	2.9	7.0	3.3	3.4	4.7
Breast (C50)	134	13.0	26.3	21.3	31.4	1.2	4.3	5.9
Malignant neoplasms of urinary tract (C64–C68)	16	1.6	3.0	1.3	4.7	0.6	–2.3	–3.0
Male genital organs (C60–C63)	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other malignant neoplasms[(n)]	63	6.1	13.2	9.4	17.0	1.1	0.7	0.9
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	***1,012***	***98.3***	***212.2***	***197.5***	***227.0***	***1.5***	***72.6***	***98.1***
Non-malignant neoplasms (D00–D44, D47.0, D47.2, D47.7–D48)	17	1.7	3.3	1.6	5.0	1.7	1.4	1.9
Total neoplasms	**1,029**	**100.0**	**215.5**	**200.6**	**230.4**	**1.5**	**73.9**	**100.0**

(continued)

Table 1.23.9 (continued): Deaths of Indigenous Australians from neoplasms (cancer), by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

Site of neoplasm	Number	Per cent	No. per 100,000[(g)]	95% LCL[(h)]	95% UCL[(i)]	Rate ratio[(j)]	Rate difference[(k)]	Rate difference %[(l)]
				Persons				
Digestive organs (C15–C26)	594	28.2	67.9	61.6	74.2	1.4	20.2	30.3
Bowel cancer(C18–C20)[(m)]	*128*	*6.1*	*14.4*	*11.5*	*17.3*	*0.9*	*–2.3*	*–3.5*
Respiratory and inthrathoracic organs (C30–C39)	547	26.0	64.5	58.4	70.7	1.9	29.8	44.7
Bronchus & lung (C34)[(m)]	*502*	*23.8*	*59.6*	*53.6*	*65.5*	*1.8*	*26.1*	*39.2*
Ill-defined, secondary & unspecified site (C76–C80)	142	6.7	17.4	14.1	20.6	1.6	6.3	9.4
Malignant neoplasm, without specification of site (C80)[(m)]	*122*	*5.8*	*14.7*	*11.7*	*17.7*	*1.5*	*4.6*	*7.0*
Lymphoid, haematopoietic and related tissue (C81–C96)	128	6.1	16.6	13.2	19.9	1.0	0.4	0.6
Female genital organs (C51–C58)	123	5.8	12.8	10.1	15.5	2.0	6.3	9.4
Cervix (C53)[(m)]	*58*	*2.8*	*4.8*	*3.4*	*6.2*	*4.8*	*3.8*	*5.7*
Lip, oral cavity and pharynx (C00–C14)	128	6.1	11.5	9.2	13.8	3.8	8.5	12.7
Breast (C50)	134	6.4	14.8	11.9	17.8	1.3	3.1	4.6
Malignant neoplasms of urinary tract (C64–C68)	46	2.2	5.0	3.4	6.7	0.6	–3.3	–5.0
Male genital organs (C60–C63)	70	3.3	11.5	8.5	14.4	0.9	–1.7	–2.6
Other malignant neoplasms[(n)]	128	6.1	14.7	11.7	17.8	0.8	–4.0	–6.1
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	***2,076***	***98.5***	***241.3***	***229.3***	***253.4***	***1.4***	***65.4***	***98.3***
Non-malignant neoplasms (D00–D44, D47.0, D47.2, D47.7–D48)	31	1.5	3.2	1.9	4.6	1.6	1.2	1.7
Total neoplasms	**2,107**	**100.0**	**244.6**	**232.5**	**256.7**	**1.4**	**66.6**	**100.0**

(continued)

Table 1.23.9 (continued): Deaths of Indigenous Australians from neoplasms (cancer), by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final), 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(k) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(l) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all neoplasms.

(m) Data presented for bowel cancer are a subset for all cancers of the digestive organs; data presented for bronchus & lung cancer are a subset of data presented for all respiratory and inthrathoracic organs; data presented for cervix cancer are a subset of data presented for all cancers of the female genital organs in this table.

(n) Includes neoplasms of bone and articular cartilage; melanoma & other neoplasms of skin; neoplasms of mesothelial and soft tissue; neoplasms of eye, brain and other parts of central nervous system; neoplasms of thyroid and other endocrine glands; C9 Malignant neoplasms of independent (primary) multiple sites.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.10: Deaths of Indigenous Australians from neoplasms (cancer), by age, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	Under 1	1–4	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65–74	75 and over	Total[(g)]
						Number						
Digestive organs (C15–C26)	0	0	0	0	4	12	48	105	186	140	99	594
Bowel cancer(C18–C20)[(h)]	*0*	*0*	*0*	*0*	*n.p.*	*n.p.*	*12*	*21*	*39*	*30*	*20*	*128*
Respiratory and inthrathoracic organs (C30–C39)	n.p.	0	n.p.	0	0	n.p.	26	114	156	163	86	547
Bronchus & lung (C34)[(h)]	*n.p.*	*0*	*n.p.*	*0*	*0*	*n.p.*	*25*	*101*	*143*	*150*	*81*	*502*
Ill-defined, secondary & unspecified site (C76–C80)	0	0	0	0	n.p.	n.p.	10	19	38	41	28	142
Unspecified site (C80)	*0*	*0*	*0*	*0*	*n.p.*	*n.p.*	*7*	*17*	*32*	*38*	*22*	*122*
Lymphoid, haematopoietic and related tissue (C81–C96)	0	0	n.p.	n.p.	6	4	10	16	23	35	32	128
Female genital organs (C51–C58)	0	0	0	0	0	12	19	21	29	25	17	123
Cervix (C53)[(h)]	*0*	*0*	*0*	*n.p.*	*0*	*9*	*14*	*8*	*14*	*10*	*n.p.*	*58*
Lip, oral cavity and pharynx (C00–C14)	0	0	n.p.	0	0	n.p.	17	42	40	17	9	128
Breast (C50)	0	0	n.p.	0	0	n.p.	19	33	30	27	23	134
Malignant neoplasms of urinary tract (C64–C68)	0	n.p.	n.p.	0	n.p.	0	n.p.	10	12	16	5	46
Male genital organs (C60–C63)	0	0	0	0	0	n.p.	n.p.	n.p.	10	28	27	70
Other malignant neoplasms[(i)]	n.p.	n.p.	n.p.	8	4	n.p.	20	21	33	38	35	164
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	n.p.	n.p.	5	10	17	41	173	382	557	530	361	2,076
Non-malignant neoplasms (D00–D44, D47.0, D47.2, D47.7–D48)	n.p.	n.p.	n.p.	0	0	n.p.	n.p.	n.p.	4	11	4	31
Total neoplasms (C00–D48)	**n.p.**	**4**	**7**	**10**	**17**	**44**	**175**	**387**	**561**	**541**	**365**	**2,107**

(continued)

Table 1.23.10 (continued): Deaths of Indigenous Australians from neoplasms (cancer), by age, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	Under 1	1–4	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65–74	75 and over	Total[(g)]
						Rate per 100,000 population						
Digestive organs (C15–C26)	—	0.0	0.0	0.0	0.8	3.6	16.0	48.8	154.7	266.5	424.0	24.7
Bowel cancer(C18–C20)[(h)]	—	*0.0*	*0.0*	*0.0*	*n.p.*	*n.p.*	*4.0*	*9.8*	*32.5*	*57.1*	*85.7*	*5.3*
Respiratory and inthrathoracic organs (C30–C39)	n.p.	0.0	n.p.	0.0	0.0	n.p.	8.6	53.0	129.8	310.3	368.3	22.8
Bronchus & lung (C34)[(h)]	*n.p.*	*0.0*	*n.p.*	*0.0*	*0.0*	*n.p.*	*8.3*	*47.0*	*119.0*	*285.5*	*346.9*	*20.9*
Ill-defined, secondary & unspecified site (C76–C80)	—	0.0	0.0	0.0	n.p.	1.2	3.3	8.8	31.6	78.1	119.9	5.9
Unspecified site (C80)	—	*0.0*	*0.0*	*0.0*	*n.p.*	*1.2*	*2.3*	*7.9*	*26.6*	*72.3*	*94.2*	*5.1*
Lymphoid, haematopoietic and related tissue (C81–C96)	—	0.0	n.p.	n.p.	1.3	1.2	3.3	7.4	19.1	66.6	137.0	5.3
Female genital organs (C51–C58)	—	0.0	0.0	0.0	0.0	3.6	6.3	9.8	24.1	47.6	72.8	5.1
Cervix (C53)[(h)]	—	*0.0*	*0.0*	*n.p.*	*0.0*	*2.7*	*4.7*	*3.7*	*11.7*	*19.0*	*n.p.*	*2.4*
Lip, oral cavity and pharynx (C00–C14)	—	0.0	n.p.	0.0	0.0	n.p.	5.7	19.5	33.3	32.4	38.5	5.3
Breast (C50)	—	0.0	n.p.	0.0	0.0	n.p.	6.3	15.3	25.0	51.4	98.5	5.6
Malignant neoplasms of urinary tract (C64–C68)	—	n.p.	n.p.	0.0	n.p.	0.0	n.p.	4.7	10.0	30.5	21.4	1.9
Male genital organs (C60–C63)	—	0.0	0.0	0.0	0.0	n.p.	n.p.	n.p.	8.3	53.3	115.6	2.9
Other malignant neoplasms[(i)]	n.p.	n.p.	n.p.	1.4	0.8	n.p.	6.7	9.8	27.5	72.3	149.9	6.8
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	n.p.	n.p.	1.7	1.7	3.6	12.2	57.5	177.6	463.4	1,008.9	1,546.0	86.4
Non-malignant neoplasms (D00–D44, D47.0, D47.2, D47.7–D48)	n.p.	n.p.	n.p.	0.0	0.0	n.p.	n.p.	n.p.	3.3	20.9	17.1	1.3
Total neoplasms (C00–D48)	**n.p.**	**1.7**	**2.4**	**1.7**	**3.6**	**13.1**	**58.2**	**179.9**	**466.7**	**1,029.8**	**1,563.1**	**87.7**

(continued)

Table 1.23.10 (continued): Deaths of Indigenous Australians from neoplasms (cancer), by age, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 10-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 20

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(g) Includes age not stated.

(h) Data presented for bowel cancer are a subset for all cancers of the digestive organs; data presented for bronchus & lung cancer are a subset of data presented for all respiratory and inthrathoracic organs; data presented for cervix cancer are a subset of data presented for all cancers of the female genital organs in this table.

(i) Includes neoplasms of bone and articular cartilage; melanoma & other neoplasms of skin; neoplasms of mesothelial and soft tissue; neoplasms of eye, brain and other parts of central nervous system; neoplasms of thyroid and other endocrine glands; C9 Malignant neoplasms of idependent (primary multiple sites; D45 Polycythaemia vera; D46 Myelodysplastic syndromes; D47.1 Chronic myeloproliferative disease; D47.3 Essential (haemorrhagic) thrombocythaemia.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Respiratory diseases

Tables 1.23.11 and 1.23.12 present data on deaths of Indigenous Australians from respiratory diseases over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the period 2006–2010, there were 858 deaths (112 per 100,000) of Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from respiratory diseases. Indigenous Australians died from respiratory diseases at 2.3 times the rate of non-Indigenous Australians (Table 1.23.11).
- The mortality rate from respiratory diseases for Indigenous males was higher than that for Indigenous females (135 per 100,000 compared with 95 per 100, 000). The rate ratio between Indigenous males and non-Indigenous males was similar to the ratio between Indigenous females and non-Indigenous females (2.3 for males and 2.4 for females).
- The most common type of respiratory disease causing death among Indigenous Australians was chronic lower respiratory diseases (including asthma, bronchitis and emphysema), which caused 62% of all Indigenous deaths from respiratory diseases, followed by pneumonia and influenza (21%). Indigenous Australians died at three and 2.1 times the rates of non-Indigenous Australians for these diseases respectively.
- Over the period 2006–2010, the largest number of deaths of Indigenous Australians from respiratory diseases was in the 75 years and over age group (241 deaths, 28% of all deaths from respiratory diseases), followed by the 65–74 year age group (201) (Table 1.23.12).

Table 1.23.11: Deaths of Indigenous Australians from respiratory diseases, by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

	Number	Per cent	No. per 100,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	Rate ratio[(i)]	Rate difference[(j)]	Rate difference %[(k)]
				Males				
Chronic lower respiratory diseases (J40–J47)	270	59.0	88.2	75.8	100.6	2.9	57.6	75.8
COPD (J40–J44)[(l)]	*223*	*48.7*	*78.9*	*67.0*	*90.8*	*2.8*	*50.5*	*66.5*
Asthma (J45–J46)[(l)]	*16*	*3.5*	*3.5*	*1.3*	*5.8*	*2.5*	*2.1*	*2.8*
Pneumonia and influenza (J09–J18)	103	22.5	23.6	17.6	29.6	2.4	13.8	18.2
Other respiratory disease (J00–06, J20–39, J60–99)	85	18.6	23.6	17.2	29.9	1.2	4.5	6.0
Total respiratory diseases (J00–J99)	**458**	**100.0**	**135.4**	**120.2**	**150.6**	**2.3**	**76.0**	**100.0**
				Females				
Chronic lower respiratory diseases (J40–J47)	263	65.8	65.0	56.3	73.7	3.2	45.0	82.1
COPD (J40–J44)[(l)]	*212*	*53.0*	*55.0*	*46.9*	*63.1*	*3.3*	*38.3*	*69.9*
Asthma (J45–J46)[(l)]	*30*	*7.5*	*5.7*	*3.4*	*8.0*	*2.9*	*3.7*	*6.8*
Pneumonia and influenza (J09–J18)	80	20.0	16.1	11.9	20.3	1.8	7.0	12.8
Other respiratory disease (J00–06, J20–39, J60–99)	57	14.3	14.3	9.9	18.6	1.2	2.8	5.2
Total respiratory diseases (J00–J99)	**400**	**100.0**	**95.4**	**84.8**	**105.9**	**2.4**	**54.8**	**100.0**
				Persons				
Chronic lower respiratory diseases (J40–J47)	533	62.1	74.6	67.4	81.7	3.0	50.0	78.6
COPD (J40–J44)[(l)]	*435*	*55.0*	*64.8*	*58.0*	*71.6*	*3.0*	*43.1*	*67.8*
Asthma (J45–J46)[(l)]	*46*	*5.7*	*4.7*	*3.1*	*6.4*	*2.8*	*3.0*	*4.7*
Pneumonia and influenza (J09–J18)	183	21.3	19.4	15.9	22.9	2.1	10.0	15.7
Other respiratory disease (J00–06, J20–39, J60–99)	142	16.6	18.4	14.7	22.0	1.2	3.6	5.7
Total respiratory diseases (J00–J99)	**858**	**100.0**	**112.3**	**103.5**	**121.1**	**2.3**	**63.6**	**100.0**

(continued)

Table 1.23.11 (continued): Deaths of Indigenous Australians from respiratory diseases, by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 20

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(f) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(k) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all respiratory diseases.

(l) Data presented for COPD and asthma are a subset of data presented for all chronic lower respiratory diseases.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.12: Deaths of Indigenous Australians from respiratory diseases, by age, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	Under 1	1–4	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65–74	75 and over	Total[(g)]
Chronic lower respiratory diseases (J40–J47)	0	n.p.	n.p.	n.p.	n.p.	11	36	54	117	155	154	533
COPD (J40–J44)[(h)]	*0*	*n.p.*	*n.p.*	*0*	*0*	*n.p.*	*14*	*40*	*97*	*138*	*140*	*435*
Asthma (J45–J46)[(h)]	*0*	*0*	*0*	*n.p.*	*n.p.*	*n.p.*	*9*	*n.p.*	*11*	*10*	*7*	*46*
Pneumonia and influenza (J09–J18)	13	4	17	n.p.	6	10	32	29	21	28	39	183
Other respiratory disease (J00–06, J20–39, J60–99)	8	5	13	n.p.	4	8	8	23	18	18	48	142
Total respiratory diseases (J00–J99)	**21**	**12**	**33**	**5**	**11**	**29**	**76**	**106**	**156**	**201**	**241**	**858**

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 10-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(g) Includes age not stated.

(h) Data presented for COPD and asthma are a subset of data presented for all chronic lower respiratory diseases.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Diseases of the genitourinary system

Tables 1.23.13 and 1.23.14 present data on deaths of Indigenous Australians from diseases of the genitourinary system over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the period 2006–2010, there were 365 deaths (48 per 100,000) of Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from diseases of the genitourinary system. Indigenous Australians died from genitourinary disease at 3.4 times the rate of non-Indigenous Australians (Table 1.23.13).
- The mortality rate from diseases of the genitourinary system for Indigenous males was higher than that for Indigenous females (52 per 100,000 compared with 45 per 100, 000). The rate ratio between Indigenous males and non-Indigenous males was similar to the ratio between Indigenous females and non-Indigenous females (3.4 for males and 3.5 for females).
- The most common type of genitourinary disease causing mortality among Indigenous Australians was renal failure, which caused 76% of deaths from genitourinary diseases. Indigenous Australians died from renal failure at 3.5 times the rate of non-Indigenous Australians.
- Over the period 2006–2010, the largest number of deaths of Indigenous Australians from diseases of the genitourinary system was in the 75 years and over age group (106), followed by the 55–59 year age group (42). 70% of deaths were observed in ages 55 and over (Table 1.23.14).

Table 1.23.13: Deaths of Indigenous Australians from diseases of the genitourinary system, by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

	Number	Per cent	No. per 100,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	Rate ratio[(i)]	Rate difference[(j)]	Rate difference %[(k)]
					Males			
Renal failure (N17–N19)	126	72.4	36.0	28.3	43.8	3.2	24.7	65.9
Other diseases of the urinary system (N30–N39)	11	6.3	4.4	1.5	7.4	2.4	2.6	7.3
Renal tubulo-intestinal diseases (N10–N16)	11	6.3	3.4	1.0	5.9	9.0	3.0	9.6
Glomerular disease (N00–N08)	6	3.4	0.7	0.1	1.3	1.9	0.4	0.2
Other diseases of the genitourinary system[(l)]	20	11.5	6.9	3.2	10.5	5.9	5.7	16.9
Total genitourinary diseases (N00–N99)	**174**	**100.0**	**51.5**	**42.1**	**60.9**	**3.4**	**36.4**	**100.0**
					Females			
Renal failure (N17–N19)	150	78.5	36.0	29.5	42.5	3.9	26.7	86.4
Other diseases of the urinary system (N30–N39)	19	9.9	5.5	2.8	8.1	2.3	3.1	8.0
Renal tubulo-intestinal diseases (N10–N16)	8	4.2	1.5	0.3	2.6	2.5	0.9	1.2
Glomerular disease (N00–N08)	7	3.7	1.0	0.2	1.7	3.8	0.7	1.5
Other diseases of the genitourinary system[(l)]	7	3.7	1.4	0.2	2.5	2.9	0.9	2.9
Total genitourinary diseases (N00–N99)	**191**	**100.0**	**45.3**	**38.1**	**52.5**	**3.5**	**32.3**	**100.0**
					Persons			
Renal failure (N17–N19)	276	75.6	36.1	31.1	41.0	3.5	25.9	80.4
Other diseases of the urinary system (N30–N39)	30	8.2	5.0	3.0	7.0	2.3	2.9	7.4
Renal tubulo-intestinal diseases (N10–N16)	19	5.2	2.2	1.1	3.4	4.6	1.8	4.6
Glomerular disease (N00–N08)	13	3.6	0.9	0.4	1.4	2.8	0.6	0.7
Other diseases of the genitourinary system[(l)]	27	7.4	3.6	2.0	5.2	4.7	2.8	6.9
Total genitourinary diseases (N00–N99)	**365**	**100.0**	**47.8**	**42.1**	**53.5**	**3.4**	**33.9**	**100.0**

(continued)

Table 1.23.13 (continued): Deaths of Indigenous Australians from diseases of the genitourinary system, by sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)]

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(f) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(k) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all genitourinary diseases.

