1.25 Avoidable and preventable deaths

The number of deaths of Aboriginal and Torres Strait Islander peoples aged 0–74 years from avoidable and preventable conditions, expressed as a standardised rate and rate ratio

Data sources

Data for this measure come from the AIHW National Mortality Database.

The National Mortality Database is a national collection of de-identified information for all deaths in Australia and is maintained by the AIHW. Information on the characteristics and causes of death of the deceased is provided by the Registrars of Births, Deaths and Marriages and coded nationally by the ABS. Information on the cause of death is supplied by the medical practitioner certifying the death or by a coroner. The data are updated each calendar year.

Although the identification of Indigenous deaths is incomplete in all state and territory registration systems, four jurisdictions (Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. These four jurisdictions represent approximately 60% of the Indigenous population of Australia. Data are presented by state/territory of usual residence rather than state/territory where death occurs.

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

Data have been combined for the 5-year period 2002–2006 because of the small number of deaths from some conditions each year. Data have been analysed using the year of registration of death for all years. Note that the 2006 edition of this report 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.

Avoidable and preventable mortality

The ICD-9 and ICD-10 codes used for avoidable mortality in this measure come from the report *Australian and New Zealand atlas of avoidable mortality* (Page et al. 2006).

Avoidable and preventable mortality refers to deaths from certain conditions that are considered avoidable given timely and effective health care. This also includes deaths amenable to legal measures such as traffic safety (for example, speed limits and use of seat belts and motorcycle helmets). Avoidable and preventable conditions are sometimes further differentiated into conditions where death can be averted by prevention ('preventable') or by treatment ('amenable', 'treatable'):

Amenable conditions are defined as those from which it is reasonable to expect death to be averted even after the condition has developed, for example, through early detection and effective treatment (such as cervical cancer).

Preventable conditions include those for which there are effective ways of preventing the condition from occurring, for example, where the aetiology is to a considerable extent related to lifestyle factors (such as smoking).

Potentially avoidable deaths can sometimes be further assigned to primary (prevention), secondary (early intervention) and tertiary (medical treatment) levels of health intervention (National Health Performance Committee 2004).

Analyses

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

Mortality

- Over the period 2002–2006, there were 63,782 deaths of people aged 0–74 years from avoidable causes in Queensland, Western Australia, South Australia and the Northern Territory combined, 4,769 (7.5%) of which were deaths of Aboriginal and Torres Strait Islander peoples.
- Avoidable causes represented almost three-quarters (73%) of all deaths of Indigenous Australians aged 0–74 years in these four jurisdictions. This was slightly higher than the proportion of deaths from avoidable causes in the non-Indigenous population (68%).

Avoidable mortality by age, sex and state/territory

Data presented below are for deaths from avoidable causes for persons aged 0–74 years in Queensland, Western Australia, South Australia and the Northern Territory in the period 2002–2006.

- Indigenous males and females had higher mortality rates for avoidable causes than non-Indigenous males and females across all age groups. Indigenous males and females aged 35–44, 45–54 and 55–64 years died from avoidable causes at four to six times the rate of non-Indigenous males and females respectively (Table 1.25.1).
- Indigenous males and females died from avoidable causes at around 4 to 4.5 times the rate of non-Indigenous males and females.
- After adjusting for differences in age structure, Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory died from all avoidable causes at four times the rate of non-Indigenous Australians. This was similar to the difference between the two populations for all-cause mortality.
- In Queensland, Indigenous Australians aged 0–74 years died from avoidable causes at three times the rate of non-Indigenous Australians of the same age, and in Western Australia, South Australia and the Northern Territory, Indigenous Australians died from avoidable causes at around four times the rate of non-Indigenous Australians (Table 1.25.2).
- The proportion of deaths at ages 0–74 years from avoidable causes which are considered to be amenable to health care was approximately the same for Indigenous and non-Indigenous Australians (40%) (Table 1.25.3).
- Indigenous Australians aged 0–74 years died from primary, secondary and tertiary avoidable causes at four to five times the rate of non-Indigenous Australians of the same age (Table 1.25.4).

Table 1.25.1: Avoidable mortality, by Indigenous status, age group and sex, persons aged 0–74 years, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)]

	Males			Females		
	Deaths per 100,000[(e)]			Deaths per 100,000[(e)]		
Age group (years)	Indigenous	Non-Indigenous	Rate ratio[(f)]	Indigenous	Non-Indigenous	Rate ratio[(f)]
Less than 1	699.7	239.6	2.9*	517.3	217.7	2.4*
1–4	34.1	15.7	2.2*	38.2	10.9	3.5*
5–14	15.1	5.9	2.6*	12.5	4.4	2.9*
15–24	150.7	55.8	2.7*	68.7	19.8	3.5*
25–34	325.5	74.9	4.3*	135.2	25.4	5.3*
35–44	606.5	98.5	6.2*	330.3	51.1	6.5*
45–54	1,066.6	196.9	5.4*	616.5	116.1	5.3*
55–64	1,891.1	476.0	4.0*	1,271.3	261.8	4.9*
65–74	3,808.0	1,313.8	2.9*	2,699.7	716.8	3.8*
Total[(g)(h)]	**812.9**	**214.1**	**3.8***	**519.1**	**115.0**	**4.5***

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

(a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These four jurisdictions are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.

