

INTRODUCTION

Aboriginal and Torres Strait Islander people are more likely to report poorer self-assessed health, and have higher rates of hospitalisation and higher prevalence rates for many health conditions than other Australians. The burden of disease suffered by Indigenous Australians is estimated to be two-and-a-half times greater than the burden of disease in the total Australian population. Long-term health conditions responsible for much of the ill-health experienced by Indigenous people include circulatory diseases, diabetes, respiratory diseases, musculoskeletal conditions, kidney disease, and eye and ear problems. For most of these conditions, Indigenous Australians experience an earlier onset of disease than other Australians.

The Indigenous population is disadvantaged across a range of socioeconomic dimensions that affect health outcomes, such as income, employment, educational attainment and home ownership (see Chapters 2, 3 and 4). In addition, Indigenous people are often more exposed to certain health risks such as smoking, poor nutrition, alcohol misuse, overcrowded living conditions and violence (see Chapter 8).

This chapter outlines the national data from a number of different health data collections to provide an overview of the health status of Aboriginal and Torres Strait Islander people. The chapter begins by providing information on the self-assessed health of Indigenous Australians, and the relationship between health status and various socio-demographic factors.

The chapter then provides an overview of the main causes of ill-health using self-reported prevalence data for selected health conditions, visits to general practitioners and admissions to hospitals. For the first time, a detailed section is included with information on the social and emotional wellbeing of Aboriginal and Torres Strait Islander people. Finally, specific causes of ill-health are examined in more detail, including circulatory system diseases, diabetes, chronic kidney disease, cancer, injury, respiratory diseases, communicable diseases, arthritis and other musculoskeletal conditions, eye and vision problems, ear and hearing problems, and oral health.

The quality and completeness of data vary between different sources and across jurisdictions. In many of the administrative data sources used in this chapter, such as the hospitals data, Indigenous people are under-identified and the rates of illness reported are therefore likely to be underestimates of the true rates of illness in the Aboriginal and Torres Strait Islander population.

SELF-ASSESSED HEALTH

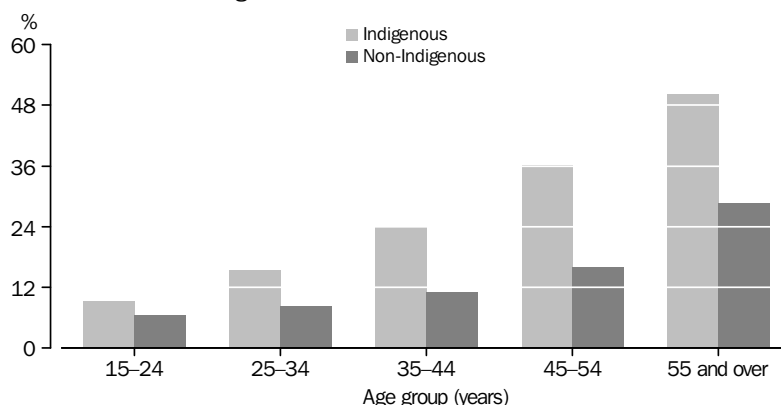
Self-assessed health status provides an overall measure of a population's health based on individuals' personal perceptions of their own health. Health is recognised as having physical, mental, social, and spiritual components and measures of health must therefore go beyond more objective measures such as morbidity and mortality. Self-assessed health provides a suitable broad measure of health status. It is dependent on an individual's awareness of their health as well as the social constructs and definitions of health that surround them. There may therefore be inconsistencies between a person's own self-assessed health status and their health status as measured by objective health assessment techniques (AHMAC 2006). Despite self-assessed health status being a subjective measure of health status, international studies have found it has strong predictive power for subsequent mortality (Quesnel-Vallee 2007).

In the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), around 43% of the Indigenous population aged 15 years and over reported their health as very good or excellent, 35% reported their health as being good and 22% reported their health as fair or poor. After adjusting for differences in the age structures of the Indigenous and non-Indigenous populations, Indigenous Australians were twice as likely as non-Indigenous Australians to report their health as fair or poor in 2004–05 (ABS 2006c).

The proportion of both Indigenous and non-Indigenous Australians reporting fair or poor health was higher in older age groups (graph 7.1). Around one in ten Indigenous Australians aged 15–24 years (9%) reported fair or poor health compared with 50% of those aged 55 years and over (ABS 2006c).

Indigenous females were more likely to report their health as fair or poor than Indigenous males (24% compared with 19% respectively). Indigenous Australians aged 15 years and over in non-remote areas were more likely than those in remote areas to report fair or poor health (23% compared with 19%) (AIHW 2007a).

7.1 PERSONS REPORTING FAIR OR POOR HEALTH, by Indigenous status and age—2004–05



Source: ABS 2004–05 NATSIHS, 2004–05 NHS

Changes over time in self-assessed health

Between 1994 and 2004–05, the proportion of Indigenous Australians who reported their health as fair or poor increased from 18% to 22%. There were corresponding decreases in the proportions reporting their health status as good and excellent/very good (table 7.2). The increase in the proportion reporting fair/poor health was more pronounced among Indigenous females, rising from 17% in 1994 to 24% in 2004–05.

7.2 SELF-ASSESSED HEALTH STATUS, Indigenous persons aged 15 years and over, by sex—1994 and 2004–05

	1994 NATSIS			2004–05 NATSIHS			
		Males	Females	Persons	Males	Females	Persons
Excellent/very good	%	48.8	42.1	45.3	44.9	41.7	43.2
Good	%	32.8	40.9	37.1	35.7	34.1	34.9
Fair/poor	%	18.1	16.8	17.5	19.4	24.1	21.9
Total	no.	102 200	112 400	214 600	139 600	154 000	293 600

Source: ABS 1994 NATSIS, 2004–05 NATSIHS

Self-assessed health and socioeconomic factors

Health status is related to socioeconomic status—people with higher socioeconomic status generally enjoy better health than those with lower socioeconomic status. In 2004–05, Indigenous adults with relatively high equivalised household incomes (as measured by the fourth and fifth quintiles) were more likely to report very good or excellent health than those with lower equivalised household incomes (49% compared with 33%) (table 7.3). For more information on equivalised income and income quintiles, see Glossary.

Indigenous males and females who had completed Year 12 or equivalent were also much more likely to report very good or excellent health (54% of males and 50% of females) compared with those whose highest level of schooling was Year 9 or below (28% of males and 29% of females). Similarly, employed Aboriginal and Torres Strait Islander people were more likely than those who were unemployed to report very good or excellent health (48% compared with 41%) (table 7.3). Those who were not in the labour force were even less likely than the unemployed to report very good or excellent health (29%), however, this is probably also age-related (i.e. older people comprise a greater share of those who are not in the labour force, and a smaller share of those with very good or excellent health).

After adjusting for age differences between the Indigenous and non-Indigenous populations, Indigenous adults were less likely than non-Indigenous adults with the same socioeconomic characteristics to report very good or excellent health. Apart from unemployed Indigenous and non-Indigenous females who were equally likely to report very good or excellent health, Indigenous to non-Indigenous sex-specific rate ratios were between 0.6 and 0.8 for the selected socioeconomic characteristics (table 7.3).

Self-assessed health and socioeconomic factors continued

7.3 SELECTED SOCIOECONOMIC CHARACTERISTICS, Proportion of Indigenous persons aged 18 years and over with excellent/very good health—2004–05

	PROPORTION WITH EXCELLENT/VERY GOOD HEALTH			INDIGENOUS TO NON-INDIGENOUS RATE RATIO (a)		
	Males	Females	Persons	Males	Females	Persons
	%	%	%	rate	rate	rate
Equivalentised gross household income^(b)						
Lowest quintile	31.3	34.2	33.0	0.8	0.7	0.7
Second quintile	42.0	37.1	39.3	0.7	0.6	0.7
Third quintile	51.9	43.6	48.1	0.8	0.7	0.7
Fourth and fifth quintile	46.8	51.6	49.2	0.7	0.7	0.7
Highest year of school completed^(c)						
Year 9 or below ^(d)	28.3	28.5	28.4	0.8	0.7	0.7
Year 10 or 11	45.5	39.8	42.4	0.6	0.6	0.7
Year 12 or equivalent	54.0	50.2	51.9	0.7	0.6	0.7
Labour force person						
Employed	48.7	46.0	47.5	0.7	0.6	0.7
Unemployed	43.2	37.8	40.8	0.6	1.0	0.8
Not in the labour force	23.5	32.1	29.3	0.7	0.6	0.6

- (a) Rate ratios are the age standardised rates for Indigenous persons divided by the rates for other persons. Rates are directly age standardised to the 2001 Australian population.
- (b) The annual household income quintile boundaries are based on the equivalentised gross household income per week for the total population of Australia. Boundaries are as follows: lowest quintile \$0–264 per week; second quintile \$265–426 per week; third quintile \$427–611 per week; fourth quintile \$612–869 per week; and fifth quintile \$870 or more per week.
- (c) Excludes persons still at school.
- (d) Includes persons who never attended school.

Source: AIHW analysis of the ABS 2004–05 NATSIHS

Self-assessed health status and other selected indicators

According to the 2004–05 NATSIHS, Indigenous adults who reported having been removed from their natural families as children were more likely to report fair or poor health (35% of men and 41% of women) than those who had not (20% of men and 25% of women). Indigenous adults who spoke English as their main language at home were more likely to report fair or poor health (22% of men and 27% of women) than those who spoke an Aboriginal or Torres Strait Islander language at home (19% of both men and women).

HEALTH CONDITIONS AND ILLNESS

This section provides an overview of Indigenous peoples' experience of ill-health using burden of disease and injury estimates, self-reported prevalence data, visits to general practitioners and admissions to hospitals. This is followed by more detailed information on the specific causes of ill-health. For information on the prevalence of need for assistance with core activities among Aboriginal and Torres Strait Islander people, see Chapter 5.

Burden of disease and injury

The burden of disease and injury for Indigenous Australians was assessed using Disability Adjusted Life Years (DALYS)—the sum of years of life lost due to premature death and years lived with disability (Vos et al 2007). In 2003 it was estimated that the burden of disease and injury for Indigenous Australians was 95,976 DALYS. This was 3.6% of the burden of disease for the total Australian population.

Burden of disease and injury continued

Cardiovascular disease (18%) and mental disorders (16%) were the leading causes of the disease burden in the Indigenous population (table 7.4). Intentional and unintentional injuries accounted for a further 13% of the disease and injury burden.

7.4 DISABILITY ADJUSTED LIFE YEARS (DALYS), broad cause group, Indigenous persons—2003

Cause	DALYS	Proportion of total
	no.	%
Cardiovascular disease	16 786	17.5
Mental disorders	14 860	15.5
Chronic respiratory disease	8 587	8.9
Diabetes	8 498	8.9
Cancers	7 817	8.1
Unintentional injuries	6 989	7.3
Intentional injuries	5 395	5.6
Other	27 044	28.2
All causes	95 976	100.0

Source: Vos et al 2007

LEADING SPECIFIC CAUSES OF THE BURDEN OF DISEASE

Ischaemic heart disease was the leading specific cause of the disease burden experienced by Indigenous males, accounting for 12% of the total Indigenous male burden. Type 2 diabetes, anxiety and depression, and suicide were the next three leading specific causes, together accounting for another 18% of the Indigenous male burden. For Indigenous females, the leading specific cause of the burden was anxiety and depression, accounting for 10% of the burden. Type 2 diabetes, ischaemic heart disease and asthma were the next three leading specific causes, accounting for a further 23% of the Indigenous female burden.

COMPARISON WITH THE AUSTRALIAN BURDEN OF DISEASE

Indigenous Australians suffer a burden of disease that is two-and-a-half times greater than the burden of disease in the total Australian population. This indicates a very large potential for health gain. Two-thirds of the difference in the burden of disease was due to mortality and one-third was due to disability which, in part, reflects a higher case fatality among Indigenous Australians. Non-communicable diseases, which include chronic illnesses such as cardiovascular disease, diabetes, mental disorders and chronic respiratory diseases were responsible for 70% of the observed difference in the burden of disease between the Indigenous and non-Indigenous population. If Indigenous Australians experienced the same burden rates as the total Australian population due to the 11 selected risk factors examined, 29% of the total Indigenous Australian burden of disease could be avoided. (Vos et al 2007).

Prevalence of long-term health conditions

Information about the self-reported prevalence of long-term health conditions is available from the 2004–05 NATSIHS, with comparable data for non-Indigenous people available from the 2004–05 National Health Survey (NHS). In the NATSIHS, respondents were asked whether they had any of a number of specific health conditions (e.g. asthma, cancer, arthritis, diabetes, etc.) or any other health conditions that had lasted, or were expected to last, for six months or more.

Prevalence of long-term health conditions continued

Around two-thirds of Indigenous people (65%) reported at least one long-term health condition in 2004–05 (ABS 2006c). Eye/sight problems (30%), asthma (15%), musculoskeletal conditions (including back conditions and arthritis) (13%) and heart and circulatory diseases (12%) were the most commonly reported long-term health conditions among Indigenous people (table 7.5).

The NATSIHS did not specifically ask about mental health or psychological problems in the context of long-term health conditions, but respondents in non-remote areas were shown a prompt listing that included mental health conditions when asked if they had any other long-term health conditions. Some 22% of Aboriginal and Torres Strait Islander people in non-remote areas indicated that they had a long-term mental or behavioural condition when responding to this question (AIHW forthcoming).

7.5 PREVALENCE OF SELECTED LONG-TERM HEALTH CONDITIONS AND AGE STANDARDISED RATE RATIOS—2001 and 2004–05

Long-term health conditions (a)	2001			2004–05		
	Indigenous %	Non-Indigenous %	Rate ratio(b) rate	Indigenous %	Non-Indigenous %	Rate ratio(b) rate
Arthritis	8.1	13.7	1.2	9.1	15.4	1.2
Asthma	16.5	11.5	1.5	15.1	10.2	1.6
Back pain/problems n.e.c., disc disorders	15.2	20.9	1.0	13.1	16.2	1.2
Diabetes/high sugar levels	5.2	3.2	3.3	6.1	3.8	3.4
Ear/hearing problems	14.6	13.8	1.1	(c)12.2	(c)12.7	(c)1.0
Eye/sight problems	29.2	51.7	0.9	(c)30.2	(c)52.2	(c)0.9
Heart, circulatory problems/diseases	10.5	17.0	1.1	11.8	18.0	1.3
Kidney disease	1.2	0.3	5.3	1.8	0.3	10.0
Neoplasms/cancer	**0.8	1.7	0.7	0.8	2.0	0.7
Osteoporosis	*0.3	1.6	0.4	0.9	3.0	0.7

* estimate has a relative standard error of 25% to 50% and should be used with caution

** estimate has a relative standard error greater than 50% and is considered too unreliable for general use

(a) ICD-10 based output classification.

(b) Rate ratios are the age standardised rates for Indigenous persons divided by the rates for non-Indigenous persons.

(c) Difference between Indigenous and non-Indigenous data is not statistically significant.

Source: ABS 2001 NHS, 2001 NHS(I), 2004–05 NATSIHS, 2004–05 NHS

Indigenous people had a higher prevalence of most types of long-term health conditions compared with non-Indigenous people (table 7.5). The differences were greatest for kidney disease, (where the overall age standardised Indigenous rate was 10 times the non-Indigenous rate) and diabetes/high sugar levels (three times higher).

Between 2001 and 2004–05, there was a significant decrease in the proportion of Indigenous Australians reporting ear and hearing problems (from 15% to 12%) and a significant increase in the proportion of Indigenous Australians reporting kidney problems (from 1% to 2%).

Encounters with general practitioners

Information about encounters with general practitioners (GPs) is available from the 'Bettering the Evaluation and Care of Health' (BEACH) survey. Encounters can be direct consultations (the patient was seen by the GP) or indirect consultations (the patient was not seen by a GP but a clinical service was provided). Information is collected from a random sample of approximately 1,000 GPs from across Australia each year. A sample of 100 consecutive encounters is collected from each GP.

Over the period 2001–02 to 2005–06, there were 496,100 GP encounters recorded in the BEACH survey, of which 7,682 encounters (1.5%) were with patients who identified as Aboriginal and/or Torres Strait Islander. The number of GP encounters with Indigenous Australians in the BEACH survey is likely to be underestimated. This may be due to lower attendance in general practices where other services exist (e.g. Aboriginal Community Controlled Health Services), failure by GPs to record the Indigenous status of patients, or reluctance on the part of patients to identify as Indigenous (AIHW 2002a). However, other evidence, such as continuing lower levels of access to MBS-funded services (AHMAC 2006) suggests that Indigenous people are accessing primary health care services at a lower rate than non-Indigenous people. The reliability of the results of the BEACH survey has been tested in a sub-study in 2003 of about 9,000 patient encounters during the survey. The sub-study found that when the question on Indigenous status was asked of the patient within the context of a series of questions about origin and cultural background, 2.2% identified as Aboriginal or Torres Strait Islander—twice the rate recorded in the BEACH survey for that year (AIHW: Britt et al 2003).

Table 7.6 presents the number and age standardised rate of selected problems managed at GP encounters with Indigenous and other patients over the period 2001–02 to 2005–06. Respiratory problems were the most frequently managed problems at GP encounters with both Indigenous and other patients (around 20 per 100 encounters). Circulatory problems and endocrine and metabolic problems (including diabetes) were also frequently managed at encounters with Indigenous clients (20 and 19 per 100 encounters respectively).

The rate of GP encounters for non-gestational diabetes was three times higher for Indigenous patients than for other patients (10 compared with 3 per 100 encounters) (table 7.6). For most types of problems managed, however, GP encounter rates were similar for Indigenous and other Australians. Contrasting the problems identified in table 7.6 with hospitalisation rates for similar conditions (table 7.8) suggests a much higher use of hospital services by Indigenous people in comparison to GP services. It is impossible to know, however, how much of this difference is a reflection of under-identification of Indigenous people in BEACH data or to what extent it represents lower use of GP services by Indigenous Australians.

Encounters with general practitioners continued

7.6 PROBLEMS MANAGED BY GENERAL PRACTITIONERS, by Indigenous status of patient—2001–02 TO 2005–06

Problems managed (a)	NUMBER		RATE(b)		
	Indigenous	Other	Indigenous	Other	Ratio
Respiratory	1 582	96 697	20.3	19.8	1.0
Circulatory	1 034	81 995	19.8	16.7	1.2
Endocrine and metabolic	1 139	55 339	18.6	11.3	1.6
Diabetes—non-gestational(c)	587	15 017	10.2	3.1	3.3
Musculoskeletal	1 048	84 712	15.3	17.3	0.9
Skin	1 231	82 684	14.7	16.9	0.9
Psychological	983	56 822	12.0	11.6	1.0
Digestive	804	48 966	10.9	10.0	1.1
Pregnancy and family planning	485	21 157	4.7	4.4	1.1
Ear	395	19 708	4.1	4.0	1.0
Other	2 665	179 319	35.9	36.7	1.0
Total problems	11 366	727 399	156.4	148.8	1.1

(a) Classified according to ICPC-2 chapter codes (Classification Committee of the World Organization of Family Doctors (WICC) 1998).

(b) Per 100 encounters. Rates are directly age standardised using the total encounters over the period 2001–02 to 2005–06 as the standard.

(c) ICPC-2 codes T89-T90.

Source: BEACH survey of general practice, AGPSCC

Hospitalisations

Hospitalisation statistics are not a measure of prevalence or incidence of a disease, but can provide insights into the health of the population who use hospitals, through data on the number of, and reasons for, hospitalisations. The principal diagnosis is the main reason for the patient's episode of hospital care (see box 7.7 for information on the hospitalisations data and box 7.9 on Indigenous identification in these data.)

7.7 HOSPITALISATIONS DATA

Hospitalisation data provides a measure of a population's use of hospital services. A number of qualifications need to be made about hospitalisation data with regard to Indigenous identification, which is incomplete in some jurisdictions. In this publication, hospital separations (hospitalisations) for 2005–06 are presented for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory for public and most private hospitals, and have not been adjusted for under-identification. Box 7.9 provides detailed information about the identification of Indigenous status in the hospitalisations data.

All hospitalisations are presented by principal diagnosis or the diagnosis established to be the problem that was chiefly responsible for the patient's episode of care in hospital. Disease categories are based on the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM Fifth Edition).

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

*Hospitalisations
continued*

reflect differences between observed hospitalisations of Aboriginal and Torres Strait Islander people and those expected if they had the same hospitalisation rate as other Australians.

All hospitalisation rates have been calculated using the average of the Indigenous and non-Indigenous Estimated Resident Population projections for the years 2005 and 2006 based on the 2001 Census. The data are presented by state of residence, rather than state of hospitalisation as this is more consistent with the population data used to calculate rates. State of residence is also likely to have a greater impact on health status than state of hospitalisation.

Hospitalisations for which Indigenous status was not reported are included with the non-Indigenous hospitalisations under the 'Other' category. This is because a preliminary analysis of the data indicated that the demographic profile of patients for whom Indigenous status was not recorded was similar to that of 'non-Indigenous' patients. In 2005–06, there were approximately 128,900 hospitalisations for which the Indigenous status of the patient was not reported in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, compared with approximately 243,100 hospitalisations recorded for Indigenous people. In these six jurisdictions, the proportion of records where Indigenous status was not reported declined from approximately 11.8% of hospitalisations in 1997–98 to 1.8% of hospitalisations in 2005–06.

in 2005–06, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, the most common diagnosis for hospitalisation of Indigenous Australians was for care involving dialysis which is used in the treatment of kidney failure. Indigenous Australians were also commonly hospitalised for injury (e.g. transport accidents, assault and suicide); pregnancy and childbirth (e.g. complications of labour and delivery); respiratory diseases (e.g. influenza and pneumonia); digestive diseases (e.g. diseases of the liver, intestines and oral cavity); mental and behavioural disorders (e.g. schizophrenia and psychoactive substance use) and circulatory diseases (e.g. ischaemic heart disease and cerebrovascular disease). 'Symptoms, signs and abnormal clinical and laboratory findings' was also a common diagnosis for Indigenous Australians and includes a broad range of conditions such as Sudden Infant Death Syndrome (SIDS), convulsions, fever of unknown origin, pain in throat and chest, and abdominal and pelvic pain (table 7.8).

Hospitalisation rates for Indigenous Australians were higher than for other Australians for many diagnoses (table 7.8). Indigenous Australians were hospitalised for care involving dialysis at 14 times the rate, and for endocrine, nutritional and metabolic diseases, which includes diabetes, at three times the rate for other Australians.

7.8 HOSPITALISATIONS OF INDIGENOUS PERSONS (a), by principal diagnosis—2005–06

<i>Principal diagnoses (ICD-10-AM chapter)</i>	<i>Observed</i>	<i>Expected</i>	<i>Ratio(b)</i>
	<i>hospitalisations</i>	<i>hospitalisations</i>	
	no.	no.	rate
Factors influencing health status and contact with health services (Z00–Z99)	108 682	18 634	5.8
Care involving dialysis (Z49)	100 153	7 392	13.5
Other (Z00–Z48, Z50–Z99)	8 529	11 241	0.8
Injury, poisoning and certain other consequences of external causes (S00–T98)	18 843	9 383	2.0
Complications of pregnancy, childbirth and the puerperium (O00–O99)	18 012	11 548	1.6
Diseases of the respiratory system (J00–J99)	15 722	6 877	2.3
Diseases of the digestive system (K00–K93)	12 906	13 342	1.0
Symptoms, signs and abnormal clinical and laboratory findings, n.e.c. (R00–R99)	10 461	6 723	1.6
Mental and behavioural disorders (F00–F99)	10 083	5 318	1.9
Diseases of the circulatory system (I00–I99)	7 859	3 799	2.1
Diseases of the genitourinary system (N00–N99)	6 220	5 614	1.1
Diseases of the skin and subcutaneous tissue (L00–L99)	5 599	2 073	2.7
Certain infectious and parasitic diseases (A00–B99)	5 249	2 562	2.0
Endocrine, nutritional and metabolic diseases (E00–E89)	4 797	1 610	3.0
Other (C00–D48, G00–H95, M00–M99, P00–Q99)(c)	18 609	21 265	0.9
Total(d)	243 106	108 793	2.2

- (a) Data are for NSW, Vic., Qld, WA, SA and NT combined. These six jurisdictions are considered to have adequate levels of Indigenous identification. Data exclude private hospitals in the NT.
- (b) Ratio is observed hospitalisations divided by expected hospitalisations. Expected hospitalisations are calculated based on the age, sex and cause-specific rates of other Australians.
- (c) 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, and congenital malformations, deformations and chromosomal abnormalities.
- (d) Includes hospitalisations for which no principal diagnosis was recorded.

Source: AIHW National Hospital Morbidity Database

Hospitalisations
continued

7.9 IDENTIFICATION OF INDIGENOUS PERSONS IN HOSPITAL RECORDS

Information on the number of hospitalisations of Indigenous people is limited by the accuracy with which Indigenous patients are identified in hospital records. Problems associated with identification result in an underestimation of morbidity patterns and hospitalisation use among Aboriginal and Torres Strait Islander persons. At present, it is not possible to ascertain the extent to which a change in hospitalisation rates for Indigenous people is due to differences in Indigenous identification or a genuine change in hospital use/ health status.

Information on the quality of Indigenous identification in hospital data is provided annually to the Australian Institute of Health and Welfare by the states and territories. For several years, Queensland, South Australia, Western Australia and the Northern Territory reported that Indigenous status in their hospital separations data was of acceptable quality (AIHW 2007b). The AIHW, however, has recently completed an assessment of the level of Indigenous under-identification in hospital data 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. These six states and territories

*Hospitalisations
continued*

have therefore been included in all analyses of Indigenous hospitalisations data in this report.

From the AIHW study, it was possible to produce factors for the level of under-identification in hospital data for each jurisdiction. The use of these factors to adjust 2005–06 hospitalisations data resulted in an 11% increase in hospitalisations recorded for Indigenous people. Therefore, the adjusted age standardised hospitalisation rate for Indigenous Australians was 2.4 times the rate for other Australians instead of 2.2 times the rate.

SPECIFIC CAUSES OF
ILL-HEALTH

The following section covers prevalence of various conditions as well as information on hospitalisations for specific conditions such as diabetes, respiratory diseases, circulatory diseases, ear and hearing problems, eye and vision problems and musculoskeletal diseases.

*Mental health and social
and emotional wellbeing*

From the perspective of Indigenous Australians, mental health and social and emotional wellbeing are part of a holistic understanding of life that encompasses not only the wellbeing of the individual, but also the wellbeing of their family and community (Swan & Raphael 1995). In addition, social and emotional wellbeing refers to more than simply the presence or absence of illness (i.e. a deficit approach); it also incorporates a strengths perspective that refers to the wellness of the individual.

Until recently, the majority of national data on the social and emotional wellbeing of Aboriginal and Torres Strait Islander people centred on the use of mental health services. These data consistently indicate higher usage rates of mental health services by Indigenous Australians when compared with other Australians.

For the first time, national data about the social and emotional wellbeing of Indigenous adults were collected in the 2004–05 NATSIHS. The social and emotional wellbeing module in the 2004–05 NATSIHS included measures of psychological distress, the impact of psychological distress, positive wellbeing, feelings of anger, experiences of stressors, perceptions of discrimination, cultural identification, and removal from family. Some selected findings from the 2004–05 NATSIHS and other data sources are reported below.

LIFE STRESSORS

In the 2004–05 NATSIHS, respondents aged 18 years and over were asked to indicate which (if any) of 15 stressors they, their family and/or friends had experienced during the previous 12 months (ABS 2006c). Four in ten (42%) of Indigenous respondents reported that they, their family and/or friends had experienced the death of a family member or close friend in the previous year, 28% indicated serious illness or disability, 20% reported alcohol-related problems, 19% reported that a member of their family had been sent to jail or was in jail, 17% reported not being able to get a job, and 17% reported overcrowding at home.

Non-Indigenous comparisons are not available for 2004–05 as a question on life stressors was not asked of non-Indigenous Australians in the 2004–05 NHS. However, data from the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) and 2002

*Mental health and social
and emotional wellbeing
continued*

LIFE STRESSORS *continued*

General Social Survey (GSS) show that Indigenous Australians aged 18 years and over were 1.4 times as likely as non-Indigenous Australians to report experiencing at least one stressor in the previous 12 months (83% compared with 57%) (ABS 2004d). Specifically, Indigenous adults were three-and-a-half times as likely as non-Indigenous adults to have been affected by alcohol/drug-related problems and/or abuse/violent crime and were twice as likely to have reported the death of a family member/close friend. In addition, Indigenous adults in non-remote areas were twice as likely as non-Indigenous adults to have reported mental illness as a stressor.