(l) Includes: urolithiasis; other disorders of the kidney & urether; disease of male genital organs; disorders of breast; inflammatory disorders of the female pelvic organs; non-inflammatory disorders of the female genital tract; other disorders of the genitourinary tract.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

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Table 1.23.14: Deaths of Indigenous Australians from diseases of the genitourinary system, by age, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75+	Total[(g)]
Renal failure (N17–N19)	n.p.	0	0	n.p.	n.p.	n.p.	n.p.	n.p.	11	26	25	34	30	30	23	79	276
Other diseases of the genitourinary system[(h)]	0	0	n.p.	0	n.p.	n.p.	n.p.	n.p.	8	8	6	8	11	5	9	27	89
Total genitourinary diseases (N00–N99)	**n.p.**	**0**	**n.p.**	**n.p.**	**n.p.**	**n.p.**	**n.p.**	**15**	**19**	**34**	**31**	**42**	**41**	**35**	**32**	**106**	**365**

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(g) Includes age not stated.

(h) Includes: other diseases of the urinary system; renal tubulo-intestinal diseases; glomerular disease; urolithiasis; other disorders of the kidney & urether; disease of male genital organs; disorders of breast; inflammatory disorders of the female genital tract; other disorders of the genitourinary tract.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Time series analysis

Longer term mortality trend data are limited to three jurisdictions—Western Australia, South Australia and the Northern Territory, which have over 20 years of adequate identification of Indigenous deaths in their recording systems.

There is a consistent time series of population estimates from 1991. Because of changes in the classification and coding of Causes of death from ICD-9 (used up until 1996) to ICD-10 (used from 1997 onwards) which affect the comparability of the data, the analysis reported for this measure is for two time periods—1991–1996 and 1997–2010.

Because of the late inclusion of a 'not stated' category of Indigenous status in 1998 (before which 'not stated' responses were included with non-Indigenous deaths), Indigenous mortality rates have been compared with the mortality rates of other Australians (which include deaths of both non-Indigenous people and people for whom Indigenous status was not stated).

Mortality rates, rate ratios and rate differences between Indigenous and other Australians for circulatory diseases, external causes (injury and poisoning), cancer, respiratory diseases, diabetes and kidney-related diseases over the period 1991–1996 and 1997–2010 are presented in tables 1.23.15, 1.23.17, 1.23.19, 1.23.21, 1.23.23, 1.23.26 and Figure 1.23.1.

Additional trends analysis has been presented for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from 2001 to 2010 for Indigenous and non-Indigenous Australians (excluding deaths for which Indigenous status was not stated) in tables 1.23.16, 1.23.18, 1.23.20, 1.23.22, 1.23.24, 1.23.26 and Figure 1.23.2. Queensland has had adequate identification of Indigenous deaths in its recording systems since 1998; New South Wales has had adequate identification of Indigenous deaths since 2001.

Note that fluctuations in the level of Indigenous mortality over time partly reflect changing levels of coverage of Indigenous deaths and population estimates. Given the volatility in the measures of Indigenous mortality, caution should be exercised in assessing trends in Indigenous mortality over time and comparisons between jurisdictions and with the non-Indigenous population.

Circulatory diseases

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there were non significant declines in mortality rates for circulatory diseases among Indigenous Australians and significant declines in mortality rates for circulatory diseases among other Australians (Table 1.23.15).
- Over the period 1997–2010 in Western Australia, South Australia and the Northern Territory combined, there were significant declines in mortality rates for circulatory diseases among Indigenous and other Australians. The fitted trend implies an average yearly decline in the rate of 21.5 deaths per 100,000 for Indigenous Australians (a 41% decline) and 8.4 deaths per 100,000 for other Australians (a 37% decline). Over the same period, there was no significant change in mortality rate ratios, but a significant decrease in mortality rate differences between Indigenous and other Australians from circulatory diseases (Table 1.23.15).
- Over the period 2001–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant declines in mortality rates for circulatory diseases among Indigenous Australians (23% decline) and non-Indigenous Australians (25% decline). There was a significant change in the mortality rate differences between Indigenous and non-Indigenous Australians from circulatory diseases (Table 1.23.16).

Table 1.23.15: Age-standardised mortality rates, rate ratios and rate differences, circulatory diseases, WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

	Indigenous rate (deaths per 100,000[(e)])	Other rate (deaths per 100,000[(e)(f)])	Rate ratio[(g)]	Rate difference[(h)]
1991	726.4	362.5	2.0	364.0
1992	642.7	347.9	1.8	294.8
1993	576.3	356.4	1.6	219.9
1994	782.2	343.7	2.3	438.4
1995	632.5	323.2	2.0	309.3
1996	485.5	315.7	1.5	169.8
Annual change[(i)]	**–29.4**	**–9.2***	**0.0**	**–20.3**
Per cent change[(j)]	**–20.2**	**–12.6***	**–8.6**	**–27.8**
1997	687.3	297.1	2.3	390.2
1998	604.5	284.5	2.1	320.0
1999	560.0	266.9	2.1	293.1
2000	541.8	251.3	2.2	290.5
2001	437.2	245.0	1.8	192.1
2002	420.3	236.7	1.8	183.7
2003	409.9	229.7	1.8	180.2
2004	478.6	210.1	2.3	268.5
2005	400.1	208.0	1.9	192.1
2006	361.5	198.5	1.8	163.0
2007	443.2	201.8	2.2	241.4
2008	379.7	197.1	1.9	182.6
2009	337.7	189.5	1.8	148.2
2010	367.5	183.8	2.0	183.7
Annual change[(i)]	**–21.5***	**–8.4***	**0.0**	**–13.1***
Per cent change[(j)]	**–40.6***	**–36.8***	**–10.0**	**–43.5***

(continued)

Table 1.23.15 (continued): Age-standardised mortality rates, rate ratios and rate differences, circulatory diseases, WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and 1997–2010.

(a) Data are reported for Western Australia, South Australia and the Northern Territory only. These three states and territories are considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these three jurisdictions over-represented Indigenous populations in less urbanised and more remote locations. Mortality data for these jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(e) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(f) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(g) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(h) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for other Australians.

(i) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the period 1991–2010.

(j) Per cent change between 1991 and 1996 and between 1997 and 2010 based on the average annual change over the period.

Notes

1. 1991–1996 ICD9 codes 390–459, 1997–2010 ICD–10 codes I00–I99.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.16: Age-standardised mortality rates, rate ratios and rate differences, circulatory diseases, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[(f)]	Per cent change[(g)]
Indigenous rate (deaths per 100,000[(h)])	427.5	429.8	398.4	393.9	363.2	362.3	390.5	338.0	340.3	329.5	–11.0*	–23.2*
Non-Indigenous rate (deaths per 100,000[(h)])	248.8	245.9	235.7	228.5	213.2	209.2	207.3	211.0	192.5	186.4	–6.8*	–24.7*
Rate ratio[(i)]	1.7	1.7	1.7	1.7	1.7	1.7	1.9	1.6	1.8	1.8	0.01	3.8
Rate difference[(j)]	178.7	183.9	162.8	165.4	150.0	153.0	183.2	127.0	147.8	143.1	–4.2*	–21.3*

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 2001–2010.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these three jurisdictions over-represented Indigenous populations in less urbanised and more remote locations. Mortality data for these jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indictors.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(g) Per cent change between 2001 and 2010 based on the average annual change over the period.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Notes

1. ICD–10 codes I00–I99.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

External causes (injury and poisoning)

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory, there was a significant decline in mortality rates for external causes among Indigenous Australians, an annual change of 7.1 deaths per 100,000. During the same period there were no significant changes in the mortality rates for other Australians. There were also significant decreases in the mortality rate ratio and rate difference between Indigenous and other Australians from external causes over the period 1991–1996 (Table 1.23.17).
- Across the period 1997–2010 there was an apparent increase in the mortality rate from external causes for Indigenous Australians, but this increase did not obtain statistical significance. During this period there was no significant change in the mortality rate for other Australians. There were no significant increases in the mortality rate ratio and rate difference between Indigenous and other Australians for external causes (Table 1.23.17).
- Throughout the period 2001–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, there were no significant changes in mortality rates for external causes among Indigenous and non-Indigenous Australians. There were also no significant changes in mortality rate ratios or rate differences between Indigenous and non-Indigenous Australians for external causes (Table 1.23.18).

Cancer

- Across the period 1991–1996 in Western Australia, South Australia and the Northern Territory, there was a significant decline in the mortality rate for cancer for Indigenous Australians (16%). During this period there was no significant change in the mortality rate for cancer for other Australians. There was a significant decrease in mortality rate difference (61%) between Indigenous and other Australians for cancer (Table 1.23.19).
- Over the period 1997–2010, there were no significant changes in mortality rates for cancer among Indigenous Australians and significant declines in mortality rates for cancer among other Australians (12% decline over the period). There were significant increases in the mortality rate ratios and rate differences between Indigenous and other Australians for cancer over the period 1997–2010 reflecting both a relative and an absolute increase in the gap between mortality rates for Indigenous and other Australians from cancer (Table 1.23.19).
- Throughout the period 2001–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, there were non-significant increases in mortality rates for cancer among Indigenous Australians and significant declines in mortality rates for cancer among non-Indigenous Australians (7.1% decline). There were significant increases in the mortality rate ratios and rate differences between Indigenous and non-Indigenous Australians for cancer (Table 1.23.20).

Table 1.23.17: Age-standardised mortality rates, rate ratios and rate differences, external causes (injury and poisoning), WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

	Indigenous rate (deaths per 100,000[(e)])	Other rate (deaths per 100,000[(e)(f)])	Rate ratio[(g)]	Rate difference[(h)]
1991	185.1	43.5	4.3	141.6
1992	155.7	42.5	3.7	113.2
1993	140.3	43.7	3.2	96.6
1994	151.0	41.8	3.6	109.2
1995	128.7	41.1	3.1	87.6
1996	149.5	44.4	3.4	105.1
Annual change[(i)]	**–7.1***	**–0.05**	**–0.2***	**–7.0***
Per cent change[(j)]	**–19.2***	**–0.5**	**–19.6***	**–24.9***
1997	116.3	41.8	2.8	74.5
1998	143.9	47.7	3.0	96.2
1999	105.6	41.8	2.5	63.7
2000	135.2	43.8	3.1	91.4
2001	129.4	41.0	3.2	88.4
2002	127.2	38.9	3.3	88.3
2003	124.9	39.9	3.1	85.1
2004	114.4	37.9	3.0	76.5
2005	147.3	39.9	3.7	107.4
2006	141.1	38.3	3.7	102.8
2007	121.1	42.2	2.9	78.9
2008	155.4	42.9	3.6	112.5
2009	107.1	40.9	2.6	66.2
2010	116.9	42.3	2.8	74.6
Annual change[(i)]	**0.1**	**–0.2**	**0.0**	**0.3**
Per cent change[(j)]	**1.5**	**–5.6**	**7.5**	**5.5**

(continued)

Table 1.23.17 (continued): Age-standardised mortality rates, rate ratios and rate differences, external causes (injury and poisoning), WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and 1997–2010.

(a) Data are reported for Western Australia, South Australia and the Northern Territory only. These three states and territories are considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these three jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for these jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 is equivalent to reference year from 2007 onwards.

(d) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(e) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(f) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(g) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(h) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for other Australians.

(i) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the period 1991–2010.

(j) Per cent change between 1991 and 1996 and between 1997 and 2010 based on the average annual change over the period.

Notes

1. 1991–1996 ICD9 codes 800–999, 1997–2010 ICD–10 codes V01–Y98.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.18: Age-standardised mortality rates, rate ratios and rate differences, external causes, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[(f)]	Per cent change[(g)]
Indigenous rate (deaths per 100,000[(h)])	91.3	88.6	88.8	82.2	95.3	84.8	86.6	95.8	76.7	78.1	–1.0	–9.9
Non-Indigenous rate (deaths per 100,000[(h)])	39.3	38.1	37.4	36.8	36.1	36.0	37.5	38.1	37.1	36.8	–0.1	–3.3
Rate ratio[(i)]	2.3	2.3	2.4	2.2	2.6	2.4	2.3	2.5	2.1	2.1	–0.02	–6.1
Rate difference[(j)]	51.9	50.5	51.3	45.4	59.2	48.8	49.0	57.7	39.6	41.2	–0.8	–14.7

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 2001–2010.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further Information.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(g) Per cent change between 2001 and 2010 based on the average annual change over the period.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Notes

1. ICD–10 codes V01–Y98.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.19: Age-standardised mortality rates, rate ratios and rate differences, cancer, WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

	Indigenous rate (deaths per 100,000[(e)])	Other rate (deaths per 100,000[(e)(f)])	Rate ratio[(g)]	Rate difference[(h)]
1991	284.2	204.6	1.4	79.6
1992	294.2	198.7	1.5	95.5
1993	264.0	209.1	1.3	54.9
1994	255.0	210.0	1.2	45.0
1995	278.0	201.3	1.4	76.6
1996	230.6	205.2	1.1	25.4
Annual change[(i)]	**–9.3***	**0.3**	**–0.1**	**–9.6***
Per cent change[(j)]	**–16.4***	**0.8**	**–19.4**	**–60.6***
1997	265.7	201.2	1.3	64.5
1998	244.6	193.1	1.3	51.4
1999	215.6	193.8	1.1	21.8
2000	271.1	191.1	1.4	80.1
2001	220.6	189.5	1.2	31.2
2002	251.1	189.9	1.3	61.2
2003	238.6	186.3	1.3	52.3
2004	242.3	179.3	1.4	63.0
2005	223.5	178.9	1.2	44.6
2006	258.6	180.1	1.4	78.5
2007	262.9	178.9	1.5	84
2008	256.3	179.8	1.4	76.5
2009	265.5	175.5	1.5	90
2010	242.9	174.3	1.4	68.6
Annual change[(i)]	**0.8**	**–1.8***	**0.0***	**2.6***
Per cent change[(j)]	**3.8**	**–12.0***	**17.5***	**52.9***

(continued)

Table 1.23.19 (continued): Age-standardised mortality rates, rate ratios and rate differences, cancer, WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and 1997–2010.

(a) Data are reported for Western Australia, South Australia and the Northern Territory only. These three states and territories are considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these three jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for these jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(e) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(f) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(g) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(h) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for other Australians.

(i) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the period 1991–2010.

(j) Per cent change between 1991 and 1996 and between 1997 and 2010 based on the average annual change over the period.

Notes

1. 1991–1996 ICD9 codes 140–239, 1997–2010 ICD–10 codes C00–C97, D45, D46, D47.1, D47.3.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.20: Age-standardised mortality rates, rate ratios and rate differences, cancer, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[(f)]	Per cent change[(g)]
Indigenous rate (deaths per 100,000[(h)])	239.7	211.0	230.3	229.3	212.2	231.1	236.2	252.2	236.0	250.5	2.6	9.6
Non-Indigenous rate (deaths per 100,000[(h)])	186.5	186.2	183.1	184.4	181.5	176.9	174.7	179.7	173.3	175.3	–1.5*	–7.1*
Rate ratio[(i)]	1.3	1.1	1.3	1.2	1.2	1.3	1.4	1.4	1.4	1.4	0.02*	17.1*
Rate difference[(j)]	53.2	24.8	47.3	44.9	30.7	54.3	61.5	72.5	62.6	75.2	4.0*	67.9*

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 2001–2010.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of death

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(g) Per cent change between 2001 and 2010 based on the average annual change over the period.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Notes

1. Codes for malignant neoplasms: C00–C97, D45, D46, D47.1, D47.3.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Respiratory diseases

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there were significant declines in mortality rates for respiratory diseases among Indigenous Australians (decrease of 27%). There were significant decreases in the rate ratio (20%) and rate difference (30%) between Indigenous and other Australians for respiratory diseases. There were non-significant increases in mortality rates for respiratory disease among other Australians (Table 1.23.21).
- During the period 1997–2010, there were significant decreases in the mortality rates for respiratory diseases for both Indigenous Australians (39% decline) and other Australians (28% decline). There was no significant change in the mortality rate ratio, but a significant decrease in the mortality rate difference (45% decline) between Indigenous and other Australians for respiratory diseases over this period (Table 1.23.21).
- Across the period 2001–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant decreases in the mortality rates for respiratory diseases for Indigenous (20%) and non-Indigenous Australians (18%). There were no significant changes in neither the mortality rate ratio nor mortality rate difference between Indigenous and non-Indigenous Australians for respiratory diseases over this period (Table 1.23.22).

Diabetes

- During 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there were no significant changes in mortality rates for diabetes among Indigenous Australians, however there were significant increases in mortality rates for diabetes among other Australians (increase of 40%) (Table 1.23.23).
- Over the period 1997–2010, there was no significant change in the mortality rates for diabetes for Indigenous Australians, but a significant increase in mortality rates for diabetes among other Australians (12%). There were no significant changes in either the mortality rate ratio or mortality rate difference between Indigenous and other Australians for diabetes over this period (Table 1.23.23).
- Throughout the period 2001–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, there were no significant changes in mortality rates for diabetes among Indigenous Australians; however there were significant increases in mortality rates for diabetes among non-Indigenous Australians (16% increase). There were no significant changes in the mortality rate ratios and rate differences between Indigenous and non-Indigenous Australians over this period (Table 1.23.24).

