Health status and outcomes (Tier 1)

1.01 Low birthweight infants

The incidence of low birthweight among live-born babies of Aboriginal and Torres Strait Islander mothers

Data sources

National Perinatal Data Collection

Data for this measure come from the Australian Institute of Health and Welfare (AIHW) National Perinatal Statistics Unit National Perinatal Data Collection.

Data on birthweight are collected as part of the Perinatal National Minimum Data Set. Each state and territory has a perinatal collection based on birth notification forms completed by midwives and other staff, using information obtained from mothers and from hospital and other records. These data are provided in electronic format annually to the AIHW National Perinatal Statistics Unit. Perinatal notification forms are completed in Australia for all births of 20 weeks or more gestation, or a birthweight of 400 grams or more.

All jurisdictions collect the Indigenous status of the mother of the baby. However, this data element does not provide the Indigenous status of the baby. Therefore, Indigenous births will be underestimated as babies born to Indigenous fathers and non-Indigenous mothers are not included in the data collection. Over the period 2003–2005 there were approximately 10,100 ABS registered births to Indigenous fathers only, which represented 28% of registered Indigenous births (ABS 2006, 2005, 2004).

Data are presented for all states and territories with the exception of Tasmania for which the 'not stated' category for Indigenous status was unable to be distinguished from the category for non-Indigenous until 2005.

Data on mothers for whom Indigenous status was 'not stated' have been excluded from analysis. In 2005, there were 128 births with a 'not stated' Indigenous status (0.05%).

The World Health Organization (WHO) defines low birthweight as less than 2,500 grams.

Analyses

Births

Between 2003 and 2005 there were 769,587 births recorded in the Perinatal National Minimum Data Set (excluding Tasmania) of which 27,722 (3.6%) were to Aboriginal and Torres Strait Islander mothers.

Low birthweight

Table 1.01.1 presents the number and proportion of live-born low birthweight babies by Indigenous status of the mother and state/territory for the period 2003–2005.

- Over the period 1998–2000, there were 3,087 live-born babies weighing less than 2,500 grams birthweight born to Indigenous mothers in Australia (not including Tasmania). Babies of Indigenous mothers were twice as likely to be of low birthweight as babies born to non-Indigenous mothers (12% compared with 6%).

- Over the period 2003–2005, there were 3,601 live-born babies of low birthweight born to Indigenous mothers in Australia (not including Tasmania). Approximately 13% of babies born to Indigenous mothers were of low birthweight, compared with 6% of babies born to non-Indigenous mothers.
- When multiple births are excluded, approximately 12% of babies born to Indigenous mothers are of low birthweight compared with 5% of babies born to non-Indigenous mothers.
- Queensland and New South Wales had the lowest proportion of live-born low birthweight babies born to Indigenous mothers in 2003–2005 (12%). The Australian Capital Territory and South Australia had the highest proportion of low birthweight babies (18%); however, ACT data should be interpreted with caution because of the small number of Indigenous babies born in the Australian Capital Territory each year and the likelihood that some women from surrounding areas of New South Wales (especially those with pregnancy complications) are referred to hospitals in the Australian Capital Territory.

Table 1.01.1: Low birthweight babies, by Indigenous status of mother and state/territory, 1998–2000 2001–2003 and 2003–2005[(a)(b)(c)(d)(e)]

	1998–2000		2001–2003		2003–2005	
	No.	Per cent	No.	Per cent	No.	Per cent
NSW						
Indigenous	681	11.0	784	12.2	835	12.0
Non-Indigenous	14,429	5.7	14,451	5.8	14,516	5.7
Vic						
Indigenous	171	13.4	152	12.7	190	14.3
Non-Indigenous	11,542	6.2	11,814	6.3	12,066	6.3
Qld						
Indigenous	907	10.8	956	11.5	1,014	11.7
Non-Indigenous	8,319	6.1	8,671	6.2	9,225	6.3
WA						
Indigenous	606	13.3	675	14.5	683	14.7
Non-Indigenous	4,160	5.8	4,042	5.8	4,306	6.0
SA						
Indigenous	203	15.7	229	17.6	251	17.5
Non-Indigenous	3,349	6.3	3,193	6.2	3,315	6.4
ACT[(f)]						
Indigenous	29	16.7	39	19.1	45	17.7
Non-Indigenous	950	6.8	901	6.5	1,020	7.1
NT						
Indigenous	490	12.7	568	13.3	583	14.3
Non-Indigenous	490	7.2	402	6.0	434	6.6
Total[(g)]						
Indigenous	**3,087**	**12.0**	**3,403**	**12.9**	**3,601**	**13.1**
Non-Indigenous	**43,239**	**6.0**	**43,474**	**6.1**	**44,882**	**6.1**

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

(b) Data are presented in 3-year groupings because of small numbers each year. These groupings represent three calendar years.

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

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

(e) State-level data are based on place where birth occurred, not place of usual residence. Cross-border issues need to be considered here, e.g. a high proportion of births in ACT hospitals are to mothers usually resident in New South Wales.

(f) ACT percentages are influenced by both small numbers and high proportions of non-ACT residents who gave birth in the Australian Capital Territory and must be interpreted with caution. In 2003–2005, the ACT resident proportion was 14.0% for low birthweight Indigenous babies and 5.6% for non-Indigenous babies.

(g) Excludes Tasmania, as the 'not stated' category for Indigenous status was unable to be distinguished from the 'non-Indigenous' category for 2003 and 2004.

Source: AIHW analysis of National Perinatal Statistics Unit (NPSU) National Perinatal Data Collection.

Time series analysis

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

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

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

The rate (proportion) of low birthweight babies per 100 live births, rate ratios and rate differences between Indigenous and non-Indigenous low birthweight babies over the period 1991–2005 are presented in Table 1.01.2 and Figure 1.01.1. Data are presented for all live births and for live singleton births only. Analyses of live singleton births are presented because low birthweight is associated with multiple births and there has been an increasing trend in multiple births over time. Inclusion of multiple births may therefore confound the results of trends analyses on low birthweight.

- Over the period 1991–2005, there was a significant increase in the proportion of low birthweight babies born to Indigenous mothers. The fitted trend implies an average yearly increase in low birthweight babies born to Indigenous mothers of around 0.1 per 100 live births, which is equivalent to an increase of 16% over the period (Figure 1.01.1). A similar increase was evident for singleton babies born to Indigenous mothers.
- Over the same period there was a significant increase in the proportion of low birthweight babies born to other mothers. There was an average yearly increase in low-birthweight babies of around 0.04 per 100 live births which is equivalent to a 9% increase over the period. Again, a similar increase was evident for singleton babies born to other mothers.
- Between 1991 and 2005 there was a significant increase in both the rate ratio and rate difference between low birthweight babies born to Indigenous and non-Indigenous mothers. The fitted trend implies an average yearly increase in the rate ratio of around 0.01 (increase of 7% over the period) and an average yearly increase in the rate difference of around 0.1 per 100 live births (increase of 23% over the period) (Figure 1.01.1). There were also significant increases in the rate ratio and rate differences for low birthweight singleton live-born babies.

Table 1.01.2: Rate (proportion), rate ratio and rate difference between low birthweight babies of Indigenous and other mothers, 1991–2005

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Annual change[(a)]	Per cent change[(b)]
Low birthweight live-born babies																	
Indigenous rate	11.9	11.8	10.8	11.9	10.9	11.6	12.1	11.0	12.2	12.7	12.8	12.9	12.9	13.1	13.3	0.1*	16.4
Other rate[(c)]	5.7	5.7	5.7	5.7	5.8	5.8	5.9	5.9	6.0	6.1	6.0	6.1	6.0	6.1	6.1	0.04*	8.9
Rate ratio	2.1	2.1	1.9	2.1	1.9	2.0	2.1	1.9	2.0	2.1	2.1	2.1	2.1	2.2	2.2	0.01*	7.3
Rate difference	6.2	6.1	5.1	6.3	5.2	5.9	6.3	5.1	6.2	6.6	6.8	6.8	6.9	7.0	7.2	0.1*	23.3
Low birthweight singleton live-born babies																	
Indigenous rate	11.1	10.8	9.7	11.0	10.2	10.7	11.3	10.0	10.9	11.7	11.5	11.8	11.9	12.1	12.1	0.1*	15.5
Other rate[(c)]	4.5	4.4	4.5	4.4	4.5	4.5	4.5	4.6	4.6	4.5	4.5	4.6	4.5	4.6	4.5	0.01*	2.6
Rate ratio	2.5	2.4	2.2	2.5	2.3	2.4	2.5	2.2	2.4	2.6	2.6	2.6	2.6	2.6	2.7	0.02*	12.8
Rate difference	6.6	6.3	5.3	6.7	5.7	6.2	6.8	5.4	6.3	7.2	7.0	7.3	7.4	7.5	7.5	0.1*	24.2

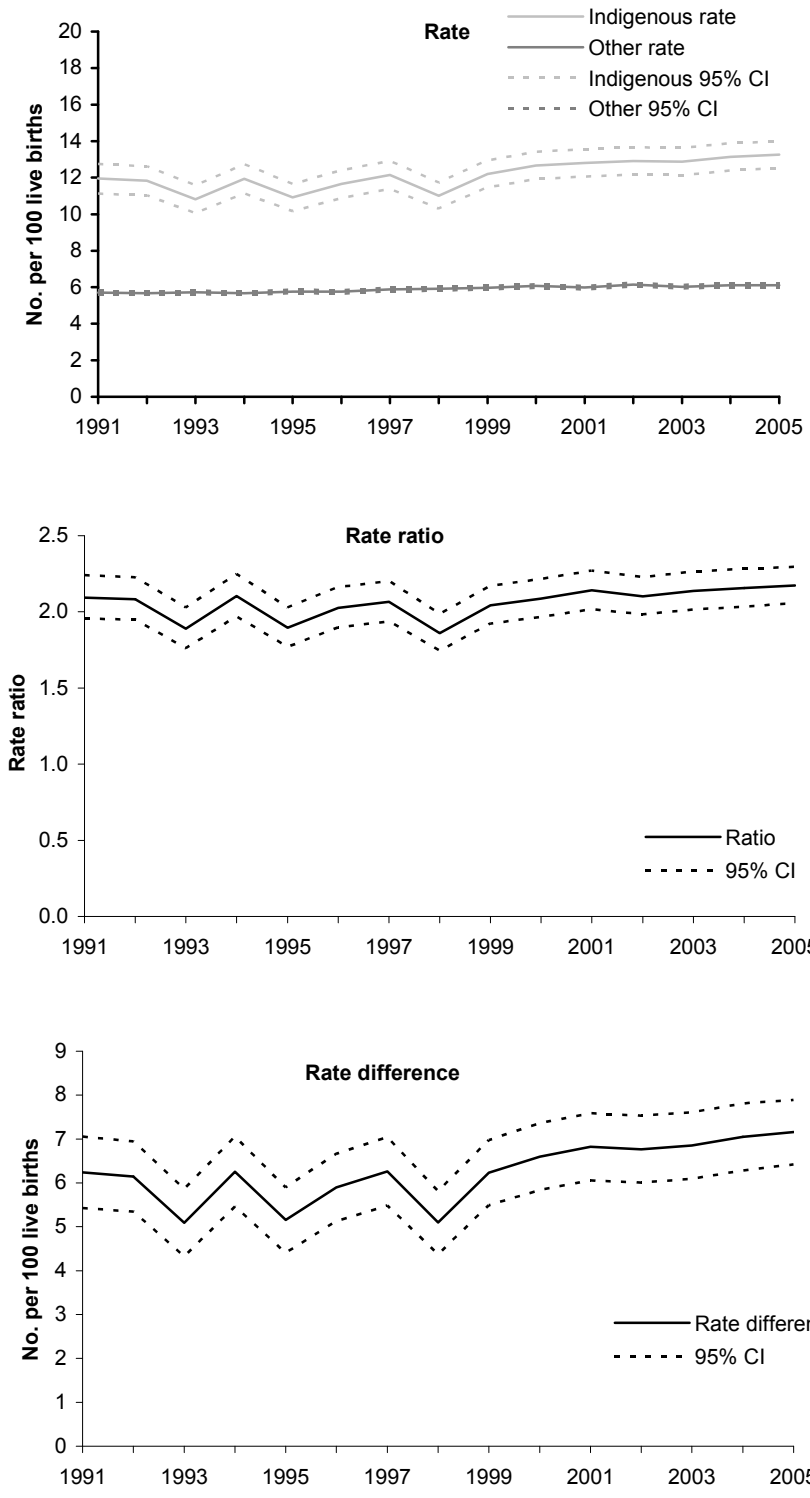
(a) Average annual change in number and proportion of low birthweight babies determined using linear regression analysis.

(b) Per cent change between 1991 and 2005 based on the average annual change over the period.

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

Note: Excludes Tasmania and the Australian Capital Territory.

Source: AIHW analysis of NPSU National Perinatal Data Collection.



Note: Excludes Tasmania and the Australian Capital Territory.

Source: AIHW analysis of NPSU National Perinatal Data Collection.

Figure 1.01.1: Rates, rate ratios and rate differences between low birthweight babies (all live births) of Indigenous and other mothers, 1991–2005

Low birthweight babies by birth characteristics

Table 1.01.3 presents the number and proportion of low birthweight babies born to Indigenous and non-Indigenous mothers in 2003–2005 by selected birth characteristics.

- Approximately 68% of pre-term babies born to Indigenous mothers were of low birthweight compared with only 5% of full-term babies born to Indigenous mothers.
- Approximately 63% of multiple births of Indigenous mothers resulted in babies born with low birthweight compared with 13% of singleton births.
- Almost half (47%) of live-born babies born to Indigenous mothers with an Apgar score of less than 7 were of low birthweight.
- Although the proportion of pre-term and multiple births resulting in low birthweight babies was similar for babies born to Indigenous and non-Indigenous mothers, low birthweight among full-term births and singleton births was almost 3 times as high among babies born to Indigenous mothers as among babies born to non-Indigenous mothers.
- The perinatal death rate among low birthweight babies born to Indigenous mothers was 625 per 1,000 births. This compared with 588 per 1,000 births among low birthweight babies born to non-Indigenous mothers.

Table 1.01.3: Live-born low birthweight babies by birth characteristics and Indigenous status, 2003–2005

	Indigenous		Non-Indigenous		
	Number	%	Number	%	Ratio
Pre-term	2,671	68.1	35,098	60.6	1.1
Full-term	1,181	5.0	13,788	2.0	2.5
Multiple birth	390	63.2	12,936	51.5	1.2
Singleton birth	3,463	12.8	35,968	5.0	2.5
APGAR score[(a)]					
0–6	282	46.6	2,972	31.6	1.5
7–10	3,269	12.3	41,753	5.8	2.1
Perinatal deaths per 1,000 births[(b)]	306	624.5	4,389	587.9	1.1
Total	**3,853**	**13.1**	**48,904**	**6.1**	**. .**

(a) Live births only.

(b) Excludes the Northern Territory for 2003.

Notes

1. Excludes Tasmania, as the 'not stated' category for Indigenous status was unable to be distinguished from the 'non-Indigenous' category for 2003 and 2004.
2. Excludes mothers for whom Indigenous status was not stated.

Source: AIHW analysis of NPSU National Perinatal Data Collection.

Low birthweight babies by maternal characteristics

Table 1.01.4 presents the number and proportion of live-born low birthweight babies born to Indigenous and non-Indigenous mothers in 2003–2005 by selected characteristics of the mother.

- In 2003–2005, the highest rate of low birthweight babies born to Indigenous mothers was among mothers aged 35 years and over (16%) followed by mothers aged less than 20 years (14%). Indigenous mothers in all age groups were around twice as likely to have low birthweight babies as non-Indigenous mothers.
- Indigenous mothers in the most disadvantaged quintile and 4th quintile of socioeconomic status (SES) were most likely to have low birthweight babies (14%). Rates of low birthweight babies among Indigenous mothers were around twice those among non-Indigenous mothers across all quintiles of socioeconomic status.
- Low birthweight babies were most common among Indigenous mothers who had a parity of three or more or who were having their first baby (around 14%).
- The proportion of low birthweight babies born to Indigenous mothers was highest among mothers living in Remote and Very Remote areas (15% and 14% respectively). In remote areas, babies born to Indigenous mothers were almost three times as likely as babies born to non-Indigenous mothers to be of low birthweight.

Table 1.01.4: Live-born low birthweight babies by maternal characteristics and Indigenous status, 2003–2005

	Indigenous		Non-Indigenous		
	Number	%	number	%	Ratio
Age of mother					
Less than 20	817	13.5	2,134	7.8	1.7
20–24	1,095	12.8	6,685	6.6	2.0
25–29	805	12.6	11,481	5.7	2.2
30–34	551	12.9	14,419	5.6	2.3
35+	333	15.5	10,160	6.8	2.3
Quintile of socioeconomic status					
1st quintile (most disadvantaged)	1,456	13.9	9,487	6.7	2.1
2nd quintile	932	12.7	9,128	6.3	2.0
3rd quintile	620	11.8	9,189	6.3	1.9
4th quintile	401	13.8	8,711	5.9	2.4
5th quintile (least disadvantaged)	119	12.6	8,184	5.4	2.3
Parity					
None	1,141	13.6	22,803	7.3	1.9
One	778	11.8	12,013	4.8	2.5
Two	588	12.3	5,553	5.0	2.5
Three	457	14.4	2,542	6.6	2.2
Four or more	627	13.9	1,952	8.3	1.7
Remoteness					
Major Cities	857	12.8	31,431	6.1	2.1
Inner Regional	573	12.1	8,463	6.2	1.9
Outer Regional	988	13.0	4,075	6.1	2.1
Remote	452	14.7	659	5.7	2.6
Very Remote	723	13.6	233	5.7	2.4
Total	**3,601**	**13.1**	**44,882**	**6.1**	**. .**

Notes

1. Excludes Tasmania, as the 'not stated' category for Indigenous status was unable to be distinguished from the 'non-Indigenous' category for 2003 and 2004.
2. Excludes mothers for whom Indigenous status was not stated.

Source: AIHW analysis of NPSU National Perinatal Data Collection.

Mean birthweight

- In 2005, the average birthweight of live-born babies of Indigenous mothers was 3,155 grams. This was 221 grams lighter than the average of 3,376 grams for live-born babies of non-Indigenous mothers in 2005.
- Note that male babies were proportionally less likely to be of low birthweight than were female babies (the average birthweight of male babies was 119 grams higher than that of female babies in 2005).

Time series analysis

- Over the period 1997–2005, although there was a significant decline in the mean birthweight of babies born to Indigenous mothers (the fitted trend implies an average yearly decline of around 2.9 grams), this decline is not necessarily clinically significant. The change could be accounted for by measurement error, such as instrument calibration or error in the observer making the measurement, which is more likely to occur in births in remote areas or home births for which Indigenous births are over-represented (Table 1.01.3).
- There was no significant change in the mean birthweight of babies of other mothers over the same period.
- There was a significant increase in the difference between the mean birthweight of babies born to Indigenous and other mothers over the period 1997–2005.

Table 1.01.3: Mean birthweight, ratio and difference between mean birthweight of live-born babies of Indigenous and other mothers, 1997–2005

	1997	1998	1999	2000	2001	2002	2003	2004	2005	Annual change[(a)]	% change
Mean birthweight (grams)											
Indigenous	3,170	3,186	3,170	3,175	3,166	3,165	3,160	3,158	3,155	–2.9*	–0.7
Other[(b)]	3,375	3,382	3,380	3,384	3,382	3,378	3,380	3,382	3,376	0.0	0.0
Ratio	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	–0.7
Difference (grams)	–205	–196	–211	–209	–216	–214	–220	–223	–221	2.9*	11.1

* Represents results with statistically significant increases or decreases at the $p < 0.05$ level over the period 1997–2005.

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

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

Note: Excludes Tasmania and the Australian Capital Territory.

Source: AIHW analysis of NPSU National Perinatal Data Collection.

High birthweight

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

- In 2003–2005 the proportion of high birthweight babies born to Indigenous mothers in Australia (excluding Tasmania) was 8%. This compared with 12% of babies born of high birthweight to non-Indigenous mothers (AIHW: NPSU unpublished data).

International comparisons

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

International statistics on low birthweight show that Indigenous mothers in Canada and the United States have lower rates of low birthweight babies than the general population, and Indigenous mothers in New Zealand have slightly higher rates of low birthweight babies than the general population, but the gap is not as great as for Aboriginal and Torres Strait Islander Australians. In Australia, babies of Aboriginal or Torres Strait Islander mothers are more than twice as likely to be of low birthweight as babies born to other Australian mothers (13% compared with 6% — Laws et al. 2007).

The latest available data from the United States, Canada and New Zealand are outlined below. Note that the Canadian data exclude births less than 500 grams because of changes over time in the quality of reporting babies' birthweight less than 500 grams. This definition is slightly different from Australia's criteria—excluding babies less than 400 grams or less than 20 weeks gestation.

- For the period 2004–2006, 7.4% of babies born to American Indian or Alaskan native mothers on reserves were of low birthweight compared with 8.2% of babies born to non-Indigenous mothers in the United States (National Center for Health Statistics, unpublished data).
- For the period 2001–2002, 5.5% of Canadian First Nation babies were of low birthweight which was the same as the 2001 total Canadian rate of 5.5% (Health Canada unpublished data; Health Canada 2005).
- For the period 2004–2006, 6.8% of babies born to Maori mothers were of low birthweight compared with 5.6% of babies born to non-Indigenous mothers in New Zealand (Statistics New Zealand unpublished data).

Additional information

Risk factors for low birthweight

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

- Aboriginal and Torres Strait Islander mothers smoke during pregnancy at around three times the rate of non-Indigenous mothers (see 2.19 for more information on smoking during pregnancy).
- Indigenous females are more likely to have babies at younger ages than non-Indigenous mothers. Between 2001 and 2004, around 20% of Aboriginal and Torres Strait Islander mothers were aged less than 20 years compared with 4% of non-Indigenous mothers (AIHW: Leeds et al. 2007). Teenage pregnancies are associated with a number of adverse reproductive outcomes including low birthweight (Fraser et al. 1995).
- Indigenous mothers have twice the rate of pre-term birth (gestational age of less than 37 weeks) as non-Indigenous mothers (14% compared with 8% in 2003–2005).
- Indigenous mothers are more likely to have had a higher number of previous pregnancies. Between 2001 and 2004, 28% of Aboriginal and Torres Strait Islander

mothers had given birth three or more times previously. This compared with 8% of non-Indigenous mothers (AIHW: Leeds et al. 2007).

Data quality issues

Perinatal data

Births

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

The state/territory of birth is provided for all births. State-level data is based on place where birth occurred, not place of usual residence. Complicated pregnancies from surrounding New South Wales may be referred to the Australian Capital Territory and hence there may be poorer outcomes attributed to Australian Capital Territory births. Because of this and the small numbers involved, care should be taken in interpreting data from the Australian Capital Territory (Laws et al. 2007).

Indigenous status question

A standard data item for Indigenous status is specified in the Perinatal National Minimum Data Set. However, not all states and territories use this standard wording for the Indigenous status question on their forms. This affects the quality and comparability of the data collected (ABS & AIHW 2003).

Under-identification

All jurisdictions collect Indigenous status of the mother for each baby. However, this does not necessarily indicate the Indigenous status of the baby.

Studies linking perinatal data with birth registration data and hospital admissions in Canada show that Indigenous data are under-reported (Human Resources Development Canada &Health Canada 2003). In 2007 the AIHW completed an assessment of the quality of Indigenous status information in perinatal data in each state and territory. This involved a survey which was sent to the midwifery managers across Australia to determine how many hospitals in each jurisdiction obtain Indigenous status information of mothers giving birth from admission records and how many collect this information independently. The assessment also involved analysis of the variability in the number and proportion of mothers recorded as Indigenous in the perinatal data collection over time and across jurisdictions for the period 1991–2004. The outcomes of this assessment showed that Indigenous status data from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory are suitable for trends analysis. Perinatal data from Tasmania, although improving, were deemed to be of insufficient quality. Although the most recent data in the Australian Capital Territory were of publishable quality, the data were not yet of sufficient stability to support trends analysis (AIHW: Leeds et al. 2007).

All jurisdictions are working towards improving the quality of the Indigenous status data. Data on Indigenous status are not reported for Tasmania before 2005 because the 'not stated' category for Indigenous status was included with the non-Indigenous category. The 'not stated' category for birthweight was found to be small nationally in the evaluation of the Perinatal National Minimum Data Set (Laws & Sullivan 2004). Therefore, the exclusion of 'not stated for birthweight will not have a significant impact on these data.

(continued)

Data quality issues (continued)

International comparisons

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

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

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1.02 Top reasons for hospitalisation

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

Data sources

Data for this measure come from the AIHW National Hospital Morbidity Database.

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

Data are presented for the six jurisdictions which have been assessed by the AIHW as having adequate identification of Indigenous hospitalisations in 2004–05—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. These six jurisdictions represent approximately 96% of the Indigenous population of Australia. Data are presented by state/territory of usual residence of the patient.

Hospitalisations for which the Indigenous status of the patient was not reported have been included with hospitalisations data for non-Indigenous people under the 'other' category. This is to enable consistency across jurisdictions, as public hospitals in some states and territories do not have a category for the reporting of 'not stated' or inadequately recorded/reported Indigenous status.

Hospitalisation data are presented for the 2-year period July 2004 to June 2006. An aggregate of 2 years of data has been used, as the number of hospitalisations for some conditions is likely to be small for a single year.

The principal diagnosis is the diagnosis established to be the problem that was chiefly responsible for the patient's episode of care in hospital. The additional diagnosis is a condition or complaint either coexisting with the principal diagnosis or arising during the episode of care. The term 'hospitalisation' has been used to refer to a separation which is the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending a change in a type of care (for example, from acute to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

Analyses

Age-standardised rates and ratios have been used as a measure of hospitalisations 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.

Hospitalisations

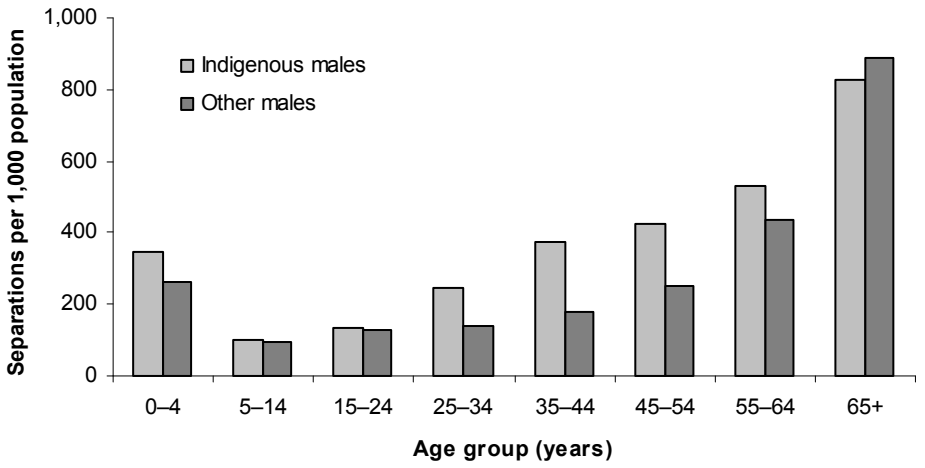
- In the 2-year period July 2004 to June 2006 there were a total of 13,783,538 hospitalisations in New South Wales, Victoria, Queensland, Western Australia, South

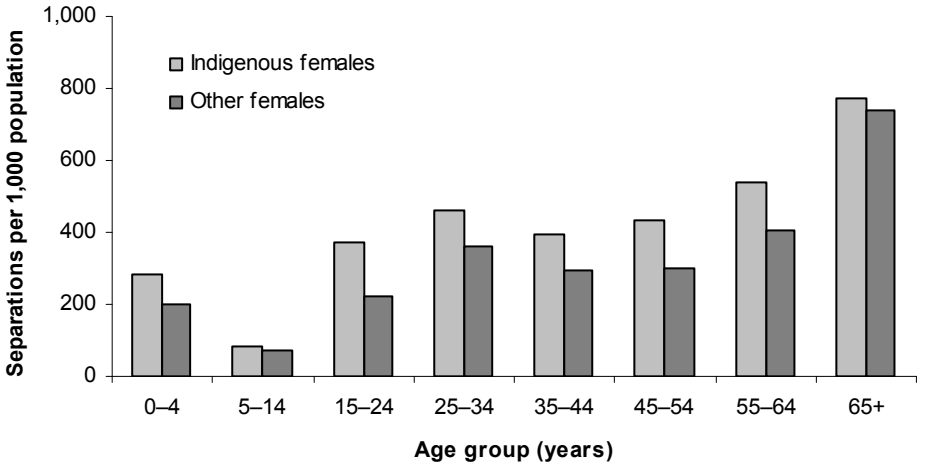
Australia and the Northern Territory. Of these, 467,822 or 3% were hospitalisations of Indigenous Australians.

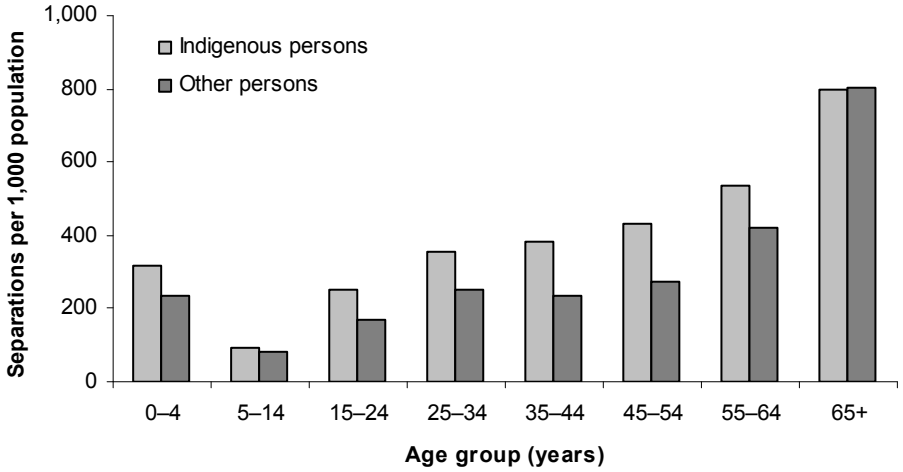
- Excluding hospitalisations for dialysis, there were 12,126,332 hospitalisations in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, 277,186 (2.3%) of which were hospitalisations of Indigenous Australians (Table 1.02.1).
- For all hospitalisations, the average number of diagnoses on separation for Indigenous Australians was 3.0 and for other Australians was 2.9. Excluding hospitalisations for care involving dialysis, the average number of diagnoses on separation for Indigenous Australians was 3.6 and for other Australians was 3.0.

Hospitalisations by age and sex

- For the 2-year period July 2004 to June 2006, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, when hospitalisations for dialysis are excluded, Indigenous males had higher hospitalisation rates than other males across all age groups with the exception of those aged 65 years and over. Indigenous females had higher hospitalisation rates than other females across all age groups (Figure 1.02.1).
- The greatest difference in hospitalisation rates occurred in the 25–34, 35–44, and 45–54 year age groups for males and in the 15–24 and 45–54 year age groups for females. Indigenous males and females were hospitalised at between 1.5 and 2 times the rate of other males and females in these age groups.







Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.02.1: Age-specific hospitalisation rates (excluding dialysis), by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006

Hospitalisations by state/territory

Table 1.02.1 presents hospitalisations excluding dialysis for the 2-year period July 2004 to June 2006 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. As well as rates and ratios for the six jurisdictions which have been assessed as having adequate identification of Indigenous hospitalisations in 2004–05, unadjusted and adjusted national level data are included in the table. The Australia data are adjusted by applying a completeness factor of 89.4%, which is an estimate of the level of Indigenous under-identification in hospital separations data.

- Over the period July 2004 to June 2006, excluding hospitalisations for dialysis, Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised at 1.3 times the rate of other Australians.
- When hospital rates are adjusted at the national level for Indigenous under-identification, Indigenous persons were hospitalised at 1.4 times the rate of other Australians.
- Indigenous Australians were hospitalised (excluding dialysis) at 0.8 times the rate of other Australians in Victoria, at 1.2 times the rate of other Australians in New South Wales and at 1.3 times the rate of other Australians in Queensland. In Western Australia, South Australia and the Northern Territory, Indigenous Australians were hospitalised at up to twice the rate of other Australians (Table 1.02.1).
- For all hospitalisations, including those with a principal diagnosis of care involving dialysis, Indigenous Australians were hospitalised at about the same rate as other Australians in Victoria, at two to three times the rate of other Australians in New South Wales, Queensland, Western Australia and South Australia, and at almost six times the rate of other Australians in the Northern Territory.

Table 1.02.1: Hospitalisations (excluding dialysis), by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c][d]

	Indigenous				Other[e]				
	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Ratio[i]
NSW									
Males	31,536	316.3	311.1	321.6	1,746,399	266.2	265.8	266.6	1.2*
Females	40,063	359.1	354.5	363.7	2,056,593	291.8	291.4	292.2	1.2*
Persons	71,604	337.4	334.0	340.8	3,803,072	277.7	277.4	278.0	1.2*
Vic									
Males	5,266	255.8	245.6	266.0	1,504,389	306.0	305.5	306.5	0.8*
Females	7,273	293.9	285.5	302.4	1,896,343	355.2	354.7	355.7	0.8*
Persons	12,539	272.0	265.6	278.3	3,400,751	329.2	328.8	329.5	0.8*
Qld									
Males	32,164	386.0	379.9	392.0	1,112,409	294.2	293.7	294.8	1.3*
Females	44,523	427.4	422.1	432.6	1,324,338	334.3	333.7	334.9	1.3*
Persons	76,687	406.3	402.4	410.3	2,436,747	312.9	312.5	313.3	1.3*
WA									
Males	22,335	432.8	425.3	440.2	526,417	278.4	277.6	279.2	1.6*
Females	30,446	519.5	512.4	526.6	625,396	317.0	316.3	317.8	1.6*
Persons	52,781	477.0	471.9	482.1	1,151,814	296.1	295.5	296.6	1.6*
SA									
Males	8,245	432.6	420.3	444.9	459,659	292.8	291.9	293.6	1.5*
Females	10,972	486.9	475.7	498.0	549,642	328.8	327.9	329.7	1.5*
Persons	19,221	459.4	451.2	467.7	1,009,307	308.9	308.3	309.5	1.5*
NT									
Males	18,971	403.9	396.3	411.6	23,460	189.6	186.7	192.6	2.1*
Females	25,383	485.4	478.2	492.7	23,995	196.7	193.8	199.6	2.5*
Persons	44,354	444.7	439.5	450.0	47,455	194.2	192.1	196.3	2.3*
NSW, Vic, Qld, WA, SA and NT[d]									
Males	**118,517**	**366.1**	**363.1**	**369.0**	**5,372,733**	**285.0**	**284.8**	**285.3**	**1.3***
Females	**158,660**	**421.8**	**419.2**	**424.4**	**6,476,307**	**321.9**	**321.7**	**322.2**	**1.3***
Persons	**277,186**	**393.9**	**391.9**	**395.8**	**11,849,146**	**302.1**	**301.9**	**302.2**	**1.3***
Australia unadjusted[j]									
Males	121,578	359.0	356.2	361.9	5,600,715	285.4	285.2	285.7	1.3*
Females	162,624	413.6	411.0	416.2	6,742,671	321.9	321.6	322.1	1.3*
Persons	284,208	386.2	384.3	388.1	12,343,547	302.2	302.1	302.4	1.3*
Australia adjusted[j][k]									
Males	135,863	401.2	398.2	404.2	5,586,430	284.7	284.5	284.9	1.4*
Females	181,732	462.2	459.5	464.9	6,723,563	320.9	320.7	321.2	1.4*
Persons	317,603	431.6	429.6	433.6	12,310,152	301.4	301.2	301.6	1.4*

(continued)

Table 1.02.1 (continued): Hospitalisations (excluding dialysis), by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006).

(c) Financial year reporting.

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

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

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other.

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

(k) Australian hospitalisation numbers and rates have been adjusted for Indigenous under-identification using a national adjustment factor of 0.89. This factor was derived from a study undertaken by the AIHW in 2007 which assessed the level of Indigenous under-identification in hospital data in all states and territories by comparing information gathered from face-to face interviews in public hospitals with results from hospital records. By applying this factor, the number of Indigenous hospitalisations was increased by 11% and these additional hospitalisations then subtracted from the number of hospitalisations for Other Australians.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by principal diagnosis

Table 1.02.2 presents data on the most common principal diagnoses for hospitalisations involving Aboriginal and Torres Strait Islander peoples for the 2-year period July 2004 to June 2006 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- In absolute terms the most common principal diagnosis among Indigenous Australians was care involving dialysis (41%), followed by injury and poisoning (8%), pregnancy (8%), diseases of the respiratory system (7%) and diseases of the digestive system (5%). However, when the younger age structure of the Indigenous population is taken into account, circulatory disease becomes a significant cause of hospitalisation among Indigenous people. Diseases of the digestive system were the most common diagnosis for other Australians in these six jurisdictions, responsible for 12% of hospitalisations.
- Overall, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, Indigenous Australians were hospitalised at twice the rate of other Australians. Excluding dialysis, Indigenous Australians were hospitalised at 1.3 times the rate of other Australians.
- The greatest differences in rates between Indigenous and other Australians were for care involving dialysis, endocrine, nutritional and metabolic diseases, caused mainly by diabetes, and diseases of the respiratory system. Indigenous Australians were hospitalised at 11 times the rate of other Australians for dialysis and three times the rate of other Australians for endocrine, nutritional and metabolic diseases and respiratory diseases.

Table 1.02.2: Hospitalisations, by principal diagnosis and Indigenous status, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c][d]

	Number		Per cent		Indigenous			Other[e]			
Principal diagnosis	Indigenous	Other[e]	Indigenous	Other[e]	No. per 1,000[f]	95% UCL[g]	95% UCL[h]	No. per 1,000[f]	95% UCL[g]	95% UCL[h]	Ratio[i]
Injury & poisoning & certain other consequences of external causes	36,505	869,960	7.8	6.5	43.9	43.4	44.5	22.5	22.4	22.5	2.0*
Pregnancy, childbirth and the puerperium[j]	34,936	849,957	7.5	6.4	31.7	31.4	32.1	22.8	22.8	22.9	1.4*
Diseases of the respiratory system	30,604	607,720	6.5	4.6	45.2	44.5	45.9	15.7	15.7	15.8	2.9*
Diseases of the digestive system	25,059	1,529,651	5.4	11.5	36.9	36.4	37.5	38.9	38.9	39.0	0.9*
Symptoms, signs and abnormal clinical and laboratory findings	20,286	831,397	4.3	6.2	32.3	31.7	32.9	21.1	21.0	21.1	1.5*
Mental and behavioural disorders	19,709	537,945	4.2	4.0	24.6	24.2	25.0	13.9	13.8	13.9	1.8*
Diseases of the circulatory system	15,314	857,107	3.3	6.4	35.4	34.7	36.1	21.2	21.2	21.3	1.7*
Diseases of the genitourinary system	12,248	680,026	2.6	5.1	20.0	19.5	20.4	17.4	17.3	17.4	1.2*
Diseases of the skin & subcutaneous tissue	10,897	220,754	2.3	1.7	13.3	13.0	13.6	5.6	5.6	5.7	2.4*
Certain infectious and parasitic diseases	9,708	166,930	2.1	1.3	9.8	9.5	10.1	4.4	4.4	4.4	2.2*

(continued)

Table 1.02.2 (continued): Hospitalisations, by principal diagnosis and Indigenous status, NSW, Vic, Qld, WA, SA and NT, July 2004–June 2006[(a)(b)(c)(d)]

	Number		Per cent		Indigenous			Other[(e)]			
Principal diagnosis	**Indigenous**	**Other[(e)]**	**Indigenous**	**Other[(e)]**	**No. per 1,000[(f)]**	**95% UCL[(g)]**	**95% UCL[(h)]**	**No. per 1,000[(f)]**	**95% UCL[(g)]**	**95% UCL[(h)]**	**Ratio[(i)]**
Endocrine, nutritional and metabolic diseases	9,030	232,477	1.9	1.7	18.7	18.2	19.1	5.9	5.8	5.9	3.2*
Other[(k)]	52,890	4,465,222	11.3	33.5	82.0	81.0	82.9	112.7	112.6	112.8	0.7*
Total	*277,186*	*11,849,146*	*59.3*	*89.0*	*393.9*	*391.9*	*395.8*	*302.1*	*301.9*	*302.2*	*1.3**
Care involving dialysis	190,489	1,461,917	40.7	11.0	402.0	399.9	404.0	36.5	36.4	36.5	11.0*
Total[(l)]	**467,822**	**13,315,716**	**100.0**	**100.0**	**796.1**	**793.3**	**798.9**	**338.7**	**338.5**	**338.9**	**2.4***

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised and are for New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland only. These six jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital.

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

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other.

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

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

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

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by additional diagnosis

Table 1.02.3 presents hospitalisations for selected principal diagnoses by additional diagnoses, for Aboriginal and Torres Strait Islander peoples in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- For the 2-year period July 2004 to June 2006, the majority of hospitalisations with a principal diagnosis of care involving dialysis were reported with an additional diagnosis of diseases of the genitourinary system (78%) followed by endocrine, metabolic and nutritional disorders (19%).
- Approximately 24% of hospitalisations with a principal diagnosis of injury and poisoning were reported with an additional diagnosis of mental and behavioural disorders and to a lesser extent with endocrine, metabolic and nutritional disorders (11%).
- Hospitalisations with a principal diagnosis of circulatory diseases were most commonly reported with an additional diagnosis of endocrine, metabolic and nutritional diseases (50%).
- Hospitalisations with a principal diagnosis of infectious and parasitic diseases, respiratory diseases, diseases of the digestive system, and skin diseases were all commonly reported with an additional diagnosis of endocrine, metabolic and nutritional disorders (39%, 22%, 20% and 19% respectively).
- Hospitalisations with a principal diagnosis of endocrine, nutritional and metabolic diseases were commonly reported with an additional diagnosis of diseases of the circulatory system (50%).

Table 1.02.3: Hospitalisations of Indigenous persons: principal diagnosis chapter by additional diagnosis chapter of hospitalisation, NSW, Vic, Qld, WA, SA, and NT, July 2004 to June 2006[(a)(b)(c)(d)]

Additional diagnosis of hospitalisation	Principal diagnosis														
	Dialysis (Z49)	Injury & poisoning (S00-Y98)	Pregnancy (O00-O99)	Respiratory (J00-J99)	Digestive (K00-K93)	Abnormal findings (R00-R99)	Mental disorders (F00-F99)	Circulatory (I00-I99)	Genito -urinary (N00-N99)	Skin (L00-L99)	Infectious (A00-B99)	Endocrine (E00-E90)	Other[(e)]	*Total (excl. dialysis)*	Total[(f)]
	Per cent														
Genitourinary diseases (N00–N99)	78.3	5.3	4.4	7.6	6.8	7.9	2.3	18.0	26.2	5.8	14.3	40.1	6.9	8.9	37.2
Endocrine, nutritional & metabolic (E00–E90)	18.5	11.2	3.1	21.8	20.4	23.2	9.8	50.3	22.2	19.0	39.4	60.5	14.2	19.1	18.8
Diseases of the circulatory system (I00–I99)	4.1	8.3	2.0	16.5	14.9	19.3	5.2	64.3	15.6	11.6	9.9	49.8	11.7	15.2	10.7
Mental and behavioural disorders (F00–F99)	0.1	23.5	4.8	12.2	19.8	16.3	51.8	12.8	6.7	9.1	6.8	12.2	9.0	15.4	9.2
Symptoms, signs and abnormal findings (R00–R99)	0.2	7.3	5.7	11.1	9.3	16.4	15.2	13.6	9.5	6.8	16.0	15.5	8.8	10.2	6.1
Infectious and parasitic diseases (A00–B99)	0.0	8.4	5.9	12.9	7.7	5.3	3.4	7.1	22.5	39.9	20.4	16.7	7.0	10.1	6.0

(continued)

Table 1.02.3 (continued): Hospitalisations of Indigenous persons: principal diagnosis chapter by additional diagnosis chapter of hospitalisation, NSW, Vic, Qld, WA, SA, and NT, July 2004 to June 2006[(a)(b)(c)(d)]

Additional diagnosis of hospitalisation	Principal diagnosis														
	Dialysis (Z49)	Injury & poisoning (S00-Y98)	Pregnancy (O00-O99)	Respiratory (J00-J99)	Digestive (K00-K93)	Abnormal findings (R00-R99)	Mental disorders (F00-F99)	Circulatory (I00-I99)	Genito -urinary (N00-N99)	Skin (L00-L99)	Infectious (A00-B99)	Endocrine (E00-E90)	Other[(e)]	*Total (excl. dialysis)*	Total[(f)]
	Per cent														
Injury & poisoning (S00-Y98)	0.1	41.4	0.8	2.1	2.8	2.4	6.4	4.2	3.2	17.0	3.4	6.7	6.4	9.3	5.5
Respiratory diseases (J00-J99)	0.1	4.1	2.8	20.9	6.3	6.6	3.5	15.2	5.8	3.9	13.1	10.0	6.0	7.7	4.6
Digestive diseases (K00-K93)	0.0	3.4	2.6	5.0	27.2	8.6	4.3	8.0	6.2	3.4	7.4	9.5	5.8	7.3	4.3
Pregnancy, childbirth (O00-O99)	0.0	0.2	55.7	0.1	0.1	0.2	0.2	0.1	0.3	0.0	0.1	0.0	0.6	7.2	4.3
Skin diseases (L00-L99)	0.0	3.8	0.6	2.9	2.0	1.8	1.4	3.0	2.4	17.0	9.1	14.2	3.1	3.6	2.1
Care involving dialysis (Z49)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.3	0.0	0.1	0.0
Other[(e)]	4.7	39.5	73.9	43.5	46.3	47.8	59.3	68.3	47.8	44.8	39.4	70.9	57.6	53.6	33.7
Total number[(g)]	**190,489**	**36,505**	**34,936**	**30,604**	**25,059**	**20,286**	**19,709**	**15,314**	**12,248**	**10,897**	**9,708**	**9,030**	**52,890**	**277,186**	**467,822**

(continued)

Table 1.02.3 (continued): Hospitalisations of Indigenous persons: principal diagnosis chapter by additional diagnosis chapter of hospitalisation, NSW, Vic, Qld, WA, SA, and NT, July 2004 to June 2006[(a)(b)(c)(d)]

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006).

(c) Financial year reporting.

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

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

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

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

Note: Sum of components may exceed 100% as more than one additional diagnosis can be reported for each hospitalisation.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

All hospitalisations

Time series data are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations for all years from 1998–99 to 2005–06—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population. New South Wales and Victoria were identified as having adequate identification of Indigenous hospitalisations from 2004–05 onwards, therefore they were included as part of the current period analysis (2004–05 to 2005–06) but not as part of the time series analyses.

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians over the period 1998–99 to 2005–06 are presented in Table 1.02.4 and Figure 1.02.2.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates among Indigenous males and females during the 7-year period 1998–99 to 2005–06. The fitted trend implies an average yearly increase in the rate of around 48 per 1,000 for Indigenous persons which is equivalent to a 46% increase in the rate over the period.
- There were also significant increases in hospitalisation rates among other Australian males and females during the same period, with an average yearly increase in the rate of 4 per 1,000 for other Australians. This is equivalent to a 9% increase in the rate over the period.
- There were significant increases in the hospitalisation rate ratios and rate differences between Indigenous and other Australians. The fitted trend implies an average yearly increase of 0.1 in the rate ratio (34% increase over the period) and 44 per 1,000 in the hospitalisation rate differences between Indigenous and other Australians in the 7-year period 1998–99 to 2005–06 (76% increase). This indicates a relative and absolute increase in the gap between hospitalisation rates for Indigenous and other Australians.

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

Table 1.02.4: Age-standardised hospitalisation rates, rate ratios and rate differences, Qld, WA, SA and NT, 1998–99 to 2005–06[a]

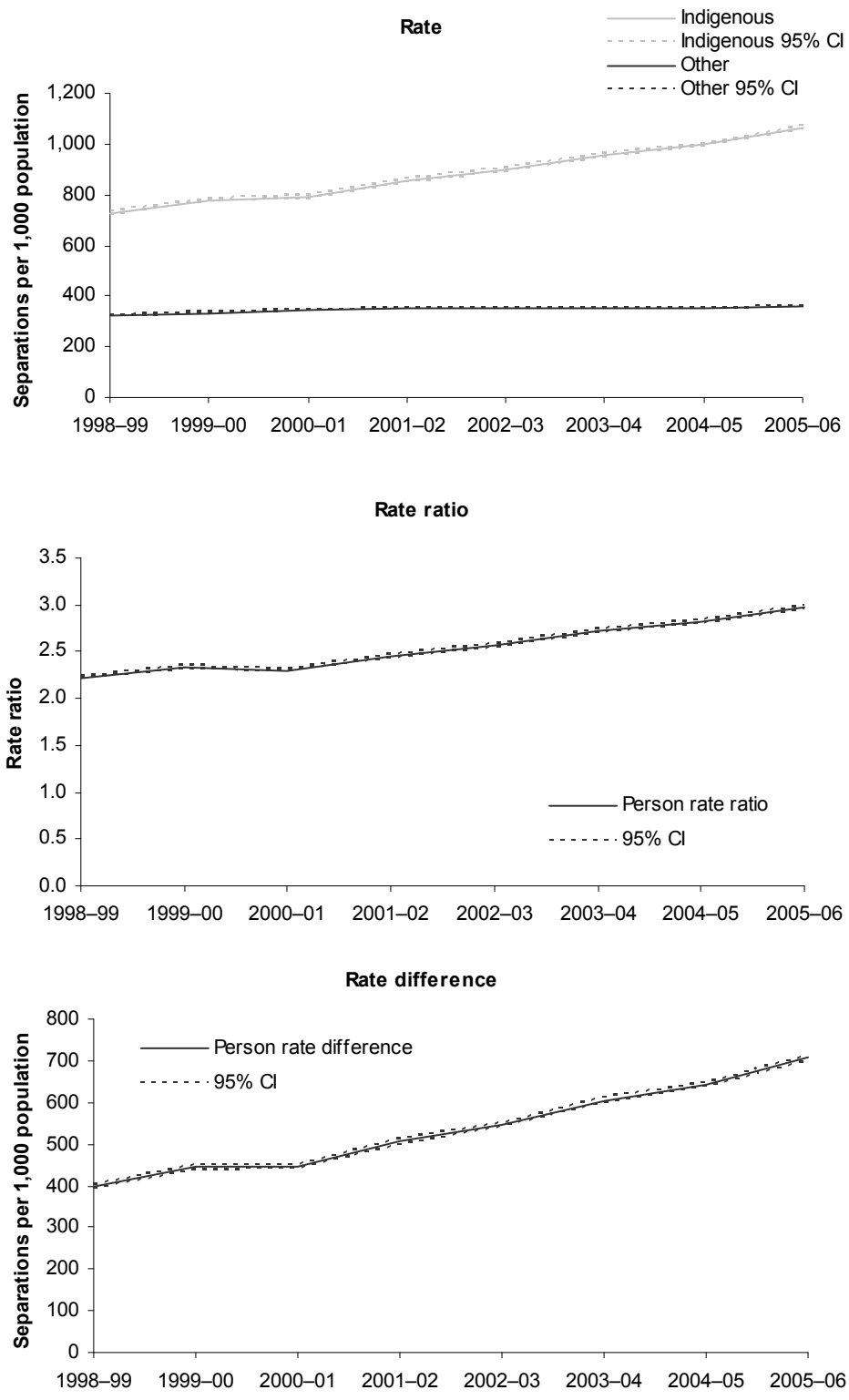
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[b]	% change over period[c]
Indigenous rate (separations per 1,000)										
Males	648.8	661.6	648.8	734.5	734.5	840.1	893.4	949.7	44.6*	48.1
Females	797.7	882.8	797.7	961.1	961.1	1,063.9	1,089.8	1,167.2	50.2*	44.1
Persons	726.0	777.9	726.0	854.8	854.8	957.3	995.8	1,064.1	47.6*	45.9
Other Australian[d] rate (separations per 1,000)										
Males	318.1	324.9	318.1	338.6	338.6	342.9	343.8	348.1	4.0*	8.7
Females	339.5	347.0	339.5	364.2	364.2	366.3	366.3	370.6	4.1*	8.4
Persons	326.5	333.7	326.5	349.4	349.4	352.5	352.8	357.1	4.0*	8.6
Rate ratio[e]										
Males	2.0	2.0	2.0	2.2	2.2	2.4	2.6	2.7	0.1*	36.2
Females	2.3	2.5	2.3	2.6	2.6	2.9	3.0	3.1	0.1*	32.6
Persons	2.2	2.3	2.2	2.4	2.4	2.7	2.8	3.0	0.1*	34.1
Rate difference[f]										
Males	330.7	336.8	330.7	396.0	396.0	497.2	549.6	601.6	40.6*	86.0
Females	458.2	535.8	458.2	596.9	596.9	697.6	723.5	796.6	46.2*	70.5
Persons	399.5	444.2	399.5	505.4	505.4	604.8	643.0	707.0	43.6*	76.4

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2005–06.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory.
(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(c) Per cent change between 1998–99 and 2005–06 based on the average annual change over the period.
(d) 'Other' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for other Australians.
(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.02.2: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians, Qld, WA, SA and NT, 1998–99 to 2005–06

All hospitalisations excluding dialysis

Hospitalisation rates, rate ratios and rate differences (excluding dialysis) between Indigenous and other Australians over the period 1998–99 to 2005–06 are presented in Table 1.02.5 and Figure 1.02.3.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates among Indigenous males and females during the 7-year period 1998–99 to 2005–06. The fitted trend implies an average yearly increase in the rate of around 5 per 1,000 for Indigenous persons. This is equivalent to a 7% increase in the rate over the period.
- There were also significant increases in hospitalisation rates among other Australian males and females during the same period, with an average yearly increase in the rate of 2 per 1,000 for other Australian persons. This is equivalent to a 4% increase in the rate over the period.
- There were significant increases in the hospitalisation rate ratios between Indigenous males and other males—the fitted trend implies an average yearly increase of 0.01 per 1,000 in the 7-year period 1998–99 to 2005–06 (7% increase). Over the same period, there were no significant changes in the rate ratios for females or persons overall.
- There were significant increases in the hospitalisation rate differences between Indigenous and other Australians. The fitted trend implies an average yearly increase of 3 per 1,000 in the hospitalisation rate differences between Indigenous and other Australians in the 7-year period 1998–99 to 2005–06 (13% increase over the period).

Table 1.02.5: Age-standardised hospitalisation rates, rate ratios and rate differences (excluding dialysis), Qld, WA, SA and NT, 1998–99 to 2005–06[a]

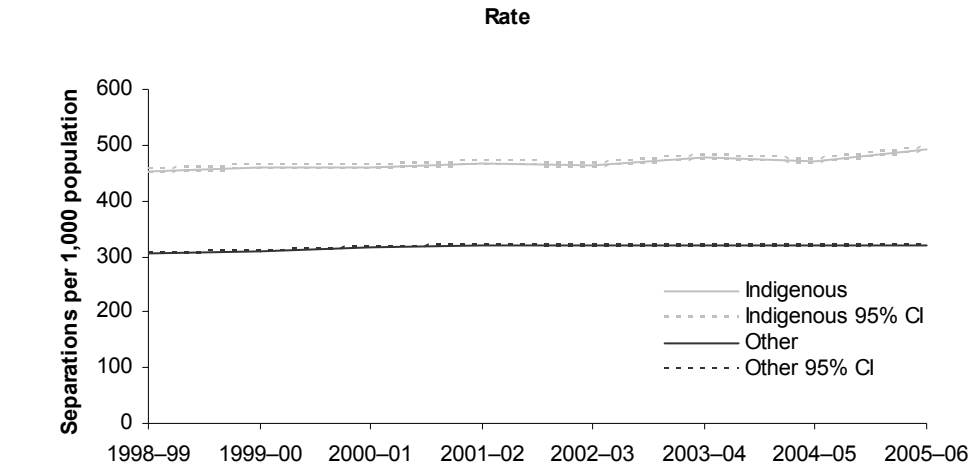
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[b]	% change over period[c]
Indigenous rate (separations per 1,000)										
Males	392.8	398.9	392.7	400.6	402.0	423.7	412.1	434.6	5.4*	9.6
Females	507.2	515.2	520.3	529.8	523.8	533.0	525.1	545.6	4.2*	5.8
Persons	451.8	459.0	458.4	467.6	464.6	479.1	469.5	490.9	4.6*	7.1
Other Australian[d] rate (separations per 1,000)										
Males	290.9	295.3	300.8	304.0	299.7	299.7	299.4	301.6	1.0*	2.5
Females	322.5	328.4	335.7	341.3	339.5	339.8	340.1	343.3	2.6*	5.6
Persons	304.7	310.0	316.6	321.1	318.1	318.2	318.2	320.9	1.9*	4.3
Rate ratio[e]										
Males	1.4	1.4	1.3	1.3	1.3	1.4	1.4	1.4	0.01*	6.9
Females	1.6	1.6	1.5	1.6	1.5	1.6	1.5	1.6	—	0.2
Persons	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	0.01	2.7
Rate difference[f]										
Males	101.8	103.6	91.9	96.6	102.3	124.0	112.7	133.0	4.4*	29.9
Females	184.8	186.9	184.6	188.5	184.2	193.2	185.0	202.3	1.6*	6.1
Persons	147.1	149.0	141.9	146.6	146.6	161.0	151.3	170.0	2.7*	13.0

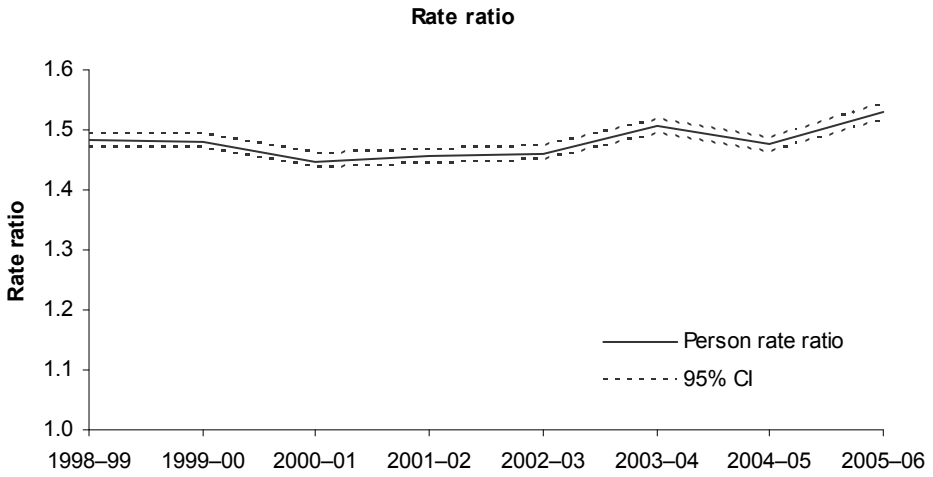
* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2005–06.