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

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all causes mortality rate.

(d) Deaths are by year of registration and state/territory of usual residence.

(e) Rates per 100,000 population. Total rates have been directly age-standardised using the 2001 Australian standard population.

(f) Rate ratio Indigenous:non-Indigenous.

(g) Totals exclude those aged 75 years and over and those for whom age was not stated.

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

Note: The completeness of identification of Indigenous deaths can vary by age.

Source: AIHW analysis of National Mortality Database.

Table 1.25.2: Avoidable mortality, by Indigenous status and state/territory, persons aged 0–74 years, 2002–2006[(a)(b)(c)(d)]

	Number[(e)]			Indigenous			Non-Indigenous			
State/territory	Indigenous	Non-Indigenous	Not stated	No. per 100,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	No. per 100,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Ratio[(i)]
Qld	1,748	30,197	431	567.3	536.8	597.8	168.1	166.2	170.0	3.4*
WA	1,120	13,636	285	632.6	590.8	674.5	151.5	149.0	154.1	4.2*
SA	431	13,031	307	599.6	535.0	664.2	168.5	165.6	171.4	3.6*
NT	1,470	1,116	17	906.3	852.9	959.7	210.8	197.1	224.6	4.3*
Qld, WA, SA & NT	**4,769**	**57,980**	**1,040**	**656.3**	**635.0**	**677.6**	**164.5**	**163.1**	**165.8**	**4.0***

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

(a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These four states/territories are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.

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

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all causes mortality rate.

(d) Deaths are by year of registration.

(e) The ABS calculated the completeness of identification of Indigenous deaths for the period 2002–2006 using population estimates as 51% for Queensland, 72% for Western Australia, 62% for South Australia and 90% for the Northern Territory. The completeness of Indigenous identification for avoidable deaths may differ from the estimates for all causes.

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:non-Indigenous.

Note: For ICD-10 codes used, see Page et al. (2006).

Source: AIHW analysis of National Mortality Database

Table 1.25.3: Avoidable mortality, by Indigenous status, persons aged 0–74 years, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)]

	Number			Per cent			No. per 100,000[(e)]		
Mortality category	**Indigenous**	**Non-Indigenous**	**Not stated**	**Indigenous**	**Non-Indigenous**	**Not stated**	**Indigenous**	**Non-Indigenous**	**Ratio[(f)]**
Avoidable mortality	4,769	57,980	1,040	72.8	67.6	70.4	656.3	164.5	4.0*
Amenable mortality as a percentage of avoidable mortality[(g)]	*1,916*	*23,308*	*357*	*40.2*	*40.2*	*34.3*	*270.8*	*66.1*	*4.1**
Amenable mortality as a percentage of total mortality[(g)]	*1,916*	*23,308*	*357*	*29.3*	*27.2*	*24.1*	*270.8*	*66.1*	*4.1**
Unavoidable mortality	1,778	27,810	438	27.2	32.4	29.6	219.8	79.1	2.8*
Total mortality	**6,547**	**85,790**	**1,478**	**100.0**	**100.0**	**100.0**	**876.1**	**243.5**	**3.6***

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

(a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These four jurisdictions are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.

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

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate.

(d) Deaths are by year of registration.

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

(f) Rate ratio Indigenous:non-Indigenous.

(g) ICD 10 codes A15–A19, B90, A38–A41, A46, A48.1, C18–C21, C43, C44, C50, C53, C54, C55, C67, C73, C81, C91.0, C91,1, D10–D36, E00–E07, E10–E14, G40, G41, I01–I09, I11, I20–I25, I60–I69, I12, I13, N00–N09, N17–N19, N13, N20, N21, N35, N40, N99.1, J45, J46, K25–K28, K35–K38, K40–K46, K80–K83, K85, K86, K91.5, H31.1, P00, P04, Q00–Q99, P03, P05–P95.

Note: For full list of ICD10 codes used, see Page et al. (2006).

Source: AIHW analysis of National Mortality Database.