Table 1.23.21: Age-standardised mortality rates, rate ratios and rate differences, respiratory diseases, WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

	Indigenous rate (deaths per 100,000[(e)])	Other rate (deaths per 100,000[(e)(f)])	Rate ratio[(g)]	Rate difference[(h)]
1991	348.9	60.3	5.8	288.6
1992	304.0	65.2	4.7	238.7
1993	313.2	60.8	5.2	252.4
1994	276.9	58.8	4.7	218.0
1995	253.6	53.7	4.7	200.0
1996	254.9	58.8	4.3	196.1
Annual change[(i)]	**–18.8***	**–1.3**	**–0.2***	**–17.5***
Per cent change[(j)]	**–26.9***	**–10.4**	**–19.7***	**–30.3***
1997	168.5	63.1	2.7	105.4
1998	215.6	57.5	3.7	158.1
1999	162.2	54.1	3.0	108.1
2000	173.7	60.0	2.9	113.7
2001	172.9	57.5	3.0	115.4
2002	173.9	63.1	2.8	110.9
2003	146.1	62.3	2.3	83.8
2004	191.9	55.0	3.5	136.9
2005	132.9	50.5	2.6	82.4
2006	167.8	48.2	3.5	119.6
2007	136.0	46.6	2.9	89.4
2008	122.3	46.4	2.6	75.9
2009	106.1	43.1	2.5	63.0
2010	140.5	46.9	3.0	93.6
Annual change[(i)]	**–5.0***	**–1.4***	**0.0**	**–3.7***
Per cent change[(j)]	**–38.9***	**–28.2***	**–10.5**	**–45.3***

(continued)

Table 1.23.21 (continued): Age-standardised mortality rates, rate ratios and rate differences, respiratory diseases, WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and 1997–2010.

(a) Data are reported for Western Australia, South Australia and the Northern Territory only. These three states and territories are considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these three jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the three jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(e) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(f) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(g) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(h) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for other Australians.

(i) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the period 1991–2010.

(j) Per cent change between 1991 and 1996 and between 1997 and 2010 based on the average annual change over the period.

Notes

1. 1991–1996 ICD9 codes 460–519, 1997–2010 ICD–10 codes J00–J99.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.22: Age-standardised mortality rates, rate ratios and rate differences, respiratory diseases, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[(f)]	Per cent change[(g)]
Indigenous rate (deaths per 100,000[(h)])	145.6	131.0	116.2	133.6	102.8	116.7	122.3	95.6	109.3	118.4	–3.1*	–19.5*
Non-Indigenous rate (deaths per 100,000[(h)])	52.5	56.9	57.5	55.5	50.4	49.4	51.3	48.3	46.0	48.8	–1.02*	–17.6*
Rate ratio[(i)]	2.8	2.3	2.0	2.4	2.0	2.4	2.4	2.0	2.4	2.4	–0.02	–5.1
Rate difference[(j)]	93.1	74.1	58.7	78.0	52.5	67.3	71.0	47.4	63.3	69.6	–2.1	–20.5

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 2001–2010.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(g) Per cent change between 2001 and 2010 based on the average annual change over the period.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Notes

1. ICD–10 codes J00–J99.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.23: Age-standardised mortality rates, rate ratios and rate differences, diabetes, WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

	Indigenous rate (deaths per 100,000[(e)])	Other rate (deaths per 100,000[(e)(f)])	Rate ratio[(g)]	Rate difference[(h)]
1991	138.5	13.6	10.2	124.9
1992	147.7	13.9	10.6	133.8
1993	176.6	16.0	11.0	160.6
1994	142.9	17.4	8.2	125.5
1995	146.1	16.8	8.7	129.3
1996	149.4	19.1	7.8	130.3
Annual change[(i)]	**0.5**	**1.1***	**–0.6***	**–0.6**
Per cent change[(j)]	**1.7**	**39.5***	**–28.7***	**–2.5**
1997	149.6	17.5	8.5	132.1
1998	103.8	15.0	6.9	88.8
1999	133.0	15.0	8.9	118.0
2000	161.7	15.1	10.7	146.6
2001	160.9	15.4	10.4	145.5
2002	147.0	15.8	9.3	131.2
2003	110.7	15.1	7.3	95.6
2004	140.1	16.3	8.6	123.8
2005	135.5	15.8	8.6	119.7
2006	139.4	17.0	8.2	122.4
2007	129.3	18.4	7.0	110.9
2008	173.3	18.3	9.5	155.0
2009	145.4	17	8.6	128.4
2010	114.9	16.9	6.8	98.0
Annual change[(i)]	**0.1**	**0.2***	**–0.1**	**–0.1**
Per cent change[(j)]	**0.6**	**12.4***	**–12.2**	**–1.0**

(continued)

Table 1.23.23 (continued): Age-standardised mortality rates, rate ratios and rate differences, diabetes, WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and 1997–2010.

(a) Data are reported for Western Australia, South Australia and the Northern Territory only. These three states and territories are considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these three jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the three jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(e) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(f) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(g) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(h) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for other Australians.

(i) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the period 1991–2010.

(j) Per cent change between 1991 and 1996 and between 1997 and 2010 based on the average annual change over the period.

Notes

1. 1991–1996 ICD9 code 250, 1997–2010 ICD–10 codes E10–E14.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.24: Age-standardised mortality rates, rate ratios and rate differences, diabetes, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[(f)]	Per cent change[(g)]
Indigenous rate (deaths per 100,000[(h)])	99.0	113.0	87.6	113.0	90.9	106.1	92.5	115.4	102.2	93.0	–0.2	–2.1
Non-Indigenous rate (deaths per 100,000[(h)])	13.1	14.0	13.8	14.7	14.0	14.3	15.2	16.6	15.7	14.4	0.2*	16.1*
Rate ratio[(i)]	7.5	8.1	6.3	7.7	6.5	7.4	6.1	7.0	6.5	6.5	–0.1	–15.2
Rate difference[(j)]	85.8	99.0	73.8	98.3	76.9	91.9	77.3	98.8	86.5	78.6	–0.5	–4.8

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 2001–2010.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(g) Per cent change between 2001 and 2010 based on the average annual change over the period.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Notes

1. ICD–10 codes E10–E14.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Kidney diseases

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there were significant decreases (29%) in mortality rates for kidney diseases among Indigenous Australians and non-significant increases in mortality rates for kidney diseases among other Australians. There were non-significant declines in the mortality rate ratios and significant declines in the rate differences between Indigenous and other Australians from kidney diseases (Table 1.23.25).
- Over the period 1997–2010, there were no significant changes in mortality rates for kidney diseases for Indigenous Australians and significant increases in mortality rates for other Australians (17%). There were significant declines (58%) in the mortality rate ratios and non-significant declines in the mortality rate differences between Indigenous and other Australians for kidney diseases (Table 1.23.25).
- Over the period 2001–2010, in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in the mortality rates for kidney diseases for Indigenous (89%) and non-Indigenous Australians (19%). There was also a significant increase in the rate differences between Indigenous and non-Indigenous Australians for kidney diseases (148%) (Table 1.23.26).

Table 1.23.25: Age-standardised mortality rates, rate ratios and rate differences, kidney diseases, WA, SA and NT, 1991–1996 and 1997–2010[a][b][c][d]

	Indigenous rate (deaths per 100,000[e])	Other rate (deaths per 100,000[e][f])	Rate ratio[g]	Rate difference[h]
1991	96.8	9.2	10.5	87.6
1992	n.p.	8.2	n.p.	n.p.
1993	80.3	9.7	8.3	70.6
1994	n.p.	8.4	n.p.	n.p.
1995	83.5	8.9	9.3	74.6
1996	62.4	10.6	5.9	51.8
Annual change[i]	**–5.5***	**0.2**	**–0.7**	**–5.7***
Per cent change[j]	**–28.6***	**8.8**	**–32.9**	**–32.5***
1997	59.5	11.1	5.4	48.4
1998	78.6	10.5	7.5	68.1
1999	97.4	9.8	10	87.7
2000	90	10.2	8.8	79.8
2001	n.p.	10.9	n.p.	n.p.
2002	51.7	10.7	4.8	41
2003	65.2	10.5	6.2	54.7
2004	38.8	10.5	3.7	28.3
2005	36.9	9.9	3.7	26.9
2006	75.9	10.6	7.2	65.3
2007	60.1	12.2	4.9	47.9
2008	68.8	12.7	5.4	56.1
2009	45.2	12.7	3.6	32.5
2010	65.8	11.4	5.8	54.4
Annual change[i]	**–1.7**	**0.1***	**–0.2***	**–1.9**
Per cent change[j]	**–37.8**	**16.9***	**–58.0***	**–50.4**

(continued)

Table 1.23.25 (continued): Age-standardised mortality rates, rate ratios and rate differences, kidney diseases, WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)]

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and 1997–2010.

(a) Data are reported for Western Australia, South Australia and the Northern Territory only. These three states and territories are considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these three jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for these jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final), 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(e) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(f) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(g) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(h) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for other Australians.

(i) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the period 1991–2010.

(j) Per cent change between 1991 and 1996 and between 1997 and 2010 based on the average annual change over the period.

Notes

1. 1991–1996 ICD9 codes 580–593, 1997–2010 ICD–10 codes N00–N29.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.26: Age-standardised mortality rates, rate ratios and rate differences, kidney diseases, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[(f)]	Per cent change[(g)]
Indigenous rate (deaths per 100,000[(h)])	21.1	26.3	28.3	28.2	25.7	49.8	35.6	40.3	38.4	38.0	2.1*	88.7*
Non-Indigenous rate (deaths per 100,000[(h)])	9.7	10.3	10.2	9.7	9.8	10.5	12.0	12.4	11.7	10.3	0.2*	19.2*
Rate ratio[(i)]	2.2	2.6	2.8	2.9	2.6	4.7	3.0	3.3	3.3	3.7	0.1*	56.2*
Rate difference[(j)]	11.4	16.0	18.1	18.6	15.9	39.3	23.5	27.9	26.7	27.7	1.9*	147.7*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the periods 2001–2010.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(c) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(d) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Cause of Death, Australia, 2010 (cat.no. 3303.0 Explanatory Notes for further information.

(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(g) Per cent change between 2001 and 2010 based on the average annual change over the period.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Notes

1. ICD–10 codes N00–N29.
2. Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

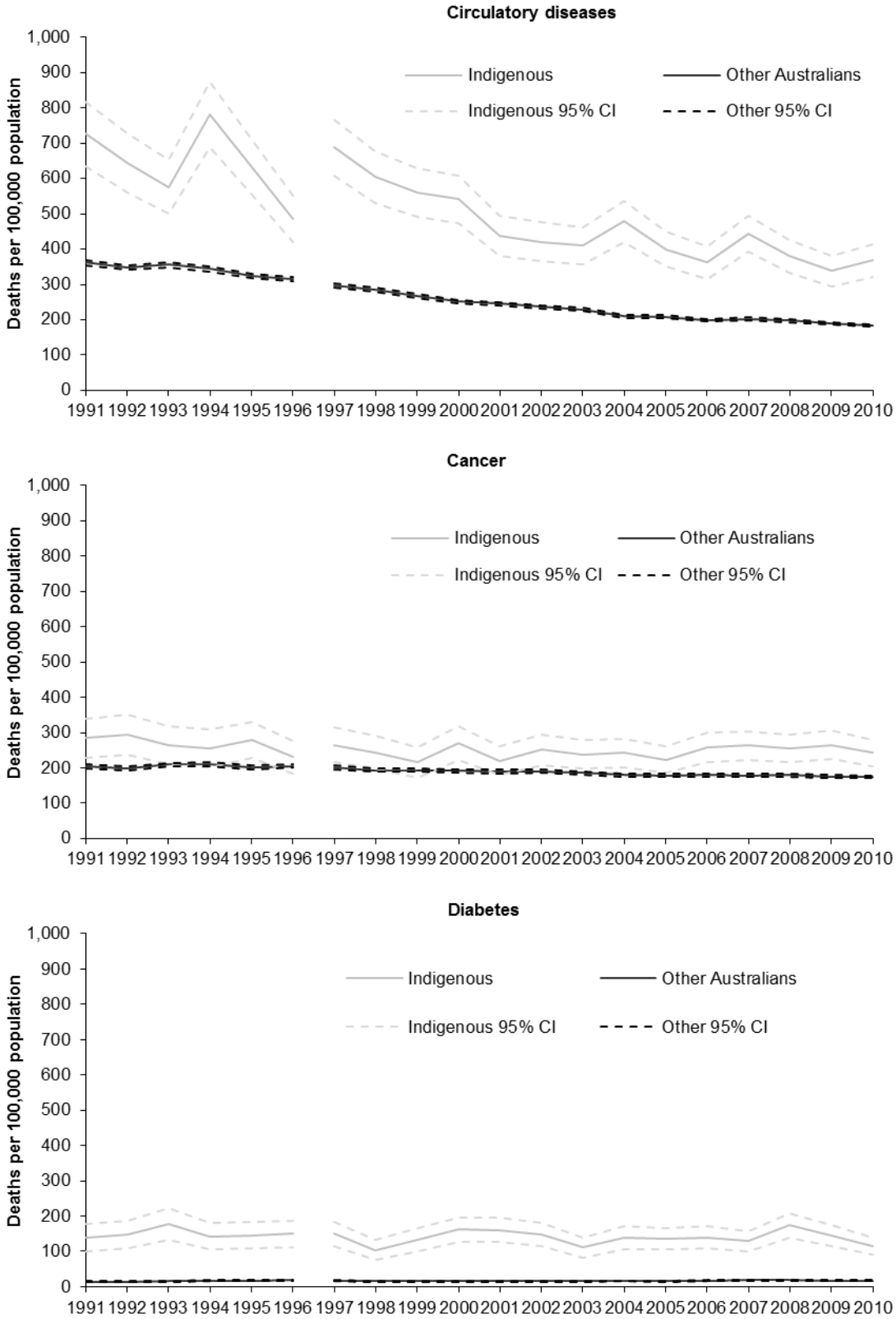
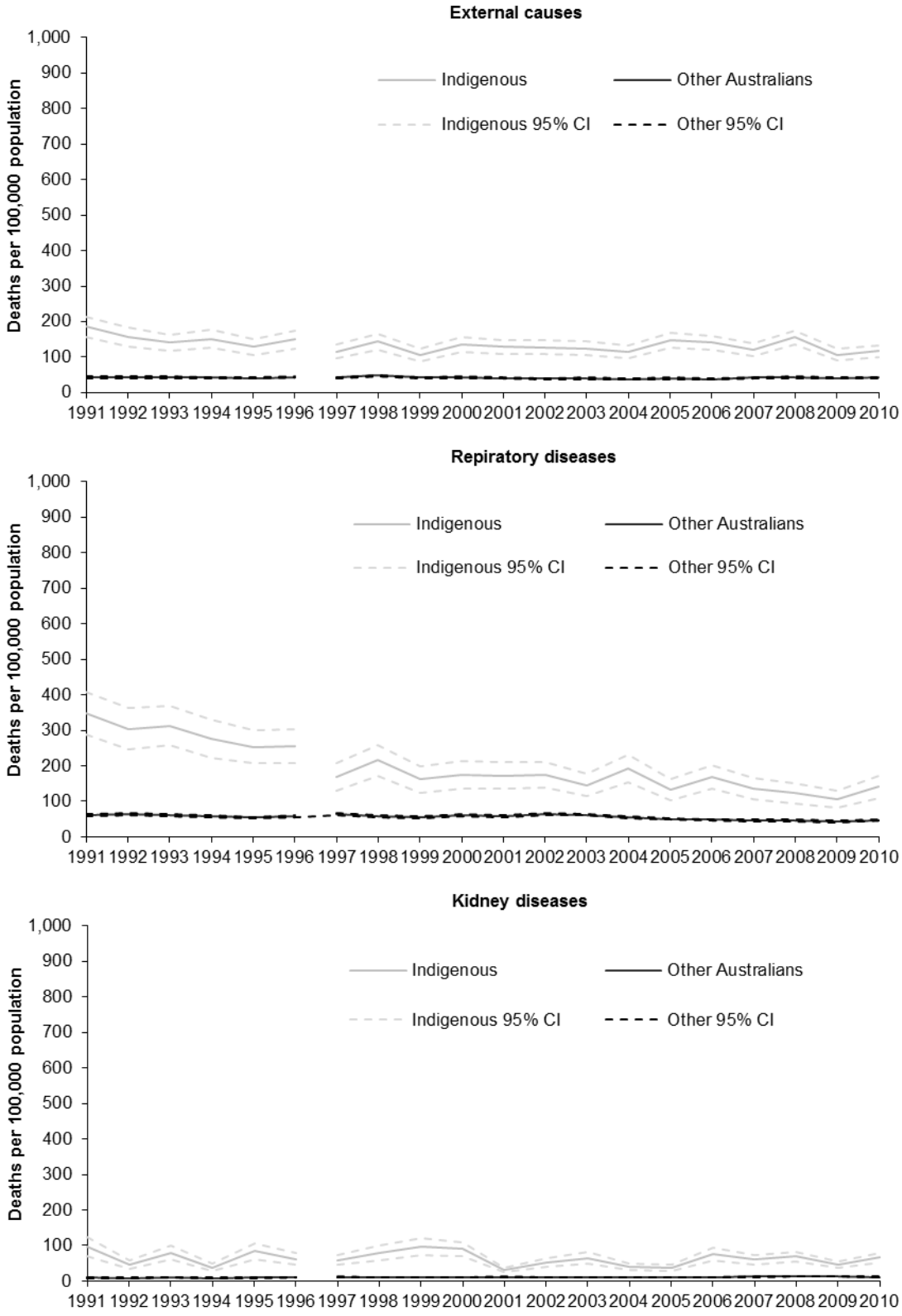


Figure 1.23.1: Mortality rates for Indigenous and other Australians, selected causes of death, WA, SA and NT, 1991–1996 and 1997–2010

(continued)



Source: AIHW analysis of ABS Mortality Database.