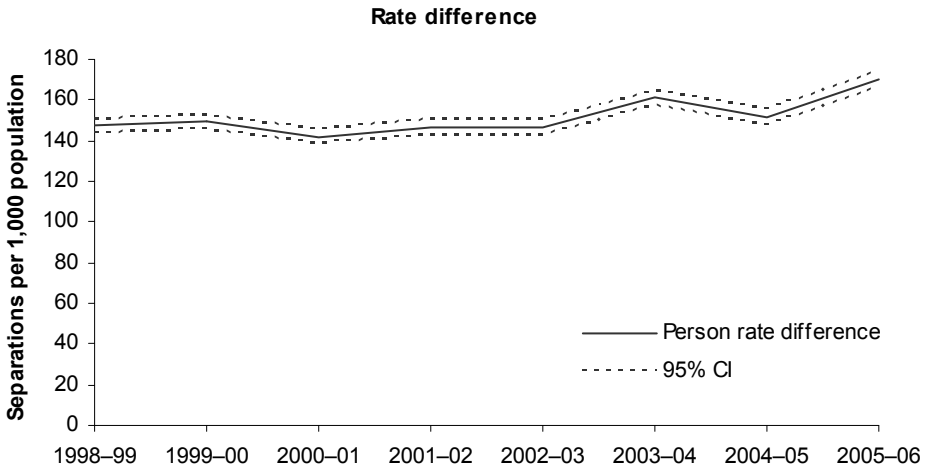
(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory.
(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(c) Per cent change between 1998–99 and 2005–06 based on the average annual change over the period.
(d) 'Other' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for other Australians.
(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of National Hospital Morbidity Database.







Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.02.3: Hospitalisation rates, rate ratios and rate differences (excluding dialysis) between Indigenous and other Australians, Qld, WA, SA and NT, 1998–99 to 2005–06

Sensitivity of hospitalisation trends to changes in identification

- The fitted trends described above have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for identification were posted—constant identification, increasing identification and decreasing identification:
  - Under the constant identification scenario, the number of hospitalisations for the period under study was adjusted using the following identification factors:
    - Queensland 87%
    - Western Australia 97%
    - South Australia 82%
    - Northern Territory 96%.
  - Under the increasing identification scenario, hospitalisations were adjusted by linearly increasing the identification through the period under study—from 82% in 1998–99 to 87% in 2005–06 for Queensland, from 95% to 97% for Western Australia, from 76% to 82% for South Australia, and from 94% to 96% for the Northern Territory.
  - Under the decreasing identification scenario, hospitalisations were adjusted by linearly decreasing the identification from 92% in 1998–99 to 87% in 2005–06 for Queensland, from 99% to 97% for Western Australia, from 88% to 82% for South Australia, and from 98% to 96% for the Northern Territory.
- The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; of course, if any actual shift in identification was more extreme than has been posted under these scenarios, then the observed trends in hospitalisations might not persist.
- For all hospitalisations including dialysis, the increases in hospitalisation rates, rate ratios and rate differences during the period 1998–99 to 2005–06 remained significant under all three identification scenarios.
- For all hospitalisations excluding dialysis, all the observed significant increases in hospitalisation rates, rate ratios and rate differences during the period 1998–99 to 2005–06 remained statistically significant under the constant identification scenario. All the observed significant trends except the increase in the rate for other males remained significant under the decreasing identification scenario. Only the observed increases in other Australian hospitalisation rates and hospitalisation rates for Indigenous males remained statistically significant under the increasing identification scenario.

Time series by principal diagnosis

Hospitalisation rates by principal diagnosis were compared for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations for all years from 1998–99 to 2005–06—Queensland, Western Australia, South Australia and the Northern Territory.

- Hospitalisation rates among Indigenous Australians for most principal diagnoses for the period June 1998 to July 2000 were similar to those for the period June 2004 to July 2006. Hospitalisation rates of Indigenous Australians for care involving dialysis; symptoms, signs and abnormal clinical findings; diseases of the digestive system; and endocrine, nutritional and metabolic diseases increased between the two periods. Hospitalisation rates of Indigenous Australians for mental and behavioural disorders declined between the two periods (Table 1.02.6).

Table 1.02.6: Hospitalisations, by principal diagnosis and Indigenous status, Qld, WA, SA and NT, July 1998 to June 2000 and July 2004 to June 2006[(a)(b)(c)(d)]

	1998–99 to 1999–00			2004–05 to 2005–06		
Principal diagnosis	**Indigenous no. per 1,000[(f)]**	**Other[(e)] no. per 1,000[(f)]**	**Ratio[(g)]**	**Indigenous no. per 1,000[(f)]**	**Other[(e)] no. per 1,000[(f)]**	**Ratio[(g)]**
Injury & poisoning & certain other consequences of external causes	51.4	22.7	2.3*	51.1	22.5	2.3*
Pregnancy, childbirth and the puerperium	34.0	21.4	1.6*	34.6	23.1	1.5*
Diseases of the respiratory system	54.1	17.0	3.2*	52.1	15.7	3.3*
Diseases of the digestive system	34.2	37.5	0.9*	39.0	39.3	1.0
Symptoms, signs and abnormal clinical and laboratory findings	20.3	12.7	1.6*	34.1	19.6	1.7*
Mental and behavioural disorders	27.1	16.3	1.7*	21.8	12.6	1.7*
Diseases of the circulatory system	36.7	22.7	1.6*	39.4	20.5	1.9*
Diseases of the genitourinary system	25.0	18.2	1.4*	22.4	17.0	1.3*
Diseases of the skin & subcutaneous tissue	19.1	5.9	3.2*	16.9	6.1	2.8*
Certain infectious and parasitic diseases	12.7	4.6	2.8*	12.0	4.1	2.9*
Endocrine, nutritional and metabolic diseases	15.8	3.4	4.7*	23.5	5.9	4.0*
Other[(h)]	124.8	114.8	1.1*	88.4	119.0	0.7*
Total	*455.4*	*297.2*	*1.5**	*435.3*	*305.4*	*1.4**
Care involving dialysis	296.9	22.4	13.3*	550.1	35.5	15.5*
Total[(i)]	**752.3**	**319.5**	**2.4***	**985.4**	**340.9**	**2.9***

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006).

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised and are for Queensland, Western Australia, South Australia and the Northern Territory only. These four jurisdictions are considered to have adequate levels of Indigenous identification from 1998–99, although the level of accuracy varies by jurisdiction and hospital. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Hospitalisation data for these four jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions.

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

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

(g) Rate ratio Indigenous:other.

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

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

Source: AIHW analysis of National Hospital Morbidity Database.

Data quality issues

Hospital separations data

Separations

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

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections. The 'not stated' category is missing from several collections. It is recommended that the standard wording and categories be used in all jurisdictions (AIHW 2005).

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander peoples. 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 2007). 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 (AIHW unpublished data). It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. The proportion of the Indigenous population covered by these six jurisdictions is 96%. The following caveats have also been recommended for analysis of hospitalisation data from selected jurisdictions (ABS & AIHW 2005):

- *Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from Western Australia and the Northern Territory and relatively marked Indigenous under-identification in data from South Australia and Victoria).*
- *Data for these six jurisdictions over-represent Indigenous populations in less urbanised and more remote locations.*
- *Hospitalisation data for these six jurisdictions are not necessarily representative of the jurisdictions not included.*

From the AIHW study it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level.

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 hospital 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 to 2009 *(ABS 2004).*

References

ABS (Australian Bureau of Statistics) 2004. Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2009. ABS cat. no. 3238.0. Canberra: ABS.

ABS & AIHW (Australian Institute of Health and Welfare) 2005. The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2005. ABS cat. no. 4704.0, Cat. no. IHW 14. Canberra: ABS & AIHW.

AIHW 2005. Improving the quality of Indigenous identification in hospital statistics. Health services series no. 25. Cat. no. HSE 101. Canberra: AIHW.

AIHW 2007. Australian hospital statistics 2005–06. Health services series no. 30. Cat. no. HSE 50. Canberra: AIHW.

National Centre for Classification in Health 2006 International statistical classification of diseases and related health problems, 10th revision, Australian modification. 5th edition. National Centre for Classification in Health.

1.03 Hospitalisation for injury and poisoning

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

Data sources

Data for this measure come from the AIHW National Hospital Morbidity Database, the ABS mortality unit record data collection, and the National Aboriginal and Torres Strait Islander Health Survey.

Hospitalisations

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

Data are presented for the six jurisdictions which have been assessed by the AIHW as having adequate identification of Indigenous hospitalisations in 2004–05—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. These six jurisdictions represent approximately 96% of the Indigenous population of Australia. Data are presented by state/territory of usual residence of the patient.

Hospitalisations for which the Indigenous status of the patient was not reported have been included with hospitalisations data for non-Indigenous people under the 'other' category. This is to enable consistency across jurisdictions, as public hospitals in some states and territories do not have a category for the reporting of 'not stated' or inadequately recorded/reported Indigenous status.

Hospitalisation data are presented for the 2-year period July 2004 to June 2006. An aggregate of 2 years of data has been used, as the number of hospitalisations for some conditions is likely to be small for a single year.

The principal diagnosis is the diagnosis established to be the problem that was chiefly responsible for the patient's episode of care in hospital. The additional diagnosis is a condition or complaint either coexisting with the principal diagnosis or arising during the episode of care. The term 'hospitalisation' has been used to refer to a separation which is the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending a change in a type of care (for example, from acute to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

Mortality data

Mortality data in this report are from the ABS mortality unit record data collection. Data are presented according to the year in which the deaths occurred.

Data are presented for the four jurisdictions which have been assessed as having adequate identification of Indigenous deaths for the period 1999–00 to 2003–04—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous population of Australia.

Deaths for which Indigenous status was not reported have been included with deaths data for non-Indigenous people under the 'other' category.

Because of small case numbers, mortality data are presented for the 5-year period 1999–00 to 2003–2004.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The 2004–05 NATSIHS collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians about health-related issues including health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. It is planned to repeat the NATSIHS at 6-yearly intervals, with the next NATSIHS to be conducted in 2010–11. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

Analyses

Age-standardised rates and ratios have been used as a measure of hospitalisations 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.

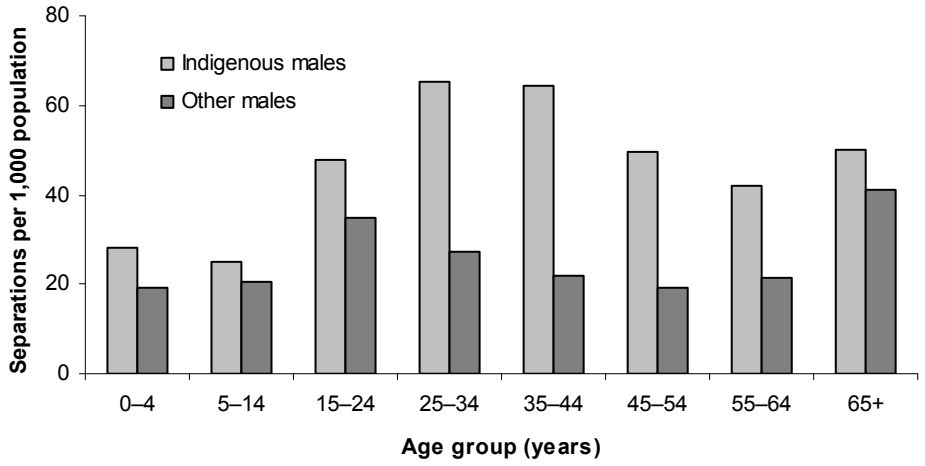
Hospitalisations

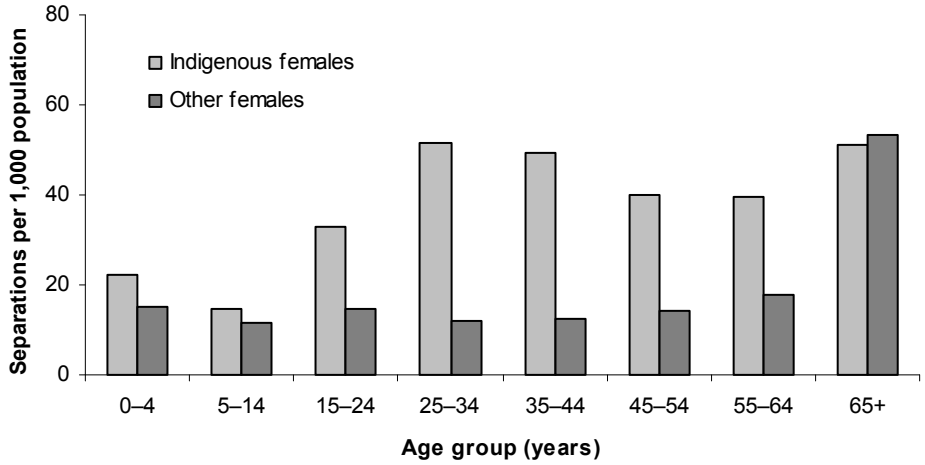
- In the 2-year period July 2004 to June 2006, there were 906,465 hospitalisations for injury and poisoning in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, 36,505 (4.0%) of which were hospitalisations of Aboriginal and Torres Strait Islander peoples (Table 1.03.1).
- Hospitalisations for injury and poisoning were the second most common principal diagnosis at the ICD-10-AM chapter level among Aboriginal and Torres Strait Islander Australians, representing 8% of all hospital separations.

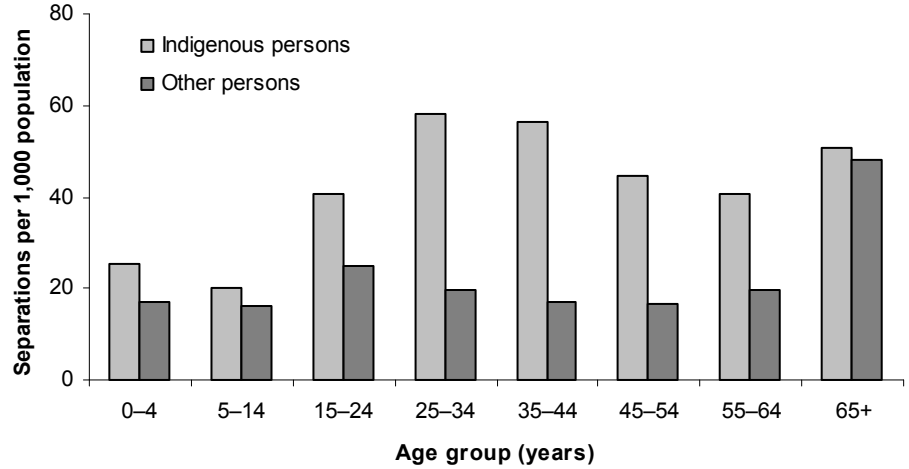
Hospitalisations by age and sex

- For the 2-year period July 2004 to June 2006, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males had higher hospitalisation rates for injury and poisoning than other males across all age groups. Indigenous females had higher hospitalisation rates for injury and poisoning than other females across all age groups, except among those aged 65 years and over (Figure 1.03.1).
- The greatest difference in hospitalisation rates occurred in the 35–44 and 45–54 year age groups for males, and the 25–34 and 35–44 year age groups for females. Indigenous males were hospitalised at around three times the rate of other males in these age groups and Indigenous females were hospitalised at around four times the rate of other females in these age groups.

- For Indigenous males and females, hospitalisation rates were highest among those aged 25–34 years, and for other males and females, rates were highest among those aged 65 years and over.
- Approximately 56% of Indigenous Australians hospitalised for injury and poisoning were males (20,507) and 44% were females (15,998).







Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.03.1: Age-specific hospitalisation rates for a principal diagnosis of injury and poisoning, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006

Hospitalisations by state/territory

Table 1.03.1 presents hospitalisations for a principal diagnosis of injury and poisoning for the 2-year period July 2004 to June 2006 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. As well as rates and ratios for the six jurisdictions which have been assessed as having adequate identification of Indigenous hospitalisations in 2004–05, unadjusted and adjusted national level data are also presented in the table. The Australia data are adjusted by applying a completeness factor of 89.4%, which is an estimate of the level of Indigenous under-identification in hospital separations data.

- Over the period July 2004 to June 2006, Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised for injury at about twice the rate of other Australians in these jurisdictions.
- When hospital rates are adjusted at the national level for Indigenous under-identification, Indigenous Australians were hospitalised for injury and poisoning at 2.1 times the rate of other Australians.
- In New South Wales and Victoria, Indigenous people were hospitalised for injury and poisoning at around 1.5 times the rate of other Australians. In Queensland and South Australia, Indigenous people were hospitalised for injury and poisoning at around twice the rate of other Australians. In Western Australia and the Northern Territory, Indigenous people were hospitalised at three times the rate of other Australians.

Table 1.03.1: Hospitalisations for principal diagnosis of injury and poisoning, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c][d]

	Indigenous				Other[e]				
	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Ratio[i]
NSW									
Males	4,937	37.4	35.9	38.8	170,951	26.2	26.1	26.4	1.4*
Females	3,332	27.5	26.2	28.7	129,240	17.9	17.8	18.0	1.5*
Persons[j]	8,269	32.4	31.5	33.3	300,199	22.2	22.2	22.3	1.5*
Vic									
Males	877	34.4	31.0	37.9	127,669	25.9	25.7	26.0	1.3*
Females	614	24.2	21.8	26.6	104,430	19.2	19.0	19.3	1.3*
Persons[j]	1,491	28.8	26.9	30.8	232,101	22.7	22.6	22.8	1.3*
Qld									
Males	5,760	48.1	46.4	49.8	107,998	28.3	28.2	28.5	1.7*
Females	4,100	34.8	33.4	36.2	73,979	18.6	18.5	18.8	1.9*
Persons[j]	9,860	41.2	40.1	42.3	181,977	23.6	23.5	23.7	1.7*
WA									
Males	4,152	66.3	63.8	68.8	47,009	24.4	24.2	24.6	2.7*
Females	3,638	58.1	55.9	60.3	34,103	17.2	17.0	17.4	3.4*
Persons[j]	7,790	62.1	60.4	63.8	81,112	21.0	20.8	21.1	3.0*
SA									
Males	1,342	54.0	50.5	57.6	37,964	25.1	24.8	25.3	2.2*
Females	1,113	43.4	40.4	46.4	31,317	18.2	18.0	18.4	2.4*
Persons[j]	2,455	48.5	46.2	50.8	69,281	21.8	21.6	22.0	2.2*
NT									
Males	3,439	63.3	60.6	65.9	3,586	25.4	24.5	26.4	2.5*
Females	3,201	59.5	57.1	61.9	1,704	15.3	14.5	16.2	3.9*
Persons[j]	6,640	61.4	59.6	63.2	5,290	20.7	20.0	21.3	3.0*
NSW, Vic, Qld, WA, SA and NT[d]									
Males	**20,507**	**48.9**	**48.0**	**49.8**	**495,177**	**26.3**	**26.2**	**26.3**	**1.9***
Females	**15,998**	**39.1**	**38.4**	**39.9**	**374,773**	**18.3**	**18.3**	**18.4**	**2.1***
Persons[j]	**36,505**	**43.9**	**43.4**	**44.5**	**869,960**	**22.5**	**22.4**	**22.5**	**2.0***
Australia unadjusted[k]									
Males	21,013	47.9	47.0	48.7	518,551	26.4	26.4	26.5	1.8*
Females	16,289	38.1	37.4	38.8	391,826	18.4	18.4	18.5	2.1*
Persons[j]	37,302	42.9	42.4	43.5	910,388	22.6	22.5	22.6	1.9*
Australia adjusted[k][l]									
Males	23,482	53.5	52.6	54.4	516,082	26.3	26.2	26.4	2.0*
Females	18,203	42.6	41.8	43.3	389,912	18.3	18.3	18.4	2.3*
Persons[j]	41,685	48.0	47.4	48.5	906,005	22.5	22.4	22.5	2.1*

(continued)

Table 1.03.1 (continued): Hospitalisations for principal diagnosis of injury and poisoning, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

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

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

(b) Categories are based on ICD-10-AM fifth edition (National Centre for Classification in Health 2006); ICD-10-AM codes S00–T98.

(c) Financial year reporting.

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

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

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other.

(j) Includes hospitalisations for which sex was indeterminate or not stated.

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

(l) Australian hospitalisation numbers and rates have been adjusted for Indigenous under-identification using a national adjustment factor of 0.89. This factor was derived from a study undertaken by the AIHW in 2007 which assessed the level of Indigenous under-identification in hospital data in all states and territories by comparing information gathered from face-to face interviews in public hospitals with results from hospital records. By applying this factor, the number of Indigenous hospitalisations was increased by 11% and these additional hospitalisations then subtracted from the number of hospitalisations for Other Australians.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by principal diagnosis

Type of injury

Table 1.03.2 presents hospitalisations for a principal diagnosis of injury and poisoning and certain other consequences of external causes by type of injury for the 2-year period July 2004 to June 2006 for the six jurisdictions.

- For the period 2004–05 to 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of all hospitalisations with a principal diagnosis of injury and poisoning, injuries were the most common reason for hospitalisation among Aboriginal and Torres Strait Islander peoples (77%) followed by complications of medical and surgical care not elsewhere classified (10%).
- Indigenous males and females were hospitalised at between two and three times the rate of other males and females for burns and frostbite and 'other and unspecified effects of external causes (such as radiation, hypothermia, maltreatment syndromes) and certain early complications of trauma'.

Table 1.03.2: Hospitalisations of Indigenous persons for principal diagnosis of injury and poisoning and certain other consequences of external causes, by type of injury and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c][d]

	Males						Females						Persons[e]					
Principal diagnosis	**No.**	**%[f]**	**No. per 1,000[g]**	**LCL 95%[h]**	**UCL 95%[i]**	**Ratio[j]**	**No.**	**%[f]**	**No. per 1,000[g]**	**LCL 95%[h]**	**UCL 95%[i]**	**Ratio[j]**	**No.**	**%[f]**	**No. per 1,000[g]**	**LCL 95%[h]**	**UCL 95%[i]**	**Ratio[j]**
Injuries (S00–T19)	16,405	80.0	37.4	36.7	38.2	1.9*	11,684	73.0	27.7	27.0	28.3	2.3*	28,089	76.9	32.5	32.0	33.0	2.0*
Complications of surgical & medical care n.e.c (T80–T89)	1,744	8.5	6.2	5.8	6.6	1.6*	1,833	11.5	6.1	5.8	6.4	1.8*	3,577	9.8	6.1	5.9	6.4	1.7*
Poisoning (T36–T50)	817	4.0	1.9	1.8	2.1	1.8*	1,427	8.9	3.2	3.0	3.4	1.8*	2,244	6.1	2.6	2.5	2.7	1.8*
Other and unspecified effects of external causes/ Certain early complications of trauma (T66–T79)	486	2.4	1.2	1.0	1.3	2.4*	431	2.7	1.0	0.8	1.1	2.5*	917	2.5	1.1	1.0	1.2	2.5*
Burns and frostbite (T20–T35)	673	3.3	1.4	1.3	1.6	3.0*	367	2.3	0.7	0.6	0.8	2.9*	1,040	2.8	1.0	0.9	1.1	2.9*
Toxic effects of substances chiefly non-medicinal (T51–T65)	381	1.9	0.8	0.7	0.9	1.8*	256	1.6	0.5	0.4	0.6	1.9*	637	1.7	0.6	0.6	0.7	1.8*
Total[k]	**20,507**	**100.0**	**48.9**	**48.0**	**49.8**	**1.9***	**15,998**	**100.0**	**39.1**	**38.4**	**39.9**	**2.1***	**36,505**	**100.0**	**43.9**	**43.4**	**44.5**	**2.0***

(continued)

Table 1.03.2 (continued): Hospitalisations of Indigenous persons for principal diagnosis of injury and poisoning, by type of injury and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006); Cause of injury is based on the first reported external causes where the principle diagnosis was 'injury, poisoning and certain other consequences of external causes'; ICD-10-AM codes S00–T98.

(c) Financial year reporting.

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

(e) Includes hospitalisations for which sex was indeterminate or not stated.

(f) Proportion of male, female and total hospitalisations of Indigenous persons in the period 2004–05 to 2005–06.

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

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio Indigenous:other.

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

Source: AIHW analysis of National Hospital Morbidity database.

External cause of injury and poisoning

Table 1.03.3 presents external causes of injury and poisoning for Aboriginal and Torres Strait Islander peoples in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory with a principal diagnosis of injury, poisoning and other consequences of external causes.

- In the 2-year period July 2004 to June 2006, assault was the most common cause for hospitalisation for Indigenous males and females hospitalised with a principal diagnosis of injury and poisoning (22% and 32% respectively) in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.
- Aboriginal and Torres Strait Islander males and females were 8 and 35 times more likely to be hospitalised for injuries due to assault as other males and females respectively.
- Indigenous males were hospitalised for intentional self-harm at more than twice the rate of other males.
- Indigenous males and females were around 2.5 times as likely to be hospitalised for exposure to electrical currents, smoke, fire, animals or nature as other males and females.

Table 1.03.3: External causes for hospitalisations of Indigenous persons with a principal diagnosis of injury and poisoning and other consequences of external causes, by sex, NSW, Vic, Qld, WA, SA and NT, July 2000 to June 2006[a][b][c][d]

	Males						Females						Persons[e]					
External cause	No.	%[f]	No. per 1,000[g]	LCL 95%[h]	UCL 95%[i]	Ratio[j]	No.	%[f]	No. per 1,000[g]	LCL 95%[h]	UCL 95%[i]	Ratio[j]	No.	%[f]	No. per 1,000[g]	LCL 95%[h]	UCL 95%[i]	Ratio[j]
Assault (X85–Y09)	4,603	22.4	10.7	10.4	11.1	7.5*	5,074	31.7	10.9	10.6	11.3	35.3*	9,677	26.5	10.8	10.6	11.1	12.3*
Falls (W00–W19)	3,601	17.6	9.7	9.3	10.2	1.5*	2,627	16.4	8.4	8.0	8.9	1.2*	6,228	17.1	9.1	8.8	9.5	1.3*
Exposure to inanimate mechanical forces (W20–W49)	2,973	14.5	5.8	5.6	6.0	1.4*	1,372	8.6	2.5	2.4	2.7	1.9*	4,345	11.9	4.1	4.0	4.3	1.5*
Complications of medical and surgical care (Y40–Y84)	1,783	8.7	6.5	6.1	6.9	1.6*	1,873	11.7	6.3	5.9	6.6	1.8*	3,656	10.0	6.3	6.1	6.6	1.7*
Transport accidents (V01–V99)	2,322	11.3	4.7	4.5	5.0	1.2*	1,143	7.1	2.3	2.2	2.5	1.4*	3,465	9.5	3.5	3.4	3.6	1.3*
Other accidental exposures[k]	1,608	7.8	3.8	3.5	4.0	1.2*	884	5.5	2.2	2.0	2.4	1.4*	2,492	6.8	3.0	2.8	3.1	1.3*
Intentional self-harm (X60–X84)	993	4.8	2.3	2.1	2.4	2.5*	1,323	8.3	2.8	2.7	3.0	1.9*	2,316	6.3	2.5	2.4	2.7	2.2*
Exposure to animate mechanical forces (W50–W64)	1,005	4.9	1.9	1.8	2.1	2.1*	462	2.9	1.0	0.9	1.0	2.6*	1,467	4.0	1.4	1.4	1.5	2.2*
Exposure to electric current/smoke/ fire/venomous animals and plants/forces of nature (W85–W99, X00–X39)[l]	829	4.0	1.7	1.6	1.9	2.5*	463	2.9	0.9	0.8	1.0	2.4*	1,292	3.5	1.3	1.2	1.4	2.4*
Accidental poisoning by and exposure to noxious substances (X40–X49)	451	2.2	0.9	0.8	1.0	1.8*	469	2.9	1.0	0.9	1.1	2.0*	920	2.5	1.0	0.9	1.1	1.9*
Other external causes[m]	287	1.4	0.7	0.6	0.7	2.9*	270	1.7	0.6	0.5	0.7	2.7*	557	1.5	0.7	0.6	0.7	2.8*
Total[n]	**20,504**	**100.0**	**48.8**	**48.0**	**49.7**	**1.9***	**15,998**	**100.0**	**39.1**	**38.4**	**39.9**	**2.1***	**36,505**	**100.0**	**43.9**	**43.4**	**44.5**	**2.0***

Table 1.03.3 (continued): External causes for hospitalisations of Indigenous persons with a principal diagnosis of injury and poisoning and other consequences of external causes, by sex, NSW, Vic, Qld, WA, SA and NT, July 2000 to June 2006[(a)(b)(c)(d)]

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006); cause of injury is based on the first reported external causes where the principle diagnosis was 'injury, poisoning and certain other consequences of external causes'; ICD-10-AM codes V01–Y98.

(c) Financial year reporting.

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

(e) Includes hospitalisations for which sex was indeterminate or not stated.

(f) Proportion of male, female and total hospitalisations for injury and poisoning of Indigenous persons in the period 2004–05 to 2005–06.

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

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio Indigenous:other.

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

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

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

(n) Includes injuries where no external cause was reported.

Source: AIHW analysis of National Hospital Morbidity Database.

Injury due to transport

Mode of transport

Tables 1.03.4 and 1.03.5 present data on mode of transport for fatal and serious injury for the four jurisdictions assessed as having adequate identification of Indigenous deaths and hospitalisations for 1999–00 to 2003–04—Queensland, Western Australia, South Australia and the Northern Territory. Because of small case numbers, transport accident data for these jurisdictions have been combined for 1999–00 to 2003–04.

- In 1999–00 to 2003–04, 52% of Indigenous persons fatally injured in a transport accident were occupants of a car, 35% were pedestrians, 3% were motorcyclists and 3% were occupants of a pick-up truck or van. Of non-Indigenous persons fatally injured in a transport accident, 55% were occupants of a car, 13% were pedestrians, 13% were motorcyclists and 2% were occupants of a pick-up truck or van (Table 1.03.4).
- Of Indigenous persons seriously injured in a transport accident, 47% were occupants of a car, 17% were pedestrians, 16% were pedal cyclists and 8% were motorcyclists. Of non-Indigenous persons seriously injured in a transport accident, 34% were occupants of a car, 7% were pedestrians, 17% were pedal cyclists and 24% were motorcyclists (Table 1.03.5).

Table 1.03.4: Mode of transport[a] for fatal injury, Qld, WA, SA & NT, 1999–00 to 2003–04

Fatally injured person	Indigenous			Non-Indigenous			Rate ratio[c]
	Number	%	Rate[b]	Number	%	Rate[b]	
Car occupant[d]	**169**	**52.0**	**13.5**	**2,060**	**55.2**	**5.9**	**2.3**
traffic	*159*	*48.9*	*12.8*	*2,026*	*54.3*	*5.8*	*2.2*
non-traffic	*8*	*2.5*	*0.5*	*29*	*0.8*	*0.1*	*6.6*
Pedestrian[d]	**113**	**34.8**	**9.8**	**479**	**12.8**	**1.4**	**7.1**
traffic	*101*	*31.1*	*8.9*	*415*	*11.1*	*1.2*	*7.4*
non-traffic	*12*	*3.7*	*0.9*	*47*	*1.3*	*0.1*	*6.8*
Motorcyclist[d]	**9**	**2.8**	**0.5**	**469**	**12.6**	**1.3**	**0.4**
traffic	*8*	*2.5*	*0.5*	*414*	*11.1*	*1.2*	*0.4*
non-traffic	*0*	*0.0*	*0.0*	*55*	*1.5*	*0.2*	*0.0*
Occupant of pick-up truck or van[d]	**8**	**2.5**	**0.5**	**86**	**2.3**	**0.2**	**1.9**
traffic	*8*	*2.5*	*0.5*	*83*	*2.2*	*0.2*	*2.0*
non-traffic	*0*	*0.0*	*0.0*	n.p.	n.p.	n.p.	n.p.
Pedal cyclist[d]	**n.p.**	**n.p.**	**n.p.**	**80**	**2.1**	**0.2**	**n.p.**
traffic	n.p.	n.p.	n.p.	*78*	*2.1*	*0.2*	n.p.
non-traffic	*0*	*0.0*	*0.0*	n.p.	n.p.	n.p.	n.p.
Occupant of heavy transport vehicle[d]	**n.p.**	**n.p.**	**n.p.**	**85**	**2.3**	**0.2**	**0.2**
traffic	*0*	*0.0*	*0.0*	*82*	*2.2*	*0.2*	*0.0*
non-traffic	*0*	*0.0*	*0.0*	n.p.	n.p.	n.p.	n.p.
Bus occupant[d]	**n.p.**	**n.p.**	**n.p.**	**10**	**0.3**	**0.0**	**n.p.**
traffic	n.p.	n.p.	n.p.	*10*	*0.3*	*0.0*	n.p.
non-traffic	*0*	*0.0*	*0.0*	*0*	*0.0*	*0.0*	*0.0*
Other and unspecified	**15**	**4.6**	**1.1**	**134**	**3.6**	**0.4**	**2.9**
Total[e]	**325**	**100.0**	**26.1**	**3,731**	**100.0**	**10.7**	**2.4**

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

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

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

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

(e) Includes Animal rider or occupant of animal-drawn vehicle; Occupant of a special all-terrain or off-road motor vehicle; Occupant of three-wheeled motor vehicle; Occupant of a tram, train, special industrial vehicle, special agricultural vehicle, special construction vehicle, watercraft and aircraft.

Source: Berry et al. 2007.

Table 1.03.5: Mode of transport[a] for serious injury, NT, WA, SA and Qld, 1999–00 to 2003–04

Seriously injured person	Indigenous			Non-Indigenous			Rate Ratio[c]
	Number	%	Rate[b]	Number	%	Rate[b]	
Car occupant[d]	**2,270**	**47.0**	**166.0**	**29,753**	**34.0**	**85.4**	**1.9**
traffic	*1,787*	*37.0*	*132.1*	*24,387*	*27.8*	*70.0*	*1.9*
non-traffic	*382*	*7.9*	*26.9*	*4,392*	*5.0*	*12.6*	*2.1*
Pedestrian[d]	**815**	**16.9**	**61.4**	**5,785**	**6.6**	**16.7**	**3.7**
traffic	*579*	*12.0*	*45.4*	*3,543*	*4.0*	*10.2*	*4.4*
non-traffic	*128*	*2.7*	*5.7*	*1,592*	*1.8*	*4.6*	*1.7*
Pedal cyclist[d]	**762**	**15.8**	**37.5**	**14,849**	**17.0**	**42.7**	**0.9**
traffic	*275*	*5.7*	*14.8*	*6,017*	*6.9*	*17.3*	*0.9*
non-traffic	*450*	*9.3*	*21.2*	*8,303*	*9.5*	*23.9*	*0.9*
Motorcyclist[d]	**387**	**8.0**	**23.5**	**20,961**	**23.9**	**60.1**	**0.4**
traffic	*158*	*3.3*	*9.9*	*9,946*	*11.4*	*28.5*	*0.3*
non-traffic	*222*	*4.6*	*13.3*	*10,414*	*11.9*	*29.9*	*0.4*
Occupant of pick-up truck or van[d]	**81**	**1.7**	**5.4**	**1,008**	**1.2**	**2.9**	**1.9**
traffic	*40*	*0.8*	*2.8*	*521*	*0.6*	*1.5*	*1.9*
non-traffic	*34*	*0.7*	*2.2*	*375*	*0.4*	*1.1*	*2.0*
Bus occupant[d]	**30**	**0.6**	**2.8**	**585**	**0.7**	**1.7**	**1.6**
traffic	*16*	*0.3*	1.3	*200*	*0.2*	*0.6*	*2.3*
non-traffic	*5*	*0.1*	0.5	*119*	*0.1*	*0.3*	*1.4*
Occupant of heavy transport vehicle[d]	**21**	**0.4**	**2.3**	**1,327**	**1.5**	**3.8**	**0.6**
traffic	*11*	*0.2*	*1.2*	*714*	*0.8*	*2.0*	*0.6*
non-traffic	*5*	*0.1*	*0.6*	*421*	*0.5*	*1.2*	*0.5*
Animal rider or occupant of animal-drawn vehicle	235	4.9	14.4	6,607	7.5	18.9	0.8
Occupant of watercraft	30	0.6	2.0	1,868	2.1	5.3	0.4
Occupant of a special all-terrain or off-road motor vehicle	26	0.5	1.2	1,104	1.3	3.2	0.4
Occupant of three-wheeled motor vehicle	12	0.3	0.6	258	0.3	0.7	0.8
Occupant of a special agricultural vehicle	13	0.3	1.0	439	0.5	1.3	0.8
Occupant of a tram	7	0.2	0.6	78	0.1	0.2	2.7
Occupant of a train	6	0.1	0.3	99	0.1	0.3	1.0
Occupant of a special industrial vehicle	4	0.1	0.3	275	0.3	0.8	0.3
Occupant of a special construction vehicle	4	0.1	0.3	163	0.2	0.5	0.6
Occupant of aircraft	0	0.0	0.0	453	0.5	1.3	0.0
Other and unspecified	124	2.6	7.9	2,013	2.3	5.8	1.4
Total	**4,827**	**100.0**	**327.6**	**87,625**	**100.0**	**251.6**	**1.4**

(continued)

Table 1.03.5 (continued): Mode of transport[(a)] for serious injury; NT, WA, SA and Qld, 1999-00 to 2003–04

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

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

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

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

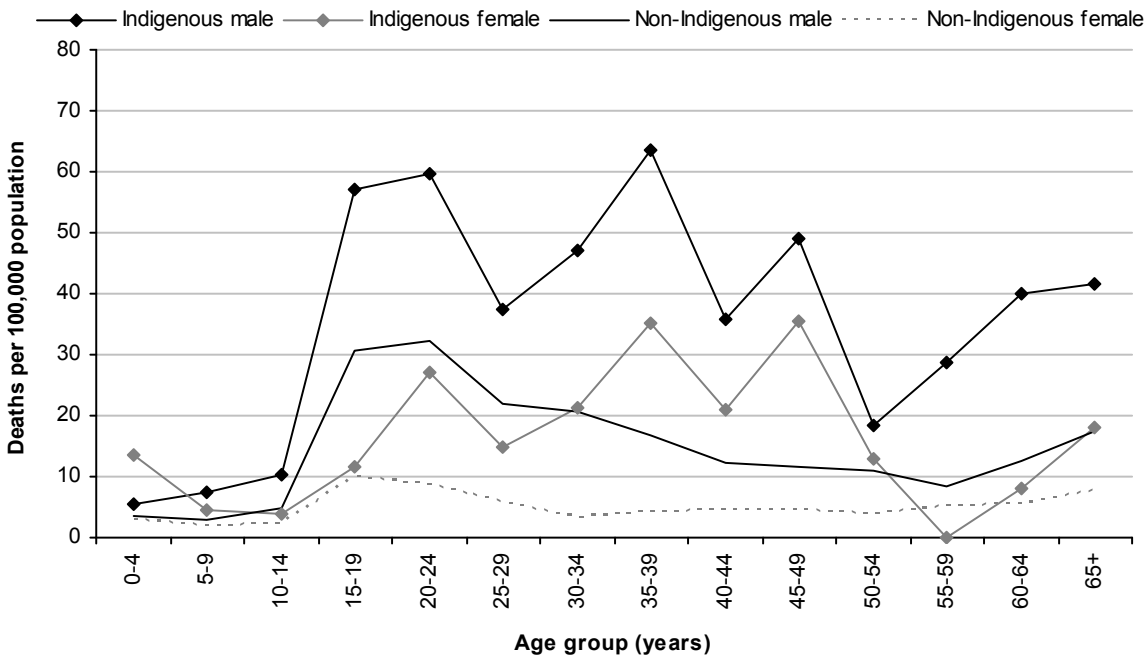
Source: Berry et al. 2007.

Land transport injury

- Most Indigenous transport deaths (99%) and serious injury cases (99%) were known to have involved land transport; 94% of non-Indigenous transport deaths and 96% of serious injury cases were known to have involved land transport (Berry et al. 2007).
- From 1999–00 to 2003–04, land transport accidents accounted for 27% of fatal injury cases for Indigenous people and 8.7% of all injury hospitalisations for Indigenous people. The age-standardised rate of land transport injury was 26 deaths per 100,000 Indigenous persons and 324 admissions to hospital per 100,000 Indigenous persons (Berry et al. 2007).

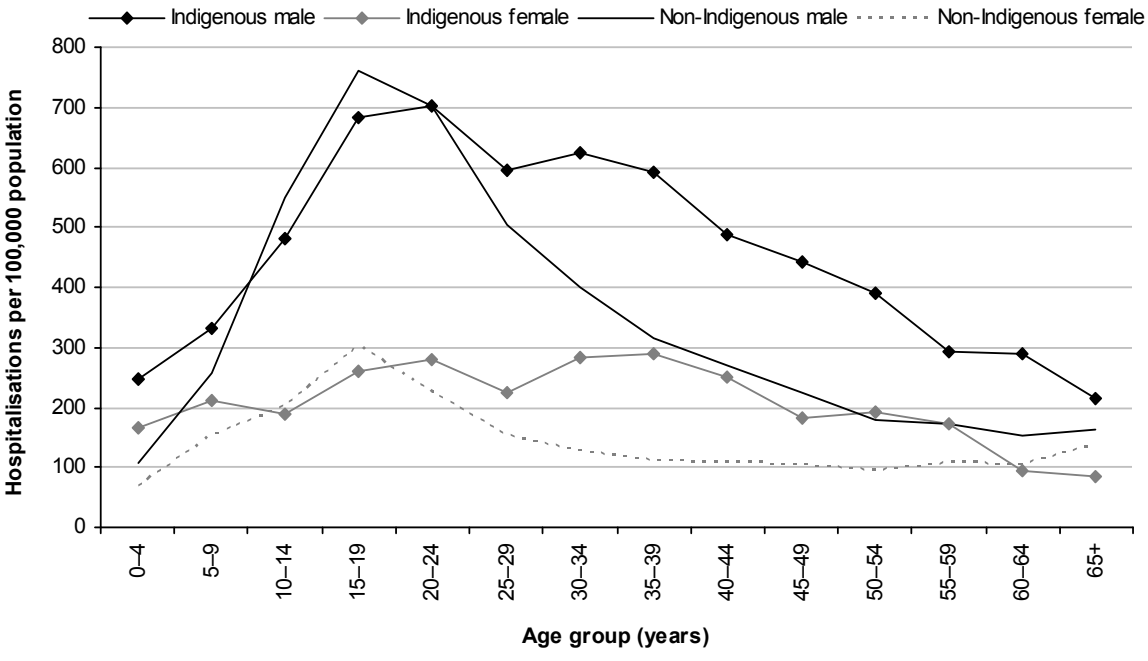
Land transport injury by age and sex

- Indigenous males accounted for two-thirds (66%) of all land transport deaths of Indigenous Australians in 1999–00 to 2003–04 (Figure 1.03.2).
- Fatal injury rates, on an age-specific population basis, for non-Indigenous males and females were highest for the 15–19 and 20–24 year age groups. For Indigenous males and females, fatal injury rates rose in early adulthood and remained elevated through middle age, although age-specific rates were variable because of small case numbers in each age group (Berry et al. 2007).
- Fatal injury rates for Indigenous males were substantially higher than non-Indigenous rates across all ages, except for infants aged 0–4 years. For females, Indigenous and non-Indigenous fatal injury rates were similar in the age bands from 5 to 19 years and the 55–64 years age group; but Indigenous females had a substantially higher death rate than non-Indigenous females in infancy, and over the age bands from 20 to 54 years (Figure 1.03.2).
- Indigenous males accounted for over two-thirds (68%) of Indigenous land transport deaths in 1999–00 to 2003–04 (Figure 1.03.3).
- For both males and females, Indigenous serious injury rates were fairly similar to non-Indigenous rates over the age bands from 5 to 29 years and above age 60 (women) or 65 (men); but Indigenous people had a substantially higher serious injury rate in infancy, and in the age bands from 30 to 59 years (Figure 1.03.3).



Source: Berry et al. 2007.

Figure 1.03.2: Age-specific fatal injury rates for land transport injury by sex, Indigenous and non-Indigenous persons, NT, WA, SA and Qld, 1999–00 to 2003–04



Source: Berry et al. 2007.

Figure 1.03.3: Age-specific serious injury rates for land transport injury by sex, Indigenous and non-Indigenous persons, NT, WA, SA and Qld, 1999–00 to 2003–04

Time series analysis

Injury and poisoning

Time series data are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations for all years from 1998–99 to 2005–06—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population. New South Wales and Victoria were identified as having adequate identification of Indigenous hospitalisations from 2004–05 onwards, therefore they were included as part of the current period analysis (2004–05 to 2005–06) but not as part of the time series analyses.

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for injury and poisoning over the seven-year period 1998–99 to 2005–06 are presented in Table 1.03.6 and Figure 1.03.4.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were apparent declines in hospitalisation rates for injury and poisoning among Indigenous males and females during the period 1998–99 to 2005–06, but these declines were not significant.
- There were significant declines in hospitalisation rates for injury and poisoning among other Australian males and persons overall during the same period, with an average yearly decline in the rate of around 0.2 and 0.1, respectively, per 1,000 population. This was equivalent to a 5% and 4% decline in the rate for males and persons overall over the period. There was an apparent decline in the hospitalisation rates for injury and poisoning among other Australian females over the same period, but this decline was not significant.
- There were no significant changes in the hospitalisation rate ratios or rate differences between Indigenous and other Australians for the period 1998–99 to 2005–06.

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

Table 1.03.6: Age-standardised hospitalisation rates, rate ratios and rate differences for injury and poisoning, Qld, WA, SA and NT, 1998–99 to 2005–06[(a)]

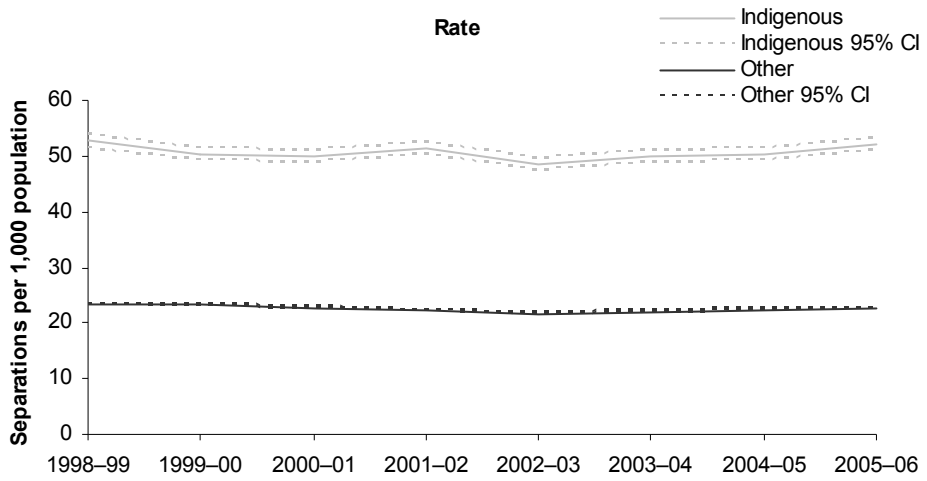
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[(b)]	% change over period[(c)]
Indigenous rate (separations per 1,000)										
Males	58.8	54.0	55.1	57.0	52.4	53.6	54.9	57.6	–0.2	–1.8
Females	46.8	46.4	45.0	46.1	44.4	45.9	45.7	46.7	—	–0.5
Persons	52.6	50.2	49.9	51.5	48.4	49.8	50.2	52.0	–0.1	–1.2
Other Australian[(d)] rate (separations per 1,000)										
Males	27.7	27.7	27.0	26.5	25.5	26.0	26.5	26.7	–0.2*	–5.2
Females	18.6	18.3	18.1	17.8	17.5	17.8	18.0	18.2	–0.1	–2.6
Persons	23.3	23.2	22.7	22.3	21.7	22.0	22.4	22.6	–0.1*	–4.3
Rate ratio[(e)]										
Males	2.1	1.9	2.0	2.1	2.1	2.1	2.1	2.2	—	3.3
Females	2.5	2.5	2.5	2.6	2.5	2.6	2.5	2.6	—	2.1
Persons	2.3	2.2	2.2	2.3	2.2	2.3	2.2	2.3	—	3.1
Rate difference[(f)]										
Males	31.1	26.3	28.1	30.5	26.8	27.7	28.4	30.9	0.1	1.2
Females	28.2	28.1	26.9	28.3	26.9	28.1	27.7	28.6	—	0.9
Persons	29.3	27.0	27.2	29.2	26.8	27.7	27.8	29.4	—	1.2

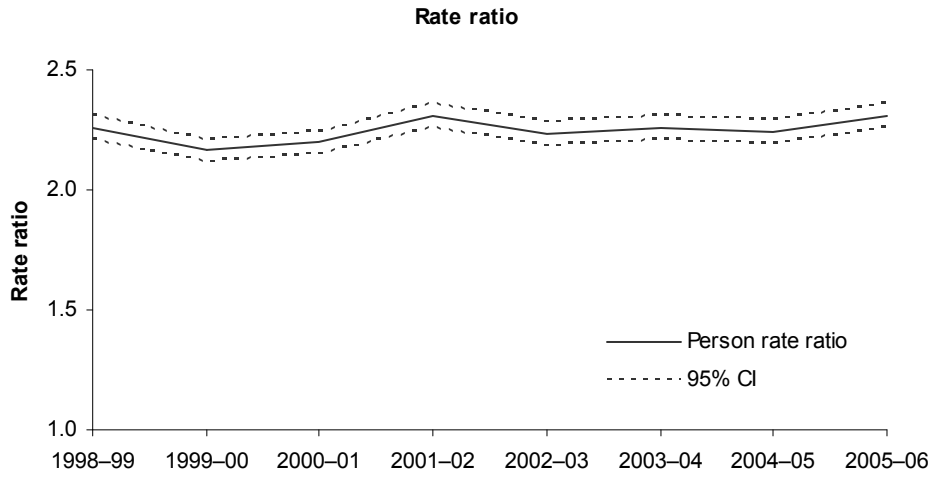
* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2005–06.

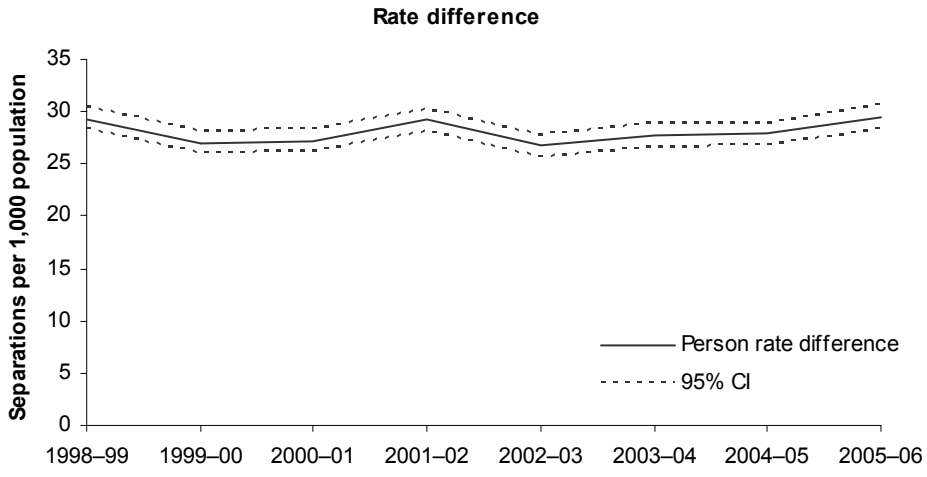
(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory.
(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(c) Per cent change between 1998–99 and 2005–06 based on the average annual change over the period.
(d) 'Other' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for other Australians.
(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of National Hospital Morbidity Database.







Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.03.4: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for injury and poisoning, Qld, WA, SA and NT, 1998–99 to 2005–06

Sensitivity of hospitalisation trends to changes in identification

- The fitted trends described above have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for identification were posted—constant identification, increasing identification and decreasing identification:
  - Under the constant identification scenario, the number of hospitalisations for the period under study was adjusted using the following identification factors:
    - Queensland 87%
    - Western Australia 97%
    - South Australia 82%
    - Northern Territory 96%.
  - Under the increasing identification scenario, hospitalisations were adjusted by linearly increasing the identification through the period under study—from 82% in 1998–99 to 87% in 2005–06 for Queensland, from 95% to 97% for Western Australia, from 76% to 82% for South Australia, and from 94% to 96% for the Northern Territory.
  - Under the decreasing identification scenario, hospitalisations were adjusted by linearly decreasing the identification from 92% in 1998–99 to 87% in 2005–06 for Queensland, from 99% to 97% for Western Australia, from 88% to 82% for South Australia, and from 98% to 96% for the Northern Territory.
- The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; of course, if any actual shift in identification was more extreme than has been posted under these scenarios, then the observed trends in hospitalisations might not persist.
- The decline in the hospitalisation rates for injury and poisoning for other Australian males and persons overall during the period 1998–99 to 2005–06 remained significant under the constant and decreasing identification scenarios. Only the decline in the hospitalisation rates for other Australian males remained significant under the increasing identification scenario.

Assault

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for assault over the 7-year period 1998–99 to 2005–06 are presented in Table 1.03.7 and Figure 1.03.5.

- Over the period 1998–99 to 2005–06, there were significant declines in the hospitalisation rate for assault among Indigenous males and females. The fitted trend implies an average yearly decline in the rate of around 0.4 per 1,000 for Indigenous males and 0.2 per 1,000 for Indigenous females, which is equivalent to a 16% and 9% reduction in the rate for males and females over the period.
- Over the same period there was no significant change in the hospitalisation rate for assault for other Australians.
- There were significant declines in both the hospitalisation rate ratios and rate differences between Indigenous and other Australians for assault over the period 1998–99 to 2005–06 (13% decline in the ratio and rate difference). This reflects both a relative and absolute decline in the gap between Indigenous and other Australian hospitalisation rates for assault.