PSYCHOLOGICAL DISTRESS

Five questions from the Kessler Psychological Distress Scale were used to measure psychological distress in the 2004–05 NATSIHS. The responses to these five questions were then scored and summed to create a 'Kessler-5' (K5) psychological distress score. The results indicated that 27% of Indigenous adults had high or very high levels of psychological distress, with Indigenous females significantly more likely than Indigenous males to report high levels of psychological distress (32% and 21%, respectively) (AIHW forthcoming). The proportions of Indigenous people reporting high or very high levels of psychological distress did not differ significantly by age group or geographic remoteness.

By utilising data from both the 2004–05 NATSIHS and the 2004–05 NHS, the levels of psychological distress among Indigenous and non-Indigenous Australians can be compared. 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. This difference applied to males as well as to females (AIHW forthcoming).

Among Indigenous Australians who indicated some level of psychological distress (i.e. those who answered 'a little of the time', 'some of the time', 'most of the time' or 'all of the time' to at least one K5 question), 21% indicated having been unable to work or carry out their normal activities because of their distress for at least one day during the previous four weeks, while 12% had seen a doctor or other health professional at least once for this reason over the same time period. One in seven (15%) of those who indicated some level of psychological distress indicated that physical health problems were the main cause of those feelings all or most of the time.

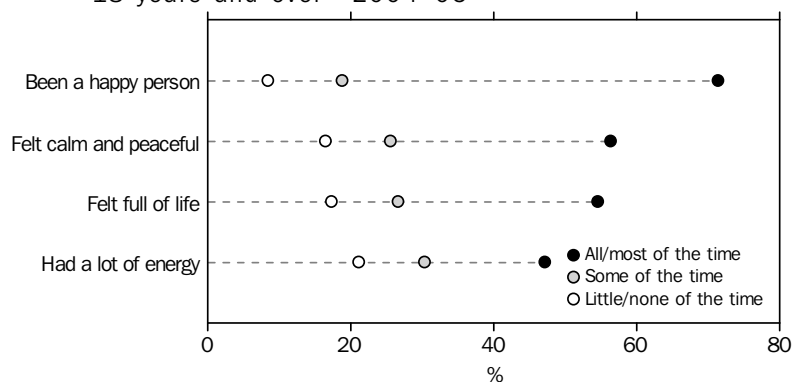
POSITIVE WELLBEING

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 in the previous four weeks. 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, while just under half (47%) said they had a lot of energy all or most of the time (graph 7.10). Only a relatively small proportion (between 2% and 7%) of Indigenous Australians said they experienced these feelings of positive wellbeing 'none of the time' (AIHW 2007a).

*Mental health and social
and emotional wellbeing
continued*

POSITIVE WELLBEING *continued*

7.10 POSITIVE WELLBEING INDICATORS(a), Indigenous persons aged 18 years and over—2004–05



(a) In the four weeks prior to interview.

Source: ABS 2004–05 NATSIHS

Indigenous people aged 55 years and over were more likely than those in the younger age groups to report feeling happy and calm/peaceful all or most of the time however the only statistically significant difference was between the rates for this older group and those aged 25–34 years. Indigenous people aged 55 years and over were least likely to report feeling full of life or having a lot of energy all or most of the time (AIHW forthcoming).

HOSPITALISATIONS FOR MENTAL AND BEHAVIOURAL DISORDERS

Data on hospitalisations for mental and behavioural disorders provide a measure of the use of hospital services by those with problems related to mental health. In 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were 5,504 hospitalisations of Indigenous males and 4,579 hospitalisations of Indigenous females for mental and behavioural disorders (table 7.11). This represented 5% and 3% of all hospitalisations of Indigenous males and females respectively.

There were more hospitalisations of Indigenous males and females than expected based on the rates for other Australians for most types of mental and behavioural disorders (table 7.11). In particular, hospitalisations for 'mental and behavioural disorders due to psychoactive substance use' were almost five times higher for Indigenous males and around three times higher for Indigenous females than for other males and females.

Hospitalisation rates for intentional self-harm may also be indicative of mental illness and distress. In 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous Australians were more likely to be hospitalised for intentional self-harm than other Australians (rates were three times as high for Indigenous males and twice as high for Indigenous females) (see table 7.26).

7.11 HOSPITALISATIONS OF INDIGENOUS PERSONS FOR MENTAL AND BEHAVIOURAL DISORDERS(a), by principal diagnosis—2005–06

	MALES			FEMALES		
	<i>Observed</i>	<i>Expected</i>	<i>Ratio</i>	<i>Observed</i>	<i>Expected</i>	<i>Ratio</i>
Mental disorders due to psychoactive substance use (F10–F19)	2 436	538	4.5	1 331	400	3.3
Schizophrenia, schizotypal and delusional disorders (F20–F29)	1 517	558	2.7	1 035	412	2.5
Mood and neurotic disorders (F30–F48)	1 111	906	1.2	1 816	1 790	1.0
Disorders of adult personality and behaviour (F60–F69)	93	51	1.8	143	168	0.8
Organic mental disorders (F00–F09)	81	34	2.4	71	30	2.3
Other mental and behavioural disorders (F50–F59, F70–F99)	266	186	1.4	183	264	0.7
Total	5 504	2 273	2.4	4 579	3 064	1.5

(a) Data are for NSW, Vic., Qld, WA, SA and NT combined, based on state/territory of usual residence. Data exclude private hospitals in the NT.

Source: AIHW National Hospital Morbidity Database

Circulatory system diseases

Circulatory system diseases include coronary heart disease, stroke, peripheral vascular disease, hypertension and heart failure. The main underlying problem in circulatory system diseases is atherosclerosis, a process that clogs blood vessels with deposits of fat, cholesterol and other substances that have built up in the inner lining of the vessels. It is most serious when it affects the blood supply to the heart (which can lead to angina, heart attack or sudden death) or to the brain (which can lead to a stroke).

PREVALENCE OF CIRCULATORY DISEASE

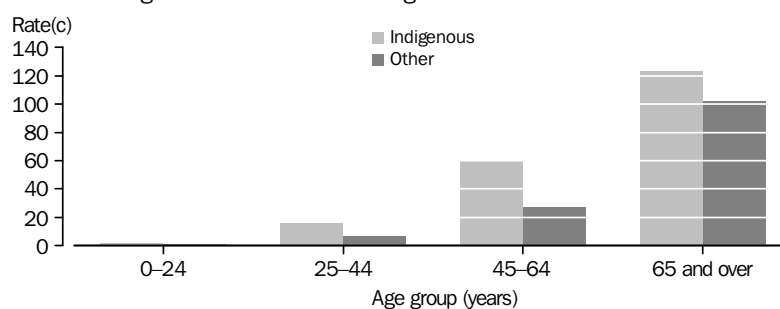
In 2004–05, an estimated 12% of Indigenous people reported suffering from heart disease and/or other circulatory conditions (table 7.5). The reported prevalence of heart and circulatory conditions was higher among older people. For example, 54% of Indigenous people aged 55 years and over reported a heart or circulatory condition compared with 11% of those aged 25–34 years (ABS 2006c).

Hypertensive disease (high blood pressure) was the most common type of heart or other circulatory condition reported by both Indigenous and non-Indigenous Australians in 2004–05 (15% and 11% respectively). After adjusting for age differences between the Indigenous and non-Indigenous populations, Indigenous people were one-and-a-half times as likely as non-Indigenous people to have hypertensive disease (AIHW 2007a).

HOSPITALISATIONS FOR CIRCULATORY DISEASES

In 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, diseases of the circulatory system were the main reason for 4,181 hospitalisations of Indigenous males, representing 4% of hospitalisations for Indigenous males. For Indigenous females, the comparative figures were 3,678 hospitalisations, representing 3% of hospitalisations for Indigenous females (table 7.13).

Indigenous Australians had higher hospitalisation rates for diseases of the circulatory system than other Australians across all age groups. The differences were most marked in relative terms among those aged 25–44 years and 45–64 years, where Indigenous hospitalisation rates were more than twice the rates for other Australians (graph 7.12).

Circulatory system
diseases continuedHOSPITALISATIONS FOR CIRCULATORY DISEASES *continued***7.12** HOSPITALISATION RATES, CIRCULATORY DISEASES (a)(b), by Indigenous status and age—2005–06

(a) Data for NSW, Vic, Qld, WA, SA and NT combined.

(b) Based on principal diagnosis.

(c) Rates are per 1,000 population.

Note: ICD-10-AM codes I00–I99.

Source: AIHW National Hospital Morbidity Database

Indigenous Australians were hospitalised at higher rates than other Australians for most types of circulatory system diseases (table 7.13). For the most common type of circulatory system disease (ischaemic heart disease), there were over twice as many hospitalisations of Indigenous males and four times as many hospitalisations of Indigenous females as for other Australian males and females. Hospitalisations for hypertensive disease were also substantially higher in the Indigenous population than among other Australians. Most notably, hospitalisations for rheumatic heart disease were 8 and 13 times higher for Indigenous males and females respectively. These large differences are to some extent determined by the very low prevalence of rheumatic heart disease in the non-Indigenous population (see section on rheumatic heart disease).

7.13 HOSPITALISATIONS OF INDIGENOUS PERSONS FOR DISEASES OF THE CIRCULATORY SYSTEM (a), by principal diagnosis—2005–06

	MALES			FEMALES		
	Observed	Expected	Ratio(b)	Observed	Expected	Ratio(b)
Ischaemic heart disease (I20–I25)	1 904	787	2.4	1 406	359	3.9
Other heart disease (I30–I52)	1 228	538	2.3	1 039	385	2.7
Cerebrovascular disease (I60–I69)	343	143	2.4	309	124	2.5
Hypertensive disease (I10–I15)	112	27	4.2	189	33	5.6
Rheumatic heart disease (I05–I09)	54	6	8.4	134	10	12.8
Other diseases of the circulatory system (I00–I02, I26–I28, I70–I99)(c)	540	660	0.8	601	686	0.9
Total	4 181	2 161	1.9	3 678	1 598	2.3

(a) Data are for NSW, Vic., Qld, WA, SA and NT combined, based on state/territory of usual residence. Data exclude private hospitals in the NT.

(b) Ratio is observed hospitalisations divided by expected hospitalisations. Expected hospitalisations are calculated based on the age, sex and cause-specific rates of other Australians.

(c) Includes diseases of arteries, arterioles and capillaries, diseases of veins, lymphatic vessels and lymph nodes and other and unspecified disorders of the circulatory system.

Source: AIHW National Hospital Morbidity Database

Rheumatic heart disease

Rheumatic heart disease is caused by the long-term damage done to the heart muscle or heart valves as a result of acute rheumatic fever. Acute rheumatic fever is a delayed complication of a throat or possibly skin infection caused by group A streptococcus bacterium. Both acute rheumatic fever and rheumatic heart disease are important and preventable causes of ill-health and death. They are typically associated with overcrowding, poor sanitary conditions and other aspects of socioeconomic disadvantage. Limited access to medical care for adequate diagnosis and/or appropriate treatment of these diseases contributes to their occurrence and recurrence in some population subgroups (Couzos & Carapetis 2003).

A register of persons with known or suspected rheumatic fever and rheumatic heart disease has operated in the Top End of the Northern Territory since 1997 and in Central Australia since 2002. Between 2003 and 2006 there were 250 new cases of acute rheumatic fever in the Top End and Central Australia, 246 (98%) of whom were Aboriginal and/or Torres Strait Islander people. Over this period, more than half (54%) of Indigenous people who suffered acute rheumatic fever were aged 5–14 years, with the disease creating a foundation for continuing health problems throughout their lives. Rates of rheumatic fever in the age group 5–14 years were 2.5 per 1,000 persons; considerably higher than the rates for those in younger and older age groups (table 7.14).

7.14 NEW AND RECURRENT CASES OF ACUTE RHEUMATIC FEVER AMONG INDIGENOUS PERSONS (a), by age—2003–2006

Age group (years)	Number	Percent	Rate(b)
0–4	5	2.0	0.2
5–14	133	54.1	2.5
15–24	64	26.0	1.4
25–34	22	8.9	0.6
35–44	13	5.3	0.5
45 and over	9	3.7	0.3
Total	246	100.0	1.1

(a) Data are for the Top End of NT and Central Australia.

(b) Rates are per 1,000 population.

Source: AIHW analysis of Top End Rheumatic Heart Disease Register and Central Australian Rheumatic Heart Disease Register data.

Diabetes

Diabetes mellitus (diabetes) is a significant health problem for Indigenous Australians. There are three main types of diabetes: Type 1, Type 2 and gestational diabetes. Type 1 diabetes is caused by a total lack, or near total lack of insulin, while Type 2 diabetes is marked by a reduced level of insulin or the inability of the body to use insulin properly (i.e. insulin resistance). Gestational diabetes occurs during pregnancy in about 3% to 8% of all females not previously diagnosed with diabetes and usually disappears after the baby is born (AIHW 2002b). Gestational diabetes increases the risk of subsequently developing Type 2 diabetes.

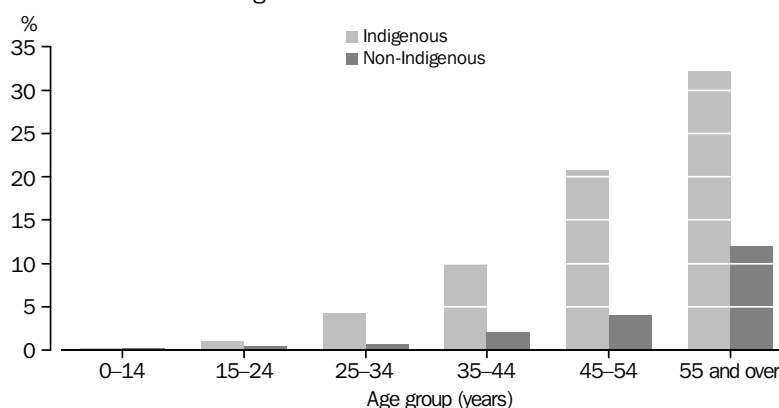
Diabetes continued

PREVALENCE OF DIABETES

The overall proportion of Indigenous Australians reporting diabetes as a long-term health condition in 2004–05 was 6% (table 7.5). Indigenous people in remote areas were more likely to report having diabetes than those in non-remote areas (9% and 5% respectively). Prevalence of diabetes was highest among Indigenous people aged 55 years and over (32%) (ABS 2006c).

After adjusting for age differences between the Indigenous and non-Indigenous populations, Indigenous people were three times as likely as non-Indigenous people to report having diabetes in 2004–05 (table 7.5). The greatest differences in diabetes prevalence between Indigenous and non-Indigenous Australians were among those aged 35–44 years and 45–54 years where rates for Indigenous people were around five times those for non-Indigenous Australians (graph 7.15).

7.15 PREVALENCE OF DIABETES/HIGH SUGAR LEVELS, by Indigenous status and age—2004–05



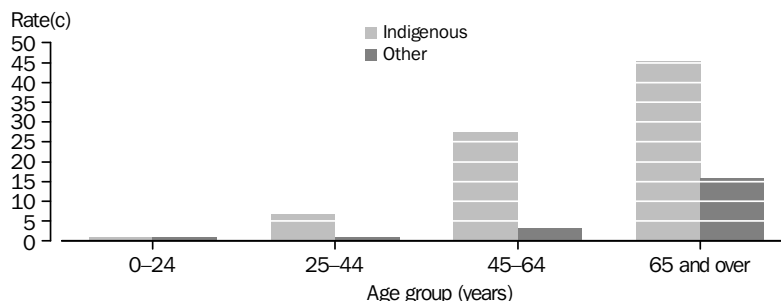
Source: ABS 2004–05 NATSIHS

HOSPITALISATIONS DUE TO DIABETES

In 2005–06, diabetes was the principal diagnosis for 3,400 hospitalisations of Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, representing 1.4% of all hospitalisations in which the patient was Indigenous (53% were females). Despite a relatively low prevalence of Type 1 diabetes in the Indigenous population, 13% of hospitalisations of Indigenous people for diabetes were for Type 1 diabetes. Hospitalisation rates for diabetes for Indigenous persons ranged from around 7 per 1,000 population for those aged 25–44 years to 45 per 1,000 population for those aged 65 years and over (graph 7.16). Among people aged 25 years or over, hospitalisation rates for diabetes among Indigenous males and females were considerably higher than for other Australian males and females.

After adjusting for differences in the age structures of the Indigenous and non-Indigenous populations, hospitalisation rates for all types of diabetes for Indigenous males and females were four and five times those for other Australian males and females respectively. Hospitalisation rates for Type 2 diabetes for Indigenous males and females were 7 and 10 times those for other Australian males and females respectively.

7.16 HOSPITALISATION RATES, DIABETES(a)(b), by Indigenous status and age—2005–06



(a) Data for NSW, Vic, Qld, WA, SA and NT combined.

(b) Based on principal diagnosis.

(c) Rates are per 1,000 population.

Note: ICD-10-AM codes E10-E14.

Source: AIHW National Hospital Morbidity Database

DIABETES AS AN ASSOCIATED DIAGNOSIS

The data shown in graph 7.16 are for diabetes as a principal diagnosis only. However diabetes is more frequently reported as an additional or associated diagnosis (other diagnoses reported for a hospital episode) than as a principal diagnosis. In 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, diabetes was recorded as an associated diagnosis for 37,378 hospitalisations of Indigenous Australians (excluding hospitalisations with a principal diagnosis of diabetes). It should be noted that there has been a substantial increase in the number of hospitalisations for diabetes recorded as an additional diagnosis in recent years, mainly due to a coding rule which was recently introduced in Western Australia whereby all patients hospitalised with a principal diagnosis of 'care involving dialysis' who were clinically documented as having diabetes must now have diabetes recorded as an additional diagnosis.

Among the complications of, or conditions associated with, diabetes, are coronary heart disease, stroke, peripheral vascular disease, digestive diseases, cancer of the pancreas, retinopathy and kidney disease (AIHW 2002b). In 2005–05, around 20% of hospitalisations of Indigenous Australians for care involving dialysis had diabetes as an associated diagnosis compared with 5% of hospitalisations for other Australians. Diseases of the circulatory system were the most common principal diagnosis for hospitalisations in which diabetes was an associated diagnosis (table 7.17). Approximately 58% of hospitalisations of Indigenous Australians for this disease category had diabetes recorded as an associated diagnosis, compared with 17% of other Australians.

7.17 HOSPITALISATIONS OF PERSONS WITH DIABETES AS AN ADDITIONAL DIAGNOSIS (a)(b), by principal diagnosis and Indigenous status of patient—2005–06

	NUMBER		PROPORTION (c)	
	Indigenous	Other(d)	Indigenous	Other(d)
Factors influencing health status and contact with health services (Z00–Z99)	19 836	79 827	24.3	5.0
Care involving dialysis (Z49)	18 861	41 487	20.4	5.4
Diseases of the circulatory system (I00–I99)	3 164	74 632	58.1	17.3
Diseases of the respiratory system (J00–J99)	2 505	26 982	28.7	8.8
Diseases of the digestive system (K00–K93)	1 964	45 859	29.8	5.9
Symptoms, signs and abnormal clinical and laboratory findings, n.e.c. (R00–R99)	1 903	37 310	33.4	8.7
Injury, poisoning and certain other consequences of external causes (S00–T98)	1 812	28 271	25.0	6.4
Diseases of the genitourinary system (N00–N99)	1 022	23 320	28.4	6.8
Other (A00–H95), (L00–M99), (O00–Q99)(e)	5 172	122 127	20.6	5.0
Total (f)	37 378	438 328	24.2	6.5

(a) Excludes hospitalisations with a principal diagnosis of diabetes.

(b) Data are for NSW, Vic., Qld, WA, SA and NT combined, based on state/territory of usual residence. Data exclude private hospitals in the NT.

(c) Indirectly standardised proportion of hospitalisations with diabetes as an additional diagnosis, based on the age, sex and cause-specific proportions of other Australians.

(d) Includes hospitalisations of non-Indigenous persons and hospitalisations for which the Indigenous status of the patient was not stated.

(e) Includes: diseases of the skin and subcutaneous tissue, diseases of the genitourinary system, neoplasms, complications of pregnancy childbirth and the puerperium, certain infectious and parasitic diseases, mental and behavioural disorders, diseases of the nervous system, diseases of the blood and blood-forming organs and certain disorders involving the immune system, endocrine nutritional and metabolic diseases, diseases of the eye and adnexa, diseases of the ear and mastoid process, diseases of the musculoskeletal system and connective tissue, certain conditions originating in the perinatal period, and congenital malformations, deformations and chromosomal abnormalities.

(f) Includes hospitalisations where the principal diagnosis was unknown.

Source: AIHW National Hospital Morbidity Database

Kidney disease

The main function of the kidneys is 'to regulate the water content, mineral composition and acidity of the body' (Vander et al 1990:472). They are also involved in the excretion of metabolic waste products and of various chemicals. Kidney disease has a marked impact on the quality of life of those who have it as well as those who care for them. It is expensive to treat, and the rates of kidney disease are known to be high in some Indigenous communities (McDonald et al 2005; Shephard et al 2003).

The association between kidney disease and other aspects of the health of Indigenous people is extremely important. Diseases and conditions such as diabetes, high blood pressure, infections, low birthweight and obesity are risk factors for kidney disease (Catford et al 1997), and are all more common among Indigenous people than among other Australians. Socioeconomic disadvantage has also been shown to be associated with higher rates of renal disease among Indigenous Australians (Cass et al 2002; Cass et al 2004). Cass et al 2004, illustrated a number of pathways linking disadvantage and kidney disease including psychosocial factors, cultural factors, damaging health behaviours, factors related to the health care system and government/corporate policies.

The following section presents information from the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA), and the AIHW's National Hospital Morbidity Database.

Kidney disease continued

CHRONIC KIDNEY DISEASE

Chronic kidney disease includes diabetic nephropathy, hypertensive renal disease, glomerular disease and chronic renal failure and end-stage renal disease (ESRD). ESRD results when the kidneys cease functioning almost entirely, leading to a build-up of waste products and excess water in the body causing progressively worse illness (AHMAC 2006). This is the last and most debilitating stage of chronic kidney disease in which dialysis or kidney transplantation is necessary to maintain life.

Information is available on Indigenous persons with ESRD from ANZDATA. In Australia, people 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 people treated for ESRD. It compiles data on incidence and prevalence, renal complications, co-morbidities and patient deaths. Indigenous identification in the ANZDATA registry is based on self-identification in hospital records. However, because of the heightened awareness of the extent of renal disease among Indigenous Australians, and the prolonged and repeated contact with renal units in hospitals, it is believed that Indigenous identification in the ANZDATA registry is more complete than in general hospital data (Cass et al 2001). There is little information, however, on earlier chronic kidney disease, despite its importance in the Indigenous population. The main focus of this section is therefore on ESRD.

END-STAGE RENAL DISEASE

In 2005, there were 2,654 new patients registered with ANZDATA. Of these, 207 (or 8%) identified as Aboriginal or Torres Strait Islander. This is higher than the proportion of Indigenous people in the total population (2.5%). Indigenous people commencing ESRD treatment were substantially younger, on average, than other Australians commencing ESRD treatment. This is in part because many Aboriginal and Torres Strait Islander people suffer chronic conditions such as diabetes and hypertension at younger ages than other Australians which, if left untreated, often lead to an earlier onset of ESRD (AHMAC 2006). Over half (56%) of Aboriginal and Torres Strait Islander people registered with ANZDATA were aged less than 55 years, whereas approximately one-third (31%) of other Australians registered were below this age.

The number of Indigenous patients starting ESRD treatment has more than tripled over the last decade, from 64 in 1992 to 207 in 2005 (table 7.18). Some of this increase may be due to improvements in the identification of Indigenous patients over this period. The increase in the number of Indigenous patients starting ESRD treatment, combined with a lower rate of transplantation, leads to a much higher rate of ESRD prevalence among Indigenous people (Excell & McDonald 2006).

In all states and territories, Indigenous Australians accounted for a disproportionate number of new cases of ESRD. Indigenous patients accounted for 91% of all newly registered patients in the Northern Territory, 19% in Western Australia and 10% in Queensland (Excell & McDonald 2006). Incidence rates for ESRD among Indigenous Australians were higher in remote areas of Australia than in major cities. Indigenous Australians were 26 times more likely to register for treatment of ESRD than other Australians in remote areas, 18 times more likely in outer regional areas and 12 times more likely in very remote areas. In major cities and inner regional areas, incidence rates

Kidney disease *continued*END-STAGE RENAL DISEASE *continued*

for Indigenous Australians were four to five times those for other Australians living in these areas (AIHW 2007a).

7.18 NEW PATIENTS STARTING END-STAGE RENAL DISEASE TREATMENT, by Indigenous status—1992–2005

	NUMBER		PERCENT		INCIDENCE RATE(a)		Rate ratio
	Indigenous	Other	Indigenous	Other	Indigenous	Other	
1992	64	1 280	4.8	95.2	27.4	7.2	3.8
1993	90	1 305	6.5	93.5	32.5	7.9	4.1
1994	112	1 463	7.1	92.9	41.2	7.9	5.2
1995	128	1 538	7.7	92.3	53.9	8.7	6.2
1996	103	1 625	6.0	94.0	59.8	9.0	6.6
1997	152	1 662	8.4	91.6	46.4	9.3	5.0
1998	137	1 857	6.9	93.1	65.7	9.4	7.0
1999	157	1 979	7.4	92.6	64.8	10.3	6.3
2000	150	2 038	6.9	93.1	71.0	10.7	6.6
2001	175	2 214	7.3	92.7	65.3	10.9	6.0
2002	173	2 209	7.3	92.7	77.2	11.5	6.7
2003	173	2 291	7.0	93.0	75.1	11.3	6.7
2004	191	2 224	7.9	92.1	72.4	11.5	6.3
2005	207	2 447	7.8	92.2	74.1	10.9	6.8

(a) Rates per 100,000 population, directly age standardised using the 2001 Estimated Resident Population.

Source: AIHW analysis of Excell & McDonald 2006 (ANZDATA)

A number of other health conditions are associated with renal disease, including cerebrovascular disease, lung disease, peripheral vascular disease, coronary artery disease, smoking and diabetes. In 2005, most of these conditions were reported in similar proportions for Aboriginal and Torres Strait Islander and other patients beginning ESRD treatment. Diabetes, however, was much more likely to be reported for Aboriginal and Torres Strait Islander patients than for other patients (78% and 38% respectively). The greater excess of diabetes among ESRD Indigenous entrants reflects the burden of this disease in the Aboriginal and Torres Strait Islander population. In 2005, diabetes was the primary cause of more than 58% of Indigenous people using dialysis compared with 22% of all other dialysis patients (Excell & McDonald 2006).

MANAGEMENT OF KIDNEY 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 other patients. In 2005, of all ANZDATA-registered Indigenous ESRD patients, 87% were reliant on dialysis and 13% had received a kidney transplant. In comparison, just over half (55%) of other Australians living with ESRD were reliant on dialysis and 45% had received a kidney transplant (table 7.19). This difference in treatment patterns has changed relatively little over the last several years.

*Kidney disease continued*MANAGEMENT OF KIDNEY DISEASE *continued***7.19** END-STAGE RENAL DISEASE PATIENTS (a), by treatment type and Indigenous status—2001–2005

	INDIGENOUS			OTHER		
	Number	Percent	Rate(b)	Number	Percent	Rate(b)
DIALYSIS						
2001	763	84.4	276.3	14 262	54.5	40.5
2002	832	85.6	301.3	15 099	54.9	42.2
2003	890	86.5	319.8	15 896	55.4	44.0
2004	956	87.0	338.3	16 524	55.0	44.4
2005	1 043	87.2	367.5	17 368	55.4	46.0
TRANSPLANT						
2001	763	15.6	44.2	14 262	45.5	33.9
2002	832	14.4	42.2	15 099	45.1	35.0
2003	890	13.5	41.4	15 896	44.6	35.8
2004	956	13.0	42.0	16 524	45.0	37.0
2005	1 043	12.8	44.3	17 368	44.6	37.8

(a) Data exclude transplant patients lost to follow up.