Table 1.25.4: Avoidable mortality, by subcategory, by Indigenous status, persons aged 0–74 years, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)]

	Number			Per cent			No. per 100,000[(e)]		
Mortality category	**Indigenous**	**Non-Indigenous**	**Not stated**	**Indigenous**	**Non-Indigenous**	**Not stated**	**Indigenous**	**Non-Indigenous**	**Ratio[(f)]**
Avoidable mortality	4,769	57,980	1,040	72.8	67.6	70.4	656.3	164.5	4.0*
Primary	*2,443*	*31,438*	*560*	*51.2*	*54.2*	*53.8*	*334.6*	*89.0*	*3.8**
Secondary	*1,205*	*13,174*	*232*	*25.3*	*22.7*	*22.3*	*177.7*	*37.4*	*4.8**
Tertiary	*1,117*	*13,249*	*245*	*23.4*	*22.9*	*23.6*	*143.3*	*37.7*	*3.8**
Unavoidable mortality	1,778	27,810	438	27.2	32.4	29.6	219.8	79.1	2.8*
Total mortality	**6,547**	**85,790**	**1,478**	**100.0**	**100.0**	**100.0**	**876.1**	**243.5**	**3.6***

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

(a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These four jurisdictions are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.

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

(c) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate.

(d) Deaths are by year of registration.

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

(f) Rate ratio Indigenous:non-Indigenous.

Note: For full list of ICD10 codes used, see Page et al. (2006).

Source: AIHW analysis of National Mortality Database.

Avoidable mortality by cause of death

Table 1.25.4 presents avoidable mortality by cause of death and Indigenous status for persons aged 0–74 years in Queensland, Western Australia, South Australia and the Northern Territory combined over the period 2002–2006.

- The most common types of avoidable conditions causing death among Aboriginal and Torres Strait Islander peoples were ischaemic heart disease (20%), followed by cancer (14%), in particular lung cancer, diabetes (11%) and suicide (8%). Indigenous Australians died from cancer and suicide at twice the rate of non-Indigenous Australians; and from Ischaemic heart disease and diabetes at 5 and 18 times the rate respectively of non-Indigenous Australians (Table 1.25.5).
- Indigenous Australians died from selected invasive bacterial and protozoal infections at around 8 times the rate of non-Indigenous Australians, from alcohol-related disease at 9 times the rate , from violence at 10 times the rate , from nephritis and nephrosis at 16 times the rate and from rheumatic heart disease and other valvular heart disease at 23 times the rate of non-Indigenous Australians.

Table 1.25.5: Avoidable mortality, by cause of death and Indigenous status, persons aged 0–74 years, Qld, WA, SA and NT, 2002–2006[a][b][c][d]

	Number[e]			Per cent			Indigenous			Non-Indigenous			
Cause of death	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Not stated	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Ratio[i]
Ischaemic heart disease	956	11,541	211	20.0	19.9	20.3	149.7	139.3	160.1	32.7	32.1	33.3	4.6*
Cancer	658	21,721	213	13.8	37.5	20.5	115.2	105.8	124.7	60.8	60.0	61.6	1.9*
Lung cancer[j]	*245*	*7,576*	*80*	*5.1*	*13.1*	*7.7*	*47.0*	*40.8*	*53.3*	21.3	20.8	21.8	*2.2**
Diabetes	507	1,870	25	10.6	3.2	2.4	94.5	85.7	103.4	5.3	5.1	5.6	17.7*
Suicide	370	3,883	127	7.8	6.7	12.2	26.3	23.4	29.2	11.1	10.8	11.5	2.4*
Road traffic injuries	334	2,853	88	7.0	4.9	8.5	26.3	23.1	29.5	8.2	7.9	8.5	3.2*
Alcohol-related disease	309	1,505	29	6.5	2.6	2.8	37.1	32.6	41.5	4.1	3.9	4.4	9.0*
Selected invasive bacterial and protozoal infections	229	1,244	38	4.8	2.1	3.7	27.2	23.1	31.2	3.6	3.4	3.8	7.6*
Cerebrovascular disease	215	3,409	51	4.5	5.9	4.9	36.5	31.1	41.9	9.8	9.5	10.1	3.7*
Chronic obstructive pulmonary disease	182	2,784	49	3.8	4.8	4.7	39.2	33.2	45.1	8.0	7.7	8.3	4.9*
Nephritis and nephrosis	162	568	6	3.4	1.0	0.6	27.0	22.5	31.5	1.6	1.5	1.8	16.4*
Violence	117	313	15	2.5	0.5	1.4	9.0	7.2	10.8	0.9	0.8	1.0	10.0*

(continued)

Table 1.25.5 (continued): Avoidable mortality, by cause of death and Indigenous status, persons aged 0–74 years, Qld, WA, SA and NT, 2002–2006[a][b][c][d]

	Number[e]			Per cent			Indigenous			Non-Indigenous			
Cause of death	Indig.	Non-Indig.	Not stated	Indig.	Non-Indig.	Not stated	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Ratio[i]
Birth defects	108	900	22	2.3	1.6	2.1	5.9	4.5	7.3	2.7	2.5	2.9	2.2*
Complications of perinatal period	108	448	6	2.3	0.8	0.6	4.2	3.4	5.0	1.4	1.2	1.5	3.1*
Rheumatic and other valvular heart disease	93	165	2	2.0	0.3	0.2	10.7	8.1	13.2	0.5	0.4	0.5	22.7*
Other[k]	421	4,776	158	8.8	8.2	15.2	47.6	42.3	52.8	13.6	13.3	14.0	3.5*
Total avoidable	**4,769**	**57,980**	**1,040**	**100.0**	**100.0**	**100.0**	**656.3**	**635.0**	**677.6**	**164.5**	**163.1**	**165.8**	**4.0***

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

(a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These four jurisdictions are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.