Table 1.03.7: Age-standardised hospitalisation rates, rate ratios and rate differences for assault, Qld, WA, SA and NT, 1998–99 to 2005–06

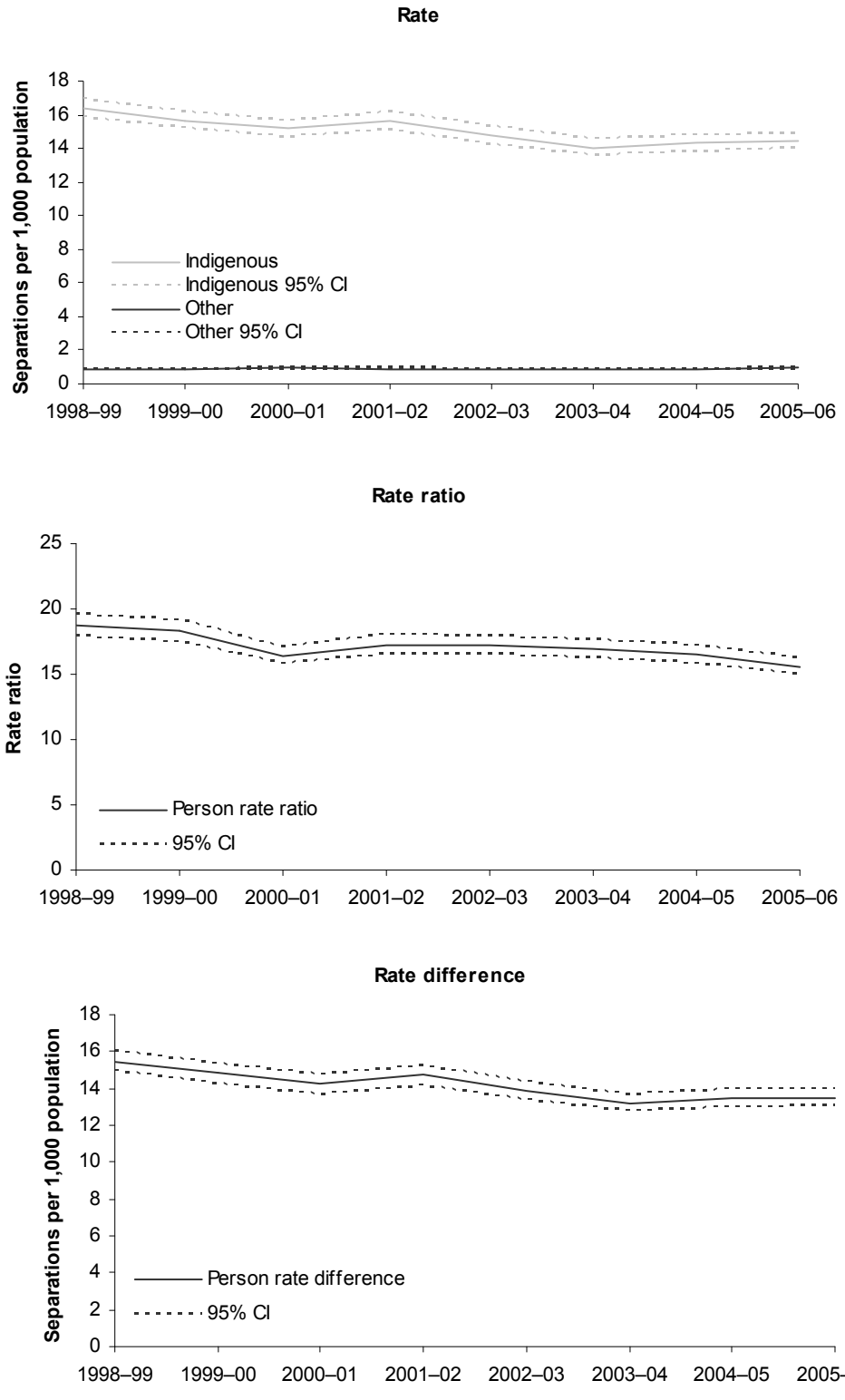
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[a]	% change over period[b]
Indigenous rate (separations per 1,000)										
Males	16.2	15.3	15.2	15.8	14.6	13.6	13.6	13.8	–0.4*	–16.1
Females	16.6	16.1	15.1	15.5	15.0	14.5	15.0	15.1	–0.2*	–9.1
Persons	16.4	15.7	15.1	15.6	14.8	14.1	14.3	14.4	–0.3*	–12.4
Other Australian[c] rate (separations per 1,000)										
Males	1.4	1.4	1.5	1.5	1.4	1.3	1.4	1.5	—	1.9
Females	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	—	–3.6
Persons	0.9	0.9	0.9	0.9	0.9	0.8	0.9	0.9	—	1.1
Rate ratio[d]										
Males	11.5	11.1	10.2	10.8	10.5	10.1	9.6	9.1	–0.3*	–17.4
Females	51.4	50.5	45.1	46.5	48.1	46.6	50.5	45.6	–0.4	–5.5
Persons	18.7	18.3	16.4	17.3	17.2	16.9	16.6	15.5	–0.4*	–13.2
Rate difference[e]										
Males	14.8	13.9	13.7	14.4	13.2	12.3	12.2	12.3	–0.4*	–17.8
Females	16.2	15.7	14.7	15.2	14.7	14.2	14.7	14.7	–0.2*	–9.2
Persons	15.5	14.8	14.2	14.7	13.9	13.2	13.4	13.5	–0.3*	–13.2

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2005–06.

(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(b) Per cent change between 1998–99 and 2005–06 based on the average annual change over the period.
(c) 'Other' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.
(d) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for other Australians.
(e) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of National Hospital Morbidity database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.03.5: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for assault, Qld, WA, SA and NT, 1998–99 to 2005–06

Additional information

This section presents information on injuries received in the 4 weeks before the interview from the 2004–05 ABS National Aboriginal and Torres Strait Islander Health Survey (NATSIHS). The NATSIHS collected information on the type of injury, the damage caused by the injury, the activity and location at the time of injury and the part of the body affected. Note that the 2004–05 NATSIHS data relate only to persons in private dwellings. People in hospitals, nursing and convalescent homes, and hospices were excluded from the sample.

Prevalence

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

Type of injury

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

Nature of injury

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

Activity at time of injury event

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

Location at time of injury event

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

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

Influence of alcohol

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

Data quality issues

Hospital separations data

Separations

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

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections. The 'not stated category is missing from several collections. It is recommended that the standard wording and categories be used in all jurisdictions (AIHW 2005).

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander peoples. 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 2007). 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 (AIHW unpublished data). It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. The proportion of the Indigenous population covered by these six jurisdictions is 96%. The following caveats have also been recommended for analysis of hospitalisation data from selected jurisdictions (ABS & AIHW 2005):

- *Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from Western Australia and the Northern Territory and relatively marked Indigenous under-identification in data from South Australia and Victoria).*
- *Data for these six jurisdictions over-represent Indigenous populations in less urbanised and more remote locations.*
- *Hospitalisation data for these six jurisdictions are not necessarily representative of the jurisdictions not included.*

From the AIHW study it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level.

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 hospital 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 to 2009 *(ABS 2004).*

(continued)

Data quality issues (continued)

Data sources for injury emergency episodes

The National Non-admitted Patient Emergency Department Care Database is a national collection of de-identified data on emergency department episodes based on the Non-admitted Emergency Department Care National Minimum Data Set. This data set includes the standard Indigenous status question but does not include injury coding (for example, ICD-10). The Injury Surveillance National Minimum Data Set includes injury coding (components of ICD-10) but does not include demographic details such as Indigenous status. Therefore, there is currently no national minimum data set containing both Indigenous status and injury coding.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians and thus overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in major cities and regional and remote areas, but very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 National Health Survey.

In remote communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

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1.04 Hospitalisation for pneumonia

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

Data sources

Data for this measure come from the AIHW National Hospital Morbidity Database. Additional information on invasive pneumococcal disease notifications comes from the National Notifiable Disease Surveillance System.

Hospitalisations

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

Data are presented for the six jurisdictions which have been assessed by the AIHW as having adequate identification of Indigenous hospitalisations in 2004–05—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. These six jurisdictions represent approximately 96% of the Indigenous population of Australia. Data are presented by state/territory of usual residence of the patient.

Hospitalisations for which the Indigenous status of the patient was not reported have been included with hospitalisations data for non-Indigenous people under the 'other' category. This is to enable consistency across jurisdictions, as public hospitals in some states and territories do not have a category for the reporting of 'not stated' or inadequately recorded/reported Indigenous status.

Hospitalisation data are presented for the 2-year period July 2004 to June 2006. An aggregate of 2 years of data has been used, as the number of hospitalisations for some conditions is likely to be small for a single year.

The principal diagnosis is the diagnosis established to be the problem that was chiefly responsible for the patient's episode of care in hospital. The additional diagnosis is a condition or complaint either coexisting with the principal diagnosis or arising during the episode of care. The term 'hospitalisation' has been used to refer to a separation which is the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending a change in a type of care (for example, from acute to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

National Notifiable Diseases Surveillance System (NNDSS)

A set of 56 diseases and conditions are notifiable nationally. Data on all these cases are forwarded to the NNDSS, managed by the Australian Government Department of Health and Ageing.

Although identification of Indigenous notifications in all states and territories is incomplete, three jurisdictions (Western Australia, South Australia and the Northern Territory) have

been assessed as having adequate identification in 2001–2002 in the NNDSS. Data on Indigenous status for certain notifiable diseases are not available for the Australian Capital Territory, New South Wales or Tasmania.

Analyses

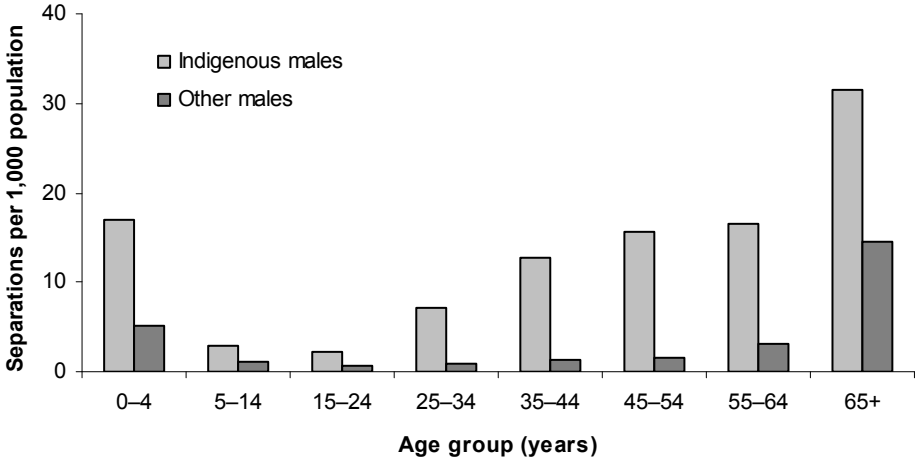
Age-standardised rates and ratios have been used as a measure of hospitalisations in the Indigenous population relative to other Australians. Ratios of this type illustrate differences between the rates of hospital admissions among Indigenous people and those of other Australians, taking into account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

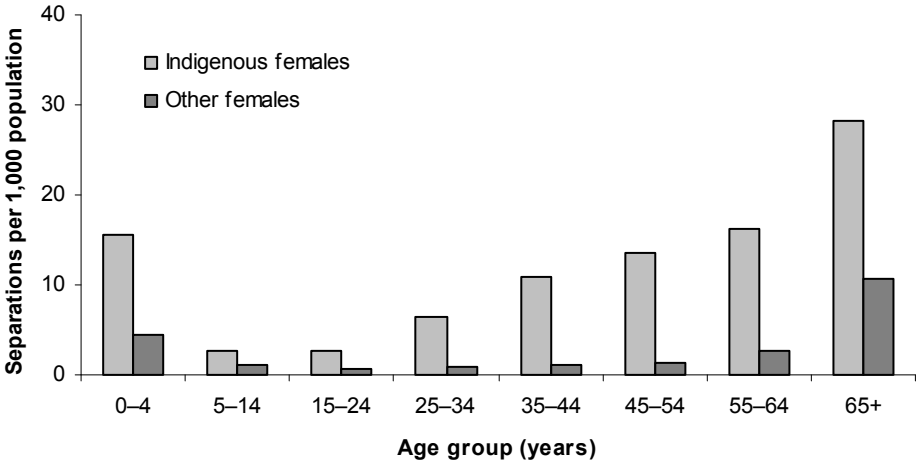
Hospitalisations

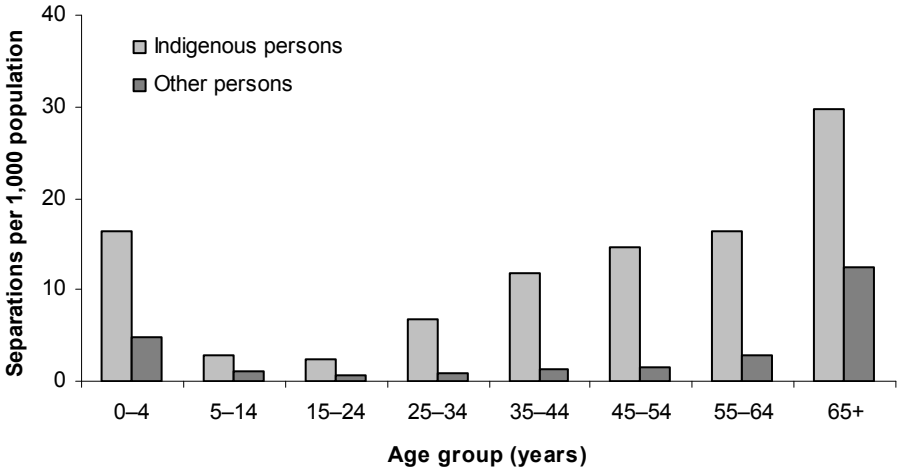
- In the 2-year period July 2004 to June 2006, there were 122,951 hospitalisations for pneumonia in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, 7,943 (6%) of which were hospitalisations of Aboriginal and Torres Strait Islander peoples (Table 1.04.1).
- Hospitalisations for pneumonia represented 1.7% of all hospital separations for Aboriginal and Torres Strait Islander Australians.

Hospitalisations by age and sex

- In the 2-year period July 2004 to June 2006, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males and females had higher hospitalisation rates for pneumonia than other males and females across all age groups (Figure 1.04.1).
- The greatest difference in rates occurred in the 35–44 and 45–54 year age groups where Indigenous males and females were hospitalised at around 9–10 times the rate of other Australians.
- For both Indigenous and other Australian males and females, hospitalisation rates were highest among those aged 0–4 years, 55–64 years and 65 years and over.
- Approximately 51% of Indigenous Australians hospitalised for pneumonia were males (4,051) and 49% were females (3,892).







Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.04.1: Age-specific hospitalisation rates for a principal diagnosis of pneumonia, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006

Hospitalisations by state/territory

Table 1.04.1 presents hospitalisations for a principal diagnosis of pneumonia for the 2-year period July 2004 to June 2006 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. As well as rates and ratios for the six jurisdictions which have been assessed as having adequate identification of Indigenous hospitalisations in 2004–05, unadjusted and adjusted national level data are also included in the table. The Australia data are adjusted by applying a completeness factor of 89.4% which is an estimate of the level of Indigenous under-identification in hospital separations data.

- Over the period July 2004 to June 2006, Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised for pneumonia at four times the rate of other Australians.
- When hospital rates are adjusted at the national level for Indigenous under-identification, Indigenous males and females were hospitalised for pneumonia at 4.2 and 5.0 times the rate of other males and females respectively.
- In the Northern Territory, Indigenous Australians were nine times more likely to be hospitalised for pneumonia than other Australians. In Western Australia, Indigenous Australians were seven times more likely to be hospitalised for pneumonia than other Australians. In South Australia and Queensland, Indigenous Australians were hospitalised for pneumonia at four times the rate of other Australians. In New South Wales and Victoria, Indigenous Australians were twice as likely to be hospitalised for pneumonia than other Australians in these jurisdictions.

Table 1.04.1: Hospitalisations for principal diagnosis of pneumonia, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c][d]

	Indigenous				Other[e]				
	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Ratio[i]
NSW									
Males	702	7.2	6.4	8.1	21,265	3.3	3.3	3.4	2.2*
Females	627	6.1	5.4	6.7	18,932	2.5	2.5	2.6	2.4*
Persons	1,329	6.6	6.1	7.1	40,199	2.9	2.9	2.9	2.3*
Vic									
Males	94	5.6	3.8	7.4	17,865	3.8	3.7	3.8	1.5*
Females	96	5.7	4.2	7.1	15,846	2.8	2.7	2.8	2.1*
Persons	190	5.6	4.5	6.7	33,711	3.2	3.2	3.2	1.7*
Qld									
Males	841	11.7	10.5	12.8	10,834	3.0	2.9	3.1	3.9*
Females	805	9.5	8.6	10.3	9,677	2.4	2.3	2.4	4.0*
Persons	1,646	10.4	9.7	11.1	20,511	2.7	2.6	2.7	3.9*
WA									
Males	923	18.4	16.9	20.0	5,073	2.9	2.8	2.9	6.4*
Females	948	17.4	16.0	18.8	4,394	2.2	2.1	2.3	7.9*
Persons	1,871	17.9	16.8	18.9	9,467	2.5	2.4	2.5	7.2*
SA									
Males	236	14.9	12.4	17.5	5,560	3.6	3.5	3.7	4.2*
Females	220	11.2	9.3	13.1	5,006	2.8	2.7	2.8	4.0*
Persons	456	12.8	11.3	14.3	10,566	3.1	3.0	3.2	4.1*
NT									
Males	1,255	25.8	23.9	27.8	323	3.2	2.8	3.7	8.0*
Females	1,196	26.0	24.1	27.8	231	2.4	2.0	2.7	11.0*
Persons	2,451	26.1	24.7	27.4	554	2.8	2.5	3.1	9.3*
NSW, Vic, Qld, WA, SA and NT[d]									
Males	**4,051**	**12.9**	**12.3**	**13.5**	**60,920**	**3.3**	**3.3**	**3.4**	**3.9***
Females	**3,892**	**11.6**	**11.1**	**12.1**	**54,086**	**2.6**	**2.5**	**2.6**	**4.5***
Persons	**7,943**	**12.2**	**11.8**	**12.6**	**115,008**	**2.9**	**2.9**	**2.9**	**4.2***
Australia unadjusted[j]									
Males	4,092	12.4	11.9	13.0	63,483	3.3	3.3	3.4	3.7*
Females	3,943	11.3	10.8	11.7	56,299	2.6	2.5	2.6	4.4*
Persons	8,035	11.8	11.4	12.2	119,784	2.9	2.9	2.9	4.1*

(continued)

Table 1.04.1 (continued): Hospitalisations for principal diagnosis of pneumonia, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c][d]

	Indigenous				Other[e]				
	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Ratio[i]
Australia adjusted[j][k]									
Males	4,573	13.9	13.3	14.5	63,002	3.3	3.3	3.4	4.2*
Females	4,406	12.6	12.1	13.1	55,836	2.5	2.5	2.6	5.0*
Persons	8,979	13.2	12.8	13.6	118,840	2.9	2.9	2.9	4.6*

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006); ICD-10-AM codes J12–J18.

(c) Financial year reporting.

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

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

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other.

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

(k) Australian hospitalisation numbers and rates have been adjusted for Indigenous under-identification using a national adjustment factor of 0.89. This factor was derived from a study undertaken by the AIHW in 2007 which assessed the level of Indigenous under-identification in hospital data in all states and territories by comparing information gathered from face-to face interviews in public hospitals with results from hospital records. By applying this factor, the number of Indigenous hospitalisations was increased by 11% and these additional hospitalisations then subtracted from the number of hospitalisations for Other Australians.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations for all years from 1998–99 to 2005–06—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population. New South Wales and Victoria were identified as having adequate identification of Indigenous hospitalisations from 2004–05 onwards, therefore they were included as part of the current period analysis (2004–05 to 2005–06) but not as part of the time series analyses.

All ages

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for pneumonia over the 7-year period 1998–99 to 2005–06 are presented in Table 1.04.2 and Figure 1.04.2.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were apparent declines in hospitalisation rates for pneumonia among Indigenous males and persons overall during the period 1998–99 to 2005–06, however, the declines were only significant for Indigenous males. Hospitalisation rates for pneumonia declined by 15% for Indigenous males over the period.
- There were significant declines in hospitalisation rates among other Australian males over the same period, but there were no significant changes among other Australian females.
- There were also significant declines in the hospitalisation rate ratios and rate differences between Indigenous and other Australian males for pneumonia. The fitted trend implies an average yearly decline of 0.1 in the rate ratio (8% decline over the period) and 0.4 per 1,000 in the rate difference for the period 1998–99 to 2005–06 (16% decline over the period). This reflects a relative and absolute decrease in the gap between the hospitalisation rates for Indigenous and other Australian males for pneumonia.

Children aged 0–4 years

Hospitalisation rates, rate ratios and rate differences between Indigenous and other children aged 0–4 years for pneumonia over the 7-year period 1998–99 to 2005–06 are presented in Table 1.04.3 and Figure 1.04.3.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant declines in hospitalisation rates for pneumonia among Indigenous children aged 0–4 years during the period 1998–99 to 2005–06. The fitted trend implies an average yearly decline in the rate of around 3 per 1,000 which is equivalent to a 48% decline in the rate over the period.
- Over the same period, there were no significant changes in the hospitalisation rates among other children aged 0–4 years for pneumonia.
- There were significant declines in both the hospitalisation rate ratios and rate differences between Indigenous and other children for pneumonia. The fitted trend implies an average yearly decline of around 0.4 in the rate ratio (39% decline over the period) and 2.6 per 1,000 in the rate difference (53% decline) for the period 1998–99 to 2005–06. This reflects a relative and absolute decline in the gap in hospitalisation rates for pneumonia among Indigenous and other Australian children aged 0–4 years over the period.

Note that changes in the level of accuracy of Indigenous identification in hospital records will result in changes in the level of reported hospital separations for Indigenous

Australians. Also, changes in access, hospital policies and practices all affect the level of hospitalisation over time. Caution should be used in interpreting changes over time as it is not possible to ascertain whether a change in reported hospitalisation is due to changes in the accuracy of Indigenous identification or real changes in the rates at which Indigenous people are hospitalised. An increase in hospitalisation rates may reflect better hospital access rather than a worsening of health.

Table 1.04.2: Age-standardised hospitalisation rates, rate ratios and rate differences for pneumonia, Qld, WA, SA and NT, 1998–99 to 2005–06[a]

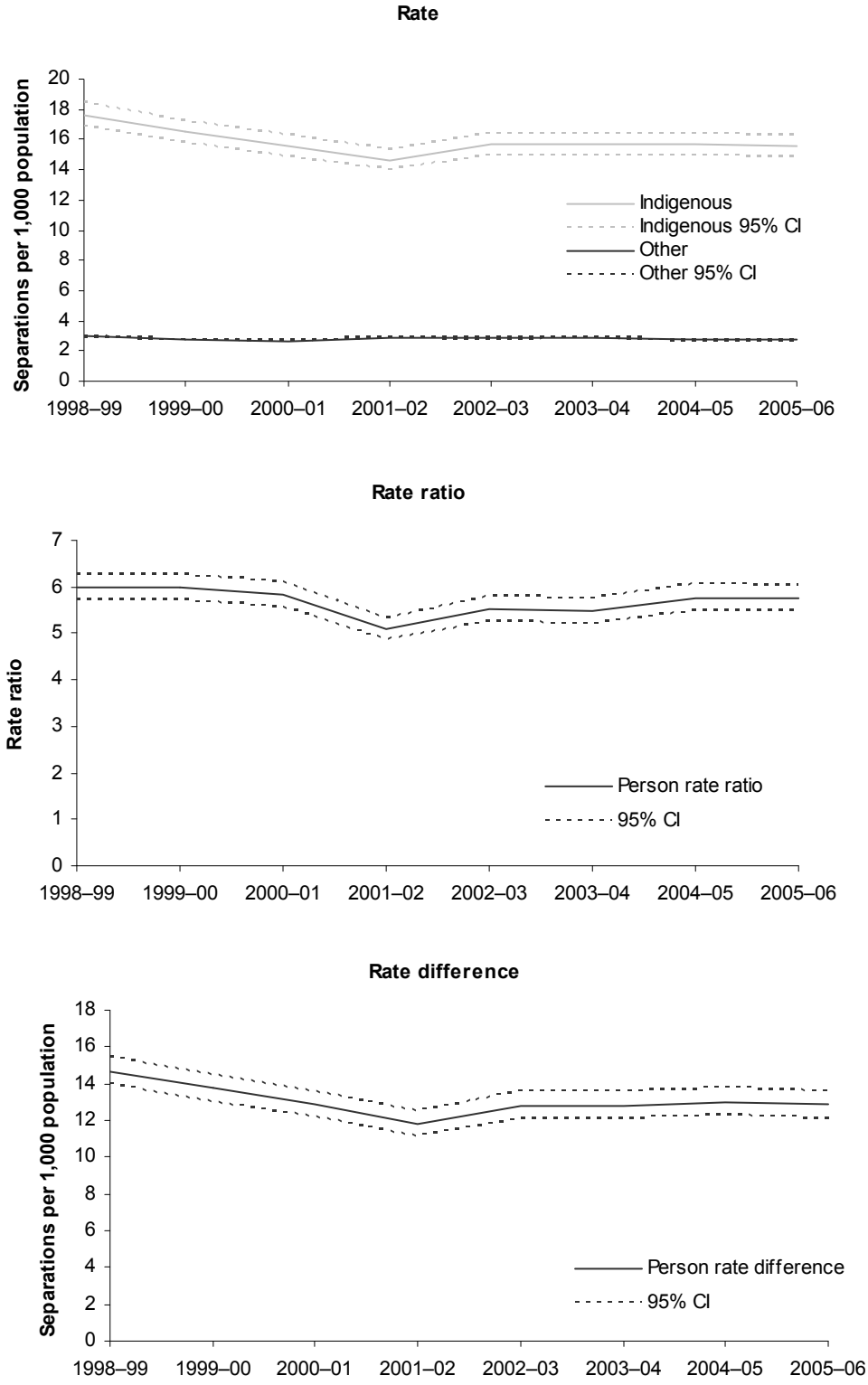
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[b]	% change over period[c]
Indigenous rate (separations per 1,000)										
Males	20.0	18.6	17.0	17.2	17.0	17.0	16.8	16.3	–0.4*	–14.8
Females	15.6	14.7	14.3	12.5	14.6	14.5	14.9	14.9	—	–0.5
Persons	17.6	16.5	15.6	14.7	15.7	15.7	15.7	15.6	–0.2	–7.9
Other Australian[d] rate (separations per 1,000)										
Males	3.5	3.3	3.1	3.3	3.3	3.2	3.1	3.1	–0.04*	–8.0
Females	2.5	2.4	2.3	2.6	2.5	2.6	2.4	2.4	—	0.4
Persons	2.9	2.8	2.7	2.9	2.8	2.9	2.7	2.7	—	–3.6
Rate ratio[e]										
Males	5.7	5.7	5.5	5.2	5.2	5.3	5.4	5.3	–0.1*	–7.6
Females	6.2	6.1	6.1	4.9	5.8	5.6	6.2	6.2	—	–0.9
Persons	6.0	6.0	5.8	5.1	5.5	5.5	5.8	5.8	—	–4.6
Rate difference[f]										
Males	16.5	15.4	13.9	13.9	13.7	13.8	13.6	13.2	–0.4*	–16.2
Females	13.1	12.3	11.9	10.0	12.1	11.9	12.5	12.5	—	–0.7
Persons	14.7	13.7	12.9	11.8	12.8	12.8	13.0	12.9	–0.2	–8.8

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2005–06.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory.
(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(c) Per cent change between 1998–99 and 2005–06 based on the average annual change over the period.
(d) 'Other' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for other Australians.
(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.04.2: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for pneumonia, Qld, WA, SA and NT, 1998–99 to 2005–06

Table 1.04.3: Children aged 0–4 years, hospitalisation rates, rate ratios and rate differences for pneumonia, Qld, WA, SA and NT, 1998–99 to 2005–06[a]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[b]	% change over period[c]
Indigenous rate (separations per 1,000)										
Persons	40.1	36.5	34.8	31.8	30.3	29.6	21.3	20.7	–2.7*	–47.6
Other Australian[d] rate (separations per 1,000)										
Persons	5.5	5.8	6.2	6.3	6.3	6.3	5.5	4.5	–0.1	–12.6
Rate ratio[e]										
Persons	7.2	6.3	5.6	5.1	4.8	4.7	3.9	4.6	–0.4*	–38.7
Rate difference[f]										
Persons	34.5	30.8	28.6	25.5	24.0	23.2	15.8	16.2	–2.6*	–53.2

* Represents results with statistically significant increases or declines at the p < 0.05 level over the period 1998–99 to 2005–06.

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

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

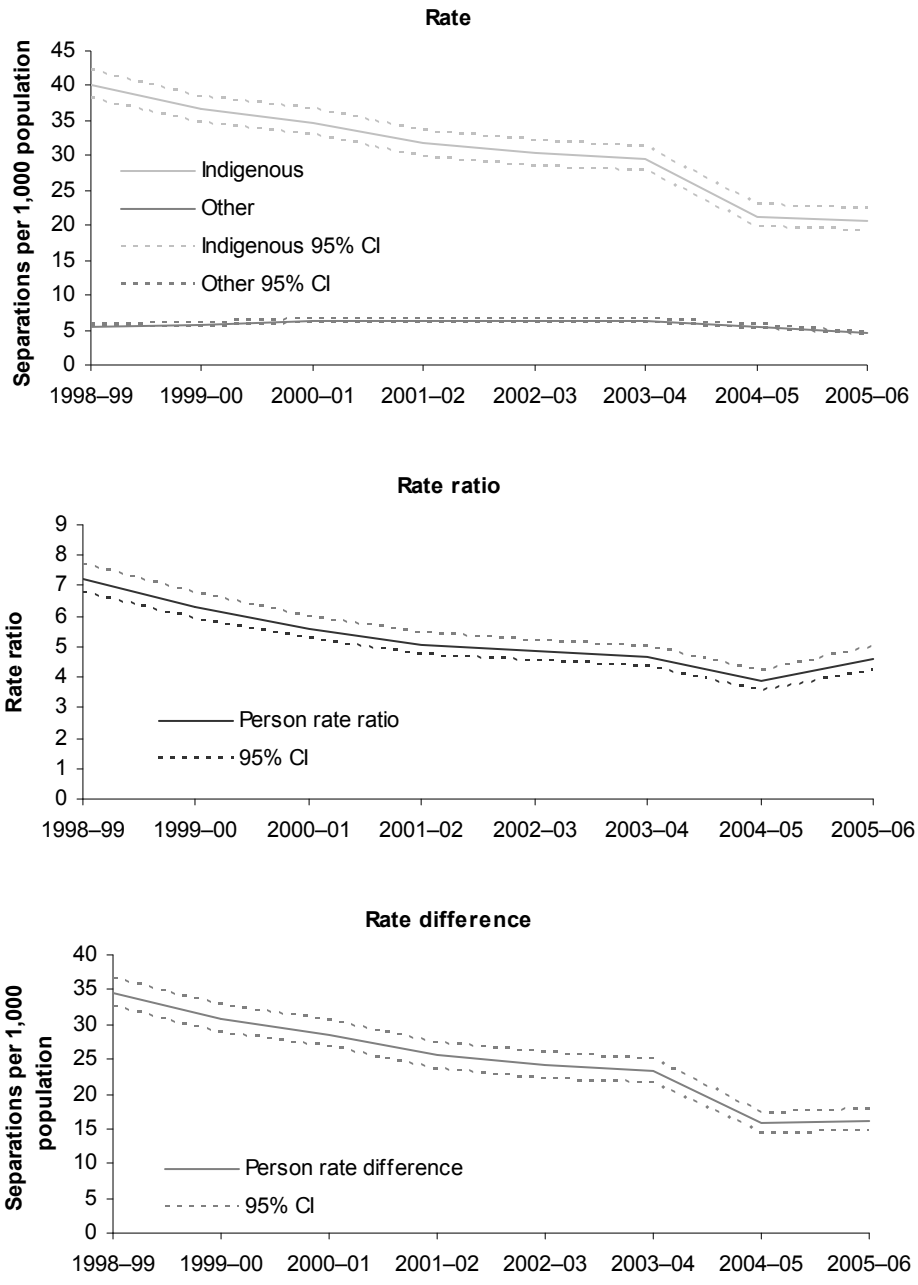
(c) Per cent change between 1998–99 and 2005–06 based on the average annual change over the period.

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

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

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

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.04.3: Children aged 0–4 years, hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for pneumonia, Qld, WA, SA and NT, 1998–99 to 2005–06

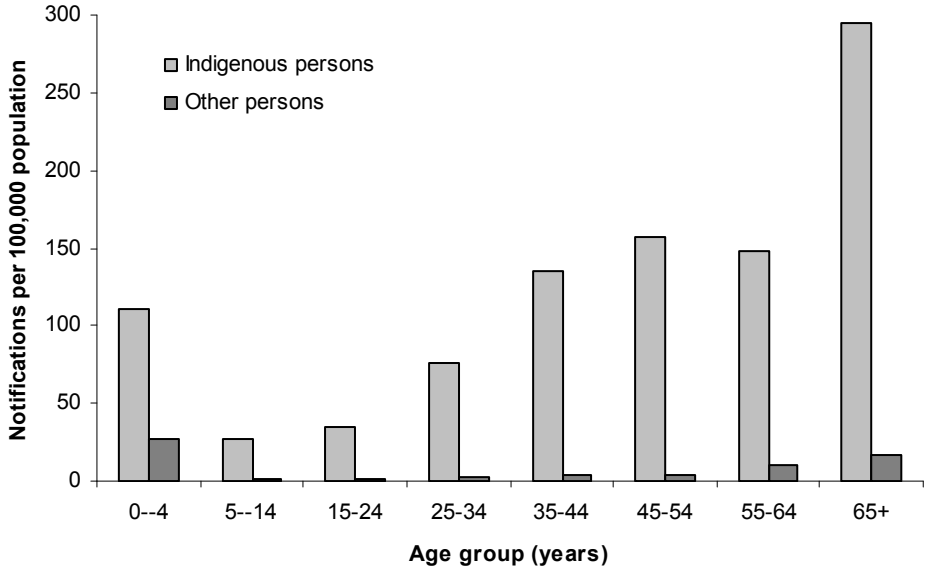
Additional information

Invasive pneumococcal disease

Pneumococcal disease is caused by the bacterium *Streptococcus pneumoniae* and can cause infection in parts of the respiratory tract (otitis media, sinusitis, pneumonia) or enter the bloodstream. Manifestations include meningitis, pneumonia and septicaemia. Invasive pneumococcal disease is defined as a sterile site isolate of *Streptococcus pneumoniae*, usually from blood (Menzies et al. 2004).

Incidence

For the period 2004–2006, there were 403 invasive pneumococcal disease notifications among Indigenous persons in Western Australia, South Australia and the Northern Territory. The notification rate for Indigenous persons was 84.5 per 100,000, which was 12 times the rate for other persons (7.1 per 100,000). Notification rates were highest among those aged 65 years and over and 45–54 years for Indigenous Australians, and highest among those aged 0–4 years and 65 years and over for other Australians. For all age groups, Indigenous Australians had higher notification rates than other Australians. Rate differences were highest among the 35–44 and 45–54 year age groups, where Indigenous Australians suffered from invasive pneumococcal disease at between 37 and 40 times the rate of other Australians. Importantly, the notification rate among Aboriginal and Torres Strait Islander peoples was significantly higher at younger ages than for other Australians. For example, the rate among those aged 5–14 years was equivalent to the rate seen among other Australians aged 65 years and over (Figure 1.04.4).



Source: AIHW analysis of National Notifiable Disease Surveillance System, DoHA.

Figure 1.04.4: Invasive pneumococcal disease notification rate, by age group and Indigenous status, WA, SA and NT, 2004–2006

Hospitalisations

Over the period June 2004 to July 2006, there were 86 hospitalisations of Indigenous people in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined for invasive pneumococcal disease. Over one-quarter (27%) of these hospitalisations were among those aged 0–4 years.

Time series

Hospitalisation rates, rate ratios and rate differences between Indigenous and other children aged 0–4 years in Queensland, Western Australia, South Australia and the Northern Territory for invasive pneumococcal disease over the 7-year period 1998–99 to 2005–06 are shown in Table 1.04.4.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant declines in hospitalisation rates for invasive pneumococcal disease among Indigenous children aged 0–4 years during the period 1998–99 to 2005–06. The fitted trend implies an average yearly decline in the rate of around 0.1 per 1,000, which is equivalent to a 66% decline in the rate over the period.
- Over the same period, there was an apparent decline in the hospitalisation rate for invasive pneumococcal disease among other children aged 0–4 years, but the decline was not significant.
- There was a significant decrease in the hospitalisation rates for other children between 2004–05 and 2005–06. This decrease reflects the impact of the introduction of pneumococcal vaccinations for all Australian children from January 2005 (Roche et al. 2007). The introduction of these vaccinations has not had the same impact for Indigenous children, as free pneumococcal vaccinations have been available to all Indigenous children under 2 years of age since 2001.
- There were apparent declines in both the hospitalisation rate ratios and rate differences between Indigenous and other children for invasive pneumococcal disease during the period 1998–99 to 2005–06, but these declines were not significant. The non-significance of the trends can be attributed to the large change in the other Australian rate because of the introduction of pneumococcal vaccinations for all Australian children from January 2005.

Table 1.04.4: Children aged 0–4 years, hospitalisation rates, rate ratios and rate differences for invasive pneumococcal disease, Qld, WA, SA and NT, 1998–99 to 2005–06[a]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[b]	% change[c]
Indigenous rate (separations per 1,000)										
Persons	0.6	0.6	0.4	0.2	0.4	0.3	0.2	0.2	–0.1*	–65.6
Other Australian[d] rate (separations per 1,000)										
Persons	0.1	0.2	0.2	0.3	0.2	0.2	0.1	0.03	–0.01	–83.9
Rate ratio[e]										
Persons	5.9	2.9	1.6	0.8	1.8	1.6	1.8	6.4	–0.02	–1.8
Rate difference[f]										
Persons	0.5	0.4	0.1	–0.1	0.2	0.1	0.1	0.1	–0.05	–61.8

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2005–06.

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

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

(c) Per cent change between 1998–99 and 2005–06 based on the average annual change over the period.

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

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

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

Note: Hospitalisations for pneumococcal meningitis (G00.1) and pneumococcal septicaemia (A40.3) have been used as a measure for invasive pneumococcal disease.

Source: AIHW analysis of National Hospital Morbidity Database.

Immunisation

A recent report from the National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases found that among adults aged 50–64 years, coverage of pneumococcal vaccine was higher for Indigenous Australians than for other Australians (20% compared with 3% respectively) (Menzies et al. 2004). Indigenous adults in remote areas had higher vaccination coverage rates for this disease than in non-remote areas. Pneumococcal vaccinations are likely to be higher for Indigenous adults than for other adults as the vaccinations have been funded for Indigenous adults since 1999.

Data quality issues

Hospital separations data

Separations

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

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections. The 'not stated category is missing from several collections. It is recommended that the standard wording and categories be used in all jurisdictions (AIHW 2005).

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander peoples. 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 2007). 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 (AIHW unpublished data). It has therefore been recommended that reporting of Indigenous hospital separations be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. The proportion of the Indigenous population covered by these six jurisdictions is 96%. The following caveats have also been recommended for analysis of hospitalisation data from selected jurisdictions (ABS & AIHW 2005):

- *Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from Western Australia and the Northern Territory and relatively marked Indigenous under-identification in data from South Australia and Victoria).*
- *Data for these six jurisdictions over-represent Indigenous populations in less urbanised and more remote locations.*
- *Hospitalisation data for these six jurisdictions are not necessarily representative of the jurisdictions not included.*

From the AIHW study it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level.

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 hospital 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 to 2009 *(ABS 2004).*

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1.05 Circulatory disease

Prevalence, incidence and number of hospital separations with a principal diagnosis of circulatory disease for Aboriginal and Torres Strait Islander peoples expressed as a rate by age group, age-standardised rate and rate ratio

Data sources

Data for this measure come from the National Aboriginal and Torres Strait Islander Health Survey, the Bettering the Evaluation and Care of Health survey and the AIHW National Hospital Morbidity Database.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The 2004–05 NATSIHS collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians about health-related issues including health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. It is planned to repeat the NATSIHS at 6-yearly intervals, with the next NATSIHS to be conducted in 2010–11. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey, which is conducted by the AIHW Australian GP Statistics and Classification Centre. Information is collected from a random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive encounters is collected from each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated. This is because some GPs might not ask about Indigenous status, or the patient may choose not to identify (AIHW 2002). The estimates presented here are also derived from a relatively small sample of GP encounters involving Indigenous Australians.

Because of a late inclusion of a 'not stated' category of Indigenous status in 2001–02 (before which 'not stated' responses were included with non-Indigenous encounters), GP encounters for which Indigenous status was not reported have been included with encounters for non-Indigenous people under the 'other' category.

Data are presented for the 5-year period 2002–03 to 2006–07, during which there were 7,542 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.5% of total GP encounters in the survey.

Hospitalisations

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

Data are presented for the six jurisdictions which have been assessed by the AIHW as having adequate identification of Indigenous hospitalisations in 2004–05—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. These six jurisdictions represent approximately 96% of the Indigenous population of Australia. Data are presented by state/territory of usual residence of the patient.

Hospitalisations for which the Indigenous status of the patient was not reported have been included with hospitalisations data for non-Indigenous people under the 'other' category. This is to enable consistency across jurisdictions, as public hospitals in some states and territories do not have a category for the reporting of 'not stated' or inadequately recorded/reported Indigenous status.

Hospitalisation data are presented for the 2-year period July 2004 to June 2006. An aggregate of 2 years of data has been used, as the number of hospitalisations for some conditions is likely to be small for a single year.

The principal diagnosis is the diagnosis established to be the problem that was chiefly responsible for the patient's episode of care in hospital. The additional diagnosis is a condition or complaint either coexisting with the principal diagnosis or arising during the episode of care. The term 'hospitalisation' has been used to refer to a separation which is the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending a change in a type of care (for example, from acute to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

Analyses

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

Self-reported prevalence

Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey on the prevalence of heart and circulatory conditions among Aboriginal and Torres Strait Islander people are presented in the tables in this section and figure 1.05.1.

Prevalence by age and sex

- In 2004–05 approximately 23% of Indigenous Australians reported having a heart or circulatory condition compared with 20% of non-Indigenous Australians.
- High blood pressure was the most common type of heart and circulatory condition reported by Indigenous and non-Indigenous Australians (15% and 11% respectively) (Table 1.05.1), followed by high cholesterol (7% for both population groups).
- Heart and circulatory conditions were most prevalent among those aged 55 years and over (57% for Indigenous Australians and 53% for non-Indigenous Australians).
- A higher proportion of Indigenous Australians reported having a heart or circulatory problem than non-Indigenous Australians across all age groups 25 years and over (Figure 1.05.1).

Table 1.05.1: Persons reporting heart and circulatory conditions, by Indigenous status and age group, 2004–05[(a)]

	0–24 years		25–44 years		45–54 years		55 years and over		Total[(b)]	
	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.
					Per cent					
Total with heart or circulatory condition	**2**	**2**	**17**	**12**	**35**	**28**	**57**	**53**	**23***	**20***
Has current and/or long-term high blood pressure	—[(c)]	—[(c)]	8*	4*	23*	14*	43*	34*	15*	11*
Heart murmur/heart valve disorder	1	1	3*	1*	2[(c)]	2	4	3	2*	2*
Total persons	**272,736**	**6,396,209**	**128,829**	**5,660,920**	**39,578**	**2,705,580**	**33,167**	**4,529,678**	**474,310**	**19,292,387**

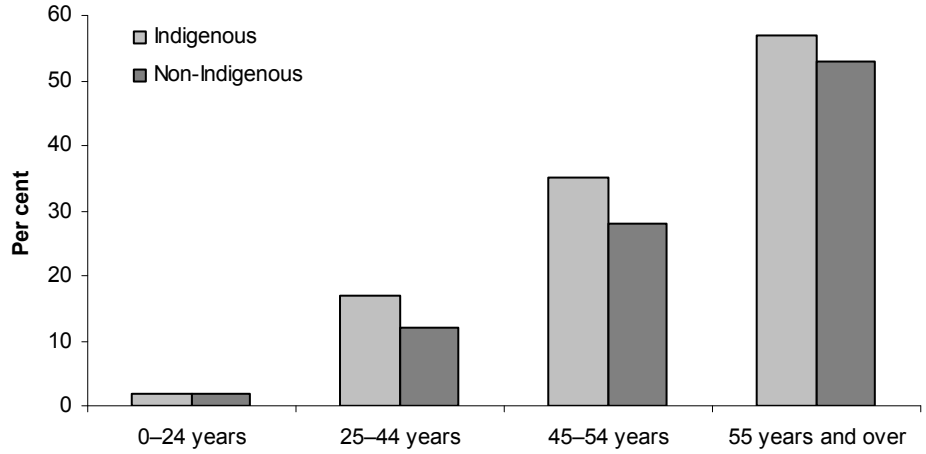
* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Age-standardised proportions.

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

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.



Source: AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Figure 1.05.1: Proportion of persons reporting heart and circulatory conditions, by Idnigenous status and age group, 2004–05

Prevalence by remoteness and time series

- In 2004–05, the prevalence of heart/circulatory conditions was slightly higher among Aboriginal and Torres Strait Islander males and females in remote areas (12% and 17% respectively) than those in non-remote areas (10% and 14% respectively) (Table 1.05.2).
- There has been little change in the prevalence of heart/circulatory conditions among Aboriginal and Torres Strait Islander peoples between 2001 and 2004–05.

Table 1.05.2: Indigenous persons reporting heart and circulatory problems/diseases,[a] by sex and remoteness area, 1995, 2001 and 2004–05

	1995[b]			2001			2004–05		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
					Per cent				
Remote	n.a.	n.a.	n.a.	10	16	12	12	17	14
Non-remote	15	16	15	10	13	10	10	14	11
Total	**n.a.**	**n.a.**	**n.a.**	**10**	**14**	**11**	**11**	**15**	**12**
Total number	**131,616**	**133,800**	**265,416**	**217,893**	**225,102**	**442,995**	**232,362**	**241,948**	**474,310**

(a) ICD-10-AM based output classification.

(b) Non-remote data are not available from the 1995 National Health Survey.

Sources: ABS and AIHW analysis of 1995 National Health Survey (Indigenous supplement); 2001 National Health Survey (Indigenous supplement); 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Prevalence by selected population and health characteristics

- In 2004–05, Indigenous Australians aged 15 years and over were more likely to report having heart or circulatory problems if they were in the lowest (1st) quintile of household income than in the highest (5th) income quintile (28% compared with 25%); if the highest year of school completed was Year 9 or below than if Year 12 was the highest

year of school completed (30% compared with 24%); and if they were unemployed or not in the labour force (28% and 30%) than if they were employed (23%).

- Indigenous Australians with reported fair/poor health status were much more likely to report heart or circulatory problems than Indigenous Australians with excellent/very good health status (37% compared with 19%). The proportions for non-Indigenous Australians were similar (34% compared with 16%).
- Indigenous Australians aged 18 years and over were more likely to report heart or circulatory problems if they reported their exercise level as low or sedentary rather than high (28% compared with 11%). They were also more likely to report heart or circulatory problems if they had experienced stressors in the previous 12 months (21%) than if no stressors were experienced (17%); if they drank at risky/high-risk levels in the last 12 months than if they did not (31% compared with 28%); and if they were overweight and obese than if they were normal or underweight (29% compared with 21%).
- Indigenous Australians aged 15 years and over were much more likely to report having heart or circulatory problems if they also reported hypertension, diabetes or high cholesterol than if they did not report these conditions. This was also the case for non-Indigenous Australians.

Table 1.05.3: Proportion[(a)] of Indigenous and non-Indigenous Australians aged 15 years and over with heart/circulatory problems, by selected population characteristics, 2004–05

	Indigenous Australians		Non-Indigenous Australians	
	Has heart/circulatory problems	Does not have heart/circulatory problems	Has heart/circulatory problems	Does not have heart/circulatory problems
Household income				
1st quintile	28.2	71.8	25.7	74.3
5th quintile	24.8	75.2	16.7	83.3
Financial stress—able to raise $2,000 within a week for something important				
Yes	15.9	84.1	n.a.	n.a.
No	20.0	80.0	n.a.	n.a.
Highest year of school completed				
Year 12	23.6	76.4	18.4	81.6
Year 9 or below	30.0	70.0	24.6	75.4
Whether has non-school qualification				
Has a non-school qualification	25.4	74.6	20.7	79.3
Does not have a non-school qualification	28.0	72.0	21.9	78.1
Employment				
Employed	22.5	77.5	17.0	83.0
Unemployed	28.2	71.8	13.6	86.4
Not in the labour force	30.3	69.7	25.9	74.1
Housing				
Owner	17.3	82.7	n.a.	n.a.
Renter	18.4	81.6	n.a.	n.a.
Stressors in last 12 months[(b)]				
Serious illness or disability	24.5	75.5	n.a.	n.a.
Total experienced stressors	21.4	78.6	n.a.	n.a.
No stressors	16.8	83.2	n.a.	n.a.
Self-assessed health status				
Excellent/very good	18.8	81.2	15.9	84.1
Good	24.1	75.9	23.2	76.8
Fair/poor	37.4	62.6	33.5	66.5
Smoker status[(b)]				
Current daily smoker	29.0	71.0	19.4	80.6
Not current daily smoker	27.7	72.3	22.9	77.1
Risky/high-risk alcohol consumption in last 12 months[(b)]				
Yes	31.0	69.0	20.5	79.5
No	28.1	71.9	22.8	77.2

(continued)

Table 1.05.3 (continued): Proportion[a] of Indigenous and non-Indigenous Australians aged 15 years and over with heart/circulatory problems, by selected population characteristics, 2004–05

	Indigenous Australians		Non-Indigenous Australians	
	Has heart/circulatory problems	Does not have heart/circulatory problems	Has heart/circulatory problems	Does not have heart/circulatory problems
Whether used substances in last 12 months[b][c]				
Yes	13.0	87.0	n.a.	n.a.
No	21.3	78.7	n.a.	n.a.
Physical activity[c]				
Low/sedentary	27.5	72.5	21.9	78.1
Moderate	21.9	78.1	21.0	79.0
High	11.0	89.0	15.4	84.6
Overweight/obesity				
Yes	29.3	70.7	23.8	76.2
No	20.6	79.4	18.5	81.5
Eats vegetables daily				
Yes	27.0	73.0	21.4	78.6
No	24.5	75.5	27.0	73.0
Eats fruit daily				
Yes	27.1	72.9	21.5	78.5
No	24.9	75.1	19.6	80.4
Hypertension				
Yes	97.4	2.6	94.4	5.6
No	11.6	88.4	10.9	89.1
Diabetes				
Yes	39.5	60.5	35.6	64.4
No	23.9	76.1	20.4	79.6
High cholesterol				
Yes	59.6	40.4	44.5	55.5
No	23.4	76.6	18.6	81.4
Total (age-standardised)	**26.9**	**73.1**	**21.4**	**78.6**
Total (crude)	**18.1**	**81.9**	. .	. .
Total number persons aged 15 years and over	53,179	240,462	3,422,780	12,109,597

(a) Proportions are age-standardised except for data for financial stress, housing tenure, substance use in the last 12 months and stressors experienced in the last 12 months for which crude proportions are presented, as data for non-Indigenous Australians are not available.

(b) Persons aged 18 years and over.

(c) Non-remote areas only.

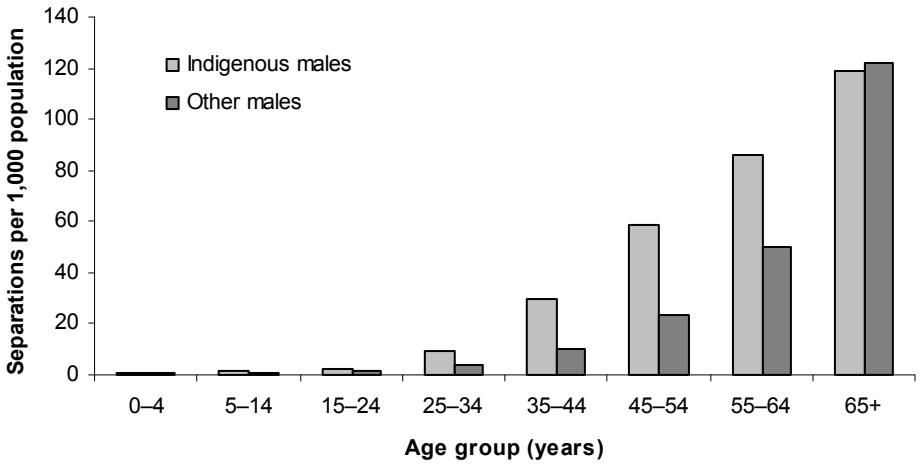
Source: AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

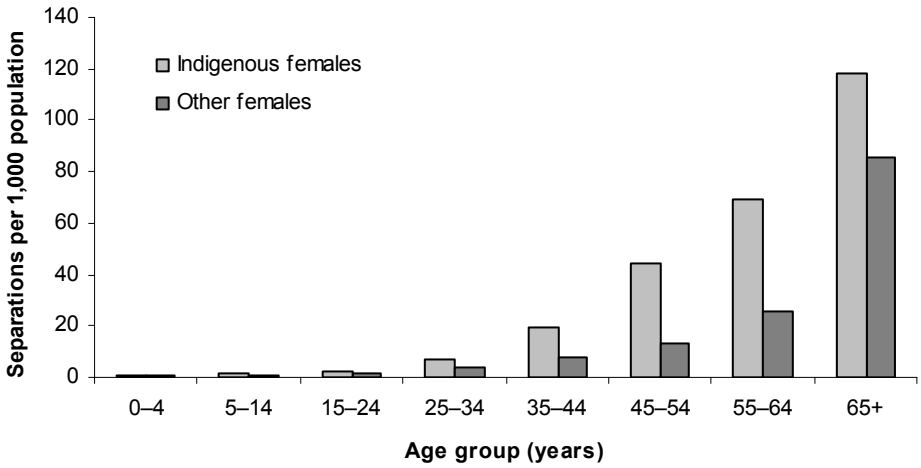
Hospitalisations

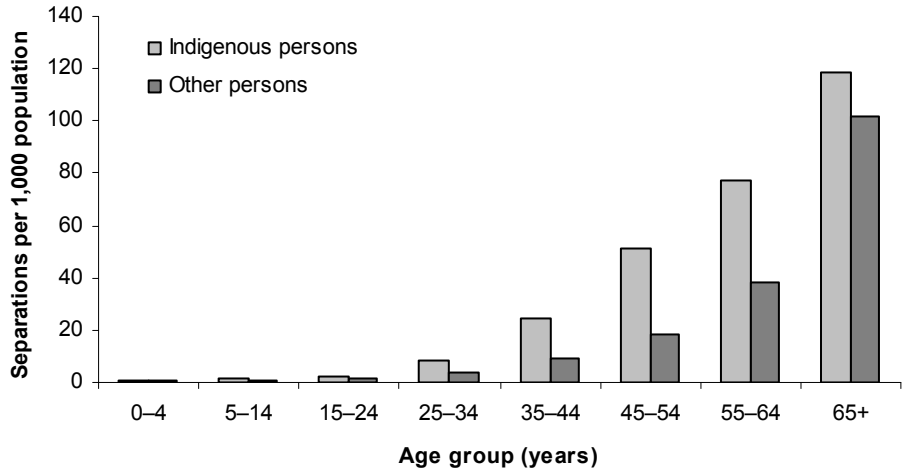
- For the 2-year period July 2004 to June 2006, there were 872,421 hospitalisations for circulatory diseases in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, 15,314 (1.8%) of which were hospitalisations of Aboriginal and Torres Strait Islander peoples.
- Circulatory disease is the eighth most common diagnosis at the ICD-10-AM chapter level for Aboriginal and Torres Strait Islander Australians admitted to hospital. Approximately 3% of all hospitalisations of Indigenous Australians were for circulatory diseases.

Hospitalisations by age and sex

- For the 2-year period July 2004 to June 2006, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous females had higher hospitalisation rates for circulatory diseases than other females across all age groups. Indigenous males had higher hospitalisation rates for circulatory diseases than other males across all age groups except for those aged 65 years and over (Figure 1.05.2).
- The greatest difference in hospitalisation rates for males occurred in the 5–14, 35–44 and 45–54 year age groups where Indigenous males were hospitalised at between two and three times the rate of other Australian males. The greatest difference in hospitalisation rates for females occurred in the 35–44 , 45–54 and 55–64 year age groups where Indigenous females were hospitalised at around three times the rate of other Australian females.
- Hospitalisation rates for circulatory diseases increased with age for both Indigenous and other Australians.
- Approximately 53% of Indigenous Australians hospitalised for circulatory diseases were males (8,041) and 47% were females (7,273).







Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.05.2: Age-specific hospitalisation rates for a principal diagnosis of circulatory disease, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006

Hospitalisations by state/territory

Table 1.05.4 presents hospitalisations for a principal diagnosis of diseases of the circulatory system for the 2-year period July 2004 to June 2006 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. As well as rates and ratios for the six jurisdictions which have been assessed as having adequate identification of Indigenous hospitalisations in 2004–05, unadjusted and adjusted national level data are also included in the table. The Australia data are adjusted by applying a completeness factor of 89.4%, which is an estimate of the level of Indigenous under-identification in hospital separations data.