Figure 1.23.1 (continued): Mortality rates for Indigenous and other Australians, selected causes of death, WA, SA and NT, 1991–1996 and 1997–2010

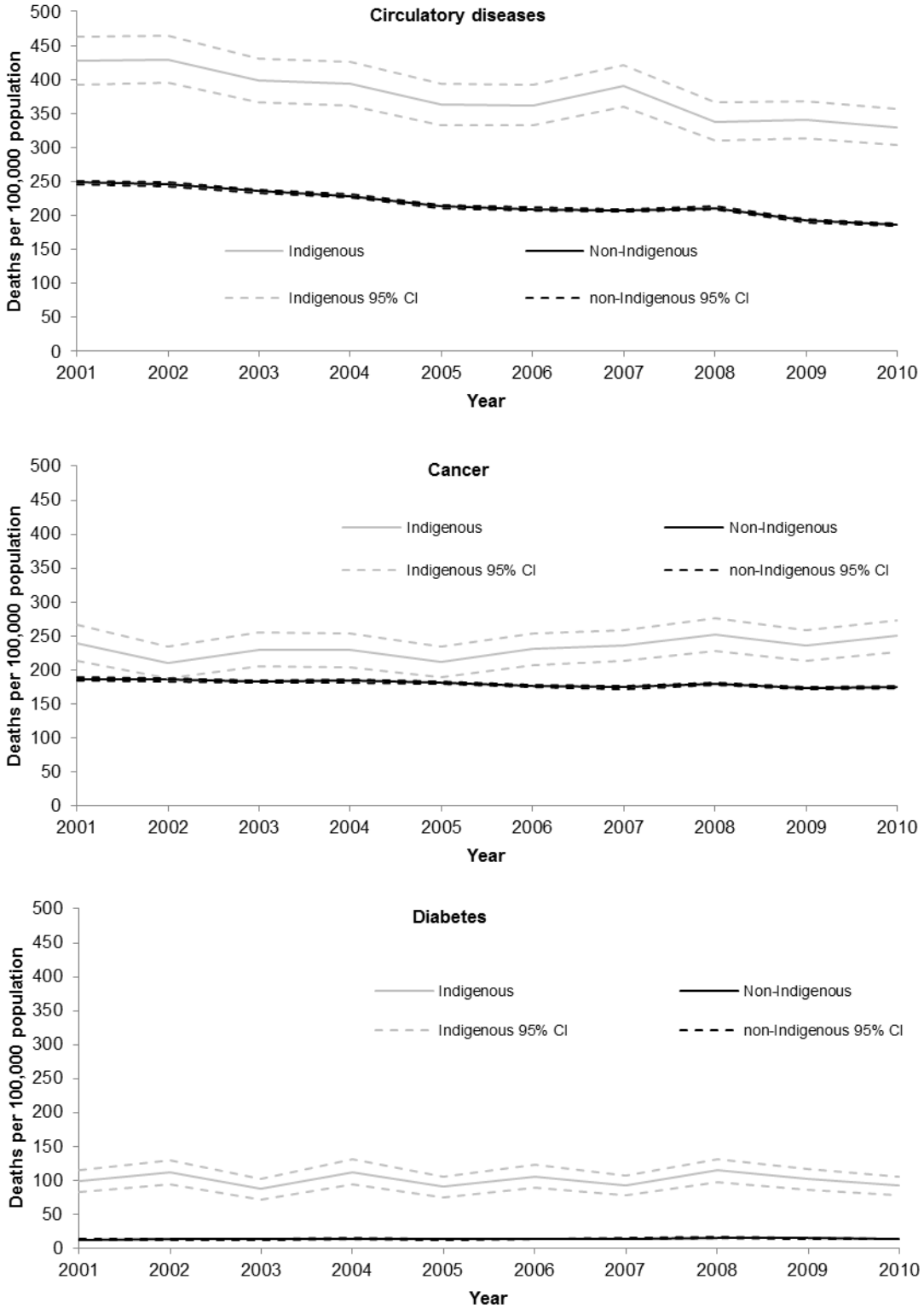
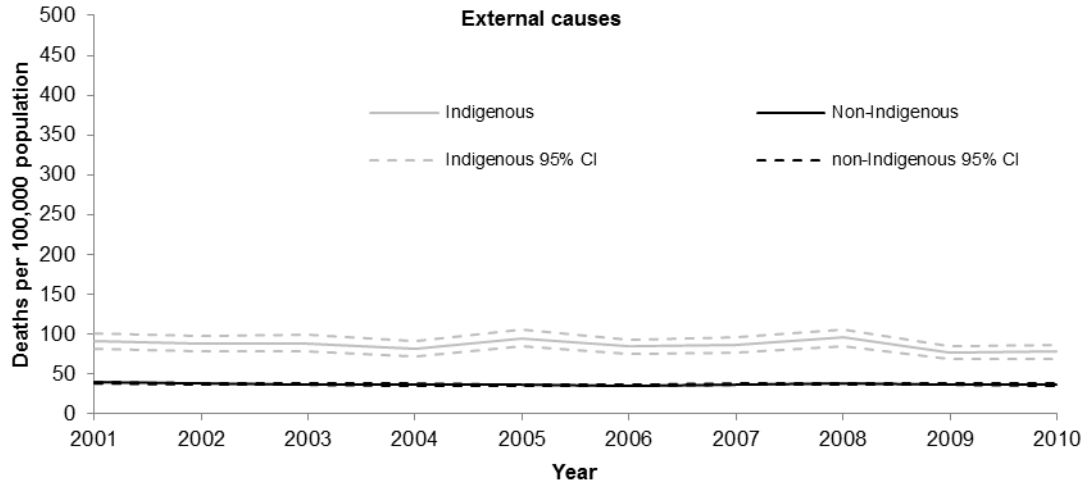
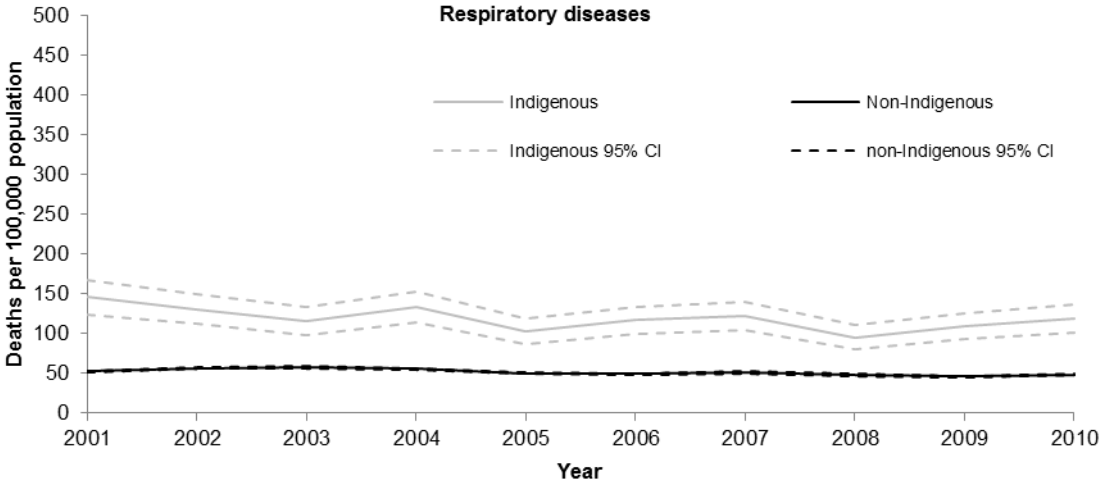
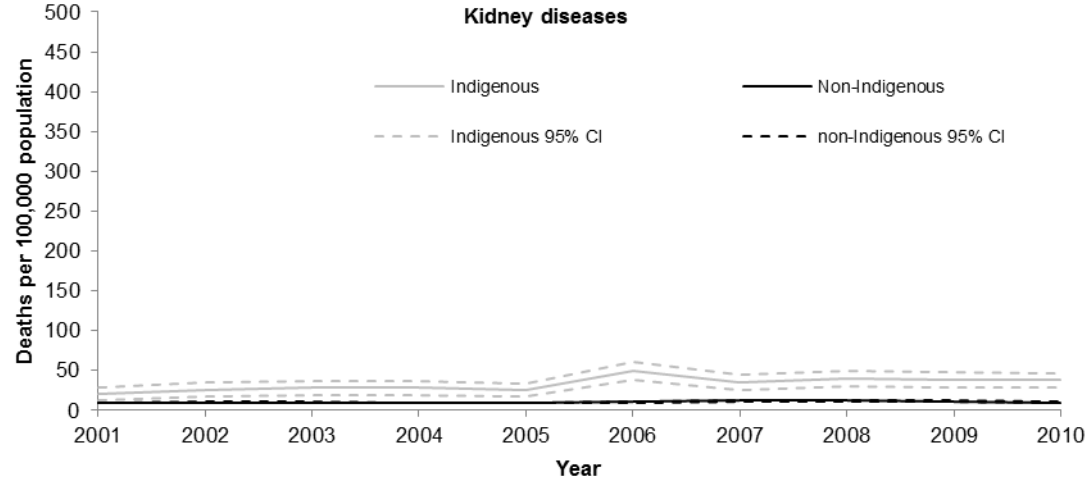


Figure 1.23.2: Mortality rates for Indigenous and other Australians, selected causes of death, NSW, Qld, WA, SA and NT, 2001–2010

(continued)







Source: AIHW analysis of ABS Mortality Database.

Figure 1.23.2 (continued): Mortality rates for Indigenous and other Australians, selected causes of death, NSW, Qld, WA, SA and NT, 2001–2010

Cause of death analysis

This section presents data on selected underlying, associated and multiple causes of death for Indigenous and non-Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, over the period 2006–10.

An underlying cause of death is the cause that led directly to the death; associated causes of death are all causes of death other than the underlying cause; multiple causes of death include all causes and conditions reported on the death certificate (i.e. both underlying and associated causes). These statistics are valuable in providing an accurate portrayal of mortality in deaths attributable to a number of concurrent disease processes.

Multiple causes of death

Table 1.23.27 presents data on crude and age-standardised mortality rates of selected multiple causes of deaths for Indigenous and non-Indigenous Australians, in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, over the period 2006–10.

- Over the period 2006–10 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, the mean number of causes of death was similar for Indigenous (3.1) and non-Indigenous Australians (3.3).
- The mean number of causes of death was 3.2 for Indigenous males and 3.4 for Indigenous females.
- The top three reported multiple causes of death for Indigenous Australians were circulatory diseases (reported in 50% of deaths), followed by other causes (33%) and respiratory diseases (26%).
- After adjusting for differences in age-structure, circulatory diseases were reported as a multiple cause of death in similar proportions for Indigenous (60%) and non-Indigenous deaths (58%). In contrast, diabetes was reported as a multiple cause of death in 23% of Indigenous deaths, compared with only 10% of non-Indigenous deaths.

Table 1.23.27: Selected multiple causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Underlying cause								Multiple cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Indig.	Non-Indig.
	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	Crude Mean no. of causes[(i)]	Crude Mean no. of causes[(i)]
									Males									
All causes	**513.3**	**100**	**1321.9**	**100**	**668.4**	**100**	**690.8**	**100**	**513.3**	**100**	**1321.9**	**100**	**668.4**	**100**	**690.8**	**100**	**3.2**	**3.2**
Circulatory diseases (I00–I99)	134.7	26.2	401.9	30.4	208.9	31.3	218.9	31.7	248.7	48.5	772.2	58.4	372.8	55.8	390.4	56.5	3.3	3.4
External causes (V01–Y98)	96.3	18.8	119.2	9.0	51.4	7.7	51.9	7.5	117.3	22.9	169.9	12.9	78.5	11.7	80.0	11.6	3.1	3.3
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	89.0	17.3	280.8	21.2	218.5	32.7	221.6	32.1	98.3	19.1	322.1	24.4	252.4	37.8	257.6	37.3	2.7	2.6
Digestive organ cancers (C15–C26)[(j)]	*27.9*	*5.4*	*78.6*	*5.9*	*59.9*	*9.0*	*60.0*	*8.7*	*30.6*	*6.0*	*87.3*	*6.6*	*68.5*	*10.3*	*69.1*	*10.0*	*2.6*	*2.4*
Lung cancer (C34)[(j)]	*24.2*	*4.7*	*82.0*	*6.2*	*45.7*	*6.8*	*45.8*	*6.6*	*25.4*	*5.0*	*88.1*	*6.7*	*49.8*	*7.5*	*50.2*	*7.3*	*2.8*	*2.6*
Cervical cancer (C53)[(j)(k)]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Non-malignant neoplasms (D00–D44, D47.0, D47.2, D47.7–D48)	1.2	0.2	n.p.	n.p.	2.2	0.3	2.3	0.3	1.6	0.3	n.p.	n.p.	4.0	0.6	4.2	0.6	3.3	3.2

(continued)

Table 1.23.27 (continued): Selected multiple causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Underlying cause								Multiple cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Indig.	Non-Indig.
	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	Crude Mean no. of causes[(i)]	Crude Mean no. of causes[(i)]
Endocrine, metabolic & nutritional disorders (E00–E89)	38.0	7.4	117.2	8.9	23.8	3.6	24.7	3.6	104.3	20.3	322.9	24.4	94.7	14.2	98.2	14.2	4.4	4.3
Diabetes (E10–E14)[(j)]	*32.4*	*6.3*	*102.4*	*7.7*	*17.1*	*2.6*	*17.8*	*2.6*	*84.3*	*16.4*	*269.5*	*20.4*	*67.0*	*10.0*	*69.6*	*10.1*	*4.4*	*4.3*
Respiratory diseases (J00–J99)	38.3	7.5	135.8	10.3	56.3	8.4	59.5	8.6	132.0	25.7	447.4	33.8	207.5	31.0	218.3	31.6	3.4	3.4
Digestive diseases (K00–K93)	29.9	5.8	62.6	4.7	22.2	3.3	22.6	3.3	65.7	12.8	152.5	11.5	61.0	9.1	62.1	9.0	3.9	3.9
Conditions originating in perinatal period (P00–P96)	13.0	2.5	n.p.	n.p.	3.0	0.5	n.p.	n.p.	15.7	3.1	n.p.	n.p.	4.1	0.6	n.p.	n.p.	2.1	2.3
Nervous system diseases (G00–G99)	14.0	2.7	32.4	2.5	23.7	3.6	24.8	3.6	37.6	7.3	103.0	7.8	59.5	8.9	62.3	9.0	3.1	3.0
Kidney diseases (N00–N29)	12.9	2.5	42.3	3.2	11.8	1.8	12.6	1.8	66.2	12.9	230.0	17.4	79.0	11.8	83.7	12.1	3.8	3.8
Infectious & parasitic diseases (A00–B99)	11.8	2.3	29.4	2.2	10.1	1.5	10.4	1.5	51.3	10.0	138.2	10.5	51.0	7.6	52.6	7.6	3.9	3.8
Other causes[(l)]	34.3	6.7	90.1	6.8	36.4	5.4	38.5	5.6	169.4	33.0	460.0	34.8	191.7	28.7	200.6	29.0	3.0	3.4

(continued)

Table 1.23.27 (continued): Selected multiple causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Underlying cause								Multiple cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Indig.	Non-Indig.
	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	Crude Mean no. of causes[(i)]	Crude Mean no. of causes[(i)]
									Females									
All causes	**414.2**	**100**	**1016.6**	**100**	**625.0**	**100**	**515.2**	**100**	**414.2**	**100**	**1016.6**	**100**	**625.0**	**100**	**515.2**	**100**	**3.4**	**3.2**
Circulatory diseases (I00–I99)	109.0	26.3	310.0	30.5	229.0	36.6	183.6	35.6	217.8	52.6	621.1	61.1	376.1	60.2	303.4	58.9	3.6	3.4
External causes (V01–Y98)	42.7	10.3	52.7	5.2	25.4	4.1	22.7	4.4	59.7	14.4	94.3	9.3	51.1	8.2	43.8	8.5	3.3	3.9
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	83.9	20.3	213.2	21.0	164.0	26.2	139.8	27.1	92.9	22.4	243.2	23.9	185.8	29.7	157.4	30.5	2.6	2.4
Digestive organ cancers (C15–C26)[(j)]	*21.6*	*5.2*	*58.8*	*5.8*	*44.0*	*7.0*	*37.1*	*7.2*	*24.3*	*5.9*	*68.7*	*6.8*	*49.9*	*8.0*	*41.9*	*8.1*	*2.6*	*2.3*
Lung cancer (C34)[(j)]	*17.7*	*4.3*	*43.7*	*4.3*	*27.3*	*4.4*	*23.4*	*4.5*	*19.3*	*4.7*	*48.9*	*4.8*	*29.2*	*4.7*	*25.0*	*4.8*	*2.7*	*2.4*
Cervical cancer (C53)[(j)(k)]	*4.8*	*1.2*	*8.8*	*0.9*	*2.1*	*0.3*	*1.9*	*0.4*	*5.3*	*1.3*	*10.3*	*1.0*	*2.6*	*0.4*	*2.3*	*0.4*	*2.5*	*2.4*
Non-malignant neoplasms (D00–D44, D47.0, D47.2, D47.7–D48)	1.4	0.3	n.p.	n.p.	2.3	0.4	1.9	0.4	2.6	0.6	5.9	0.6	4.2	0.7	3.5	0.7	3.4	3.1

(continued)

Table 1.23.27 (continued): Selected multiple causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Underlying cause								Multiple cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Indig.	Non-Indig.
Site of neoplasm	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	Crude Mean no. of causes[(i)]	Crude Mean no. of causes[(i)]
Endocrine, metabolic & nutritional disorders (E00–E89)	44.0	10.6	118.2	11.6	23.6	3.8	19.3	3.7	118.8	28.7	331.8	32.6	90.7	14.5	74.2	14.4	4.3	4.4
Diabetes (E10–E14)[(j)]	*38.0*	*9.2*	*101.8*	*10.0*	*15.9*	*2.6*	*13.0*	*2.5*	*97.0*	*23.4*	*267.1*	*26.3*	*56.2*	*9.0*	*45.9*	*8.9*	*4.2*	*4.3*
Respiratory diseases (J00–J99)	33.2	8.0	95.8	9.4	49.7	8.0	40.5	7.9	110.9	26.8	315.6	31.0	179.9	28.8	146.6	28.5	3.5	3.2
Digestive diseases (K00–K93)	25.0	6.0	53.1	5.2	21.9	3.5	18.0	3.5	54.1	13.1	123.5	12.1	56.5	9.0	46.8	9.1	4.0	3.8
Conditions originating in perinatal period (P00–P96)	9.5	2.3	n.p.	n.p.	2.3	0.4	n.p.	n.p.	11.7	2.8	n.p.	n.p.	2.9	0.5	n.p.	n.p.	2.1	2.3
Nervous system diseases (G00–G99)	9.0	2.2	21.5	2.1	28.2	4.5	23.1	4.5	27.5	6.6	66.8	6.6	63.0	10.1	51.5	10.0	3.3	2.8
Kidney diseases (N00–N29)	14.0	3.4	39.2	3.9	13.0	2.1	10.5	2.0	78.1	18.9	208.9	20.6	69.9	11.2	56.6	11.0	3.7	3.6
Infectious & parasitic diseases (A00–B99)	9.7	2.3	22.5	2.2	8.7	1.4	7.2	1.4	51.1	12.3	122.5	12.0	44.6	7.1	36.9	7.2	4.0	3.7
Other causes[(l)]	32.7	7.9	81.6	8.0	56.8	9.1	46.1	8.9	139.4	33.7	360.8	35.5	227.1	36.3	184.3	35.8	3.3	3.3