(b) Rate per 100,000 population, directly age standardised using the 2001 Estimated Resident Population.

Source: AIHW analysis of Excell & McDonald 2006 (ANZDATA)

HOSPITALISATIONS DUE TO CHRONIC KIDNEY DISEASE

In 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were around 101,900 hospitalisations of Indigenous Australians for chronic kidney disease and its sequelae, 44% of which were hospitalisations of Indigenous males and 56% of Indigenous females. There were around 10 times as many hospitalisations of Indigenous males and 18 times as many hospitalisations of Indigenous females as hospitalisations of other Australian males and females respectively. For care involving dialysis, Indigenous males and females were hospitalised at 10 and 19 times the rates of other males and females respectively. Rate ratios were also high for most other types of chronic kidney disease such as diabetic nephropathy (table 7.20). Of all hospitalisations for chronic kidney disease and its sequelae, the majority (100,153 or 98%) were for care involving dialysis.

7.20 HOSPITALISATIONS OF INDIGENOUS PERSONS FOR CHRONIC KIDNEY DISEASE AND ITS SEQUELAE(a), by principal diagnosis—2005–06

	MALES			FEMALES		
	Observed	Expected	Ratio(b)	Observed	Expected	Ratio(b)
Diabetic nephropathy (E102, E112, E122, E132 and E142)	253	19	13.4	343	16	20.8
Renal tubulo-interstitial diseases (N11–N12 and N14–N16)	63	20	3.2	347	123	2.8
Chronic renal failure (N18–N19)	239	27	8.7	107	22	4.8
Glomerular diseases ((N00–N08)	106	35	3.0	91	24	3.8
Hypertensive renal disease (I12–I13, I150 and I151)	14	4	3.6	16	2	6.6
Other chronic kidney disease (N25–N28, N391, N392, Q60–Q63, T824, T861 and Z940)	47	43	1.1	78	35	2.2
Care involving dialysis (ESRD) (Z49)	44 026	4 368	10.1	56 127	2 938	19.1
Total	44 748	4 516	9.9	57 109	3 162	18.1

(a) Data are for NSW, Vic., Qld, WA, SA and NT only. Data exclude private hospitals in the NT.

(b) Ratio is observed hospitalisations divided by expected hospitalisations. Expected hospitalisations are calculated based on the age, sex and cause-specific rates of other Australians.

Source: AIHW National Hospital Morbidity Database

Kidney disease continued

HOSPITALISATIONS DUE TO CHRONIC KIDNEY DISEASE *continued*

Hospitalisation rates for care involving dialysis for Indigenous Australians were markedly higher in older age groups, peaking for those aged 65 years and over (graph 7.21). The rates for other Australians also peaked at ages 65 years and over, however at much lower levels. It should be noted that the rates of hospitalisation for dialysis reflect the outcome of some individuals accessing services many times, for example an individual reliant on treatment may undergo dialysis 2–3 times a week.

7.21 HOSPITALISATION RATES FOR CARE INVOLVING DIALYSIS(a)(b), by Indigenous status and age—2005–06



(a) Data for NSW, Vic, Qld, WA, SA and NT combined.

(b) Based on principal diagnosis.

(c) Rates are per 1,000 population.

Note: ICD-10-AM code Z49.

Source: AIHW National Hospital Morbidity Database

Cancer

Cancer includes a range of diseases in which abnormal cells proliferate and spread out of control. Normally, cells grow and multiply in an orderly way to form organs that have a specific function in the body. Occasionally, however, cells multiply in an uncontrolled way after being affected by a carcinogen, or after developing a random genetic mutation, and form a mass which is called a tumour or neoplasm. Tumours can be benign (not a cancer) or malignant (a cancer). Benign tumours do not invade other tissues or spread to other parts of the body, although they can expand to interfere with healthy structures (AIHW 2007c).

For many cancers, the causes are unknown. Some cancers occur as a direct result of smoking (in particular, lung cancer), dietary influences (especially cancers of the digestive system), infectious agents (especially cervical cancer through exposure to the human papilloma virus) or exposure to radiation (especially melanomas through excessive sun exposure), while others may be a result of an inherited genetic predisposition (for example, prostate and breast cancer are higher for persons with a family history of these cancers) (AIHW 2007c). However, the greatest risk factor for most cancers in the general population is advancing age, with the median age of first diagnosis for all cancers being 69 years for men and 65 years for women.

INCIDENCE OF CANCER

Cancer incidence and survival data come from state and territory cancer registries. Identification of Aboriginal and Torres Strait Islander people is not yet included on pathology forms and the extent to which Aboriginal and Torres Strait Islander cancer patients are identified in hospital inpatient statistics varies around Australia. Nevertheless Indigenous identification in the registries has been improving. All-cancer incidence rates for New South Wales and Victoria for 2000–2004 have increased to be comparable with the rates for the Northern Territory, Queensland and Western Australia, the jurisdictions previously found to have good Indigenous identification.

MOST COMMON CANCERS

Across Australia, there were 3,083 cancers diagnosed among Aboriginal and Torres Strait Islander people in the period from 2000 to 2004. The most common cancers diagnosed among Indigenous males in the period were cancer of the lung, bronchus and trachea (19% of all male cancer cases reported), prostate cancer (10%), colorectal cancer (10%), cancer of unknown primary site (6%), and lymphomas (5%) (table 7.22). The most common cancers diagnosed among Indigenous females were breast cancer (25% of all female cancer cases reported), cancer of the lung, bronchus and trachea (12%), colorectal cancer (9%), cancer of the cervix (7%) and cancer of unknown primary site (6%) (table 7.22). In contrast to the non-Indigenous population, more new cases of cancer were reported among Indigenous females (1,598) than Indigenous males (1,485) in this period.

Cancer continued

MOST COMMON CANCERS *continued***7.22** MOST COMMON CANCERS DIAGNOSED AMONG INDIGENOUS PERSONS—2000–2004

Cancer site	NUMBER		PERCENT	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
MALES				
Lung, bronchus and trachea	288	27 220	19.4	10.9
Prostate	145	63 511	9.8	25.3
Colorectal	141	34 466	9.5	13.8
Unknown primary site	95	8 195	6.4	3.3
All lymphomas	71	11 129	4.8	4.4
Oesophagus	58	3 663	3.9	1.5
All leukaemias	55	7 611	3.7	3.0
Liver	52	3 094	3.5	1.2
Stomach	52	6 118	3.5	2.4
Pancreas	49	4 882	3.3	1.9
All cancers	1 485	250 594	100.0	100.0
FEMALES				
Breast	392	58 742	24.5	28.4
Lung, bronchus and trachea	186	14 948	11.6	7.2
Colorectal	142	28 226	8.9	13.6
Cervix	110	3 522	6.9	1.7
Unknown primary site	102	7 832	6.4	3.8
Uterus, body	85	7 810	5.3	3.8
Ovary	61	5 773	3.8	2.8
Thyroid	41	4 742	2.6	2.3
Pancreas	38	4 802	2.4	2.3
All leukaemias	34	5 314	2.1	2.6
All cancers	1 598	207 148	100.0	100.0

Source: AIHW National Cancer Statistics Clearing House

Table 7.23 presents age standardised incidence per 100,000 population for the 12 most common cancers diagnosed among Indigenous people in 2000–2004, in order of incidence. Among the most common cancers, age standardised incidence, even with under-reporting, was higher among Indigenous males and females for lung cancer, cancers of the mouth and throat and cancer of unknown primary site. The rates for cervical cancer among Indigenous females were more than double those for non-Indigenous females. Incidence was lower among Indigenous people for colorectal cancer, prostate cancer and lymphomas. High incidence of cancers of the lung, mouth and throat are caused by high rates of smoking earlier in life, while high cervical cancer incidence is preventable by early detection in Pap test screening. High incidence of cancer of unknown primary site is likely to be associated with late diagnosis.

Among the less common cancers, age standardised incidence was also higher in the period 2000–2004 for the Indigenous population than for the non-Indigenous population for cancers of the liver and gallbladder, pancreatic cancer, cancer of the oesophagus, and, in males only, thyroid cancer.

Cancer continued

MOST COMMON CANCERS continued

7.23 AGE STANDARDISED CANCER INCIDENCE RATES (a), by Indigenous status and sex—2000–2004

Cancer	Indigenous rate	Non-Indigenous rate	Ratio
MALES			
Lung	91.0	61.1	1.5
Unknown primary site	31.3	18.8	1.7
Colorectal	39.7	76.4	0.5
Prostate	55.7	140.6	0.4
Lymphomas	42.6	58.8	0.7
Thyroid	4.8	3.4	1.4
Pancreas	16.2	10.9	1.5
Oesophagus	16.5	8.1	2.0
Liver and gallbladder	20.5	9.7	2.1
Mouth and throat	25.6	11.4	2.2
All cancers	426.3	555.7	0.8
FEMALES			
Lung	43.6	28.1	1.6
Breast	84.7	115.0	0.7
Unknown primary site	27.0	14.2	1.9
Colorectal	36.6	52.4	0.7
Cervix	16.9	7.1	2.4
Lymphomas	22.2	38.7	0.6
Thyroid	6.4	9.8	0.7
Pancreas	11.9	8.8	1.4
Oesophagus	4.4	3.4	1.3
Liver and gallbladder	13.9	5.4	2.6
Mouth and throat	11.2	10.6	1.1
All cancers	351.8	397.7	0.9

(a) Data for NSW, Vic., Qld, WA, SA and NT combined.

Source: AIHW National Cancer Statistics Clearing House

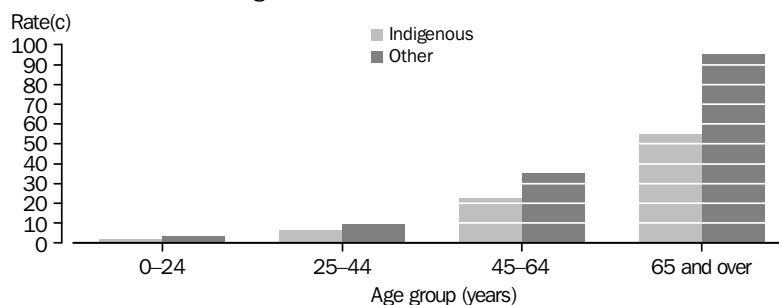
BREAST CANCER SCREENING

In the BreastScreen Australia Program in 2003–2004 there were 12,459 women aged 40 years and over who identified themselves as Indigenous. Participation in the Program in the 50–69 years target age group was estimated at 35% for Indigenous women, much lower than the 56% participation for the total Australian female population in this age group (AIHW & DoHA 2007).

HOSPITALISATIONS DUE TO CANCER

In 2005–06, cancer was responsible for 1,423 hospitalisations of Indigenous males and 2,109 hospitalisations of Indigenous females, both representing just over 1% of all hospitalisations in which the patient was Indigenous. This does not include most chemotherapy and radiotherapy activity procedures. Hospitalisation rates for cancer for both Indigenous and other Australians increased from age 25 years onwards but were considerably lower for Indigenous than for other Australians in each age group (graph 7.24).

Cancer continued

HOSPITALISATIONS DUE TO CANCER *continued***7.24** HOSPITALISATION RATES FOR CANCER(a)(b), by Indigenous status and age—2005–06

(a) Data for NSW, Vic., Qld, WA, SA and NT combined.

(b) Based on principal diagnosis.

(c) Rates are per 1,000 population.

Note: ICD-10-AM codes C00-D48.

Source: AIHW National Hospital Morbidity Database

The five most common malignant cancers for which Indigenous males were hospitalised in 2005–06 were lung cancer (140 hospitalisations), skin cancer (106 hospitalisations), prostate cancer (59 hospitalisations), secondary cancer of the respiratory and digestive organs (51 hospitalisations) and secondary malignant neoplasm of other sites (45 hospitalisations). The five most common cancers for which Indigenous females were hospitalised in 2005–06 were breast cancer (140 hospitalisations), lung cancer (112 hospitalisations), skin cancer (108 hospitalisations), cervical cancer (84 hospitalisations), and secondary cancer of other sites (60 hospitalisations).

Injury and poisoning

Injury and poisoning are large contributors to Indigenous morbidity, especially for younger people. A variety of factors can affect a person's risk of being injured, including age, sex, alcohol use and socioeconomic status. Widespread hurt, loss, and suffering in Indigenous communities also leads to an increase in self-harm, making the incidence of intentional injury much more common among Aboriginal and Torres Strait Islander people than other Australians (AHMAC 2006). Injury data can be viewed in terms of the damage sustained to the body (e.g. broken bones, head injuries), or by the external cause of the injury (e.g. falls, poisoning and drowning), both of which are recorded by hospitals on admission.

HOSPITALISATIONS FOR INJURY AND POISONING

In 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, injury or poisoning was the principal diagnosis recorded in 18,843 hospitalisations of Indigenous patients (table 7.25). Over half (57%) of these hospital episodes were for Indigenous males. Hospitalisations due to injury and poisoning represented 10% of all hospitalisations for Indigenous males and 6% of all hospitalisations for Indigenous females. Indigenous males and females were hospitalised for injury and poisoning at 1.8 times the rate of other males while for females, the corresponding rate ratio was 2.4.

7.25 HOSPITALISATIONS OF INDIGENOUS PERSONS FOR INJURY AND POISONING(a), by principal diagnosis—2005–06

	MALES			FEMALES		
	<i>Observed</i>	<i>Expected</i>	<i>Ratio(b)</i>	<i>Observed</i>	<i>Expected</i>	<i>Ratio(b)</i>
Injuries (mechanical) (S00–T19)(c)	8 496	4 788	1.8	5 979	2 253	2.7
Complications of surgical and medical care, nec. (T80–T88)	939	507	1.9	921	533	1.7
Poisoning (T36–T50)	427	238	1.8	735	438	1.7
Burns and frostbite (T20–T35)	341	134	2.5	203	71	2.9
Other effects of external causes, early complications of trauma (T66–T79 and T89)	264	119	2.2	219	94	2.3
Toxic effects (T51–T65)	191	101	1.9	128	65	2.0
Total	10 658	5 888	1.8	8 185	3 454	2.4

(a) Data are for NSW, Vic., Qld, WA, SA and NT combined, based on state/territory of usual residence. Data exclude private hospitals in the NT.

(b) Ratio is observed hospitalisations divided by expected hospitalisations. Expected hospitalisations are calculated based on the age, sex and cause-specific rates for other Australians.

(c) Includes injuries to specified body parts (ICD-10 AM S00-T19).

Source: AIHW National Hospital Morbidity Database

Injury and poisoning continued

HOSPITALISATIONS FOR INJURY AND POISONING *continued*

Rates of hospitalisation due to injury and poisoning varied with age. For Indigenous people, rates were highest among those aged 25–44 years, while for other Australians rates were highest for those aged 65 years and over. In all age groups, Indigenous males were more likely to be hospitalised for injury and poisoning than were Indigenous females.

EXTERNAL CAUSES OF INJURY RESULTING IN HOSPITALISATIONS

In 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, as in previous years, the most commonly recorded external causes of injury resulting in hospitalisation among Indigenous Australians were assault (males 22%; females 31%), accidental falls (males 17%; females 17%), exposure to inanimate mechanical forces (e.g. explosion of materials, contact with glass) (males 15%; females 9%), complications of medical or surgical care (males 9%; females 12%) and transport-related injuries (males 11%; females 7%).

Indigenous males and females were hospitalised more often than other Australians for most external causes of injury (table 7.26). Hospitalisations for injury due to assault were 6 and 33 times higher for Indigenous males and females respectively.

7.26 HOSPITALISATIONS OF INDIGENOUS PERSONS FOR INJURY AND POISONING DUE TO EXTERNAL CAUSES (a) (b) — 2005–06

	MALES			FEMALES		
	Observed	Expected	Ratio(c)	Observed	Expected	Ratio(c)
Assault (X85–Y09)	2 352	382	6.2	2 572	78	33.0
Accidents						
Accidental falls (W00–W19)	1 809	1 275	1.4	1 352	948	1.4
Exposure to inanimate mechanical forces (W20–W49)	1 579	1 064	1.5	752	366	2.1
Transport accidents (V01–V99)	1 212	997	1.2	547	422	1.3
Exposure to animate mechanical forces (W50–W64)	528	289	1.8	248	100	2.5
Exposure to electric current/smoke/fire/animals/nature (W85–X39)(d)	423	185	2.3	236	99	2.4
Accidental poisoning (X40–X49)	219	138	1.6	234	136	1.7
Other causes of accidental injury (W65–W84, X50–X59)(e)	835	785	1.1	465	335	1.4
Complications of medical and surgical care ((Y40–Y84)	964	521	1.8	943	550	1.7
Intentional self-harm (X60–X84)	563	193	2.9	687	361	1.9
Other external causes (Y10–Y36, Y85–Y98)(f)	146	53	2.7	131	58	2.2
Total (g)	10 658	5 888	1.8	8 185	3 454	2.4

- (a) Cause of injury is based on the first reported cause where the principal diagnosis was 'injury, poisoning and certain other consequences of external causes' (S00–T98).
- (b) Data are for NSW, Vic., Qld, WA, SA and NT combined, based on state/territory of usual residence. Data exclude private hospitals in the NT.
- (c) Ratio is observed hospitalisations divided by expected hospitalisations. Expected hospitalisations are calculated based on the age, sex and cause-specific rates of other Australians.

- (d) Includes exposure to electric current, radiation, extreme ambient air temperature and pressure, smoke, fire, flames, forces of nature, contact with heat and hot substances, and contact with venomous animals and plants.
- (e) Includes accidental drowning and submersion; other accidental threats to breathing; overexertion, travel and privation; accidental exposure to other unspecified factors.
- (f) Includes event of undetermined intent; legal interventions and operations of war; sequelae of external causes of morbidity and mortality; supplementary factors related to causes of morbidity and mortality classified elsewhere.
- (g) Includes injuries where no external cause was reported.

Source: AIHW National Hospital Morbidity Database

Respiratory diseases

Respiratory diseases are leading causes of illness, disability and mortality around the world. Common respiratory diseases include asthma, chronic obstructive pulmonary disease ((COPD), comprising both chronic bronchitis and emphysema), influenza and pneumonia. While all these respiratory diseases are also leading causes of illness resulting in a high use of health services, pneumonia and COPD are leading underlying causes of death (see Chapter 9 for more information).

PREVALENCE OF RESPIRATORY DISEASES

In the 2004–05 NATSIHS, the proportion of Aboriginal and Torres Strait Islander people who reported some form of respiratory disease was 27%. This represents a small decrease from 29% in 2001. The most common form of respiratory disease reported by Indigenous people in 2004–05 was asthma (15%) (table 7.5).

After adjusting for age differences between the Indigenous and non-Indigenous populations, Indigenous people were nearly twice as likely as non-Indigenous people to report having bronchitis, and one-and-a-half times as likely to report having asthma (ABS 2006c). The prevalence of respiratory diseases in the Indigenous population was highest among people aged 55 years and over (38%), whereas in the non-Indigenous population those in age groups 25–34 years and 35–44 years had the highest proportions of people with respiratory diseases (both 33%).

Respiratory diseases
continued

HOSPITALISATIONS FOR RESPIRATORY DISEASES

About 15,700 hospitalisations of Indigenous people with a principal diagnosis of respiratory disease occurred in 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, representing about 6% of all hospitalisations of Indigenous people in these jurisdictions.

Hospitalisation rates for respiratory diseases in the Indigenous population were more than twice those in the non-Indigenous population.

For both Indigenous people and other Australians, hospitalisations for respiratory disease were most common among the very young and the old (graph 7.27). In 2005–06, the hospitalisation rates for respiratory diseases among Indigenous children aged 0–4 years were twice the rate for other Australian children. Almost half of hospitalisations among children aged 0–4 years were for infants (aged less than one year). Hospitalisation rates for Indigenous infants were more than twice the rate for other Australian infants. Indigenous Australians aged 25 years and over were hospitalised for respiratory disease at three to five times the rates of other Australians.

7.27 HOSPITALISATION RATES, RESPIRATORY DISEASES (a)(b), by Indigenous status and age—2005–06



(a) Data for NSW, Vic., Qld, WA, SA and NT combined.

(b) Based on principal diagnosis.

(c) Rates are per 1,000 population.

Note: ICD-10-AM codes J00-J99.

Source: AIHW National Hospital Morbidity Database

Indigenous Australians were hospitalised at higher rates for most types of respiratory diseases than other Australians (table 7.28). In 2005–06, Indigenous males and females were hospitalised for influenza and pneumonia (combined) at around five times the rate, for COPD at around six to eight times the rate and for asthma at up to twice the rate of other Australians.

7.28 HOSPITALISATIONS OF INDIGENOUS PERSONS FOR RESPIRATORY DISEASES(a), by principal diagnosis—2005–06

	MALES			FEMALES		
	Observed	Expected	Ratio(b)	Observed	Expected	Ratio(b)
Chronic lower respiratory diseases (J40–J47)	2 060	861	2.4	2 515	718	3.5
Asthma (J45–J46)	906	686	1.3	1 188	533	2.2
Chronic obstructive pulmonary disease (J41–J44)	942	155	6.1	1 098	146	7.5
Influenza and pneumonia (J10–J18)	2 132	463	4.6	1 996	425	4.7
Other acute lower respiratory infections (J20–J22)	1 779	447	4.0	1 675	334	5.0
Acute upper respiratory infections (J00–J06)	995	647	1.5	990	506	2.0
Other respiratory diseases (J30–J40, J47–J99)	813	1 290	0.6	767	1 179	0.7
Total	7 779	3 708	2.1	7 943	3 162	2.5

(a) Data are for NSW, Vic., Qld, WA, SA and NT combined, based on state/territory of usual residence. Data exclude private hospitals in the NT.

(b) Ratio is observed hospitalisations divided by expected hospitalisations. Expected hospitalisations are calculated based on the age, sex and cause-specific rates of other Australians.

Source: AIHW National Hospital Morbidity Database

Communicable diseases and HIV/AIDS

While much of the burden of communicable diseases comes from respiratory infections such as influenza, data presented here include notification and hospitalisation as the result of other serious communicable diseases such as sexually transmissible infections (STIs), viral hepatitis and viral infections such as mumps, measles and rubella. The evidence from these analyses reinforces the fact that the burden of communicable diseases for Indigenous Australians is far greater than for other Australians.

NOTIFICATIONS

In Australia, communicable diseases of particular health importance are 'notifiable', and under legislation each case must be notified to state and territory health authorities. Notifications are received from hospitals, general practitioners and diagnostic laboratories. While each Australian state and territory has its own set of notifiable diseases, a set of 56 diseases and conditions are nationally notifiable. Data on all these cases are forwarded to the National Notifiable Diseases Surveillance System (NNDSS), managed by the Australian Government Department of Health and Ageing. The numbers of notifications, however, represent a variable proportion of all the actual cases of any disease. This is because for some diseases, many cases may go undetected for a long period of time and infections that are diagnosed in a laboratory test are more likely to be notified than those that are not (Menzies, McIntyre & Beard 2004).

Only data from Western Australia, South Australia and the Northern Territory on the notification rates of infectious diseases have been reported in this section. This is because the recording of Indigenous status in these jurisdictions was assessed by the NNDSS in 2004 as being adequate (more than 60% coverage) (AIHW & ABS 2005). However, recording of Indigenous status for Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS) data is considered reliable by the National Centre for HIV Epidemiology and Clinical Research (NCHECR) for all states and territories, with the exception of the ACT, from 2004 onwards. Over the period 2004–2006, notification rates for Indigenous Australians were higher than for other Australians for many notifiable diseases (table 7.29).

*Communicable diseases
and HIV/AIDS continued*

Sexually transmitted infections

Rates of STIs were much higher in the Indigenous population than among other Australians, with the rates for syphilis and gonococcal infection among Indigenous people 61 and 86 times the rates among other Australians. Rates of Hepatitis A, B and C were also higher among Indigenous Australians (ratios of between 5 and 12) (table 7.29). The substantially higher levels of chlamydia, gonorrhoea and syphilis infection among Indigenous people compared with other persons may also facilitate HIV transmission in the Indigenous population (Grosskurth et al 1995).

Pneumonia

Pneumococcal disease is caused by the bacterium *Streptococcus pneumoniae* and can cause infection in parts of the respiratory tract (otitis media, sinusitis, pneumonia) or enter the bloodstream. For the period 2004–2006, there were 403 notifications of invasive pneumococcal disease among Indigenous people in Western Australia, South Australia and the Northern Territory combined. The notification rate for Indigenous Australians was almost 13 times the rate for other Australians.

7.29 NOTIFICATIONS FOR SELECTED DISEASES(a), by Indigenous status—2004–2006

	INDIGENOUS		OTHER(b)	Ratio(c)
	Observed	Expected	Observed	
	no.	no.	no.	quotient
Gonococcal infection	8 777	102	2 328	85.9
Chlamydial infection (n.e.c.)	7 527	953	21 718	7.9
Syphilis(d)	1 065	18	399	60.8
Salmonellosis (n.e.c.)	809	189	4 306	4.3
Pneumococcal disease	403	30	771	13.5
Hepatitis A	107	9	209	11.7
Hepatitis C (incident)	120	18	410	6.7
Ross River virus infection	101	151	3 451	0.7
Tuberculosis	41	25	570	1.6
Meningococcal infection	50	6	146	7.8
Pertussis	198	319	7 270	0.6
Donovanosis(e)	14	—	—	—
Hepatitis B (incident)	31	6	132	5.4
Haemophilus influenzae type b	5	—	np	28.5
Mumps	np	np	95	0.5
Measles	13	26	587	0.5
Rubella	—	np	15	—
Leprosy	6	—	5	22.8

— nil or rounded to zero (including null cells)

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Data are for WA, SA and NT combined. Adequate levels of completeness of Indigenous status identification are defined as at least 60 per cent for a substantial majority of the diseases analysed.

(b) Comprises notifications for non-Indigenous people, and those for whom Indigenous status was not stated.

(c) Ratio is observed Indigenous notifications divided by expected Indigenous notifications. Expected notifications are calculated based on the age, sex and disease-specific rates of other Australians.

(d) Includes syphilis, syphilis infectious and syphilis more than two years.

(e) Donovanosis not notifiable in South Australia.

Source: AIHW analysis of National Notifiable Diseases Surveillance System, Department of Health and Ageing

Communicable diseases
and HIV/AIDS continued

HIV/AIDS

Notifications of HIV and AIDS infections are forwarded to NCHECR and are recorded in the National AIDS Registry and the National HIV Database. Between 2004 and 2006, 58 notifications of HIV infection and 22 notifications of AIDS infection were recorded in the Indigenous population (table 7.30). The majority (80%) of these notifications were for Indigenous males. The notification rate for AIDS and HIV was similar for Indigenous males and other males however the notification rate for AIDS and HIV for Indigenous females was 60% more than that for other females.

7.30 NOTIFICATION RATES FOR HIV AND AIDS, by Indigenous status and sex—2004–2006(a)

	INDIGENOUS		OTHER(b)		Ratio(c)
	Number	Rate(d)	Number	Rate(d)	
Males	64	10.8	2 955	10.1	1.1
Females	16	2.2	408	1.4	1.6
Persons	80	6.3	3 371	5.7	1.1

- (a) Calendar year reporting. Excludes data from the ACT as data were not available from this jurisdiction in 2004.
- (b) Comprises notifications for non-Indigenous people and those for whom Indigenous status was not stated.
- (c) Ratio is observed Indigenous notifications divided by expected Indigenous notifications. Expected notifications are based on the age and disease-specific rates for other Australians.
- (d) Indirectly age standardised rates per 100,000 population.

Source: AIHW analysis of the National AIDS registry and National HIV database

HOSPITALISATIONS DUE TO CERTAIN INFECTIOUS AND PARASITIC DISEASES

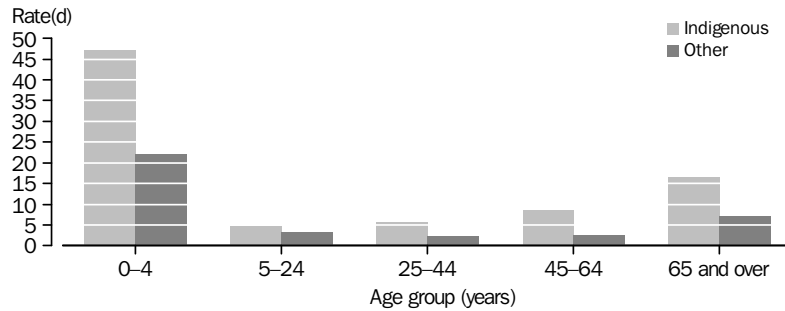
In 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, infectious and parasitic diseases, which include illnesses such as intestinal infectious diseases, septicaemia, viral infections and fevers, sexually transmitted infections, tuberculosis and mycoses, were responsible for 2,666 hospitalisations of Indigenous males, representing 3% of all hospitalisations of Indigenous males. For Indigenous females, the comparative figure was 2,583 hospitalisations, representing 2% of all hospitalisations of Indigenous females (table 7.32).