- Over the period July 2004 to June 2006, Indigenous Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised for circulatory disease at almost twice the rate of other Australians.
- When hospital rates are adjusted at the national level for Indigenous under-identification, Indigenous persons were hospitalised for circulatory disease at 1.8 times the rate of other Australians.
- In New South Wales, Queensland, Western Australia, South Australia and the Northern Territory, Indigenous persons were hospitalised for circulatory diseases at around twice the rate of other Australians. In Victoria, Indigenous persons were hospitalised for circulatory diseases at around 0.9 times the rate of other Australians.

Table 1.05.4: Hospitalisations for principal diagnosis of diseases of the circulatory system, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c][d]

	Indigenous				Other[e]				
	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Number	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Ratio[i]
NSW									
Males	2,062	34.6	32.6	36.7	174,868	26.6	26.4	26.7	1.3*
Females	1,746	28.5	26.9	30.2	128,086	16.5	16.4	16.6	1.7*
Persons[j]	3,808	31.5	30.2	32.7	302,971	21.2	21.2	21.3	1.5*
Vic									
Males	313	22.9	19.5	26.3	132,941	27.3	27.1	27.4	0.8*
Females	234	15.9	13.5	18.4	103,171	17.7	17.6	17.9	0.9
Persons[j]	547	18.9	17.0	20.9	236,112	22.2	22.1	22.3	0.9*
Qld									
Males	2,318	42.9	40.7	45.2	96,712	26.0	25.8	26.2	1.7*
Females	2,299	40.1	38.1	42.1	70,960	17.1	17.0	17.2	2.3*
Persons[j]	4,617	41.5	40.0	43.0	167,672	21.4	21.3	21.5	1.9*
WA									
Males	1,383	40.5	38.0	43.1	43,291	23.6	23.4	23.8	1.7*
Females	1,337	36.4	34.2	38.6	30,238	14.7	14.6	14.9	2.5*
Persons[j]	2,720	38.4	36.7	40.0	73,529	19.0	18.8	19.1	2.0*
SA									
Males	670	48.3	44.0	52.6	41,185	25.3	25.0	25.5	1.9*
Females	468	33.7	30.2	37.2	32,500	16.5	16.3	16.6	2.0*
Persons[j]	1,138	40.6	37.9	43.4	73,685	20.6	20.4	20.7	2.0*
NT									
Males	1,295	40.3	37.6	43.0	2,133	20.4	19.4	21.5	2.0*
Females	1,189	33.0	30.8	35.2	1,005	13.2	12.2	14.1	2.5*
Persons[j]	2,484	36.4	34.7	38.1	3,138	17.3	16.6	18.0	2.1*
NSW, Vic, Qld, WA, SA & NT[d]									
Males	**8,041**	**38.3**	**37.2**	**39.4**	**491,130**	**26.2**	**26.1**	**26.3**	**1.5***
Females	**7,273**	**32.8**	**31.9**	**33.7**	**365,960**	**16.8**	**16.7**	**16.8**	**2.0***
Persons[j]	**15,314**	**35.4**	**34.7**	**36.1**	**857,107**	**21.2**	**21.2**	**21.3**	**1.7***
Australia unadjusted[k]									
Males	8,270	37.7	36.7	38.8	513,122	26.3	26.2	26.4	1.4*
Females	7,414	32.1	31.2	32.9	381,491	16.8	16.7	16.8	1.9*
Persons[j]	15,684	34.8	34.1	35.4	894,631	21.3	21.2	21.3	1.6*
Australia adjusted[k][l]									
Males	9,242	42.2	41.1	43.3	512,150	26.2	26.2	26.3	1.6*
Females	8,285	35.8	34.9	36.8	380,620	16.7	16.7	16.8	2.1*
Persons[j]	17,527	38.9	38.2	39.6	892,788	21.2	21.2	21.3	1.8*

(continued)

Table 1.05.4 (continued): Hospitalisations for principal diagnosis of diseases of the circulatory system, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006); ICD-10-AM codes I00–I99.

(c) Financial year reporting.

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

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

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other.

(j) Includes hospitalisations for which sex was indeterminate or not stated.

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

(l) Australian hospitalisation numbers and rates have been adjusted for Indigenous under-identification using a national adjustment factor of 0.89. This factor was derived from a study undertaken by the AIHW in 2007 which assessed the level of Indigenous under-identification in hospital data in all states and territories by comparing information gathered from face-to face interviews in public hospitals with results from hospital records. By applying this factor, the number of Indigenous hospitalisations was increased by 11% and these additional hospitalisations then subtracted from the number of hospitalisations for Other Australians.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by principal diagnosis

Table 1.05.5 presents hospitalisations with a principal diagnosis of diseases of the circulatory system by type of circulatory disease for the 2-year period July 2004 to June 2006 for the six jurisdictions.

- For the 2-year period July 2004 to June 2006 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of all hospitalisations with a principal diagnosis of diseases of the circulatory system, ischaemic heart disease was the most common reason for hospitalisation among Aboriginal and Torres Strait Islander peoples (43%), followed by other heart disease (30%).
- Indigenous males and females were hospitalised for rheumatic heart disease at much higher rates than other males and females (five and nine times respectively).
- Indigenous males and females were hospitalised for ischaemic heart disease at two and three times the rate of other males and females respectively.
- Indigenous Australians were hospitalised at around four times the rate of other Australians for hypertension disease.

Table 1.05.5: Hospitalisations of Indigenous persons for principal diagnosis of diseases of the circulatory system, by type of circulatory disease and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

	Males						Females						Persons					
Principal diagnosis	**No.**	**%[(e)]**	**No. per 1,000[(f)]**	**LCL 95%[(g)]**	**UCL 95%[(h)]**	**Ratio[(i)]**	**No.**	**%[(e)]**	**No. per 1,000[(f)]**	**LCL 95%[(g)]**	**UCL 95%[(h)]**	**Ratio[(i)]**	**No.**	**%[(e)]**	**No. per 1,000[(f)]**	**LCL 95%[(g)]**	**UCL 95%[(h)]**	**Ratio[(i)]**
Ischaemic heart disease (I20–I25)	3,778	47.0	17.7	17.0	18.4	1.7*	2,820	38.8	12.8	12.3	13.4	2.7*	6,598	43.1	15.1	14.7	15.6	2.0*
Acute myocardial infarction (I21)	*1,468*	*18.3*	*6.8*	*6.3*	*7.2*	*2.1**	*978*	*13.4*	*4.7*	*4.3*	*5.0*	*3.4**	*2,446*	*16.0*	*5.7*	*5.4*	*5.9*	*2.5**
Pulmonary heart disease and other forms of heart disease (I26–I52)	2,352	29.3	12.2	11.6	12.9	1.7*	2,207	30.3	11.0	10.5	11.6	2.1*	4,559	29.8	11.6	11.2	12.0	1.9*
Cerebrovascular disease (I60–I69)	633	7.9	3.7	3.3	4.0	1.6*	651	9.0	3.4	3.1	3.7	2.1*	1,284	8.4	3.6	3.3	3.8	1.9*
Stroke (I60–I64)	*572*	*7.1*	*3.4*	*3.0*	*3.7*	*1.9**	*575*	*7.9*	*3.0*	*2.7*	*3.3*	*2.2**	*1,147*	*7.5*	*3.2*	*3.0*	*3.4*	*2.0**
Acute rheumatic fever and chronic rheumatic heart disease (I00–I09)	241	3.0	0.4	0.4	0.5	4.8*	445	6.1	0.9	0.8	1.1	8.6*	686	4.5	0.7	0.6	0.8	7.0*
Hypertension disease (I10–I15)	229	2.8	0.9	0.7	1.0	3.4*	359	4.9	1.5	1.3	1.7	4.0*	588	3.8	1.3	1.1	1.4	3.8*
Other diseases of the circulatory system (I70–I99)[(j)]	808	10.0	3.4	3.1	3.7	0.6*	791	10.9	3.0	2.7	3.2	0.6*	1,599	10.4	3.2	3.0	3.4	0.6*
Total	**8,041**	**100.0**	**38.3**	**37.2**	**39.4**	**1.5***	**7,273**	**100.0**	**32.8**	**31.9**	**33.7**	**2.0***	**15,314**	**100.0**	**35.4**	**34.7**	**36.1**	**1.7***

(continued)

Table 1.05.4 (continued: Hospitalisations of Indigenous persons for principal diagnosis of diseases of the circulatory system, by type of circulatory disease and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006); ICD-10-AM codes I00–I99.

(c) Financial year reporting.

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

(e) Proportion of male, female and total hospitalisations of Indigenous persons in the period 2004–05 to 2005–06.

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other.

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

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by additional diagnosis

Table 1.05.6 presents hospitalisations for additional causes of diseases of the circulatory system for Aboriginal and Torres Strait Islander peoples in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- For the 2-year period July 2004 to June 2006, hospitalisations of Indigenous Australians with a principal diagnosis of circulatory diseases were commonly reported with other diseases of the circulatory system (64%), the disease category 'contact with health services and factors influencing health status' which includes dialysis (61%), and endocrine, metabolic and nutritional disorders (50%).
- In particular, hospitalisations with a principal diagnosis of ischaemic heart disease, cerebrovascular disease and other heart disease were commonly reported with an additional diagnosis of endocrine, metabolic and nutritional disorders (62%, 52% and 51% respectively).
- Indigenous Australians who were hospitalised with a principal diagnosis of cerebrovascular disease, which includes stroke, had diseases of the nervous system commonly reported as an additional diagnosis of hospitalisation (59%).

Table 1.05.6: Hospitalisations of Indigenous persons for principal diagnosis of circulatory disease, by additional diagnoses of hospitalisation, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

	Reported with a principal diagnosis of circulatory disease								
Additional diagnoses of hospitalisation	Ischaemic heart disease (I20–I25)	*Acute myocardial infarction (I21)*	Pulmonary heart disease/ Other heart disease (I26–I52)	Cerebro-vascular disease (I60–I69)	*Stroke (I60–I64)*	Acute rheumatic fever /chronic rheumatic heart disease (I00–I09)	Hypertensive disease (I10–115)	Other circulatory diseases (I70–I99)[(e)]	All circulatory diseases
	Per cent								
Diseases of the circulatory system (I00–I99)	77.8	80.4	65.0	67.7	68.7	43.0	17.2	30.6	64.3
Contact with health services & factors influencing health status (includes dialysis) (Z00–Z99)	70.6	73.7	58.9	59.5	58.4	41.7	45.2	46.0	61.3
Endocrine, nutritional & metabolic diseases (E00–E90)	61.6	63.4	50.6	52.3	53.7	15.9	29.6	23.6	50.3
Diseases of the genitourinary system (N00–N99)	16.3	19.3	23.5	19.6	19.8	8.5	16.5	12.9	18.0
Diseases of the respiratory system (J00–J99)	11.6	15.5	24.5	14.1	14.1	14.0	8.0	6.9	15.2
Symptoms, signs & abnormal clinical & laboratory findings (R00–R99)	7.6	10.1	15.0	41.7	42.7	10.5	22.1	10.1	13.6
Mental & behavioural disorders (F00–F99)	10.7	11.8	15.5	20.5	21.1	4.7	14.3	10.3	12.8
Diseases of the nervous system (G00–G99)	4.7	5.7	6.7	58.6	62.0	1.6	5.3	4.3	9.6
Diseases of the digestive system (K00–K93)	6.1	7.5	8.6	8.3	8.8	7.0	5.8	15.4	8.0
Certain infectious and parasitic diseases (A00–B99)	5.0	7.6	8.8	12.1	12.6	10.8	3.6	6.8	7.1

(continued)

Table 1.05.6 (continued): Hospitalisations of Indigenous persons for principal diagnosis of circulatory disease, by additional diagnoses of hospitalisation, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

Additional diagnoses of hospitalisation	Reported with a principal diagnosis of circulatory disease								
	Ischaemic heart disease (I20–I25)	*Acute myocardial infarction (I21)*	Other heart disease (I26–I52)	Cerebro-vascular disease (I60–I69)	*Stroke (I60–I64)*	Rheumatic heart disease (I00–I09)	Hypertensive disease (I10–115)	Other circulatory diseases (I70–I99)[(e)]	All circulatory diseases
	Per cent								
Diseases of the blood and disorders involving immune mechanism (D50–D89)	5.7	7.8	8.2	5.8	5.9	9.6	2.7	5.9	6.5
Diseases of the eye and adnexa (H00–H59)	4.4	4.7	4.9	11.3	11.7	0.6	3.4	2.5	4.7
Injury & poisoning and other consequences of external causes (S00–T98)	3.9	4.9	3.9	5.7	5.6	5.0	2.0	5.6	4.2
Other[(f)]	6.3	8.0	11.3	13.3	12.6	9.8	8.8	12.9	9.3
Total number	**6,598**	**2,446**	**4,559**	**1,284**	**1,147**	**686**	**588**	**1,599**	**15,314**

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006); ICD-10-AM codes I00–I99.

(c) Financial year reporting.

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

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

(f) Includes: diseases of the musculoskeletal system and connective tissue; diseases of the skin and subcutaneous tissue; neoplasms; congenital malformations, deformations and chromosomal abnormalities; diseases of the ear and mastoid process; pregnancy, childbirth and the puerperium; and certain conditions originating in the perinatal period.

Note: Sum of components may exceed 100% as more than one additional diagnosis can be reported for each hospitalisation.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations for all years from 1998–99 to 2005–06—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population. New South Wales and Victoria were identified as having adequate identification of Indigenous hospitalisations from 2004–05 onwards, therefore they were included as part of the current period analysis (2004–05 to 2005–06) but not as part of the time series analyses.

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for diseases of the circulatory system over the 7-year period 1998–99 to 2005–06 are presented in Table 1.05.7 and Figure 1.05.3.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates for circulatory diseases among Indigenous Australians during the period 1998–99 to 2005–06. The fitted trend implies an average yearly increase in the rate of 0.6 per 1,000 which is equivalent to an increase of 11% over the period. There was a significant increase in hospitalisation rates for Indigenous males and no significant change in hospitalisation rates for Indigenous females.
- There were significant declines in hospitalisation rates among other Australian males, and females during the same period, with an average yearly decrease in the rate of around 0.5 per 1,000 population. This is equivalent to a 14% decline over the period.
- There were significant increases in the hospitalisation rate ratios and rate differences between Indigenous and other Australians for circulatory diseases over the period 1998–99 to 2005–06. The fitted trend implies an average yearly increase of 0.1 in the rate ratio (29% increase over the period) and 1.0 per 1,000 in the rate difference between Indigenous and other Australians (58% increase) for the period 1998–99 to 2005–06. This reflects a relative and absolute increase in the gap between hospitalisation rates for Indigenous and other Australians for circulatory diseases.

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

Table 1.05.7: Age-standardised hospitalisation rates, rate ratios and rate differences from circulatory diseases, Qld, WA, SA and NT, 1998–99 to 2005–06[a]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[b]	% change over period[c]
Indigenous rate (separations per 1,000)										
Males	37.3	39.8	37.3	38.6	40.8	43.5	39.8	44.5	0.8*	15.9
Females	34.5	35.5	32.3	34.4	34.3	33.0	36.4	37.2	0.3	6.1
Persons	35.9	37.5	34.7	36.4	37.4	37.7	38.0	40.7	0.6*	10.8
Other Australian[d] rate (separations per 1,000)										
Males	28.9	28.6	27.6	27.0	26.3	25.7	25.3	24.9	–0.6*	–14.6
Females	18.6	18.4	18.0	17.7	17.0	16.6	16.6	16.0	–0.4*	–14.4
Persons	23.4	23.2	22.5	22.1	21.4	20.9	20.8	20.3	–0.5*	–14.2
Rate ratio[e]										
Males	1.3	1.4	1.4	1.4	1.5	1.7	1.6	1.8	0.1*	35.6
Females	1.9	1.9	1.8	1.9	2.0	2.0	2.2	2.3	0.1*	23.7
Persons	1.5	1.6	1.5	1.6	1.7	1.8	1.8	2.0	0.1*	28.8
Rate difference[f]										
Males	8.4	11.2	9.7	11.6	14.5	17.8	14.4	19.6	1.5*	121.2
Females	15.9	17.0	14.3	16.7	17.2	16.4	19.8	21.2	0.7*	30.2
Persons	12.4	14.3	12.1	14.3	15.9	16.8	17.3	20.4	1.0*	57.8

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2005–06.

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

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

(c) Per cent change between 1998–99 and 2005–06 based on the average annual change over the period.

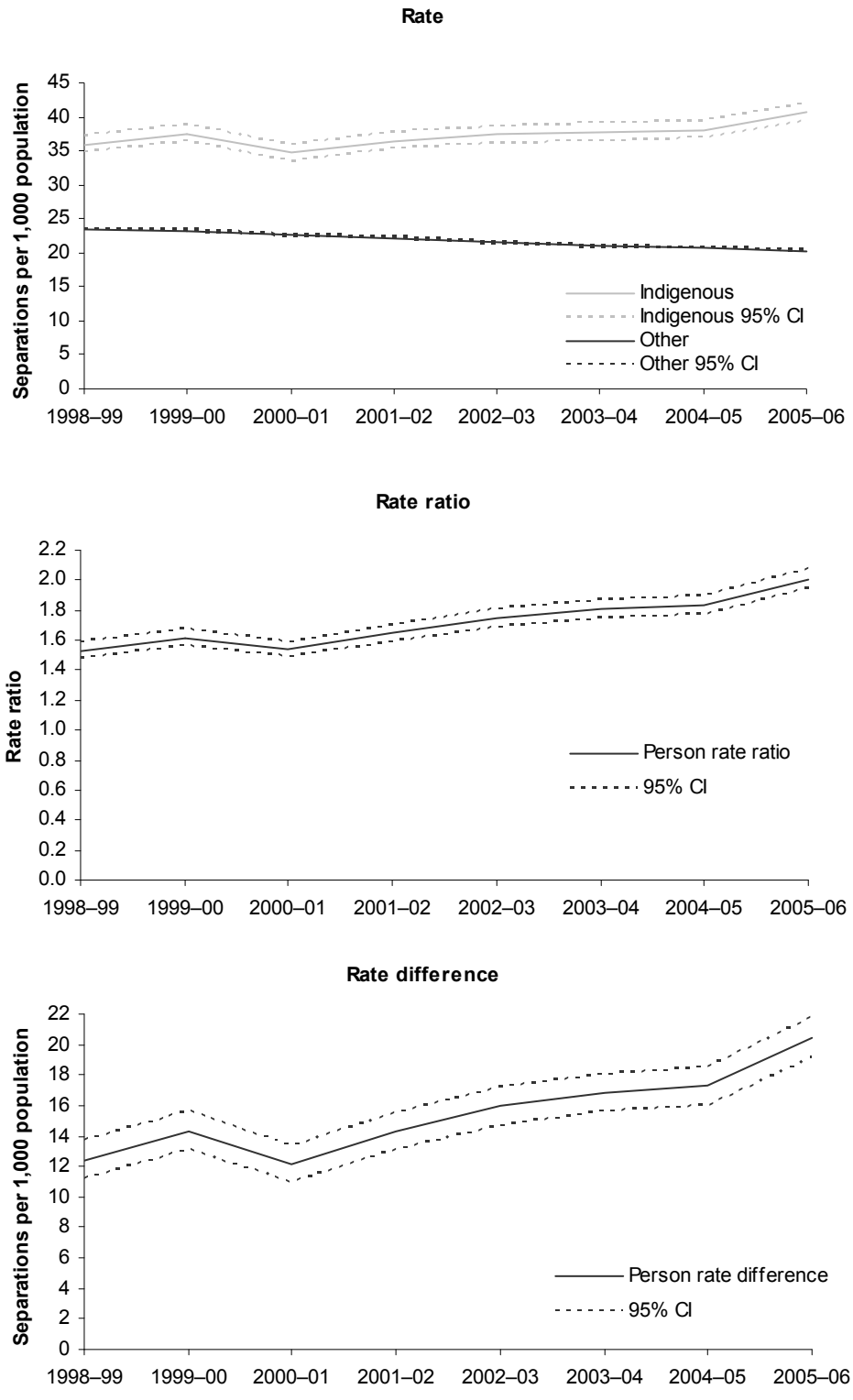
(d) 'Other' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.

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

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

Note: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity database.

Figure 1.05.3: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians from circulatory diseases, Qld, WA, SA and NT, 1998–99 to 2005–06

Sensitivity of hospitalisation trends to changes in identification

- The fitted trends described above have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for identification were posted—constant identification, increasing identification and decreasing identification:
  - Under the constant identification scenario, the number of hospitalisations for the period under study were adjusted using the following identification factors:
    - Queensland 87%
    - Western Australia 97%
    - South Australia 82%
    - Northern Territory 96%.
  - Under the increasing identification scenario, hospitalisations were adjusted by linearly increasing the identification through the period under study—from 82% in 1998–99 to 87% in 2005–06 for Queensland, from 95% to 97% for Western Australia, from 76% to 82% for South Australia, and from 94% to 96% for the Northern Territory.
  - Under the decreasing identification scenario, hospitalisations were adjusted by linearly decreasing the identification from 92% in 1998–99 to 87% in 2005–06 for Queensland, from 99% to 97% for Western Australia, from 88% to 82% for South Australia, and from 98% to 96% for the Northern Territory.
- The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; of course, if any actual shift in identification was more extreme than has been posted under these scenarios, then the observed trends in hospitalisations might not persist.
- The increase in hospitalisation rates for Indigenous males and the decrease in hospitalisation rates for other Australian males, females and persons overall over the period 1998–99 to 2005–06 remained significant under all three scenarios. The increases in hospitalisation rate for Indigenous persons remained significant only under the constant and decreasing identification scenarios.
- The increases in hospitalisation rate ratios for males and females remained significant under all three scenarios.
- The increases in the hospitalisation rate differences between Indigenous and other males and Indigenous and other persons overall remained significant under all three scenarios, whereas for females the increase in rate differences only remained significant under the constant and decreasing identification scenarios.

General practitioner encounters

Information about general practitioner (GP) encounters is available from the BEACH survey. Data for the 5-year period 2002–03 to 2006–07 are presented below. Circulatory problems are among the five most common types of problems managed at GP encounters with Indigenous patients.

- In the period 2002–03 to 2006–07 there were a total of 7,542 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, at which 11,219 problems were managed. Of these, 8.7% (979) were circulatory problems (Table 1.05.8).
- Circulatory problems were managed at a rate of around 13 per 100 encounters among Indigenous patients.
- After adjusting for differences in age distribution:
  - circulatory problems were managed at similar rates during GP encounters with Indigenous patients and other patients.
  - There were almost three times as many GP encounters for heart failure and twice as many GP encounters for ischaemic heart disease with Indigenous patients than with other patients over the 5-year period.

Table 1.05.8: Circulatory problems[a] managed by general practitioners, by Indigenous status of the patient, 2002–03 to 2006–07[b][c][d]

	Number		Per cent		Crude rate (no. per 100 encounters)						Age-standardised rate (no. per 100 encounters)[e]		
Problem managed	Indigenous	Other[f]	Indigenous	Other[f]	Indigenous	95% LCL[g]	95% UCL[h]	Other	95% LCL[g]	95% UCL[h]	Indigenous	Other[f]	Ratio[i]
Hypertension (K86, K87)	466	44,507	4.2	6.1	6.2	5.0	7.4	9.2	9.0	9.4	9.0	9.1	1.0
Ischaemic heart disease (K74, K76)	111	5,886	1.0	0.8	1.5	1.0	1.9	1.2	1.2	1.3	2.5	1.2	2.1
Heart failure (K77)	72	3,475	0.6	0.5	1.0	0.6	1.3	0.7	0.7	0.8	1.9	0.7	2.7
Cardiac check-up (K30, K31)	55	5,624	0.5	0.8	0.7	0.5	1.0	1.2	1.1	1.2	1.1	1.1	1.0
Atrial fibrillation/ flutter (K78)	31	4,035	0.3	0.6	0.4	0.2	0.6	0.8	0.8	0.9	0.8	0.8	0.9
Total circulatory problems(K00-K99)	***979***	***81,644***	***8.7***	***11.3***	***13.0***	***10.7***	***15.3***	***16.9***	***16.6***	***17.2***	***19.3***	***16.6***	***1.2***
Other problems managed	10,240	642,416	91.3	88.7	135.8	115.2	156.3	132.9	132.2	133.7	137.4	131.8	1.0
Total problems	**11,219**	**724,060**	**100.0**	**100.0**	**148.8**	**126.2**	**171.3**	**149.8**	**148.9**	**150.7**	**156.7**	**148.4**	**1.1**

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

(b) These survey results are likely to undercount the number of Indigenous Australians visiting doctors.

(c) Combined financial year data for 5 years.

(d) Data for Indigenous and other Australians have not been weighted.

(e) Directly age-standardised rate (no. per 100 encounters). Figures do not add to 100 as more than one problem can be managed at each encounter.

(f) 'Other' includes non-Indigenous patients and patients for whom Indigenous status was not stated.

(g) LCL = lower confidence interval.

(h) UCL = upper confidence interval.

(i) Rate ratio Indigenous:other.

Source: AIHW analysis of BEACH survey of general practice, AGPSCC.

Data quality issues

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians and thus overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in major cities and regional and remote areas, but very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 National Health Survey.

In remote communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

Hospital separations data

Separations

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

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections. The 'not stated category is missing from several collections. It is recommended that the standard wording and categories be used in all jurisdictions (AIHW 2005).

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations of Aboriginal and Torres Strait Islander peoples. 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 2007). 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 (AIHW unpublished data).

(continued)

Data quality issues (continued)

It has therefore been recommended that reporting of Indigenous hospital separations be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. The proportion of the Indigenous population covered by these six jurisdictions is 96%.

The following caveats have also been recommended for analysis of hospitalisation data from selected jurisdictions (ABS & AIHW 2005):

- *Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from Western Australia and the Northern Territory and relatively marked Indigenous under-identification in data from South Australia and Victoria).*
- *Data for these six jurisdictions over-represent Indigenous populations in less urbanised and more remote locations.*
- *Hospitalisation data for these six jurisdictions are not necessarily representative of the jurisdictions not included.*

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 hospital 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 to 2009 *(ABS 2004).*

From the AIHW study it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level.

General practitioner data (BEACH)

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample frame has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. In the BEACH survey, 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners, but the extent of this undercount is not measurable.

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1.06 Acute rheumatic fever and rheumatic heart disease

Incidence and prevalence of acute rheumatic fever and rheumatic heart disease among Aboriginal and Torres Strait Islander peoples expressed as a rate by age group, age-standardised rate and ratio

Data sources

Data for this measure come from the registers of acute rheumatic fever and rheumatic heart disease in the Top End of the Northern Territory and Central Australia. Published data on the incidence of acute rheumatic fever in North Queensland (Hanna & Heazlewood 2005) are also summarised here.

Data from the Top End registry cover the northern part of the Northern Territory including Darwin, East Arnhem, Lower Top End (Katherine region), Alligator, Daly, Finniss and Bathurst–Melville. Data from the Central Australian registry cover the Barkley region and Central Northern Territory (Alice Springs region). Although Central Australia also covers parts of Western Australia and South Australia, data from these areas have not been included because of difficulties in determining denominator populations for the calculation of rates.

Because of small numbers of registrations for acute rheumatic fever among the non-Indigenous population, incidence rates have not been calculated for non-Indigenous Australians. Rates presented for Indigenous Australians are therefore crude rates (that is, not age-standardised). Age-standardised rates and ratios have been used for data on rheumatic heart disease as a measure of morbidity in the Indigenous population relative to non-Indigenous Australians. Ratios of this type illustrate differences between the rates of morbidity among Indigenous people and those of other Australians, taking into account differences in age distributions.

Incidence data for acute rheumatic fever are for the period 2003–2006. Prevalence data for rheumatic heart disease are at 31 December 2006.

The 2001 estimated resident Indigenous populations for the Top End and Central Australia have been used as the denominator for rates. This is because data for the Top End and Central Australia are available from the ABS for Census years only. Caution should therefore be used in interpreting rates presented here.

Hospitalisation data on rheumatic heart disease from the AIHW National Hospital Morbidity Database and prevalence data from the National Aboriginal and Torres Strait Islander Health Survey are presented in Measure 1.05 (Circulatory disease).

Analyses

Incidence of acute rheumatic fever

- Between 2003 and 2006 there were 251 new and recurrent cases of acute rheumatic fever in the Top End of the Northern Territory and Central Australia, of which 247 (98.4%) were Aboriginal and Torres Strait Islander peoples (Table 1.06.1).

Incidence by sex and age group

- For the 4-year period 2003–2006, Aboriginal and Torres Strait Islander children aged 5–14 years in the Top End of the Northern Territory and Central Australia accounted for over half (54%) of new and recurrent cases of acute rheumatic fever in these regions. There are very few cases of acute rheumatic fever in non-Indigenous children of the same age.
- The incidence of acute rheumatic fever among Aboriginal and Torres Strait Islander children aged 5–14 years in the Top End of the Northern Territory and Central Australia was around 2.0 per 1,000 among males and 2.9 per 1,000 among females (Table 1.06.1).
- Approximately 41% of new and recurrent cases of acute rheumatic fever in the Indigenous population were of males and 59% were of females (Table 1.06.1).

Table 1.06.1: New and recurrent cases of acute rheumatic fever among Indigenous persons in the Top End of the Northern Territory and Central Australia, by age group and sex, 2003–2006[a]

	Males					Females					Persons				
	No.	%	No. per 1,000[b]	95% LCL[c]	95% UCL[d]	No.	%	No. per 1,000[b]	95% LCL[c]	95% UCL[d]	No.	%	No. per 1,000[b]	95% LCL[c]	95% UCL[d]
0–4	n.p.	n.p	n.p.	n.p.	n.p.	n.p.	n.p	n.p.	n.p.	n.p.	5	2.0	0.2	0.0	0.3
5–14	58	56.9	2.0	1.5	2.6	75	51.7	2.9	2.3	3.6	133	53.8	2.5	2.0	2.9
15–24	28	27.5	1.2	0.8	1.7	36	24.8	1.6	1.1	2.1	64	25.9	1.4	1.1	1.7
25–34	8	7.8	0.4	0.1	0.7	14	9.7	0.7	0.3	1.1	22	8.9	0.6	0.3	0.8
35–44	n.p.	n.p	n.p.	n.p.	n.p.	n.p.	n.p	n.p.	n.p.	n.p.	13	5.3	0.5	0.2	0.7
45+	n.p.	n.p	n.p.	n.p.	n.p.	n.p.	n.p	n.p.	n.p.	n.p.	10	4.0	0.3	0.1	0.5
Total	**102**	**100.0**	**0.9**	**0.7**	**1.1**	**145**	**100.0**	**1.3**	**1.1**	**1.5**	**247**	**100.0**	**1.1**	**1.0**	**1.2**

(a) Calender year reporting. Data are presented in 4-year groupings because of small numbers each year.

(b) Age-specific rates calculated using the average number of registrations for 2003–2006 divided by the 2001 estimated resident Indigenous population for the Top End and Central Australia.

(c) LCL = lower confidence limit.

(d) UCL = upper confidence limit.

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

Incidence by region

- In the 4-year period 2003–2006, there were over 150 new or recurrent cases of acute rheumatic fever in the Top End of the Northern Territory—97% of these were Indigenous Australians. For the same period in Central Australia, there were 97 cases of acute rheumatic fever registered, all of which were Indigenous Australians (Table 1.06.2).
- In 2003–2006, incidence of acute rheumatic fever among Indigenous Australians in the Top End of the Northern Territory was around 0.6 per 1,000 and in Central Australia the incidence rate was around 1.1 per 1,000 (Table 1.06.2).
- Incidence rates of acute rheumatic fever among Indigenous Australians were around 80 times those for non-Indigenous Australians, which is the result of the very small number of notifications among non-Indigenous Australians.

Table 1.06.2: New or recurrent cases of acute rheumatic fever in the Top End of the Northern Territory and Central Australia, by Indigenous status and sex, 2003–2006[a]

	Number		Per cent[b]		Indigenous			Non-Indigenous			
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	No. per 1,000[c]	95% LCL[d]	95% UCL[e]	No. per 1,000[b]	95% LCL[d]	95% UCL[e]	Ratio[f]
NT Top End											
Males	70	n.p.	98.6	1.4	0.6	0.4	0.7	n.p.	n.p.	n.p.	174.0
Females	80	n.p.	96.4	3.6	0.7	0.6	0.9	n.p.	n.p.	n.p.	54.5
Persons	150	n.p.	97.4	2.6	0.6	0.5	0.8	n.p.	n.p.	n.p.	80.2
Central Australia[g]											
Males	32	—	100.0	—	0.7	0.4	1.0	—	—	—	—
Females	65	—	100.0	—	1.5	1.1	1.9	—	—	—	—
Persons	97	—	100.0	—	1.1	0.8	1.3	—	—	—	—

(a) Calender year reporting. Data are presented in 4-year groupings because of small numbers each year.

(b) Proportion of total male, female and all persons cases in the period 2003–2006.

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

(d) LCL = lower confidence limit.

(e) UCL = upper confidence limit.

(f) Rate ratio Indigenous:non-Indigenous.

(g) Excludes cases in Western Australia and South Australia because of difficulties in ascertaining denominator populations.

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

- Over the 5-year period 1999–2004, there were 144 episodes of acute rheumatic fever among Indigenous Australians in the seven Health Service Districts in North Queensland. The annual incidence rate of acute rheumatic fever among Indigenous people in these seven districts was 61 per 100,000 and throughout North Queensland the incidence rate was 54 per 100,000. Incidence rates were highest in the Cape York and the Torres Strait and Northern Peninsula Area Districts. More than three-quarters (76%) of cases of acute rheumatic fever occurred in children aged less than 15 years and the median age of cases was 12 years. The incidence rate for Indigenous children aged 5–14 years in North Queensland over the 5 years was 133 per 100,000 (Hanna & Heazlewood 2005).

Time series analyses

Incidence rates for acute rheumatic fever among Indigenous Australians in the Top End, Northern Territory and Central Australia are presented in three year groupings for the period 1995–1997 to 2004–2006 in Table 1.06.3. Rates for non-Indigenous Australians are not presented because of the small number of cases each year.

Note that as population data for the Top End and Central Australia are available for Census years only, the 1996 estimated resident Indigenous population for these areas has been used as the denominator for rates for 1995–1997 and 1998–2000 and the 2001 estimated resident Indigenous population for these areas has been used as the denominator for rates for 2001–2003 and 2004–2006.

- Over the period 2001–2003 to 2004–2006 there was a significant decrease of 35% in the rate of acute rheumatic fever among Indigenous Australians in the Top End of the Northern Territory (Table 1.06.3; Figure 1.06.1).
- Over the periods 1995–1997 to 1998–2000 and 2001–2003 to 2004–2006, there were no significant changes in the rate of acute rheumatic fever among Indigenous Australians in Central Australia (Table 1.06.3; Figure 1.06.1).

Note also that changes in the level of accuracy of Indigenous identification in registration data will result in changes in the level of reported cases of acute rheumatic fever for Indigenous Australians. Caution should therefore be used in interpreting rates and changes over time.

Table 1.06.3: Numbers and rates[(a)] of acute rheumatic fever in the Top End of the Northern Territory and Central Australia, Indigenous Australians, 1995–1997 to 1998–2000 and 2001–2003 to 2004–2006

	1995–97	1998–2000	Difference in rates[(b)]	% change[(c)]	2001–03	2004–06	Difference in rates[(b)]	% change[(c)]
Top End NT								
Number	88	96	. .		149	97	. .	
Rate	0.8	0.9	0.1	9.1	1.3	0.8	–0.4*	–34.9
Central Australia								
Number	67	90	. .		91	67	. .	
Rate	1.3	1.7	0.4	34.3	1.7	1.2	–0.4	–26.4

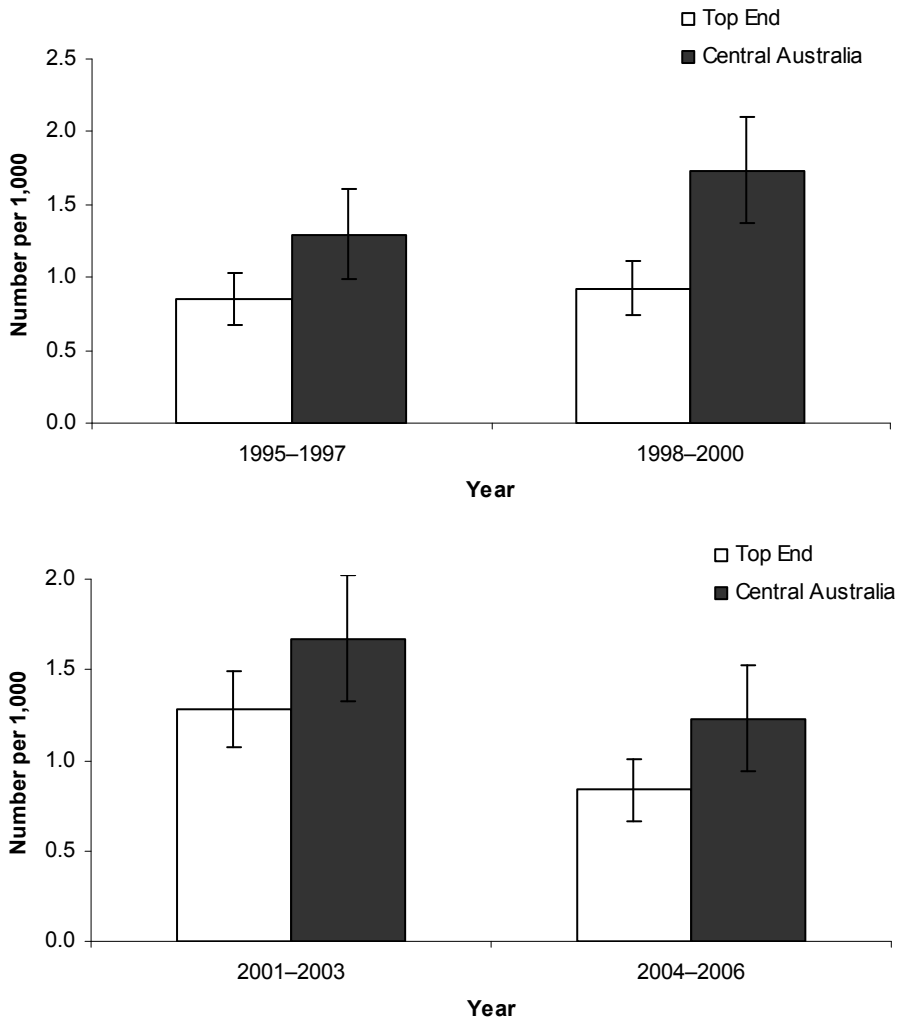
* Represents significant increases or decreases over the period 1995–1997 to 1998–2000 and 2001–03 to 2004–2006 at the $p < 0.05$ level.

(a) Crude rates per 1,000 population calculated using the 1996 estimated resident Indigenous population for the Top End and Central Australia for 1995–1997 and 1998–2000 and the 2001 estimated resident Indigenous population for the Top End and Central Australia for 2001–2003 and 2004–2006.

(b) Average annual change in rates determined using linear regression analysis.

(c) Per cent change between 1995–97 and 1998–2000 and per cent change between 2001–03 and 2004–06 based on the difference in rates over the period.

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



Note: Figures have been split for the periods 1995–97 to 1998–2000 and 2001–2003 to 2004–2006 because of the use of a different denominator population used for each period (1996 population for 1995–97 to 1998–2000 and 2001 population for 2001–2003 to 2004–2006).

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

Figure 1.06.1: Rate of new and recurrent cases of acute rheumatic fever among Indigenous persons in the Top End of the Northern Territory and Central Australia, all ages, 1995–1997 to 1998–2000 and 2001–2003 to 2004–2006

Prevalence of rheumatic heart disease

- As at 31 December 2006, there were 1,402 cases of rheumatic heart disease in the Top End of the Northern Territory and Central Australia, of which 1,288 (92%) were Indigenous peoples.

Prevalence by sex and age group

- As at 31 December 2006, rates of rheumatic heart disease in the Top End of the Northern Territory and Central Australia were between 19 and 28 per 1,000 among Indigenous adults between the ages of 25 and 64 years (Table 1.06.4).
- The biggest differences in rates of rheumatic heart disease between Indigenous and non-Indigenous Australians were in the 0–14, 15–24 and 25–34 year age groups, where rate ratios were between 47 and 61 (Table 1.06.4).
- Approximately 35% of cases of rheumatic heart disease in the Indigenous population were among Indigenous males and 65% among Indigenous females (Table 1.06.4).
- The overall prevalence rate for Indigenous males in the Top End of the Northern Territory and Central Australia was around 15 per 1,000. For Indigenous females, the prevalence rate was much higher at around 26–30 per 1,000.

Table 1.06.4: Rheumatic heart disease registrations for Indigenous persons in the Top End of the Northern Territory and Central Australia, by age group and sex, as at 31 December 2006

	Males						Females						Persons					
	No.	%	No. per 1,000[a]	95% LCL[b]	95% UCL[c]	Rate ratio[d]	No.	%	No. per 1,000[a]	95% LCL[b]	95% UCL[c]	Rate ratio[d]	No.	%	No. per 1,000[a]	95% LCL[b]	95% UCL[c]	Rate ratio[d]
0–14	132	29.5	12.5	10.3	14.6	28.3*	194	23.1	19.9	17.1	22.7	148.7*	326	25.3	16.0	14.3	17.8	54.9*
15–24	119	26.6	20.6	16.9	24.4	42.7*	238	28.3	42.3	36.9	47.6	77.4*	357	27.7	31.3	28.1	34.6	61.1*
25–34	94	21.0	19.0	15.2	22.9	88.3*	184	21.9	36.9	31.6	42.2	37.2*	278	21.6	28.0	24.7	31.3	47.3*
35–44	44	9.8	13.0	9.1	16.8	29.3*	92	11.0	25.2	20.1	30.4	27.5*	136	10.6	19.3	16.1	22.6	29.1*
45–54	33	7.4	16.0	10.5	21.4	37.1*	80	9.5	35.9	28.0	43.7	27.1*	113	8.8	26.3	21.5	31.2	31.3*
55–64	18	4.0	17.0	9.2	24.9	13.6*	38	4.5	31.8	21.7	41.9	8.6*	56	4.3	24.9	18.4	31.4	11.1*
65+	8	1.8	12.0	3.7	20.3	4.8*	14	1.7	14.8	7.0	22.5	3.2*	22	1.7	13.6	7.9	19.3	3.9*
Total	**448**	**100**	**15.7**	**14.3**	**17.2**	**28.1***	**840**	**100.0**	**29.6**	**27.6**	**31.6**	**27.1***	**1288**	**100.0**	**22.6**	**21.4**	**23.9**	**28.0***
Total ASR[e]	**448**	**100**	**15.6**	**13.7**	**17.4**	**18.8***	**840**	**100.0**	**29.0**	**26.7**	**31.2**	**19.3***	**1288**	**100.0**	**22.3**	**20.9**	**23.8**	**25.5***

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

(a) Age-specific rates calculated using the 2001 estimated resident Indigenous population for the Top End and Central Australia.

(b) LCL = lower confidence limit.

(c) UCL = upper confidence limit.

(d) Rate ratio Indigenous:non-Indigenous.

(e) Total age-standardised rates.

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

Prevalence by region

Table 1.06.5 presents numbers and rates of rheumatic heart disease among Indigenous and non-Indigenous Australians in the Top End of the Northern Territory and Central Australia as at 31 December 2006.

- As at 31 December 2006, there were 1,053 cases of rheumatic heart disease in the Top End of the Northern Territory, of which 91% (959) were Indigenous Australians (Table 1.06.5).
- For the same reference period, there were 349 cases of rheumatic heart disease in Central Australia, of which 94% (329) were Indigenous Australians (Table 1.06.5).
- After adjusting for differences in age structures, rates of rheumatic heart disease among Indigenous males and females in the Top End of the Northern Territory were around 22 and 19 times the rates for non-Indigenous males and females respectively (Table 1.06.5).
- In 2006, the prevalence rate of rheumatic heart disease among Indigenous males and females in Central Australia was around 11 and 23 times the rates for non-Indigenous males and females respectively (Table 1.06.5).

Table 1.06.5: Total number of rheumatic heart disease registrations in the Top End of the Northern Territory and Central Australia, by Indigenous status and sex, as at 31 December 2006

	Number		Per cent[a]		Indigenous			Non-Indigenous			
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	No. per 1,000[b]	95% LCL[c]	95% UCL[d]	No. per 1,000[b]	95% LCL[c]	95% UCL[d]	Ratio[e]
NT Top End											
Males	332	33	91.0	9.0	15.4	13.3	17.6	0.7	0.4	1.0	21.7*
Females	627	61	91.1	8.9	30.1	27.4	32.8	1.6	1.1	2.1	18.8*
Persons	959	94	91.1	8.9	22.8	21.1	24.6	1.1	0.7	1.5	20.9*
Central Australia[f]											
Males	116	9	92.8	7.2	15.2	11.9	18.5	1.4	0.2	2.5	11.2*
Females	213	11	95.1	4.9	25.9	22.0	29.7	1.1	0.4	1.8	23.1*
Persons	329	20	94.3	5.7	20.6	18.1	23.2	1.1	0.9	1.4	18.0*

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

(a) Proportion of total registrations for males, females and all persons.

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

(c) LCL = lower confidence limit.

(d) UCL = upper confidence limit.

(e) Rate ratio Indigenous:non-Indigenous.

(f) Excludes cases in Western Australia and South Australia because of difficulties in ascertaining denominator populations.

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

Time series analyses

The registration of cases of rheumatic heart disease among Indigenous and non-Indigenous Australians has only been accurately ascertained in recent years since the Top End and Central Australian registries have become fully operational (June 2002 in Central Australia and June 1998 in the Top End). Trends have therefore not been presented here and any increase in prevalence over this period is likely to be due to an improvement in reporting and case finding, and to better awareness of the condition and its symptoms, rather than to an actual rise in the number of cases.

Data quality issues

Registries of acute rheumatic fever and rheumatic heart disease

Registrations

Registrations do not measure the incidence or prevalence of conditions in a population. Under-reporting of these conditions can occur at a number of stages. A person infected may not feel ill or may not seek medical care. The condition may not be diagnosed or a registration may not occur.

Liaison with the data custodians for these registers will be needed to identify any particular data quality issues to be taken into account in the use of these data.

Under-identification

The accurate identification of Aboriginal and Torres Strait Islander peoples within this data collection is less likely to be a problem given the high proportion of Aboriginal and Torres Strait Islander peoples in the Top End of the Northern Territory and in Central Australia and the predominance of Aboriginal and Torres Strait Islander peoples with this disease. Only 8 of the 153 cases of acute rheumatic fever registered in North Queensland from mid-1999 to mid-2004 were identified as non-Indigenous and 3 of these were of Pacific Island descent (Hanna & Heazlewood 2005).

References

Hanna JN & Heazlewood RJ 2005. The epidemiology of acute rheumatic fever in Indigenous people in north Queensland. Australian and New Zealand Journal of Public Health 29(4):313–17.

1.07 High blood pressure

The prevalence of high blood pressure/hypertension among Aboriginal and Torres Strait Islander Australians expressed as a rate by age group, age-standardised rate and ratio

Data sources

Data for this measure come from the National Aboriginal and Torres Strait Islander Health Survey, the Bettering the Evaluation and Care of Health survey and the AIHW National Hospital Morbidity Database.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The 2004–05 NATSIHS collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians about health-related issues including health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. It is planned to repeat the NATSIHS at 6-yearly intervals, with the next NATSIHS to be conducted in 2010–11. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey which is conducted by the AIHW Australian GP Statistics and Classification Centre. Information is collected from a random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive encounters is collected from each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated. This is because some GPs might not ask about Indigenous status, or the patient may choose not to identify (AIHW 2002). The estimates presented here are also derived from a relatively small sample of GP encounters involving Indigenous Australians.

Because of a late inclusion of a 'not stated' category of Indigenous status in 2001–02 (before which 'not stated' responses were included with non-Indigenous encounters), GP encounters for which Indigenous status was not reported have been included with encounters for non-Indigenous people under the 'other' category.

Data are presented for the 5-year period 2002–03 to 2006–07, during which there were 7,542 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.5% of total GP encounters in the survey.

Hospitalisations

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

Data are presented for the six jurisdictions which have been assessed by the AIHW as having adequate identification of Indigenous hospitalisations in 2004–05—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. These six jurisdictions represent approximately 96% of the Indigenous population of Australia. Data are presented by state/territory of usual residence of the patient.

Hospitalisations for which Indigenous status was not reported have been included with hospitalisations data for non-Indigenous people under the 'other' category. This is to enable consistency across jurisdictions, as public hospitals in some states and territories do not have a category for the reporting of 'not stated' or inadequately recorded/reported Indigenous status.

Hospitalisation data are presented for the 2-year period July 2004 to June 2006. An aggregate of 2 years of data has been used, as the number of hospitalisations for some conditions is likely to be small for a single year.

The principal diagnosis is the diagnosis established to be the problem that was chiefly responsible for the patient's episode of care in hospital. The additional diagnosis is a condition or complaint either coexisting with the principal diagnosis or arising during the episode of care. The term 'hospitalisation' has been used to refer to a separation which is the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending a change in a type of care (for example, from acute to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

Analyses

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

Self-reported prevalence

Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey on the prevalence of high blood pressure/ hypertension among Indigenous Australians are presented in Tables 1.07.1 and 1.07.2.

- In 2004–05, after adjusting for differences in age structures, approximately 14% of Indigenous males and 16% of Indigenous females reported high blood pressure/ hypertension compared with 10% of non-Indigenous males and females.
- High blood pressure/ hypertension was most prevalent among those aged 55 years and over for both population groups. Approximately 39% of Indigenous males and 46% of Indigenous females reported high blood pressure/hypertension in this age group compared with 32% and 36% of non-Indigenous males and females respectively.
- In 2004–05, the prevalence of high blood pressure/ hypertension was higher among Indigenous Australians in remote areas (10% for males and females) than among Indigenous Australians in non-remote areas (6% for males and 7% for females).
- There was no significant change in the prevalence of high blood pressure/hypertension among Indigenous Australians between 2001 and 2004–05.

Table 1.07.1: Persons reporting high blood pressure/ hypertension, by Indigenous status, sex and age group, 2004–05[a]

	Males		Females	
Age group	**Indigenous**	**Non-Indigenous**	**Indigenous**	**Non-Indigenous**
		Per cent		
0–14	—[b]	—[b]	—[b]	—[b]
15–24	1[b]	—[b]	1[c]	—[b]
25–34	4	3	5*[c]	2*[c]
35–44	14*	6*	11*	4*
45–54	22	15	24*	13*
55 years and over	39	32	46*	36*
Total	**7**	**10**	**8**	**12**
Total standardised[d]	**14***	**10***	**16***	**10***
Total number	232,632	9,600,405	241,948	9,691,973

* Statistically significant differences in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05 and the National Health Survey 2004–05 consisting of persons ever told has condition, still current and long term, and ever told has condition, current and not long term.

(b) Estimate has a relative standard error greater than 50% and is considered too unreliable for general use.

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

(d) Age-standardised proportions.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.

Table 1.07.2: Indigenous persons reporting high blood pressure/ hypertension, by sex and remoteness, 1995, 2001 and 2004–05

	1995[a]		2001		2004–05	
	Males	**Females**	**Males**	**Females**	**Males**	**Females**
			Per cent			
Remote	n.a.	n.a.	7	10	10	10
Non-remote	15	16	5	7	6	7
Total	**n.a.**	**n.a.**	**6**	**8**	**7**	**8**
Total number	131,616	133,800	217,893	225,012	232,362	241,948

(a) Remote data are not available for the 1995 National Health Survey.

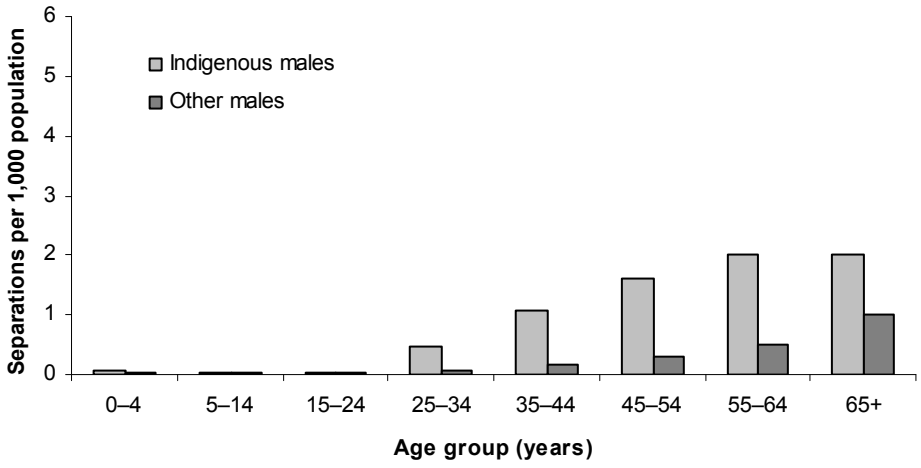
Sources: ABS and AIHW analysis of ABS 1995 National Health Survey (Indigenous supplement); 2001 National Health Survey (Indigenous supplement); 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

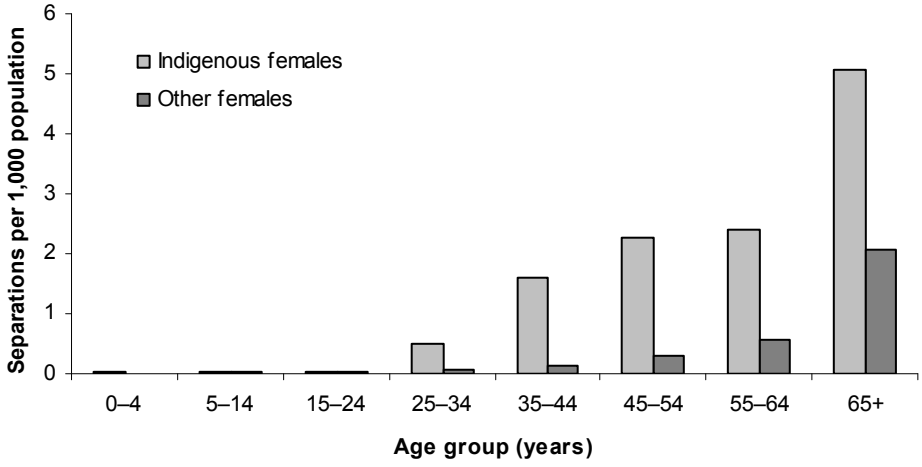
Hospitalisations

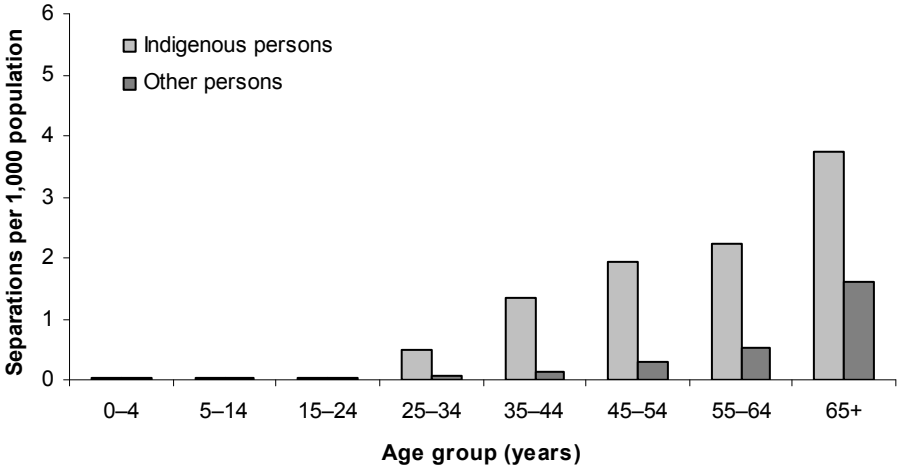
- In the 2-year period July 2004 to June 2006 there were 13,982 hospitalisations for hypertensive disease in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of which 588 (4.2%) were hospitalisations of Aboriginal and Torres Strait Islander peoples.
- Hospitalisations for hypertensive disease accounted for 0.1% of total hospitalisations of Aboriginal and Torres Strait Islander peoples.

Hospitalisations by age and sex

- For the 2-year period July 2004 to June 2006, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, Indigenous males and females had higher hospitalisation rates for hypertensive disease than other males and females across all age groups (Figure 1.07.1).
- The greatest difference in rates occurred in the 25–34, 35–44 and 45–54 year age groups where Indigenous males were hospitalised at between 5 and 7 times the rate of other males in these age groups and Indigenous females were hospitalised at between 8 and 11 times the rates of other females in these age groups.
- Age-specific hospitalisation rates were much higher for Indigenous females than for Indigenous males.
- For both Indigenous and other Australian males and females, hospitalisation rates for hypertensive disease were highest in the 65 years and over age group.
- Approximately 39% of Indigenous Australians hospitalised for hypertensive disease were males (229) and 61% were females (359) (Table 1.07.3).







Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.07.1: Age-specific hospitalisation rates for a principal diagnosis of hypertensive disease, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006

Overall hospitalisation rates

Table 1.07.3 presents hospitalisations for the 2-year period July 2004 to June 2006 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined. As well as rates and ratios for the six jurisdictions which have been assessed as having adequate identification of Indigenous hospitalisations in 2004–05, unadjusted and adjusted national level data are included in the table. The Australia data are adjusted by applying a completeness factor of 89.4%, which is an estimate of the level of Indigenous under-identification in hospital separations data.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were around three to four times as many hospitalisations for hypertensive disease among Indigenous males and females as would be expected based on the rates for other males and females.
- When hospital rates are adjusted at the national level for Indigenous under-identification, Indigenous persons were hospitalised for hypertensive disease at 4.1 times the rate of other Australians.

Table 1.07.3: Hospitalisations of Indigenous persons for principal diagnosis of hypertensive disease, by sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)d)]

	Indigenous				Other[(e)]				
	No.	No. per 1,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	No.	No. per 1,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Ratio[(i)]
NSW, Vic, Qld, WA, SA & NT									
Males	229	0.9	0.7	1.0	4,956	0.3	0.3	0.3	3.4*
Females	359	1.5	1.3	1.7	8,437	0.4	0.4	0.4	4.0*
Persons	588	1.3	1.1	1.4	13,394	0.3	0.3	0.3	3.8*
Australia unadjusted[(j)]									
Males	230	0.8	0.7	1.0	5,129	0.3	0.3	0.3	3.2*
Females	359	1.5	1.3	1.7	8,721	0.4	0.4	0.4	3.9*
Persons	589	1.2	1.1	1.3	13,851	0.3	0.3	0.3	3.6*
Australia adjusted[(j)(k)]									
Males	257	0.9	0.8	1.1	5,102	0.3	0.3	0.3	3.6*
Females	401	1.6	1.4	1.8	8,679	0.4	0.4	0.4	4.3*
Persons	658	1.3	1.2	1.5	13,782	0.3	0.3	0.3	4.1*

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006); ICD-10-AM codes I10–I15.

(c) Financial year reporting.

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

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

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other.

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

(k) Australian hospitalisation numbers and rates have been adjusted for Indigenous under-identification using a national adjustment factor of 0.89. This factor was derived from a study undertaken by the AIHW in 2007 which assessed the level of Indigenous under-identification in hospital data in all states and territories by comparing information gathered from face-to face interviews in public hospitals with results from hospital records. By applying this factor, the number of Indigenous hospitalisations was increased by 11% and these additional hospitalisations then subtracted from the number of hospitalisations for Other Australians.

Source: AIHW analysis of National Hospital Morbidity Database.

General practitioner encounters

Information about general practitioner (GP) encounters is available from the BEACH survey. Data for the 5-year period 2002–03 to 2006–07 are presented in Table 1.07.4. Hypertension is the second most common individual problem managed at GP encounters with Aboriginal and Torres Strait Islander patients.

- In the period 2002–03 to 2006–07 there were a total of 7,542 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, at which 11,219 problems were managed. Of these, 466 (4.2% of all problems managed) were for hypertension.
- Hypertension was managed at GP encounters at a rate of 6.2 per 100 encounters with Indigenous patients.
- After adjusting for differences in age distribution, hypertension was managed at GP encounters at similar rates with both Indigenous patients and other patients.

Table 1.07.4: Hypertension[a] managed by general practitioners, by Indigenous status, 2002–03 to 2006–07[b][c][d]

	Number		Crude rate (no. per 100 encounters)						Age-standardised rate (no. per 100 encounters)[e]		
	Indigenous	Other[f]	Indigenous	95% LCL[g]	95% UCL[h]	Other[f]	95% LCL[g]	95% UCL[h]	Indigenous	Other[f]	Ratio[i]
Males	207	18,531	6.7	5.3	8.2	9.5	9.2	9.7	9.2	9.2	1.0
Females	255	25,599	5.8	4.4	7.1	9.0	8.8	9.3	9.0	9.0	1.0
Persons	466	44,507	6.2	5.0	7.4	9.2	9.0	9.4	9.0	9.1	1.0

(a) ICPC–2 codes: K86, K87.

(b) These survey results are likely to undercount the number of Indigenous Australians visiting doctors.

(c) Combined financial year data for 5 years.

(d) Data for Indigenous and other Australians have not been weighted.

(e) Directly age-standardised rate (no. per 100 encounters) using the total encounters over the period 2002–03 to 2006–07 as the standard.

(f) Includes non-Indigenous patients and patients for whom Indigenous status was not stated.

(g) LCL = lower confidence interval.

(h) UCL = upper confidence interval.

(i) Rate ratio Indigenous:other.

Source: AIHW analysis of BEACH survey of general practice, AGPSCC.

Data quality issues

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians and thus overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in major cities and regional and remote areas, but very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 National Health Survey.

In remote communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

Hospital separations data

Separations

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

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections. The 'not stated' category is missing from several collections. It is recommended that the standard wording and categories be used in all jurisdictions (AIHW 2005).

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations of Aboriginal and Torres Strait Islander peoples. 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 2007). 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 (AIHW unpublished data). It has therefore been recommended that reporting of Indigenous hospital separations be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. The proportion of the Indigenous population covered by these six jurisdictions is 96%.

(continued)

Data quality issues (continued)

The following caveats have also been recommended for analysis of hospitalisation data from selected jurisdictions (ABS & AIHW 2005):

- *Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from Western Australia and the Northern Territory and relatively marked Indigenous under-identification in data from South Australia and Victoria).*
- *Data for these six jurisdictions over-represent Indigenous populations in less urbanised and more remote locations.*
- *Hospitalisation data for these six jurisdictions are not necessarily representative of the jurisdictions not included.*

From the AIHW study it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level.

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 hospital 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 to 2009 *(ABS 2004).*

General practitioner data (BEACH)

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample frame has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. In the BEACH survey, 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners, but the extent of this undercount is not measurable.

High blood pressure

Data quality issues specific to this measure include:

- *The definition of high blood pressure has changed over time and could be further adjusted.*
- *The issue of the most appropriate absolute risk assessment for high blood pressure in Aboriginal and Torres Strait Islander peoples has not yet been determined.*
- *The hospital statistics on hypertensive disease are significantly lower than the prevalence of hypertension in the population as there is very little hospitalisation for hypertensive disease.*

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1.08 Diabetes

Prevalence of diabetes for Aboriginal and Torres Strait Islander peoples expressed as a rate by age group, age-standardised rate and ratio

Data sources

Data for this measure come from the National Aboriginal and Torres Strait Islander Health Survey, the Bettering the Evaluation and Care of Health survey and the AIHW National Hospital Morbidity Database.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The 2004–05 NATSIHS collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians about health-related issues including health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. It is planned to repeat the NATSIHS at 6-yearly intervals, with the next NATSIHS to be conducted in 2010–11. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey which is conducted by the AIHW Australian GP Statistics and Classification Centre. Information is collected from a random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive encounters is collected from each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated. This is because some GPs might not ask about Indigenous status, or the patient may choose not to identify (AIHW 2002). The estimates presented here are also derived from a relatively small sample of GP encounters involving Indigenous Australians.

Because of a late inclusion of a 'not stated' category of Indigenous status in 2001–02 (before which 'not stated' responses were included with non-Indigenous encounters), GP encounters for which Indigenous status was not reported have been included with encounters for non-Indigenous people under the 'other' category.

Data are presented for the 5-year period 2002–03 to 2006–07, during which there were 7,542 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.5% of total GP encounters in the survey.

Hospitalisations

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

Data are presented for the six jurisdictions which have been assessed by the AIHW as having adequate identification of Indigenous hospitalisations in 2004–05—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. These six jurisdictions represent approximately 96% of the Indigenous population of Australia. Data are presented by state/territory of usual residence of the patient.

Hospitalisations for which Indigenous status was not reported have been included with hospitalisations data for non-Indigenous people under the 'other' category. This is to enable consistency across jurisdictions, as public hospitals in some states and territories do not have a category for the reporting of 'not stated' or inadequately recorded/reported Indigenous status.

Hospitalisation data are presented for the 2-year period July 2004 to June 2006. An aggregate of 2 years of data has been used, as the number of hospitalisations for some conditions is likely to be small for a single year.

The principal diagnosis is the diagnosis established to be the problem that was chiefly responsible for the patient's episode of care in hospital. The additional diagnosis is a condition or complaint either coexisting with the principal diagnosis or arising during the episode of care. The term 'hospitalisation' has been used to refer to a separation which is the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending a change in a type of care (for example, from acute to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

Analyses

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

Self-reported prevalence

Data on the self-reported prevalence of diabetes were measured in the National Aboriginal and Torres Strait Islander Health Survey and are presented below.

Prevalence by age, sex and remoteness

- In 2004–05, after adjusting for differences in age structure, approximately 12% of Indigenous Australians reported diabetes/ high sugar levels compared with 4% of non-Indigenous Australians.
- The greatest difference in prevalence rates between Indigenous and non-Indigenous Australians was among those aged 45–54 years. Indigenous Australians were more than five times as likely to report diabetes as non-Indigenous Australians in this age group (Table 1.08.1; Figure 1.08.1).
- Prevalence of diabetes was highest among those aged 55 years and over for both Indigenous Australians (32%) and non-Indigenous Australians (12%) (Figure 1.08.1).
- Indigenous males were three times as likely, and Indigenous females four times as likely, as non-Indigenous males and females to report diabetes/high sugar levels (Table 1.08.2).

- Prevalence of diabetes was higher among Indigenous Australians in remote areas than among Indigenous Australians in non-remote areas (9% compared with 5%) (Table 1.08.3).
- There was no significant change in the prevalence of diabetes among Indigenous Australians between 1995, 2001 and 2004–05 (Table 1.08.3).

Table 1.08.1: Persons reporting diabetes/high sugar levels, by Indigenous status and age group, 2004–05[(a)]

Age group	Indigenous	Non-Indigenous
	Per cent	
0–14	—[(b)]	—[(c)]
15–24	1[(c)]	1[(c)]
25–34	4*	1*
35–44	10*	2*
45–54	21*	4*
55 years and over	32*	12*
Total	**6***	**4***
Total (age-standardised)[(d)]	**12***	**4***

* Represents statistically significant differences in the Indigenous/non-Indigenous comparisons.

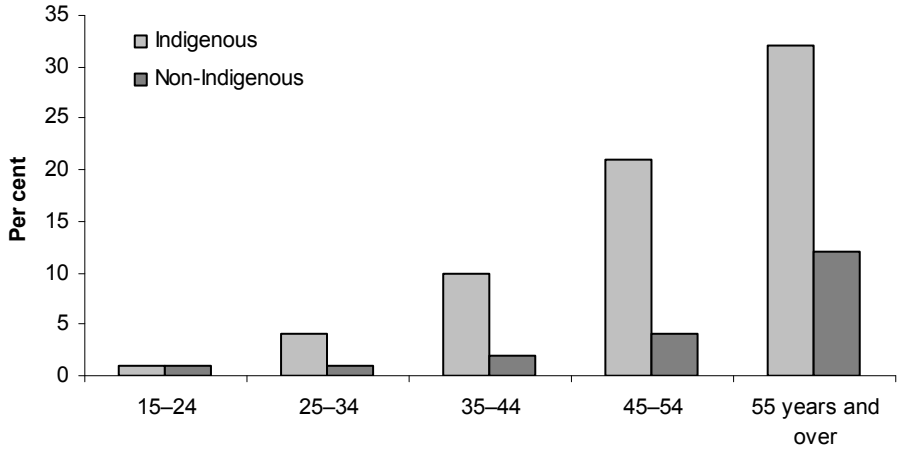
(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Estimate has a relative standard error greater than 50% and is considered too unreliable for general use.

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

(d) Total is a directly age-standardised proportion.

Source: ABS 2006.



Source: AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Figure 1.08.1: Proportion of persons reporting diabetes/high sugar levels, by Indigenous status and age group, 2004–05

Table 1.08.2: Persons reporting diabetes/high sugar levels, by Indigenous status, sex and remoteness, 2004–05

	Males		Females		Persons	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
			Per cent			
Remote	15	n.a.	18	n.a.	16	n.a.
Non-remote	10	4	11	3	11	4
Total	**11**	**4**	**13**	**3**	**12**	**4**
Total number	232,362	9,788,447	241,948	9,893,092	474,310	19,681,539

Note: Data are age-standardised.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Table 1.08.3: Indigenous persons reporting diabetes/high sugar levels, by remoteness, 1995, 2001 and 2004–05

	1995	2001	2004–05
		Per cent	
Remote	n.a.	7	9
Non-remote	4	4	5
Total	**n.a.**	**5**	**6**
Total number	265,416	442,995	474,310

Sources: ABS and AIHW analysis of 1995 National Health survey (Indigenous supplement); 2001 National Health Survey (Indigenous supplement); ABS 2006.

Prevalence by selected population and health characteristics

- In 2004–05, Indigenous Australians aged 15 years and over were more likely to report having diabetes if they were unable to raise $2000 within a week (11% compared with 8%); if the highest year of school completed was Year 9 or below than if Year 12 was the highest year of school completed (17% compared with 14%); and if they were unemployed than if they were employed (22% compared with 13%). Among non-Indigenous Australians, those who were not in the labour force were more likely to report having diabetes than those who were unemployed or employed (Table 1.08.4).
- Indigenous Australians with reported fair/poor health status were much more likely to have diabetes than Indigenous Australians with excellent/very good health status (22% compared with 9%).
- Indigenous Australians aged 18 years and over were more likely to report having diabetes if they had experienced stressors in the last 12 months (12%) than if no stressors were experienced (9%); if they reported their exercise level as low or sedentary rather than high (14% compared with 11%); and if they were overweight and obese than if they were normal or underweight (18% compared with 9%).
- Indigenous Australians who drank at risky/high-risk levels, smoked daily or reported using substances in the last 12 months were less likely to report diabetes than Indigenous Australians who did not report these behaviours. The same was true for non-Indigenous Australians.

- Indigenous Australians who reported that they did not eat vegetables daily were more likely to report having diabetes than those who did eat vegetables daily. The reverse was true for non-Indigenous Australians.
- Indigenous Australians who reported that they eat fruit daily were more likely to report having diabetes than those who did not eat fruit daily.
- Indigenous Australians aged 15 years and over were much more likely to report having diabetes if they also reported hypertension, circulatory problems or high cholesterol than if they did not report these conditions. This was also the case for non-Indigenous Australians.

Table 1.08.4: Proportion[(a)] of Indigenous and non-Indigenous Australians aged 15 years and over with diabetes/high sugar levels, by selected population characteristics, 2004–05

	Indigenous Australians		Non-Indigenous Australians	
	Has diabetes	Does not have diabetes	Has diabetes	Does not have diabetes
Household income				
1st quintile	17.9	82.1	6.0	94.0
5th quintile	16.3	83.7	3.4	96.6
Financial stress—able to raise $2,000 within a week for something important				
Yes	7.7	92.3	n.a.	n.a.
No	11.2	88.8	n.a.	n.a.
Highest year of school completed				
Year 12	14.4	85.6	3.8	96.2
Year 9 or below	17.3	82.7	6.0	94.0
Whether has non-school qualification				
Has a non-school qualification	13.3	86.7	4.3	95.7
Does not have a non-school qualification	16.6	83.4	4.7	95.3
Employment				
Employed	12.5	87.5	3.2	96.8
Unemployed	22.2	77.8	3.7	96.3
Not in the labour force	17.3	82.7	5.5	94.5
Housing				
Owner	6.6	93.4	n.a.	n.a.
Renter	10.9	89.1	n.a.	n.a.
Stressors in last 12 months[(b)]				
Serious illness or disability	12.2	87.8	n.a.	n.a.
Total experienced stressors	11.7	88.3	n.a.	n.a.
No stressors	8.8	91.2	n.a.	n.a.
Self-assessed health status				
Excellent/very good	9.0	91.0	1.9	98.1
Good	14.2	85.8	5.0	95.0
Fair/poor	21.8	78.2	9.6	90.4

(continued)

Table 1.08.4 (continued): Proportion[(a)] of Indigenous and non-Indigenous Australians aged 15 years and over with heart/circulatory problems, by selected population characteristics, 2004–05

	Indigenous Australians		Non-Indigenous Australians	
	Has diabetes	Does not have diabetes	Has diabetes	Does not have diabetes
Smoker status[(b)]				
Current daily smoker	12.7	87.3	3.5	96.5
Not current daily smoker	18.5	81.5	4.8	95.2
Risky/high-risk alcohol consumption in last 12 months[(b)]				
Yes	8.1	91.9	2.9	97.1
No	17.4	82.6	5.0	95.0
Whether used substances in last 12 months[(b)(c)]				
Yes	3.7	96.3	n.a.	n.a.
No	10.7	89.3	n.a.	n.a.
Physical activity[(c)]				
Low/sedentary	13.6	86.4	4.8	95.2
Moderate	12.1	87.9	4.0	96.0
High	11.2	88.8	2.6	97.4
Overweight/obesity				
Yes	17.7	82.3	5.9	94.1
No	8.7	91.3	2.9	97.1
Eats vegetables daily				
Yes	14.9	85.1	4.5	95.5
No	23.7	76.3	3.4	96.6
Eats fruit daily				
Yes	15.5	84.5	4.5	95.5
No	12.6	87.4	3.5	96.5
Hypertension				
Yes	26.5	73.5	9.6	90.4
No	12.3	87.7	3.3	96.7
Circulatory problems				
Yes	21.9	78.1	7.2	92.8
No	11.3	88.7	2.5	97.5
High cholesterol				
Yes	29.6	70.4	10.3	89.7
No	13.9	86.1	3.6	96.4
Total (age-standardised)	**15.4**	**84.6**	**4.5**	**95.5**
Total (crude)	**9.8**	**90.2**	**4.6**	**95.4**
Total number persons aged 15 years and over	28,703	264,938	720,634	14,811,743

(a) Proportions are-age-standardised except for data for financial stress, housing tenure, substance use in the last 12 months and stressors experienced in the last 12 months for which crude proportions are presented, as data for non-Indigenous Australians are not available.

(b) Persons aged 18 years and over.

(c) Non-remote areas only.

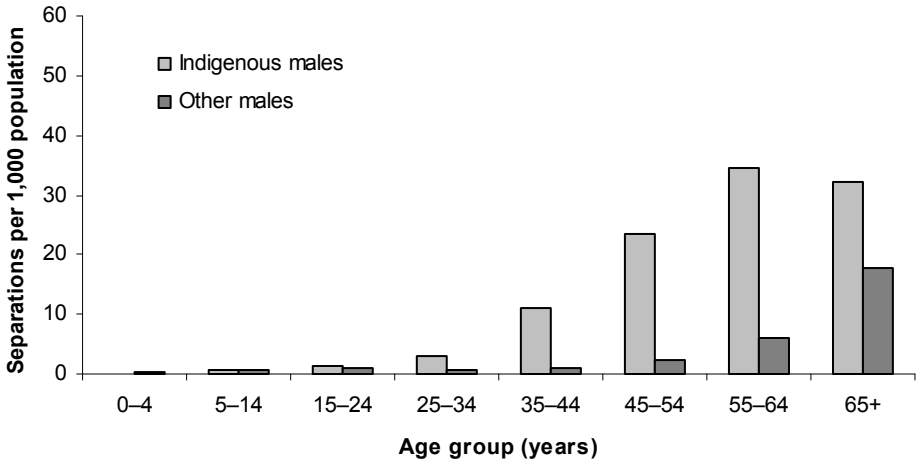
Source: AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

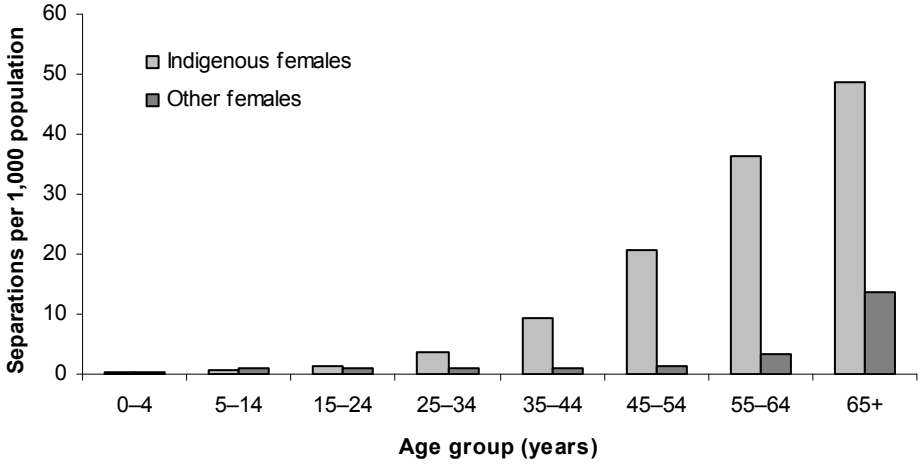
Hospitalisations

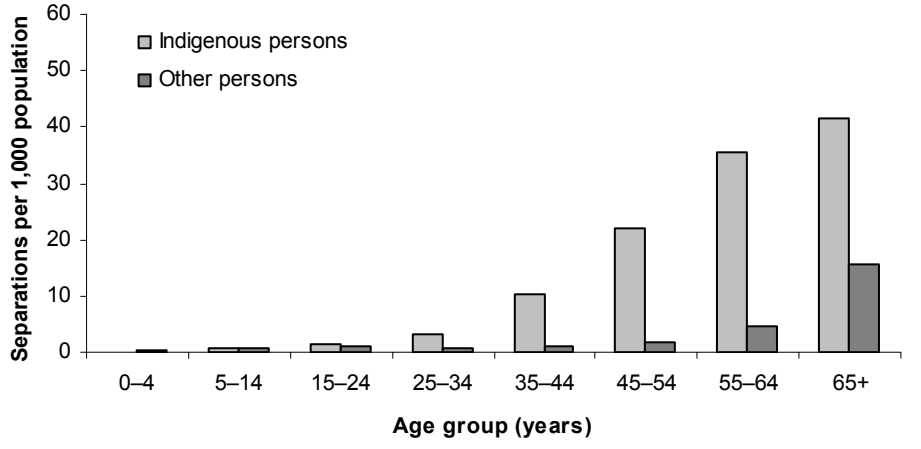
- In the 2-year period July 2004 to June 2006, there were 134,295 hospitalisations for diabetes in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of which 6,399 hospitalisations (4.8%) were of Aboriginal and Torres Strait Islander peoples (Table 1.08.5).
- Diabetes was the principal diagnosis in 1.4% of all hospital separations for Aboriginal and Torres Strait Islander Australians.

Hospitalisations by age and sex

- For the 2-year period July 2004 to June 2006, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, Indigenous males and females had much higher hospitalisation rates for diabetes than other males and females in all age groups from 25–34 years onwards (Figure 1.08.2).
- The greatest difference in rates for both males and females occurred in the 45–54 year age group, where Indigenous males were hospitalised at around 10 times the rate of other males and Indigenous females were hospitalised at 14 times the rate of other females.
- For Indigenous males, hospitalisation rates for diabetes were highest among those aged 55–64 years, whereas for Indigenous females, other males and other females, rates were highest among those aged 65 years and over.
- Approximately 46% of Indigenous Australians hospitalised for diabetes were males (2,969) and 54% were females (3,429).







Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.08.2: Age-specific hospitalisation rates for a principal diagnosis of diabetes, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006

Hospitalisations by state/territory

Table 1.08.5 presents hospitalisations for a principal diagnosis of diabetes for the 2-year period July 2004 to June 2006 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. As well as rates and ratios for the six jurisdictions which have been assessed as having adequate identification of Indigenous hospitalisations in 2004–05, unadjusted and adjusted national level data are presented in the table below. The Australia data are adjusted by applying a completeness factor of 89.4%, which is an estimate of the level of Indigenous under-identification in hospital separations data.

- In New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males and females were hospitalised for diabetes at around four and five times the rate of other Australian males and females respectively.
- When hospital rates are adjusted at the national level for Indigenous under-identification, Indigenous males and females were hospitalised for diabetes at 3.8 and 5.7 times the rate of other males and females.
- In South Australia and Western Australia, Indigenous Australians were hospitalised for diabetes at six times the rate of other Australians; in Queensland, the rate was five times; in the Northern Territory the rate was four times; in New South Wales the rate was three times; and in Victoria the rate was twice that of other Australians.

Table 1.08.5: Hospitalisations for principal diagnosis of diabetes mellitus, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

	Indigenous				Other[(e)]				
	Number	No. per 1,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Number	No. per 1,000[(g)]	LCL 95%[(g)]	UCL 95%[(h)]	Ratio[(i)]
NSW									
Males	596	8.1	7.3	9.0	21,303	3.3	3.2	3.3	2.5*
Females	595	9.0	8.1	9.8	18,753	2.5	2.4	2.5	3.6*
Persons	1,192	8.7	8.1	9.3	40,056	2.8	2.8	2.9	3.1*
Vic									
Males	107	7.5	5.5	9.5	20,382	4.2	4.1	4.3	1.8*
Females	116	7.8	6.1	9.5	17,885	3.1	3.1	3.2	2.5*
Persons	223	7.6	6.4	8.9	38,267	3.6	3.6	3.7	2.1*
Qld									
Males	870	15.2	13.9	16.5	13,617	3.7	3.6	3.8	4.1*
Females	1,088	17.5	16.2	18.7	10,821	2.7	2.6	2.7	6.6*
Persons	1,958	16.5	15.6	17.3	24,438	3.1	3.1	3.2	5.2*
WA									
Males	635	17.5	16.0	19.1	6,932	3.9	3.8	3.9	4.6*
Females	803	21.5	19.9	23.2	6,157	3.0	3.0	3.1	7.1*
Persons	1,438	19.8	18.6	21.0	13,089	3.4	3.4	3.5	5.8*
SA									
Males	247	18.9	16.0	21.8	5,942	3.7	3.6	3.8	5.1*
Females	291	18.6	16.1	21.1	5,405	2.9	2.8	3.0	6.5*
Persons	538	18.6	16.8	20.5	11,347	3.2	3.2	3.3	5.7*
NT									
Males	514	16.0	14.5	17.6	513	4.9	4.4	5.5	3.2*
Females	536	15.7	14.2	17.1	186	2.0	1.7	2.4	7.7*
Persons	1,050	15.9	14.8	17.0	699	3.6	3.3	3.9	4.4*
NSW, Vic, Qld, WA, SA, NT[(d)]									
Males	**2,969**	**13.0**	**12.4**	**13.6**	**68,689**	**3.7**	**3.7**	**3.7**	**3.5***
Females	**3,429**	**14.6**	**14.0**	**15.1**	**59,207**	**2.8**	**2.8**	**2.8**	**5.3***
Persons	**6,399**	**13.9**	**13.5**	**14.3**	**127,896**	**3.2**	**3.2**	**3.2**	**4.4***
Australia unadjusted[(j)]									
Males	3,016	12.6	12.1	13.2	71,983	3.7	3.7	3.7	3.4*
Females	3,469	14.1	13.5	14.6	61,932	2.8	2.8	2.8	5.0*
Persons	6,486	13.5	13.1	13.9	133,915	3.2	3.2	3.2	4.2*
Australia adjusted[(j)]									
Males	3,370	14.1	13.5	14.7	71,629	3.7	3.7	3.7	3.8*
Females	3,877	15.7	15.2	16.3	61,524	2.8	2.7	2.8	5.7*
Persons	7,248	15.1	14.6	15.5	133,153	3.2	3.2	3.2	4.7*

(continued)

Table 1.08.5 (continued): Hospitalisations for principal diagnosis of diabetes mellitus, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006); ICD-10-AM codes E10–E14.

(c) Financial year reporting.

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

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

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other

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

(k) Australian hospitalisation numbers and rates have been adjusted for Indigenous under-identification using a national adjustment factor of 0.89. This factor was derived from a study undertaken by the AIHW in 2007 which assessed the level of Indigenous under-identification in hospital data in all states and territories by comparing information gathered from face-to face interviews in public hospitals with results from hospital records. By applying this factor, the number of Indigenous hospitalisations was increased by 11% and these additional hospitalisations then subtracted from the number of hospitalisations for Other Australians.

Source: AIHW analysis of National Hospital Morbidity database.

Hospitalisations by principal diagnosis

Table 1.08.6 presents hospitalisations for a principal diagnosis of diabetes by type of diabetic condition for the 2-year period July 2004 to June 2006 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- For the period 2004–05 to 2005–06 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of all hospitalisations with a principal diagnosis of diabetes, Type 2 diabetes was the most common, responsible for 85% of hospitalisations of Indigenous Australians for diabetes (excluding gestational diabetes).
- In the six jurisdictions, Indigenous males and females were hospitalised for Type 2 non-insulin-dependent diabetes at much higher rates than other males and females (four and seven times respectively).
- Indigenous males and females were hospitalised for other specified diabetes at three and four times the rate of other males and females respectively.
- Indigenous females were hospitalised for gestational diabetes at twice the rate of other females.

Table 1.08.6: Hospitalisations of Indigenous persons for principal diagnosis of diabetes mellitus, by type of diabetes and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

	Males						Females						Persons					
Principal diagnosis	**No.**	**%[(e)]**	**No. per 1,000[(f)]**	**LCL 95%[(g)]**	**UCL 95%[(h)]**	**Ratio[(i)]**	**No.**	**%[(e)]**	**No. per 1,000[(f)]**	**LCL 95%[(g)]**	**UCL 95%[(h)]**	**Ratio[(i)]**	**No.**	**%[(e)]**	**No. per 1,000[(f)]**	**LCL 95%[(g)]**	**UCL 95%[(h)]**	**Ratio[(i)]**
Type 2—non-insulin-dependent diabetes (E11)	2,517	84.8	11.9	11.3	12.4	4.2*	2,910	84.9	13.2	12.6	13.7	6.6*	5,428	84.8	12.6	12.2	13.0	5.3*
Type 1—insulin-dependent diabetes (E10)	403	13.6	1.0	0.9	1.1	1.3*	461	13.4	1.2	1.1	1.3	1.6*	864	13.5	1.1	1.0	1.2	1.5*
Other specified diabetes (E13)	21	0.7	0.1	0.0	0.1	2.8*	17	0.5	0.0	0.0	0.1	4.0*	38	0.6	0.1	0.0	0.1	3.2*
Unspecified diabetes (E14)	28	0.9	0.1	0.0	0.1	2.8*	41	1.2	0.1	0.1	0.2	5.7*	69	1.1	0.1	0.1	0.2	4.3*
Total[(j)]	**2,969**	**100.0**	**13.0**	**12.4**	**13.6**	**3.5***	**3,429**	**100.0**	**14.6**	**14.0**	**15.1**	**5.3***	**6,399**	**100.0**	**13.9**	**13.5**	**14.3**	**4.4***
Gestational diabetes (O24.4)[(k)]	—	—	—	—	—	—	643	15.8	1.3	1.2	1.4	2.2*	—	—	—	—	—	—

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006); ICD-10-AM codes E10-E14, 024.4.

(c) Financial year reporting.

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

(e) Proportion of male, female and total hospitalisations of Indigenous people for diabetes (excluding gestational diabetes) in the period 2004–05 to 2005–06. *Note:* Proportions for gestational diabetes are out of the total number of hospitalisations for diabetes, including gestational diabetes.

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other.

(j) Total excludes gestational diabetes (O24.4).

(k) Proportion of Indigenous females with gestational diabetes out of those with Type 1, Type 2, other specified, unspecified or gestational diabetes (E10–E14 and O24.4).

Note: There were no hospitalisations with a principal diagnosis of malnutrition-related diabetes mellitus (E13).

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by additional diagnosis

Table 1.08.7 presents hospitalisations with a principal diagnosis of diabetes by additional causes of hospitalisation for Aboriginal and Torres Strait Islander peoples in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory.

- For the 2-year period July 2004 to June 2006, aside from factors influencing health status and contact with health services for which 60% of Indigenous hospitalisations for diabetes had an additional diagnosis, hospitalisations of Indigenous Australians with a principal diagnosis of diabetes were commonly reported with an additional diagnosis of diseases of the circulatory system (56%), diseases of the genitourinary system (39%) and other endocrine, metabolic and nutritional disorders (29%).
- Aside from the diseases mentioned above, insulin-dependent diabetes was commonly reported with an additional diagnosis of mental and behavioural disorders (15%), and non-insulin-dependent diabetes was commonly reported with an additional diagnosis of diseases of the eyes (24%) and skin (20%).

Table 1.08.7: Hospitalisations of Indigenous persons for principal diagnosis of diabetes mellitus, by additional dignosis of hospitalisation, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c][d]

	Reported with a principal diagnosis of diabetes				
Additional diagnosis of hospitalisation	Insulin-dependent diabetes (E10)	Non-insulin-dependent diabetes (E11)	Other specified diabetes (E13)	Unspecified diabetes (E14)	Total
			Per cent		
Factors influencing health status and contact with health services (includes dialysis) (Z00–Z99)	55.8	61.5	76.3	26.1	60.4
Diseases of the circulatory system (I00–I99)	18.2	62.3	31.6	13.0	55.6
Diseases of the genitourinary system (N00–N99)	16.9	43.1	28.9	13.0	39.1
Endocrine, nutritional & metabolic diseases (E00–E90) excluding (E10–E14)	19.2	30.9	34.2	8.7	29.1
Diseases of the eye & adnexa (H00–H59)	11.5	24.4	21.1	7.2	22.5
Diseases of the skin & subcutaneous tissue (L00–L99)	9.3	19.8	23.7	1.4	18.2
Certain infectious and parasitic diseases (A00–B99)	12.7	19.1	23.7	1.4	18.1
Diseases of the nervous system (G00–G99)	10.8	16.0	13.2	1.4	15.1
Symptoms, signs & abnormal clinical & laboratory findings (R00–R99)	10.8	14.6	18.4	5.8	14.0
Mental & behavioural disorders (F00–F99)	15.3	12.3	39.5	4.3	12.8
Diseases of the digestive system (K00–K93)	12.2	8.8	42.1	1.4	9.4
Diseases of the respiratory system (J00–J99)	7.3	8.2	0.0	1.4	8.0
Injury & poisoning (S00–T98)	3.0	8.2	5.3	2.9	7.4
Neoplasms (C00–D48)	0.2	1.0	2.6	0.0	0.9
Other[e]	8.9	17.9	10.5	8.7	16.5
Total number	**864**	**5,428**	**38**	**69**	**6,399**

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006).

(c) Financial year reporting.

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

(e) Includes: diseases of the musculoskeletal system and connective tissue; diseases of the ear and mastoid process; congenital malformations, deformations and chromosomal abnormalities; pregnancy, childbirth and the puerperium; certain conditions originating in the perinatal period; diseases of the blood and blood-forming organs; and certain disorders involving the immune system.

Note: Sum of components may exceed 100% as more than one additional diagnosis can be reported for each hospitalisation.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations for all years from 2000–01 to 2005–06—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population. New South Wales and Victoria were identified as having adequate identification of Indigenous hospitalisations from 2004–05 onwards, therefore they were included as part of the current period analysis (2004–05 to 2005–06) but not as part of the time series analyses.

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for diabetes over the period 2000–01 to 2005–06 are presented in Table 1.08.8 and Figure 1.08.3. This period has been used for analysis because coding changes were made to diabetes complications in July 1999 and July 2000. Coding for diabetes is consistent only from 2000–01 onwards and data for previous years should not be included in the analysis of diabetes trends.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant increases in hospitalisation rates for diabetes among Indigenous males and females during the period 2000–01 to 2005–06. The fitted trend implies an average yearly increase in the rate of around 0.8 per 1,000 population, which is equivalent to an increase of 28% in the hospitalisation rate over this period.
- There were also significant increases in hospitalisation rates among other Australian males and females during the same period, with an average yearly increase in the rate of around 0.2 per 1,000 population. This is equivalent to a 36% increase in the hospitalisation rate between 2001–02 and 2005–06.
- There was no significant change in the hospitalisation rate ratio, but a significant increase in the hospitalisation rate difference between Indigenous and other Australians for diabetes over the period 2000–01 to 2005–06 (26%). This increase was significant for females but not for males.

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

Table 1.08.8: Age-standardised hospitalisation rates, rate ratios and rate differences from diabetes, Qld, WA, SA and NT, 2000–01 to 2005–06[a]

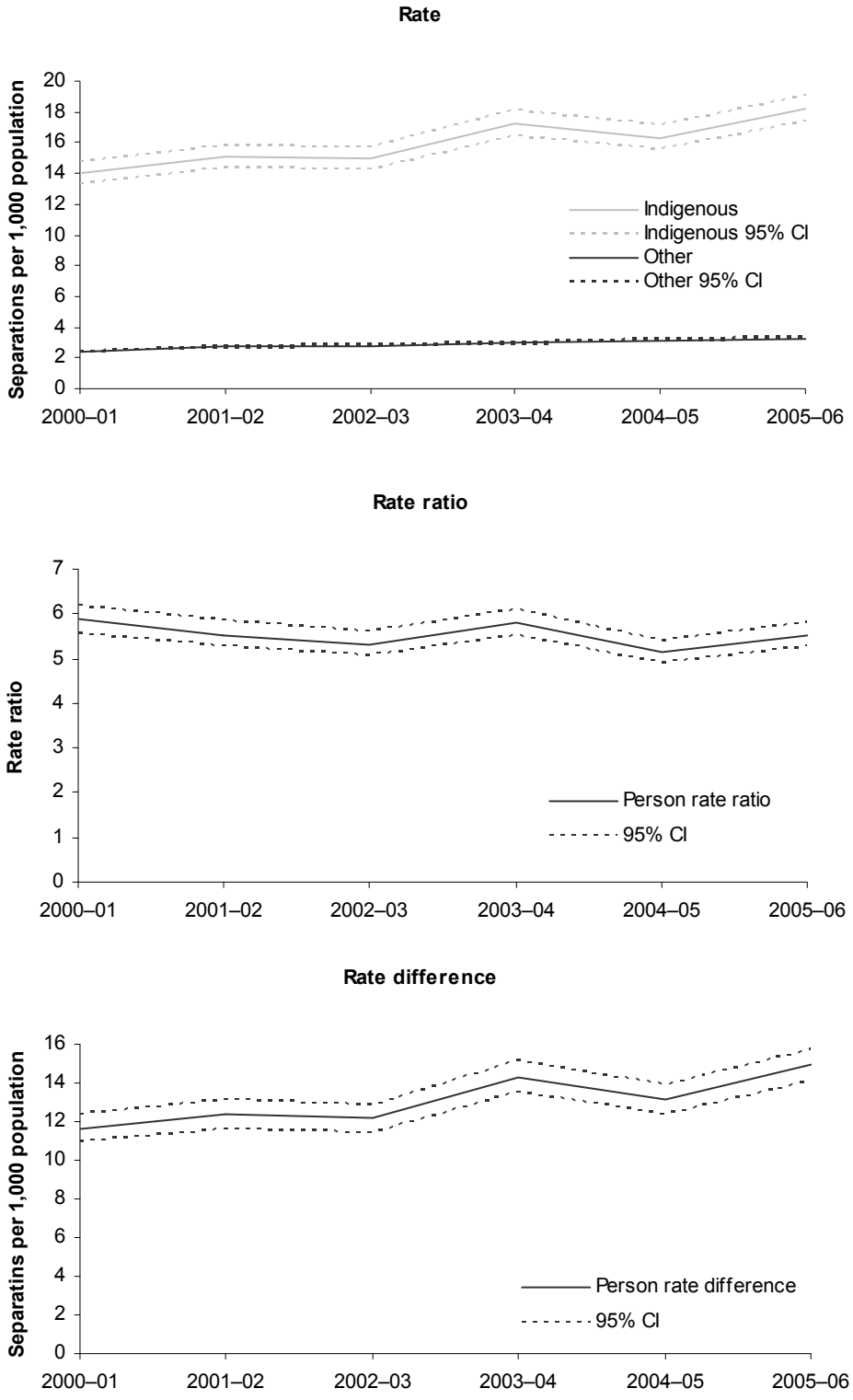
	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[b]	% change over period[c]
Indigenous rate (separations per 1,000)								
Males	13.9	14.4	14.3	17.0	15.2	17.2	0.6*	21.9
Females	14.1	15.7	15.4	17.3	17.1	19.1	0.9*	31.5
Persons	14.0	15.1	15.0	17.3	16.3	18.2	0.8*	27.6
Other rate (separations per 1,000)[d]								
Males	2.8	3.2	3.3	3.5	3.6	3.8	0.2*	34.6
Females	2.0	2.3	2.4	2.6	2.8	2.8	0.2*	37.8
Persons	2.4	2.7	2.8	3.0	3.2	3.3	0.2*	36.1
Rate ratio[e]								
Males	5.0	4.5	4.4	4.9	4.2	4.5	–0.1	–8.8
Females	6.9	6.7	6.4	6.8	6.2	6.7	–0.1	–4.2
Persons	5.9	5.5	5.3	5.8	5.2	5.5	–0.1	–5.7
Rate difference[f]								
Males	11.1	11.2	11.1	13.6	11.6	13.3	0.4	18.6
Females	12.1	13.3	13.0	14.7	14.4	16.2	0.7*	30.5
Persons	11.6	12.4	12.1	14.3	13.2	14.9	0.6*	25.9

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2000–01 to 2005–06.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory.
(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(c) Per cent change between 2001–02 and 2005–06 based on the average annual change over the period.
(d) 'Other' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated.
(e) Hospitalisation rates for Indigenous Australians divided by the hospitalisation rates for other Australians.
(f) Hospitalisation rates for Indigenous Australians minus the hospitalisation rates for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.08.3: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians from diabetes, Qld, WA, SA and NT, 2000–01 to 2005–06

Sensitivity of hospitalisation trends to changes in identification

- The fitted trends described above have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for identification were posted—constant identification, increasing identification and decreasing identification.
  - Under the constant identification scenario, the number of hospitalisations for the period under study were adjusted using the following identification factors:
    - Queensland 87%
    - Western Australia 97%
    - South Australia 82%
    - Northern Territory 96%.
  - Under the increasing identification scenario, hospitalisations were adjusted by linearly increasing the identification through the period under study—from 83% in 2000–01 to 87% in 2005–06 for Queensland, from 96% to 97% for Western Australia, from 78% to 82% for South Australia, and from 94% to 96% for the Northern Territory.
  - Under the decreasing identification scenario, hospitalisations were adjusted by linearly decreasing the identification from 90% in 2000–01 to 87% in 2005–06 for Queensland, from 98% to 97% for Western Australia, from 86% to 82% for South Australia, and from 98% to 96% for the Northern Territory.
- The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; of course, if any actual shift in identification was more extreme than has been posted under these scenarios, then the observed trends in hospitalisations might not persist.
- The observed increases in diabetes hospitalisation rates for Indigenous and other Australians during the period 2000–01 to 2005–06 remained statistically significant under all three identification scenarios.
- The observed increases in rate differences between Indigenous and other Australians also remained statistically significant under all three identification scenarios.

General practitioner encounters

Information about general practitioner (GP) encounters is available from the BEACH survey. Data for the 5-year period 2002–03 to 2006–07 are presented in Table 1.08.9. Diabetes is the most common individual problem managed at GP encounters with Indigenous patients.

- In the period 2002–03 to 2006–07 there were 7,542 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, at which 11,219 problems were managed. Of these, 5.3% (590) of problems managed were for diabetes.
- Diabetes was managed at a rate of 7.8 per 100 GP encounters with Indigenous patients.
- After adjusting for differences in age distribution, diabetes was managed at encounters with Indigenous patients at almost four times the rate at encounters with other patients.
- Non-insulin-dependent diabetes (Type 2) was the most common type of diabetes managed at encounters with Indigenous patients—at almost four times the rate at encounters with other patients.
- Insulin-dependent diabetes (Type 1) was managed at encounters with Indigenous patients at around three times the rate at encounters with other patients.
- Gestational diabetes was managed at GP encounters with Indigenous females at around four times the management rate at encounters with other females.

Table 1.08.9: Diabetes problems[a] managed by general practitioners, by Indigenous status of patient, 2002–03 to 2006–07[b][c][d]

	Number		Per cent		Crude rate (no. per 100 encounters)						Age-standardised rate (no. per 100 encounters)[e]		
Problem managed	**Indigenous**	**Other[f]**	**Indigenous**	**Other[f]**	**Indigenous**	**95% LCL[g]**	**95% UCL[h]**	**Other**	**95% LCL[g]**	**95% UCL[h]**	**Indigenous**	**Other[f]**	**Ratio[i]**
Diabetes: non-insulin-dependent (T90)	545	13,961	4.9	1.9	7.2	5.6	8.8	2.9	2.8	3.0	10.1	2.8	3.5*
Diabetes: insulin-dependent (T89)	38	1,299	0.3	0.2	0.5	0.3	0.7	0.3	0.3	0.3	0.7	0.3	2.8*
Total diabetes: non-gestational[j]	*583*	*15,260*	*5.2*	*2.1*	*7.7*	*6.1*	*9.4*	*3.2*	*3.1*	*3.2*	*10.8*	*3.1*	*3.5**
Gestational diabetes (W85)[j]	7	88	0.1	—	0.2	—	0.4	—	—	—	0.1	—	3.6
All diabetes	***590***	***15,348***	***5.3***	***2.1***	***7.8***	***6.1***	***9.5***	***3.2***	***3.1***	***3.3***	***10.9***	***3.1***	***3.5****
Total problems	**11,219**	**724,060**	**100.0**	**100.0**	**148.8**	**126.2**	**171.3**	**149.8**	**148.9**	**150.7**	**156.7**	**148.4**	**1.1**

(a) Classified according to ICPC-2 codes (Classification Committee of the World Organization of Family Doctors (WICC) 1998). ICPC-2 codes T90, T89, W85.

(b) These survey results are likely to undercount the number of Indigenous Australians visiting doctors.

(c) Combined financial year data for 5 years.

(d) Data for Indigenous and other Australians have not been weighted.

(e) Directly age-standardised rate (no. per 100 encounters).

(f) Includes non-Indigenous patients and patients for whom Indigenous status was not stated.

(g) LCL = lower confidence interval.

(h) UCL = upper confidence interval.

(i) Rate ratio Indigenous:other.

(j) Proportions, rates and ratios are for females only.

Source: AIHW analysis of BEACH survey of general practice, AGPSCC.

Data quality issues

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians and thus overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in major cities and regional and remote areas, but very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 National Health Survey.

In remote communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

Hospital separations data

Separations

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

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections. The 'not stated' category is missing from several collections. It is recommended that the standard wording and categories be used in all jurisdictions (AIHW 2005).

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations of Aboriginal and Torres Strait Islander peoples. 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 2007). 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 (AIHW unpublished data). It has therefore been recommended that reporting of Indigenous hospital separations be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. The proportion of the Indigenous population covered by these six jurisdictions is 96%.

(continued)

Data quality issues (continued)

The following caveats have also been recommended for analysis of hospitalisation data from selected jurisdictions (ABS & AIHW 2005):

- *Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from Western Australia and the Northern Territory and relatively marked Indigenous under-identification in data from South Australia and Victoria).*
- *Data for these six jurisdictions over-represent Indigenous populations in less urbanised and more remote locations.*
- *Hospitalisation data for these six jurisdictions are not necessarily representative of the jurisdictions not included.*

From the AIHW study it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level

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 hospital 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 to 2009 *(ABS 2004).*

General practitioner data (BEACH)

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample frame has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. In the BEACH survey 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners, but the extent of this undercount is not measurable.

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1.09 End stage renal disease

The number of Aboriginal and Torres Strait Islander people with a principal diagnosis of end-stage renal disease as registered by the Australia and New Zealand Dialysis and Transplant Registry, expressed as a rate by age group, age-standardised rate and ratio

Data sources

Data for this indicator come from the Australia and New Zealand Dialysis and Transplant Registry, the AIHW National Hospital Morbidity Database and the AIHW National Mortality Database.

Australia and New Zealand Dialysis and Transplant Registry (ANZDATA)

The data reported here on Indigenous persons with end-stage renal disease (ESRD) have been supplied by ANZDATA. The interpretation and reporting of these data are the responsibility of the authors and in no way should be seen as an official policy or interpretation of the Registry.

In Australia, persons who develop ESRD and undertake dialysis or kidney transplantation are registered with ANZDATA. The Registry is the most comprehensive and reliable source of information on persons treated for ESRD. It compiles data on incidence and prevalence, renal complications, co-morbidities and patient deaths. The current Registry began in 1977 and is coordinated by the Queen Elizabeth Hospital in Adelaide. All relevant hospitals and related satellite units in Australia and New Zealand participate.

Indigenous identification in the Registry is based on self-identification in hospital records. However, because of the heightened awareness of the extent of renal disease in Indigenous Australians and the prolonged and repeated contact with renal units in hospitals, it is believed that Indigenous identification in the Registry is more complete than in general hospital data (Cass et al. 2001).

Registrations for which Indigenous status was not stated have been included under the 'other' category.

Hospitalisations

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

Data are presented for the six jurisdictions which have been assessed by the AIHW as having adequate identification of Indigenous hospitalisations in 2004–05—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. These six jurisdictions represent approximately 96% of the Indigenous population of Australia. Data are presented by state/territory of usual residence of the patient.

Hospitalisations for which the Indigenous status of the patient was not reported have been included with hospitalisations data for non-Indigenous people under the 'other' category. This is to enable consistency across jurisdictions, as public hospitals in some states and

territories do not have a category for the reporting of 'not stated' or inadequately recorded/reported Indigenous status.

Hospitalisation data are presented for the 2-year period July 2004 to June 2006. An aggregate of 2 years of data has been used as the number of hospitalisations for some conditions is likely to be small for a single year.

The principal diagnosis is the diagnosis established to be the problem that was chiefly responsible for the patient's episode of care in hospital. The additional diagnosis is a condition or complaint either coexisting with the principal diagnosis or arising during the episode of care. The term 'hospitalisation' has been used to refer to a separation which is the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending a change in a type of care (for example, from acute to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

Mortality

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. Data published in this report may therefore differ slightly from those published in the previous edition for comparable years of data.

Analyses

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

Registration data

Information is available on Indigenous persons with end-stage renal disease (ESRD) from the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA).

ESRD is a complete or near-complete failure of the kidneys to excrete wastes, concentrate urine, and regulate electrolytes. ESRD occurs when the kidneys are no longer able to function at a level that is necessary for day-to-day life. It usually occurs as chronic renal failure worsens to the point where kidney function is less than 10% of normal.

Incidence of end stage renal disease

- Between 2004 and 2006, there were 6,616 new patients registered with ANZDATA, of which 615 (10%) identified as Aboriginal or Torres Strait Islander. This is higher than the proportion of Indigenous people in the total population (2.4%).
- Indigenous people starting ESRD treatment were substantially younger than non-Indigenous Australians starting ESRD treatment. Over half (60%) of new Indigenous patients registered with ANZDATA were aged less than 55 years, whereas less than a third (30%) of non-Indigenous Australians registered were below that age (Table 1.09.1).
- Incidence rates of treated ESRD for Indigenous Australians were higher than for non-Indigenous Australians across all age groups. The difference was marked at ages 45–54 years and 55–64 years where incidence rates for Indigenous Australians were between 14 and 16 times those for non-Indigenous Australians.
- After adjusting for differences in age structure, the incidence rate of treated ESRD for Indigenous Australians was more than eight times the incidence rate of non-Indigenous Australians.
- Between 2004 and 2006, Indigenous males and females were 6 and 12 times as likely to register for treatment of ESRD as non-Indigenous males and females (Table 1.09.2).
- Incidence rates of treated ESRD for Indigenous Australians were higher than for non-Indigenous Australians in all states and territories. Rate ratios ranged from 3 in New South Wales and Victoria to 28 in the Northern Territory (Table 1.09.3).
- Incidence rates for ESRD among Indigenous Australians were higher in remote areas of Australia than in Major Cities. Indigenous Australians were 18 and 20 times as likely to register for treatment of ESRD as non-Indigenous Australians in Remote and Very Remote areas respectively, and 14 times as likely to register for treatment of ESRD in outer regional areas. In Major Cities and Inner Regional areas, incidence rates for Indigenous Australians were 4 to 6 times those for non-Indigenous Australians living in these areas (Table 1.09.4).

The reasons for the high incidence of treated ESRD among Indigenous Australians are probably related to the high proportion of the Indigenous population with factors which contribute to the increased risk of kidney impairment and lack of access to services for detection and treatment of chronic kidney disease (AIHW 2005a).

Table 1.09.1: Incidence of end-stage renal disease, by Indigenous status and age group, 2004–2006[a]

	Number		Per cent[b]		Indigenous	Non-Indigenous	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	No. per 1,000)[c]	No. per 1,000[c]	Rate ratio[d]
0–24	15	197	2.4	3.3	0.0	0.0	1.8*
25–44	161	822	26.2	13.7	0.4	0.0	8.4*
45–54	194	821	31.5	13.7	1.6	0.1	15.8*
55–64	169	1220	27.5	20.3	2.6	0.2	13.8*
65+	76	2941	12.4	49.0	1.8	0.4	4.9*
Total[e]	**615**	**6001**	**100.0**	**100.0**	**0.8**	**0.1**	**8.4***

* Represents results with statistically significant differences in the Indigenous/other comparisons.

(a) Calendar year reporting. Data are presented in 3-year groupings because of small numbers each year.
(b) Proportion of Indigenous and other patients in each age group.
(c) Age-specific rates per 1,000 population.
(d) Rate ratio Indigenous: non-Indigenous.
(e) Total rates are directly age-standardised using the Australian 2001 standard population.

Source: AIHW analysis of ANZDATA data.

Table 1.09.2: Incidence of end-stage renal disease for Indigenous Australians, by age group and sex, 2004–2006[a]

Age group	Male						Female						Total					
	No.	%[b]	No. per 1,000[c]	LCL 95%[d]	UCL 95%[e]	Rate ratio[f]	No.	%[b]	No. per 1,000[c]	LCL 95%[d]	UCL 95%[e]	Rate ratio[f]	No.	%[b]	No. per 1,000[c]	LCL 95%[d]	UCL 95%[e]	Rate ratio[f]
0–14 years	n.p.	n.p.	n.p.	n.p.	n.p.	2.6	0	0.0	0.0	0.0	0.0	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	1.3
15–24 years	n.p.	n.p.	n.p.	n.p.	n.p.	1.4	7	2.1	0.0	0.0	0.1	3.8*	11	1.8	0.0	0.0	0.1	2.3*
25–34 years	22	8.0	0.2	0.1	0.3	5.2*	20	5.9	0.2	0.1	0.3	6.1*	42	6.8	0.2	0.1	0.2	5.5*
35–44 years	60	21.7	0.7	0.5	0.9	9.2*	59	17.4	0.6	0.4	0.8	13.6*	119	19.3	0.6	0.5	0.8	10.8*
45–54 years	97	35.1	1.6	1.3	2.0	12.8*	97	28.6	1.5	1.2	1.8	21.3*	194	31.5	1.6	1.3	1.8	15.8*
55–64 years	61	22.1	2.0	1.5	2.4	8.5*	108	31.9	3.2	2.6	3.8	21.9*	169	27.5	2.6	2.2	3.0	13.8*
65 +years	28	10.1	1.6	1.0	2.1	3.1*	48	14.2	2.1	1.5	2.7	7.9*	76	12.4	1.8	1.4	2.3	4.9*
Total[g]	**276**	**100.0**	**0.7**	**0.6**	**0.8**	**5.9***	**339**	**100.0**	**0.9**	**0.8**	**1.0**	**12.1***	**615**	**100.0**	**0.8**	**0.7**	**0.9**	**8.4***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.
(b) Proportion of male, female and total registration rates for Indigenous persons in the period 2004–2006.
(c) Age-specific rates per 1,000 population.
(d) LCL = lower confidence limit.
(e) UCL = upper confidence limit.
(f) Rate ratio Indigenous: non-Indigenous.
(g) Total rates are directly age-standardised using the Australian 2001 standard population.

Source: AIHW analysis of ANZDATA data.