(continued)

Table 1.23.27 (continued): Selected multiple causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e][f][g]

	Underlying cause								Multiple cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Crude		Age-standardised[h]		Indig.	Non-Indig.
	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	Crude Mean no. of causes[i]	Crude Mean no. of causes[i]
									Persons									
All causes	**463.5**	**100**	**1156.1**	**100**	**646.6**	**100**	**597.3**	**100**	**463.5**	**100**	**1156.1**	**100**	**646.6**	**100**	**597.3**	**100**	**3.3**	**3.2**
Circulatory diseases (I00–I99)	121.8	26.3	352.5	30.5	219.0	33.9	201.1	33.7	233.2	50.3	690.2	59.7	374.4	57.9	344.1	57.6	3.4	3.4
External causes (V01–Y98)	69.4	15.0	84.5	7.3	38.4	5.9	37.1	6.2	88.4	19.1	130.7	11.3	64.7	10.0	61.5	10.3	3.1	3.5
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	86.4	18.6	242.4	21.0	191.2	29.6	176.1	29.5	95.6	20.6	277.1	24.0	219.0	33.9	201.6	33.8	2.7	2.5
Digestive organ cancers (C15–C26)[j]	*24.7*	*5.3*	*68.2*	*5.9*	*51.9*	*8.0*	*47.8*	*8.0*	*27.4*	*5.9*	*77.8*	*6.7*	*59.2*	*9.2*	*54.4*	*9.1*	*2.6*	*2.4*
Lung cancer (C34)[j]	*20.9*	*4.5*	*59.8*	*5.2*	*36.5*	*5.6*	*33.5*	*5.6*	*22.4*	*4.8*	*65.4*	*5.7*	*39.5*	*6.1*	*36.3*	*6.1*	*2.7*	*2.5*
Cervical cancer (C53)[j][k]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Non-malignant neoplasms (D00–D44, D47.0, D47.2, D47.7–D48)	1.3	0.3	3.3	0.3	2.3	0.3	2.1	0.3	2.1	0.4	5.3	0.5	4.1	0.6	3.8	0.6	3.3	3.1

(continued)

Table 1.23.27 (continued): Selected multiple causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Underlying cause								Multiple cause									
	Indigenous				Non-Indigenous				Indigenous				Non-Indigenous					
	Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Crude		Age-standardised[(h)]		Indig.	Non-Indig.
	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	No.	Proportion of total deaths %	Crude Mean no. of causes[(i)]	Crude Mean no. of causes[(i)]
Endocrine, metabolic & nutritional disorders (E00–E89)	41.0	8.8	118.1	10.2	23.7	3.7	21.8	3.7	111.6	24.1	329.8	28.5	92.7	14.3	85.4	14.3	4.3	4.4
Diabetes (E10–E14)[(j)]	*35.2*	*7.6*	*102.2*	*8.8*	*16.5*	*2.6*	*15.2*	*2.5*	*90.7*	*19.6*	*269.0*	*23.3*	*61.6*	*9.5*	*56.7*	*9.5*	*4.3*	*4.3*
Respiratory diseases (J00–J99)	35.7	7.7	112.8	9.8	53.0	8.2	48.7	8.2	121.4	26.2	372.2	32.2	193.6	29.9	178.2	29.8	3.4	3.3
Digestive diseases (K00–K93)	27.4	5.9	58.0	5.0	22.1	3.4	20.3	3.4	59.9	12.9	137.7	11.9	58.8	9.1	54.2	9.1	4.0	3.9
Conditions originating in perinatal period (P00–P96)	11.2	2.4	n.p.	n.p.	2.7	0.4	n.p.	n.p.	13.7	3.0	n.p.	n.p.	3.5	0.5	n.p.	n.p.	2.1	2.3
Nervous system diseases (G00–G99)	11.5	2.5	26.6	2.3	26.0	4.0	24.0	4.0	32.6	7.0	82.6	7.1	61.3	9.5	56.5	9.5	3.2	2.9
Kidney diseases (N00–N29)	13.4	2.9	40.6	3.5	12.4	1.9	11.4	1.9	72.2	15.6	217.0	18.8	74.4	11.5	68.4	11.5	3.7	3.7
Infectious & parasitic diseases (A00–B99)	10.7	2.3	25.5	2.2	9.4	1.5	8.7	1.5	51.2	11.0	129.6	11.2	47.8	7.4	44.1	7.4	4.0	3.7
Other causes[(l)]	33.5	7.2	85.7	7.4	46.6	7.2	43.1	7.2	154.4	33.3	406.3	35.1	209.5	32.4	193.1	32.3	3.1	3.3

(continued)

Table 1.23.27 (continued): Selected multiple causes of death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the four jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) These data exclude 5441 registered deaths where the Indigenous status was not stated over the period 2006–2010.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final) 2007 (final), 2008 (final), 2009 (revised), 2010 (preliminary). See Cause of Death, Australia, 2010 (cat. no. 3303.0) Explanatory Notes 35–39 and Technical Notes, Causes of Death Revisions, 2006 and Causes of Death Revisions, 2008 and 2009.

(h) Figures are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Mean number of causes is calculated based on the average number of causes of death present for a death with the selected underlying cause of death. This data item provides insight into co-morbidity.

(j) Data for lung cancer, cervical cancer and digestive organ cancers are a subset of the data presented for all cancers; data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table.

(k) Data for cervical cancer are for females only.

(l) Includes: diseases of the blood and blood-forming organs and certain disorders involving the immune system, mental & behavioural disorders, diseases of the eye and adnexa, diseases of the ear and mastoid process, diseases of the skin & subcutaneous tissue, diseases of the musculoskeletal system and connective tissue, diseases of the genitourinary system (excluding kidney diseases), pregnancy, childbirth & the puerperium, congenital malformations, deformations and chromosomal abnormalities, symptoms, signs and abnormal clinical findings not elsewhere classified.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Associated causes of death

Tables 1.23.28, 1.23.29 and 1.23.30 present data on selected underlying causes of death with associated causes of death for Indigenous and non-Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, over the period 2006–10.

- Over the period 2006–10, in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, 16% of Indigenous deaths were reported with no associated cause (Table 1.23.28).
- Deaths of Indigenous Australians were most commonly reported with circulatory diseases, respiratory diseases and endocrine, metabolic and nutritional disorders as associated causes of death (233, 121 and 112 deaths per 100,000 respectively) (Table 1.23.28).
- After adjusting for differences in age-structure, circulatory diseases were the most commonly reported associated causes of death for both Indigenous and non-Indigenous Australians (690 and 344 per 100,000, respectively) (Tables 1.23.29 and 1.23.30).
- Indigenous Australians with an underlying cause of death of kidney diseases were 8 times as likely as their non-Indigenous counterparts to have diabetes as an associated cause of death (8 deaths per 100,000 compared with 1 per 100,000, respectively), and 3 times as likely to have circulatory diseases as an associated cause of death (22 deaths per 100,000 compared with 7 per 100,000, respectively). Similarly, Indigenous Australians with an underlying cause of death of circulatory diseases were 4 times more likely as their non-Indigenous counterparts to have diabetes as an associated cause of death (74 deaths per 100,000 compared with 19 per 100,000, respectively), and more than twice as likely to have kidney diseases as an associated cause of death (54 deaths per 100,000 compared with 24 per 100,000, respectively) (Tables 1.23.29 and 1.23.30).

Table 1.23.28: Selected underlying cause of death with associated cause, Indigenous Australians, crude figures, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

Selected underlying cause			Reported with selected associated cause														
	No.	Reported alone %	I00–I99	V01–Y98	Cancer-malign.	C15–C26[(g)]	C34[(g)]	C53[(g)(h)]	Non-malig.	E00–E89	E10–E14[(g)]	J00–J99	K00–K93	P00–P96	G00–G99	N00–N29	A00–B99	Other causes[(i)]
All causes	11,132	16.0	233.2	88.4	95.6	2.7	22.4	27.4	2.1	111.6	90.7	121.4	59.9	13.7	32.6	72.2	51.2	154.4
Circulatory diseases (I00–I99)	2,925	16.5	121.8	6.5	3.4	—	0.6	0.5	—	30.0	24.7	29.2	9.2	n.p.	7.0	16.3	6.2	31.1
External causes (V01–Y98)	1,667	0.0	6.1	69.4	n.p.	—	—	—	n.p.	1.7	1.0	3.8	1.7	—	1.6	1.2	1.5	17.6
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	2,076	31.5	21.1	2.1	86.4	2.5	21.2	25.3	n.p.	12.7	9.8	19.4	8.1	—	2.9	7.5	5.7	20.9
Digestive organ cancers (C15–C26)[(g)]	*594*	*33.8*	*5.6*	*0.6*	*24.7*	—	*n.p.*	*24.7*	—	*3.9*	*3.1*	*3.7*	*4.9*	—	*0.7*	*2.1*	*2.0*	*5.0*
Lung cancer (C34)[(g)]	*502*	*27.5*	*5.8*	*n.p.*	*20.9*	—	*20.9*	—	—	*3.3*	*2.5*	*7.0*	*0.8*	—	*1.0*	*0.8*	*0.8*	*5.7*
Cervical cancer (C53)[(g)(h)]	*58*	*32.8*	*0.5*	*n.p.*	*2.4*	*2.4*	—	—	—	*0.4*	*n.p.*	*n.p.*	—	—	—	*0.5*	*n.p.*	*0.6*
Non-malignant neoplasms (D00–D44, D47.0, D47.2, D47.7–D48)	31	12.9	0.6	—	n.p.	—	—	—	1.3	0.3	0.3	0.3	—	—	n.p.	n.p.	—	0.6
Endocrine, metabolic & nutritional disorders (E00–E89)	984	1.8	32.6	1.9	1.4	—	n.p.	0.4	n.p.	41.0	36.6	8.2	3.6	—	2.1	16.1	5.7	12.9
Diabetes (E10–E14)[(g)]	*846*	*1.3*	*28.4*	*1.7*	*1.2*	—	—	*0.4*	*n.p.*	*35.2*	*35.2*	*6.6*	*2.9*	—	*1.7*	*14.5*	*5.2*	*10.4*
Respiratory diseases (J00–J99)	858	14.2	15.5	1.2	1.2	—	n.p.	0.3	—	6.6	4.6	35.7	2.1	n.p.	2.0	3.9	4.3	12.9
Digestive diseases (K00–K93)	659	8.3	9.6	2.0	0.8	—	n.p.	0.3	—	5.5	4.2	6.3	27.4	n.p.	2.0	5.5	7.6	11.7
Conditions originating in perinatal period (P00–P96)	270	41.9	n.p.	—	—	—	—	—	—	n.p.	—	—	—	11.2	—	—	n.p.	0.3
Nervous system diseases (G00–G99)	277	18.8	3.6	1.2	0.3	—	—	n.p.	—	1.8	1.4	4.2	0.3	n.p.	11.5	1.0	0.9	4.2

(continued)

Table 1.23.28 (continued): Selected underlying cause of death with associated cause, Indigenous Australians, crude figures, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)]

Selected underlying cause			Reported with selected associated cause														
	No.	Reported alone %	I00–I99	V01–Y98	Cancer-malign.	C15–C26[(g)]	C34[(g)]	C53[(g)(h)]	Non-malig.	E00–E89	E10–E14[(g)]	J00–J99	K00–K93	P00–P96	G00–G99	N00–N29	A00–B99	Other causes[(i)]
Kidney diseases (N00–N29)	323	10.2	7.4	1.3	0.4	—	n.p.	n.p.	—	4.0	2.9	3.6	2.0	—	0.5	13.4	2.8	3.7
Infectious & parasitic diseases (A00–B99)	258	11.2	4.1	0.5	0.5	—	—	0.3	n.p.	2.6	1.8	3.0	2.9	—	0.8	2.8	10.7	5.2
Other causes[(i)]	804	27.9	10.8	2.1	0.7	—	—	n.p.	n.p.	5.0	3.4	7.7	2.4	1.8	2.0	4.3	5.5	33.5

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the four jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final) 2007 (final), 2008 (final), 2009 (revised), 2010 (preliminary). See Cause of Death, Australia, 2010 (cat. no. 3303.0) Explanatory Notes 35–39 and Technical Notes, Causes of Death Revisions, 2006 and Causes of Death Revisions, 2008 and 2009.

(g) Data for lung cancer, cervical cancer and digestive organ cancers are a subset of the data presented for all cancers; data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table.

(h) Data for cervical cancer are for females only.

(i) Includes: diseases of the blood and blood-forming organs and certain disorders involving the immune system, mental & behavioural disorders, diseases of the eye and adnexa, diseases of the ear and mastoid process, diseases of the skin & subcutaneous tissue, diseases of the musculoskeletal system and connective tissue, diseases of the genitourinary system (excluding kidney diseases), pregnancy, childbirth & the puerperium, congenital malformations, deformations and chromosomal abnormalities, symptoms, signs and abnormal clinical findings not elsewhere classified.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.29: Selected underlying cause of death with associated cause, Indigenous Australians, age-standardised figures, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

Selected underlying cause			Reported with selected associated cause													
	No.	Reported alone %	I00–I99	V01–Y98	Cancer-malign	*C15–C26*[g]	*C34*[g]	*C53*[(g)(h)]	Non-malig	E00–E89	*E10–E14*[g]	J00–J99	K00–K93	G00–G99	N00–N29	A00–B99	Other causes[(i)]
All causes	11,132	16.0	690.2	130.7	277.1	77.8	65.4	5.6	5.3	329.8	269.0	372.2	137.7	82.6	217.0	129.6	406.3
Circulatory diseases (I00–I99)	2,925	16.5	352.3	16.4	13.4	n.p.	n.p.	—	n.p.	90.3	74.3	100.3	23.4	21.1	53.8	16.4	99.7
External causes (V01–Y98)	1,667	0.0	12.2	84.5	n.p.	n.p.	n.p.	—	n.p.	4.5	2.7	7.9	2.6	2.0	3.5	3.3	23.5
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	2,076	31.5	69.4	4.8	242.4	70.2	60.5	5.3	n.p.	40.4	31.4	59.3	22.2	8.2	22.7	13.7	59.2
Digestive organ cancers (C15–C26)[(h)]	*594*	*33.8*	*17.5*	*n.p.*	*68.2*	*68.2*	*n.p.*	—	—	*11.6*	*9.1*	*11.2*	*12.1*	*n.p.*	*6.1*	*5.1*	*13.4*
Lung cancer (C34)[(h)]	*502*	*27.5*	*19.1*	*n.p.*	*59.8*	*n.p.*	*59.8*	—	*n.p.*	*11.2*	*8.7*	*21.5*	*n.p.*	*2.9*	*2.6*	*1.6*	*16.3*
Cervical cancer (C53)[(h)(i)]	*58*	*32.8*	*n.p.*	*n.p.*	*4.8*	—	—	*4.8*	*n.p.*	*n.p.*	*n.p.*	*n.p.*	*n.p.*	—	*n.p.*	*n.p.*	*n.p.*
Non-malignant neoplasms (D00–D44, D47.0, D47.2, D47.7–D48)	31	12.9	n.p.	n.p.	n.p.	—	—	—	3.3	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Endocrine, metabolic & nutritional disorders (E00–E89)	984	1.8	96.7	4.9	5.8	n.p.	n.p.	—	n.p.	118.1	106.0	24.1	9.4	5.1	44.0	15.6	36.3
Diabetes (E10–E14)[(h)]	*846*	*1.3*	*84.6*	*4.2*	*5.2*	*n.p.*	*n.p.*	—	*n.p.*	*102.2*	*102.2*	*19.9*	*7.6*	*4.3*	*39.5*	*14.0*	*28.7*
Respiratory diseases (J00–J99)	858	14.2	54.3	3.6	4.6	n.p.	n.p.	n.p.	n.p.	21.6	15.3	112.8	5.2	6.7	13.4	12.3	41.7
Digestive diseases (K00–K93)	659	8.3	22.9	4.8	2.9	n.p.	n.p.	n.p.	n.p.	12.9	9.8	14.1	58.0	3.8	12.4	17.1	23.7
Nervous system diseases (G00–G99)	277	18.8	10.2	2.2	n.p.	n.p.	—	n.p.	—	5.8	4.6	9.6	n.p.	26.6	2.9	1.7	10.4
Kidney diseases (N00–N29)	323	10.2	21.6	3.5	n.p.	n.p.	n.p.	—	n.p.	10.9	8.0	11.2	4.5	n.p.	40.6	7.5	11.9

(continued)

Table 1.23.29 (continued): Selected underlying cause of death with associated cause, Indigenous Australians, age-standardised figures, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Selected underlying cause		Reported with selected associated cause													
	No.	Reported alone %	I00–I99	V01–Y98	Cancer-malign	*C15–C26*[g]	*C34*[g]	*C53*[(g)(h)]	Non-malig	E00–E89	*E10–E14*[(g)]	J00–J99	K00–K93	G00–G99	N00–N29	A00–B99	Other causes[(i)]
Infectious & parasitic diseases (A00–B99)	258	11.2	11.5	n.p.	n.p.	n.p.	—	—	n.p.	7.4	5.1	7.3	5.6	n.p.	8.8	25.5	12.7
Other causes[(j)]	804	27.9	37.2	5.1	n.p.	n.p.	—	—	n.p.	17.0	10.7	24.6	6.1	5.4	14.3	16.2	85.7

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the four jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final) 2007 (final), 2008 (final), 2009 (revised), 2010 (preliminary). See Cause of Death, Australia, 2010 (cat. no. 3303.0) Explanatory Notes 35–39 and Technical Notes, Causes of Death Revisions, 2006 and Causes of Death Revisions, 2008 and 2009.

(g) Figures are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(h) Data for lung cancer, cervical cancer and digestive organ cancers are a subset of the data presented for all cancers; data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table.

(i) Data for cervical cancer are for females only.