Indigenous males and females were hospitalised for infectious and parasitic diseases at twice the rate of other males and females. The highest rates of hospitalisation for infectious and parasitic diseases occurred among Indigenous children aged 0–4 years. Over 40% of the hospitalisations in this age group were for Indigenous infants (less than one year old) who were hospitalised at a rate of 98 per 1,000 population. Indigenous infants were hospitalised at twice the rate of other infants. The greatest difference in rates occurred among those aged 25–44 years and 45–64 years where Indigenous Australians were hospitalised at around three times the rate of other Australians (graph 7.31).

Communicable diseases
and HIV/AIDS continued

HOSPITALISATIONS DUE TO CERTAIN INFECTIOUS AND PARASITIC
DISEASES continued

7.31 HOSPITALISATION RATES FOR INFECTIOUS AND PARASITIC DISEASES (a)(b)(c), by Indigenous status and age—2005–06



(a) Data for NSW, Vic., Qld, WA, SA and NT combined.
(b) Based on principal diagnosis.
(c) ICD-10-AM codes A00–B99.
(d) Rates are per 1,000 population.

Source: AIHW National Hospital Morbidity database

Indigenous males and females were hospitalised for intestinal infectious diseases at twice the rate of other males and females (table 7.32).

7.32 HOSPITALISATIONS OF INDIGENOUS PERSONS FOR INFECTIOUS AND PARASITIC DISEASES (a), by principal diagnosis—2005–06

	MALES			FEMALES		
	Observed	Expected	Ratio(b)	Observed	Expected	Ratio(b)
	no.	no.	quotient	no.	no.	quotient
Intestinal infectious diseases (A00–A09)	1 367	668	2.0	1 263	672	1.9
Other bacterial diseases (A30–A49)	369	108	3.4	408	91	4.5
Septicaemia (A40–A41)	294	71	4.1	351	62	5.6
Pneumococcal septicaemia (A40.3)	17	2	8.3	18	2	9.1
Viral infections (A80–B19)	186	142	1.3	158	129	1.2
Viral hepatitis (B15–B19)	50	35	1.4	33	21	1.6
Infections, sexual transmission (A50–A64)	37	7	5.5	139	13	10.6
Mycoses (B35–B49)	46	17	2.7	62	21	3.0
Tuberculosis (A15–A19)	20	7	2.7	12	7	1.8
Other and unspecified infectious and parasitic diseases (A20–A28, A65–A79, B20–B34, B50–B99)	641	358	1.8	541	320	1.7
Total	2 666	1 307	2.0	2 583	1 254	2.1

(a) Data are for NSW, Vic., Qld, WA, SA and NT combined, based on state/territory of usual residence. Data exclude private hospitals in the NT.

(b) Ratio is observed hospitalisations divided by expected hospitalisations. Expected hospitalisations are calculated based on the age, sex and cause-specific rates of other Australians.

Source: AIHW National Hospital Morbidity Database

Musculoskeletal
conditions

Musculoskeletal conditions, including arthritis, are a major cause of pain and disability, especially among the elderly. Arthritis is a heterogeneous group of disorders in which there may be inflammation of the joints, causing chronic pain, stiffness, functional limitations and deformity. Its two most common forms are osteoarthritis and rheumatoid arthritis (AIHW 2005a).

*Musculoskeletal
conditions continued*

Diseases of the musculoskeletal system and connective tissue were reported by 22% of Indigenous people in 2004–05. In particular, 13% reported back pain/disc disorders and 9% reported arthritis (table 7.5). The proportion of Aboriginal and Torres Strait Islander people reporting musculoskeletal diseases was higher in older age groups. Higher prevalence was reported for Indigenous Australians than other Australians among people aged 25–54 years (ABS 2006c).

HOSPITALISATIONS FOR MUSCULOSKELETAL DISEASES

In 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, diseases of the musculoskeletal system and connective tissue were the principal diagnosis for 4,205 hospitalisations of Aboriginal and Torres Strait Islander people, representing around 2% of all hospitalisations of Indigenous people. Hospitalisation rates for musculoskeletal diseases ranged from about 2 per 1,000 for Indigenous children aged 0–4 years to 31 per 1,000 population for Indigenous people aged 65 years and over. Hospitalisation rates for musculoskeletal diseases for Indigenous Australians were similar to, or lower than, rates for other Australians across all age groups.

Of all musculoskeletal diseases, arthritis was the most common cause of hospitalisation for Indigenous Australians. Indigenous Australians were hospitalised for rheumatoid arthritis and osteoarthritis at lower rates than other Australians.

Eye and vision problems

In 2004–05, 30% of the Indigenous population reported diseases of the eye and adnexa (appendages of the eyeball which include the eyelids, muscles and soft tissue) (table 7.5). One in six (16%) reported hyperopia (long-sightedness) and 10% reported myopia (short-sightedness). Within the Indigenous population, those living in non-remote areas were more likely to report eye and sight problems (32%) than those living in remote areas (25%).

While the overall age standardised prevalence of eye and vision problems was slightly lower among Indigenous Australians than among other Australians (47% compared with 51%), Indigenous people reported having cataracts and either complete or partial blindness at higher rates than non-Indigenous people. The prevalence of eye and vision problems was higher in older age groups in both the Indigenous and non-Indigenous populations (ABS 2006c).

HOSPITALISATIONS FOR EYE AND VISION PROBLEMS

In 2005–06, there were a total of 1,170 hospitalisations of Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, with a principal diagnosis of diseases of the eye and adnexa, representing about 0.5% of all Indigenous hospitalisations. The overall rates of hospitalisations for diseases of the eye and adnexa among Indigenous Australians were slightly less than those for other Australians. Rates of hospitalisation due to diseases of the eye were highest among those aged 65 years and over, reaching around 30 per 1,000 for Indigenous Australians and 56 per 1,000 for other Australians in this age group.

Ear and hearing problems

In 2004–05, a higher proportion of Indigenous people than non-Indigenous people reported ear and hearing problems across all age groups, except for those aged 55 years and over, among whom prevalence rates were similar.

Otitis media, a common childhood disease, is often the result of a pneumococcal invasion of the nasopharynx. Recurrence of chronic otitis media is often characterised by a perforated tympanic membrane, which can lead to hearing loss, deafness and further complications such as learning difficulties. In 2004–05, rates of otitis media were three times as high among Indigenous children aged 0–14 years as non-Indigenous children in this age group (ABS 2006c).

HOSPITALISATIONS FOR EAR AND HEARING PROBLEMS

In 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were 1,714 hospitalisations of Indigenous people for diseases of the ear and mastoid process (temporal bone behind the ear), representing 0.7% of all hospitalisations of Indigenous people.

Overall, hospitalisation rates for ear and hearing problems among Indigenous Australians were similar to those for other Australians. Hospitalisations were highest among children aged 0–4 years for both Indigenous and other Australians. In 2005–06, 61% of all hospitalisations of Indigenous people for ear and hearing problems were due to otitis media. Chronic ear and hearing problems are greater among Indigenous children than among other children. According to Coates (2002), Indigenous children and young adults between the ages of 2 and 20 years experience an average of 32 weeks of middle ear disease compared with 2 weeks for other children.

Oral health

Oral health refers to the health of a number of tissues in the mouth, including mucous membrane, connective tissue, muscles, bone, teeth and periodontal structures or gums. It may also refer to immunological, physiological, sensory and digestive system functioning, but is most often used to refer to two specialised tissues of the mouth: the teeth and the gums. Oral health outcomes are usually measured in terms of the number of decayed, missing or filled baby (deciduous) and adult (permanent) teeth (dmft and DMFT scores) (AIHW 2007k).

The latest available data on DMFT scores for Indigenous adults come from adults seeking dental care in Australia in 2004–06. Indigenous adults had a greater average number of decayed and missing teeth and a lower average number of filled teeth than non-Indigenous adults across most age groups (table 7.33).

Oral health continued

7.33 AVERAGE NUMBER OF DECAYED, MISSING OR FILLED TEETH, by Indigenous status and age—2004–2006

	AGE GROUP (YEARS)				
	15–34	35–54	55–74	75 and over	15 and over(a)
Mean number of decayed teeth					
Indigenous	1.7	4.1	1.4	np	2.7
Non-Indigenous	0.9	0.8	0.5	0.6	0.8
Mean number of missing teeth					
Indigenous	4.0	7.4	13.1	np	7.4
Non-Indigenous	3.5	5.3	10.2	14.2	6.1
Mean number of filled teeth					
Indigenous	1.3	4.3	8.8	np	4.7
Non-Indigenous	0.1	8.2	11.5	9.6	5.9
Mean number of decayed, missing or filled teeth					
Indigenous	7.0	15.8	23.3	np	14.8
Non-Indigenous	4.5	14.3	22.2	24.4	12.8

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Excludes those with no natural teeth.

Source: 2004–2006 Adult Dental Health Survey (Roberts-Thompson & Do 2007)

HOSPITALISATIONS RELATED TO ORAL HEALTH PROBLEMS

In 2005–06 there were 2,395 hospitalisations of Indigenous people in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, for diseases of the oral cavity, salivary glands and jaw. The majority of these hospitalisations were for dental caries (54%), followed by diseases of the pulp and periapical tissues (14%). Indigenous Australians were less likely to be hospitalised for diseases of the oral cavity, salivary glands and jaw than other Australians.

SUMMARY

Indigenous Australians have poorer self-assessed health than non-Indigenous Australians. In 2004–05, Indigenous Australians were twice as likely to report their health as fair or poor compared with other Australians (age standardised rates of 29% and 15% respectively).

Indigenous Australians also have higher rates of hospitalisation and higher prevalence rates for many diseases. Analyses of data from a number of different sources indicate the long-term health conditions responsible for much of the ill-health among Indigenous Australians. These conditions include circulatory diseases, diabetes, respiratory diseases, musculoskeletal conditions, kidney disease, and eye and ear problems. Indigenous Australians experience an earlier onset of disease than other Australians for most of these conditions.

Indigenous Australians suffer a burden of disease that is two-and-a-half times greater than the burden of disease in the total Australian population. Chronic illnesses are responsible for 70% of the difference in the burden of disease observed between the Indigenous and non-Indigenous populations.

Aboriginal and Torres Strait Islander people suffer higher rates of mental illness than non-Indigenous people. Indigenous adults were twice as likely as non-Indigenous Australians to report high to very high levels of psychological distress in 2004–05 (age

SUMMARY *continued*

standardised rates of 27% and 13% respectively). However, data on social and emotional wellbeing also reveal that there is a strong sense of positive wellbeing among many Aboriginal and Torres Strait Islander people.

While data on general practitioner encounters reveal that the rates at which Indigenous people visit general practitioners are similar to those for non-Indigenous people for many conditions, Indigenous people are somewhat underestimated in this dataset and thus the true GP encounter rates for Indigenous people are likely to be much higher than those reported.

INTRODUCTION

Health risk factors affect the onset and prognosis of a variety of chronic diseases. A wide body of research has demonstrated complex yet robust connections between a number of biomedical and behavioural factors and major chronic diseases and conditions, including the fact that the major chronic diseases share common risk factors (AIHW 2006c). Environmental factors from cultural, socioeconomic and physical domains have also been shown to have a strong association with both disease and ill-health.

The National Chronic Disease Strategy, endorsed by all Health Ministers in 2005, places a strong emphasis on health promotion and risk factor reduction across the entire continuum of chronic disease prevention and care—to prevent the disease itself, where possible, and to prevent progression of the disease and its associated complications and co-morbidities (NHPAC 2006).

The health risk factors presented in this chapter focus on behavioural or lifestyle factors, including smoking, excessive alcohol consumption, physical inactivity, poor nutrition and overweight/obesity. Associations between these risk factors and other health indicators are also presented. The 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) provides the most recent data for the majority of the risk factors presented in this chapter. Where possible, information from the 2004–05 National Health Survey (NHS) has also been included in order to provide comparisons between the Indigenous and non-Indigenous populations.

RISK FACTORS AND SOCIOECONOMIC STATUS

As outlined in Chapter 2, Aboriginal and Torres Strait Islander people experience disadvantage across a range of socioeconomic indicators including education, employment, income and housing. There is strong evidence from Australia and other developed countries that low socioeconomic status is associated with poor health and increased exposure to health risk factors (Blakely, Hales & Woodward 2004; Turrell & Mathers 2000; Carson et al 2007). For example, in 2004–05, Indigenous people with low levels of educational attainment were more likely than those who had completed Year 12 to regularly smoke, to consume alcohol at risky/high risk levels, and to engage in low levels of exercise, and were less likely to eat fruit or vegetables on a daily basis (table 8.1).

However, because of the close associations between particular socioeconomic variables (e.g. education and employment) and because the causal relationship between health and socioeconomic status can sometimes work both ways (e.g. low educational attainment may lead to poor health but poor health may also lead to low educational attainment), it is difficult to measure and quantify these relationships in household surveys.

8.1 HEALTH RISK FACTORS, by selected socioeconomic characteristics—Indigenous persons—2004–05

	HIGHEST YEAR OF SCHOOL COMPLETED(a)		LABOUR FORCE STATUS		EQUIVALISED HOUSEHOLD INCOME(b)	
	Year 12	Year 9 or below	Employed	Unemployed	Third quintile and above	First & second quintile
<i>Selected risk factors</i>	%	%	%	%	%	%
Current daily smokers(c)	(d)34.3	(d)54.9	(e)45.2	(e)66.3	(f)39.7	(f)55.4
Risky/high risk alcohol consumption(c)	(d)12.2	(d)17.2	19.1	20.4	18.4	15.5
Has used illicit substances in last 12 months(g) (h)	27.6	35.4	26.0	27.9	28.4	29.3
Sedentary/low level of exercise(g) (h)	(d)70.5	(d)81.9	73.7	69.4	75.2	74.5
Overweight/obese(g) (i)	56.2	61.9	58.7	51.4	57.0	56.7
Does not eat fruit daily(g)	(d)9.4	(d)16.9	14.3	14.4	(f)10.4	(f)16.6
Does not eat vegetables daily(g)	(d)3.8	(d)7.7	5.0	4.0	(f)1.0	(f)7.4

(a) Excludes persons still attending school.

(b) See the Glossary for more information.

(c) Persons aged 18 years and over.

(d) Difference between Year 12 and Year 9 or below is statistically significant.

(e) Difference between Employed and Unemployed is statistically significant.

(f) Difference between First & Second quintile and Third quintile and above is statistically significant.

(g) Persons aged 15 years and over.

(h) Persons in non-remote areas only.

(i) Proportions are calculated excluding 'Body Mass Index not known'.

Source: ABS 2004–05 NATSIHS

SMOKING

Tobacco smoking in the Australian population increases the risk of numerous cancers, heart and vascular diseases, respiratory diseases and a variety of other conditions. It contributes to more drug-related hospitalisations and deaths than alcohol and illicit drug use combined (AIHW 2006a). Tobacco smoking was the leading cause of the burden of disease and injury for Indigenous Australians in 2003, accounting for 12.1% of the total burden and 20% of all deaths (Vos et al 2007).

In 2004–05, half (50%) of the adult Indigenous population were current daily (or regular) smokers. While smoking rates have decreased slightly for the total Australian population over the ten years to 2004–05, there has been no significant change in smoking rates for the Indigenous population in this period.

Similar proportions of Indigenous men (51%) and women (49%) were current daily smokers in 2004–05. While there was little difference between the overall proportions of Indigenous people in remote and non-remote areas who smoked, males in remote areas were more likely than males in non-remote areas to smoke on a daily basis (58% compared with 49%).

In 2004–05, around one in ten Indigenous adults who were current daily smokers or ex-smokers had begun smoking regularly before the age of 13 years. More than two-thirds (68%) had begun smoking regularly before the legal age of 18 years. Nearly half (46%) of all current daily smokers/ex-smokers aged 18–34 years and 90% of those aged 35 years and over had been regularly smoking for 10 years or more.

In 2004–05, Indigenous people who were current daily smokers or ex-smokers, were more likely than those who had never smoked to report being in fair or poor health (27% compared with 17%). They were also more likely to report having experienced high/very high levels of psychological distress in the last month (30% compared with

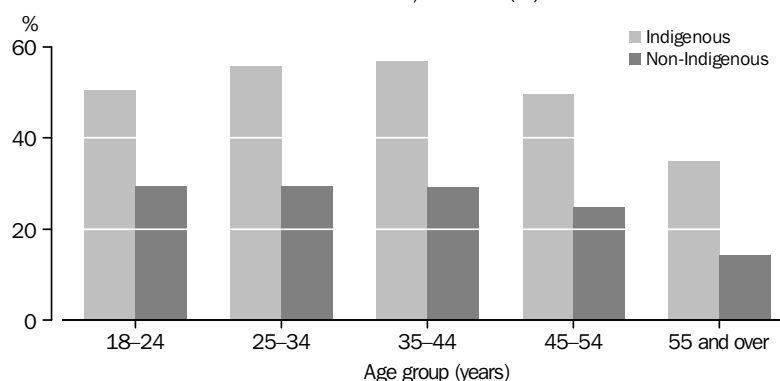
SMOKING *continued*

20%). However, the 2004–05 NATSIHS did not show an association between smoking and elevated rates of tobacco-related health conditions, such as respiratory disease and cardiovascular disease. This may be due to time lag, i.e. smoking behaviours continuing for many years before a disease manifests, or people quitting smoking after being diagnosed with a chronic health condition (see ABS 2007h for more information).

Current daily smokers reported higher rates of other substance use in 2004–05. Aboriginal and Torres Strait Islander people who smoked regularly were more than twice as likely as non-smokers (includes ex-smokers and people who had never smoked) to report long-term risky/high risk levels of alcohol consumption (23% compared with 9%) (see the Glossary for more information on alcohol risk levels). In non-remote areas, Indigenous smokers aged 18–34 years were twice as likely as non-smokers to report illicit substance use. This was particularly the case for marijuana use, where nearly half (46%) of regular smokers aged 18–34 years had used marijuana in the last 12 months compared with 16% of non-smokers.

For both men and women, smoking was more prevalent among Indigenous than non-Indigenous adults in every age group (graphs 8.2 and 8.3). After adjusting for age differences between the two populations, Indigenous people aged 18 years and over were more than twice as likely as non-Indigenous people to be current daily smokers.

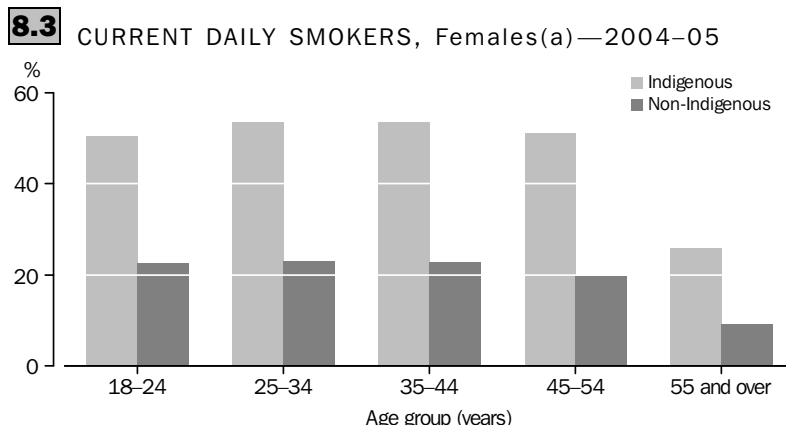
8.2 CURRENT DAILY SMOKERS, Males(a)—2004–05



(a) Aged 18 years and over.

Source: ABS 2004–05 NATSIHS, 2004–05 NHS

SMOKING *continued*



(a) Aged 18 years and over.

Source: ABS 2004–05 NATSIHS, 2004–05 NHS

ALCOHOL CONSUMPTION

Excessive alcohol consumption is a major risk factor for morbidity and mortality in all populations (AIHW 2006b). People who regularly drink at harmful levels place themselves at substantially increased risk of chronic ill-health and premature death, while an episode of heavy drinking places the drinker and others at increased risk of injury and morbidity (NHMRC 2001). In 2003, alcohol was associated with 7% of all deaths and 6% of the total burden of disease for Indigenous Australians (Vos et al 2007). Excessive alcohol consumption also accounted for the greatest proportion of the burden of disease and injury for young Indigenous males (aged 15–34 years) and the second highest (after intimate partner violence) for young Indigenous females.

Two measures of alcohol consumption risk level were derived from the 2004–05 NATSIHS. The first measure was designed to capture long-term risk and was based on a person's reported average daily consumption of alcohol in the previous week. The second measure was designed to capture short-term risk, or binge drinking, and was based on the frequency of consuming five or more (for females) or seven or more (for males) standard drinks on any one occasion in the last 12 months. See box 8.4 for further details.

8.4 MEASURES OF ALCOHOL CONSUMPTION IN ABS INDIGENOUS HOUSEHOLD SURVEYS

Two measures of alcohol consumption are collected in ABS Indigenous household surveys: risk level associated with long-term (or chronic) patterns of alcohol consumption; and risk level associated with episodes of short-term (or binge) drinking. Risk levels in both the 2004–05 NATSIHS and 2002 NATSISS were based on the 2001 National Health and Medical Research Council (NHMRC) risk levels for harm in the long-term and short-term. Both surveys assume the level of long-term alcohol consumption in the reference period was typical.

In the 2004–05 NATSIHS, information on long-term risky/high risk alcohol consumption was collected for Indigenous persons aged 18 years and over, based on the average self-reported daily amount (mls) of alcohol consumed in the week prior to interview.

ALCOHOL CONSUMPTION

continued

This methodology was essentially the same as that used in the 2001 NHS(I), therefore the results for the two surveys are considered directly comparable.

Information on short-term (or binge) risky/high risk alcohol consumption was collected in the NHS for the first time in 2004–05. This measure was based on the self-reported frequency of consuming five or more (for females) or seven or more (for males) standard drinks on any one occasion in the 12 months prior to interview. The output for this item comprised two parts: short-term risky/high risk alcohol consumption at least once a week in the last 12 months; and short-term risky/high risk alcohol consumption on at least one occasion in the last 12 months.

The 2002 NATSISS also collected both long-term and short-term measures of alcohol consumption, but these measures were different from those used in the 2004–05 NATSIHS. The long-term risky/high risk measure was collected for Indigenous persons aged 15 years and over and was based on the self-reported amount of alcohol (mls) consumed on a usual drinking day, as well as the frequency of consumption, in the 12 months prior to interview. The short-term measure was based on the self-reported largest quantity of alcohol consumed on a single day during the fortnight prior to interview.

Given the different conceptual elements and collection methodologies between the two surveys (particularly for short-term alcohol risk) the results cannot be directly compared. However, both the NATSIHS and NATSISS produced very similar estimates of the proportion of Indigenous adults who drink at chronic risky/high risk levels.

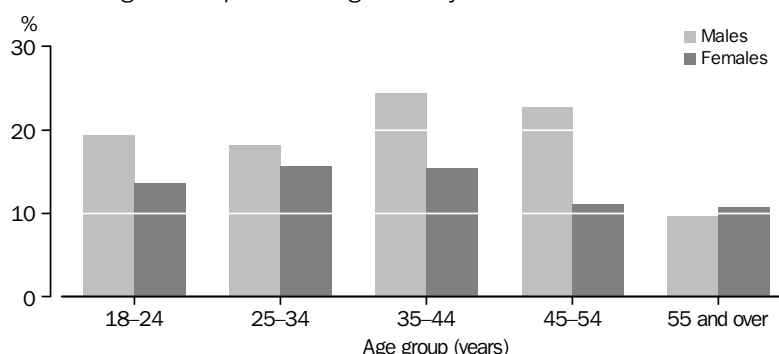
Chronic alcohol consumption

In 2004–05, Indigenous people aged 18 years and over were more likely than non-Indigenous people to abstain from drinking alcohol (table 8.6). Of those who did consume alcohol in the week prior to the survey, one in six Indigenous adults (16%) reported long-term (or chronic) risky/high risk alcohol consumption, up from 13% in 2001. In non-remote areas, the proportion of Indigenous adults who drank at chronic risky/high risk levels increased from 12% in 2001 to 17% in 2004–05.

Indigenous men were more likely than Indigenous women to drink at long-term risky/high risk levels (19% compared with 14%). This was evident in all broad age groups under 55 years (graph 8.5). While rates of risky/high risk drinking were similar for Indigenous people in remote and non-remote areas, people in remote areas were nearly three times as likely as those in non-remote areas to report never having consumed alcohol (18% compared with 6%).

Chronic alcohol consumption continued

8.5 CHRONIC RISKY/HIGH RISK ALCOHOL CONSUMPTION(a), Indigenous persons aged 18 years and over—2004–05



(a) Persons who consumed alcohol in the last week. Risk levels are based on NHMRC guidelines for risk of harm in the long-term. See Glossary for more information.

Source: ABS 2004–05 NATSIHS

Indigenous people who drank at long-term risky/high risk levels were more likely than those who drank at low risk levels to report fair/poor health (25% compared with 18%) and were less likely to report excellent or very good health (35% compared with 45%). Chronic risky/high risk alcohol consumption was also associated with higher rates of tobacco smoking (69% compared with 48% of low risk drinkers), high/very high levels of psychological distress (32% compared with 24%) and hypertensive disease (23% compared with 16% for those aged 35 years and over).

After adjusting for age differences between the two populations, the rates of chronic risky/high risk drinking were similar for both Indigenous and non-Indigenous Australians in 2004–05 (table 8.6).

8.6 CHRONIC ALCOHOL CONSUMPTION, Persons aged 18 years and over—2004–05

Chronic alcohol risk level	INDIGENOUS			Age standardised rate ratio(a)
	Males	Females	Total	
Low risk	38.2	26.7	32.1	0.6
Risky/high risk	19.5	13.8	16.5	1.1
Total drinkers in the last week(b)	58.1	40.6	48.8	0.7
Did not consume alcohol in the last week(c)	41.2	58.2	50.2	1.5
Total(d)	100.0	100.0	100.0	..

.. not applicable

(a) Rate ratios are calculated by dividing the Indigenous age standardised proportion for a particular characteristic by the non-Indigenous age standardised proportion for the same characteristic.

(b) Includes persons for whom risk level was unknown.

(c) Includes persons who had never consumed alcohol.

(d) Includes persons for whom time since last consumed alcohol was not known.

Source: ABS 2004–05 NATSIHS, 2004–05 NHS

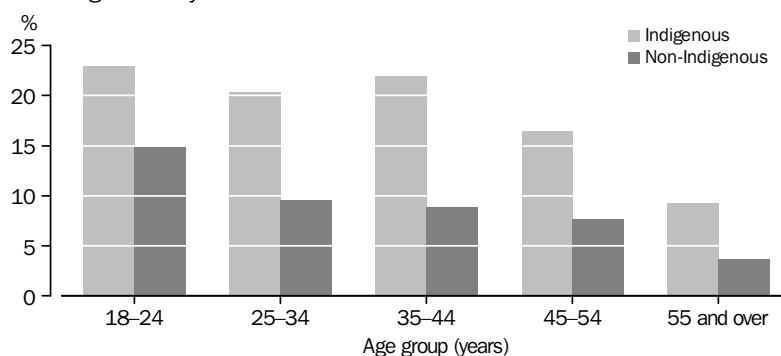
Binge drinking

In 2004–05, more than half (55%) of Indigenous people aged 18 years and over reported drinking at short-term risky/high risk levels on at least one occasion in the last 12 months. One in five (19%) reported drinking at these levels at least once a week. Rates of weekly binge drinking were lower among older age groups, ranging from 23% of those aged 18–24 years to 9% of those aged 55 years and over. In all age groups, regular binge drinking was more common among Indigenous males than Indigenous females. Overall, 24% of males drank at short-term risky/high risk levels on a weekly basis compared with 15% of females.