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

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

(d) Deaths are by year of registration and state/territory of usual residence.

(e) Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:non-Indigenous.

(j) Data for lung cancer are a subset of data for all cancers presented in this table.

(k) Other includes: tuberculosis, hepatitis, HIV/AIDS, viral pneumonia and influenza, thyroid disorders, illicit drug disorders, epilepsy, hypertensive heart disease, aortic aneurysm, obstructive uropathy & prostatic hyperplasia, deep vein thrombosis with pulmonary embolism, asthma, peptic ulcer disease, acute abdomen/appendicitis/intestinal obstruction/cholecystitis/lithiasis/pancreatitis/hernia, chronic liver disease, falls, fires/burns, accidental poisonings, drownings.

Note: For full list of ICD10 codes used, see Page et al. (2006).

Source: AIHW analysis of National Mortality Database.

Time series analysis

Longer term mortality trend data are limited to three jurisdictions—Western Australia, South Australia and the Northern Territory, which have over 10 years of adequate identification of Indigenous deaths in their recording systems.

There is a consistent time series of population estimates from 1991. Because of changes in the classification and coding of causes of death from ICD-9 (used up until 1996) to ICD-10 (used from 1997 onwards) which affect the comparability of the data, the analysis reported for this measure has been done for two time periods—1991–1996 and 1997–2006.

Because of the late inclusion of a 'not stated' category of Indigenous status in 1998 (before which 'not stated' responses were included with non-Indigenous deaths), Indigenous mortality rates have been compared with the mortality rates of other Australians (which include deaths of both non-Indigenous people and people for whom Indigenous status was not stated).

Mortality rates, rate ratios and rate differences between Indigenous and other Australians for avoidable causes over the periods 1991–1996 and 1997–2006 are presented in tables 1.25.6a, 1.25.6b and 1.25.7 and Figure 1.25.1.

- Over the period 1991–1996, in Western Australia, South Australia and the Northern Territory combined, there were significant declines in mortality rates for avoidable causes among Indigenous Australians aged 0–74 years. The fitted trend implies an average yearly decline in the rate of around 27 per 100,000, which is equivalent to a 13% reduction in the rate over this period. These declines were significant for Indigenous females but not for males.
- Over the same period, there were significant declines in mortality rates for avoidable causes for other Australians (10%).
- Over the period 1991–1996, there were significant declines in the mortality rate ratios and rate differences between Indigenous and other Australians for avoidable causes for females, but not for males.
- Over the period 1997–2006, in Western Australia, South Australia and the Northern Territory combined there were also significant declines in the mortality rates for avoidable causes among Indigenous Australians aged 0–74 years. The fitted trend implies an average yearly decline in the rate of around 23 per 100,000, which is equivalent to a 22% reduction in the rate over the period. These declines were significant for both males and females.
- Over the same period, there were significant declines in mortality rates for avoidable causes for other Australians (32%).
- Over the period 1997–2006, there were significant increases in the mortality rate ratios between Indigenous and other males for avoidable mortality (20%). There were significant declines in the mortality rate differences between Indigenous and other females, but not for males.

Table 1.25.6a: Age-standardised mortality rates, rate ratios and rate differences, avoidable causes, persons aged 0–74 years, WA, SA & NT, 1991–1996

	1991	1992	1993	1994	1995	1996	Annual change[a]	% change over period[b]
Indigenous rate (deaths per 100,000)[c]								
Males	1115.0	1030.4	1096.1	1173.5	1124.9	1003.6	–5.6	–2.5
Females	886.1	850.0	812.8	739.4	682.9	693.0	–44.0*	–24.8
Persons	1000.7	941.0	950.5	946.7	892.5	842.5	–26.9*	–13.4
Other[d] rate (deaths per 100,000)[c]								
Males	346.5	332.3	334.2	328.0	311.9	310.4	–7.1*	–10.2
Females	177.0	173.1	168.1	165.1	159.4	159.2	–3.8*	–10.8
Persons	259.5	250.5	249.0	244.7	234.1	233.7	–5.2*	–10.1
Rate ratio[e]								
Males	3.2	3.1	3.3	3.6	3.6	3.2	0.1	8.4
Females	5.0	4.9	4.8	4.5	4.3	4.4	–0.2*	–15.7
Persons	3.9	3.8	3.8	3.9	3.8	3.6	–0.03	–3.8
Rate difference[f]								
Males	768.6	698.1	761.9	845.6	813.0	693.2	1.5	1.0
Females	709.1	676.9	644.6	574.3	523.5	533.9	–40.2*	–28.3
Persons	741.1	690.5	701.5	702.0	658.4	608.8	–21.6*	–14.6

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1991–1996.