Table 1.09.3: Incidence of end-stage renal disease, by Indigenous status, sex and state/territory, 2004–2006[a]

	Males			Females			Persons		
	No.	No. per 1,000[b]	Ratio[c]	No.	No. per 1,000[b]	Ratio[c]	No.	No. per 1,000[b]	Ratio[c]
NSW									
Indigenous	30	0.3	2.2*	25	0.3	3.4*	55	0.3	2.7*
Non-Indigenous	1,187	0.1	. .	808	0.1	. .	1,995	0.1	. .
Vic									
Indigenous	12	0.4	3.5*	13	0.7	9.4*	25	0.6	5.9*
Non-Indigenous	950	0.1	. .	572	0.1	. .	1,522	0.1	. .
Qld									
Indigenous	68	0.8	6.1*	92	0.9	12.0*	160	0.9	8.5*
Non-Indigenous	724	0.1	. .	463	0.1	. .	1,187	0.1	. .
WA									
Indigenous	53	0.9	7.2*	66	1.1	16.9*	119	1.0	10.8*
Non-Indigenous	348	0.1	. .	200	0.1	. .	548	0.1	. .
SA									
Indigenous	18	0.9	7.3*	23	0.8	12.5*	41	0.9	9.2*
Non-Indigenous	304	0.1	. .	169	0.1	. .	473	0.1	. .
Tas									
Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Non-Indigenous	65	0.1	. .	46	0.1	. .	111	0.1	. .
ACT									
Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Non-Indigenous	97	0.2	. .	45	0.1	. .	142	0.2	. .
NT									
Indigenous	93	2.0	17.0*	118	2.3	57.3*	211	2.2	27.6*
Non-Indigenous	17	0.1	. .	6	0.0	. .	23	0.1	. .
Australia									
Indigenous	**276**	**0.7**	**5.9***	**339**	**0.9**	**12.1***	**615**	**0.8**	**8.4***
Non-Indigenous	**3,692**	**0.1**	**. .**	**2,309**	**0.1**	**. .**	**6,001**	**0.1**	**. .**

* Represents results with statistically significant differences in the Indigenous/other Australian comparisons.

(a) Calendar year reporting. Data are presented in 3-year groupings because of small numbers each year.
(b) Directly age-standardised using the Australian 2001 standard population.
(c) Rate ratio Indigenous: non-Indigenous.

Source: AIHW analysis of ANZDATA data.

Table 1.09.4: Incidence of end-stage renal disease, by Indigenous status and remoteness, 2004–2006[a]

	Number		Per cent[b]		Indigenous	Non-Indigenous	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	No. per 1,000[c]	No. per 1,000[c]	Rate ratio[d]
Major Cities	71	4,229	11.8	70.6	0.4	0.1	3.5*
Inner Regional	62	1,219	10.3	20.4	0.5	0.1	5.5*
Outer Regional	169	465	28.1	7.8	1.1	0.1	14.4*
Remote	116	56	19.3	0.9	1.6	0.1	19.7*
Very Remote	184	19	30.6	0.3	1.4	0.1	18.3*
Australia[f]	**615**	**6,001**	**100.0**	**100.0**	**0.8**	**0.1**	**8.4***

* Represents results with statistically significant differences in the Indigenous/other comparisons.

(a) Calendar year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Proportion of Indigenous and other patients in each age group.

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

(d) Rate ratio Indigenous: non-Indigenous.

(e) Australia total includes cases where remoteness category was not known.

Source: AIHW analysis of ANZDATA data.

Time series analysis

Data on the incidence of ESRD among Indigenous and non-Indigenous Australians for the period 1991–2006 are presented below.

- The number of Indigenous patients starting ESRD treatment has more than tripled over the last decade (from 54 in 1991 to 207 in 2004).
- Over the period 1991–2006, there were significant increases in the incidence rate of ESRD among Indigenous Australians. The fitted trend implies an average yearly increase in the rate of around 0.03 per 1,000 (or 3 per 100,000) which is equivalent to a 185% increase in the rate over the period. The fitted trend showed significant increases in the incidence of ESRD for both Indigenous males and females.
- Over the same period, there were also significant increases in the incidence rates of ESRD among non-Indigenous males and females, but these increases were not as rapid as in the Indigenous population (increase of 87% for males and 48% for females).
- There were significant increases in both the incidence rate ratios and rate differences between Indigenous and non-Indigenous Australians for ESRD over the period 1991–2004 (60% in the rate ratio and 215% in the rate difference for persons), reflecting both a relative and absolute increase in the gap between incidence rates for Indigenous and other Australians for ESRD over the period.

The rapid increase in the incidence of ESRD in the Indigenous population may reflect both real growth and the increasing availability and acceptability of kidney replacement therapy to Indigenous communities in recent years.

Fluctuations in the incidence rates of ESRD for Indigenous Australians over time may also reflect changing levels of identification of Indigenous registrations in the ANZDATA Registry and Indigenous population estimates. Caution should be exercised in assessing

trends in Indigenous ESRD rates over time and comparisons with the non-Indigenous population.

Table 1.09.5: Age-standardised incidence rates, rate ratios and rate differences for end-stage renal disease, 1991–2006

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[a]	% change over period[b]
	Indigenous rate (no. per 1,000)[c]																	
Males	0.2	0.2	0.4	0.5	0.6	0.4	0.5	0.7	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.03*	206.6
Females	0.3	0.4	0.4	0.6	0.6	0.5	0.8	0.6	0.9	0.7	0.9	0.8	0.7	0.8	1.0	0.8	0.03*	169.3
Persons	0.3	0.3	0.4	0.5	0.6	0.5	0.7	0.6	0.7	0.7	0.8	0.7	0.7	0.7	0.8	0.8	0.03*	184.5
	Non-Indigenous[c] rate (no. per 1,000)																	
Males	0.07	0.07	0.08	0.09	0.09	0.09	0.09	0.10	0.11	0.10	0.12	0.11	0.12	0.11	0.13	0.13	0.004*	86.5
Females	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.06	0.07	0.06	0.07	0.08	0.001*	47.6
Persons	0.06	0.06	0.06	0.07	0.07	0.08	0.07	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.003*	68.7
	Rate ratio[d]																	
Males	3.6	3.4	5.3	5.3	6.2	4.4	5.0	6.4	4.9	6.1	5.1	6.3	6.5	6.2	5.5	6.0	0.14*	57.4
Females	5.2	6.3	6.7	8.7	8.8	6.8	11.1	8.0	10.1	7.9	10.3	8.7	7.8	9.2	9.7	8.1	0.17*	49.3
Persons	4.8	5.2	6.4	7.6	8.2	6.1	8.8	8.0	8.2	7.7	8.5	8.5	8.0	8.7	8.5	8.0	0.19*	60.3
	Rate difference[e]																	
Males	0.2	0.2	0.3	0.4	0.5	0.3	0.4	0.5	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.03*	253.5
Females	0.2	0.3	0.4	0.5	0.6	0.4	0.8	0.6	0.8	0.6	0.8	0.7	0.6	0.7	0.9	0.7	0.03*	193.4
Persons	0.2	0.3	0.3	0.5	0.5	0.4	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.7	0.7	0.7	0.03*	215.2

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1991–2006.

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

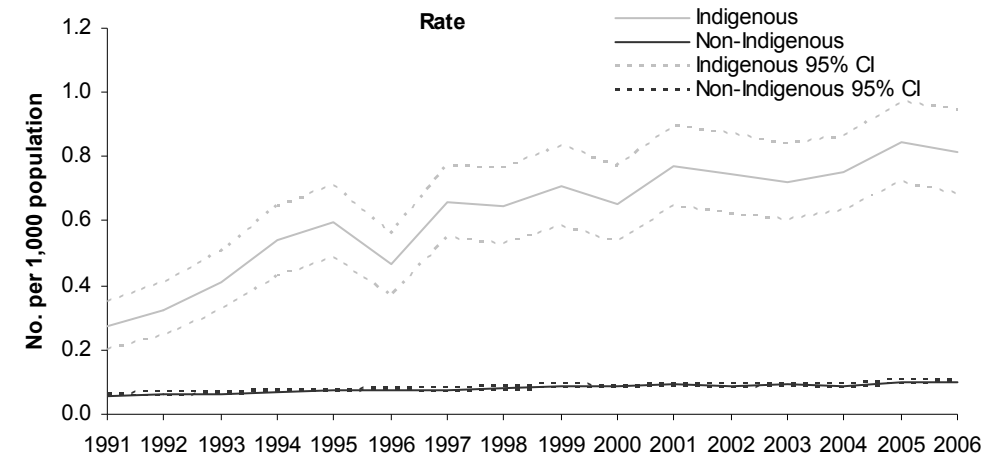
(b) Per cent change between 1991 and 2006 based on the average annual change over the period.

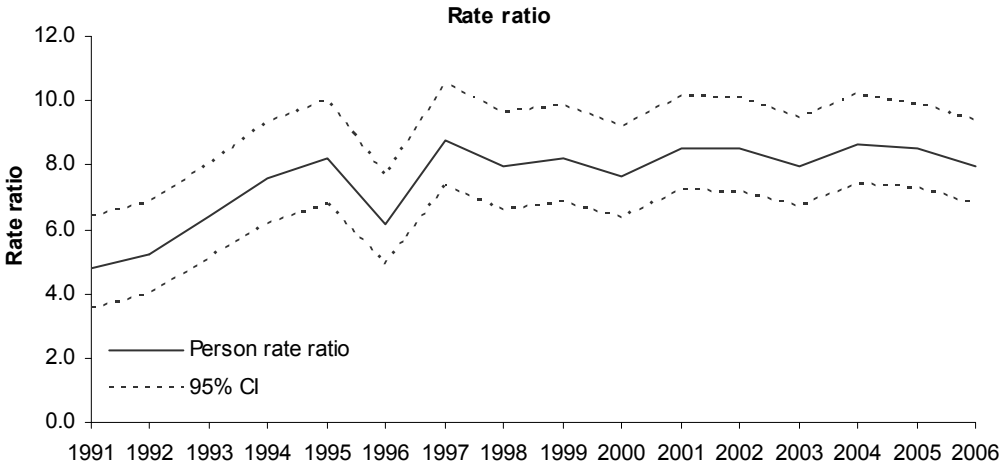
(c) Rates have been directly age-standardised using the 2001 Australian standard population.

(d) Incidence rate for non-Indigenous people divided by the rate for non-Indigenous Australians.

(e) Incidence rate for non-Indigenous people minus the rate for non-Indigenous Australians.

Source: AIHW analysis of ANZDATA data





Source: AIHW analysis of ANZDATA data.

Figure 1.09.1: Age-standardised registration rates, rate ratios and differences for end-stage renal disease, by Indigenous status, 1991–2006

Management of end-stage renal disease

ESRD patients require either a kidney transplant or dialysis to maintain the functions normally performed by the kidneys. Patterns of treatment for ESRD differ between Indigenous and non-Indigenous patients.

- As at 31 December 2006, of all Indigenous ESRD patients registered, 87% relied on dialysis and only 13% had received a kidney transplant. In contrast, 55% of non-Indigenous Australians living with ESRD relied on dialysis and 45% had received a kidney transplant (Table 1.09.6).
- Indigenous Australians were 10 times as likely as non-Indigenous Australians to have ESRD and rely on dialysis.

Once dialysis treatment has started, Indigenous people are less likely than other Australians to be placed on the active transplant waiting list and less likely to move from the waiting list to transplantation (McDonald & Russ 2003; Cass et al. 2003). Factors which may contribute to these disparities include miscommunication between Indigenous patients and health professionals, lack of understanding from Indigenous patients of their illness and its treatments, and lower rates of well-matched kidney donors for Indigenous patients than for other patients (Cass et al. 2003; McDonald & Russ 2003).

Table 1.09.6: Total patients with end-stage renal disease, by Indigenous status and treatment, as at 31 December 2006[a]

	Number		Per cent[b]		No. per 1,000[c]		
Treatment	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous)	Indigenous	Non-Indigenous	Ratio[d]
Dialysis	971	8,211	86.9	54.7	3.9	0.4	10.1*
Transplant	147	6,806	13.1	45.3	0.5	0.3	1.4*
Total	**1,118**	**15,017**	**100.0**	**100.0**	**4.4**	**0.7**	**5.7***

* Represents results with statistically significant differences in the Indigenous/other comparisons.

(a) Calendar year reporting.

(b) Proportion of Indigenous and other patients receiving dialysis and transplants.

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

(d) Rate ratio Indigenous:other.

Source: AIHW analysis of ANZDATA data.

Hospitalisations

- Over the period June 2004 to July 2006, there were 1,699,005 hospitalisations for chronic kidney disease and its sequelae in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, of which 193,806 (11.4%) were of Indigenous Australians.
- Approximately 41% of total hospitalisations of Indigenous Australians were for chronic kidney disease.

Hospitalisations for chronic kidney disease

Chronic kidney disease includes diabetic nephropathy, hypertensive renal disease, glomerular disease, chronic renal failure and end-stage renal disease (ESRD).

Hospitalisations of Indigenous Australians for chronic kidney disease and its sequelae in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined over the period June 2004 to July 2006 are presented in Tables 1.09.7 and 1.09.8.

- Of all hospitalisations for chronic kidney disease among Aboriginal and Torres Strait Islander peoples, the large majority (98%) were for care involving dialysis.
- Overall, Indigenous Australians were hospitalised for chronic kidney disease with dialysis at 11 times the rate of other Australians (Table 1.09.7).
- Indigenous Australians were hospitalised for care involving dialysis at 11 times the rate of other Australians, diabetic nephropathy at 11 times the rate of other Australians and chronic renal failure at 7 times the rate of other Australians.
- Approximately 44% of Indigenous Australians hospitalised for chronic kidney disease and its sequelae were males (85,842) and 56% were females (107,964).
- Indigenous males were hospitalised for chronic kidney disease with dialysis at 8 times the rate of other males, and Indigenous females were hospitalised for chronic kidney disease at 15 times the rate of other females (Table 1.09.8).
- Over the period June 2004 to July 2006, there were 207,528 bed-days additional with Indigenous chronic kidney disease hospitalisations in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, at an average of 1.1 days per separation. Excluding same-day separations for dialysis (189,949 hospitalisations), the average length of stay in hospital for Indigenous people with chronic kidney disease was 4.6 days compared with 4.9 days for other Australians.

Table 1.09.7: Hospitalisations for chronic kidney disease and its sequelae, by Indigenous status and type of kidney disease, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

	Number		Per cent[(e)]		Indigenous			Other[(f)]			
	Indigenous	Other[(f)]	Indigenous	Other[(f)]	No. per 1,000[(g)]	95% LCL[(h)]	95% UCL[(i)]	No. per 1000[(g)]	95% LCL[(h)]	95% UCL[(i)]	Rate Ratio[(j)]
Care involving dialysis (ESRD)	190,489	1,461,917	98.3	97.1	402.0	399.9	404.0	36.5	36.4	36.5	11.0*
Diabetic nephropathy	1,112	8,847	0.6	0.6	2.5	2.3	2.7	0.2	0.2	0.2	11.4*
Renal-tubulo interstitial diseases	873	12,266	0.5	0.8	1.1	1.1	1.2	0.3	0.3	0.3	3.6*
Chronic renal failure	636	9,160	0.3	0.6	1.6	1.5	1.7	0.2	0.2	0.2	7.0*
Glomerular diseases	417	4,634	0.2	0.3	0.3	0.3	0.3	0.1	0.1	0.1	2.5*
Hypertensive renal disease	54	1,263	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	3.2*
Other chronic diseases	225	7,112	0.1	0.5	0.3	0.3	0.4	0.2	0.2	0.2	1.7*
Total	**193,806**	**1,505,199**	**100.0**	**100.0**	**407.9**	**405.9**	**410.0**	**37.6**	**37.5**	**37.6**	**10.9***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

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

(b) Categories are based on the ANZDATA for this measure. Other coding categories are based on the ICD-10-AM fifth edition (National Centre for Classification of Health 2006); ICD-10-AM codes Z49; E102, E112, E132 and E142; N11–N12 and N14–N16; N18–N19; N00–N08; I12–I13, I150 and I151; N25–N28, N391, N392, Q60–Q63, T824, T861, and Z940.

(c) Financial year reporting.

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

(e) Proportion of hospitalisations of Indigenous and non-Indigenous people in the period 2004–05 to 2005–06.

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

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

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio Indigenous:other.

Source: AIHW analysis of National Hospital Morbidity Database.

Table 1.09.8: Hospitalisations of Indigenous Australians for chronic kidney disease and its sequelae, by sex and type of kidney disease, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

	Males						Females					
	No.	%[(e)]	No. per 1,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	Rate ratio[(i)]	No.	%[(e)]	No. per 1,000[(f)]	95% LCL[(g)]	95% UCL[(h)]	Rate ratio[(i)]
Care involving dialysis (ESRD)	84,491	98.4	370.9	368.0	373.8	7.8*	105,998	98.2	429.7	426.9	432.6	15.9*
Diabetic nephropathy	470	0.5	2.2	1.9	2.4	8.1*	642	0.6	2.8	2.6	3.0	15.6*
Renal-tubulo interstitial diseases	97	0.1	0.3	0.2	0.3	2.3*	776	0.7	1.9	1.8	2.1	3.7*
Chronic renal failure	427	0.5	2.6	2.3	2.8	9.2*	209	0.2	0.8	0.7	0.9	4.3*
Glomerular diseases	223	0.3	0.3	0.3	0.4	2.1*	194	0.2	0.3	0.3	0.4	3.1*
Hypertensive renal disease	32	0.0	0.1	0.1	0.2	3.4*	22	0.0	0.1	0.0	0.1	3.0*
Other chronic diseases	102	0.1	0.3	0.2	0.3	1.2	123	0.1	0.4	0.3	0.4	2.2*
Total	**85,842**	**100.0**	**376.6**	**373.6**	**379.5**	**7.7***	**107,964**	**100.0**	**436.0**	**433.1**	**438.9**	**15.4***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

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

(b) Categories are based on the ANZDATA for this measure. Other coding categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006); ICD-10-AM codes Z49; E102, E112, E132 and E142; N11–N12 and N14–N16; N18–N19; N00–N08; I12–I13, I150 and I151; N25–N28, N391, N392, Q60–Q63, T824, T861, and Z940.

(c) Financial year reporting.

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

(e) Proportion of hospitalisations of Indigenous and non-Indigenous people in the period 2004–05 to 2005–06.

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

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other.

Source: AIHW analysis of National Hospital Morbidity Database.

Mortality

- Over the period 2002–2006, in Queensland, Western Australia, South Australia and the Northern Territory, there were 4,493 deaths for which chronic kidney disease was recorded as the underlying cause of death, of which 298 deaths (7%) were of Indigenous Australians.
- Approximately 4% of all deaths of Indigenous Australians over this period were from chronic kidney disease.
- Approximately 40% of all Indigenous Australians who died from chronic kidney disease were males and 60% were females.
- After adjusting for differences in age structure, Indigenous Australians were 5.5 times as likely as non-Indigenous Australians to have died from chronic kidney disease between 2002 and 2006.
- Indigenous males died from chronic kidney disease at over four times the rate of non-Indigenous males, and Indigenous females died from chronic kidney disease at over six times the rate of non-Indigenous females.
- In the period 2002–2006, similar proportions of Indigenous and non-Indigenous deaths for which chronic kidney disease was recorded as the underlying cause of death were reported with circulatory disease as an additional cause of death (58% and 60%, respectively). Over the same period, 21% of Indigenous deaths for which chronic kidney disease was recorded as the underlying cause of death were reported with diabetes as an additional cause of death, compared with 8% of non-Indigenous deaths. Approximately 14% of Indigenous deaths and 9% of non-Indigenous deaths for which chronic kidney disease was recorded as the underlying cause of death were reported with digestive system diseases as an additional cause of death.

Data quality issues

ANZDATA

The data reported here on Indigenous persons with end-stage renal disease (ESRD) have been supplied by the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA). The interpretation and reporting of these data are the responsibility of the authors and in no way should be seen as an official policy or interpretation of the Registry.

Indigenous status question

Patients in the Registry are identified according to 'racial origin'. Aboriginal people and Torres Strait Islanders are identified separately, but separate results are not always published for Torres Strait Islanders because of small numbers of patients.

Under-identification

The completeness of identification of Indigenous people in the registry is not known, but the nature of the illness means that treatment centres have prolonged contact with patients and, therefore, have a considerable opportunity to collect accurate information (Disney et al. 1997).

Indigenous identification is based on self-identification and discussion with the treating physician. There is often significant concern about the quality of Indigenous identification in morbidity, mortality and demographic data sets. However, racial identification in the ANZDATA Registry is reported to be good. A survey form is completed every 6 months for all patients on maintenance dialysis or with functioning renal transplants. In this survey, question 5 is about 'Racial origin' and includes a prompt regarding Indigenous status. ESRD patients have regular contact with renal services from the time of diagnosis, through intensive maintenance therapy until death. There is heightened awareness of renal disease in Indigenous Australians and multiple opportunities exist to reconfirm data accuracy (Cass et al. 2001).

Hospital separations data

Separations

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

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections. The 'not stated' category is missing from several collections. It is recommended that the standard wording and categories be used in all jurisdictions (AIHW 2005b).

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander peoples. 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 2007). The AIHW, however, has recently completed an assessment of the level of Indigenous under-identification in hospital data in all states and territories.

(continued)

Data quality issues (continued)

Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data (AIHW unpublished data). It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. The proportion of the Indigenous population covered by these six jurisdictions is 96%. The following caveats have also been recommended for analysis of hospitalisation data from selected jurisdictions (ABS & AIHW 2005):

- *Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from Western Australia and the Northern Territory and relatively marked Indigenous under-identification in data from South Australia and Victoria).*
- *Data for these six jurisdictions over-represent Indigenous populations in less urbanised and more remote locations.*
- *Hospitalisation data for these six jurisdictions are not necessarily representative of the jurisdictions not included.*

From the AIHW study it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level.

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 hospital 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 to 2009 *(ABS 2004).*

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 wording that is slightly different from the national standard for the instruction regarding 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.

(continued)

Data quality issues (continued)

Under-identification

Almost all deaths in Australia are registered. However, the Indigenous status of the deceased is not always recorded/recorded correctly. The incompleteness of Indigenous identification means the number of deaths registered as Indigenous is an underestimate of deaths occurring in the Aboriginal and Torres Strait Islander population (ABS 1997). As a result, the observed differences between Indigenous and non-Indigenous mortality are under-estimates 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 (ABS & AIHW 2005). The quality of the time series data is also influenced by the late inclusion of a 'not stated' category for Indigenous status in 1998. Before this time, the 'not stated' responses were probably included with the non-Indigenous.

The ABS calculated the implied coverage (identification) of Indigenous deaths for the period 2002–2006 using population estimates: New South Wales 45%, Victoria 32%, Queensland 51%, South Australia 62%, Western Australia 72%, Northern Territory 90%, 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 to 2009 *(ABS 2004).*

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1.10 Decayed, missing, filled teeth

The number of decayed, missing and filled deciduous infant teeth (dmft) and the number of decayed, missing and filled permanent adult teeth (DMFT) for Aboriginal and Torres Strait Islander peoples

Data sources

Data for this measure come from the AIHW Dental Statistics Research Unit (Child Dental Health Survey, Indigenous child oral health in remote communities study, and the National Survey of Adult Oral Health), the ABS 2004–05 National Aboriginal and Torres Strait Islander Health Survey, the Western Australian Aboriginal Child Health Survey and the AIHW National Hospital Morbidity Database.

Dental health survey data

The AIHW Dental Statistics Research Unit is responsible for a number of data collections in the areas of oral health, access to dental care and dental health services.

Child Dental Health Survey

Data on children's dental health come from the Child Dental Health Survey, a national survey which monitors the dental health of children enrolled in school dental services operated by health departments in all states and territories. In the period 2000–2003, Indigenous status was recorded reliably and for sufficient numbers of children in New South Wales, South Australia and the Northern Territory. Data from those jurisdictions are used for this measure. Data from a total of 341,195 children were included in the analyses: 11,017 (3.2%) Indigenous children and 330,178 (96.8%) non-Indigenous children.

Indigenous child oral health in remote communities study

Indigenous child oral health data were collected from remote Indigenous communities in all jurisdictions in the 2000–2003 period as part of a study undertaken by the Australian Research Centre for Population Oral Health in collaboration with the Far West Area Health Service (New South Wales), the remote Indigenous communities of Nganampa lands (South Australia), and various remote communities around Alice Springs (Northern Territory). Data were collected by dental health professionals providing services to these communities. (Because of issues of confidentiality, specific location details were unable to be included in the analysis.)

Data were gathered in terms of sociodemographic information (age, sex, Indigenous status), self-care habits (toothbrushing at home and school), dental disease experience, gingivitis and caries risk status, and fluorosis and hypoplasia levels.

National Survey of Adult Oral Health

The 2004–06 National Survey of Adult Oral Health is the second national oral examination survey of Australians which included telephone interviews with 14,123 people aged 15–97 years, 5,505 of whom were also dentally examined. The survey included 229 people who identified as Aboriginal or Torres Strait Islander (1.5%). The survey collected information on levels of oral disease, perceptions of oral health and patterns of dental care within a representative cross-section of adults in all states and

territories of Australia. The first survey (the National Oral Health Survey of Australia) was conducted in 1987–88 and did not collect information on Indigenous status.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The 2004–05 NATSIHS collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians about health-related issues including health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. It is planned to repeat the NATSIHS at 6-yearly intervals, with the next NATSIHS to be conducted in 2010–11. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

Western Australian Aboriginal Child Health Survey

This survey was a large-scale investigation into the health of 5,289 Western Australian Aboriginal and Torres Strait Islander children aged 0–17 years. It was undertaken in 2001 and 2002 by the Telethon Institute for Child Health Research in conjunction with the Kulunga Research Network. The survey was the first to gather comprehensive health, educational and developmental information on a population-based sample of Aboriginal and Torres Strait Islander children and their families and communities.

Hospitalisations

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

Data are presented for the six jurisdictions which have been assessed by the AIHW as having adequate identification of Indigenous hospitalisations in 2004–05—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. These six jurisdictions represent approximately 96% of the Indigenous population of Australia. Data are presented by state/territory of usual residence of the patient.

Hospitalisations for which Indigenous status was not reported have been included with hospitalisations data for non-Indigenous people under the 'other' category. This is to enable consistency across jurisdictions, as public hospitals in some states and territories do not have a category for the reporting of 'not stated' or inadequately recorded/reported Indigenous status.

Hospitalisation data are presented for the 2-year period July 2004 to June 2006. An aggregate of 2 years of data has been used, as the number of hospitalisations for some conditions is likely to be small for a single year.

The principal diagnosis is the diagnosis established to be the problem that was chiefly responsible for the patient's episode of care in hospital. The additional diagnosis is a condition or complaint either coexisting with the principal diagnosis or arising during the episode of care. The term 'hospitalisation' has been used to refer to a separation which is the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending a change in a type of care (for example, from acute to rehabilitation).

'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

Analyses

Age-standardised rates and ratios have been used as a measure of hospitalisations 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.

Decayed, missing and filled teeth

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 2000). The dmft score measures decay experience in deciduous teeth, and the DMFT score measures decay experience in permanent teeth. Another measure of good oral health is the proportion of children with no tooth decay.

Data on decayed, missing and filled teeth for Indigenous children and adults come from the Child Dental Health Survey and the National Survey of Adult Dental Health and are presented below.

Children

Data on decay in deciduous and permanent teeth are presented below for Indigenous children in New South Wales, South Australia and the Northern territory. Data for New South Wales are for 2000, for South Australia they are for 2003 and for the Northern Territory they are for 2002.

Deciduous teeth

Mean dmft

- In New South Wales, South Australia and the Northern Territory, the mean number of decayed, missing or filled deciduous teeth for Indigenous children aged 4–10 years was higher than for non-Indigenous children at all ages (Table 1.10.1, Figure 1.10.1).
- Of all children with decayed, missing or filled deciduous teeth, both Indigenous and non-Indigenous children were most likely to have decayed teeth, followed by filled teeth.
- The mean numbers of decayed or missing teeth were highest among those aged less than 7 years, whereas the mean number of filled teeth was highest among those aged 7 years and over.
- Children in New South Wales had lower mean numbers of decayed or filled teeth than children in South Australia and the Northern Territory. One possible explanation for this is the different type of dental examination used in New South Wales where a screening is undertaken rather than a clinical examination used in other states and territories.
- Indigenous children in the Northern Territory had much higher mean numbers of decayed teeth than Indigenous children in South Australia and New South Wales, whereas for non-Indigenous children, scores were similar across jurisdictions.

Table 1.10.1: Mean number of decayed, missing or filled deciduous teeth, children aged 4–10 years, by Indigenous status, NSW (2000), SA (2003) and NT (2002)

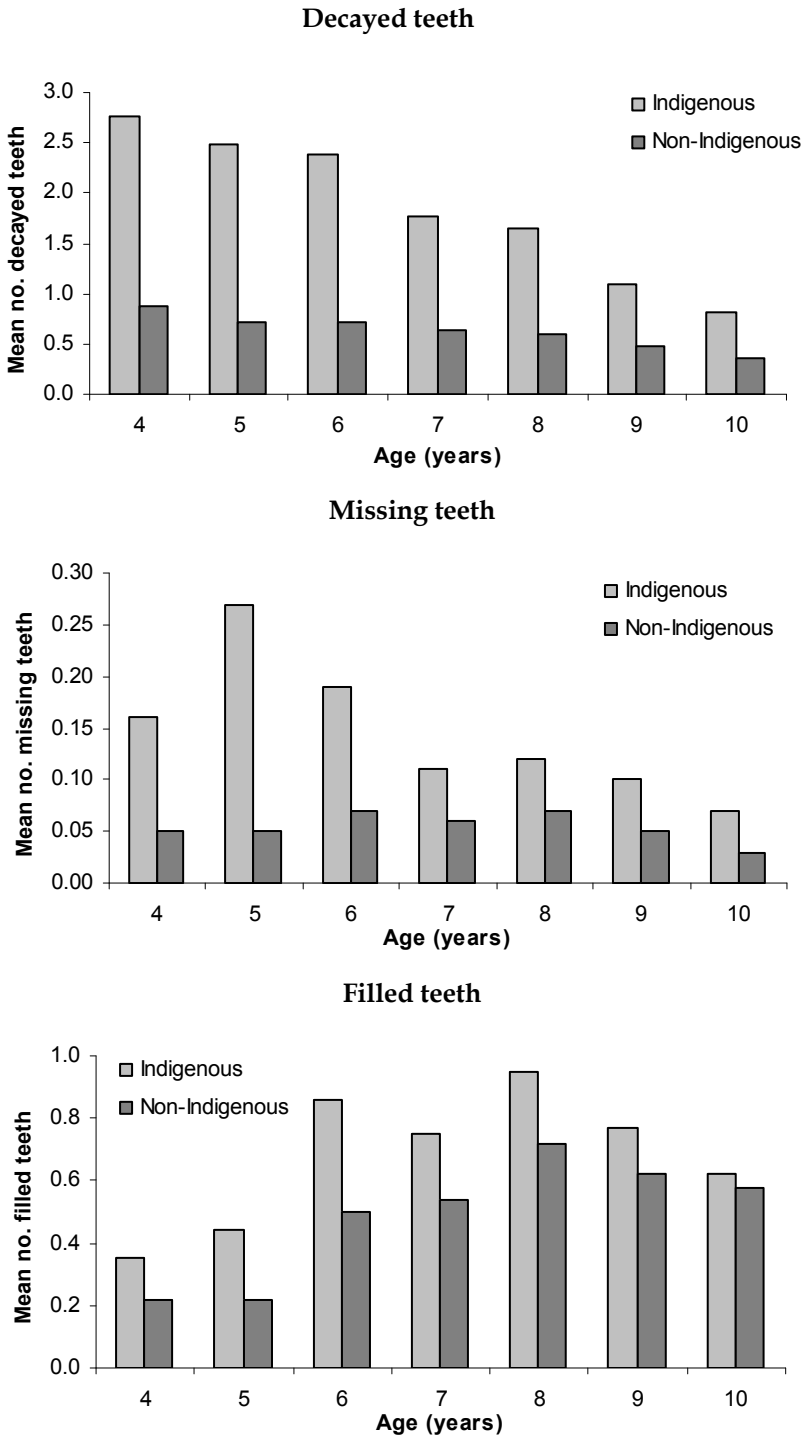
	New South Wales		South Australia		Northern Territory		NSW, SA & NT	
Age	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
				Decayed (d)				
4	1.90*	0.79*	2.48*	0.96*	3.07*	0.82*	2.77*	0.87*
5	1.64*	0.69*	2.11*	0.89*	3.62*	0.92*	2.49*	0.72*
6	1.36*	0.65*	2.10*	0.89*	3.10*	0.85*	2.38*	0.72*
7	1.05*	0.62*	1.54*	0.78*	2.90*	0.73*	1.77*	0.64*
8	0.98*	0.56*	1.22*	0.67*	2.19*	0.67*	1.65*	0.60*
9	0.74*	0.45*	1.27*	0.60*	1.54*	0.54*	1.10*	0.47*
10	0.43*	0.32*	0.58*	0.44*	1.17*	0.38*	0.82*	0.36*
				Missing (m)				
4	[b]0.16*	[a]0.04*	[a]0.33*	0.06*	[a]0.11	[a]0.05	[a]0.16*	0.05*
5	0.33*	0.04*	0.35*	0.09*	[a]0.15*	0.05*	0.27*	0.05*
6	[a]0.16*	0.05*	[a]0.31*	0.10*	[a]0.15*	[a]0.05*	0.19*	0.07*
7	[a]0.12*	0.068	[a]0.21*	0.08*	0.08	0.06	0.11*	0.06*
8	0.13*	0.06*	[a]0.24*	0.08*	[a]0.07	0.09	0.12*	0.07*
9	0.10*	0.048	[a]0.07	0.06	0.09	0.09	0.10*	0.05*
10	0.05	0.03	[b]0.05	0.03	[a]0.08	0.05	0.07*	0.03*
				Filled (f)				
4	[a]0.36*	0.15*	[a]0.58*	0.30*	0.26	0.19	0.35*	0.22*
5	0.30*	0.17*	1.18*	0.51*	0.32*	0.43*	0.44*	0.22*
6	0.57*	0.32*	1.54*	0.94*	0.69	0.76	0.86*	0.50*
7	0.57*	0.43*	1.45*	1.17*	0.72*	0.93*	0.75*	0.54*
8	0.68*	0.49*	1.81*	1.25*	0.76*	1.08*	0.95*	0.72*
9	0.51*	0.498	1.68*	1.29*	0.76*	1.08*	0.77*	0.62*
10	0.49*	0.40*	1.29	1.45	0.44*	0.70*	0.62	0.58*
				Decayed, missing & filled (dmft)				
4	2.42*	0.98*	3.39*	1.32*	3.44*	1.06*	3.41*	1.33*
5	2.27*	0.90*	3.64*	1.49*	4.09*	1.40*	3.66*	1.31*
6	2.09*	1.02*	3.95*	1.93*	3.94*	1.66*	3.68*	1.54*
7	1.74*	1.11*	3.20*	2.03*	3.70*	1.72*	2.94*	1.54*
8	1.79*	1.11*	3.27*	2.00*	3.02*	1.84*	2.91*	1.60*
9	1.35*	0.98*	3.02*	1.95*	2.39*	1.71*	2.17*	1.34*
10	0.97*	0.75*	1.92	1.92	1.69*	1.13*	1.60*	1.09*

* Statistically significant differences in the Indigenous/Non-Indigenous comparisons.

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

(b) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

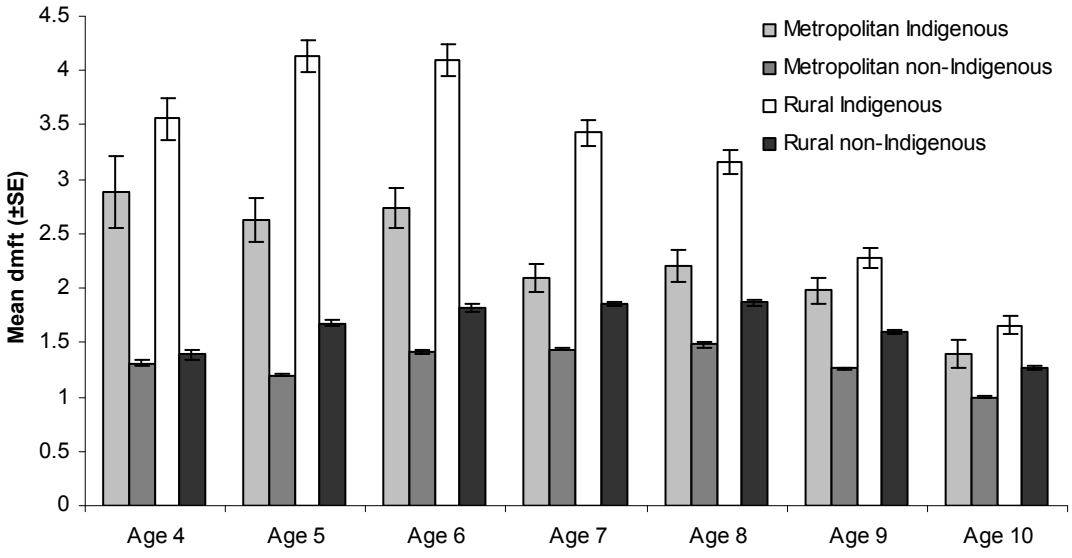
Source: AIHW Dental Statistics Research Unit.



Source: AIHW Dental Statistics Research Unit.

Figure 1.10.1: Mean number of decayed, missing or filled deciduous teeth, children aged 4–10 years, by Indigenous status, NSW (2000), SA (2003) and NT (2002)

- The mean dmft of children aged 4–10 years by residential location is presented in Figure 1.10.2. In all age groups rural Indigenous children had the highest mean dmft levels, followed by metropolitan Indigenous children, rural non-Indigenous children and metropolitan non-Indigenous children.

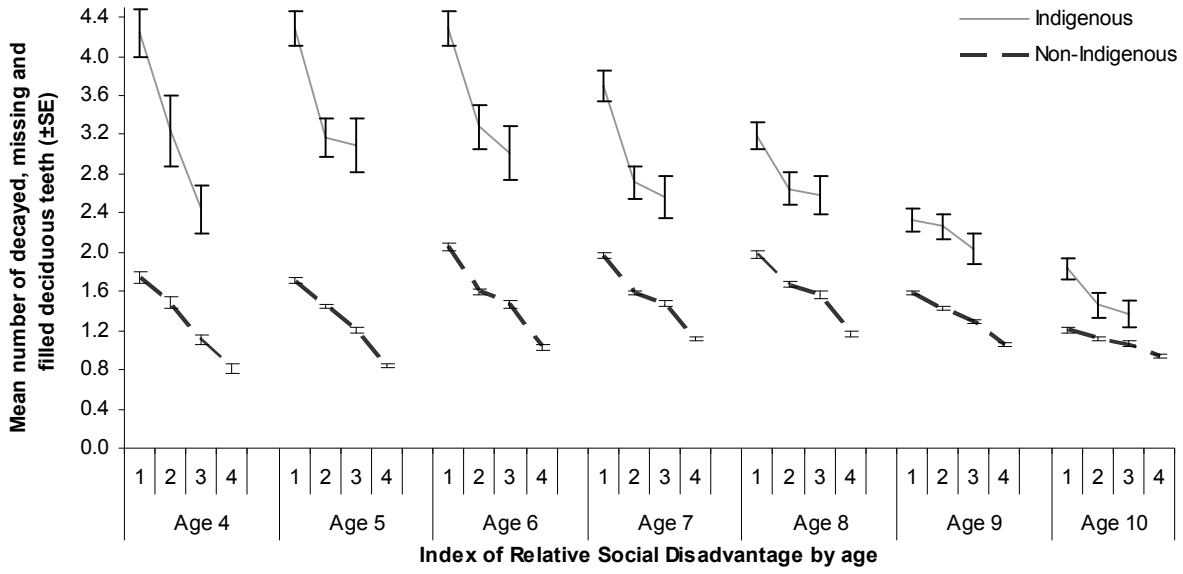


Note: SE = standard error
Source: AIHW DSRU 2007.

Figure 1.10.2: Mean dmft for Indigenous and non-Indigenous children aged 4–10 years by residential location, NSW (2000), SA (2003) and NT (2002)

The mean dmft of Indigenous and non-Indigenous children aged 4–10 years by the SEIFA Index of Relative Disadvantage is presented in Figure 1.10.3.

- Indigenous children across all age groups had higher dmft than non-Indigenous children, and Indigenous children in the most disadvantaged category had higher dmft than Indigenous children who were less disadvantaged.
- Indigenous children aged 4–6 years from disadvantaged areas had the highest dmft scores, and this was around 2.5 times the dmft of non-Indigenous children aged 4–6 years from disadvantaged areas.
- The dmft difference among Indigenous and non-Indigenous children decreased with increasing age, although across all age groups the dmft of Indigenous children from the most advantaged areas was less than the dmft of non-Indigenous children from the most disadvantaged areas.



1 = most disadvantaged and 4 = least disadvantaged.
SE = standard error.

Notes

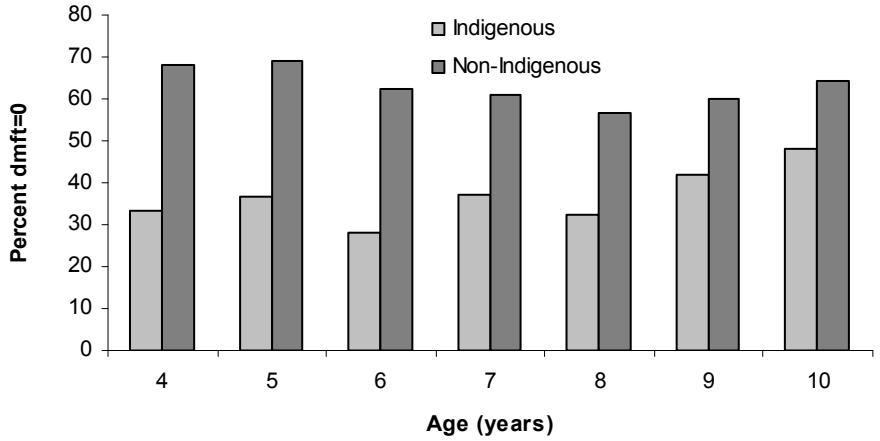
1. $p < 0.05$.
2. The numbers of Indigenous children in the least disadvantaged Index of relative social disadvantage were too small to allow for robust statistical analysis and thus were excluded from analyses.
3. Estimates with a relatvie standard error greater than 40% have been excluded.

Source: AIHW DSRU 2007.

Figure 1.10.3: Mean dmft for Indigenous and non-Indigenous children aged 4–10 years by SEIFA Index of Relative Disadvantage, NSW (2000), SA (2003) and NT (2002)

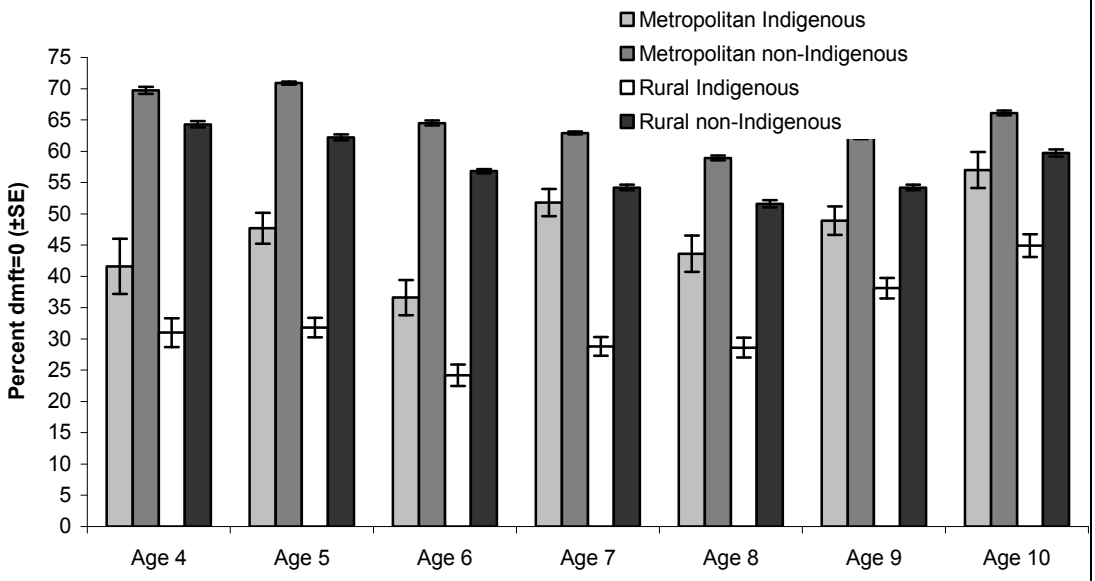
dmft = 0

- At all ages, the proportion of Indigenous children in New South Wales, South Australia and the Northern Territory free of caries in their deciduous teeth (dmft = 0) was lower than the proportion for non-Indigenous children. At age 6 years, twice as many non-Indigenous children had no clinical deciduous caries experience (62.3%) than Indigenous children (28.0%) (Figure 1.10.4).
- The proportion of children aged 4–10 years with dmft = 0 by residential location is presented in Figure 1.10.5. Across all age groups a higher proportion of metropolitan non-Indigenous children had no evidence of dental disease experience in their deciduous teeth, followed by rural non-Indigenous children, metropolitan Indigenous children and rural Indigenous children respectively.



Source: AIHW Dental Statistics Research Unit.

Figure 1.10.4: Proportion of children aged 4–10 years with no decayed, missing or filled deciduous teeth (dmft = 0), by age and Indigenous status, NSW (2000), SA (2003) and NT (2002)

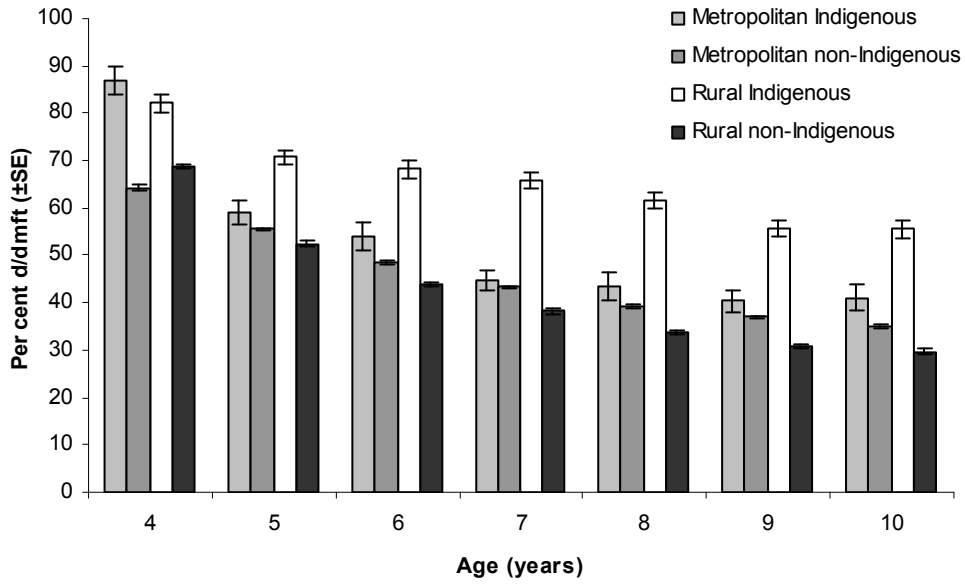


Note: SE = standard error.
Source: AIHW DSRU 2007.

Figure 1.10.5: Proportion of Indigenous and non-Indigenous children aged 4–10 years with dmft = 0 by residential location, NSW (2000), SA (2003) and NT (2002)

d/dmft

- The d/dmft ratio refers to the proportion of untreated teeth with decay in the population. It shows that Indigenous children have a greater unmet need for dental treatment than non-Indigenous children. Indigenous children had higher levels of untreated decay as a percentage of total caries experience than non-Indigenous children across all age groups, with the difference between rural Indigenous and rural non-Indigenous children becoming more marked with increasing age (Figure 1.10.6). Across all age groups, with the exception of 4-year-olds, rural Indigenous children had markedly higher proportions of d/dmft than their metropolitan and non-Indigenous counterparts.



Note: SE = standard error.
Source: AIHW Dental Statistics Research Unit.

Figure 1.10.6: Children aged 4–10 years with decayed deciduous teeth as a proportion of total children with decayed, missing or filled deciduous teeth (d/dmft), by age and Indigenous status, metropolitan and rural areas, NSW (2000), SA (2003) and NT (2002)

Permanent teeth

Mean DMFT

- In New South Wales, South Australia and the Northern Territory, the mean numbers of decayed and filled permanent teeth for Indigenous children aged 6–15 years were higher than for non-Indigenous children at all ages except at age 15 years for filled teeth (Table 1.10.2, Figure 1.10.7). Data are not presented separately for missing permanent teeth because of low numbers.
- As with deciduous teeth, children in New South Wales had lower mean numbers of decayed or filled permanent teeth than children in South Australia and the Northern Territory.
- Indigenous children in the Northern Territory had the highest mean number of decayed teeth, whereas Indigenous children in South Australia had the highest mean number of filled teeth.

Table 1.10.2: Mean number of decayed, missing and filled permanent teeth for children aged 6–15 year, by age and Indigenous status, NSW (2000), SA (2003) and NT (2002)

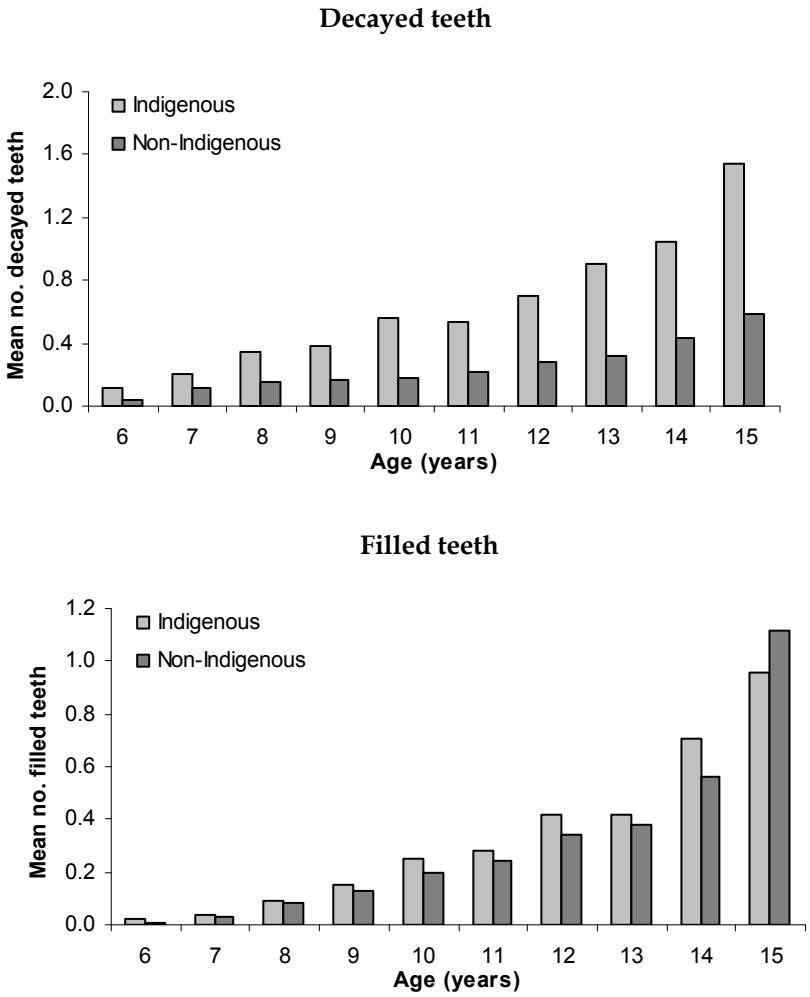
Age	New South Wales		South Australia		Northern Territory		NSW, SA & NT	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
				Decayed (D)				
6	0.09*	0.03*	0.14*	0.06*	0.12*	0.06*	0.12*	0.04*
7	0.17*	0.12*	0.30*	0.17*	0.25*	0.12*	0.21*	0.12*
8	0.29*	0.13*	0.39*	0.18*	0.40*	0.12*	0.35*	0.15*
9	0.29*	0.15*	0.53*	0.19*	0.45*	0.14*	0.38*	0.16*
10	0.37*	0.16*	0.51*	0.21*	0.69*	0.17*	0.56*	0.18*
11	0.36*	0.21*	0.55*	0.24*	0.72*	0.21*	0.53*	0.22*
12	0.54*	0.26*	0.59*	0.31*	0.78*	0.25*	0.70*	0.28*
13	0.66*	0.31*	1.00*	0.41*	1.45*	0.258	0.90*	0.32*
14	0.82*	0.38*	1.24*	0.50*	1.24	[a]0.74	1.04*	0.43*
15	n.a.	n.a.	1.59*	0.54*	*1.31*	[b]0.48*	1.54*	0.58*
				Filled (F)				
6	[b]0.01	0.01	[b]0.03	0.01	[b]0.01	0.01	0.02	0.01
7	[a]0.03	0.03	[a]0.06	0.06	[a]0.04	[a]0.04	0.04	0.03
8	[a]0.06	0.06	[a]0.13	0.14	[a]0.08	0.08	0.09	0.08
9	0.11	0.10	0.33	0.27	0.15	0.18	0.15*	0.13*
10	0.22*	0.13*	0.47*	0.35*	0.19	0.21	0.25*	0.20*
11	0.25*	0.20*	0.55*	0.43*	0.21*	0.29*	0.28*	0.24*
12	0.33	0.27	0.67*	0.48*	0.32	0.39	0.42*	0.34*
13	0.34	0.32	0.78	0.66	[a]0.36	0.41	0.42	0.38
14	0.45	0.39	1.12*	0.81*	[a]0.43	[b]0.77	0.71*	0.56*
15	n.a.	n.a.	1.18	1.14	[b]0.11	[b]0.39	0.96	1.12
				Decayed, missing & filled (DMFT)				
6	[a]0.11*	0.04*	0.17*	0.07*	0.13*	0.07*	0.16*	0.06*
7	0.21*	0.15*	0.36*	0.22*	0.29*	0.16*	0.31*	0.22*
8	0.36*	0.20*	0.53*	0.32*	0.49*	0.20*	0.51*	0.29*
9	0.42*	0.26*	0.87*	0.47*	0.61*	0.32*	0.64*	0.38*
10	0.61*	0.30*	1.09*	0.57*	0.93*	0.40*	0.94*	0.46*
11	0.63*	0.43*	1.11*	0.68*	0.99*	0.52*	0.96*	0.59*
12	0.87*	0.54*	1.28*	0.80*	1.13*	0.71*	1.25*	0.75*
13	1.03*	0.65*	1.83*	1.09*	1.87*	0.78*	1.62*	0.90*
14	1.37*	0.81*	2.43*	1.34*	1.87	[a]1.51	2.09*	1.18*
15	n.a.	n.a.	2.79*	1.73*	*1.60	[b]0.86	2.65*	1.80*

* Statistically significant differences in the Indigenous/Non-Indigenous comparisons.

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

(b) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

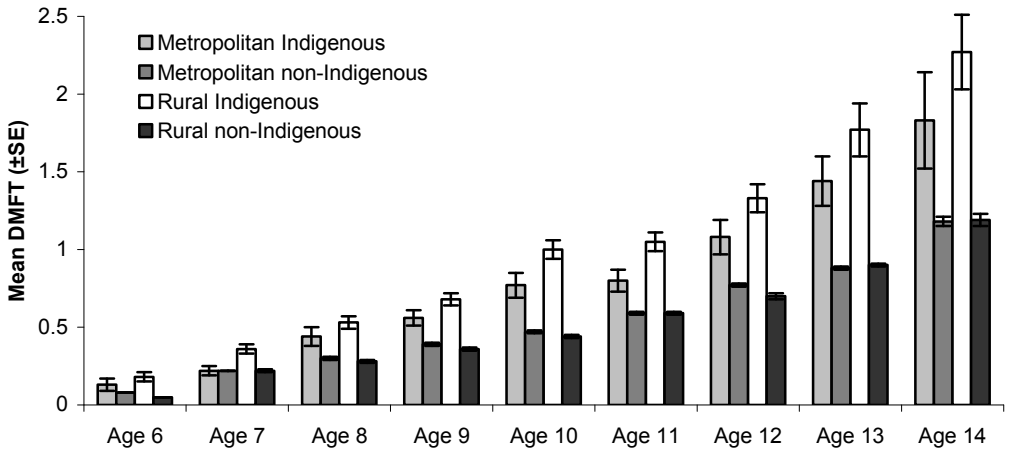
Source: AIHW Dental Statistics Research Unit.



Source: AIHW Dental Statistics Research Unit.

Figure 1.10.7: Mean number of decayed and filled permanent teeth, children aged 6–15 years, by age and Indigenous status, NSW (2000), SA (2003) and NT (2002)

- The mean DMFT of Indigenous and non-Indigenous children aged 6–14 years by residential location is presented in Figure 1.10.8. Indigenous children had higher DMFT than non-Indigenous children across all age groups except metropolitan children aged 7 years, with the difference becoming more marked with increasing age. Across all age groups, rural Indigenous children had greater DMFT than their metropolitan counterparts but rural and metropolitan non-Indigenous DMFT levels were relatively similar. The mean DMFT increased with increasing age for all children, with the steepest gradient occurring among rural Indigenous children.