Regular binge drinking was associated with poorer health and wellbeing among Indigenous young people in 2004–05. Indigenous people aged 18–34 years who reported binge drinking at least once a week were less likely to say their health was excellent/very good compared with those who had not consumed alcohol in the last 12 months (43% compared with 58%). They were also more likely to report high/very high levels of psychological distress in the four weeks prior to interview (35% compared with 21%). Weekly binge drinkers were also more likely than those who had not consumed alcohol in the last year to regularly smoke (67% compared with 37%) and, in non-remote areas, to have recently used illicit substances (43% compared with 11%).

In 2004–05, rates of binge drinking were higher for Indigenous than non-Indigenous people in every age group (graph 8.7). After adjusting for age differences between the two populations, Indigenous Australians were twice as likely as non-Indigenous Australians to drink at short-term risky/high risk levels at least once a week.

8.7 ACUTE RISKY/HIGH RISK ALCOHOL CONSUMPTION (a), Persons aged 18 years and over—2004–05



(a) Based on NHMRC guidelines for risk of harm in the short-term. See Glossary for more information.

Source: ABS 2004–05 NATSIHS, 2004–05 NHS

ILLCIT SUBSTANCE USE

The term 'illicit substance use' refers to a variety of substances that are either illegal to possess (e.g. heroin) or legally available, but used inappropriately (e.g. misuse of prescription medication, petrol sniffing). Substance use is a contributing factor to illness and disease, accident and injury, violence and crime, family and social disruption, and workplace problems. The use of inhalants (for example, petrol) can lead to serious health consequences, including brain damage, disability or even death (SCRGSP 2007a).

In the 2004–05 NATSIHS, information on substance use was collected from Indigenous people living in non-remote areas using a voluntary self-completion form. In 2004–05,

ILLICIT SUBSTANCE USE

continued

28% of Indigenous people aged 15 years and over who accepted the substance use form reported having used an illicit substance in the 12 months prior to interview, similar to the rate reported in the 2002 NATSISS (26%). Around half (49%) had reported having tried at least one illicit substance in their lifetime.

Substance use was more prevalent among Indigenous males than females. Half (54%) had tried an illicit substance (compared with 45% of females) and one-third (32%) had used at least one type of substance in the last 12 months (compared with 25% of females). Overall, recent substance use peaked among those aged 25–34 years (38%).

Marijuana was the most commonly reported illicit substance used by Indigenous people in 2004–05. Under half (43%) reported having tried marijuana and 23% had used it in the last 12 months. Amphetamines/speed was the next most frequently reported substance ever used (15%) or recently used (7%) by Indigenous people.

Along with alcohol, illicit substance use accounted for the greatest amount of burden of disease and injury among Australia's young people in 2003 (Begg et al 2007). This burden is often exacerbated when multiple substances are used in combination (AIHW 2007n). The 2004–05 NATSIHS showed that Indigenous young people aged 18–34 years who had recently used illicit substances were around twice as likely as those who had never used substances to regularly smoke (66% compared with 34%) and to binge drink on a weekly basis (28% compared with 13%). They were also less likely to report being in excellent or very good health (41% compared with 58%).

The 2004–05 NHS did not collect information on substance use among non-Indigenous Australians. However, results from the 2004 AIHW National Drug Strategy Household Survey showed that 15% of non-Indigenous people reported using illicit substances in the last 12 months—nearly half the rate reported by Indigenous Australians in the 2004–05 NATSIHS.

OVERWEIGHT/OBESITY

In Australia and worldwide, the prevalence of overweight/obesity has been increasing markedly over the last two decades (AIHW 2006b). Obesity increases the risk of developing a range of health problems including Type 2 diabetes, cardiovascular disease, high blood pressure, osteoarthritis and certain cancers. As a single risk factor, high body mass was the second leading cause of the burden of illness and injury among Indigenous Australians in 2003, accounting for 11% of the total burden of disease and 13% of all deaths (Vos et al 2007).

In 2004–05, of those who reported their height and weight, 38% of Indigenous people aged 15 years and over were a healthy weight, 28% were overweight and 29% were obese (for more information on the calculation of Body Mass Index (BMI) see the Glossary). Overall, more than half (57%) of Indigenous people aged 15 years and over were overweight or obese. Between 1995 and 2004–05, rates of overweight/obesity among Indigenous people aged 15 years and over in non-remote areas increased from 48% to 56%.

In 2004–05, the rates of overweight/obesity were higher in older age groups, ranging from 37% of people aged 15–24 years to 74% of people aged 55 years and over. Overall, the rates of overweight/obesity were similar for both Indigenous males (58%) and females (55%).

OVERWEIGHT/OBESITY

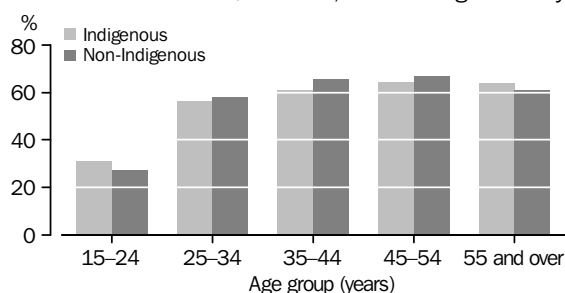
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Overweight/obesity was associated with poorer self-assessed health among Indigenous people in 2004–05. Indigenous people aged 15 years and over who were overweight/obese were more likely than those who were a healthy weight to report their health as fair or poor (25% compared with 16%) and were less likely to report their health as excellent or very good (39% compared with 51%).

Similarly, Indigenous people aged 35 years and over who were overweight/obese were more likely than those who were a healthy weight to report diabetes/high sugar levels (22% compared with 10%) and/or cardiovascular disease (36% compared with 23%). The 2003 Australian Burden of Disease study showed that the majority of illness and injury among Indigenous people who were overweight/obese was a result of diabetes (49%) and ischaemic heart disease (40%) (Vos et al 2007).

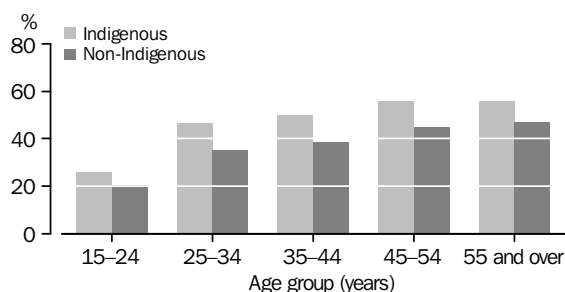
After adjusting for age differences between the two populations, rates of overweight/obesity were similar for both Indigenous and non-Indigenous adults. However, Indigenous women were around one-and-a-half times as likely as non-Indigenous women to be overweight/obese. There was little variation in the rates of overweight/obesity for Indigenous and non-Indigenous men (graphs 8.8 and 8.9).

8.8 OVERWEIGHT/OBESE, Males aged 15 years and over—2004–05



Source: ABS 2004–05 NATSIHS, 2004–05 NHS

8.9 OVERWEIGHT/OBESE, Females aged 15 years and over—2004–05



Source: ABS 2004–05 NATSIHS, 2004–05 NHS

POOR NUTRITION

Fruit and vegetable consumption is strongly linked to the prevention of chronic disease and to better health (NHMRC 2003a, NHMRC 2003b). Many of the principal causes of ill-health among Aboriginal and Torres Strait Islander people are diseases that can be affected by poor nutrition, such as heart disease, Type 2 diabetes and kidney disease (AHMAC 2006). In 2003, insufficient fruit and vegetable consumption contributed to 3% of the total burden of disease and 6% of deaths for Indigenous Australians (Vos et al 2007).

In 2004–05, the majority of Indigenous people aged 12 years and over reported eating vegetables (95%) and/or fruit (86%) on a daily basis. Fruit and vegetables may be less accessible to Indigenous people living in remote areas, where one in five (20%) reported no usual daily fruit intake compared with one in eight (12%) in non-remote areas. The disparity was even greater for vegetable consumption, where 15% of people in remote areas reported no usual daily intake compared with only 2% in non-remote areas.

The NHMRC guidelines recommend a minimum of five serves of vegetables and two serves of fruit per day (see the Glossary for more information). Of people in non-remote areas, 42% were eating the recommended daily intake of fruit and 10% the recommended daily intake of vegetables. Indigenous people in remote areas were not asked to specify how many serves of fruit and vegetables they usually eat on a daily basis.

After adjusting for age differences between the two populations, there was little difference in the rates of Indigenous and non-Indigenous people who did not meet the recommended daily intake of vegetables (89% compared with 86%), however Indigenous people were more likely than non-Indigenous people to have not met the recommended daily intake of fruit (55% compared with 46%). In both populations, women were more likely than men to meet the daily fruit and vegetable intake requirement.

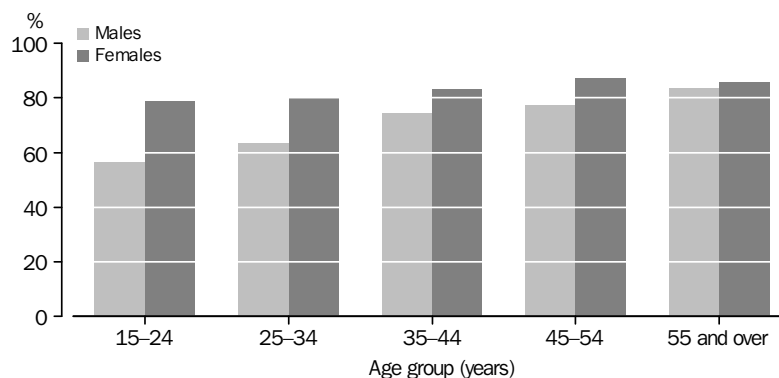
PHYSICAL INACTIVITY

Low levels of physical activity are a major risk factor for ill-health and mortality. People who do not engage in sufficient physical activity have a greater risk of cardiovascular disease, colon and breast cancers, Type 2 diabetes and osteoporosis. Being physically active, on the other hand, improves mental and musculoskeletal health and reduces the chances of being overweight, having high blood pressure and/or high blood cholesterol (AIHW 2004). Physical inactivity was the third leading cause of the burden of illness and disease for Indigenous Australians in 2003, accounting for 8% of the total burden and 12% of all deaths (Vos et al 2007).

In 2004–05, three-quarters (75%) of Indigenous people aged 15 years and over who were living in non-remote areas reported being sedentary or exercising at low levels in the two weeks prior to interview, an increase from 68% in 2001. One-quarter (24%) reported exercising at moderate/high levels in 2004–05, compared with 32% in 2001 (see the Glossary for more information).

In 2004–05, rates of physical inactivity increased with age, with two-thirds (67%) of people aged 15–24 years being sedentary/exercising at low levels compared with 85% of those aged 55 years and over. Overall, rates of sedentary/low levels of exercise were higher among Indigenous females than Indigenous males (82% compared with 67%) (graph 8.10).

PHYSICAL INACTIVITY

*continued***8.10** SEDENTARY/LOW LEVELS OF EXERCISE, Indigenous persons aged 15 years and over(a)—2004–05

(a) In non-remote areas.

Source: ABS 2004–05 NATSIHS

One-quarter (25%) of Indigenous people aged 15 years and over who were sedentary or who engaged in low levels of exercise reported fair/poor health, compared with 15% of those who engaged in moderate or high levels of exercise. People who were sedentary/engaged in low levels of exercise were also more likely to be overweight/obese (58% compared with 51%) and to smoke on a daily basis (51% compared with 42%).

Among Indigenous people aged 35 years and over, those who were sedentary/engaged in low levels of exercise were more likely than people who exercised at moderate/high levels to have three or more long-term health conditions (66% compared with 55%). They also reported higher rates of cardiovascular disease (33% compared with 23%) and asthma (18% compared with 13%).

The proportion of females who were sedentary/exercised at low levels was higher than males across all age groups in both the Indigenous and non-Indigenous populations. After adjusting for differences in the age structure between the two populations, Indigenous Australians were more likely than non-Indigenous Australians to be sedentary or to exercise at low levels.

EXPOSURE TO VIOLENCE

Aboriginal and Torres Strait Islander people are much more likely than non-Indigenous people to be victims of violence and to be hospitalised for injuries arising from assault (AHMAC 2006). Victims of violence may suffer serious injury, disability or death and, together with those who witness violence, are more likely to experience debilitating stress and trauma (ABS & AIHW 2005). Similarly, people who perceive their neighbourhood as unsafe may feel isolated and be discouraged from accessing local services and recreational facilities, or from creating social networks close to their homes.

In the 2002 NATSISS, nearly one-quarter (24%) of Indigenous people aged 15 years or over reported being a victim of physical or threatened violence in the previous 12 months; nearly double the rate reported in 1994 (13%). Rates of victimisation were similar for people living in remote and non-remote areas (23% compared with 25%) and for men and women overall (26% compared with 23%). Younger people were more likely to have been a victim of physical or threatened violence in 2002, with men aged 15–24 years having the highest rate of any age group (36%). When age differences

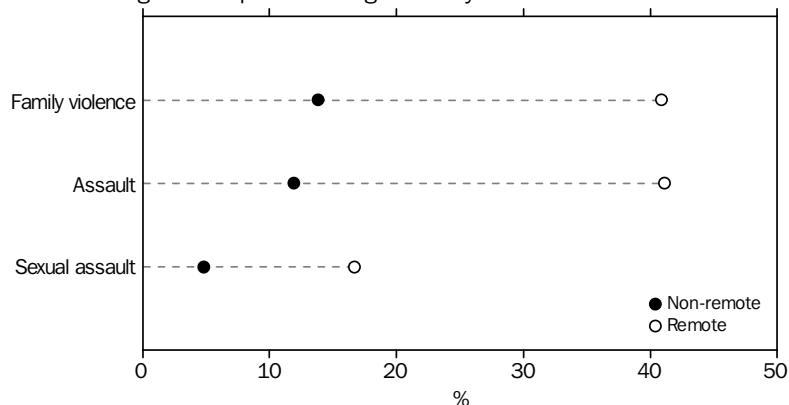
EXPOSURE TO VIOLENCE

continued

between the Indigenous and non-Indigenous populations were taken into account, Indigenous people aged 18 years or over experienced double the victimisation rate of non-Indigenous people in 2002. For more information on victimisation, see Chapter 8 in the 2005 edition of this report.

The 2002 NATSISS also collected information on an individual's experience of violence within their neighbourhood or community. Indigenous people in remote areas were three times as likely as those in non-remote areas to report family violence (41% compared with 14%), assault (41% compared with 12%) or sexual assault (17% compared with 5%) as a neighbourhood/community problem (graph 8.11). They were also more likely to report witnessing violence (30% compared with 10%) and abuse or violent crime (17% compared with 9%) as life stressors experienced in the last 12 months.

8.11 SELECTED NEIGHBOURHOOD/COMMUNITY PROBLEMS, Indigenous persons aged 15 years and over—2002



Source: ABS 2002 NATSISS

MULTIPLE RISK FACTORS

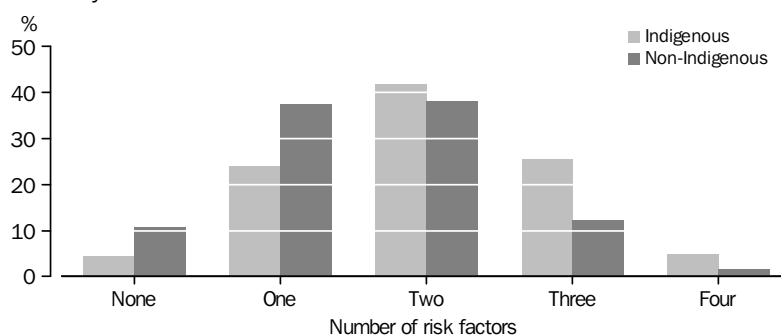
In this chapter, health risk factors such as smoking, alcohol and overweight/obesity have been assessed largely in isolation from one another. However, the level of risk attached to a particular factor may depend on whether other factors are also present, as risk factors tend to coexist and be interactive in their effects (AIHW 2006c). The Burden of Disease study assessed the impact of selected risk factors on the burden of disease and injury in Aboriginal and Torres Strait Islander people. Together, these risk factors explained 37% of the total burden of disease experienced by Indigenous Australians in 2003 (Vos et al 2007). The study also found that almost half of the burden of disease gap between Indigenous and non-Indigenous Australians was due to these risk factors (Vos et al. 2007).

For the total Indigenous population, the ten risk factors associated with cardiovascular disease together explained 69% of the total cardiovascular disease burden. Tobacco contributed the most to this cause, followed closely by high body mass, high blood cholesterol, physical inactivity and high blood pressure. In contrast, 69% of the diabetes burden was explained by the combination of only two risk factors—high body mass and physical inactivity. This indicates the potential to considerably reduce the disease and injury experienced by Indigenous Australians with interventions targeted at the specific risk factors for each disease/condition (Vos et al 2007).

MULTIPLE RISK FACTORS
continued

The 2004–05 NATSIHS and NHS show that, on average, Indigenous adults in non-remote areas reported more multiple risk factors (2.0) than did non-Indigenous adults (1.6) (where the risk factors examined were smoking, long-term risky/high risk alcohol consumption, sedentary/low levels of exercise and overweight/obesity). Nearly three-quarters (72%) of Indigenous adults in non-remote areas reported two or more risk factors in 2004–05, compared with half (52%) of non-Indigenous adults (graph 8.12). In both populations, the most common combinations of multiple risk factors included physical inactivity and overweight/obesity.

8.12 NUMBER OF RISK FACTORS REPORTED (a)(b), Persons aged 18 years and over in non-remote areas—2004–05



(a) Risk factors included are current daily smoking, long-term risky/high risk alcohol consumption, sedentary/low levels of exercise and overweight/obesity.

(b) Excludes not stated responses.

Source: ABS 2004–05 NATSIHS, 2004–05 NHS

SUMMARY

The relative socioeconomic disadvantage experienced by Aboriginal and Torres Strait Islander people compared with non-Indigenous people places them at greater risk of exposure to health risk factors.

In 2004–05, half (50%) of the Indigenous population aged 18 years and over smoked on a daily basis. One in six (16%) reported consuming alcohol at chronic risky/high risk levels in the last week and 19% at short-term risky/high risk levels on a weekly basis. In non-remote areas, 28% of Indigenous people aged 15 years and over reported having used illicit substances in the 12 months prior to interview and 49% reported having tried at least one illicit substance in their lifetime.

More than half (57%) of Indigenous people aged 15 years and over were overweight or obese in 2004–05. In non-remote areas, three-quarters (75%) of Indigenous people were sedentary or engaged in low levels of exercise, while 42% were eating the recommended daily intake of fruit and only 10% the recommended daily intake of vegetables. With the exception of fruit and vegetable consumption, all lifestyle risk factors were associated with fair/poor self-assessed health among Indigenous people in 2004–05.

INTRODUCTION

The Australian population enjoys good health by world standards, but Aboriginal and Torres Strait Islander people experience higher death rates than non-Indigenous Australians across all age groups, and from all major causes of death. The overall mortality rates for Indigenous males and females are almost three times those for non-Indigenous males and females. Conditions responsible for the majority of deaths among Aboriginal and Torres Strait Islander people include circulatory diseases, external causes, endocrine, metabolic and nutritional diseases, diseases of the respiratory system, and cancer.

This chapter examines the mortality of the Indigenous population. It begins by presenting information on data quality and availability and life expectancy. It then provides data on infant mortality, years of life lost and all-cause mortality, followed by an overview of major causes of death among Aboriginal and Torres Strait Islander peoples. Lastly, trends in mortality are presented for Indigenous and other Australians.

While the difference in mortality rates between the Indigenous and non-Indigenous populations is very large, the exact magnitude cannot be established at this time, because of the incomplete recording of Indigenous status on death records. While this limitation restricts precise analysis of the data and presents difficulties for the monitoring of mortality trends over time, it is still possible to provide some measures of Aboriginal and Torres Strait Islander mortality, and to make some comparisons with the mortality of non-Indigenous Australians.

DATA QUALITY AND AVAILABILITY

Almost all deaths in Australia are registered. However, Indigenous status is not always recorded, or recorded correctly. The incompleteness of Indigenous identification means that the number of deaths registered as Indigenous is an underestimate of the actual number of deaths which occur in the Indigenous population.

Coverage

The extent to which the identification of Indigenous Australians occurs in data collections is referred to as 'coverage' or 'completeness of coverage'. While there is incomplete coverage of Indigenous deaths in all state and territory registration systems, some jurisdictions have been assessed by the Australian Bureau of Statistics (ABS) as having a sufficient level of coverage to enable statistics on Aboriginal and Torres Strait Islander mortality to be produced. Table 9.1 presents the implied coverage of Indigenous deaths for each of the jurisdictions (except Tasmania and the Australian Capital Territory) for the period 2001–2005. Implied coverage is calculated by dividing the number of Indigenous deaths registered for the period 2001–2005 by the number of projected Indigenous deaths for the same period (ABS 2007c). The projected deaths are obtained from the low series of population projections in *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians 1991 to 2009* (ABS 2004c).

Coverage continued

9.1 INDIGENOUS DEATHS, implied coverage—2001–2005

States/Territories	Deaths registered as Indigenous	Projected Indigenous deaths	Implied coverage of Indigenous deaths(a)
	no.	no.	%
New South Wales	2 479	5 469	45
Victoria	364	1 182	31
Queensland	2 822	5 430	52
South Australia	642	1 011	64
Western Australia	1 860	2 658	70
Tasmania	123	(b). .	(b). .
Northern Territory	2 229	2 430	92
Australian Capital Territory	36	(b). .	(b). .
Australia(c)	10 564	18 973	56

. . not applicable

(a) Calculated as the ratio of deaths registered to projected Indigenous deaths.

(b) Not calculated due to small numbers.

(c) Includes Other Territories.

Source: ABS 2007c

The jurisdictions assessed as having a sufficient level of coverage are Queensland, Western Australia, South Australia and the Northern Territory. These data have been combined for 2001–2005 to enable an analysis of Indigenous mortality. The less than complete coverage of Indigenous deaths in these four jurisdictions means the aggregate analyses presented in this chapter, which compare Indigenous and non-Indigenous mortality statistics, will underestimate the actual mortality experience of Indigenous people.

Longer term mortality trends discussed in this chapter are based on an analysis of data from three jurisdictions—Western Australia, South Australia and the Northern Territory—the only jurisdictions with 15 years of reasonable coverage of Indigenous deaths registrations. Indigenous mortality rates have been compared with the mortality rates of 'other Australians' (which include deaths of non-Indigenous people and deaths for which Indigenous status was not stated). This is due to a late inclusion of a 'not stated' category of Indigenous status in 1998, before which 'not stated' responses were included with non-Indigenous deaths.

Year of registration or year of occurrence

Deaths can be analysed by year of occurrence of death or by year of registration of death. While the majority of deaths are registered in the year they occur, some of those registered in a given year occurred in previous years, and some which occurred in one year are not registered until subsequent years. Delays in registration can occur when deaths are subject to the findings of a coroner and are more common when the death occurs in a remote area. Late registrations are more common among deaths of Indigenous than non-Indigenous people. For example, in Queensland, Western Australia, South Australia and the Northern Territory for deaths of non-Indigenous Australians that occurred in 2004, 95% were registered in 2004 while 5% were registered in 2005. For Indigenous deaths, the corresponding figures were 88% in 2004 and 12% in 2005. The proportion of deaths that occurred and were registered in the same year has

Year of registration or year of occurrence continued

remained relatively stable over the period 1991–2004 for both Indigenous and other Australians (table 9.2).

While late registrations are more common among Indigenous Australians, table 9.2 shows that there is little difference between the number of deaths registered in a given year and the number of deaths that occurred in the same year for both Indigenous and other Australians. This is because for each year, the number of deaths that are not registered in the year they occur are offset by deaths that occurred in previous years but were registered late. This indicates that analysis of mortality data using year of registration of death will produce similar results to analysis using year of occurrence of death for the period of interest.

The analyses of deaths reported in this chapter are based on year of registration of death for the period 2001–2005 (1991 to 2005 for trends analysis). Year of registration of death was used so that deaths for the most recent year of data available can be included in the analysis and to be consistent with the publication of mortality statistics by the ABS. It should be noted that the 2005 edition of this publication used year of occurrence of death for all years of analysis except for the latest year of available data for which year of registration of death was used. Rates published in this report may therefore differ slightly from those published in the previous edition for comparable years of data.

9.2 PROPORTION OF DEATHS THAT WERE REGISTERED IN THE YEAR THEY OCCURRED (a)—1991–2004

	<i>Indigenous</i>	<i>Other</i>
	%	%
1991	84.5	95.3
1992	85.3	94.7
1993	85.9	95.0
1994	84.7	95.4
1995	86.8	94.3
1996	80.4	95.4
1997	84.3	95.1
1998	85.1	95.0
1999	83.3	95.0
2000	84.7	94.9
2001	84.2	94.4
2002	85.8	95.0
2003	86.2	95.3
2004	88.3	95.1

(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

Source: AIHW National Mortality Database

Cause of death statistics in this chapter are based on the tenth revision of the International Classification of Diseases (ICD-10). Mortality coding using ICD-10 was introduced in Australia for deaths registered from 1 January 1997. All rates and ratios derived in this chapter are calculated using the ABS 2001 Census-based experimental Indigenous population projections (low series).

LIFE EXPECTANCY

Life expectancy refers to the average number of years a person of a given age and sex can expect to live, if current age-sex-specific death rates continue to apply throughout his or her lifetime. A 'life table' is created from age-specific death rates that are used to calculate values which measure mortality, survivorship and life expectancy. To construct a life table, data on total population, births and deaths are needed, and the accuracy of the life table depends upon the completeness of these data. Because of uncertainty about the estimates of these components for Aboriginal and Torres Strait Islander peoples, indirect 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 the level of mortality of the Indigenous population.

The estimates of life expectancy presented here are drawn from the Australian life tables, 1998–2000, and the Experimental Indigenous Abridged Life Tables, 1996–2001 (ABS 2006b) which use the Bhat method (ABS 2004b) to estimate life expectancy (see box 9.3 for information on the different methods used to estimate life expectancy). Life expectancy estimates are not available for the non-Indigenous population so estimates for the total Australian population have been used for comparison with estimates for the Indigenous population. The life expectancy estimates presented here are the same as those presented in the 2005 edition of this report. This is because at present, Indigenous life expectancy estimates have not been calculated for a later period than 1996–2001. Life expectancy estimates for the total Australian population are available for the period 2004–2006, however, for comparative purposes, 1998–2000 data for the Australian population have been used in this chapter.

In the period 1996–2001, the life expectancy at birth for Indigenous Australians was estimated to be 59 years for males and 65 years for females, compared with 77 years for all males and 82 years for all females for the period 1998–2000; a difference of approximately 17 years for both males and females.

9.3 METHODS USED TO CALCULATE LIFE EXPECTANCY

A number of different indirect methods have been used to estimate life expectancy of Indigenous Australians. All of these methods rely on different assumptions and subjective expert opinions (ABS 2004b) and there is no direct way of verifying the accuracy of the estimates derived from these methods. More work needs to be done on such estimates as more robust methods become available and data quality improves. Below is a description of the methods used.

Preston and Hill (1980)

The ABS first used a method proposed by Preston and Hill (1980) to estimate the completeness of recording of deaths of Indigenous Australians in the national mortality database relative to the number of Indigenous Australians recorded in the five-yearly Census of Population and Housing. The Preston-Hill method yields correction factors which adjust the counts of deaths recorded during the intercensal period so that the census population estimates at each end of the period are consistent with corrected intercensal death registration. In this method, net internal migration (by age, sex and state/territory) and net overseas migration (by age and sex) are assumed to be nil, and

LIFE EXPECTANCY

continued

no adjustment is made for change in the extent to which people were identified as Indigenous in the census. In a review of the performance of the method, the ABS determined that the method was not appropriate for application to the Indigenous population because the method only allows for stable populations (ABS 2004a) which is not the case for the Indigenous population. The 1980 Preston-Hill method has been used extensively worldwide and was used by the ABS to estimate Indigenous mortality for the period 1991–1996. The ABS application of the Preston-Hill method produced estimates of life expectancies at birth of 57 years for Indigenous males and 62 years for Indigenous females for 1991–1996. Indigenous life expectancy estimates using the Preston-Hill method have also been calculated for the periods 1997–99 and 1999–2001, resulting in an estimated life expectancy for Indigenous males of 56 years and for Indigenous females of 62 years for both periods. These estimates are around 20 years lower than the life expectancy estimates derived for all Australian males and females.