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

(b) Per cent change between 1991 and 1996 based on the average annual change over the period.

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

(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.

Note: Rates presented in this table may differ from those presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses.

Source: AIHW analysis of National Mortality Database

Table 1.25.6b: Age-standardised mortality rates, rate ratios and rate differences, avoidable causes, persons aged 0–74 years, WA, SA & NT, 1997–2006

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change over period[(b)]
Indigenous rate(deaths per 100,000)[(c)]												
Males	1161.5	987.0	950.4	1034.8	1031.8	844.7	1016.8	918.6	911.7	841.8	–23.1*	–17.9
Females	761.6	728.8	609.3	752.9	532.5	667.8	529.9	615.5	541.3	542.1	–23.0*	–27.1
Persons	943.8	853.9	772.3	886.5	762.4	753.2	755.9	757.8	710.9	681.5	–23.2*	–22.2
Other[(d)] rate (deaths per 100,000)[(c)]												
Males	294.1	287.5	264.2	262.7	243.2	233.1	225.4	208.4	212.7	196.5	–10.9*	–33.4
Females	152.2	141.5	136.3	135.0	128.0	127.4	121.9	108.7	106.0	106.4	–5.1*	–30.1
Persons	222.1	213.6	199.6	198.2	185.2	179.8	173.3	158.3	159.2	151.3	–7.9*	–32.0
Rate ratio[(e)]												
Males	3.9	3.4	3.6	3.9	4.2	3.6	4.5	4.4	4.3	4.3	0.1*	19.5
Females	5.0	5.2	4.5	5.6	4.2	5.2	4.3	5.7	5.1	5.1	0.02	4.2
Persons	4.2	4.0	3.9	4.5	4.1	4.2	4.4	4.8	4.5	4.5	0.1*	12.7
Rate difference[(f)]												
Males	867.3	699.6	686.2	772.1	788.6	611.6	791.4	710.2	699.0	645.3	–12.1	–12.6
Females	609.4	587.4	473.0	617.8	404.4	540.4	407.9	506.8	435.3	435.7	–17.9*	–26.4
Persons	721.7	640.3	572.7	688.3	577.3	573.4	582.5	599.5	551.6	530.2	–15.3*	–19.1

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1997–2006.

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

(b) Per cent change between 1997 and 2006 based on the average annual change over the period.

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

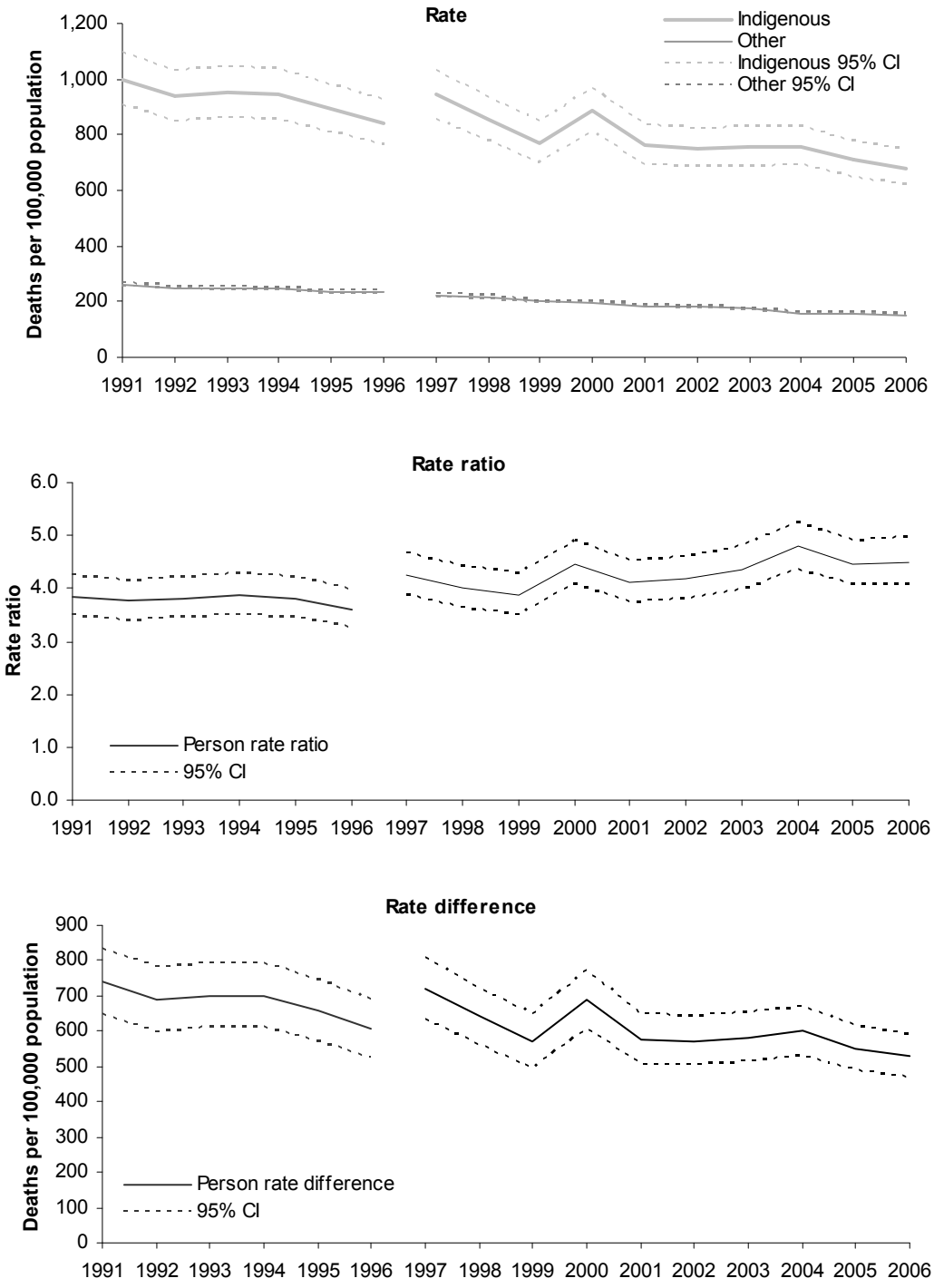
(d) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(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.