(j) Includes: diseases of the blood and blood-forming organs and certain disorders involving the immune system, mental & behavioural disorders, diseases of the eye and adnexa, diseases of the ear and mastoid process, diseases of the skin & subcutaneous tissue, diseases of the musculoskeletal system and connective tissue, diseases of the genitourinary system (excluding kidney diseases), pregnancy, childbirth & the puerperium, congenital malformations, deformations and chromosomal abnormalities, symptoms, signs and abnormal clinical findings not elsewhere classified.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.23.30: Selected underlying cause of death with associated cause, non-Indigenous Australians, age-standardised figures, NSW, Qld, WA, SA and NT, 2006–2010[a][b][c][d][e][f][g]

	Selected underlying cause		Reported with selected associated cause													
	No.	Reported alone %	I00–I99	V01–Y98	Cancer-malign	*C15–C26*[g]	*C34*[g]	*C53*[g][h]	Non-malig	E00–E89	*E10–E14*[g]	J00–J99	K00–K93	G00–G99	N00–N29	A00–B99	Other causes[i]
All causes	479,933	18.3	344.1	61.5	201.6	54.4	36.3	1.2	3.8	85.4	56.7	178.2	54.2	56.5	68.4	44.1	193.1
Circulatory diseases (I00–I99)	162,550	12.0	201.1	9.3	13.0	2.6	1.0	0.1	0.6	27.0	18.7	48.7	9.1	15.4	23.5	6.9	57.9
External causes (V01–Y98)	28,485	0.0	7.3	37.1	1.0	0.2	0.1	n.p.	0.0	1.5	0.8	5.4	1.1	1.6	1.3	1.2	8.3
Cancer - malignant neoplasms (C00–C97, D45, D46, D47.1, D47.3)	141,897	35.5	48.5	4.8	176.1	49.4	34.1	1.1	0.4	16.1	10.7	33.4	14.0	5.5	11.8	9.1	33.5
Digestive organ cancers (C15–C26)[h]	*38,528*	*39.4*	*12.0*	*1.3*	*47.8*	*47.8*	*0.1*	*n.p.*	*0.1*	*4.8*	*3.4*	*5.9*	*7.3*	*1.1*	*2.4*	*2.6*	*7.6*
Lung cancer (C34)[h]	*27,064*	*33.4*	*9.4*	*0.6*	*33.5*	*0.2*	*33.5*	*n.p.*	*0.1*	*2.6*	*1.8*	*10.4*	*1.1*	*0.8*	*1.0*	*0.8*	*6.6*
Cervical cancer (C53)[h][i]	*793*	*39.8*	*0.2*	*0.0*	*1.0*	*n.p.*	—	*1.0*	*n.p.*	*0.1*	*0.0*	*0.1*	*0.1*	*0.0*	*0.1*	*0.1*	*0.2*
Non-malignant neoplasms (D00–D44, D47.0, D47.2, D47.7–D48)	1,672	19.9	0.9	0.2	0.2	0.0	n.p.	n.p.	2.1	0.3	0.2	0.5	0.2	0.3	0.2	0.1	0.6
Endocrine, metabolic & nutritional disorders (E00–E89)	17,588	2.0	18.0	0.9	1.5	0.3	0.1	n.p.	0.1	21.8	15.9	4.9	1.4	1.9	5.2	1.9	8.2
Diabetes (E10–E14)[h]	*12,275*	*1.4*	*13.1*	*0.6*	*1.1*	*0.2*	*0.1*	*n.p.*	*0.1*	*15.2*	*15.2*	*3.1*	*0.8*	*1.2*	*4.1*	*1.5*	*5.4*
Respiratory diseases (J00–J99)	39,317	13.6	22.7	1.9	3.4	0.6	0.5	n.p.	0.2	4.7	3.0	48.7	2.4	3.1	4.2	3.8	16.4
Digestive diseases (K00–K93)	16,383	8.4	9.1	2.0	1.5	0.4	0.1	n.p.	0.1	3.0	1.6	4.9	20.3	1.3	3.4	4.2	8.1
Nervous system diseases (G00–G99)	19,287	18.0	7.9	1.3	1.1	0.2	0.0	n.p.	0.1	2.5	1.4	10.0	0.8	24.0	1.1	1.0	8.7

(continued)

Table 1.23.30 (continued): Selected underlying cause of death with associated cause, non-Indigenous Australians, age-standardised figures, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

Selected underlying cause	Reported with selected associated cause																
	No.	Reported alone %	I00–I99	V01–Y98	Cancer-malign	*C15–C26*[g]	*C34*[(g)]	*C53*[(g)(h)]	Non-malig	E00–E89	*E10–E14*[(g)]	J00–J99	K00–K93	G00–G99	N00–N29	A00–B99	Other causes[(i)]
Kidney diseases (N00–N29)	9,199	8.1	6.9	0.7	0.7	0.2	0.0	n.p.	0.0	1.9	1.0	3.2	0.9	0.6	11.4	1.6	4.1
Infectious & parasitic diseases (A00–B99)	6,983	8.8	4.1	0.5	0.8	0.2	0.1	n.p.	0.0	1.3	0.8	2.6	1.6	0.6	1.8	8.7	4.0
Other causes[(j)]	34,600	14.6	17.8	2.7	2.3	0.4	0.1	n.p.	0.2	5.3	2.7	16.0	2.3	2.3	4.5	5.5	43.1

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the four jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) Data are presented in 5-year groupings because of small numbers each year.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2006 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2006 (final) 2007 (final), 2008 (final), 2009 (revised), 2010 (preliminary). See Cause of Death, Australia, 2010 (cat. no. 3303.0) Explanatory Notes 35–39 and Technical Notes, Causes of Death Revisions, 2006 and Causes of Death Revisions, 2008 and 2009.

(g) Figures are directly age-standardised using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(h) Data for lung cancer, cervical cancer and digestive organ cancers are a subset of the data presented for all cancers; data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table.

(i) Data for cervical cancer are for females only.

(j) Includes: diseases of the blood and blood-forming organs and certain disorders involving the immune system, mental & behavioural disorders, diseases of the eye and adnexa, diseases of the ear and mastoid process, diseases of the skin & subcutaneous tissue, diseases of the musculoskeletal system and connective tissue, diseases of the genitourinary system (excluding kidney diseases), pregnancy, childbirth & the puerperium, congenital malformations, deformations and chromosomal abnormalities, symptoms, signs and abnormal clinical findings not elsewhere classified.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Data quality issues

Mortality data

Deaths

The mortality rate for Indigenous Australians can be influenced by identification of Indigenous deaths, late registration of deaths, and changes to death forms and/or processing systems. Because of the small size of the Indigenous population, these factors can significantly affect trends over time and between jurisdictions. At present, there is considerable variation across the states and territories in the completeness of mortality and hospital data for Indigenous people.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms. However, although data are provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked. Detailed breakdowns of Indigenous deaths are therefore provided for only five jurisdictions—New South Wales, Queensland, South Australia, Western Australia and the Northern Territory.

Indigenous status information from the two sources is kept in the database, although this may not be consistent for an individual.

In 2004, a new range of codes were introduced as part of the effort to standardise and improve indigenous identification in data collection nationally.

Indigenous Mortality Quality Study

The ABS conducted a number of quality studies based on the 2006 Census of Population and Housing and other data sets as part of the Census Data Enhancement (CDE) project (ABS 2008). The CDE Indigenous Mortality Quality Study linked Census records with death registration records and examined differences in the reporting of Indigenous status across the two data sets.

There were 106,945 registered death records available to be linked in the study. Of these, 1,800 (1.7%) were identified as Indigenous on the death registration. Of the total registered deaths, 98,898 (92%) were linked to a Census record. However, a much lower linkage rate was achieved for Indigenous deaths, with more than one quarter of all Indigenous death registrations (26% or 473) unable to be linked to a Census record. As a result, Indigenous death records were over-represented in the unlinked death registrations.

As well as being over-represented in unlinked death registrations, unlinked Indigenous death records had different characteristics to linked Indigenous death registrations. Indigenous death records with older ages at death and from non-remote regions were more likely to be linked.

Under-identification

Almost all deaths in Australia are registered. However, the Indigenous status of the deceased is not always recorded/recorded correctly. The incompleteness of Indigenous identification means the number of deaths registered as Indigenous is an underestimate of deaths occurring in the Aboriginal and Torres Strait Islander population (ABS 2009a). As a result, the observed differences between Indigenous and non-Indigenous mortality are underestimates of the true differences.

Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) with 10 years of adequate identification of Indigenous deaths in their recording systems (ABS and AIHW 2005). The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

The ABS calculated the implied coverage (identification) of Indigenous deaths for the period 2002–2006 using population estimates: New South Wales 45%, Victoria 32%, Queensland 51%, South Australia 62%, Western Australia 72%, Northern Territory 90%, Australia 55% (Tasmania and the Australian Capital Territory were not calculated because of small numbers) (ABS 2007).

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.

There are also current concerns about data quality for Causes of death, especially relating to external Causes of death of all Australians (not just Indigenous) (ABS 2006).

Problems associated with identification result in an underestimation of deaths and hospital separations for Indigenous people.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in death records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009b).

List of symbols used in tables

n.a.	not available
–	rounded to zero (including null cells)
0	zero
. .	not applicable
n.e.c.	not elsewhere classified
n.f.d.	not further defined
n.p.	not available for publication but included in totals where applicable, unless otherwise indicated

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1.24 Avoidable and preventable deaths

The number of deaths of Aboriginal and Torres Strait Islander people aged 0–74 years from avoidable and preventable conditions, expressed as a standardised rate and rate ratio

Data sources

Data for this measure come from the Australian Institute of Health and Welfare (AIHW) National Mortality Database.

National Mortality Database

The National Mortality Database is a national collection of de-identified unit record level data. It comprises most of the information recorded on death registration forms and medical (cause of death) certificates, including Indigenous status. The database is maintained by the Australian Institute of Health and Welfare (AIHW). Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the Australian Bureau of Statistics (ABS). Information on the cause of death is supplied by the medical practitioner certifying the death, or by a coroner. The data are updated each calendar year and are presented by state/territory of usual residence rather than state/territory where death occurs.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander people are registered. However, a proportion of these deceased are not reported as Aboriginal or Torres Strait Islander by the family, health worker or funeral director during the death registration process. That is, while data are provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked of relatives and friends of the deceased by the funeral director.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to 3 jurisdictions (Western Australia, South Australia and the Northern Territory) with adequate identification of Indigenous deaths in their recording systems from 1991 onwards. The quality of the time-series data is also influenced by the late inclusion of a not stated category for Indigenous status in 1998. Prior to this time, the not stated responses were probably included with the non-Indigenous.

Deaths registered in 2010 with a usual residence of Queensland have been adjusted to exclude deaths registered in 2010 that occurred prior to 2007. This is to minimise the impact of late registration of deaths due to recent changes in the timeliness of death registrations in Queensland.

Western Australian Aboriginal and Torres Strait Islander deaths for 2007, 2008 and 2009, have been revised to correct for a data quality issue which resulted in the over-reporting of Indigenous deaths during this period.

Deaths for which the Indigenous status of the deceased was not reported have been excluded from the analysis.

Data have been combined for the 5-year period 2006–2010 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years.

Avoidable and preventable mortality

The ICD-9 and ICD-10 codes used for avoidable mortality in this measure come from the report *Australian and New Zealand atlas of avoidable mortality* (Page et al. 2006).

Avoidable and preventable mortality refers to deaths from certain conditions that are considered avoidable given timely and effective health care. This also includes deaths amenable to legal measures, such as traffic safety (for example, speed limits and use of seat belts and motorcycle helmets). Avoidable and preventable conditions are sometimes further differentiated into conditions where death can be averted by prevention ('preventable') or by treatment ('amenable', 'treatable'):

- *Amenable* conditions are defined as those from which it is reasonable to expect death to be averted even after the condition has developed, for example, through early detection and effective treatment (such as cervical cancer).
- *Preventable* conditions include those for which there are effective ways of preventing the condition from occurring, for example, where the aetiology is to a considerable extent related to lifestyle factors (such as smoking).

Potentially avoidable deaths can sometimes be further assigned to primary (prevention), secondary (early intervention) and tertiary (medical treatment) levels of health intervention (National Health Performance Committee 2004).

Analyses

Age-standardised rates and ratios have been used as a measure of mortality in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of mortality among Indigenous people and those of non-Indigenous Australians, taking into account differences in age distributions.

Mortality

- Over the period 2006–2010, there were 118,866 deaths of people aged 0–74 years from avoidable causes in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, 6,777 (5.7%) of which were recorded as Aboriginal and Torres Strait Islander people (Table 1.24.2).
- Avoidable causes represented almost three-quarters (74%) of all deaths of Indigenous Australians aged 0–74 years in these five jurisdictions. This was higher than the proportion of deaths from avoidable causes in the non-Indigenous population (66%) (Table 1.24.3).
- After adjusting for differences in age structure, Indigenous Australians in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory died from all avoidable causes at 3.5 times the rate of non-Indigenous Australians (Table 1.24.1).

Avoidable mortality by age, sex and state/territory

- Over the period 2006–2010 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, males had higher mortality rates from avoidable causes than females for both Indigenous and non-Indigenous Australians (Table 1.24.1).
- Indigenous males and females died from avoidable causes at 3.3 and 3.9 times the rate of non-Indigenous males and females respectively.
- Indigenous males and females had higher mortality rates for avoidable causes than non-Indigenous males and females across all age groups. The greatest difference in rates between Indigenous and non-Indigenous mortality was in the 65–74 year age group (rate difference of 1,588 per 100,000). The highest rate ratio was in the 35–44 year age group, at 4.9 for males and 5.5 for females.
- The Northern Territory had the highest rates of mortality from avoidable causes among Indigenous persons (787 per 100,000), followed by Western Australia (685 per 100,000). These two jurisdictions had the largest rate differences between Indigenous and non-Indigenous avoidable mortality (Table 1.24.2).
- In Western Australia, Indigenous Australians aged 0–74 years died from avoidable causes at nearly five times the rate of non-Indigenous Australians. In the Northern Territory, the rate ratio was 4.1. In New South Wales, Queensland and South Australia, the rate ratio ranged from 2.6 to 3.5 (Table 1.24.2).
- The proportion of deaths at ages 0–74 years from avoidable causes which were considered to be amenable to health care was similar for Indigenous and non-Indigenous Australians (38% Indigenous, 39% non-Indigenous) (Table 1.24.3).

Table 1.24.1: Avoidable mortality, by Indigenous status, age group and sex, persons aged 0–74 years, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

Age group (years)	Deaths per 100,000[(h)] Indig.	95% LCL[(i)]	95% UCL[(j)]	Non-Indig.	Rate ratio[(k)]	Rate difference[(l)]
			Males			
Less than 1	491.9	417.3	566.6	268.3	1.8*	223.7*
1–4	29.2	19.5	38.9	12.6	2.3*	16.6*
0–4 years	*133.3*	*114.9*	*151.7*	*65.9*	*2.0**	*67.4**
1–14 years	*17.7*	*13.8*	*21.6*	*7.2*	*2.5**	*10.5**
5–14	14.8	10.5	19.2	4.9	3.0*	9.9*
15–24	128.4	114.2	142.6	44.8	2.9*	83.6*
25–34	246.3	222.5	270.1	66.4	3.7*	179.9*
35–44	471.4	436.1	506.8	96.6	4.9*	374.8*
45–54	827.0	771.7	882.3	197.0	4.2*	630.0*
55–64	1,426.4	1,328.6	1,524.3	432.7	3.3*	993.7*
65–74	2,982.4	2,763.7	3,201.2	1,113.9	2.7*	1,868.6*
Total 0–74 years (crude)[(m)]	**337.0**	**326.6**	**347.4**	**200.8**	**1.7***	**136.3***
Total 0–74 years (age standardised)[(m)(n)]	**638.1**	**615.4**	**660.8**	**192.0**	**3.3***	**446.1***
			Females			
Less than 1	380.2	312.7	447.6	211.6	1.8*	168.5*
1–4	31.4	21.1	41.6	8.2	3.8*	23.2*
0–4 years	*109.0*	*92.0*	*125.9*	*50.6*	*2.2**	*58.3**
1–14 years	*15.3*	*11.5*	*19.0*	*5.0*	*3.0**	*10.2**
5–14	10.3	6.5	14.0	3.6	2.8*	6.7*
15–24	54.4	44.9	63.8	16.4	3.3*	38.0*
25–34	107.4	91.8	123.0	23.8	4.5*	83.6*
35–44	274.4	248.5	300.3	49.6	5.5*	224.7*
45–54	509.4	467.8	551.1	114.7	4.4*	394.7*
55–64	1,063.2	983.6	1,142.8	249.0	4.3*	814.3*
65–74	2,048.0	1,885.8	2,210.2	641.6	3.2*	1406.4*
Total 0–74 years (crude)[(m)]	**232.7**	**224.1**	**241.4**	**115.5**	**2.0***	**117.3***
Total 0–74 years (age standardised)[(m)(n)]	**415.2**	**398.3**	**432.1**	**107.0**	**3.9***	**308.2***

(continued)

Table 1.24.1 (continued): Avoidable mortality, by Indigenous status, age group and sex, persons aged 0–74 years, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

Age group (years)	Deaths per 100,000[(h)] Indig.	95% LCL[(i)]	95% UCL[(j)]	Non-Indig.	Rate ratio[(k)]	Rate difference[(l)]
	Persons					
Less than 1	437.6	387.2	488.1	240.7	1.8*	196.9*
1–4	30.3	23.2	37.3	10.4	2.9*	19.8*
0–4 years	*121.4*	*108.9*	*133.9*	*58.4*	*2.1**	*63.0**
1–14 years	*16.5*	*13.8*	*19.2*	*6.1*	*2.7**	*10.4**
5–14	12.6	9.7	15.5	4.3	2.9*	8.3*
15–24	92.3	83.7	100.9	31.0	3.0*	61.3*
25–34	176.4	162.2	190.6	45.3	3.9*	131.1*
35–44	368.7	347.1	390.4	73.0	5.1*	295.7*
45–54	661.5	627.3	695.8	155.6	4.3*	506.0*
55–64	1,233.8	1,171.3	1,296.2	341.0	3.6*	892.7*
65–74	2,461.3	2,328.8	2,593.8	873.8	2.8*	1,587.6*
Total 0–74 years (crude)[(m)]	**284.8**	**278.0**	**291.5**	**158.4**	**1.8***	**126.3***
Total 0–74 years (age standardised)[(m)(n)]	**519.4**	**505.5**	**533.2**	**149.2**	**3.5***	**370.2***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) This table presents data for Avoidable Mortality as defined in Table A1 in Appendix 1.1 of the Australian and New Zealand Atlas of Avoidable Mortality.

(c) Data are presented in 5-year groupings because of the small numbers each year.

(d) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(h) Age-specific death rates for age groups calculated per 100,000 estimated resident population for selected age group.

(i) LCL = lower confidence limit.

(j) UCL = upper confidence limit.

(k) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(l) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(m) Totals exclude those aged 75 years and over and those for whom age was not stated.