Bhat (2002)

Following the 2001 census, the ABS shifted to a method proposed by Bhat (2002) that offers improvement over other indirect methods used earlier by the ABS to estimate life expectancy from incomplete data. The Bhat method has advantages over other methods in that it allows for an adjustment for 'migration' which is used to allow for the 'unexplained growth' of the Indigenous population which is attributed to a changing propensity to identify as Indigenous between censuses. However it should be noted that this method was primarily developed for population estimation and requires information about the rate of natural increase of the population and remains experimental. The application of the Bhat method, assuming 2.0% growth per annum during the 1996–2001 period, produced life expectancy estimates of 59 for Indigenous males and 65 years for Indigenous females, about 17 years lower than those estimated for all Australian males and females.

General Growth Balance Method (GGB) (2007)

The GGB method is similar to the Bhat method however it treats change in identification as change in census coverage without an additional adjustment for 'identification migration', i.e. assuming a population growth rate. The GGB method was used by the University of Queensland in the 2007 report 'The burden of disease and injury in Indigenous Australians, 2003'. This report estimated life expectancy at birth for Indigenous Australians around 13 years lower than that of the total Australian population (64 years for Indigenous males and 69 years for Indigenous females compared with 77 years for all males and 82 years for all females.)

DEATHS 2001–2005

For the period 2001–2005, there were 7,544 registered deaths identified as Indigenous (4,329 males and 3,215 females) for people reported to have been usual residents of Queensland, Western Australia, South Australia and the Northern Territory. These deaths accounted for 3.2% of all deaths of usual residents of these four jurisdictions.

DEATHS 2001–2005

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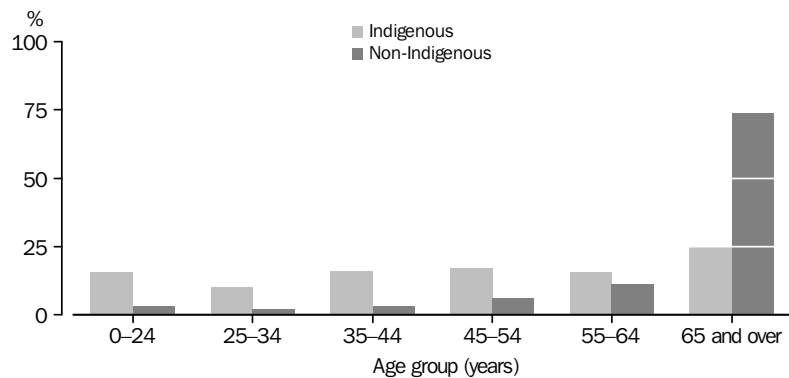
Age at death

In Queensland, Western Australia, South Australia and the Northern Territory combined, approximately 75% of Indigenous males and 65% of Indigenous females died before the age of 65 years. This is in stark contrast to the non-Indigenous population where only 26% of males and 16% of females died aged less than 65 years (graphs 9.4 and 9.5).

Infant deaths (deaths under one year) contribute to the younger age at death of the Indigenous population. For the period 2001–2005, Indigenous infant deaths represented 6.4% of total Indigenous male deaths and 5.7% of total Indigenous female deaths compared with 0.9% and 0.8% of the total for non-Indigenous male and female infant deaths.

The 35–44 year age group accounted for 16% of total Indigenous male deaths compared with only 3% of total non-Indigenous male deaths, while the 45–54 year age group accounted for 15% of Indigenous female deaths compared with 4% of total non-Indigenous female deaths.

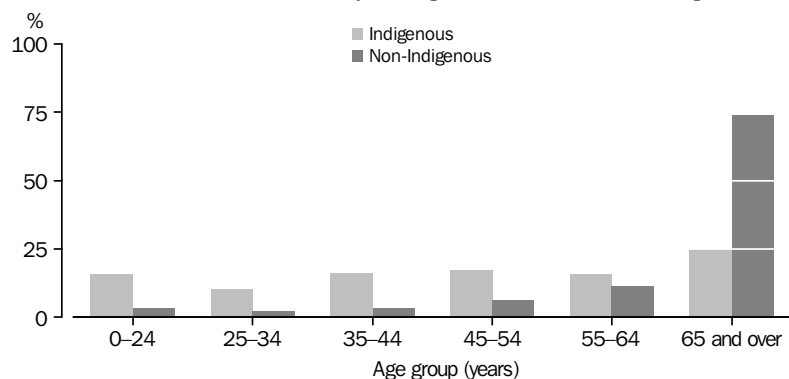
9.4 MALE DEATHS (a), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

Source: AIHW National Mortality Database

9.5 FEMALE DEATHS (a), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

Source: AIHW National Mortality Database

Age at death continued

For the four jurisdictions included in this analysis, Indigenous Australians were over-represented in mortality statistics, in almost every age group. Table 9.6 shows Indigenous deaths as a proportion of total deaths by age group in 2001–2005 and their respective proportions of the total population for the same period.

9.6 DEATHS OF INDIGENOUS PERSONS (a)—2001–2005

Age group (years)	NUMBER OF INDIGENOUS DEATHS		INDIGENOUS DEATHS AS A PROPORTION OF TOTAL DEATHS (%)		INDIGENOUS PERSONS AS A PROPORTION OF TOTAL POPULATION (%) (b)	
	Males	Females	Males	Females	Males	Females
Less than 1	277	182	20.3	17.2	7.7	7.7
1–4	54	50	16.2	21.3	7.3	7.5
5–14	54	40	13.5	14.5	6.9	6.8
15–24	285	130	12.4	15.3	5.1	5.4
25–34	452	218	13.8	17.4	4.1	4.4
35–44	695	435	15.0	16.6	3.0	3.3
45–54	742	498	9.1	10.0	2.1	2.3
55–64	671	523	4.6	6.4	1.4	1.6
65 and over	1 075	1 122	1.2	1.2	0.8	0.9
Total (c)	4 329	3 215	3.5	2.8	3.8	3.9

(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

(b) Estimates of the Indigenous population for 2001–2005 are the Indigenous population projections, based on the 2001 Census of Population and Housing.

(c) Includes deaths where age was not stated.

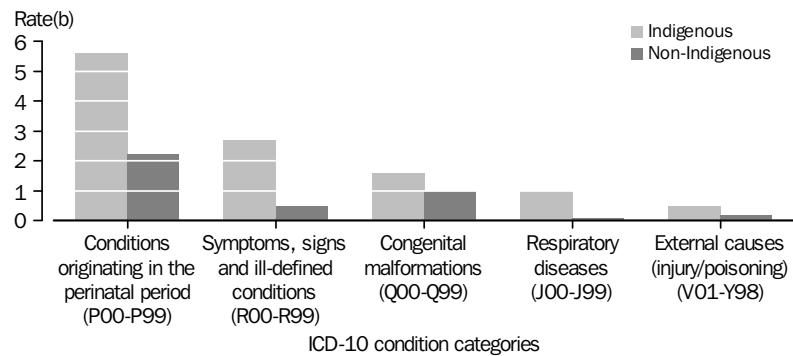
Source: AIHW National Mortality Database

Infant deaths

Infant deaths are deaths of live-born children which occur before they reach their first birthday. In 2001–2005, for Indigenous infants in Queensland, Western Australia, South Australia and the Northern Territory, the mortality rate for males and females was two to three times that for non-Indigenous male and female infants (table 9.8). Almost half (44%) of total infant deaths were due to conditions originating in the perinatal period—conditions related to the foetus and newborn affected by complications of pregnancy, labour and delivery, and disorders related to length of gestation and foetal growth. Symptoms, signs and ill-defined conditions, including Sudden Infant Death Syndrome (SIDS), were responsible for 22% of infant deaths, and congenital malformations accounted for 12%. For respiratory diseases and external causes (mainly accidents), which accounted for a further 8% and 4% of infant deaths, the mortality rates for Indigenous infants were 11 and 4 times those of non-Indigenous infants respectively (graph 9.7). Infectious and parasitic diseases were the sixth most common cause of death among Indigenous infants accounting for almost 4% of infant deaths. Indigenous infants died from infectious and parasitic diseases at around five times the rate of non-Indigenous infants. See Chapter 6 for further information on infant deaths.

Infant deaths continued

9.7 MAIN CAUSES OF INFANT DEATHS (a), by Indigenous status—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.
 (b) Per 1,000 live births.

Source: AIHW National Mortality Database

Age-specific death rates

In Queensland, Western Australia, South Australia and the Northern Territory combined, age-specific death rates for Indigenous males and females across all age groups were higher than the rates for non-Indigenous males and females (table 9.8). The age-specific death rates for Indigenous Australians were at least twice those experienced by the non-Indigenous population in all age groups except those aged 65 years and over. The greatest differences occurred among those in the 35–44 and 45–54 year age groups, where the rates for Indigenous males and females were five to six times those recorded for non-Indigenous males and females (table 9.8).

9.8 AGE-SPECIFIC DEATH RATES (a)(b), by Indigenous status—2001–2005

Age group (years)	MALES			FEMALES		
	Indigenous rate	Non-Indigenous rate	Rate ratio (c)	Indigenous rate	Non-Indigenous rate	Rate ratio (c)
Less than 1(d)	14.3	4.6	3.1	9.5	3.9	2.4
1–4	74.1	29.2	2.5	70.8	20.4	3.5
5–14	29.3	13.6	2.2	23.1	9.7	2.4
15–24	207.0	76.4	2.7	95.0	28.5	3.3
25–34	415.5	106.6	3.9	185.9	39.8	4.7
35–44	824.2	141.5	5.8	468.8	77.4	6.1
45–54	1 384.7	285.3	4.9	847.8	173.3	4.9
55–64	2 530.7	715.0	3.5	1 711.7	411.6	4.2
65 and over	6 251.1	4 319.9	1.4	4 961.3	3 687.0	1.3

(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of occurrence of death for 1999–2002 and year of registration of death for 2003.

(b) Per 100,000 population.

(c) Rate for Indigenous Australians divided by the rate for non-Indigenous Australians.

(d) Per 1,000 live births.

Source: AIHW National Mortality Database

YEARS OF LIFE LOST
(YLL)

Years of life lost is an indicator of premature mortality and is calculated by multiplying the number of deaths by the standard life expectancy (in years). A study on the burden of disease and injury in Aboriginal and Torres Strait Islander peoples found that in 2003, there were an estimated 51,475 years of life lost due to disease and injury for the Indigenous population. This represented around 4% of the total years of life lost due to disease and injury for the total Australian population (Begg et al 2007).

Cardiovascular disease was the leading cause of years of life lost (YLL) due to disease and injury for Indigenous Australians, responsible for 12,573 YLL, which accounted for around one-quarter (24%) of total YLL among Aboriginal and Torres Strait Islander peoples. Cancer was the next leading cause of YLL responsible for 14% of YLL, followed by unintentional injuries (11%), intentional injuries (9%) and diabetes (7%) (table 9.9).

9.9 YEARS OF LIFE LOST (YLL) FOR THE LEADING DISEASE AND INJURY CATEGORIES, Indigenous persons—2003

Cause	Percentage of total	
	YLL	%
	no.	%
Cardiovascular disease	12 573	24.4
Cancers	7 351	14.3
Unintentional injuries	5 524	10.7
Intentional injuries	4 774	9.3
Diabetes	3 552	6.9
Chronic respiratory disease	2 771	5.4
Mental disorders	2 525	4.9
Neonatal causes	2 379	4.6
Infectious and parasitic diseases	2 114	4.1
Nervous system and sense organ disorders	1 485	2.9
Other	6 427	12.5
All causes	51 475	100.0

Source: 2007 Vos et al

Ischaemic heart disease was the leading specific cause of YLL due to disability and injury for both Indigenous males and females, accounting for 5,026 (17%) YLL for Indigenous males and 2,995 (13%) YLL for Indigenous females. Suicide and road traffic accidents were the second and third leading specific causes of YLL among Indigenous males, accounting for 2,628 (9%) and 1,786 (6%) of YLL. Type 2 Diabetes and road traffic accidents were the second and third leading causes of YLL among Indigenous females, accounting for 1,735 (8%) and 1,008 (5%) of YLL.

The Burden of Disease study also examined the health gap between Indigenous Australians and the general population. While 54% of the total burden of disease for Indigenous Australians (which included the burden of disease arising from disability), was due to mortality, two-thirds of the Indigenous health gap was due to mortality. This means that the mortality gap was considerably greater than the disability gap, and in part reflects a higher case fatality: when sick Indigenous Australians are more likely to die (Vos et al 2007).

CAUSE OF DEATH

In 2001–2005, the five leading causes of death for Aboriginal and Torres Strait Islander peoples resident in Queensland, Western Australia, South Australia and the Northern Territory were diseases of the circulatory system, external causes of morbidity and mortality (predominantly accidents, intentional self-harm and assault), neoplasms (cancer), endocrine, metabolic and nutritional disorders (mainly diabetes), and respiratory diseases (table 9.10). Deaths due to these causes accounted for around three-quarters of all Indigenous deaths. Circulatory diseases and neoplasms accounted for a higher proportion of all non-Indigenous deaths than Indigenous deaths (37% and 30% compared with 27% and 15% respectively). In contrast, external causes and endocrine, metabolic and nutritional disorders accounted for a higher proportion of all Indigenous deaths than non-Indigenous deaths (16% and 9% compared with 6% and 4% respectively).

Standardised mortality ratios (SMRs) have been used in this section to compare death rates between the Indigenous and non-Indigenous populations. The SMR is the ratio between the observed number of deaths in the Indigenous population and the expected number of deaths that would have occurred if the Indigenous population experienced the same age-specific death rates as the non-Indigenous population. If the SMR is greater than 1.0, there were more deaths than expected; if the ratio is less than 1.0, there were fewer deaths than expected.

While the overall undercoverage of the Indigenous deaths in the four jurisdictions used for this analysis may understate the SMRs for all causes and for all people, differential undercoverage by sex and by cause may also affect detailed analysis of SMRs.

In 2001–2005, for both Indigenous males and females, there were almost three times as many deaths from all causes as would be expected, based on the rates for non-Indigenous Australians. The highest SMRs for Indigenous males and females were for endocrine, nutritional and metabolic diseases, caused mainly by diabetes mellitus. The rates for Indigenous males and females for these diseases were 8 and 10 times the rates for non-Indigenous males and females (table 9.10). There were also large disparities between Indigenous and non-Indigenous mortality rates for diseases of the digestive system, diseases of the genitourinary system, symptoms, signs and abnormal findings and certain infectious and parasitic diseases (SMRs of between 5 and 6 for males and females). Indigenous males were six times as likely, and Indigenous females three times as likely, to die from mental and behavioural disorders as non-Indigenous males and females respectively.

9.10 INDIGENOUS DEATHS (a), main causes—2001–2005

	MALES			FEMALES			PERCENTAGE OF TOTAL DEATHS	
	Observed deaths	Expected deaths	SMR(b)	Observed deaths	Expected deaths	SMR(b)	Indigenous	Non-Indigenous
Diseases of the circulatory system (I00–I99)	1 150	360	3.2	856	320	2.7	26.6	36.8
External causes (V01–Y98)	851	292	2.9	369	105	3.5	16.2	6.3
Neoplasms (C00–D48)	592	406	1.5	547	351	1.6	15.1	29.7
Endocrine, nutritional and metabolic diseases (E00–E90)	315	42	7.5	367	36	10.1	9.0	3.5
Diabetes (E10–E14)	281	26	10.8	319	22	14.5	8.0	2.4
Diseases of the respiratory system (J00–J99)	378	88	4.3	281	77	3.6	8.7	8.7
Diseases of the digestive system (K00–K93)	251	43	5.8	182	36	5.1	5.7	3.3
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00–R99)	169	28	6.0	85	19	4.6	3.4	0.7
Certain conditions originating in the perinatal period (P00–P96)	126	44	2.9	82	36	2.3	2.8	0.4
Diseases of the genitourinary system (N00–N99)	79	16	4.8	119	20	6.0	2.6	2.2
Diseases of the nervous system (G00–G99)	122	42	2.9	69	44	1.6	2.5	3.3
Certain infectious and parasitic diseases (A00–B99)	102	20	5.1	72	14	5.0	2.3	1.2
Mental and behavioural disorders (F00–F99)	101	17	5.8	72	23	3.1	2.3	2.3
All causes	4 329	1 438	3.0	3 215	1 123	2.9	100.0	100.0

(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death. Disease groupings are based on ICD-10 chapter.

(b) Standardised mortality ratio is the observed Indigenous deaths divided by expected Indigenous deaths, based on the age, sex and cause-specific rates for non-Indigenous persons.

Source: AIHW National Mortality Database

CAUSE OF DEATH

continued

In the age groups in which differences in death rates between Indigenous and non-Indigenous populations are greatest (35–54 years), ischaemic heart disease, diseases of the liver (i.e. alcoholic liver disease and cirrhosis of the liver), diabetes and other forms of heart disease are major causes of death (table 9.11). Indigenous males and females aged 35–54 years died from diabetes at 23 and 37 times the rates, and from influenza and pneumonia at 18 and 27 times the rates, of non-Indigenous males and females of the same age for these conditions. There were also large discrepancies between Indigenous and non-Indigenous mortality rates for assault (ratios of 16 and 12 for males and females respectively); chronic lower respiratory diseases (ratios of 14 and 12); mental and behavioural disorders due to psychoactive substance use (ratios of 12 and 19) and pedestrian injured in transport accident (ratios of 18 and 67). While some of these rates have been derived from a relatively small number of deaths—for example assault and pedestrian injured in transport accident among Indigenous women (17 and 23 deaths respectively)—differences between the two population groups are still striking.

9.11 AGE-SPECIFIC DEATH RATES, MAIN CAUSES(a), Persons aged 35–54 years—2001–2005

	INDIGENOUS(b)		NON-INDIGENOUS(b)		RATE RATIO(c)	
	Males	Females	Males	Females	Males	Females
Ischaemic heart disease (I20–I25)	227.7	87.1	32.3	6.1	7.0	14.2
Disease of the liver (K70–K77)	75.4	50.8	8.8	3.6	8.6	14.0
Diabetes (E10–E14)	74.7	51.5	3.2	1.4	23.1	37.2
Other selected forms of heart disease (I30–I52)	45.7	21.8	5.6	2.0	8.1	10.8
Malignant neoplasm of the digestive organs (C15–C26)	40.6	19.1	20.1	12.3	2.0	1.6
Chronic lower respiratory disease (J40–J47)	32.6	25.1	2.4	2.1	13.6	11.7
Intentional self harm (X60–X84)	46.4	9.9	26.1	7.1	1.8	1.4
Malignant neoplasm of the respiratory and intrathoracic organs (C30–C39)	31.9	21.1	12.2	8.1	2.6	2.6
Cerebrovascular disease (I60–I69)	28.3	24.4	5.5	4.7	5.1	5.2
Influenza and pneumonia (J10–J18)	30.5	21.1	1.7	0.8	18.4	26.5
Pedestrian injured in a transport accident (V01–V09)	23.9	15.2	1.4	0.2	17.7	(d) 66.7
Ill-defined and unknown causes of mortality (R95–R99)	30.5	8.6	4.0	2.2	7.6	3.8
Car occupant injured in a transport accident (V40–V49)	23.2	11.9	5.7	2.9	4.1	4.0
Mental and behavioural disorders due to psychoactive substance use (F10–F19)	24.7	9.9	2.1	0.5	11.8	19.3
Assault (X85–Y09)	23.2	11.2	1.5	0.9	15.6	12.3

(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of year of registration of death. Disease groupings are based on 3-digit groupings of ICD-10.

(b) Age-specific rate per 100,000 population aged 35–54 years.

(c) Rate for Indigenous persons divided by the rate for non-Indigenous persons.

(d) The confidence intervals for this ratio are quite large (46.2–96.3) due to the small number of deaths recorded.

Source: AIHW National Mortality Database

Excess deaths

Deaths higher than the expected number are referred to as 'excess deaths'. Excess deaths are calculated by subtracting the number of expected Indigenous deaths based on the age, sex and cause-specific rates of non-Indigenous Australians, from the number of actual deaths in the Indigenous population.

Over the period 2001–2005 there were 2,891 excess deaths among Indigenous males and 2,092 excess deaths among Indigenous females in Queensland, Western Australia, South Australia and the Northern Territory. Diseases of the circulatory system accounted for the highest proportion of excess deaths (2,006 deaths in total, 1,326 of which were excess deaths). Other major causes of excess deaths were external causes, endocrine, nutritional and metabolic diseases and diseases of the respiratory system. Deaths due to these causes were responsible for around two-thirds of excess deaths among Indigenous males and females (2,561 deaths in total, 1,921 of which were excess deaths) (table 9.12).

9.12 MAIN CAUSES OF EXCESS INDIGENOUS DEATHS (a)(b)—2001–2005

	NUMBER		PROPORTION (%)	
	Indigenous males	Indigenous females	Indigenous males	Indigenous females
Diseases of the circulatory system (I00–I99)	790	536	27.3	25.6
External causes (V01–Y98)	559	264	19.3	12.6
Endocrine, nutritional and metabolic diseases (E00–E90)	273	331	9.5	15.8
Diseases of the respiratory system (J00–J99)	290	204	10.0	9.7
Neoplasms (C00–D48)	186	196	6.4	9.4
Diseases of the digestive system (K00–K93)	208	146	7.2	7.0
Symptoms, signs and abnormal clinical and laboratory findings, n.e.c. (R00–R99)	141	66	4.9	3.2
Diseases of the genitourinary system (N00–N99)	63	99	2.2	4.7
Certain infectious and parasitic diseases (A00–B99)	82	58	2.8	2.8
Mental and behavioural disorders (F00–F99)	84	49	2.9	2.3
Certain conditions originating in the perinatal period (P00–P96)	82	46	2.8	2.2
All other causes	134	97	4.6	4.6
All causes	2 891	2 092	100.0	100.0

(a) Excess deaths are equal to the observed Indigenous deaths minus expected Indigenous deaths (based on the 1999–2003 age, sex and cause-specific rates for non-Indigenous persons).

(b) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death. Disease groupings are based on ICD-10 chapter.
Source: AIHW National Mortality Database

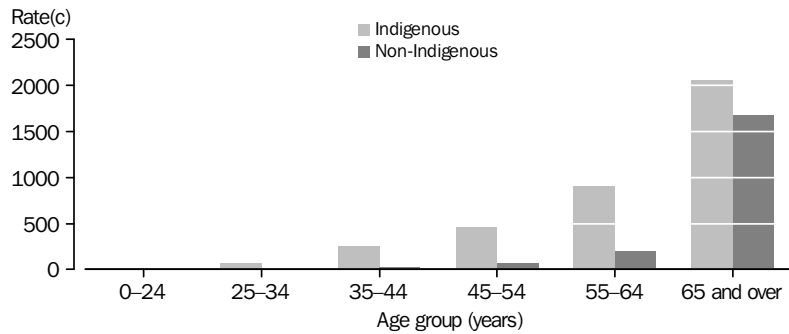
Diseases of the circulatory system

Diseases of the circulatory system were responsible for around 27% of total Indigenous male and female deaths for the period 2001–2005. In comparison, these diseases accounted for 34% of all male deaths and 40% of all female deaths for non-Indigenous Australians. Within circulatory system diseases, ischaemic heart diseases (heart attack, angina) were responsible for 64% of Indigenous male deaths and 49% of Indigenous female deaths, while cerebrovascular disease (stroke) accounted for 14% of male deaths and 19% of female deaths.

Compared with non-Indigenous Australians, Indigenous males and females experienced higher rates of mortality from diseases of the circulatory system in every age group. The greatest differences in age-specific death rates for males occurred in the age groups 25–34 and 35–44 years, with Indigenous males recording a rate 9 to 11 times the rate for non-Indigenous males (rates of around 69 and 251 per 100,000 for Indigenous males compared with 7 and 23 per 100,000 for non-Indigenous males). Indigenous females recorded rates of around 12 times the rates for non-Indigenous females for the 35–44 and 45–54 year age groups (rates of 32 and 122 per 100,000 for Indigenous females compared with 4 and 10 per 100,000 for non-Indigenous females) (graphs 9.13 and 9.14).

Diseases of the circulatory system continued

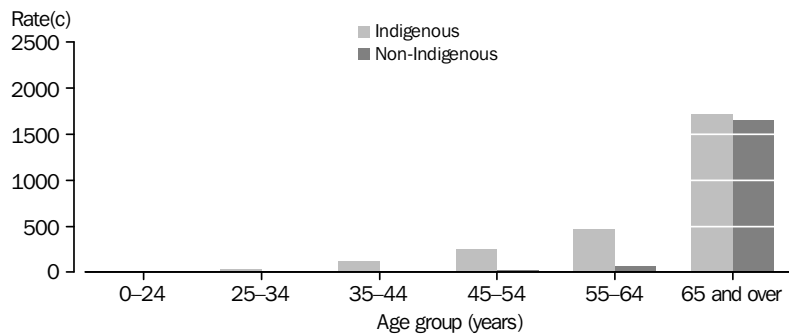
9.13 MALE DEATH RATES (a), CIRCULATORY DISEASES (b), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.
 (b) ICD-10 codes I00-I99.
 (c) Per 100,000 population.

Source: AIHW National Mortality Database

9.14 FEMALE DEATH RATES (a), CIRCULATORY DISEASES (b), by Indigenous status and age—2001–2005



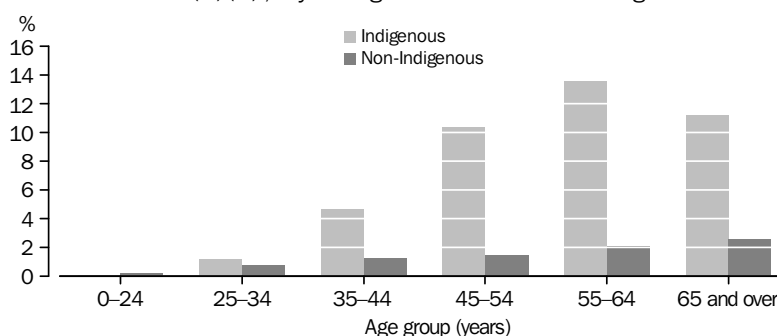
(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.
 (b) ICD-10 codes I00-I99.
 (c) Per 100,000 population.

Source: AIHW National Mortality Database

Diabetes

The major cause of Indigenous deaths within the endocrine disease category is diabetes. Diabetes has a far greater impact on mortality for the Indigenous population than for the non-Indigenous population. For the period 2001–2005, diabetes was responsible for 8% of total Indigenous deaths compared with 2% of non-Indigenous deaths. For non-Indigenous Australians, the proportion of total deaths caused by diabetes was 1% to 3% for all age groups from 25–34 years and over. For Indigenous Australians, diabetes was responsible for 10% of deaths in the 45–54 years age group and for 14% of total Indigenous deaths in the 55–64 year age group (graph 9.15).

Diabetes continued

9.15 DIABETES DEATHS (a) AS A PROPORTION OF TOTAL DEATHS (b)(c), by Indigenous status and age—2001–2005

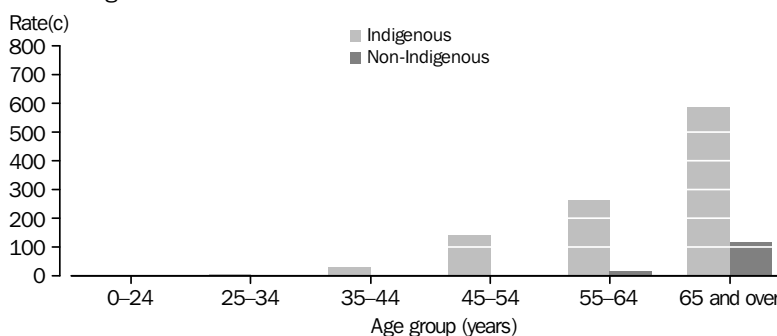
(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

(b) ICD-10 codes E10-E14

(c) Underlying cause of death.