Note: Rates presented in this table may differ from those presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses.

Source: AIHW analysis of National Mortality Database.



Source: AIHW analysis of National Mortality Database.

Figure 1.25.1: Mortality rates, rate ratios and rate differences for avoidable causes of death, Indigenous and other Australians aged 0–74 years, WA, SA & NT, 1991–1996 and 1997–2006

Additional trends analysis has been presented for Queensland, Western Australia, South Australia and the Northern Territory combined from 1998 to 2006 for Indigenous and non-Indigenous Australians in Table 1.25.7 and Figure 1.25.2. Queensland has had adequate identification of Indigenous deaths in its recording systems since 1998, and these have been compared with those of non-Indigenous Australians (excluding deaths for which Indigenous status was not stated).

- Over the period 1998–2006, in Queensland, Western Australia, South Australia and the Northern Territory combined there were significant declines in the mortality rates for avoidable causes among Indigenous Australians aged 0–74 years. The fitted trend implies an average yearly decline in the rate of around 18 per 100,000 which is equivalent to a 19% reduction in the rate over he period. These declines were significant for both males and females.
- Over the same period, there were significant declines in mortality rates for avoidable causes for non-Indigenous Australians (32%).
- Over the period 1997–2006, there were significant increases in the mortality rate ratios between Indigenous and non-Indigenous Australians for avoidable mortality (18%) but significant declines in the mortality rate differences (14%).