(n) Total rate is directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.24.2: Avoidable mortality, by Indigenous status and state/territory, NSW, Qld, WA, SA and NT, persons aged 0–74 years, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Number			Indigenous			Non-Indigenous				
State/territory	Indig.	Non-Indig.	Not stated	No. per 100,000[(h)]	95% LCL[(i)]	95% UCL[(j)]	No. per 100,000[(h)]	95% LCL[(i)]	95% UCL[(j)]	Ratio[(k)]	Rate difference[(l)]
NSW	1,630	50,767	567	381.6	316.6	446.7	147.6	143.4	151.9	2.6*	234.0*
Qld	1,808	31,229	882	470.7	389.8	551.6	153.2	147.6	158.8	3.1*	317.5*
WA	1,417	14,449	295	684.7	546.4	823.0	141.9	134.4	149.5	4.8*	542.8*
SA	445	12,534	149	535.5	350.4	720.5	151.9	143.1	160.7	3.5*	383.6*
NT	1,477	1,204	13	787.1	632.5	941.7	193.1	154.4	231.7	4.1*	594.0*
NSW, Qld, WA, SA & NT[(m)]	**6,777**	**110,183**	**1,906**	**519.4**	**473.1**	**565.6**	**149.2**	**146.3**	**152.1**	**3.5***	**370.2***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) This table presents data for Avoidable Mortality as defined in Table A1 in Appendix 1.1 of the Australian and New Zealand Atlas of Avoidable Mortality.

(c) Data are presented in 5-year groupings because of the small numbers each year.

(d) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age groups.

(i) LCL = lower confidence limit.

(j) UCL = upper confidence limit.

(k) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(l) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(m) Totals exclude those aged 75 years and over and those for whom age was not stated.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.24.3: Avoidable mortality, by Indigenous status, persons aged 0–74 years, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Number			Per cent			No. per 100,000[(h)]			
Mortality category	**Indig.**	**Non-Indig.**	**Not stated**	**Indig.**	**Non-Indig.**	**Not stated**	**Indig.**	**Non-Indig.**	**Rate ratio[(i)]**	**Rate difference[(j)]**
Avoidable mortality	6,777	110,183	1,906	74.1	66.3	71.7	519.4	149.2	3.5*	370.2*
Amenable mortality as a percentage of avoidable mortality[(k)]	2,578	42,810	644	*38.0*	*38.9*	*33.8*	203.8	57.8	3.5*	145.9*
Amenable mortality as a percentage of total mortality[(l)]	2,578	42,810	644	*28.2*	*25.8*	*24.2*	203.8	57.8	3.5*	145.9*
Unavoidable mortality[(m)]	2,367	55,939	753	25.9	33.7	28.3	*184.8*	*75.5*	*2.4**	109.3*
Total mortality[(n)]	**9,144**	**166,122**	**2,659**	**100.0**	**100.0**	**100.0**	**704.2**	**224.7**	**3.1***	**479.4***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(b) This table presents data for Avoidable and Amenable Mortality as defined in Table A1 in Appendix 1.1 of the Australian and New Zealand Atlas of Avoidable Mortality.

(c) Data are presented in 5-year groupings because of small numbers each year.

(d) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(k) Amenable Mortality/Avoidable Mortality * 100.

(l) Amenable Mortality/Total Mortality * 100.

(m) Unavoidable Mortality is all causes other than those specified as Avoidable Mortality.

(n) Totals exclude those aged 75 years and over and those for whom age was not stated.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Avoidable mortality by subcategory, cause of death

Tables 1.24.4 and 1.24.5 present avoidable mortality by subcategory, cause of death and Indigenous status for persons aged 0–74 years in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined over the period 2006–2010.

- Indigenous Australians aged 0–74 years died from primary, secondary and tertiary avoidable causes at 3.3 to almost 4 times the rate of non-Indigenous Australians of the same age (Table 1.24.4).
- The most common types of avoidable conditions causing death among Aboriginal and Torres Strait Islander people were ischaemic heart disease, which caused 18.5% of avoidable mortality, followed by cancer (16.7%), diabetes (10%) and suicide (8.5%). Indigenous Australians died from cancer and suicide at around twice the rate of non-Indigenous Australians; and from Ischaemic heart disease and diabetes at 4.1 and 13.5 times the respective rates of non-Indigenous Australians (Table 1.24.5).
- Indigenous Australians died from selected invasive bacterial and protozoal infections at 5.7 times the rate of non-Indigenous Australians; alcohol-related disease at almost 6.6 times the rate; violence at over 9 times the rate; nephritis and nephrosis at more than 11 times the rate; and the highest in rheumatic heart disease at greater than 13 times the rate of non-Indigenous Australians.

Table 1.24.4: Avoidable mortality, by subcategory, by Indigenous status, persons aged 0–74 years, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Number			Per cent			No. per 100,000[(h)]			
Mortality category	**Indig.**	**Non-Indig.**	**Not stated**	**Indig.**	**Non-Indig.**	**Not stated**	**Indig.**	**Non-Indig.**	**Ratio[(i)]**	**Rate difference[(j)]**
Avoidable mortality	6,777	110,183	1,906	74.1	66.3	71.7	519.4	149.2	3.5*	370.2*
Primary[(k)(l)]	*3,526*	*60,575*	*1,029*	*52.0*	*55.0*	*54.0*	*269.9*	*81.7*	*3.3**	*188.2**
Secondary[(k)(m)]	*1,652*	*25,077*	*421*	*24.4*	*22.8*	*22.1*	*133.0*	*34.0*	*3.9**	*99.1**
Tertiary[(k)(n)]	*1,595*	*25,273*	*458*	*23.5*	*22.9*	*24.0*	*116.0*	*34.5*	*3.4**	*81.5**
Unavoidable mortality[(o)]	2,367	55,939	753	25.9	33.7	28.3	*184.8*	*75.5*	*2.4**	109.3*
Total mortality[(p)]	**9,144**	**166,122**	**2,659**	**100.0**	**100.0**	**100.0**	***704.2***	***224.7***	***3.1****	**479.4***

(continued)

Table 1.24.4 (continued): Avoidable mortality, by subcategory, by Indigenous status, persons aged 0–74 years, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p < 0.05 level.

(a) This table presents data for avoidable mortality as defined in table A1 in Appendix 1.1 of the Australian and New Zealand Atlas of Avoidable Mortality. It presents primary, secondary and tertiary weighted data as defined in table 3 of the Report of the New South Wales Chief Health Officer.

(b) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Data are presented in 5-year groupings because of small numbers each year.

(d) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group to 75+.

(i) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(j) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(k) Primary, secondary and tertiary weightings by cause do not always add to 100%, therefore primary, secondary and tertiary death counts may not add to the number of Avoidable deaths.

(l) Per cent = Primary Mortality divided by Avoidable Mortality multiplied by 100.

(m) Per cent = Secondary Mortality divided by Avoidable Mortality multiplied by 100.

(n) Per cent = Tertiary Mortality divided by Avoidable Mortality multiplied by 100.

(o) Unavoidable Mortality is all causes other than those specified as Avoidable Mortality.

(p) Totals exclude those aged 75 years and over and those for whom age was not stated.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Table 1.24.5: Avoidable mortality, by cause of death and Indigenous status, persons aged 0–74 years, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Number			Per cent			Indigenous			Non-Indigenous					
Cause of death	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Not stated	No. per 100,000[(h)]	95% LCL[(i)]	95% UCL[(j)]	No. per 100,000[(h)]	95% LCL[(i)]	95% UCL[(j)]	Ratio[(k)]	Rate difference[(l)]	Rate difference %[(m)]
Ischaemic heart disease	1,261	19,360	411	18.6	17.6	21.6	107.5	101.1	113.9	25.9	25.6	26.3	4.1*	81.6*	22.0
Cancer	1131	42,219	384	16.7	38.3	20.1	105.8	99.2	112.4	56	55.4	56.5	1.9*	49.8*	13.5
Digestive organ cancers (C15–C26)[(n)]	*340*	*13,171*	*118*	*5.0*	*12.0*	*6.2*	*31.6*	*28*	*35.2*	*17.5*	*17.2*	*17.8*	*1.8**	*14.2**	*3.8*
Lung cancer[(n)]	*422*	*14,954*	*134*	*6.2*	*13.6*	*7.0*	*42.1*	*37.9*	*46.4*	*19.7*	*19.4*	*20.0*	*2.1**	*22.4**	*6.1*
Cervical cancer (C53)[(n)]	*55*	*521*	*5*	*0.8*	*0.5*	*0.3*	*4.3*	*3.1*	*5.5*	*0.7*	*0.6*	*0.8*	*6.1**	*3.6**	*1*
Diabetes	678	3,534	68	10.0	3.2	3.6	64.2	59	69.4	4.8	4.6	4.9	13.5*	59.4*	16
Suicide	575	8,304	251	8.5	7.5	13.2	25.7	23.4	27.9	11.8	11.5	12.0	2.2*	13.9*	3.8
Road traffic injuries	433	4,521	126	6.4	4.1	6.6	20.8	18.6	22.9	6.4	6.3	6.6	3.2*	14.3*	3.9
Alcohol-related disease	369	2,941	67	5.4	2.7	3.5	25.6	22.9	28.3	3.9	3.8	4.1	6.6*	21.7*	5.9
Cerebrovascular disease	320	6,415	73	4.7	5.8	3.8	29.6	26.1	33.2	8.7	8.5	8.9	3.4*	20.9*	5.6
Selected invasive bacterial and protozoal infections	244	2,388	36	3.6	2.2	1.9	18.4	15.8	21.0	3.3	3.1	3.4	5.7*	15.2*	4.1
Chronic obstructive pulmonary disease	275	4,994	94	4.1	4.5	4.9	31.3	27.4	35.2	6.7	6.5	6.9	4.7*	24.6*	6.6
Nephritis and nephrosis	253	1,493	21	3.7	1.4	1.1	23.3	20.2	26.4	2	1.9	2.1	11.4*	21.2*	5.7
Complications of perinatal period	142	1,017	25	2.1	0.9	1.3	3.4	2.8	3.9	1.5	1.4	1.6	2.2*	1.8*	0.5
Violence	178	687	25	2.6	0.6	1.3	9.1	7.7	10.5	1.0	0.9	1.1	9.2*	8.1*	2.2
Birth defects	157	1,893	43	2.3	1.7	2.3	4.9	4	5.8	2.8	2.7	2.9	1.8*	2.1*	0.6

(continued)

Table 1.24.5 (continued): Avoidable mortality, by cause of death and Indigenous status, persons aged 0–74 years, NSW, Qld, WA, SA and NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Number			Per cent			Indigenous			Non-Indigenous					
Cause of death	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Not stated	No. per 100,000[(h)]	95% LCL[(i)]	95% UCL[(j)]	No. per 100,000[(h)]	95% LCL[(i)]	95% UCL[(j)]	Ratio[(k)]	Rate difference[(l)]	Rate difference %[(m)]
Rheumatic and other valvular heart disease	87	290	5	1.3	0.3	0.3	5.2	4	6.4	0.4	0.3	0.4	13.3*	4.8*	1.3
Other[(o)]	674	10,127	277	9.9	9.2	14.5	44.7	40.9	48.4	14	13.8	14.3	3.2*	30.6*	8.3
Total	**6,777**	**110,183**	**1,906**	**100.0**	**100.0**	**100.0**	**519.4**	**473.1**	**565.6**	**149.2**	**146.3**	**152.1**	**3.5***	**370.2***	**100.0**

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the $p < 0.05$ level.

(a) This table presents data for Avoidable Mortality as defined in Table A1 in Appendix 1.1 of the Australian and New Zealand Atlas of Avoidable Mortality.

(b) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Data are presented in 5-year groupings because of small numbers each year.

(d) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(h) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group.

(i) LCL = lower confidence limit.

(j) UCL = upper confidence limit.

(k) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(l) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

(m) Rate difference per cent is the rate difference for each specific cause divided by the rate difference for all avoidable causes.

(n) Data for lung cancer, cervical cancer and digestive organ cancers are a subset of the data presented for all cancers.

(o) Other includes all avoidable mortality not specifically detailed in the table.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Time series analysis

Longer term mortality trend data are limited to three jurisdictions—Western Australia, South Australia and the Northern Territory, which have over 20 years of adequate identification of Indigenous deaths in their recording systems.

There is a consistent time series of population estimates from 1991. Because of changes in the classification and coding of causes of death from ICD-9 (used up until 1996) to ICD-10 (used from 1997 onwards) which affect the comparability of the data, the analysis reported for this measure has been done for two time periods—1991–1996 and 1997–2010.

Because of the late inclusion of a 'not stated' category of Indigenous status in 1998 (before which 'not stated' responses were included with non-Indigenous deaths), Indigenous mortality rates have been compared with the mortality rates of other Australians (which include deaths of both non-Indigenous people and people for whom Indigenous status was not stated).

Mortality rates, rate ratios and rate differences between Indigenous and other Australians for avoidable causes over the periods 1991–1996 and 1997–2010 are presented in Table 1.24.6 and Figure 1.24.1.

- Over the period 1991–1996, in Western Australia, South Australia and the Northern Territory combined, there were significant declines in mortality rates for avoidable causes among Indigenous Australians aged 0–74 years. The fitted trend implies an average yearly decline in the rate of almost 27 per 100,000, which is equivalent to a 13.4% reduction in the rate over this period. These declines were significant for Indigenous females but not for males.
- Over the same period, there were significant declines in mortality rates for avoidable causes for other Australians (10%).
- Over the period 1991–1996, there were significant declines in the mortality rate ratios and rate differences between Indigenous and other Australians for avoidable causes for Indigenous females, but not for Indigenous males.
- Over the period 1997–2010, in Western Australia, South Australia and the Northern Territory combined there were also significant declines in the mortality rates for avoidable causes among Indigenous Australians aged 0–74 years. The fitted trend implies an average yearly decline in the rate of around 17 per 100,000, which is equivalent to a 23.5% reduction in the rate over the period. These declines were significant for both males and females.
- Over the same period, there were significant declines in mortality rates for avoidable causes for other Australians (36%). These declines were significant for both males and females.
- Over the period 1997–2010, there were significant increases in the mortality rate ratios and rate differences between Indigenous and other persons for avoidable mortality (18% and 20% respectively). The reduction in rates was significant for both males and females, but the change in rate differences was significant for males but not females.

Table 1.24.6: Age-standardised avoidable mortality rates, rate ratios and rate differences, avoidable causes, persons aged 0–74 years, WA, SA and NT, 1991–1996 and 1997–2010[a][b][c][d][e]

	Indigenous rate (deaths per 100,000[f])			Other Australian rate (deaths per 100,000[f][g])			Rate ratio[h]			Rate difference[i]		
	Males	**Females**	**Persons**	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
1991	1115.0	886.1	1000.7	346.5	177.0	259.5	3.2	5.0	3.9	768.6	709.1	741.1
1992	1030.4	850.0	941.0	332.3	173.1	250.5	3.1	4.9	3.8	698.1	676.9	690.5
1993	1096.1	812.8	950.5	334.2	168.1	249.0	3.3	4.8	3.8	761.9	644.6	701.5
1994	1173.5	739.4	946.7	328.0	165.1	244.7	3.6	4.5	3.9	845.6	574.3	702.0
1995	1124.9	682.9	892.5	311.9	159.4	234.1	3.6	4.3	3.8	813.0	523.5	658.4
1996	1003.6	693.0	842.5	310.4	159.2	233.7	3.2	4.4	3.6	693.2	533.9	608.8
Annual change[j]	**–5.6**	**–44.0***	**–26.9***	**–7.1***	**–3.8***	**–5.2***	**0.1**	**–0.2***	**–0.03**	**1.5**	**–40.2***	**–21.6***
Per cent change[k]	**–2.5**	**–24.8***	**–13.4***	**–10.2**	**–10.8***	**–10.1***	**8.4**	**–15.7***	**–3.8**	**1.0**	**–28.3***	**–14.6***
1997	1161.5	761.6	943.8	294.1	152.2	222.1	3.9	5.0	4.2	867.3	609.4	721.7
1998	987.0	728.8	853.9	287.5	141.5	213.6	3.4	5.2	4.0	699.6	587.4	640.3
1999	950.4	609.3	772.3	264.2	136.3	199.6	3.6	4.5	3.9	686.2	473.0	572.7
2000	1034.8	752.9	886.5	262.7	135.0	198.2	3.9	5.6	4.5	772.1	617.8	688.3
2001	1031.8	532.5	762.4	243.2	128.0	185.2	4.2	4.2	4.1	788.6	404.4	577.3
2002	844.7	667.8	753.2	233.1	127.4	179.8	3.6	5.2	4.2	611.6	540.4	573.4
2003	1016.8	529.9	755.9	225.4	121.9	173.3	4.5	4.3	4.4	791.4	407.9	582.5
2004	918.6	615.5	757.8	208.4	108.7	158.3	4.4	5.7	4.8	710.2	506.8	599.5
2005	910.1	538.6	707.5	210.9	104.3	157.4	4.3	5.2	4.5	699.2	434.3	550.0
2006	855.1	541.7	689.2	196.7	105.4	150.9	4.3	5.1	4.6	658.3	436.3	538.3
2007	925.3	576.2	734.4	203.5	107.5	155.4	4.5	5.4	4.7	721.8	468.8	579.0
2008	939.8	576.7	742.5	191.3	102.8	147.0	4.9	5.6	5.1	748.5	473.8	595.5
2009	769.2	577.6	668.6	187.9	104.7	146.3	4.1	5.5	4.6	581.3	472.9	522.3

(continued)

Table 1.24.6 (continued): Age-standardised avoidable mortality rates, rate ratios and rate differences, avoidable causes, persons aged 0–74 years, WA, SA and NT, 1991–1996 and 1997–2010[(a)(b)(c)(d)(e)]

	Indigenous rate (deaths per 100,000[(f)])			Other Australian rate (deaths per 100,000[(f)(g)])			Rate ratio[(h)]			Rate difference[(i)]		
	Males	**Females**	**Persons**	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
2010	848.6	473.6	644.8	185.6	100.3	142.9	4.6	4.7	4.5	662.9	373.3	501.8
Annual change[(j)]	–17.8*	–15.8*	–17.1*	–8.6*	–3.9*	–6.1*	0.1*	0.0	0.1*	–9.3*	–11.9*	–10.9*
Per cent change[(k)]	**–20.0***	**–27.0***	**–23.5***	**–37.8***	**–33.2***	**–36.0***	**25.8***	**8.0**	**17.7***	**–13.9***	**–25.4***	**–19.7***

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and 1997–2010.

(a) This table presents data for Avoidable Mortality as defined in Table A1 in Appendix 1.1 of the Australian and New Zealand Atlas of Avoidable Mortality.

(b) Data are reported for Western Australia, South Australia and the Northern Territory only. These three states and territories are considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these three jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for these jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and other mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(f) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group.

(g) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(h) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for Other Australians.