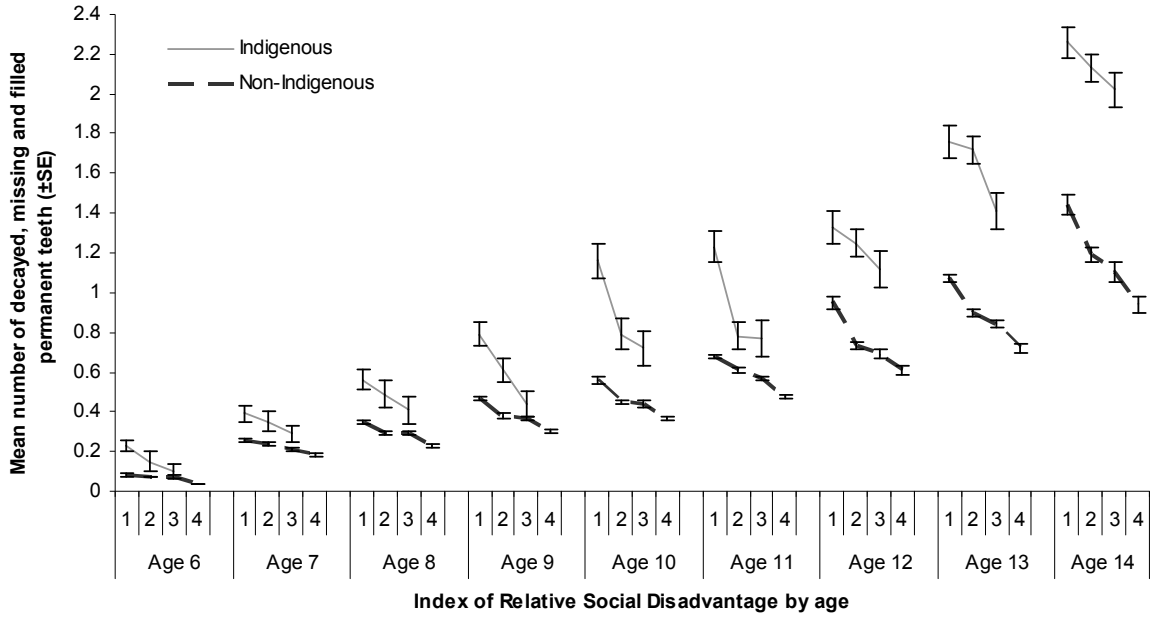


Note: SE = standard error.
Source: AIHW DSRU 2007.

Figure 1.10.8: Mean DMFT of Indigenous and non-Indigenous children aged 6–14 years by residential location, NSW (2000), SA (2003) and NT (2002)

The mean DMFT of Indigenous and non-Indigenous children aged 6–14 years by the SEIFA Index of Relative Disadvantage is presented in Figure 1.10.9.

- Across all age groups, Indigenous children had higher DMFT than non-Indigenous children and this difference increased with increasing age. Indigenous and non-Indigenous children in the most disadvantaged SES category had higher DMFT than their counterparts in more advantaged categories across all age groups, with mean DMFT decreasing with increasing social advantage.
- The highest DMFT was observed among Indigenous children aged 14 years in the most disadvantaged category, and this was 1.6 times the DMFT of similarly disadvantaged non-Indigenous children aged 14 years.
- The greatest DMFT difference among disadvantaged Indigenous and non-Indigenous children was observed among those aged 10 years (Indigenous children aged 10 years from disadvantaged areas had 2.1 times the DMFT of their non-Indigenous counterparts from disadvantaged areas). Across all age groups, except 9 years, Indigenous children in the least disadvantaged categories had higher DMFT than the most disadvantaged non-Indigenous children.



1 = most disadvantaged and 4 = least disadvantaged.
SE = standard error.

Notes

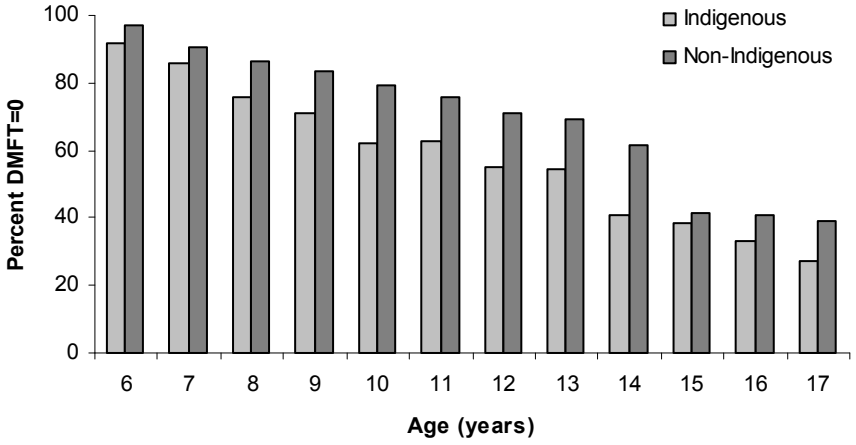
1. $p < 0.05$.
2. The numbers of Indigenous children in the least disadvantaged Index of relative social disadvantage were too small to allow for robust statistical analysis and thus were excluded from analyses.
3. Estimates with a relatvie standard error greater than 40% have been excluded.

Source: AIHW DSRU 2007.

Figure 1.10.9: Mean DMFT for Indigenous and non-Indigenous aged 6–14 years children by SEIFA Index of Relative Disadvantage, NSW (2000), SA (2003) and NT (2002)

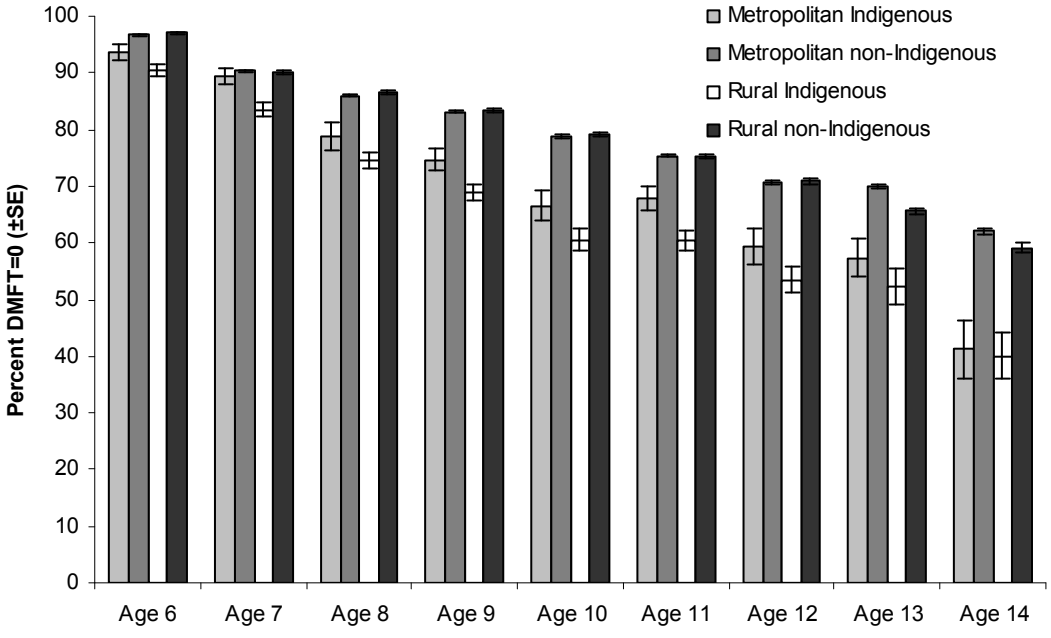
DMFT = 0

- The proportion of Indigenous children in New South Wales, South Australia and the Northern Territory free of caries in their permanent teeth decreased with increasing age. At each age level, fewer Indigenous children had no caries experience than non-Indigenous children, but the differences between Indigenous and non-Indigenous children in the proportion with no clinical caries experience was less marked than with their deciduous teeth (Figure 1.10.10).
- Across all age groups the proportion of children with no evidence of dental disease experience in their permanent teeth was highest among metropolitan and rural non-Indigenous groups, followed by metropolitan Indigenous children and rural Indigenous children respectively (Figure 1.10.11). The highest proportion of children who were caries-free in their permanent teeth were metropolitan and rural non-Indigenous children aged 6 years. The proportion of children with DMFT = 0 generally decreased with increasing age across Indigenous and non-Indigenous groups, with the trend being most marked among rural and metropolitan Indigenous children.



Source: AIHW Dental Statistics Research Unit,

Figure 1.10.10: Proportion of children aged 6–14 years with no decayed, missing or filled permanent teeth (DMFT = 0), by age and Indigenous status, NSW (2000), SA (2003) and NT (2002)



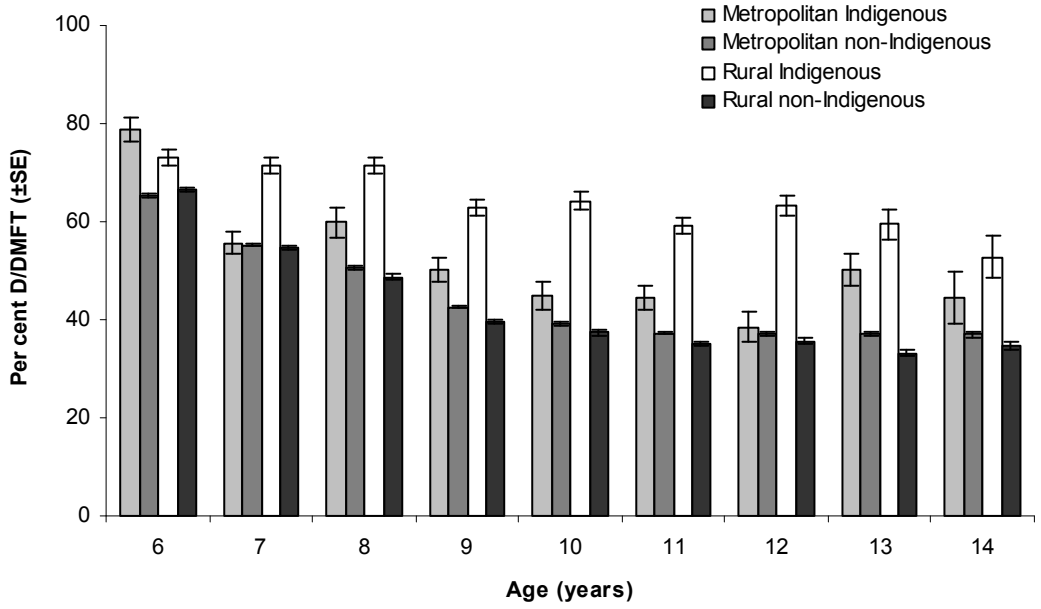
Source: AIHW DSRU 2007.

Figure 1.10.11: Proportion of Indigenous and non-Indigenous children aged 6–14 years with DMFT = 0 by residential location NSW (2000), SA (2003) and NT (2002)

D/DMFT

- At all ages between 6 and 14 years, there was a higher proportion of Indigenous children in rural areas with untreated permanent decayed teeth as a percentage of those with

decayed, missing or filled teeth (D/DMFT) than non-Indigenous children in rural areas (Figure 1.10.10). This was also the case in metropolitan areas for most ages, but the differences between Indigenous and non-Indigenous children with untreated permanent decayed teeth were not as marked as in rural areas.



SE= standard error.

Source: AIHW Dental Statistics Research Unit.

Figure 1.10.12: Children aged 6–14 years with decayed deciduous teeth as a proportion of total children with decayed, missing or filled permament teeth (D/DMFT), by age and Indigenous status, metropolitan and rural areas, NSW (2000), SA (2003) and NT (2002)

dmft and DMFT of Indigenous children in remote communities

Data on the oral health of Indigenous children in remote communities come from a study undertaken in 2000–2003 by the Australian Research Centre for Population Oral Health in collaboration with the Far West Area Health Service (New South Wales), the remote Indigenous communities of Nganampa lands (South Australia), and various remote communities around Alice Springs (Northern Territory). There were a total of 831 children in the sample, whose ages ranged from 2 to 16 years.

The mean dmft and DMFT scores of Indigenous children in remote locations by age group are presented in Table 1.10.3. Overall, the mean dmft for Indigenous children aged 2–16 years was 4.03 and the mean DMFT was 1.06.

Indigenous children aged under 5 years and aged 5–9 years had higher mean dmft scores than those in older age groups (3.69 to 6.27 compared with 0.08 to 1.99). In contrast, older children had higher mean DMFT scores than their younger counterparts. Indigenous children aged 15–16 years had mean DMFT scores of 3.67 compared with 0.55 and 1.62 for Indigenous children aged 5–9 years and 10–14 years respectively.

Table 1.10.3: Mean dmft and DMFT scores of remote Indigenous children, by age group, 2000–2003

	Age group				
	<5 years	5–9 years	10–14 years	15–16 years	All children (2–16 years)
Mean dmft	3.69	6.27	1.99	0.08	4.03
Mean DMFT	—	0.55	1.62	3.67	1.06

Source: AIHW DSRU 2007.

Comparison of remote Indigenous child oral health and state/territory and national dental disease levels

A comparison of caries experience of remote Indigenous children compared with children in South Australia, the Northern Territory and total Australia is shown in Table 1.10.4.

Dental disease experience in primary teeth was greater for remote Indigenous children (dmft = 2.94 for 5–6 years) compared with children in South Australia, the Northern Territory and total Australia (dmft = 1.46 to 2.26 for 5–6 years). The proportion of children with caries in both deciduous and permanent teeth was greater for children living in remote Indigenous communities.

Table 1.10.4: Caries experience of remote Indigenous children compared with South Australia, the Northern Territory and total Australia child populations

Population	dmft (5–6 years)	% dmft > 0	DMFT (> 12 years old)	% DMFT > 0
Remote Indigenous	2.94	69.0	0.92	43.6
SA	1.46	58.5	0.60	31.4
NT	2.26	47.6	0.97	37.5
Australia	1.56	59.1	0.84	35.1

Source: AIHW DSRU 2007.

Comparison of remote Indigenous child oral health and state/territory Indigenous oral health

Indigenous children aged 6 years in remote communities had higher dmft levels than their New South Wales counterparts, but lower levels than Indigenous children in the Northern Territory and South Australia (Table 1.10.5). Average DMFT levels for Indigenous children aged 12 years were highest among those in the Northern Territory (DMFT = 1.33) and lowest among those in New South Wales (DMFT = 0.87). A higher proportion of Indigenous children aged 6 years in remote communities had caries experience in their deciduous teeth than children in New South Wales and South Australia, and a higher percentage of Indigenous children aged 12 years in remote locations had caries experience in their permanent teeth compared with their New South Wales and South Australia counterparts (Table 1.10.5).

Table 1.10.5: Remote and state/territory caries experience of Indigenous children

Population	dmft (6 years old)	% dmft > 0	DMFT (12 years old)	% DMFT > 0
Remote Indigenous	2.94	69.0	0.92	43.6
NSW Indigenous	2.09	55.0	0.87	35.9
SA Indigenous	3.64	49.3	1.28	37.0
NT Indigenous	3.96	67.8	1.33	46.1

Source: AIHW DSRU 2007.

Time series analysis

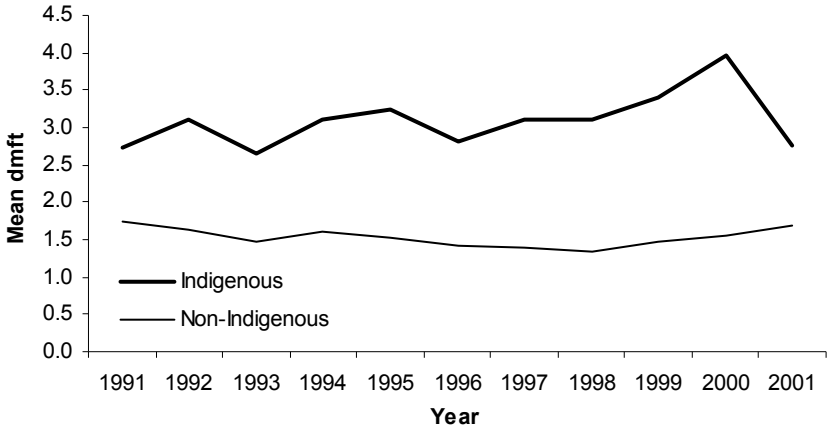
Time series data for caries experience among Indigenous children are available for the Northern Territory and are presented in Table 1.10.6 and Figures 1.10.13 and 1.10.14.

- Between 1991 and 2001, the mean number of decayed, missing and filled deciduous teeth (dmft) for Indigenous children in the Northern Territory at 6 years of age varied from year to year.
- For the period 1991–2001, there was little change in the number of decayed, missing and filled deciduous (dmft) and permanent teeth (DMFT) for Indigenous and non-Indigenous children.
- The mean dmft and DMFT scores were higher for Indigenous children than for non-Indigenous children over the period 1991–2001.
- The decline in Indigenous dmft and DMFT in 2001 may be part of normal variation in Indigenous data which may relate to particular remote communities receiving school dental services in any particular year.

Table 1.10.6: Mean dmft and DMFT scores for Indigenous children in NT, 1991–2001

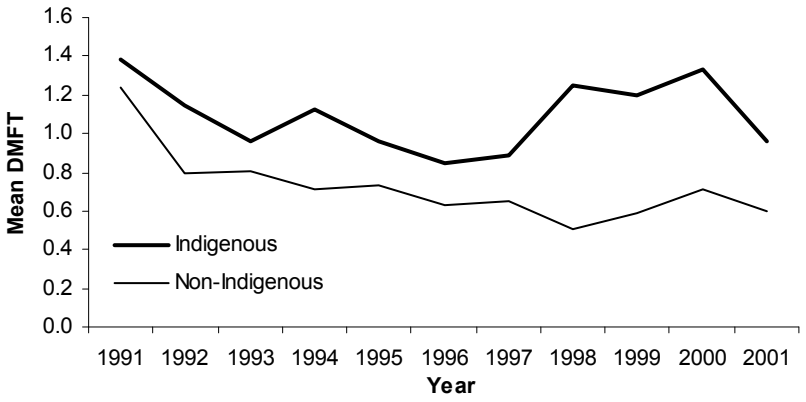
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Mean dmft scores, children aged 6 yrs											
Indigenous	2.74	3.11	2.66	3.11	3.23	2.80	3.12	3.11	3.4	3.96	2.77
Non-Indigenous	1.73	1.64	1.48	1.62	1.53	1.41	1.40	1.35	1.47	1.56	1.68
Mean DMFT scores, children aged 12 yrs											
Indigenous	1.38	1.15	0.96	1.13	0.96	0.85	0.89	1.25	1.20	1.33	0.96
Non-Indigenous	1.24	0.79	0.81	0.71	0.73	0.63	0.65	0.51	0.59	0.71	0.60

Source: AIHW Dental Statistics Research Unit.



Source: AIHW Dental Statistics Research Unit.

Figure 1.10.13: Mean dmft scores for children at 6 years of age in NT, by Indigenous status, 1991–2001



Source: AIHW Dental Statistics Research Unit.

Figure 1.10.14: Mean DMFT scores for children at 12 years of age in NT, by Indigenous status, 1991–2001

Adult oral health

The latest available data on DMFT scores and complete loss of all natural teeth for Indigenous adults come from the 2004–06 Adult Dental Health Survey.

- In 2004–06, the mean number of decayed, missing or filled teeth for Indigenous adults aged 15 years and over was 14.8 compared with 12.8 for non-Indigenous persons of the same age. The mean numbers of decayed and missing teeth were higher for Indigenous adults across all age groups from 15 to 74 years, and the mean number of filled teeth was higher for non-Indigenous adults in the age groups 35–54 and 55–74 years (Table 1.10.7, Figure 1.10.15).
- Overall, a higher percentage of Indigenous persons aged 15 years and over had no natural teeth (7.9%) than non-Indigenous persons aged 15 years and over (6.4%) (Figure 1.10.16). This difference is observed in all age groups over 35 years of age and is

particularly marked in the 35–54 age group where Indigenous adults were around five times as likely to have no natural teeth as non-Indigenous adults.

Table 1.10.7: Mean number of decayed, missing or filled teeth for adults, by age group and Indigenous status, 2004–06

	Age group				
	15–34	**35–54**	**55–74**	**> 75+**	**All ages (15+)**
Mean no. of decayed teeth					
Indigenous	1.7[(c)]	4.1[(c)]	1.4[(c)]	n.p.	2.7[(c)]
Non-Indigenous	0.9	0.8	0.5	0.6[(b)]	0.8
Mean no. of missing teeth					
Indigenous	4.0[(b)]	7.4[(b)]	13.1[(b)]	n.p.	7.4
Non-Indigenous	3.5	5.3	10.2	14.2	6.1
Mean no. of filled teeth[(a)]					
Indigenous	1.3	4.3	8.8	n.p.	4.7
Non-Indigenous	0.1	8.2	11.5	9.6	5.9
Mean no. of filled tooth surfaces					
Indigenous	8.0[(c)]	15.9[(b)]	26.5[(b)]	n.p.	16.6[(b)]
Non-Indigenous	5.6	24.5	34.7	30.3	19.9
Mean no. of decayed, missing or filled teeth					
Indigenous	7.0[(c)]	15.8	23.3	n.p.	14.8
Non-Indigenous	4.5	14.3	22.2	24.4	12.8

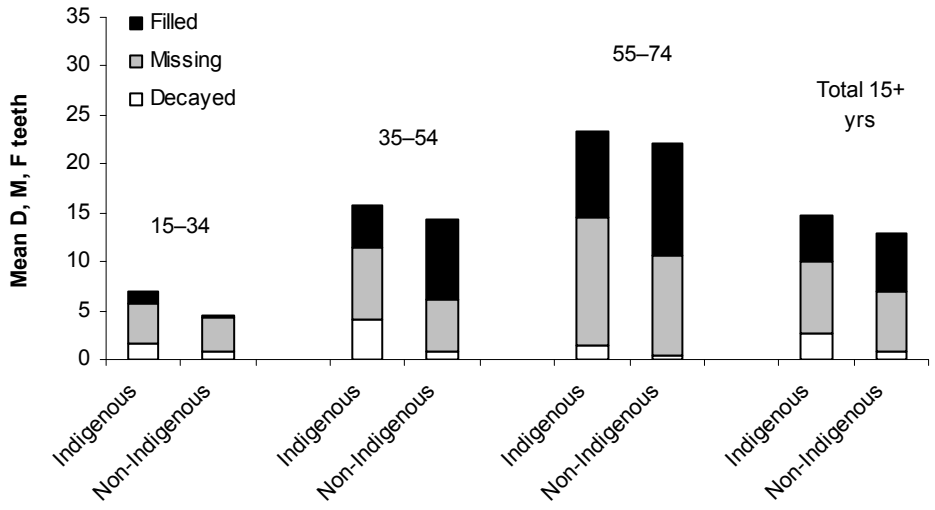
(a) No relative standard error estimates for mean number of filled teeth available.

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

(c) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

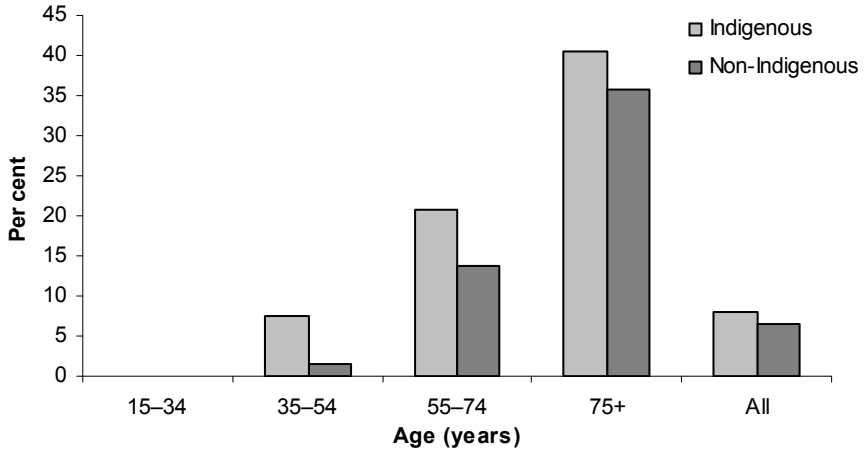
Note: Excludes those with no natural teeth.

Source: Roberts-Thomson & Do 2007.



Source: Roberts-Thomson & Do 2007.

Figure 1.10.15: Mean number of decayed, missing or filled teeth for persons aged 15 years and over, by age group and Indigenous status, 2004–06

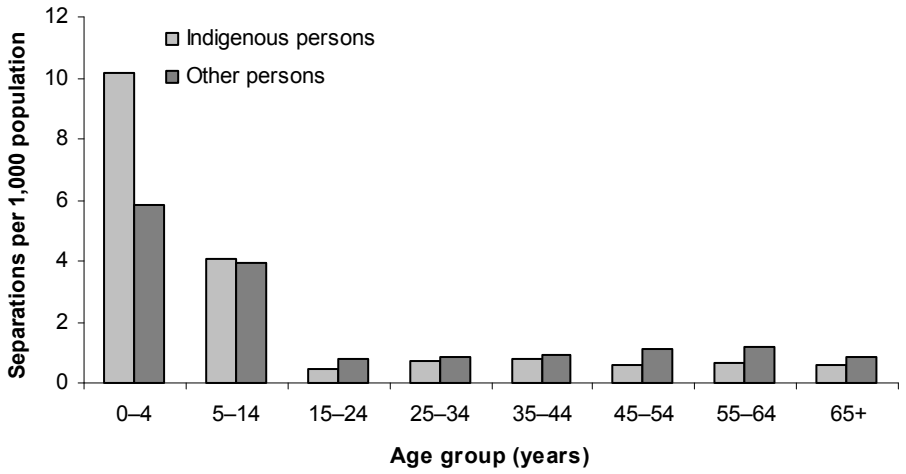


Source: Roberts-Thomson & Do 2007.

Figure 1.10.16: Persons aged 15 years and over with no natural teeth (complete tooth loss), by Indigenous status, 2004–06

Hospitalisations for dental problems

- For the 2-year period July 2004 to June 2006, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, there were 65,633 hospitalisations for dental problems, of which 2,495 (3.8%) were of Aboriginal and Torres Strait Islander peoples.
- Indigenous children aged 0–4 years had higher hospitalisation rates for dental problems (dental caries and tooth extractions) than other children of the same age (Figure 1.10.17). At ages 5–14 years, Indigenous children were hospitalised for dental problems at similar rates to other children, but in the older age groups other Australians were hospitalised at higher rates than Indigenous Australians.



Note: ICD-10-AM codes: K02, K08.1.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.10.17: Age-specific hospitalisation rates for dental problems, by Indigenous status, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006

- After adjusting for differences in age structure between the two population groups, Indigenous and other Australians in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised at similar rates for dental problems.

Additional information

Child oral health

Dental health problems of Aboriginal children

Information on dental problems among Aboriginal children was collected in the Western Australian Aboriginal Child Health Survey between 2001 and 2002. Carers of Aboriginal children were asked whether their child currently had a number of dental problems including cavities and dental filings.

- Overall, approximately 38% of Aboriginal children aged 0–17 years were assessed by their carers as having one or more dental problems (tooth decay, tooth removals or fillings). Almost half of children aged 4–17 years had experienced one or more dental problems at the time of the survey (47%). The proportion of children who had dental problems varied by level of relative isolation, with children living in Perth metropolitan areas twice as likely to have tooth decay, a tooth removal or filling (52%) than children living in areas of extreme isolation (25%).
- Approximately 19% of Aboriginal children aged 0–17 years were assessed by their carers as having holes in their teeth. Prevalence of cavities was lowest for children aged 0–3 years (8%) and highest for children aged 4–7 years (31%).
- Around 9% of Aboriginal children were reported to have ever had a tooth removed. Children aged over 3 years were more likely to have had a tooth extraction for dental decay.
- Over one-quarter (28%) of children aged 0–17 years were reported to have had dental fillings. A greater proportion of older children were reported to have ever had a tooth filled than younger children. Less than 1% of children aged 0–3 years had ever had a dental filing compared with around 40% of children aged 8–11 years and 12–17 years.
- An estimated 6% of Aboriginal children aged 0–17 years were reported to have a problem with sore and bleeding gums. The prevalence of sore and bleeding gums was highest for children aged 12–17 years (8%).

Dental characteristics of Indigenous children in remote communities

Data on the oral health of Indigenous children in remote communities come from a study undertaken in 2000–2003 by the Australian Research Centre for Population Oral Health in collaboration with the Far West Area Health Service (New South Wales), the remote Indigenous communities of Nganampa lands (South Australia), and various remote communities around Alice Springs (Northern Territory).

Dental characteristics of remote Indigenous children are presented in Table 1.10.8. Almost one-third were classified as 'high caries risk' and just over one-fifth were in the 'moderate' gingivitis risk group. One-quarter had 'moderate' hypoplasia on permanent teeth and one-quarter had 'mild' fluorosis on permanent teeth.

Table 1.10.8: Dental characteristics of remote Indigenous children, 2000–2003

	Number	Per cent (%)
Caries risk status		
Low	366	44.0
Moderate	193	23.2
High	265	31.9
Gingivitis risk status		
Low	541	65.1
Moderate	171	20.6
High	56	6.7
Hypoplasia on permanent teeth		
None	92	25.4
Mild	127	35.1
Moderate	88	24.3
Severe	55	15.2
Fluorosis on permanent teeth		
None	120	58.3
Mild	50	24.3
Moderate	33	16.0
Severe	3	1.5

Source: Jamieson et al 2007.

Dental characteristics of remote Indigenous children by age group are presented in Table 1.10.9. Less than 4% of children aged less than 5 years brushed their teeth at home, compared with almost one-quarter of those aged 10–14 years (23%). Children aged less than 5 years and 5–9 years were at the highest caries risk (37% and 39% respectively), and those aged 15–16 years were at the highest gingivitis risk (25%). The prevalence of hypoplasia and fluorosis on permanent teeth was higher among children in the older age groups.

Table 1.10.9: Dental characteristics of remote Indigenous children, by age group, 2000–2003

	< 5 years		5–9 years		10–14 years		15–16 years	
	Number	%	Number	%	Number	%	Number	%
Brush teeth school	11	21.2	78	20.5	52	14.6	5	20.8
Brush teeth home	2	3.8	79	20.7	80	22.5	3	12.5
Caries risk status								
Low	28	53.8	130	34.1	192	54.1	10	41.7
Moderate	5	9.6	98	25.7	76	21.4	8	33.3
High	19	36.5	150	39.4	84	23.7	6	25.0
Gingivitis risk status								
Low	38	73.1	290	76.1	198	55.8	8	33.3
Moderate	3	5.8	56	14.7	97	27.3	10	41.7
High	—	—	10	2.6	39	11.0	6	25.0
Hypoplasia on permanent teeth								
None	3	100.0	49	26.1	31	20.0	3	42.9
Mild	—	—	72	38.3	54	34.8	1	14.3
Moderate	—	—	45	23.9	42	27.1	1	14.3
Severe	—	—	22	11.7	28	18.1	2	28.6
Fluorosis on permanent teeth								
None	3	100.0	55	61.8	55	54.5	—	—
Mild	—	—	21	23.6	26	25.7	2	40.0
Moderate	—	—	11	12.4	19	18.8	3	60.0
Severe	—	—	2	2.2	1	1.0	—	—

Source: Jamieson et al 2007.

Water fluoridation and children's oral health

Water fluoridation is the process of adjusting the level of fluoride in drinking water to achieve a concentration of approximately 1 ppm. That concentration is effective in preventing decay but it does not cause appreciable levels of dental fluorosis, a discolouration of the enamel that, in severe cases, creates a chalky appearance on the tooth surface. Fluoride reduces dental decay by making teeth less susceptible to the acids formed by micro-organisms living on and around the teeth. Fluoride can also assist in reversing the process of decay once it has begun. Some small communities in Australia have drinking water that contains naturally occurring fluoride in a concentration of around 1 ppm; that concentration is achieved by water fluoridation in most larger communities and cities (Jamieson et al 2007).

Non-fluoridated water supplies are more likely in rural and remote areas, where a significant proportion of the population is Indigenous, and there is evidence that children in these areas are more likely to have poorer dental health (Armfield 2006). Data from the Child Dental Health Survey showed that children from fluoridated areas had less dental decay than children from non-fluoridated areas (Jamieson et al 2007). Within each jurisdiction, children from areas with fluoride concentrations at or above 0.7 ppm had fewer dmft per child, on average, than did children residing in areas with relatively low fluoride concentrations. The

proportion of Australians who had access to fluoridated water in 2006 ranged from 5% in Queensland to 100% in the Australian Capital Territory (Australian Dental Association 2006).

Adult oral health

The National Survey of Adult Oral Health collected information on the oral health status, dental care and oral health perceptions of Indigenous and non-Indigenous Australians. This information is presented below.

Oral health status

In 2004–06, approximately 12% of Indigenous persons aged 15 years and over wore dentures, 57% reported untreated coronal decay (compared with 25% of non-Indigenous persons), 8% had untreated root decay and only 4% had no dental decay (compared with 10% of non-Indigenous persons). In addition, 21% of Indigenous persons reported having periodontitis, 21% reported periodontal pockets of depth of 4 mm and 27% reported gingival inflammation (Table 1.10.10).

Table 1.10.10: Oral health status of persons aged 15 years and over, Australia, 2004–06

	Indigenous	Non-Indigenous
	Per cent	
Fewer than 21 teeth[a]	10.4[c]	11.4
Wear dentures[a]	11.5[c]	15.0
Untreated coronal decay[a]	57.0[c]	25.1
Untreated root decay[a]	7.7[d]	6.7
One or more filled teeth[a]	82.5	83.9
No dental decay[a]	3.8[d]	10.0
Moderate or severe periodontitis[b]	29.0[c]	22.9
Periodontitis[b]	21.2[c]	19.0
4mm periodontal pocket depth[b]	21.4[c]	19.7
2+mm gingival recession[b]	56.1[c]	52.8
Gingival inflammation[b]	26.8[c]	19.6

(a) Excludes those with no natural teeth.

(b) Includes those who were periodontally examined only.

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

(d) Estimate has a relative standard error of greater than 50% and is considered too unreliable for general use.

Source: Roberts-Thomson & Do 2007.

Dental care

Information on the dental care of Indigenous and non-Indigenous Australians is presented in Table 1.10.11.

- In 2004–06, approximately 51% of Indigenous persons aged 15 years and over reported they had visited a dentist in the last 12 months and 15% reported their last dental visit was at least 5 years ago compared with 60% and 12% of non-Indigenous Australians respectively.
- Indigenous persons were less likely to have attended a private dental practice at the last dental visit (66%), to have paid for their last dental visit (80%), to usually visit a dentist at least once a year (43%), to have a regular dentist (72%) and to usually visit a dentist for a

check-up (45%) than non-Indigenous persons (83%, 92%, 53%, 79% and 56% respectively).

- Indigenous Australians were more likely to report that they had avoided or delayed dental care (38%), that cost had prevented recommended dental treatment (34%) and that they would have a lot of difficulty paying a $100 dental bill (27%) than non-Indigenous Australians.

Table 1.10.11: Dental care of Indigenous and non-Indigenous adults, 2004–06

	Indigenous	Non-Indigenous
	Per cent	
Visit dentist in last 12 months	50.7	59.5
Last dental visit at least 5 years ago	14.5[a]	11.8
Attended private dental practice at last dental visit	66.2	83.4
Paid for last dental visit[b]	79.8	91.5
Usually visit dentist at least once a year[c]	43.4	53.3
Have a regular dentist[d]	72.1	78.7
Usually visit dentist for check-up	44.6	56.4
Avoided or delayed dental care	37.7	29.9
Reported cost had prevented recommended dental treatment[e]	33.7[a]	20.5
Would have a lot of difficulty paying $100 dental bill	26.9[a]	18.1

(a) Estimate has a relative standard error of 25% to 50% and should be used with caution.
(b) People who visited dentist within last 5 years.
(c) Excludes those with no natural teeth.
(d) People who visited dentist in last 5 years. Excludes those with no natural teeth.
(e) People who visited dentist within last 2 years.

Source: Spencer & Harford 2007.

Oral health perceptions

Information on the dental care of Indigenous and non-Indigenous Australians is presented in Table 1.10.12.

- In 2004–06, Indigenous persons were more likely than non-Indigenous Australians to report their oral health as fair or poor (25% compared with 16%), to experience toothache (27% compared with 15%), to need dentures (16% compared with 7%), to need an extraction or filling (49% compared with 33%) and to need oral treatment within 3 months (83% compared with 69%).

Table 1.10.12: Oral health perceptions of Indigenous and non-Indigenous adults, 2004–06

	Indigenous	Non-Indigenous
	Per cent	
Avoid foods due to dental problems	34.9	17.1
Self assessed fair/poor oral health[(a)]	25.1[(c)]	16.3
Experiences toothache[(a)]	27.0[(c)]	15.0
Experiences orofacial pain	27.1[(c)]	22.5
Needs dentures	15.8[(c)]	7.1
Need an extraction or filling[(a)]	48.8	32.6
Perceive a need for a check-up[(a)]	58.1	59.6
Perceive need for treatment within 3 mths[(a)(b)]	82.9	69.1

(a) Excludes those with no natural teeth.

(b) People who need an extraction or filling.

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

Source: Harford & Spencer 2007.

Dental consultations and oral health actions

Information on the dentist consultations and oral health actions of Indigenous Australians was also collected in the 2004–05 NATSIHS and yielded similar findings to the Adult Dental Health Survey. This information is summarised below.

- In 2004–05, approximately 4% of Indigenous Australians and 6% of non-Indigenous Australians aged 2 years and over reported they had visited a dentist in the last 2weeks.
- Approximately 89% of Indigenous Australians aged 15 years and over reported they had visited a health professional about their teeth at some point in their lives. A higher proportion of Indigenous people living in remote areas had visited a health professional about their teeth than Indigenous people living in non-remote areas (94% compared with 76%).
- In 2004–05, approximately 10% of Indigenous Australians aged 15 years and over reported wearing dentures and 6% reported they required dentures. A higher proportion of Indigenous Australians in non-remote areas reported wearing dentures than those living in remote areas (12% compared with 5%), whereas a higher proportion of Indigenous people in remote areas reported they required dentures (8%) than those living in non-remote areas (6%).

For more detailed information on oral health actions of Indigenous Australians from the NATSIHS, see the 2006 edition of this report (detailed analyses).

International comparisons

Information is available on the oral health of Maori children in New Zealand, First Nation children in Canada and Native American children in the United States of America.

Indigenous child oral health in New Zealand

There is no national survey data that describe the oral health status of Maori children in New Zealand. However, regional studies suggest that Maori children experience higher levels of dental disease than non-Maori children (Thomson 1993 cited in Jamieson et al 2007), and that this disparity is widening (Lee & Dennison 2004; Thomson et al. 2002 cited in Jamieson et al 2007). In a survey of 3,283 5-year-olds in one region the proportion of Maori children identified as having dental caries severe enough to warrant treatment under a general anaesthetic was over twice that of non-Maori children (Thomson 1993 cited in Jamieson et al 2007). Another report found that 66% of children receiving dental care under a general anaesthetic in one region were Maori, and that demand for this form of care was increasing (Broughton 2000; Thomson 1994 cited in Jamieson et al 2007).

Indigenous child oral health in Canada

Although dental health is improving among Canadian children in the general population, the same cannot be said for First Nation Canadian children. A comparison of two national oral health surveys of First Nation Canadian children conducted in 1990–91 and 1996–97 respectively showed that deft (decayed, extracted, filled deciduous teeth) scores for 6-year-old children had increased from 8.2 to 8.7, and mean DMFT scores had increased from 0.7 to 0.8. This was in contrast to the overall Canadian child population in these age groups, where a decrease in dental disease experience was noted (Peressini et al. 2004, cited in Jamieson et al 2007). Other regional reports of First Nation Canadian child oral health show similar trends (Harrison & Davis 1993; Harrison & White 1997; Klooz 1988 cited in Jamieson et al 2007).

Indigenous child oral health in the United States of America

Findings from the 1991 Indian Health Service Patient Oral Health Status and Treatment Needs Survey revealed that Native American children experienced a much higher prevalence of dental caries in their primary and permanent teeth than the general US child population (Niendorff & Jones 2000, cited in Jamieson et al 2007). Grim et al. (1994) reported that of 1,667 public school students dentally examined in Oklahoma, Native American children had over double the dmfs and DMFS scores of their non-Native American counterparts. The mean dmfs for children aged 5–6 years was 10.4 for Native American children and 5.1 for non-Native American children, and the mean DMFS for children aged 15–17 years was 10.1 for Native American children and 6.0 for non-Native American children (Jamieson et al 2007). A review of several large-scale oral health epidemiologic surveys found that Native American children had greater caries experience than non-Native American children, with risk factors including rural residence, minimal exposure to fluoride, and coming from less educated or poorer families (Caplan & Weintraub 1993 cited in Jamieson et al 2007).

Data quality issues

Dental health survey data

The assessment of dmft and DMFT is based on the World Health Organization protocol. The accuracy of dmft and DMFT will depend on the quality of the assessment and the accuracy of recording.

Child Dental Health Survey

The Child Dental Health Survey monitors the dental health of children enrolled in school dental services operated by health departments or authorities in each state and territory. Therefore, this survey will miss those children not attending these programs. There are some variations among state and territory programs with respect to priority age groups and the nature of the services provided, such as dental examinations, preventive services and restorative treatment. Caution is required in interpreting statistics for those over the age of 12 years, as many programs only include primary school children. Different sampling procedures are used across the states and territories (Armfield et al. 2003). The sample has not been specifically designed to measure Indigenous children and therefore caution is needed in interpreting the results. Data on Indigenous status are collected from the patient's treatment card or medical history. Problems have been identified in the accurate recording of Indigenous status in this data (Armfield et al. 2003).

Indigenous child oral health in remote communities study

Indigenous child oral health data were collected from remote Indigenous communities in all jurisdictions in the 2000–2003 period as part of a study undertaken by the Australian Research Centre for Population Oral Health in collaboration with the Far West Area Health Service (New South Wales), the remote Indigenous communities of Nganampa lands (South Australia), and various remote communities around Alice Springs (Northern Territory). Data were collected by dental health professionals providing services to these communities. Because of issues of confidentiality, specific location details were unable to be included in the analysis. The sample included 832 Indigenous children aged 2–16 years.

National Survey of Adult Oral Health

The 2004–06 National Survey of Adult Oral Health included computer-assisted telephone interviews with 14,123 people aged 15–97 years, 5,505 of which were also dentally examined. The survey included 229 people who identified as Aboriginal or Torres Strait Islander (1.5%). Indigenous identity was based on responses to the question 'Are you of Aboriginal or Torres Strait Islander origin?' People who responded 'Yes, Aboriginal', 'Yes, Torres Strait Islander' or 'Yes, Torres Strait Islander & Aboriginal' were classified as Indigenous. People who responded 'no' were classified as non-Indigenous. Twelve interviewees did not respond or said 'don't know' and they were excluded from estimates for the two subgroups. Results of Indigenous Australians should be interpreted with care because of the small sample size.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians and thus overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

(continued)

Data quality issues (continued)

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in major cities and regional and remote areas, but very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 National Health Survey.

In remote communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

Western Australian Aboriginal Child Health Survey

Survey data are subject to sampling and non-sampling errors. Confidence intervals are published with the data to provide a guide to the reliability of the estimates. Non-sampling errors can occur in surveys owing to questionnaire design problems, respondent difficulty recalling information/lack of appropriate records, and errors made in the recording and processing of the data. Every effort was made to minimise non-sample errors in this survey.

Hospital separations data

Separations

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

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections. The 'not stated' category is missing from several collections. It is recommended that the standard wording and categories be used in all jurisdictions (AIHW 2005).

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations of Aboriginal and Torres Strait Islander peoples. The identification of Indigenous people in hospitalisations is incomplete in all states and territories, but six jurisdictions (New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the AIHW as having adequate identification (above 80%) in 2004–05 (AIHW unpublished data). This assessment was based on a comparison of the number of Indigenous patients identified in patient interviews with the number of Indigenous patients identified in hospital records. It has therefore been recommended that reporting of Indigenous hospital separations be limited to aggregated data from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. The proportion of the Indigenous population covered by these six jurisdictions is 96%.

(continued)

Data quality issues (continued)

The following caveats have also been recommended for analysis of hospitalisation data from selected jurisdictions (ABS & AIHW 2005):

- *Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from Western Australia and the Northern Territory and relatively marked Indigenous under-identification in data from South Australia and Victoria).*
- *Data for these six jurisdictions over-represent Indigenous populations in less urbanised and more remote locations.*
- *Hospitalisation data for these six jurisdictions are not necessarily representative of the jurisdictions not included.*

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 hospital and records may take place at different rates than changes in the identification of Indigenous people in other administrative collections and population censuses. Denominators used here are sourced from Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2009 *(ABS 2004).*

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1.11 HIV/AIDS, hepatitis C and sexually transmissible infections

The rate of notified sexually transmissible infections (STIs) for chlamydia, donovanosis, gonorrhoea, syphilis, hepatitis C and HIV/AIDS for Aboriginal and Torres Strait Islander people expressed as a rate by age group, gender, age-standardised rate and ratio

Data sources

Data are available from the National Notifiable Diseases Surveillance System held at the Department of Health and Ageing, and the National AIDS Registry and National HIV database held at the National Centre in HIV Epidemiology and Clinical Research (NCHECR).

National Notifiable Diseases Surveillance System (NNDSS)

A set of 56 diseases and conditions are notifiable nationally. Data on all these cases are forwarded to the NNDSS, managed by the Australian Government Department of Health and Ageing.

Identification of Indigenous notifications in all states and territories is incomplete, but three jurisdictions (Western Australia, South Australia and the Northern Territory) have been assessed as having adequate identification in 2001–2002 in the NNDSS. Data on Indigenous status for certain notifiable diseases are not available for the Australian Capital Territory, New South Wales or Tasmania.

National AIDS Registry and National HIV database

Notifications of HIV infections are forwarded to the NCHECR. Recording of Indigenous status in the NCHECR data is considered reliable in all states and territories.

Notifications for which Indigenous status was not reported have been included with notifications data for non-Indigenous people under the 'other' category.

Data are presented for the 3-year period 2004–2006 because notifications of some diseases are too small to present for a single year.

Analyses

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

Notification rates by age and sex

Chlamydia, syphilis, gonorrhoea, hepatitis C and donovanosis

Age-specific notification rates for chlamydia, syphilis, gonorrhoea and hepatitis C are presented in Table 1.11.1. Rates for donovanosis are not presented because of small numbers but are described in the text below.

- For the 3-year period 2004–2006 in Western Australia, South Australia and the Northern Territory, notification rates for chlamydia, syphilis, gonorrhoea and hepatitis C were higher among Indigenous males and females than among other males and females across all age groups.
- Rates were generally highest among Indigenous males and females aged 15–24 years and 25–34 years. In these age groups, chlamydia notification rates among Indigenous males and females were 5–7 times higher than rates for other males and females; syphilis notification rates were 49–199 times higher; gonorrhoea notification rates were 51–147 times higher and hepatitis C notification rates were 5–6 times higher than for other males and females of the same age.
- Age-specific rate ratios for chlamydia, syphilis and gonorrhoea were highest in the 0–14 years and 65 years and over age groups. This is likely to be due to the very small number of notifications among other Australians in these age groups.
- Age-specific rates for donovanosis were highest among those aged 25–34 years and 65 years and over, although the number of cases in each age group was very small.

HIV and AIDS

Age-specific notification rates for AIDS and HIV are presented in Table 1.11.2 below.

- For the period 2004–2006, notification rates for HIV were similar for Indigenous males and other males across most age groups. Over the same period, HIV notification rates were higher among Indigenous females than among other females across most age groups.
- Between 2004 and 2006, notification rates for AIDS were higher among Indigenous males than other males in the 15–24, 25–34, 35–44, 45–54 and 55–64 year age groups (rate ratios range 1.7 to 4.6). Indigenous females had higher notification rates than other females for AIDS in the 35–44 year age group (ratio of 2.4).
- HIV notification rates were highest among those aged 25–34 and 35–44 years in both the Indigenous and other Australian populations. AIDS notification rates were highest among those aged 35–44 years and 45–54 years in both the Indigenous and other Australian populations.
- HIV and AIDS notification rates were higher among males than females across all age groups in both population groups.

Table 1.11.1: Age-specific notification rates per 100,000 for chlamydia, syphilis, gonorrhoea and hepatitis C, by Indigenous status and sex, WA, SA and NT, 2004–2006[(a)(b)(c)]

	Males			Females			Persons		
	Indigenous	Other[(d)]	Rate ratio[(e)]	Indigenous	Other[(d)]	Rate ratio[(e)]	Indigenous	Other[(d)]	Rate ratio[(e)(f)]
					Chlamydia				
0–14	76.9	1.4	54.4*	396.2	13.8	28.8*	235.8	7.4	31.8*
15–24	3,240.1	598.1	5.4*	6,289.9	1,266.9	5.0*	4,823.5	925.3	5.2*
25–34	2,018.4	393.8	5.1*	2,514.7	360.0	7.0*	2,328.1	378.2	6.2*
35–44	853.4	106.6	8.0*	915.3	67.7	13.5*	912.0	88.3	10.3*
45–54	328.9	43.1	7.6*	261.1	13.2	19.8*	296.0	28.5	10.4*
55–64	126.7	24.8	5.1*	46.5	5.6	8.3*	89.1	15.4	5.8*
65+	n.p.	3.5	n.p.	n.p.	0.9	n.p.	50.4	2.0	24.6*
					Syphilis				
0–14	6.9	n.p.	n.p.	25.4	0.5	51.0*	16.5	0.3	48.7*
15–24	374.0	4.9	75.8*	467.9	2.3	199.1*	437.7	3.7	118.9*
25–34	336.8	6.9	48.8*	279.1	5.2	53.7*	313.1	6.1	51.6*
35–44	282.2	9.6	29.5*	236.6	3.3	71.3*	259.9	6.5	40.2*
45–54	291.8	5.7	50.9*	241.8	1.8	135.1*	265.6	3.8	70.5*
55–64	316.8	7.1	44.8*	269.9	1.4	199.3*	291.9	4.3	68.6*
65+	394.0	3.5	114.2*	372.6	0.9	415.0*	388.8	2.0	190.0*
					Gonorrhoea				
0–14	68.9	0.5	146.2*	387.7	2.3	169.0*	229.9	1.4	169.4*
15–24	4,508.5	64.7	69.7*	5,545.1	42.4	130.7*	5,117.7	54.6	93.7*
25–34	3,368.4	65.6	51.4*	2,728.0	18.6	146.6*	3,109.5	42.8	72.7*
35–44	1,548.6	46.2	33.5*	1,155.0	9.0	128.7*	1,386.1	28.2	49.1*
45–54	641.9	29.2	22.0*	338.5	2.8	120.3*	495.8	16.5	30.0*
55–64	232.3	14.5	16.0*	n.p.	1.2	n.p.	138.5	7.9	17.5*
65+	137.1	4.5	30.1*	n.p.	n.p.	n.p.	86.4	2.1	40.8*
					Hepatitis C				
0–14	0.0	n.p.	n.p.	0.0	n.p.	n.p.	0.0	n.p.	n.p.
15–24	50.8	10.1	5.0*	35.7	7.9	4.5*	43.4	9.0	4.8*
25–34	96.2	15.5	6.2*	42.1	7.5	5.6*	69.0	11.6	6.0*
35–44	24.1	5.3	4.5*	31.1	2.3	13.3*	27.8	3.8	7.2*
45–54	n.p.	2.4	n.p.	29.0	1.7	17.5*	22.8	2.0	11.1*
55–64	0.0	n.p.	n.p.	0.0	0.0	n.p.	0.0	n.p.	n.p.
65+	0.0	0.0	n.p.	0.0	n.p.	n.p.	0.0	n.p.	n.p.

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

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Age-specific rates are calculated using the average Indigenous June population for the relevant years.

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

(d) Includes notifications for non-Indigenous Australians and those for whom Indigenous status was not stated.

(e) Rate ratio Indigenous:other.

(f) Because of the very high rates of syphilis and gonorrhoea in the Indigenous population and low rates of these STIs in the other population, rate ratios are large and may vary between reports, as fairly minor changes in rates can result in large changes in the resulting ratios.

Source: AIHW analysis of NNDSS data.

Table 1.11.2: Age-specific notification rates per 100,000 for HIV and AIDS, by Indigenous status and sex, 2004–2006[(a)(b)(c)]

	Males			Females			Persons		
	Indigenous	Other[(d)]	Rate ratio[(e)]	Indigenous	Other[(d)]	Rate ratio[(e)]	Indigenous	Other[(d)]	Rate ratio[(e)]
					HIV				
0–14	0.0	0.1	n.p.	0.0	0.2	n.p.	0.0	0.1	n.p.
15–24	4.7	4.9	1.0	4.2	1.6	2.6*	4.5	3.3	1.3
25–34	18.0	17.3	1.0	3.6	3.5	1.0	10.6	10.4	1.0
35–44	16.2	20.1	0.8	4.1	1.8	2.3	9.8	10.9	0.9
45–54	3.4	10.2	0.3	1.6	0.7	2.2	2.4	5.4	0.5
55–64	3.2	5.5	0.6	0.0	0.5	0.0	1.5	3.0	0.5
65+	0.0	1.3	n.p.	0.0	0.0	n.p.	0.0	0.6	n.p
					AIDS				
0–14	0.0	0.0	n.p.	0.0	0.0	n.p.	0.0	0.0	n.p.
15–24	0.7	0.1	4.6	0.0	0.1	n.p.	0.3	0.1	3.4
25–34	5.7	1.9	2.9*	0.0	0.6	n.p.	2.8	1.3	2.2
35–44	9.2	5.0	1.9	1.0	0.4	2.4	4.9	2.7	1.8
45–54	8.5	3.3	2.5*	0.0	0.4	0.0	4.1	1.8	2.2
55–64	3.2	1.9	1.7	0.0	0.2	0.0	1.5	1.1	1.4
65+	0.0	0.5	n.p.	0.0	0.0	n.p.	0.0	0.2	n.p.

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

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Age-specific rates are calculated using the average Indigenous June population for the relevant years.

(c) Total of all state/territories excluding the Australian Capital Territory.

(d) Includes notifications for non-Indigenous Australians and those for whom Indigenous status was not stated.

(e) Rate ratio Indigenous:other.

Source: AIHW analysis of National AIDS Registry and National HIV database.

Notification rates by state/territory

Notification rates for chlamydia, syphilis, gonorrhoea and hepatitis C for the period 2004–2006 for Western Australia, South Australia and the Northern Territory are presented in Table 1.11.3, and notification rates for HIV and AIDS for all states and territories, except the Australian Capital Territory, are presented in Table 1.11.4.

Chlamydia

- For the period 2004–2006, there were 29,245 notifications of chlamydia in Western Australia, South Australia and the Northern Territory, 26% of which were notifications of Aboriginal and Torres Strait Islander peoples. In the Northern Territory, 63% of notifications for chlamydia were among Indigenous people. In Western Australia and South Australia, 22% and 10% of notifications were among Indigenous Australians respectively.
- In Western Australia, South Australia and the Northern Territory combined, notifications rates of chlamydia among Indigenous males and females were six times those of other males and females.

- Notification rates for chlamydia among Indigenous males and females were particularly high in Western Australia where rates were around six times those of other males and females.

Syphilis

- For the period 2004–2006, there were 1,464 notifications of syphilis in Western Australia, South Australia and the Northern Territory combined, 73% of which were notifications of Aboriginal and Torres Strait Islander peoples. In the Northern Territory, 90% of notifications for syphilis were among Indigenous people. In Western Australia and South Australia, 57% and 22% of notifications were among Indigenous Australians respectively.
- In Western Australia, South Australia and the Northern Territory combined, notification rates for syphilis among Indigenous males and females were 53 and 115 times the rates for other males and females.
- Rates of syphilis among Indigenous Australians were markedly higher than among other Australians in Western Australia (59 times higher).

Gonorrhoea

- For the period 2004–2006, there were 11,105 notifications of gonorrhoea in Western Australia, South Australia and the Northern Territory combined, 79% of which were notifications of Aboriginal and Torres Strait Islander peoples. In the Northern Territory, 86% of notifications for gonorrhoea were among Indigenous people. In Western Australia and South Australia, 75% and 67% of notifications were among Indigenous Australians.
- In Western Australia, South Australia and the Northern Territory combined, notification rates of gonorrhoea among Indigenous males and females were 47 and 134 times the rates of other males and females respectively.
- Rates of gonorrhoea among Indigenous females were much higher than among other females in Western Australia and South Australia (124 and 270 times as high respectively).