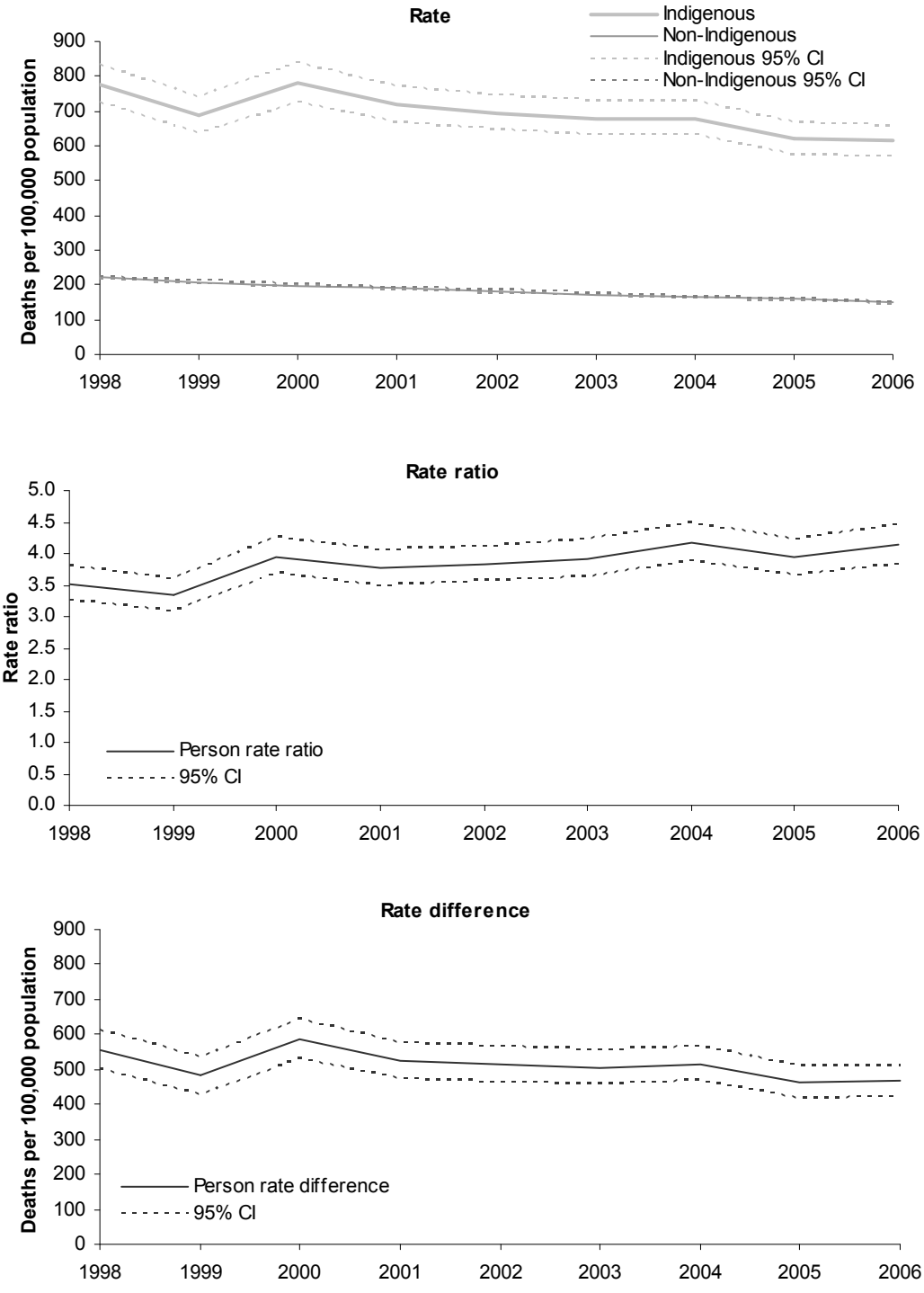
Table 1.25.7: Age-standardised mortality rates, rate ratios and rate differences, avoidable causes, persons aged 0–74 years, Qld, WA, SA & NT, 1998–2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[a]	% change over period[b]
Indigenous rate (deaths per 100,000)[c]											
Males	921.1	850.2	909.9	956.5	780.9	896.1	832.4	802.1	760.2	–16.7*	–14.5
Females	647.6	544.1	669.1	513.0	614.5	489.4	546.5	465.2	489.1	–19.0*	–23.5
Persons	778.2	687.7	782.8	717.0	694.6	679.5	679.8	621.5	614.1	–18.3*	–18.8
Non-Indigenous[d] rate (deaths per 100,000)[c]											
Males	296.3	274.2	261.6	249.0	234.7	226.8	212.2	206.5	192.8	–12.3*	–33.2
Females	147.3	140.1	134.9	132.4	128.2	120.0	114.0	109.8	104.2	–5.3*	–28.7
Persons	221.1	206.6	197.8	190.4	181.2	173.3	163.0	158.1	148.5	–8.7*	–31.5
Rate ratio[e]											
Males	3.1	3.1	3.5	3.8	3.3	4.0	3.9	3.9	3.9	0.1*	28.7
Females	4.4	3.9	5.0	3.9	4.8	4.1	4.8	4.2	4.7	0.04	6.4
Persons	3.5	3.3	4.0	3.8	3.8	3.9	4.2	3.9	4.1	0.1*	18.4
Rate difference[f]											
Males	624.8	576.0	648.3	707.5	546.2	669.4	620.2	595.5	567.4	–4.4	–5.7
Females	500.3	404.1	534.2	380.6	486.3	369.4	432.6	355.4	384.9	–13.7	–21.9
Persons	557.1	481.1	584.9	526.6	513.4	506.2	516.8	463.4	465.6	–9.6*	–13.8

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–2006.

(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(b) Per cent change between 1998 and 2006 based on the average annual change over the period.
(c) Rates have been directly age-standardised using the 2001 Australian standard population.
(d) Rates exclude deaths of people for whom Indigenous status was not stated.
(e) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.
(f) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database



Source: AIHW analysis of National Mortality Database

Figure 1.25.2: Mortality rates, rate ratios and rate differences for avoidable causes of death, Indigenous and non-Indigenous Australians aged 0–74 years, Qld, WA, SA & NT, 1998–2006

Additional information

Years of potential life lost

Potential years of life lost (PYLL) is an indicator of premature mortality. It represents the total number of years not lived before a given age (e.g. 75 years). This indicator gives more importance to the causes of death that occurred at younger ages than those that occurred at older ages.