Source: AIHW National Mortality Database

The earlier onset of diabetes experienced by the Indigenous population is reflected in the differences in age-specific death rates. For the period 2001–2005, Indigenous males in the 35–44 and 45–54 years age groups experienced age-specific death rates 16 and 31 times, respectively, the corresponding rates for non-Indigenous males (rates of 31 and 144 per 100,000 for Indigenous males compared with 2 and 5 per 100,000 for non-Indigenous males) (graph 9.16). For the same age groups, the rates experienced by Indigenous females were 32 and 46 times the corresponding non-Indigenous female rates (graph 9.17) (rates of 29 and 87 per 100,000 for Indigenous females compared with 1 and 2 per 100,000 for non-Indigenous females). The markedly higher death rates from diabetes in the Indigenous population are partly a reflection of the earlier onset of diabetes in this population compared with the non-Indigenous population combined with a high prevalence of some of the risk factors associated with diabetes such as smoking, hypertension and obesity. Higher death rates from diabetes may also reflect poorer management of diabetes among Indigenous people, in particular those living in rural and remote areas (Wood & Patterson 1999).

9.16 MALE DEATH RATES (a), DIABETES (b), by Indigenous status and age—2001–2005

(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

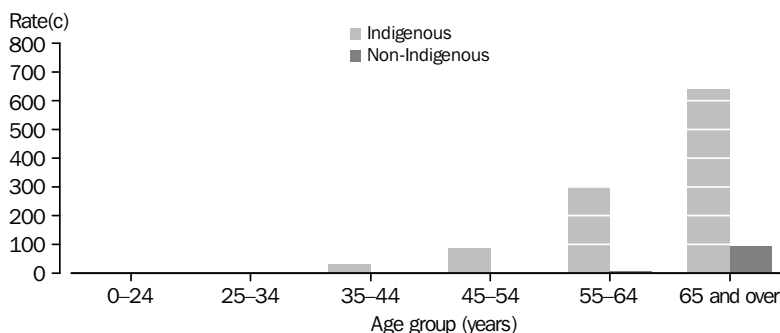
(b) ICD-10 codes E10-E14

(c) Per 100,000 population.

Source: AIHW National Mortality Database

Diabetes continued

9.17 FEMALE DEATH RATES (a), DIABETES (b), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

(b) ICD-10 codes E10-E14

(c) Per 100,000 population.

Source: AIHW National Mortality Database

Chronic kidney disease

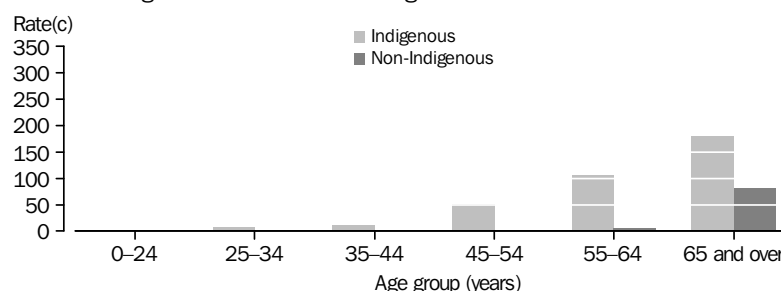
Chronic kidney disease includes diabetic nephropathy, hypertensive renal disease, glomerular disease and chronic renal failure and end-stage renal disease (ESRD). ESRD results when the kidneys cease functioning almost entirely, leading to a build up of waste products and excess water in the body causing progressively worse illness (AHMAC 2006). This is the last and most debilitating stage of chronic kidney disease in which dialysis or kidney transplantation is necessary to maintain life.

Chronic kidney disease was responsible for 2% and 5% of Indigenous male and female deaths respectively for the period 2001–2005. The overall death rates from chronic kidney disease were 7 and 9 times as high as the rates for non-Indigenous males and females respectively. Among Indigenous deaths from chronic kidney diseases, chronic renal failure accounted for 43% of male deaths and 37% of female deaths, while diabetic nephropathy accounted for 23% (males) and 25% (females) respectively.

Both Indigenous males and females experienced markedly higher rates of mortality from chronic kidney disease after the age of 25 years. The greatest differences in age-specific death rates for males occurred in the 45–54 year age group with Indigenous males recording a rate 31 times the rate for non-Indigenous males (50 compared with 2 deaths per 100,000) (graph 9.18). For females, the greatest difference in age-specific death rates also occurred in the 45–54 year age group with Indigenous females recording a rate 51 times that for non-Indigenous females (56 compared with 1 per 100,000) (graph 9.19).

Chronic kidney disease
continued

9.18 MALE DEATH RATES (a) CHRONIC KIDNEY DISEASE (b), by Indigenous status and age—2001–2005



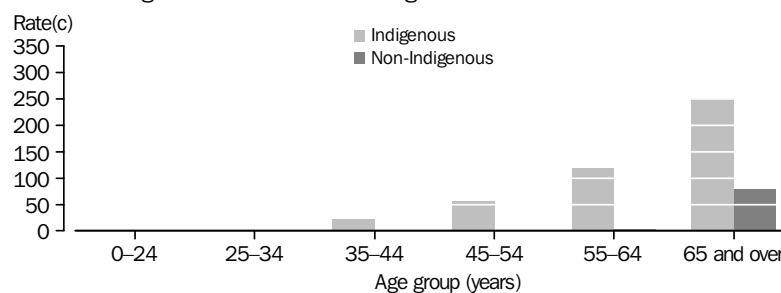
(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

(b) ICD-10 codes: B520, B650, D593, E102, E112, E122, E132, E142, E851, M300, M321, I12, I13, I150, I151, N00, N01, N02, N03, N04, N05, N06, N07, N11, N12, N14, N15, N18, N19, N25, N26, N27, N28, N391, N392, Q60, Q61, Q62, Q63, T824, T861.

(c) Per 100,000 population.

Source: AIHW National Mortality Database

9.19 FEMALE DEATH RATES (a), CHRONIC KIDNEY DISEASE (b), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

(b) ICD-10 codes: B520, B650, D593, E102, E112, E122, E132, E142, E851, M300, M310, M321, I12, I13, I150, I151, N00, N01, N02, N03, N04, N05, N06, N07, N11, N12, N14, N18, N19, N25, N26, N27, N28, N391, N392, Q60, Q61, Q62, Q63, T824, T861.

(c) Per 100,000 population.

Source: AIHW National Mortality Database

External causes of
mortality

The quality of external causes of death data is affected by differences in the way that coronial deaths are reported across the various jurisdictions and in procedures around reportable deaths (i.e. deaths reported to a coroner). In addition, statistics on suicide deaths are dependent on coronial processes to determine the intent of a death (whether intentional self-harm, accidental, homicide or undetermined intent) as this information is required for the correct ICD-10 coding of cause of death. The timing of data compilation can therefore be affected by the length of coronial processes. For more information on data quality issues pertaining to external causes of death data, see ABS *Information Paper: External Causes of Death, Data Quality, 2005* (ABS 2007e).

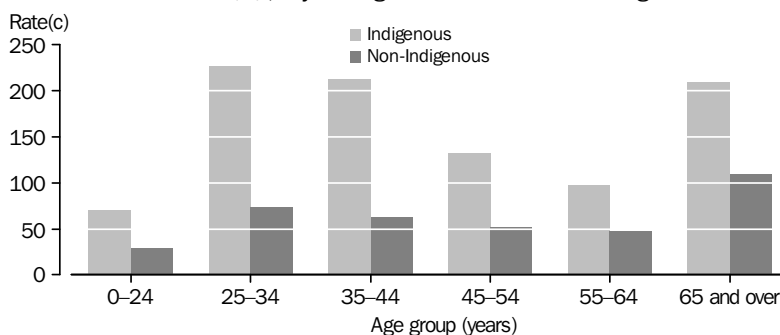
For the period 2001–2005, deaths due to external causes, such as accidents, intentional self-harm (suicide) and assault accounted for 16% of all Indigenous deaths, compared with 6% of all deaths among non-Indigenous Australians. For both populations, males accounted for around 70% of the total deaths due to external causes. For Indigenous males, the leading causes of death from external causes were intentional self-harm (35%), transport accidents (27%) and assault (8%), while for Indigenous females the

External causes of mortality continued

leading causes of death were transport accidents (30%), intentional self-harm (18%) and assault (16%).

Over the period 2001–2005, for most age groups the age-specific death rates for Indigenous males were two to three times the corresponding rates for non-Indigenous males (graph 9.20). Indigenous females experienced higher age-specific death rates than non-Indigenous females in every age group, with the greatest difference occurring in the 35–44 year age group. In this age group, Indigenous females recorded a rate almost five times that of non-Indigenous females (87 deaths per 100,000 compared with 18 per 100,000) (graph 9.21).

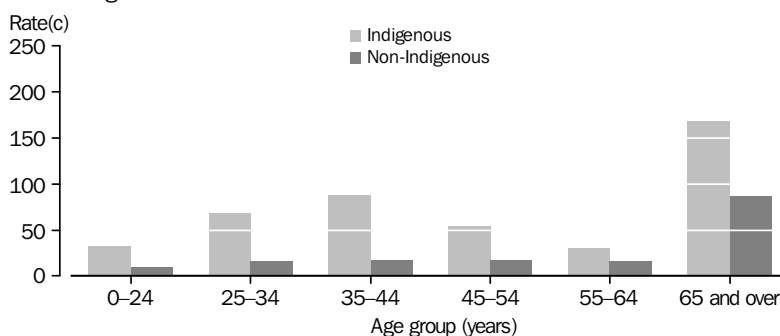
9.20 MALE DEATH RATES (a), EXTERNAL CAUSES OF MORBIDITY AND MORTALITY (b), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.
 (b) ICD-10 codes V01-Y98
 (c) Per 100,000 population.

Source: AIHW National Mortality Database

9.21 FEMALE DEATH RATES (a), EXTERNAL CAUSES OF MORBIDITY AND MORTALITY (b), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.
 (b) ICD-10 codes V01-Y98
 (c) Per 100,000 population.

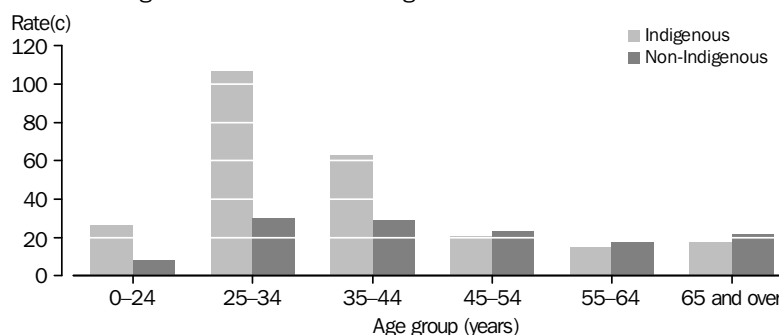
Source: AIHW National Mortality Database

External causes of mortality continued

INTENTIONAL SELF-HARM (SUICIDE)

Intentional self-harm was the leading cause of death from external causes for Indigenous males for the 2001–2005 year period. The suicide rate was almost three times that for non-Indigenous males, with the major differences occurring in younger age groups. For Indigenous males aged 0–24 years and 25–34 years, the age-specific rates were three and four times the corresponding age-specific rates for non-Indigenous males respectively (graph 9.22).

9.22 MALE DEATH RATES (a), INTENTIONAL SELF-HARM (b), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

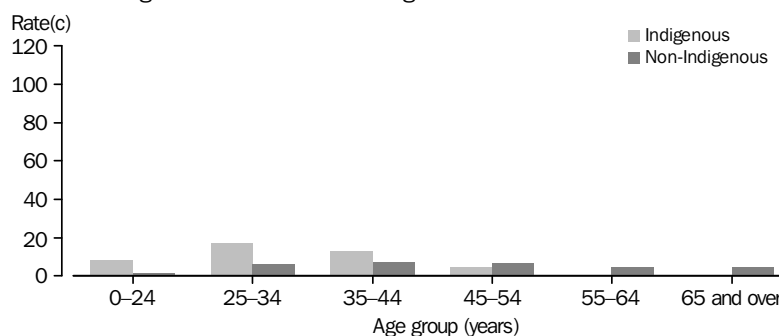
(b) ICD-10 codes X60-X84.

(c) Per 100,000 population.

Source: AIHW National Mortality Database

The suicide rate for Indigenous females aged 0–24 years was five times the corresponding age-specific rates for non-Indigenous females. For age groups 45–54 years and over, age-specific rates for Indigenous females were similar to, or lower than the corresponding rates for non-Indigenous females (graph 9.23).

9.23 FEMALE DEATH RATES (a), INTENTIONAL SELF-HARM (b), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

(b) ICD-10 codes X60-X84.

(c) Per 100,000 population.

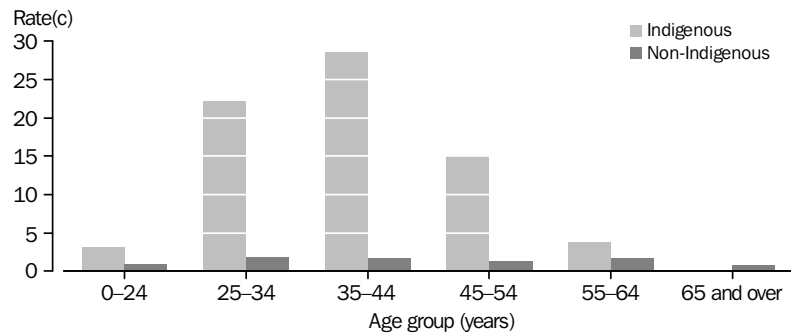
Source: AIHW National Mortality Database

External causes of mortality *continued*

ASSAULT

Assault is a significant cause of death for both Indigenous males and females. Over the period 2001–2005, the Indigenous male age-specific death rates for ten year age groups from 25 through to 54 were between 11 and 17 times the corresponding age-specific rate for non-Indigenous males, while for females the rates ranged between 9 and 23 times the equivalent age-specific rates for non-Indigenous females (graphs 9.24 and 9.25).

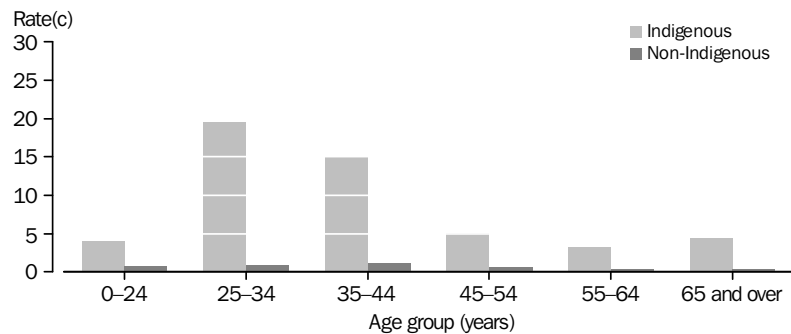
9.24 MALE DEATH RATES (a), ASSAULT (b), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.
 (b) ICD-10 codes X85-Y09.
 (c) Per 100,000 population.

Source: AIHW National Mortality Database

9.25 FEMALE DEATH RATES (a), ASSAULT (b), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.
 (b) ICD-10 codes X85-Y09.
 (c) Per 100,000 population.

Source: AIHW National Mortality Database

Neoplasms (cancer)

Neoplasms were responsible for 15% of total Indigenous deaths compared with 30% of total non-Indigenous deaths for the period 2001–2005. Nevertheless, Indigenous people are over-represented in deaths from cancer compared with non-Indigenous Australians (the SMR for males and females is 1.4 and 1.5 respectively). This apparent contradiction is due to high numbers of deaths for other causes in the Indigenous population as well as high mortality rates from neoplasms for Indigenous Australians in the middle age groups. The major causes of cancer deaths for Indigenous males were malignant neoplasms of the digestive organs (30% of total), malignant neoplasms of the respiratory and intrathoracic organs (30%), and malignant neoplasms of lip, oral cavity and pharynx (9%). For Indigenous females the major causes were malignant neoplasms of the respiratory and intrathoracic organs (21% of total), malignant neoplasms of the digestive organs (21%), and malignant neoplasms of the female genital organs (14%).

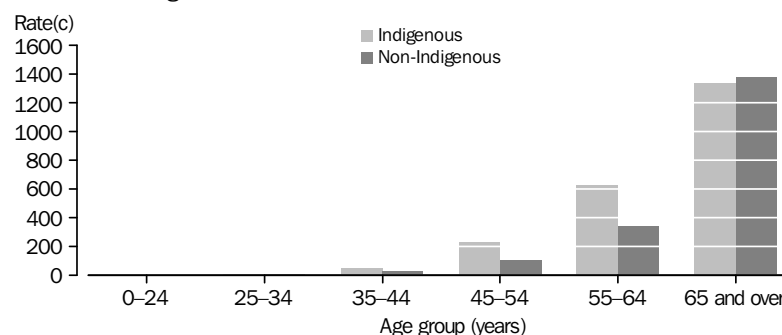
Indigenous people were over-represented in a number of cancer groups, including malignant neoplasms of the lip, oral cavity and pharynx (7% of total Indigenous cancer deaths compared with 2% of non-Indigenous cancer deaths), malignant neoplasms of the respiratory and intrathoracic organs (26% Indigenous, 20% non-Indigenous) and malignant neoplasms of the female genital organs, which includes cervical cancer (14% total Indigenous females, 9% non-Indigenous females). Most of these cancers are smoking-related which is a reflection of the higher prevalence of smoking among the Indigenous population. Cervical cancer is also preventable through Pap Smear screening.

Indigenous people were under-represented in other cancer groups, including melanoma and other malignant neoplasms of skin (1% of total Indigenous cancer deaths compared with 4% of non-Indigenous cancer deaths), and malignant neoplasms of male genital organs, which includes prostate cancer (4% of total Indigenous males, 13% of non-Indigenous males).

The 2001–2005 age-specific death rates for neoplasms indicate that for age groups 0–24 years and 65 years and over, the rates for Indigenous males and females were similar to those for non-Indigenous males and females. For the age groups 35–44, 45–54 and 55–64 years, the rates for Indigenous males and females were about twice the non-Indigenous rates (graphs 9.26 and 9.27).

*Neoplasms (cancer)
continued*

9.26 MALE DEATH RATES (a), NEOPLASMS (b), by Indigenous status and age—2001–2005



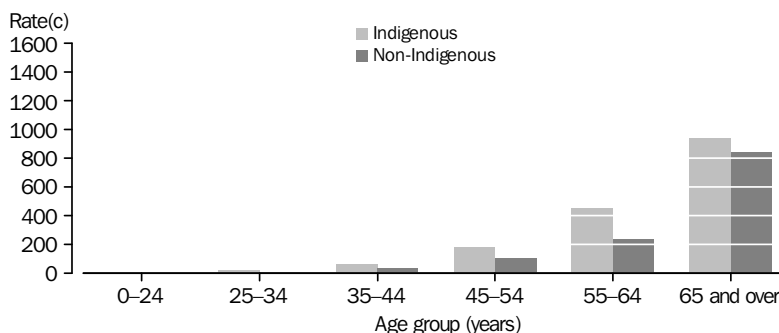
(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

(b) ICD-10 codes C00-D48.

(c) Per 100,000 population.

Source: AIHW National Mortality Database

9.27 FEMALE DEATH RATES (a), NEOPLASMS (b), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA, and NT combined. Deaths are based on year of registration of death.
 (b) ICD-10 codes C00-D48.
 (c) Per 100,000 population.

Source: AIHW National Mortality Database

Cancer mortality of the Northern Territory Indigenous population has been compared with that of the Australian population for 1977–2000 (Condon et al 2004). The cancer mortality rate among Indigenous people was higher than the total Australian rate for cancers of the liver, lungs, uterus, cervix and thyroid, and, in younger people only, for cancers of the oropharynx, oesophagus and pancreas. Northern Territory cancer mortality rates for Indigenous Australians were lower than the total Australian rates for renal cancers and melanoma, and, in older people only, for cancers of the prostate and bowel. Over the period 1977–2000, there were increases in death rates for cancers of the oropharynx, pancreas and lung; all three are smoking-related cancers.

A study by Condon et al (2005) compared people diagnosed with cancer in Western Australia and Tasmania with Indigenous people diagnosed with cancer in the Northern Territory over the period 1991–2001. The study found that Northern Territory Indigenous patients had poorer survival rates for most cancers and the relative risk of death was higher for cancers of the oropharynx, colon and rectum, pancreas, lung, uterus, cervix, vulva, lymphoma, breast and leukaemia. Survival rates are the proportion of all cancer patients alive at the beginning of the period who are still alive at the end of the period. It was concluded that for cancers of the liver, lung and oesophagus, higher Northern Territory Indigenous mortality rates were due mostly to higher cancer incidence rates. For other cancers that have better survival rates in all Australians, such as cancer of the thyroid and cervix, high Indigenous mortality rates were due to both higher incidence and lower survival.

*Neoplasms (cancer)
continued*

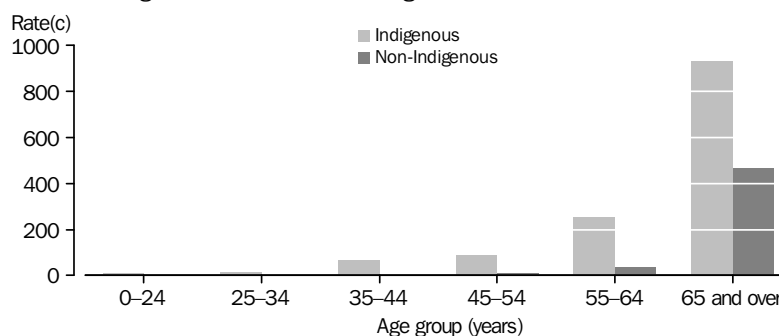
Respiratory diseases

Respiratory diseases, which include 'influenza' and 'pneumonia' and 'chronic lower respiratory diseases' (including asthma, bronchitis and emphysema), were responsible for 9% of total Indigenous deaths for the period 2001–2005. Like diabetes, respiratory diseases affect the Indigenous population at younger age groups than is the case for the non-Indigenous population, and this is reflected in the differences in age-specific death rates from these diseases. For the period 2001–2005, Indigenous males in the 35–44 years age group experienced age-specific death rates 22 times higher than the corresponding rate for non-Indigenous males (63 per 100,000 compared with 3 per 100,000), while the rate for Indigenous females in this age group was 20 times higher

*Respiratory diseases
continued*

than that for the corresponding rate for non-Indigenous females (37 per 100,000 compared with 2 per 100,000) (graphs 9.28 and 9.29).

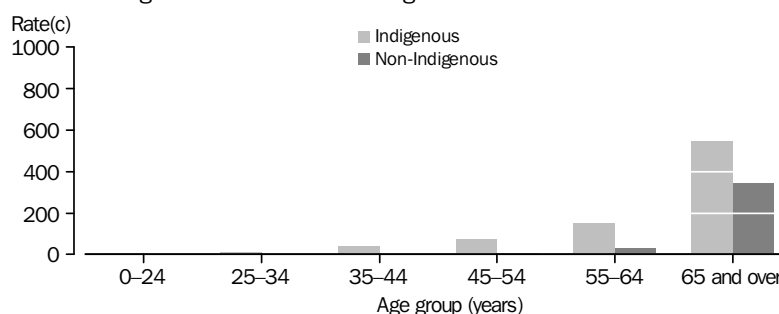
9.28 MALE DEATH RATES (a), RESPIRATORY DISEASES (b), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.
(b) ICD-10 codes J00-J99.
(c) Per 100,000 population.

Source: AIHW National Mortality Database

9.29 FEMALE DEATH RATES (a), RESPIRATORY DISEASES (b), by Indigenous status and age—2001–2005



(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.
(b) ICD-10 codes J00-J99.
(c) Per 100,000 population.

Source: AIHW National Mortality Database

Multiple causes of death

Multiple causes of death include all causes and conditions reported on the death certificate. Since 1997, the ABS has coded all causes of death reported on each death certificate, including the underlying, immediate and other associated causes of death. While only one cause can be recorded as the underlying cause of death, many deaths due to chronic diseases, such as heart disease, kidney disease and diabetes often occur with concurrent or co-existing conditions. It is useful, therefore, to describe the extent to which any or all of these conditions have been reported. For deaths where the underlying cause was identified as an external cause, multiple causes include circumstances of injury, the nature of injury as well as any other conditions reported on the death certificate.

For the 7,544 Indigenous deaths in 2001–2005 in Queensland, Western Australia, South Australia and the Northern Territory, there was a total of 23,977 causes reported, an

*Multiple causes of death
continued*

average of three causes per death. Deaths where only a single cause was reported occurred in 15% of total Indigenous male deaths and 12% of total Indigenous female deaths, less than for non-Indigenous males (22%) and females (24%) (table 9.30). Correspondingly, deaths where multiple causes were reported were more common among Indigenous people. For example, 27% of deaths among Indigenous males and 29% of deaths among Indigenous females recorded five or more causes of death, compared with 15% of non-Indigenous male and female deaths.

9.30 DEATHS (a), by number of causes reported, Indigenous status and sex—2001–2005

	NUMBER OF DEATHS		PROPORTION OF DEATHS (%) (b)	
	Males	Females	Males	Females
	no.	no.	%	%
Indigenous				
1	732	496	15.1	12.0
2	1 217	751	22.0	21.4
3	920	685	24.5	25.7
4	613	546	18.8	21.1
5 or more	847	737	26.9	28.6
Total (c)	4 329	3 215	100.0	100.0
Non-Indigenous				
1	26 681	25 558	22.4	23.6
2	31 596	27 499	26.5	25.4
3	25 727	23 838	21.6	22.0
4	17 087	15 526	14.3	14.4
5 or more	18 120	15 764	15.2	14.6
Total (c)	119 211	108 185	100.0	100.0

(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

(b) Proportions have been indirectly age standardised using the age and sex specific proportions for non-Indigenous Australians. Components may not add to total when indirect age standardisation is used.

(c) Includes deaths for which no cause of death was recorded.

Source: AIHW National Mortality Database

Table 9.31 shows the relationships between a number of underlying causes of death and associated causes for Indigenous and non-Indigenous Australians. For deaths from ischaemic heart disease, diabetes was reported as an associated cause of death among Indigenous males and females at two to three times the rates of non-Indigenous males and females. For deaths from diabetes, renal failure was reported as an associated cause of death among Indigenous males and females at almost twice the rates of non-Indigenous males and females.

Multiple causes of death
continued

9.31 UNDERLYING CAUSES OF DEATH(a)(b)(c), by selected associated causes and Indigenous status—2001–2005

	INDIGENOUS		NON-INDIGENOUS	
	Males	Females	Males	Females
	%	%	%	%
Neoplasms (C00–D48)				
Reported alone	26.5	27.4	39.4	43.7
Reported with				
Septicaemia	4.5	5.6	3.6	3.3
Diabetes mellitus	11.9	20.2	4.7	3.9
Ischaemic heart disease	10.2	12.8	8.5	5.8
Cerebrovascular diseases	4.8	3.2	3.7	3.6
Influenza and pneumonia	10.6	9.4	7.8	5.9
Renal failure	11.2	11.2	5.9	4.5
Chronic lower respiratory diseases	15.8	8.2	7.0	4.2
Diabetes mellitus (E10–D14)				
Reported alone	0.1	0.6	1.5	1.6
Reported with				
Septicaemia	13.5	9.9	7.2	7.7
Ischaemic heart disease	48.6	45.5	58.5	50.7
Cerebrovascular diseases	23.9	26.9	21.0	24.3
Influenza and pneumonia	11.6	12.0	8.8	7.5
Renal failure	37.5	39.1	24.0	23.3
Chronic lower respiratory diseases	6.0	3.8	7.5	4.9
Ischaemic heart disease (I20–I25)				
Reported alone	9.1	6.5	15.5	12.4
Reported with				
Diabetes mellitus	19.2	22.0	10.2	9.0
Cerebrovascular diseases	10.1	12.0	7.9	10.1
Influenza and pneumonia	9.1	5.6	4.8	5.2
Renal failure	14.9	26.0	10.8	9.6
Chronic lower respiratory diseases	19.9	12.7	11.5	7.6
Neoplasms	8.4	5.5	7.8	5.0
Renal failure (N17–N19)				
Reported alone	12.8	8.7	8.6	13.4
Reported with				
Septicaemia	21.3	18.4	13.0	10.1
Diabetes mellitus	10.9	12.5	9.1	9.3
Ischaemic heart disease	45.7	17.9	37.2	29.8
Cerebrovascular diseases	17.5	2.5	9.5	8.0
Influenza and pneumonia	11.7	11.0	15.1	14.2
Chronic lower respiratory diseases	11.5	7.9	10.5	5.4

(a) Data are for Qld, WA, SA and NT combined. Deaths based on year of occurrence of death for 1999–2002 and year of registration of death for 2003.