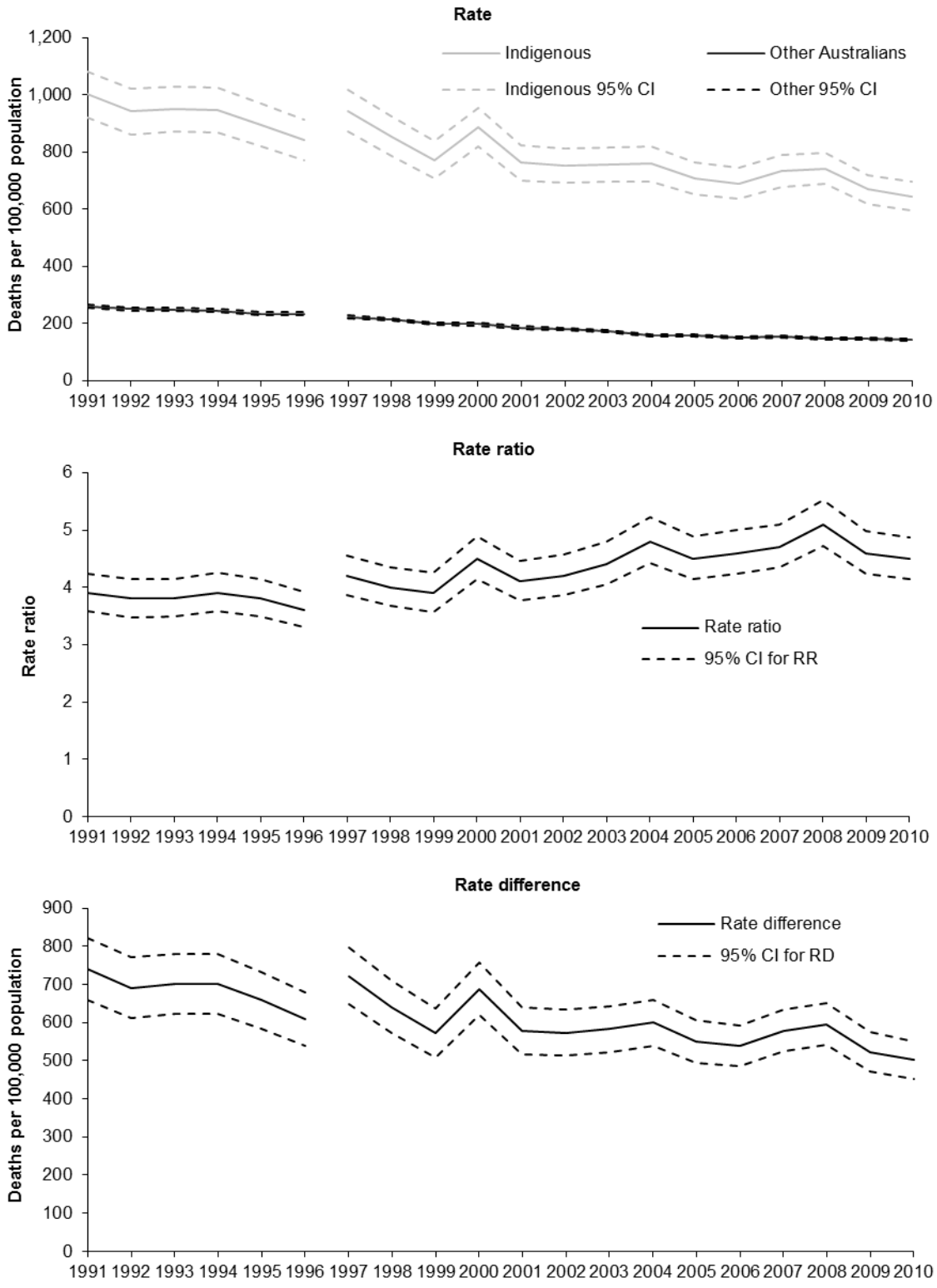
(i) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for Other Australians.

(j) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the period 1991–2010.

(k) Per cent change between 1991–1997 and 1998–2010 based on the average annual change over the period.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.



Note: Confidence intervals for 2007 and 2008 data could not be calculated due to data availability limitations

Source: ABS and AIHW analysis of ABS Mortality Database.

Figure 1.24.1: Mortality rates, rate ratios and rate differences for avoidable causes of death, Indigenous and other Australians aged 0–74 years, WA, SA & NT, 1991–1996 and 1997–2010

Additional trends analysis has been presented for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from 2001 to 2010 for Indigenous and non-Indigenous Australians in Table 1.24.7 and Figure 1.24.2.

- Over the period 2001–2010, in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined there were significant declines in the mortality rates for avoidable causes among Indigenous Australians aged 0–74 years. The fitted trend implies an average yearly decline in the rate of around 15 per 100,000 which is equivalent to a 21.4% reduction in the rate over the period.
- Over the same period, there were significant declines in mortality rates for avoidable causes for non-Indigenous Australians (23%).
- Over the period 2001–2010, there were no significant changes in the mortality rate ratio between Indigenous and non-Indigenous Australians for avoidable mortality. However, there was a significant decline in the mortality rate differences (21%).

Table 1.24.7: Age-standardised avoidable mortality rates, rate ratios and rate differences, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)(f)]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Annual change[(g)]	Per cent change[(h)]
Indigenous rate (deaths per 100,000[(i)])												
Males	834.0	757.3	759.5	694.4	650.8	669.7	669.3	635.1	578	629.6	–22.9*	–24.7*
Females	450.0	510.7	415.5	456.7	392.7	429.5	425.1	408.7	430	375.4	–8.1*	–16.1*
Persons	627.5	627.2	576.4	568	514.1	542	538.4	514.1	500	493.8	–14.9*	–21.4*
Non-Indigenous rate (deaths per 100,000[(i)])												
Males	244.8	233	221.5	213.8	202	197.1	195.2	193.2	186	180.2	–6.7*	–24.8*
Females	128.6	126.8	118.7	116.5	108.6	107.6	109.1	107.1	104.1	102	–2.9*	–20.3*
Persons	186.2	179.4	169.6	164.7	155	152.0	151.8	149.9	144.7	140.8	–4.8*	–23.2*
Rate ratio[(j)]												
Males	3.4	3.3	3.4	3.2	3.2	3.4	3.4	3.3	3.1	3.5	0.00	–0.3
Females	3.5	4.0	3.5	3.9	3.6	4	3.9	3.8	4.1	3.7	0.0	6.9
Persons	3.4	3.5	3.4	3.4	3.3	3.6	3.5	3.4	3.5	3.5	0.0	2.4
Rate difference[(k)]												
Males	589.2	524.3	538	480.7	448.7	472.6	474.1	441.9	392.1	449.4	–16.1*	–24.6*
Females	321.3	383.9	296.8	340.3	284.1	322	316.0	301.5	325.9	273.4	–5.1*	–14.4*
Persons	441.3	447.9	406.8	403.3	359.1	390	386.6	364.3	355.3	352.9	–10.2*	–20.7*

(continued)

Table 1.24.7 (continued): Age-standardised avoidable mortality rates, rate ratios and rate differences, NSW, Qld, WA, SA and NT, 2001–2010[(a)(b)(c)(d)(e)(f)]

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 2001–2010.

(a) This table presents data for Avoidable Mortality as defined in Table A1 in Appendix 1.1 of the Australian and New Zealand Atlas of Avoidable Mortality.

(b) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(e) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(f) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(g) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis over the period 2001–2010.

(h) Per cent change between 2001 and 2010 based on the average annual change over the period.

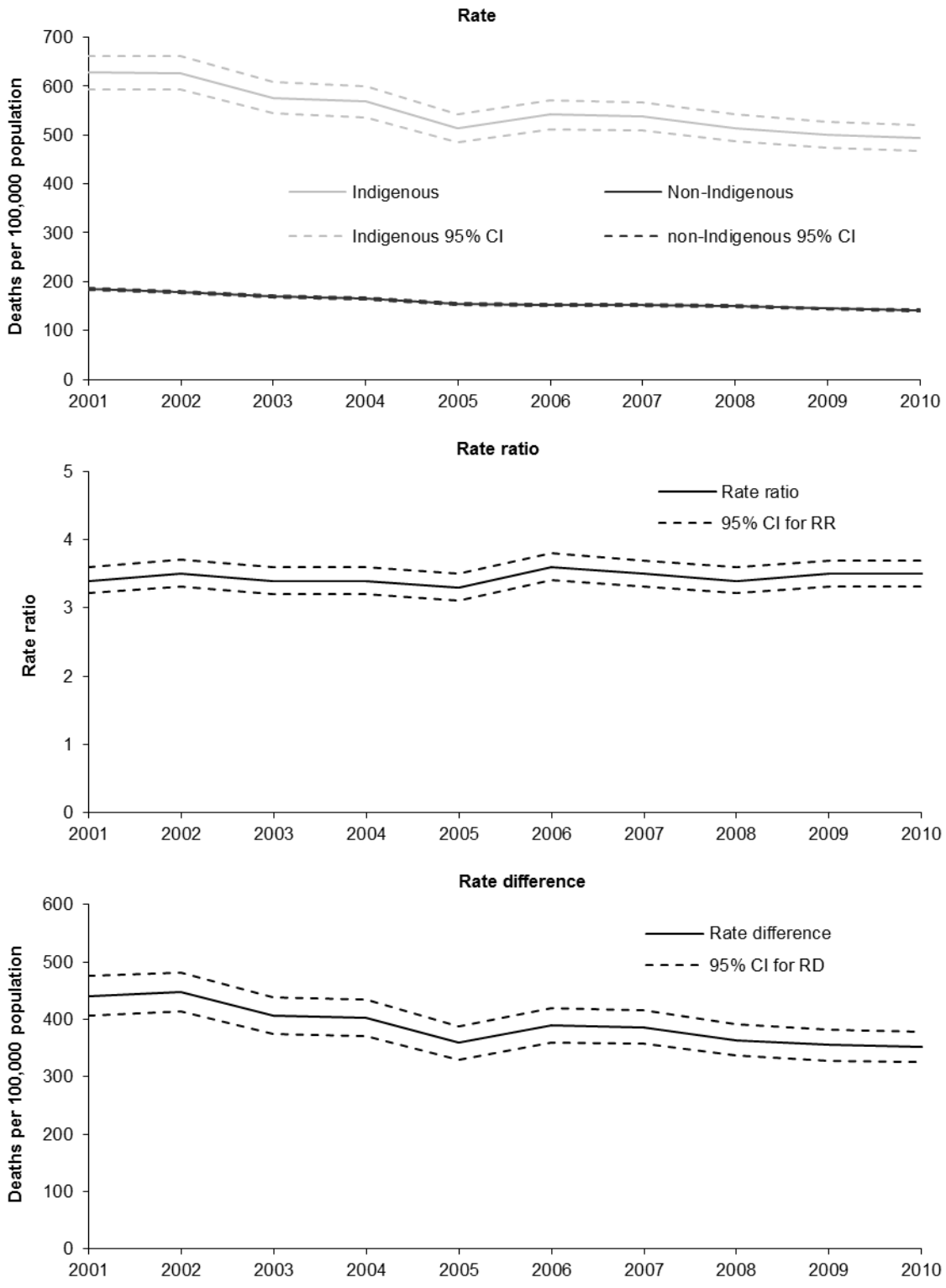
(i) Directly age-standardised death rates per 100,000, using the 2001 Australian Estimated Resident population, by 5-year age group.

(j) Rate ratio is the mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(k) Rate difference is the mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.



Source: ABS and AIHW analysis of ABS Mortality Database.

Figure 1.24.2: Mortality rates, rate ratios and rate differences for avoidable causes of death, Indigenous and non-Indigenous Australians aged 0–74 years, NSW, Qld, WA, SA & NT, 2001–2010

Additional information

Potential years of life lost

Potential years of life lost (PYLL) is an indicator of premature mortality. It represents the total number of years not lived before a given age (e.g. 75 years). This indicator gives more importance to the causes of death that occurred at younger ages than those that occurred at older ages.

The PYLL due to death is calculated for each person who died before age 75 years. Deaths of people aged 75 years and over are not included in the calculation. Potential years of life lost correspond to the sum of the PYLL contributed for each individual.

The impact of avoidable mortality on the Indigenous population is more evident at ages below 45 years than it is for the non-Indigenous population, for whom the impact is more noticeable at older ages.

- The proportions of PYLL from amenable causes for Indigenous persons were higher than those of non-Indigenous for age groups under 45 years. For example, the proportion of PYLL from amenable causes for Indigenous persons aged 25–44 was 27%, compared with 16% for the non-Indigenous population (Table 1.24.8).
- For the age groups above 45 years, the proportions of PYLL from amenable mortality in the Indigenous population were lower than those of the non-Indigenous population. For example, the proportion of PYLL from amenable mortality in Indigenous persons aged 65–74 years was 4% compared with 13% for non-Indigenous persons of the same age.

Table 1.24.8: Potential years of life lost to amenable mortality by Indigenous status and age group, persons aged 0–74 years, NSW, Qld, WA, SA & NT, 2006–2010[(a)(b)(c)(d)(e)(f)(g)]

	Number		Per cent	
Age group (years)	**Indigenous**	**Non-Indigenous**	**Indigenous**	**Non-Indigenous**
Less than 1	20,288	168,225	28.51	22.28
1–14	3,188	21,360	4.48	2.83
15–24	2,547	20,084	3.58	2.66
25–44	18,873	120,231	26.52	15.92
45–64	23,150	327,248	32.53	43.33
65–74	3,124	98,013	4.39	12.98
Total[(h)]	**71,168**	**755,161**	**100.0**	**100.0**

(a) This table presents data for Amenable Mortality as defined in Table A1 in Appendix 1.1 of the Australian and New Zealand Atlas of Avoidable Mortality.

(b) Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are currently considered to have adequate levels of Indigenous identification in mortality data for these periods. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions.

(c) Data are presented in 5-year groupings because of small numbers each year.

(d) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous mortality rate. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(e) Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards.

(f) Care should be taken when interpreting mortality rates for Queensland due to recent changes in the timeliness of birth and death registrations. Queensland deaths data for 2010 have been adjusted to minimise the impact of late registration of deaths on mortality indicators.

(g) All causes of death data from 2007 onward are subject to a revisions process - once data for a reference year are 'final', they are no longer revised. Affected data in this table are: 2007 (final), 2008 (final), 2009 (revised) and 2010 (preliminary). See Causes of Death, Australia, 2010 (cat.no. 3303.0) Explanatory Notes for further information.

(h) Excludes those aged 75 years and over and those for whom age was not stated.

Note: Deaths with not stated age have been excluded from the calculation of rates, but included in totals. Note that the ABS pro ratas not stated age across each age group in the calculation of mortality rates. This leads to some small differences in the mortality rates as calculated by ABS and AIHW.

Source: AIHW analysis of ABS Mortality Database.

Data quality issues

Mortality data

Mortality data presented in this report are from the AIHW National Mortality Database. The AIHW National Mortality Database includes information on the factors that caused death, as well as other information about the deceased person, such as age at death, place of death, country of birth, and where applicable, the circumstances of their death. These data are collected in Australia by the Registrars of Births, Deaths and Marriages in each state and territory. The data are then compiled nationally by the ABS, which codes the data according to the International Classification of Diseases (ICD).

Deaths

Although it is considered likely that most deaths of Aboriginal and Torres Strait Islander (Indigenous) Australians are registered, a proportion of these deaths are not registered as Indigenous. Information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred and may differ from the self-identified Indigenous origin of the deceased.

Queensland deaths

In November 2010, the Queensland Registrar of Births, Deaths and Marriages advised the ABS of an outstanding deaths registration initiative undertaken by the Registry. This initiative resulted in the November 2010 registration of 374 previously unregistered deaths which occurred between 1992 and 2006 (including a few for which a date of death was unknown). Of these, around three-quarters (284) were deaths of Aboriginal and Torres Strait Islander Australians.

The ABS discussed different methods of adjustment of Queensland death registrations data for 2010 with key stakeholders. Following the discussion, a decision was made by the ABS and key stakeholders to use an adjustment method that added together deaths registered in 2010 for usual residents of Queensland which occurred in 2007, 2008, 2009 and 2010. This method minimises the impact on mortality indicators used in various government reports. However, care should still be taken when interpreting Aboriginal and Torres Strait Islander death data for Queensland for 2010**.**

Western Australia deaths

Indigenous deaths registered in Western Australia in 2007, 2008 and 2009 were corrected by the ABS in mid-2012 due to some non-Indigenous deaths being incorrectly recorded as Indigenous for these years. Data presented in this report are based on the corrected data and will differ from mortality data presented in the 2010 Health Performance Framework report which presented data prior to the ABS corrections.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms.

Under-identification

At present, there is considerable variation across the states and territories in the completeness of mortality data for Indigenous people. Information concerning the number of deaths of Indigenous people is limited by the accuracy with which Indigenous persons are identified in death records. Problems associated with identification result in an underestimation of deaths of Indigenous people and in the gap in mortality between Indigenous and non-Indigenous Australians.

Mortality data for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are considered to have sufficient coverage to produce reliable statistics on Indigenous Australian deaths for the period 2001–2010.

Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) which are considered to have adequate identification from 1991. Queensland is considered to have sufficient coverage of Indigenous deaths from 1998.

The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note also that the quality of the cause of death data depends on every step of the process of recording and registering deaths (including the documentation available at each step of the process) from certification to coding of cause of death.

Indigenous Mortality Quality Study

The ABS conducted a number of quality studies based on the 2006 Census of Population and Housing and other data sets as part of the Census Data Enhancement (CDE) project (ABS 2008). The CDE Indigenous Mortality Quality Study linked Census records with death registration records for the 11-month period following the Census and examined differences in the reporting of Indigenous status across the two data sets.

For the purpose of this study, the linked record was assumed to be an Indigenous record if a positive response was recorded against the Indigenous status question on either the death registration or the corresponding Census record. Following linkage, the number of death records identified as Indigenous increased from 1,800 to 2,123 records, or from 1.7% to 2.0% of all registered deaths.

'While 323 additional death records were able to be identified as Indigenous from Census records, more may have been expected if all death records had been linked. A key reason records could not be linked appears to be Census undercount, with a corresponding Census record not existing to link to for many Indigenous death records' (ABS 2008).

The results from the study suggested that coverage of Indigenous deaths in death registrations is considerably higher, at least in 2006–07, than previous estimates have indicated. Nationally, the coverage rate was estimated to be 85%. State/territory coverage estimates were: NSW 76%, Vic 74%, Qld 87%, SA 86%, WA 92% and NT 99% (ABS 2008).

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in death records. These may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from *Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2021* (ABS 2009).

List of symbols used in tables

n.a. not available

— rounded to zero (including null cells)

0 zero

. . not applicable

n.e.c. not elsewhere classified

n.f.d. not further defined

n.p. not available for publication but included in totals where applicable, unless otherwise indicated

References

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