The PYLL due to death is calculated for each person who died before age 75. Deaths of people aged 75 years and over are not included in the calculation. Potential years of life lost correspond to the sum of the PYLL contributed for each individual.

The impact of avoidable mortality on the Indigenous population is more evident at ages below 45 years than it is for the non-Indigenous population, for whom the impact is more noticeable at older ages.

- The proportion of PYLL from amenable causes for Indigenous infants under 1 year of age was 1.5 times that of the non-Indigenous population (Table 1.25.8).
- For the 25–44 year age group, the proportion of PYLL from amenable mortality in the Indigenous population was almost twice that of the non-Indigenous population (31% compared with 17%).
- For the age groups 45–64 and 65–74 years, the proportions of PYLL in the Indigenous population were less than those for the non-Indigenous population.

Table 1.25.8: Potential years of life lost to amenable mortality by Indigenous status and age group, persons aged 0–74 years, Qld, WA, SA & NT, 2002–2006[(a)(b)(c)(d)(e)]

Age group (years)	Number		Per cent		Ratio[(f)]
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	
Less than 1	16,013	74,550	28.8	18.9	1.5*
1–14	2,046	11,834	3.7	3.0	1.2*
15–24	1,812	11,120	3.3	2.8	1.2*
25–44	17,223	67,392	30.9	17.1	1.8*
45–64	16,383	177,466	29.4	44.9	0.7*
65–74	2,219	52,463	4.0	13.3	0.3*
Total[(g)]	**55,694**	**394,823**	**100.0**	**100.0**	**. .**

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

(a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These four states/territories are considered to have adequate levels of Indigenous identification in mortality data. They do not represent a quasi-Australian figure.

(b) Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous PYLL.

(c) It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

(d) Deaths are by year of registration and state/territory of usual residence.

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

(f) Rate ratio Indigenous:non-Indigenous.

(g) Excludes those aged 75 years and over and those for whom age was not stated.

Note: ICD 10 codes A15–A19, B90, A38–A41, A46, A48.1, C18–C21, C43, C44, C50, C53, C54, C55, C67, C73, C81, C91.0, C91,1, D10–D36, E00–E07, E10–E14, G40, G41, I01–I09, I11, I20–I25, I60–I69, I12, I13, N00–N09, N17–N19, N13, N20, N21, N35, N40, N99.1, J45, J46, K25–K28, K35–K38, K40–K46, K80–K83, K85, K86, K91.5, H31.1, P00, P04, Q00–Q99, P03, P05–P95.

Source: AIHW analysis of National Mortality Database.

Data quality issues

Mortality data

Deaths

The mortality rate for Indigenous Australians can be influenced by identification of Indigenous deaths, late registration of deaths, and changes to death forms and/or processing systems. Because of the small size of the Indigenous population, these factors can significantly affect trends over time and between jurisdictions.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms. However, New South Wales, Victoria, South Australia, the Northern Territory and the Australian Capital Territory all have slightly different wording from the national standard for the instruction on those with both Aboriginal and Torres Strait Islander origin (ABS & AIHW 2005). Although the wording is only slightly different, it would be ideal to have all jurisdictions asking the question in exactly the same way.

Under-identification

Almost all deaths in Australia are registered. However, the Indigenous status of the deceased is not always recorded or recorded correctly. The incompleteness of Indigenous identification means the number of deaths registered as Indigenous is an underestimate of deaths occurring in the Aboriginal and Torres Strait Islander population (ABS 1997). As a result, the observed differences between Indigenous and non-Indigenous mortality are underestimates of the true differences.

Although the identification of Indigenous deaths is incomplete in all state and territory registration systems, four jurisdictions (Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to three jurisdictions (Western Australia, South Australia and the Northern Territory) with 10 years of adequate identification of Indigenous deaths in their recording systems. The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous. The ABS calculated the implied coverage (identification) of Indigenous deaths for the period 2002–2006 using population estimates: New South Wales 45%, Victoria 32%, Queensland 51%, South Australia 62%, Western Australia 72%, the Northern Territory 90%, Tasmania and the Australian Capital Territory were not calculated because of small numbers, Australia 55% (ABS 2007).

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

There are also current concerns about data quality for causes of death especially relating to external causes of death of all Australians (not just Indigenous) (ABS 2006).

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. The changes in the completeness of identification of Indigenous people in death records may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991–2009 *(ABS 2004).*

(continued)

Data quality issues (continued)

Cause of death coding

Causes of death are based on the 10th revision of the International Classification of Diseases (ICD-10). Mortality coding using ICD-10 was introduced into Australia on 1 January 1997.

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