(b) Proportions have been indirectly age standardised using the age, sex and cause-specific proportions of non-Indigenous persons.

(c) Totals may add to more than 100% as more than one associated cause can be recorded for each death.

Source: AIHW National Mortality Database

Table 9.32 uses the recording of multiple causes of death to associate the category of external cause of death with the nature of the injury sustained by Indigenous people. For the period 2001–2005, of all deaths from transport accidents, 42% involved injuries to multiple body parts, 38% involved injuries to the head and 17% involved injuries to the chest. For deaths from accidents other than transport accidents, 33% were for 'other and unspecified effect', while injuries to the head involved 15% of deaths and poisoning

*Multiple causes of death
continued*

involved 13% of deaths from these accidents. Most deaths from intentional self-harm were for 'other and unspecified effects' (which includes suffocation and drowning) (85%), while deaths from assault most commonly involved injuries to the head (27%) or to the chest (32%).

9.32 INDIGENOUS DEATHS DUE TO EXTERNAL CAUSES(a), by nature of injury—2001–2005

<i>Nature of injury</i>	<i>Transport accidents</i>	<i>Other accidents</i>	<i>Intentional self-harm</i>	<i>Assault</i>	<i>Total</i>
Injuries to the head	37.6	15.4	3.6	26.9	18.7
Injuries to the neck	7.7	3.6	6.0	11.9	6.3
Injuries to the thorax (chest)	17.2	1.8	1.9	32.1	9.6
Injuries to the abdomen, lower back, lumbar spine, pelvis, hip and thigh	10.9	11.1	1.4	20.1	8.9
Injuries involving multiple body parts	42.3	1.8	0.8	8.2	13.5
Injuries to unspecified part of trunk, limb or body region	10.4	4.8	0.5	13.4	5.8
Effects of foreign body entering through natural orifice	1.2	6.6	0.5	3.0	2.6
Burns and corrosions	0.9	5.7	0.8	—	2.0
Poisoning by drugs, medicaments and biological substances	—	13.3	3.6	—	4.8
Toxic effects of substances chiefly non-medicinal as to source	3.0	13.3	9.0	4.5	7.8
Other and unspecified effects of external causes	3.3	32.8	85.0	4.5	36.2
Other	4.1	7.8	1.4	8.2	6.9
Total deaths (V01–Y98)(b)	338	332	366	134	1 220

— nil or rounded to zero (including null cells)

(a) Data for Qld, WA, SA and NT combined. Deaths are based on year of registration of death.

(b) Components add to more than 100% as more than one injury can be recorded for each death from external causes.

Source: AIHW National Mortality Database

TRENDS IN MORTALITY

Analyses of trends in Indigenous mortality must be undertaken with care, because of the limited understanding of the ways in which changes in the recording of Indigenous status on death registrations have affected the recorded numbers of deaths.

Various statistical measures may be used to assess trends in mortality over time. A measure derived from comprehensive life tables—such as life expectancy at birth—is generally to be preferred as it takes into account age-sex specific death rates (and any shifts in those rates) across all ages. However, the construction of such a measure depends on the availability of an accurate series of age-sex specific population estimates together with an accurate series of age-sex specific counts of deaths. Recent work by the ABS has improved the demographic estimates available to support trend analyses, but those estimates are still regarded as experimental. Any discussion of Indigenous mortality trends should therefore be based on a range of analytical measures to provide a broader understanding of possible trends than can be obtained from any one measure.

This section examines changes over time in all-cause mortality rates, infant mortality rates, age at death and cause-specific mortality rates. Each of these measures has advantages and limitations for understanding trends. These are discussed in the relevant sections of the chapter.

The mortality patterns observed among Australia's Indigenous people are slow moving, and therefore trends are best detected over long periods of time. There is some evidence of more rapid progress in reducing mortality among the Indigenous population in other countries (Ring & Brown 2003). However, the potential for analysis of long-term trends in Indigenous mortality in Australia is greatly constrained by the availability of consistently accurate data over time. When assessed in terms of consistency over time in the number of recorded deaths identified as Indigenous, Western Australia, South

TRENDS IN MORTALITY

continued

Australia and the Northern Territory are each judged to have had reasonably high and reasonably stable coverage of Indigenous deaths since around 1989, although the level of coverage is different in each of those jurisdictions. To test whether the observed trends would have differed if the analyses had been based on a different time window, several different time periods were tested. While the estimated rate of changes differed, there was no change in the direction of trends or their significance. As there is a consistent time series of population estimates from 1991, data for Western Australia, South Australia and the Northern Territory for the period 1991–2005 have been used for the analyses of Indigenous all-cause and infant mortality in this chapter. Due to changes in the coding of cause of death in 1997, the analyses of cause-specific mortality have been based on the period 1997–2005.

It is important to note, that in 2001, the Indigenous populations of Western Australia, South Australia and the Northern Territory together represented 32% of the total estimated Indigenous population in Australia (14% in Western Australia, 6% in South Australia and 12% in the Northern Territory). As a consequence, any statement about the possible detection of trends in mortality in these jurisdictions can give, at best, a partial account of trends in Indigenous mortality in Australia as a whole.

A further constraint in assessing time series trends in Indigenous mortality is the relatively small size of the Indigenous population which means that, even with the high mortality rates being experienced, the absolute numbers of deaths of Indigenous people recorded each year in each jurisdiction have, for statistical purposes, been quite small. Between 1991 and 2005, annual deaths for Western Australia, South Australia and the Northern Territory averaged 125, 373 and 415 respectively. Thus, the year to year fluctuations in the numbers of deaths can be quite large relative to any gradual underlying trend, and it is not meaningful to look at changes in mortality from one year to the next. Longer term changes have been analysed in several ways—examining the rate of change between the beginning and end year, and modelling trends throughout the period. A limitation of the first method is that the results are affected by the particular choice of the start and end year, whereas the trends modelling takes account of all the observations throughout the period. In this chapter, statements about the broad pace of change occurring over a number of years have been based on the fitted trends. When the trend has an estimated p-value of less than 0.05, it is characterised in subsequent text as 'significant'.

The mortality trends analyses presented in this chapter differ from analyses presented in the 2005 edition of this report. While the 2005 edition presented crude Indigenous mortality rates only, in this edition mortality rates for both Indigenous and other Australians are presented using age standardised data. While there is an ongoing debate as to whether standardisation is necessary or even appropriate for this type of analyses because trends may not be the same in all age groups, directly age standardised rates have been used to enable comparisons to be made between mortality trends for Indigenous and other Australians. Due to the 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 deaths for which Indigenous status was not stated).

TRENDS IN MORTALITY

continued

While data about changes in mortality among Indigenous Australians are important in their own right, and can inform the design and evaluation of policy and interventions, it is also important to develop an understanding of how these changes in mortality compare with those for other Australians. Mortality rate ratios have therefore been added to this section since the 2005 edition to give an indication of whether the differences between mortality rates for Indigenous and other Australians are lessening over time. Any discussion of trends in Indigenous mortality should be read in the context of changes in mortality for other Australians over the same period.

All-cause mortality

The results presented in this section are for recorded deaths, and assume no change in the rate at which Indigenous status is reported on death registrations. The impact of such changes in recording on the robustness of the conclusions is provided in the later section 'The sensitivity of mortality trends to changes in Indigenous identification'.

Between 1991 and 2005, there was a significant decline in recorded mortality rates in Western Australia, for Indigenous Australians (table 9.33). Over this period there was an average yearly decline in recorded deaths of around 23 deaths per 100,000 population for Indigenous people—this is equivalent to a reduction in the death rate of around 20% during the period of analyses. Significant declines in mortality were observed for both Indigenous males and females in Western Australia. In the Northern Territory, there was a significant decline in recorded mortality rates for Indigenous females only. Over the period, there was an average yearly decline in recorded deaths of around 20 deaths per 100,000 population for Indigenous females—this is equivalent to a reduction in the death rate of around 15% between 1991 and 2005.

Over the same period, there were significant declines in recorded mortality rates for other Australians in Western Australia, South Australia and the Northern Territory. In Western Australia there was an average yearly decline in the rate of around 15 per 100,000 for other Australians (equivalent to a reduction in the death rate of around 26% during the period of analyses); in South Australia there was an average yearly decline in the rate of around 14 per 100,000 for other Australians (equivalent to a reduction in the death rate of around 25% during the period of analyses); and in the Northern Territory there was an average yearly decline in the rate of around 43 per 100,000 for other Australians (equivalent to a reduction in the death rate of around 49% during the period of analyses).

Despite declines in Indigenous mortality in recent years, the mortality rate ratio between Indigenous and other Australians for all causes of death increased significantly in South Australia and the Northern Territory over the period 1991 to 2005, while in Western Australia there was an increase in the rate ratio for males only.

9.33 AGE STANDARDISED DEATH RATES(a)(b), by Indigenous status—1991–2005

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
INDIGENOUS RATE PER 100,000															
WA															
Males	1 799	1 568	1 789	1 672	1 785	1 731	1 522	1 702	1 522	1 697	1 639	1 274	1 422	1 651	1 512
Females	1 523	1 299	1 466	1 517	1 394	1 197	1 095	1 109	1 043	1 183	861	1 155	899	1 389	1 293
Persons	1 661	1 433	1 628	1 597	1 583	1 452	1 299	1 387	1 270	1 419	1 211	1 206	1 139	1 518	1 397
SA															
Males	1 420	1 054	1 157	1 597	1 473	1 363	2 006	1 675	1 077	1 511	1 399	1 060	1 522	1 168	1 392
Females	1 077	956	1 058	1 055	984	967	848	1 013	1 095	1 233	1 041	893	780	1 218	841
Persons	1 255	1 010	1 105	1 301	1 210	1 164	1 355	1 294	1 111	1 354	1 219	970	1 121	1 197	1 096
NT															
Males	2 075	2 484	1 955	2 138	2 154	1 756	2 630	2 021	1 978	2 068	2 127	2 065	2 105	1 896	1 874
Females	1 831	1 634	1 499	1 604	1 473	1 166	1 818	1 490	1 601	1 688	1 341	1 449	1 311	1 477	1 321
Persons	1 947	1 985	1 697	1 839	1 776	1 460	2 091	1 725	1 786	1 866	1 695	1 731	1 666	1 675	1 574
OTHER RATE PER 100,000 (c)															
WA															
Males	979	955	975	975	916	933	887	860	826	811	778	770	758	757	757
Females	629	623	641	625	604	616	600	576	556	548	548	552	540	532	525
Persons	783	769	789	779	743	757	729	704	678	667	653	651	640	634	631
SA															
Males	934	938	963	939	906	940	874	835	825	777	746	739	723	686	674
Females	598	617	622	608	596	616	593	560	556	526	526	544	526	501	484
Persons	746	758	773	753	734	760	719	684	678	639	627	635	617	587	573
NT															
Males	1 764	1 259	1 434	1 357	1 235	1 064	1 104	879	875	995	838	811	764	714	802
Females	722	952	801	839	768	701	648	717	644	495	610	514	565	450	494
Persons	1 231	1 117	1 104	1 100	1 002	893	879	814	774	762	738	676	673	596	666
RATE RATIO (d)															
WA															
Males	1.9	1.8	1.8	1.8	2.0	1.8	2.2	2.1	1.9	2.2	2.3	2.0	2.2	2.3	2.3
Females	2.0	1.8	1.8	1.9	1.8	1.5	1.8	1.8	1.9	2.1	1.6	1.9	1.6	2.3	2.0
Persons	2.2	2.0	2.0	2.1	2.1	1.9	2.2	2.1	2.1	2.4	2.1	2.1	2.1	2.5	2.4
SA															
Males	1.4	1.1	1.2	1.6	1.6	1.5	2.3	1.9	1.3	1.8	1.7	1.3	1.9	1.6	1.9
Females	1.3	1.2	1.3	1.3	1.3	1.3	1.2	1.4	1.6	1.8	1.5	1.3	1.2	2.0	1.3
Persons	1.6	1.3	1.4	1.6	1.6	1.6	1.9	1.8	1.6	2.0	1.8	1.5	1.7	1.9	1.8
NT															
Males	1.2	2.0	1.4	1.6	1.7	1.7	2.4	2.3	2.3	2.1	2.5	2.5	2.8	2.7	2.3
Females	1.5	1.5	1.4	1.5	1.5	1.3	2.1	1.8	2.1	2.2	1.8	2.1	1.9	2.5	2.0
Persons	1.6	1.8	1.5	1.7	1.8	1.6	2.4	2.1	2.3	2.4	2.3	2.6	2.5	2.8	2.4

(a) Deaths are based on year of registration of death.

(b) Rates have been directly age standardised using the 2001 Australian standard population.

(c) Other includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(d) Mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

Source: AIHW National Mortality Database

Infant mortality rates

Consistent with the all-cause mortality analyses, the results presented in this section are also for recorded deaths, and assume no change in the rate at which Indigenous status is reported on infant deaths registrations. Indigenous status on infant death registrations has generally been more comprehensively recorded than for deaths at older ages.

There was a significant decline in recorded mortality for Indigenous infants in Western Australia, South Australia and the Northern Territory during the period

*Infant mortality rates
continued*

1991–2005 (table 9.34). The average yearly decline in infant mortality was around 0.8 deaths per 1,000 live births in each of the three jurisdictions—equivalent to a reduction in the infant mortality rate of around 41% in Western Australia, 58% in South Australia and 46% in the Northern Territory.

Over the same period, there was a significant decline in recorded infant mortality for other Australian infants in Western Australia and South Australia—an average yearly decline of around 0.2 deaths per 1,000 live births in Western Australia (equivalent to a reduction in the infant mortality rate of around 39%) and an average yearly decline of around 0.1 deaths per 1,000 live births in South Australia (equivalent to a reduction in the infant mortality rate of around 26%).

The relative difference between Indigenous and other infant mortality rates significantly declined over the period 1991–2005. The rate ratio, which is the Indigenous rate divided by the rate for other Australians, declined significantly in South Australia and the Northern Territory by an average of 0.1 per year in South Australia (from around 4.0 in 1991 to 2.0 in 2005) and by an average of 0.04 per year in the Northern Territory (from around 1.9 in 1991 to 1.5 in 2005). The rate difference, which is the Indigenous rate minus the rate for other Australians, declined significantly in Western Australia, South Australia and the Northern Territory (from around 20 per 1,000 births to 8 per 1,000 births in Western Australia and from around 11 per 1,000 births to 5 per 1,000 births in the Northern Territory) and by an average of 0.8 per 1,000 per year in South Australia (from around 15 per 1,000 births to 5 per 1,000 births).

9.34 INFANT MORTALITY RATES (a)(b), by Indigenous status—1991–2005

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
INDIGENOUS															
WA	(c)26.1	(c)24.1	16.3	19.6	18.1	24.1	13.6	17.0	16.7	16.9	16.3	16.2	15.4	11.1	11.9
SA	20.2	23.2	17.3	7.5	16.2	12.6	8.5	4.5	7.8	11.1	4.9	14.7	6.9	6.1	9.7
NT	24.7	28.1	29.4	18.7	18.5	19.4	29.4	22.6	19.0	22.9	16.0	15.6	12.9	17.9	16.2
OTHER (d)															
WA	(c)6.0	(c)5.9	5.2	4.6	4.3	5.3	4.8	4.2	3.9	3.4	4.3	3.5	3.3	3.4	4.0
SA	5.1	5.5	4.9	4.7	5.5	4.7	4.6	4.0	4.2	4.4	4.6	4.7	3.6	3.0	4.9
NT	13.2	15.9	17.8	10.9	10.4	11.7	15.9	12.3	12.5	16.2	12.7	11.0	9.7	13.2	11.0
RATE RATIO (e)															
WA	(c)4.4	(c)4.1	3.1	4.2	4.2	4.5	2.8	4.0	4.3	4.9	3.8	4.6	4.7	3.3	2.9
SA	4.0	4.2	3.6	1.6	3.0	2.7	1.8	1.1	1.9	2.5	1.1	3.1	1.9	2.0	2.0
NT	1.9	1.8	1.7	1.7	1.8	1.7	1.8	1.8	1.5	1.4	1.3	1.4	1.3	1.4	1.5
RATE DIFFERENCE (f)															
WA	(c)20.1	(c)18.2	11.1	15.0	13.8	18.8	8.8	12.8	12.8	13.4	12.0	12.7	12.1	7.7	7.9
SA	15.1	17.6	12.5	2.9	10.8	7.9	3.8	0.6	3.6	6.7	0.3	10.0	3.3	3.1	4.8
NT	11.4	12.2	11.6	7.8	8.1	7.6	13.5	10.3	6.5	6.6	3.3	4.6	3.2	4.7	5.1

(a) Infant deaths per 1,000 live births.

(b) Deaths are based on year of registration of death and state of usual residence. Births are based on year of registration.

(c) The average of births over 1993–1995 in Western Australia was used to as the denominator for the estimates of the infant mortality rates for 1991 and 1992 to correct for errors in births recorded for 1991 and 1992.

(d) Other includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(e) Mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

(f) Mortality rate for Indigenous Australians minus the mortality rate for other Australians.

Source: AIHW National Mortality Database

Cause-specific mortality

Another potentially informative approach to assessing mortality trends is to examine changes in the pattern of deaths, by specific causes of death. These analyses have the advantage that they may reveal trends that are disguised by the more heterogeneous aggregate of mortality figures. But the available data constrain the analyses that can be done, and caution must be exercised when interpreting changes. First, the numbers of deaths that underlie the analysis diminish when the data are disaggregated to specific causes and the finer the disaggregation, the smaller the numbers and the larger the fluctuations relative to any underlying trend. The analyses undertaken for this report have been confined to five main causes of death—diseases of the circulatory system; diseases of the respiratory system; external causes; endocrine, nutritional and metabolic diseases; and neoplasms. Second, there was a change in the classification and coding of causes of death between 1996 and 1997. ICD-9 was used to classify causes of death prior to 1997 and ICD-10 has been used to classify causes of death from 1997 onwards. As these changes affect the comparability of the data for the two periods, the analyses reported here are for the period 1997–2005. Third, when analysing five causes of death for three jurisdictions and for three population groups (persons, males and females), some statistically significant changes may arise by chance—attention should therefore be paid to those causes that show some consistency of pattern, not to individual differences or changes.

Cause-specific mortality
continued

Consistent with the analyses of all-cause mortality, the results presented in this section are for recorded deaths and assume no change in the rate at which Indigenous status is reported on deaths registrations, including no changes in rates of recording Indigenous status by specific causes of death. The impact of such changes in recording on the robustness of the conclusions is provided in the latter section 'The sensitivity of mortality trends to changes in Indigenous identification'.

Of the five causes examined, only diseases of the circulatory system showed consistently significant changes in recorded mortality (table 9.35).

9.35 CAUSE-SPECIFIC AGE STANDARDISED MORTALITY RATES (a)(b)(c), by Indigenous status—1997–2005

	1997	1998	1999	2000	2001	2002	2003	2004	2005
	rate	rate	rate	rate	rate	rate	rate	rate	rate
CIRCULATORY DISEASES (I00-I99)									
Indigenous rate(b)	606.0	539.4	510.4	505.0	415.6	396.3	406.9	502.4	435.5
Other rate(b)(d)	297.6	285.0	267.3	251.6	245.2	235.9	228.6	220.5	217.8
Rate ratio(e)	2.0	1.9	1.9	2.0	1.7	1.7	1.8	2.3	2.0
RESPIRATORY DISEASES (J00-J99)									
Indigenous rate(b)	152.9	193.2	143.5	164.2	164.8	162.1	142.7	199.2	144.2
Other rate(b)(d)	63.3	57.6	54.2	60.1	57.5	62.9	62.0	57.6	52.8
Rate ratio(e)	2.4	3.4	2.6	2.7	2.9	2.6	2.3	3.5	2.7
EXTERNAL CAUSES (V01-Y98)									
Indigenous rate(b)	110.8	139.1	105.3	130.6	127.1	124.4	123.8	121.1	157.8
Other rate(b)(d)	41.8	47.7	41.8	43.8	41.1	38.8	39.9	38.9	41.0
Rate ratio(e)	2.6	2.9	2.5	3.0	3.1	3.2	3.1	3.1	3.9
ENDOCRINE, NUTRITIONAL AND METABOLIC DISEASES (E00-E89)									
Indigenous rate(b)	158.1	112.6	137.1	171.0	174.7	151.4	128.0	160.9	166.6
Other rate(b)(d)	23.1	21.1	21.6	21.4	22.2	22.2	22.0	24.8	24.0
Rate ratio(e)	6.8	5.3	6.3	8.0	7.9	6.8	5.8	6.5	6.9
NEOPLASMS (C00-D48)									
Indigenous rate(b)	245.9	224.4	196.9	263.4	214.9	233.2	247.3	260.2	243.0
Other rate(b)(d)	203.2	194.4	195.3	192.4	190.4	191.0	187.1	189.8	188.7
Rate ratio(e)	1.2	1.2	1.0	1.4	1.1	1.2	1.3	1.4	1.3

- (a) Deaths are based on year of registration of death and state of usual residence.
 (b) Directly age standardised rate per 100,000 population using the 2001 estimated resident population.
 (c) Data for WA, SA and NT combined
 (d) Comprises deaths of non-Indigenous persons and those for whom Indigenous status was not stated.
 (e) Mortality rate for Indigenous persons divided by the mortality rate for other persons.

Source: AIHW National Mortality Database

Over the period 1997–2005, there were significant declines in recorded mortality from circulatory diseases for Indigenous people in Western Australia, South Australia and the Northern Territory (the mortality in 2005 was around three-quarters the rate in 1997). This was mainly due to a significant decline for males (a reduction in the mortality rate of around 32% during the period of analysis).

*Cause-specific mortality
continued*

Over the same period, there were also significant declines in recorded mortality from circulatory diseases for other Australians (the mortality rate in 2005 being around three-quarters of the 1997 rate).

For external causes and neoplasms, there were significant declines in recorded mortality for other Australians over the period 1997–2005 however there were corresponding significant changes in the mortality rates for Indigenous Australians for these causes of death.

There was a significant increase in the rate ratio between Indigenous and other Australian mortality rates for external causes of death (from around 3 in 1997 to 4 in 2005).

*The sensitivity of mortality
trends to changes in
Indigenous identification*

When analysing trends in recorded Indigenous mortality, it is important to try to distinguish changes that arise because of real changes in mortality from those that arise because of changes in the reporting of Indigenous status on deaths registrations. But only broad, indicative estimates of changes in coverage are available, so it is not possible to definitively dissect observed changes in recorded mortality into the real and reporting effects.

In the absence of such a definitive dissection, the fitted trends discussed earlier in this chapter have been examined for their sensitivity to changes in Indigenous coverage. If those trends were to persist under a range of plausible assumptions regarding coverage, that would add to the confidence that the trends reflect some real alteration in mortality and are not just artefacts of changes in coverage.

The same approach as was used in the 2005 edition of this report has been used here. Three scenarios for coverage were posed—constant coverage, increasing coverage and decreasing coverage.

- Under the constant coverage scenario, the numbers of deaths for the entire period under study were adjusted using coverage estimates derived from the most recent ABS analyses (relating to the period 2001–2005). These estimates are: Western Australia—70%; South Australia—64% and the Northern Territory—92%.
- Under the increasing coverage scenario, deaths were adjusted by linearly increasing the coverage through the period under study—from 63% in 1991 to 70% in 2005 for Western Australia; from 58% to 64% for South Australia; and from 87% to 92% for the Northern Territory.
- Under the decreasing coverage scenario, deaths were adjusted by linearly decreasing the coverage—from 77% in 1991 to 70% in 2005 for Western Australia; from 70% to 64% for South Australia; and from 97% to 92% for the Northern Territory.

The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in coverage during the decade. Of course, if any actual shift in coverage were more extreme than has been posed under these scenarios, then the observed trends in mortality might not persist. For all three scenarios, the population figures (used as denominators in the calculation of mortality rates) were re-estimated to reflect the altered number of deaths implied by each scenario.

- The declines in infant mortality rates for Indigenous Australians in Western Australia, South Australia and the Northern Territory during the period 1991–2005 remained statistically significant under all three identification coverage scenarios.

The sensitivity of mortality trends to changes in Indigenous identification continued

- The declines in mortality rates from diseases of the circulatory system during the period 1997–2005 remained significant under all three identification scenarios for Indigenous males and remained significant under the increasing identification scenario (which is the most likely scenario) for Indigenous people.

Other research and analyses

CHRONIC DISEASES

Another recent study also undertaken in the Northern Territory looked at long-term mortality trends in Indigenous deaths from chronic diseases (Thomas et al 2006). Trends in rates of mortality from six chronic diseases were analysed over the period 1977–2001 comparing Indigenous Australians in the Northern Territory with the total Australian population. The chronic diseases analysed were ischaemic heart disease (IHD), chronic obstructive pulmonary disease (COPD), cerebrovascular disease, diabetes mellitus, renal failure and rheumatic heart disease (RHD). Results found that over the 25 years examined, Northern Territory Indigenous mortality rates increased significantly for IHD and diabetes mellitus, however the rate of increase slowed significantly after 1990. For COPD, mortality increased before 1990, however significantly decreased thereafter. For RHD, the Indigenous mortality rate decreased for those aged less than 50 years and increased for those aged 50 years and over. The ratio of Indigenous mortality rates in the Northern Territory to total Australian mortality rates increased for all six chronic diseases. This increase was statistically significant for all diseases except COPD.

LIFE EXPECTANCY IN THE NORTHERN TERRITORY

A recent study was undertaken in 2007 by Wilson, Condon and Barnes 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 recent years. The gap between Indigenous and total Australian female life expectancy in the Northern Territory has narrowed between 1967 and 2004, while the gap between Indigenous and total Australian male life expectancy has remained the same.

Wilson, Condon and Barnes 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 ages 45 years 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 to 2004.

*Other research and
analyses continued*

LIFE EXPECTANCY IN THE NORTHERN TERRITORY *continued*

The gains in life expectancy for Indigenous males and females in the Northern Territory reported by Wilson, Condon and Barnes 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.

SUMMARY

Overall, all-cause mortality for Indigenous Australians in Western Australia declined by 20% between 1991 and 2005. Despite this decline, all-cause mortality for other Australians in Western Australia declined by 26% over the period and the difference between Indigenous and other Australian mortality is widening in South Australia and the Northern Territory. For the period 2001–2005, in Queensland, Western Australia, South Australia and the Northern Territory, the mortality rates for Indigenous males and females were almost three times those for non-Indigenous males and females.

There have been significant declines in recorded infant mortality for Indigenous Australians in recent years and the gap between Indigenous and other Australians has narrowed. Despite these improvements, the infant mortality rate for Indigenous Australians is still three times the rate for non-Indigenous Australians.

Over the period 2001–2005, in Queensland, South Australia, Western Australia and the Northern Territory, for all age groups below 65 years, the age-specific death rates for people identified as Indigenous were at least twice those for non-Indigenous Australians. The largest differences occurred in the middle age groups (35–54 years) where the death rates for Indigenous males and females were five to six times those recorded for non-Indigenous Australians.

The five leading causes of death for Aboriginal and Torres Strait Islander peoples over the period 2001–2005 in the four jurisdictions were diseases of the circulatory system, injury (predominantly accidents, intentional self-harm and assault), cancer, endocrine, metabolic and nutritional disorders and respiratory diseases, representing around three-quarters of all deaths of Aboriginal and Torres Strait Islander people. Indigenous Australians had much higher rates of mortality than non-Indigenous Australians from these major causes of death (SMRs of between 2 and 8 for males and 2 and 10 for females). The difference between Indigenous and non-Indigenous mortality appears to be widening for all of these causes of death, however the increase is only statistically significant for external causes of death.

Deaths of Indigenous people involve higher rates of co-morbidity than deaths of non-Indigenous people. For the period 2001–2005, deaths where multiple causes were reported were more common among Indigenous people than non-Indigenous people. For example, 27% of deaths among Indigenous males and 29% of deaths among Indigenous females recorded five or more causes of death, compared with 15% of non-Indigenous male and female deaths. For deaths from certain diseases such as ischaemic heart disease, renal failure and cancer, diabetes was reported as an associated cause of death among Indigenous males and females at more than twice the rate among non-Indigenous males and females.