Hepatitis C (incident)

- For the period 2004–2006, there were 530 notifications of hepatitis C (incident) in Western Australia, South Australia and the Northern Territory, 23% of which were notifications of Aboriginal and Torres Strait Islander peoples.
- In Western Australia, South Australia and the Northern Territory combined, Indigenous males and females were six and seven times more likely to contract hepatitis C as other males and females.
- In Western Australia, notification rates of hepatitis C among Indigenous males and females were 9 times those of other males and females. In South Australia, the rates among Indigenous males and females were 8 and 14 times those of other males and females respectively.

Donovanosis

- For the period 2004–2006, there were 27 notifications of donovanosis in Australia, 93% (25) of which were notifications of Aboriginal and Torres Strait Islander peoples. All of these recorded notifications took place in Queensland, Western Australia and the Northern Territory. Rates have not been calculated for these states and territories because of the small numbers of notifications.

HIV

- Over the period 2004–2006, there were 2,841 HIV notifications in Australia, 2.0% of which were notifications of Indigenous Australians.
- After adjusting for differences in age structure, notification rates for HIV were similar among Indigenous males and other males for the period 2004–06. HIV notification rates for Indigenous females were around 1.5 times those for other females over the same period.
- Of the states and territories for which rates could be calculated, Indigenous males in Western Australia and Victoria were approximately twice as likely to contract HIV as other males, and Indigenous females in Western Australia were approximately seven times as likely to contract HIV as other females.

AIDS

- Over the period 2004–2006, there were 610 cases of AIDS in Australia, 3.6% of which were notifications of Indigenous Australians.
- After adjusting for differences in age structure, notification rates for AIDS were higher among Indigenous males than among other males. Indigenous males were twice as likely to contract AIDS as other males.
- Of the states and territories for which numbers were large enough to calculate rates, notification rates for AIDS among Indigenous males in New South Wales and Queensland were 1.5 and 3.5 times the rates for other males in these jurisdictions respectively.

Table 1.11.3: Notification rates for chlamydia, syphilis, gonorrhoea and hepatitis C, by Indigenous status and sex, WA, SA and NT, 2004–2006[a]

				Males			Females			Persons		
		Proportion (%)		No. per 100,000[b]			No. per 100,000[b]			No. per 100,000[b]		
	No	Indig.	Other[c]	Indig.	Other[c]	Ratio[d][e]	Indig.	Other[c]	Ratio[d][e]	Indig.	Other[c]	Ratio[d][e]
Chlamydia												
WA	15,688	21.7	78.3	949.5	171.8	5.5*	1,500.5	247.9	6.1*	1,222.0	208.3	5.9*
SA	8,258	9.6	90.4	607.9	138.1	4.4*	955.0	208.0	4.6*	779.2	172.0	4.5*
NT	5,299	62.7	37.3	1,083.5	322.6	3.4*	1,719.0	511.3	3.4*	1,456.7	431.7	3.4*
WA, SA & NT[f]	29,245	25.7	74.3	945.7	164.7	5.7*	1,491.5	242.3	6.2*	1,239.4	202.9	6.1*
Syphilis												
WA	598	57.2	42.8	280.8	5.8	48.3*	228.7	2.7	83.7*	252.5	4.3	59.1*
SA	85	22.4	77.6	22.9	2.3	10.0*	21.3	0.7	29.8*	22.1	1.5	14.7*
NT	781	90.1	9.9	360.9	23.6	15.3*	379.9	9.6	39.5*	380.5	17.0	22.4*
WA, SA & NT[f]	1,464	72.7	27.3	270.3	5.1	53.4*	250.9	2.2	115.1*	263.4	3.6	72.8*
Gonorrhoea												
WA	4,666	75.0	25.0	1,424.6	29.3	48.7*	1,262.5	10.2	124.2*	1,338.3	19.8	67.5*
SA	1,272	66.7	33.3	869.8	16.3	53.3*	817.3	3.0	269.7*	838.1	9.7	86.1*
NT	5,167	85.7	14.3	1,818.6	198.6	9.2*	1,992.0	99.0	20.1*	1,980.9	158.5	12.5*
WA, SA & NT[f]	11,105	79.0	21.0	1,486.5	31.6	47.1*	1,465.7	11.0	133.8*	1,503.4	21.7	69.4*
Hepatitis C												
WA	354	26.3	73.7	49.6	5.5	9.0*	32.2	3.5	9.2*	40.9	4.5	9.0*
SA	170	15.9	84.1	34.2	4.5	7.6*	30.4	2.2	14.1*	32.7	3.4	9.8*
NT	6	0.0	100.0	0.0	n.p.	n.p.	0.0	n.p.	n.p.	0.0	1.2	n.p.
WA, SA & NT[f]	530	22.6	77.4	27.2	4.9	5.5*	19.5	2.8	6.9*	23.4	3.9	6.0*

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

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.

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

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

(d) Rate ratio Indigenous:other.

(e) Because of the very high rates of syphilis and gonorrhoea in the Indigenous population and low rates of these STIs in the other population, rate ratios are large and may vary between reports, as fairly minor changes in rates can result in large changes in the resulting ratios.

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

Source: AIHW analysis of NNDSS data.

Table 1.11.4: Notification rates for HIV and AIDS, by Indigenous status, sex and state/territory, 2004–2006[a]

				Males			Females			Persons		
		Proportion (%)		No. per 100,000[b]			No. per 100,000[b]			No. per 100,000[b]		
	No.	Indig.	Other[c]	Indig.	Other[c]	Ratio[d]	Indig.	Other[c]	Ratio[d]	Indig.	Other[c]	Ratio[d]
						HIV						
NSW	1,203	1.2	98.8	5.1	10.7	0.5*	n.p.	1.5	n.p.	3.2	6.1	0.5
Vic	758	1.2	98.8	20.5	8.9	2.3*	n.p.	1.1	n.p.	9.9	5.0	2.0
Qld	486	3.1	96.9	8.2	7.2	1.1	n.p.	1.0	n.p.	4.1	4.1	1.0
WA	186	9.1	90.9	8.8	4.5	2.0	8.6	1.2	7.3*	8.7	2.9	3.0*
SA	166	1.2	98.8	n.p.	6.5	n.p.	0.0	0.9	n.p.	n.p.	3.7	n.p.
Tas	17	0.0	100.0	0.0	2.3	n.p.	0.0	n.p.	n.p.	0.0	1.2	n.p.
NT	25	4.0	96.0	n.p.	6.4	n.p.	0.0	2.9	n.p.	n.p.	4.8	n.p.
Aust.[e]	**2,841**	**2.0**	**98.0**	**6.6**	**8.4**	**0.8**	**2.0**	**1.2**	**1.6**	**4.2**	**4.8**	**0.9**
						AIDS						
NSW	289	2.4	97.6	3.5	2.6	1.4	n.p.	0.3	n.p.	2.0	1.4	1.4
Vic	166	2.4	97.6	n.p.	1.9	n.p.	0.0	0.3	n.p.	n.p.	1.1	n.p.
Qld	82	7.3	92.7	4.0	1.1	3.6*	0.0	0.2	n.p.	1.9	0.7	2.9*
WA	27	11.1	88.9	n.p.	0.7	n.p.	0.0	n.p.	n.p.	n.p.	0.4	n.p.
SA	35	2.9	97.1	n.p.	1.4	n.p.	0.0	n.p.	n.p.	n.p.	0.7	n.p.
Tas	5	0.0	100.0	0.0	0.7	n.p.	0.0	0.0	n.p.	0.0	0.3	n.p.
NT	6	16.7	83.3	n.p.	1.4	n.p.	0.0	n.p.	n.p.	n.p.	1.2	n.p.
Aust.[e]	**610**	**3.6**	**96.4**	**3.8**	**1.8**	**2.1***	**n.p.**	**0.2**	**n.p.**	**1.9**	**1.0**	**1.9***

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

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.

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

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

(d) Rate ratio Indigenous:other.

(e) Australia total excludes the Australian Capital Territory.

Source: AIHW analysis of National AIDS Registry and National HIV database.

HIV/AIDS by exposure categories

Table 1.11.5 presents HIV and AIDS notifications in Australia by exposure category over the period 2004–2006.

- For the period 2004–2006, the most common method of contracting HIV among Indigenous Australians was homosexual/bisexual contact (42%) followed by heterosexual contact (25%), and injecting drug use (20%). These were also the most common ways of contracting HIV among other Australians (67%, 20% and 3% respectively).
- Over the same period, the most common method of contracting AIDS among Indigenous Australians was male homosexual/bisexual contact (52%). This was also the most common way of contracting AIDS among other Australians (57%), followed by heterosexual contact (22%).
- Indigenous Australians were six times as likely to contract HIV through injecting drug use as other Australians. Indigenous Australians were less likely to contract HIV through male homosexual/bisexual contact as other Australians (ratio of 0.6).
- Indigenous Australians were around 1.5 times as likely to contract AIDS through male homosexual/bisexual contact than other Australians.

Table 1.11.5: Exposure categories for HIV/AIDS, by Indigenous status, 2004–2006[(a)(b)]

Exposure category	Number		Per cent		No. per 100,000[(c)]		Ratio[(e)]
	Indigenous	Other[(d)]	Indigenous	Other[(d)]	Indigenous	Other[(d)]	
				HIV			
Male homosexual/bisexual contact	25	1,660	42.4	67.1	1.8	2.8	0.6
Male homosexual/bisexual contact and injecting drug use	n.p.	96	n.p.	3.9	n.p.	0.2	n.p.
Heterosexual contact	15	499	25.4	20.2	1.1	0.8	1.3
Injecting drug use	12	72	20.3	2.9	0.8	0.1	6.3*
Mother with/at risk of HIV infection	0	11	0.0	0.4	0.0	0.02	n.p.
Other[(f)]	n.p.	137	n.p.	5.5	n.p.	0.2	n.p.
Total	**59**	**2,475**	**100.0**	**100.0**	**4.2**	**4.2**	**1.0**
				AIDS			
Male homosexual/bisexual contact	11	335	52.4	56.6	0.9	0.6	1.6
Male homosexual/bisexual contact and injecting drug use	n.p.	45	n.p.	7.6	n.p.	0.1	n.p.
Heterosexual contact	n.p.	132	n.p.	22.3	n.p.	0.2	n.p.
Injecting drug use	n.p.	32	n.p.	5.4	n.p.	0.1	n.p.
Mother with/at risk of HIV infection	0.0	11	0.0	0.4	0.0	0.0	n.p.
Other[(f)]	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Total	**21**	**592**	**100.0**	**100.0**	**1.8**	**1.0**	**1.8***

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

(a) Calender year reporting. Data are presented in 3-year groupings because of small numbers each year.

(b) Total Australia data, excluding 2004 ACT data which was not available.

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

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

(e) Rate ratio Indigenous:other.

(f) Includes: Haemophilia/coagulation disorder, receipt of blood/tissue, and exposure category undetermined.

Source: AIHW analysis of National AIDS Registry and National HIV database.

Time series analysis

Notification rates, rate ratios and rate differences between Indigenous and other Australians for syphilis, chlamydia and gonorrhoea for the period 1994–1996 to 2005–2006, and hepatitis C (incident) for the period 1995–1996 to 2005–2006, are presented in the following tables and figures. HIV and AIDS notifications for the period 1994–1996 to 2005–2006 are also presented here. Data are presented in 2- to 3-year groupings because of the small number of notifications each year.

Chlamydia

- In Western Australia, South Australia and the Northern Territory combined there were significant increases in notification rates for chlamydia among Indigenous Australians during the period 1994–1996 to 2005–2006. The fitted trend line shows an average yearly increase in the rate of around 99 per 100,000 which is equivalent to a 188% increase in the rate over the period (Table 1.11.6). Significant increases in rates for chlamydia were evident for both Indigenous males and females.
- There were also significant increases in notification rates for chlamydia among other Australian males and females during the same period (447% increase for males and 344% increase for females) (Table 1.11.6).
- Notification rate ratios between Indigenous and other Australians for chlamydia showed significant declines over the 12-year period (Figure 1.11.1). The fitted trend line showed an average yearly decline in the ratio of around 0.4 which is equivalent to a 47% decline in the rate ratio over the period.
- Although rate ratios showed declines over the period, the difference in notification rates between Indigenous and other Australians increased significantly for both males and females.

Table 1.11.6: Crude and age-standardised notification rates, rate ratios and rate differences for chlamydia, WA, SA and NT, 1994–1996 to 2005–2006

	1994–1996	1997–1999	2000–2002	2003–2004	2005–2006	Annual change[(a)]	% change over period[(b)]
Indigenous crude rate (no. per 100,000)							
Males	414.8	579.5	767.5	1064.3	1190.1	76.3*	220.7
Females	846.2	1047.6	1413.7	1838.9	1974.0	114.7*	162.6
Persons	630.3	813.4	1091.7	1469.9	1616.3	98.7*	187.8
Indigenous age-standardised rate (no. per 100,000)							
Males	357.4	497.5	647.5	888.1	961.5	60.1*	201.9
Females	657.2	829.7	1113.1	1435.2	1515.2	87.6*	160.0
Persons	507.3	661.9	878.7	1171.0	1260.1	75.8*	179.4
Other Australian age-standardised rate (no. per 100,000)[(c)]							
Males	35.5	58.0	91.1	131.4	176.7	13.2*	446.3
Females	64.3	86.4	132.0	191.4	260.9	18.4*	343.5
Persons	49.9	71.8	111.5	160.8	218.1	15.8*	379.0
Rate ratio[(d)]							
Males	10.1	8.6	7.1	6.8	5.4	–0.4*	–49.8
Females	10.2	9.6	8.4	7.5	5.8	–0.4*	–47.5
Persons	10.2	9.2	7.9	7.3	5.8	–0.4*	–47.3
Rate difference[(e)]							
Males	321.8	439.4	556.4	756.6	784.8	46.9*	175.0
Females	592.8	743.3	981.1	1243.7	1254.3	69.2*	140.1
Persons	457.4	590.1	767.2	1010.2	1041.9	60.1*	157.6

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1994–1996 to 2005–2006.

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

(b) Per cent change between 1994–1996 and 2005–2006 based on the annual rate of change over the period.

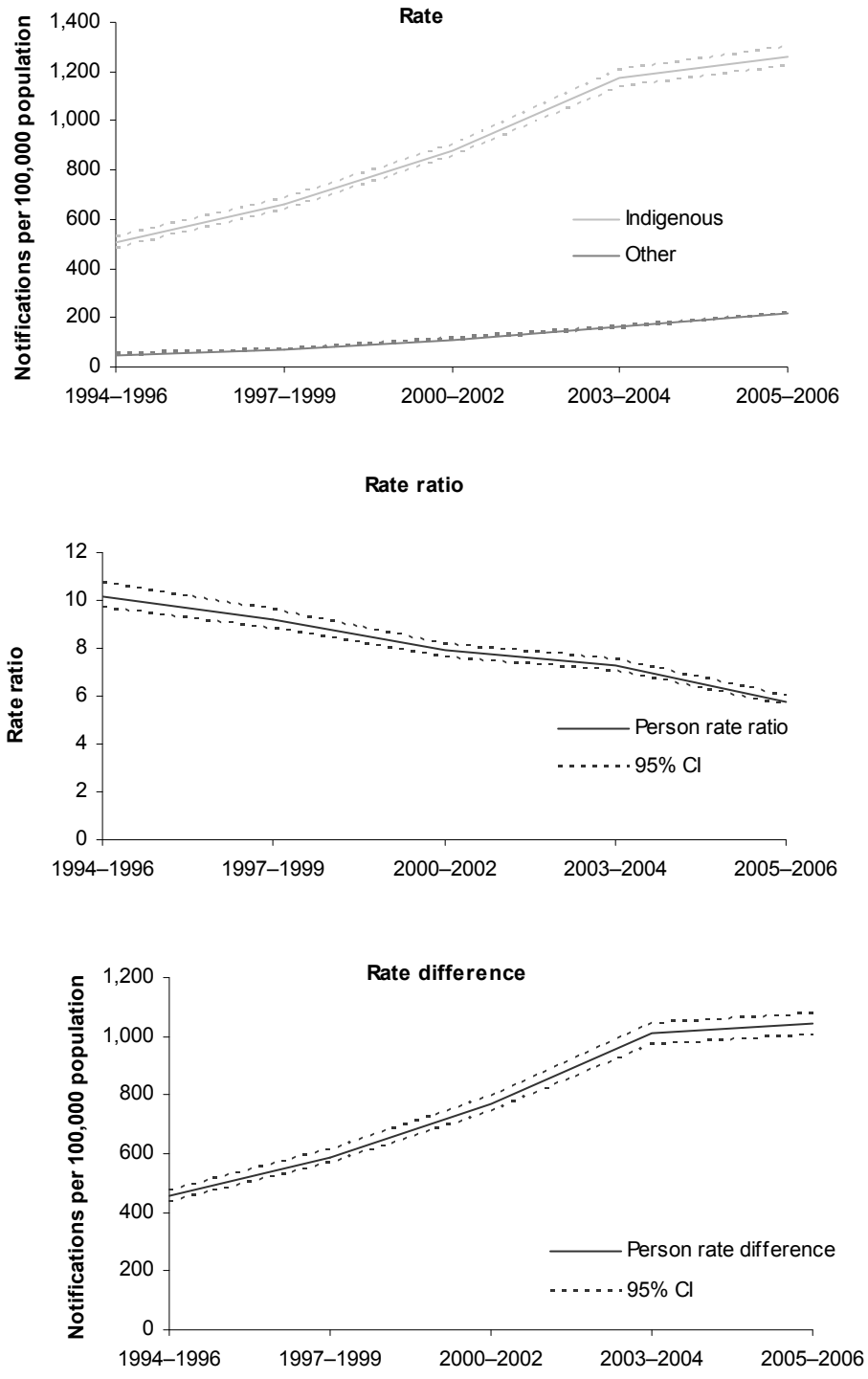
(c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(d) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

(e) Notification rate for Indigenous Australians minus the notification rate for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian population.

Source: AIHW analysis of NNDSS data.



Source: AIHW analysis of NNDSS data.

Figure 1.11.1: Age-standardised notification rates, rate ratios and rate differences for chlamydia, WA, SA and NT, 1994–1996 to 2005–2006

Syphilis

- Over the period 1994–1996 to 2005–2006 in Western Australia, South Australia and the Northern Territory combined, there were significant decreases in notification rates for syphilis among Indigenous Australians (from around 333 to 207 notifications per 100,000). The fitted trend line shows an average yearly decline in the rate of around 9 per 100,000 which is equivalent to a 33% reduction in the rate over the period (Table 1.11.7). These declines were significant for males but not for females.
- There were significant increases in notification rates for syphilis among other Australians males during the same period. The fitted trend line showed an average yearly increase in the rate of around 0.2 per 100,000 which was equivalent to a 99% increase in the rate over the period (Table 1.11.7; Figure 1.11.2).
- There was a significant decline in notification rate ratios between Indigenous and other Australians for syphilis over the 12-year period. The fitted trend showed an average yearly decline in the rate ratio of around 5 which was equivalent to a 47% reduction in the rate ratio over the period. These declines were statistically significant for males but not for females.

Table 1.11.7: Crude and age-standardised notification rates, rate ratios and rate differences for syphilis, WA, SA and NT, 1994–1996 to 2005–2006

	1994–1996	1997–1999	2000–2002	2003–2004	2005–2006	Annual change[(a)]	% change over period[(b)]
Indigenous crude rate (no. per 100,000)							
Males	337.2	257.7	308.7	254.2	190.3	–10.8*	–38.5
Females	328.2	241.0	294.6	254.4	209.0	–8.3	–30.2
Persons	333.2	249.6	301.6	255.0	206.6	–9.1*	–32.7
Indigenous age-standardised rate (no. per 100,000)							
Males	328.7	286.4	340.5	311.9	243.7	–5.0	–18.1
Females	296.9	231.5	289.1	275.9	229.3	–3.2	–12.9
Persons	311.6	256.9	313.5	292.4	240.5	–3.7	–14.2
Other Australian age-standardised rate (no. per 100,000)[(c)]							
Males	2.7	3.7	4.7	4.3	5.3	0.2*	99.0
Females	2.0	1.5	2.2	1.7	2.3	0.0	15.6
Persons	2.3	2.7	3.5	3.0	3.8	0.1*	62.2
Rate ratio[(d)]							
Males	122.9	76.4	72.6	72.2	46.0	–6.0*	–58.4
Females	149.8	151.2	131.9	166.4	100.1	–2.9	–23.3
Persons	132.6	96.5	89.6	98.0	63.3	–5.1*	–46.6
Rate difference[(e)]							
Males	326.0	282.6	335.8	307.6	238.4	–5.2	–19.1
Females	295.0	230.0	286.9	274.2	227.0	–3.2	–13.1
Persons	309.2	254.2	310.0	289.5	236.7	–3.8	–14.8

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1994–1996 to 2005–2006.

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

(b) Per cent change between 1994–1996 and 2005–2006 based on the annual rate of change over the period.

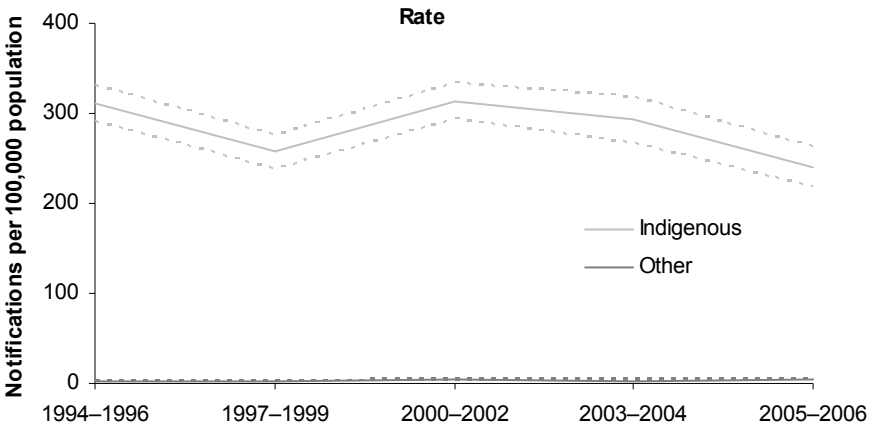
(c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

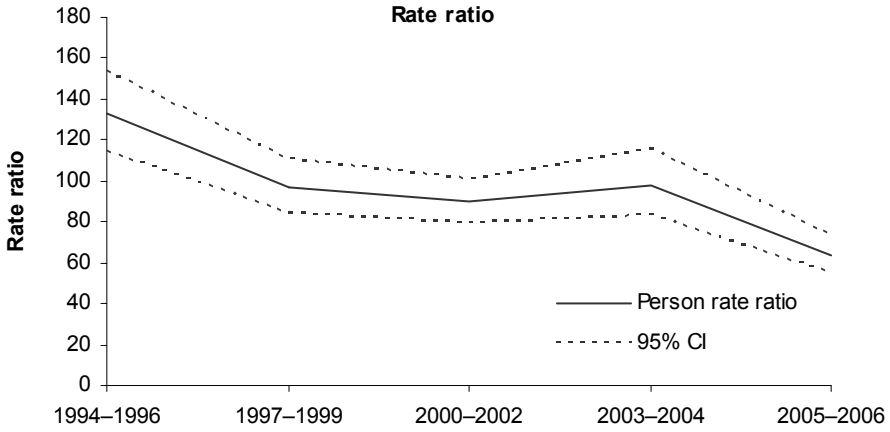
(d) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

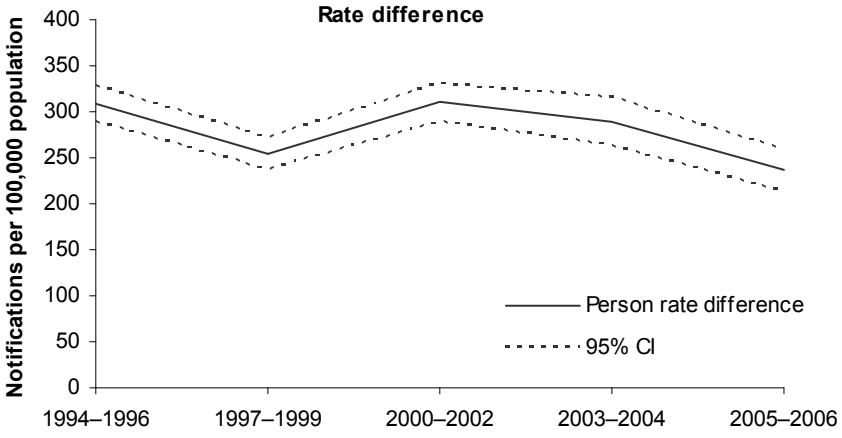
(e) Notification rate for Indigenous Australians minus the notification rate for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of NNDSS data.







Source: AIHW analysis of NNDSS data.

Figure 1.11.2: Age-standardised notification rates, rate ratios and rate differences for syphilis, WA, SA and NT, 1994–1996 to 2005–2006

Gonorrhoea

- In Western Australia, South Australia and the Northern Territory combined, there were significant increases in notification rates for gonorrhoea among Indigenous Australians during the period 1994–1996 to 2005–2006. The fitted trend line shows an average yearly increase in the rate of around 69 per 100,000 which is equivalent to a 74% increase in the rate over the period (Table 1.11.8). There were significant increases in notification rates for both Indigenous males and females.
- There were also increases in notification rates for gonorrhoea among other Australians during the same period. Rates showed a significant increase for males (84% increase over the period) but not for females.
- Notification rate ratios between Indigenous and other Australians for gonorrhoea showed no significant changes for males or females over the 12-year period (Figure 1.11.3).
- There were significant increases in the notification rate differences between Indigenous and other Australians for gonorrhoea over the period, with an average yearly increase in the rate difference of around 51 per 100,000 (65% increase). These increases were statistically significant for both males and females.

Table 1.11.8: Crude and age-standardised notification rates, rate ratios and rate differences for gonorrhoea, WA, SA and NT, 1994–1996 to 2005–2006

	1994–1996	1997–1999	2000–2002	2003–2004	2005–2006	Annual change[a]	% change over period[b]
Indigenous crude rate (no. per 100,000)							
Males	1308.1	1257.5	1381.8	1500.8	1833.9	46.6*	42.8
Females	938.5	1371.9	1531.7	1678.3	1916.3	85.5*	109.3
Persons	1126.9	1315.4	1456.9	1608.3	1916.5	69.4*	73.9
Indigenous age-standardised rate (no. per 100,000)							
Males	1,168.0	1,114.6	1,207.4	1,255.8	1,575.0	34.0*	34.9
Females	761.2	1,113.7	1,234.1	1,314.8	1,518.0	64.9*	102.3
Persons	962.5	1,110.1	1,216.9	1,296.1	1,574.1	52.1*	64.9
Other Australian age-standardised rate (no. per 100,000)[c]							
Males	18.5	26.0	30.3	32.3	32.0	1.3*	84.1
Females	7.7	16.1	15.8	12.3	11.1	0.2	24.7
Persons	13.3	21.2	23.5	22.5	22.0	0.8*	68.3
Rate ratio[d]							
Males	63.2	42.9	39.9	38.9	49.2	–1.4	–25.7
Females	98.5	69.3	78.1	107.0	136.9	4.0	48.3
Persons	72.6	52.5	51.8	57.7	71.5	–0.1	–1.2
Rate difference[e]							
Males	1,149.6	1,088.6	1,177.1	1,223.6	1,543.0	32.7*	34.1
Females	753.5	1,097.6	1,218.3	1,302.5	1,506.9	64.7*	103.1
Persons	949.2	1,089.0	1,193.4	1,273.6	1,552.0	51.3*	64.9

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1994–1996 to 2005–2006.

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

(b) Per cent change between 1994–1996 and 2005–2006 based on the annual rate of change over the period.

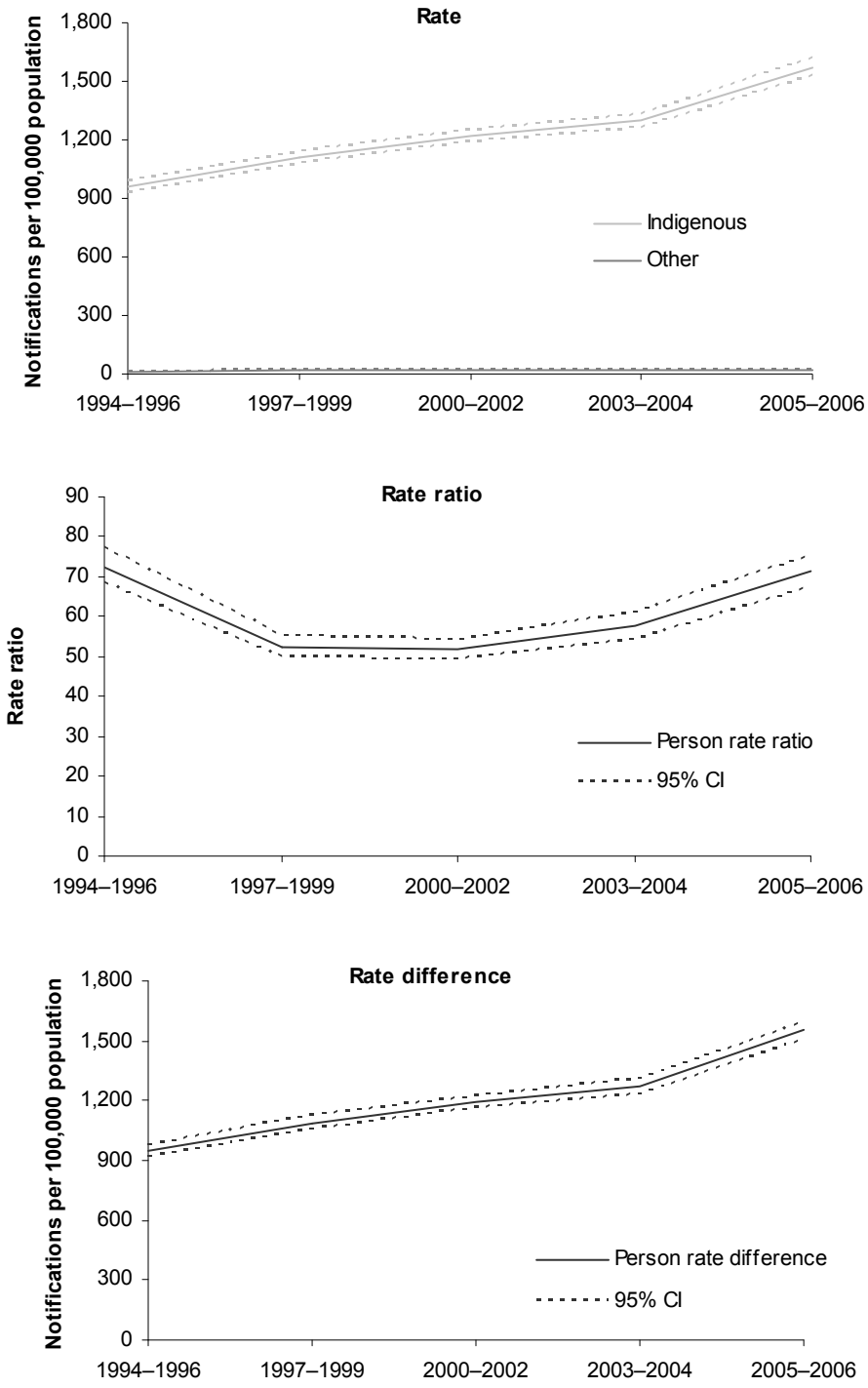
(c) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

(d) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

(e) Notification rate for Indigenous Australians minus the notification rate for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of NNDSS data.



Source: AIHW analysis of NNDSS data.

Figure 1.11.3: Age-standardised notification rates, rate ratios and rate differences for gonorrhoea, WA, SA and NT, 1994–1996 to 2005–2006

Hepatitis C (incident)

Time trends data for hepatitis C notifications are presented for the period 1997–1999 to 2005–2006, as complete and consistent data on hepatitis C notifications are not available before 1997 in the three states and territories.

- In Western Australia, South Australia and the Northern Territory combined, there was a significant increase in notification rates for hepatitis C among Indigenous females during the period 1997–1999 to 2005–2006. There was an average yearly increase in the rate of 1.1 per 100,000 which was equivalent to a 63% increase in the rate over the period (Table 1.11.9).
- There were small non-significant increases in the rate of hepatitis C notifications for other Australians over the same period.
- Notification rate ratios between Indigenous and other Australians for hepatitis C showed significant increases for both males and females over the period 1997–1999 to 2005–2006 (an increase of 119% for males and 135% for females). The rate difference between Indigenous and other Australian notifications for hepatitis C showed significant increases for females only.

Table 1.11.9: Crude and age-standardised notification rates, rate ratios and rate differences for hepatitis C (incident), WA, SA and NT, 1997–1999 to 2005–2006

	1997–1999	2000–2002	2003–2004	2005–2006	Annual change[(a)]	% change over period[(b)]
Indigenous crude rate (no. per 100,000)						
Males	16.2	27.5	40.9	22.6	1.5	85.3
Females	13.3	16.6	21.2	19.2	0.9*	62.5
Persons	14.7	22.0	31.0	20.9	1.2	74.8
Indigenous age-standardised rate (no. per 100,000)						
Males	14.1	24.1	35.4	20.8	1.4	91.9
Females	10.6	13.9	19.3	17.9	1.1*	95.6
Persons	12.3	18.9	27.4	19.4	1.3	94.3
Other Australian age-standardised rate (no. per 100,000)[(c)]						
Males	5.6	6.3	6.3	4.6	–0.1	–16.9
Females	3.5	4.0	4.2	2.7	–0.1	–17.7
Persons	4.6	5.2	5.3	3.7	–0.1	–17.3
Rate ratio[(d)]						
Males	2.5	3.8	5.6	4.5	0.3*	119.2
Females	3.0	3.5	4.6	6.5	0.5*	134.9
Persons	2.7	3.7	5.2	5.3	0.4*	126.2
Rate difference[(e)]						
Males	8.5	17.8	29.1	16.2	1.5	164.4
Females	7.1	9.9	15.2	15.2	1.2*	151.5
Persons	7.7	13.7	22.1	15.7	1.4	160.7

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1995–1996 to 2005–2006.

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

(b) Per cent change between 1997–1999 and 2005–2006 based on the annual rate of change over the period.

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

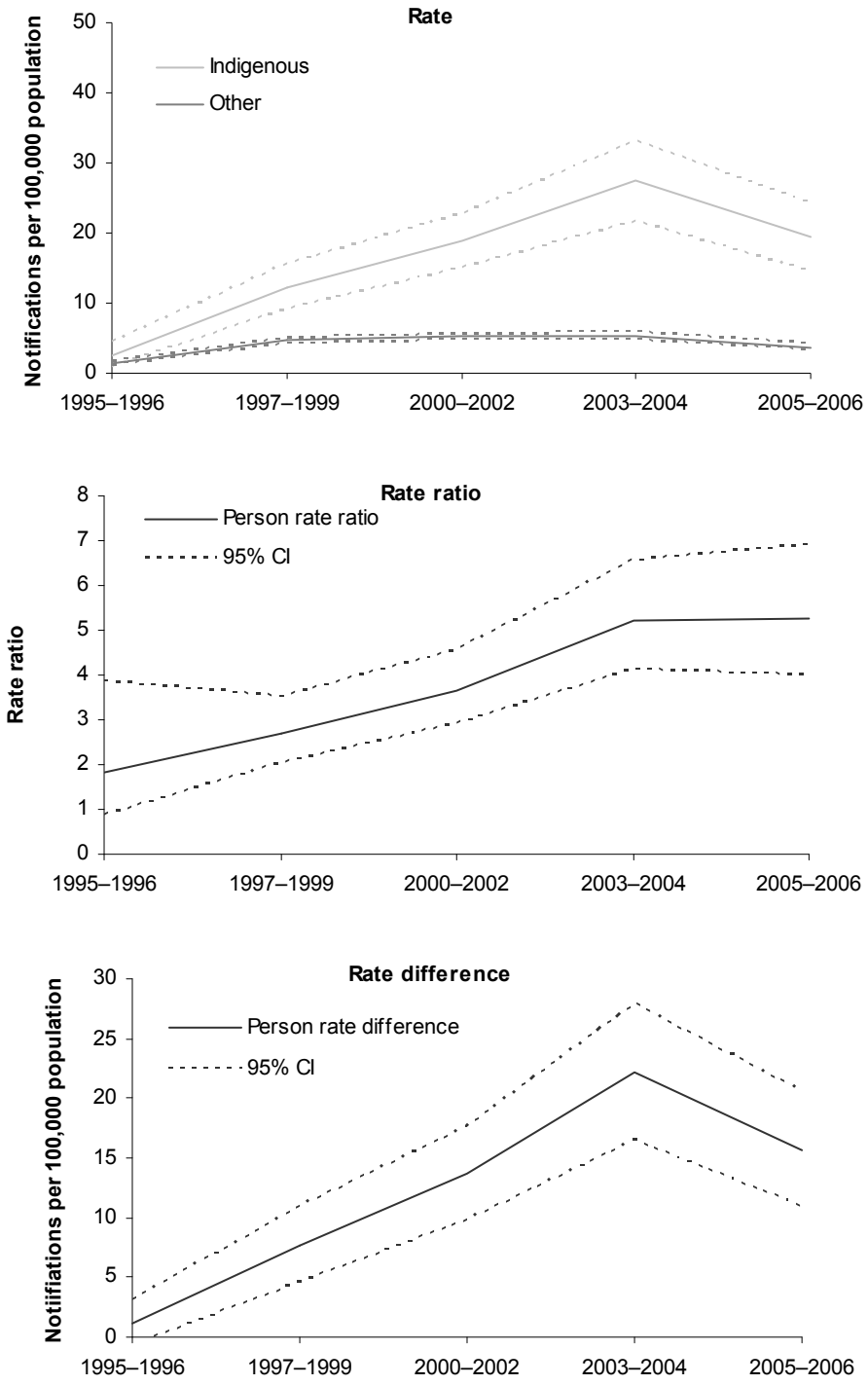
(d) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

(e) Notification rate for Indigenous Australians minus the notification rate for other Australians.

Notes

1. Rates have been directly age-standardised using the 2001 Australian standard population.
2. Rates differ from those presented in the 2006 edition of this report. This is because both incident and unspecified cases of hepatitis C were presented in the 2006 report whereas only hepatitis C incident cases are presented here.

Source: AIHW analysis of NNDSS data.



Source: AIHW analysis of NNDSS data.

Figure 1.11.4: Age-standardised notification rates, rate ratios and rate differences for hepatitis C (incident), WA, SA and NT, 1995–1996 to 2005–2006

HIV

- There were apparent increases in the rate of HIV notifications among Indigenous Australians over the period 1998–2000 to 2005–2006, but this trend was not significant (Table 1.11.10, Figure 1.11.5).
- Over the same period, there were significant increases in notification rates for HIV among other Australians. The fitted trend implies an average yearly increase in the rate of around 0.2 per 100,000 which is equivalent to a 36% increase in the rate over the period.
- There were no significant changes in the notification rate ratios and rate differences between Indigenous and other Australians for HIV between 1998–2000 and 2005–2006.

Table 1.11.10: Crude and age-standardised notification rates, rate ratios and rate differences for HIV[(a)], 1998–2000 to 2005–2006

	1998–2000	2001–2002	2003–2004	2005–2006	Annual change[(b)]	% change over period[(c)]
Indigenous crude rate (no. per 100,000)	2.6	4.4	4.4	3.8	0.2	55.1
Indigenous age-standardised rate (no. per 100,000)	3.0	4.9	4.7	4.0	0.2	40.7
Other Australian age-standardised rate (no. per 100,000)[(d)]	3.8	4.2	4.5	4.9	0.2*	35.8
Rate ratio[(e)]	0.8	1.2	1.1	0.8	0.0	2.8
Rate difference[(f)]	–0.8	0.7	0.3	–0.9	0.0	17.3

* Represents results with statistically significant increases or declines at the p < 0.05 level over the period 1998–2000 to 2005–2006.

(a) Data exclude cases diagnosed in the Australian Capital Territory.

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

(c) Per cent change between 1998–2000 and 2005–2006 based on the annual rate of change over the period.

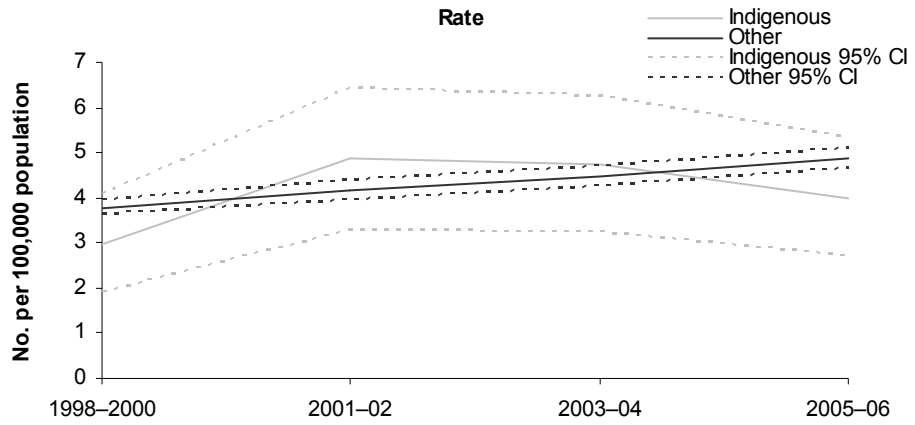
(d) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

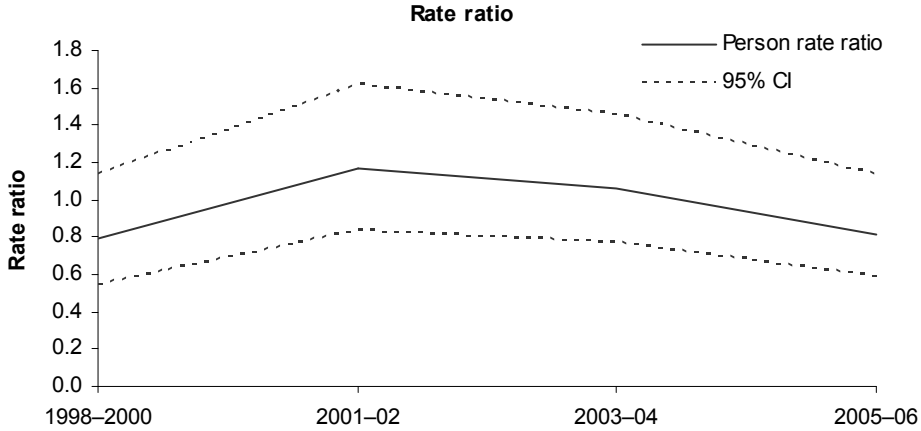
(e) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

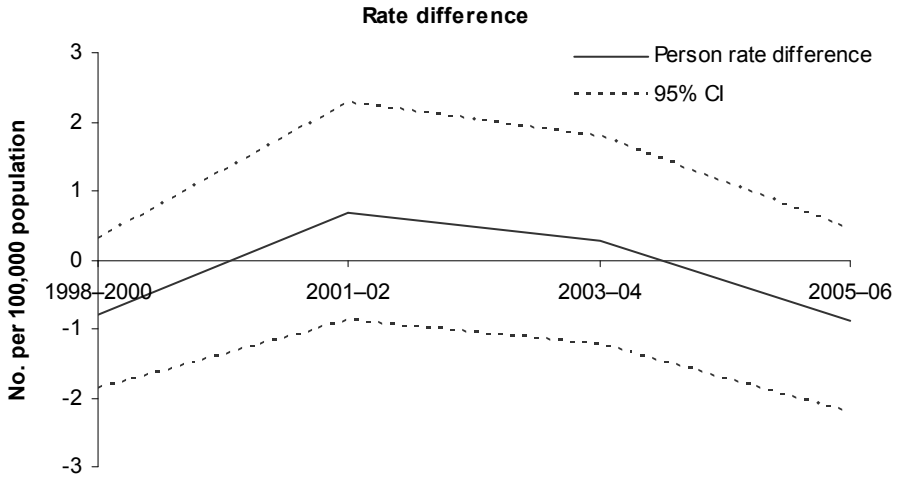
(f) Notification rate for Indigenous Australians minus the notification rate for other Australians.

Notes: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of NCHECR data.







Source: AIHW analysis of NCHECR data.

Figure 1.11.5: Age-standardised notification rates, rate ratios and rate differences for HIV, 1998–2000 to 2005–2006

AIDS

- There were no significant change in the rate of AIDS notifications among Indigenous Australians over the period 1998–2000 to 2005–2006 (Table 1.11.11, Figure 1.11.6).
- Over the period 1998–2000 to 2005–2006, there were significant declines in notification rates for AIDS among other Australians. The fitted trend implies an average yearly decline in the rate of around 0.1 per 100,000 which is equivalent to a 32% decline in the rate over the period.
- There were non significant increases in both notification rate ratios and rate differences between Indigenous and other Australians for AIDS between 1998–2000 and 2005–2006.

Table 1.11.11: Crude and age-standardised notification rates, rate ratios and rate differences for AIDS[a], 1998–2000 to 2005–2006

	1998–2000	2001–2002	2003–2004	2005–2006	Annual change[b]	% change over period[c]
Indigenous crude rate (no. per 100,000)	1.4	1.4	2.5	1.0	0.0	–2.8
Indigenous age-standardised rate (no. per 100,000)	1.7	1.9	3.2	1.2	0.0	–1.5
Other Australian age-standardised rate (no. per 100,000)[d]	1.4	1.2	1.0	1.0	–0.1*	–32.0
Rate ratio[e]	1.2	1.6	3.0	1.1	0.1	41.6
Rate difference[f]	0.3	0.7	2.1	0.1	0.1	148.4

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–2000 to 2005–2006.

(a) Excludes cases diagnosed in the Australian Capital Territory.

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

(c) Per cent change between 1998–2000 and 2005–2006 based on the annual rate of change over the period.

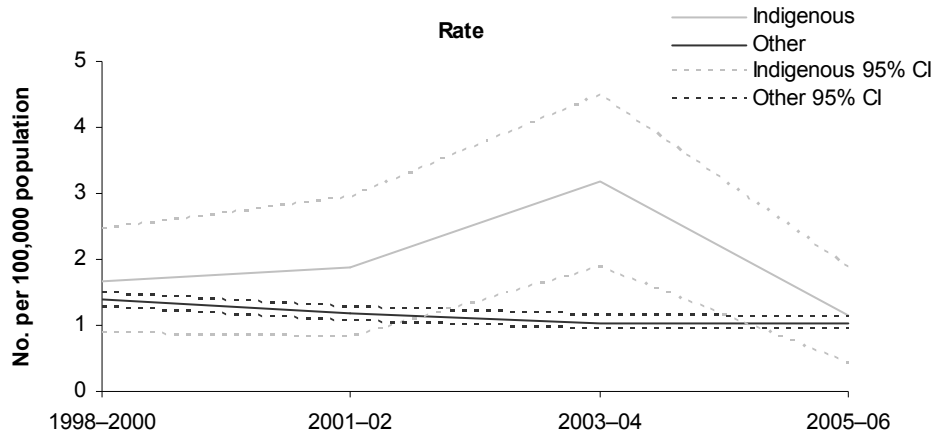
(d) 'Other' includes notifications for non-Indigenous people and those for whom Indigenous status was not stated.

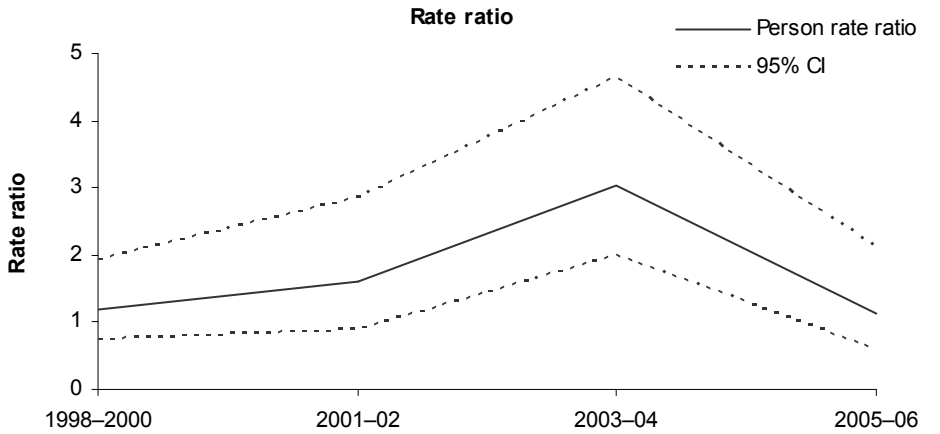
(e) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

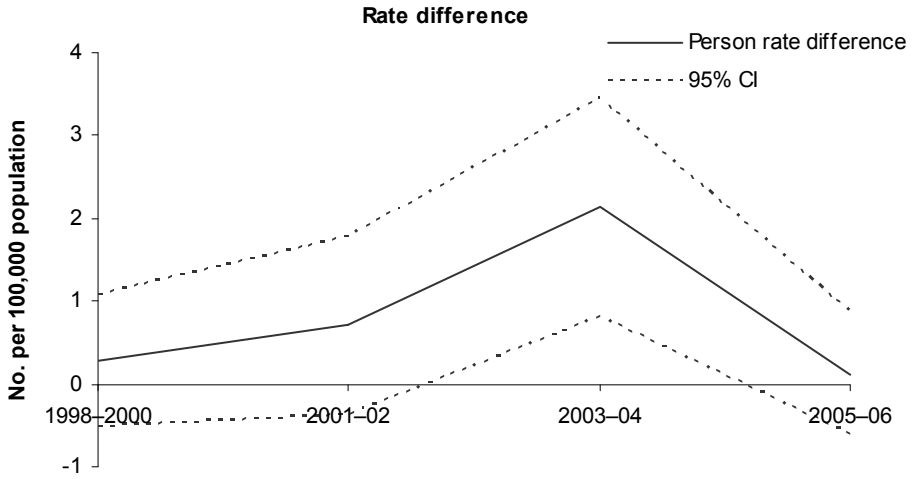
(f) Notification rate for Indigenous Australians divided by the notification rate for other Australians.

Notes: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of NCHECR data.







Source: AIHW analysis of NCHECR data.

Figure 1.11.6: Age-standardised notification rates, rate ratios and rate differences for AIDS, 1998–2000 to 2005–2006

Sensitivity of trends in notifications to changes in identification

- The fitted trends described above have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for identification were posted—constant identification, increasing identification and decreasing identification.
  - Under the constant identification scenario, the number of notifications for chlamydia, syphilis, gonorrhoea and hepatitis C for the period under study were adjusted using the following identification factors based on an assessment of Indigenous identification by the NNDSS in 2004:
    - Western Australia 64%
    - South Australia 89%
    - Northern Territory 92%.
  - The number of HIV/AIDS notifications for the period under study was adjusted using an 85% identification factor for Australia.
  - Under the increasing identification scenario, chlamydia, syphilis, gonorrhoea and hepatitis C notifications were adjusted by linearly increasing the identification through the period under study—from 54% in 1994 to 66% in 2006 for Western Australia, from 82% to 90% for South Australia, and from 87% to 93% for the Northern Territory. HIV/AIDS notifications were adjusted by linearly increasing the identification from 77% in 1998 to 85% in 2006.
  - Under the decreasing identification scenario, chlamydia, syphilis, gonorrhoea and hepatitis C notifications were adjusted by linearly decreasing the identification from 74% in 1994 to 62% in 2006 for Western Australia, from 96% to 88% for South Australia, and from 97% to 91% for the Northern Territory. HIV/AIDS notifications were adjusted by linearly decreasing the identification from 93% in 1998 to 85% in 2006.
- The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; of course, if any actual shift in identification was more extreme than has been posted under these scenarios, then the observed trends in notifications might not persist.
- Of the aforementioned trends observed for chlamydia notifications, all remained statistically significant under all three identification scenarios.
- Of the aforementioned trends observed for syphilis notifications, the increase in rates for other Australian males and all persons only remained significant under the increasing identification scenario. The decline in rate ratios for males and all persons did not remain statistically significant under any identification scenario.
- Of the aforementioned trends observed for gonorrhoea notifications, all remained statistically significant under all three identification scenarios.
- The observed trends in hepatitis C notifications all remained significant under all three identification scenarios.
- The observed trends in HIV notifications remained statistically significant under all three identification scenarios.
- The observed trends in AIDS notifications remained statistically significant under all three identification scenarios.

Data quality issues

Notification data

Notifications

Notification statistics do not measure the incidence or prevalence of these infections in the community. Under-reporting of these infections can occur at a number of stages:

- *a person infected may not feel ill*
- *a person may not seek medical care*
- *a false negative result may occur*
- *there may be a positive test result but for some reason a notification may not occur*
- *the case may not be reported to the NNDSS.*

The level of under-reporting can vary by disease, jurisdiction and time. The method of surveillance can vary between jurisdictions with different requirements for notification by medical practitioners, laboratories and hospitals. The case definitions for surveillance also vary among jurisdictions. These can also change over time.

Notification statistics can provide insights into the health of the population which has been diagnosed with a notifiable illness and changes over time.

Indigenous status question

In the NNDSS, New South Wales, Queensland and Tasmania use the standard ABS question of Indigenous status. Other states and territories can provide data for the categories 'Indigenous', 'non-Indigenous' and 'not stated' but do not identify Torres Strait Islanders separately (AIHW & ABS 2006).

Under-identification

The incompleteness of Indigenous identification means the number of notifications recorded as Indigenous is an underestimate of Aboriginal and Torres Strait Islander notifications rates. In 2003, Indigenous status was reported for only 43% of sexually transmissible infections notifications nationally (DoHA 2005).

The accuracy of Indigenous identification in notifiable disease registries varies between the states and territories. Jurisdictional comparisons must be undertaken with care and it is not possible to provide reliable measures of change over time for most of these measures (SIMC 2004).

The identification of Indigenous notifications is incomplete in all states and territories, but three jurisdictions (Western Australia, South Australia and the Northern Territory) have been assessed as having adequate identification in 2001–2002 in the NNDSS. Data on Indigenous status for certain notifiable diseases are not available for the Australian Capital Territory, New South Wales or Tasmania. For HIV/AIDS the recording of Indigenous status in the NCHECR data is considered reliable (SIMC 2004).

(continued)

Data quality issues (continued)

Numerator and denominator

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

References

ABS (Australian Bureau of Statistics) 2004. Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2009. ABS cat. no. 3238.0. Canberra: ABS.

ABS & AIHW (Australian Institute of Health and Welfare) 2006. Recent developments in the collection of Aboriginal and Torres Strait Islander health and welfare statistics 2005. ABS cat. no. 4704.0.55.001, AIHW cat. no. IHW 15. Canberra: AIHW & ABS.

DoHA (Department of Health and Ageing) 2005. Communicable disease intelligence, quarterly report, vol. 29, no. 1. Canberra: DoHA.

SIMC (Statistical Information Management Committee) 2004. National summary of the 2001 and 2002 jurisdictional reports against the Aboriginal and Torres Strait Islander health performance indicators. AIHW cat. no. IHW 12. Canberra: AIHW.

1.12 Children's hearing loss

This indicator includes a number of measures of children's hearing including prevalence rates and hospitalisation rates for diseases of the ear and mastoid process, and rates of ear and hearing problems managed at consultations with general practitioners

Data sources

Data for this measure come from the National Aboriginal and Torres Strait Islander Health Survey, the Western Australian Aboriginal Child Health Survey, the Bettering the Evaluation and Care of Health survey and the AIHW National Hospital Morbidity Database. Limited data are presented on child hearing screening from the state and territory health departments.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The 2004–05 NATSIHS collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians about health-related issues including health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. It is planned to repeat the NATSIHS at 6-yearly intervals, with the next NATSIHS to be conducted in 2010–11. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

Western Australian Aboriginal Child Health Survey

This survey was a large-scale investigation into the health of 5,289 Western Australian Aboriginal and Torres Strait Islander children aged 0–17 years. It was undertaken in 2001 and 2002 by the Telethon Institute for Child Health Research in conjunction with the Kulunga Research Network. The survey was the first to gather comprehensive health, educational and developmental information on a population-based sample of Aboriginal and Torres Strait Islander children and their families and communities.

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey which is conducted by the AIHW Australian GP Statistics and Classification Centre. Information is collected from a random sample of approximately 1,000 general practitioners (GPs) from across Australia each year. A sample of 100 consecutive encounters is collected from each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated. This is because some GPs might not ask about Indigenous status, or the patient may choose not to identify (AIHW 2002). The estimates presented here are also derived from a relatively small sample of GP encounters involving Indigenous Australians.

Because of a late inclusion of a 'not stated' category of Indigenous status in 2001–02 (before which 'not stated' responses were included with non-Indigenous encounters), GP encounters for which Indigenous status was not reported have been included with encounters for non-Indigenous people under the 'other' category.

Data are presented for the 5-year period 2002–03 to 2006–07, during which there were 7,542 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.5% of total GP encounters in the survey.

Hospitalisations

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

Data are presented for the six jurisdictions which have been assessed by the AIHW as having adequate identification of Indigenous hospitalisations in 2004–05—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. These six jurisdictions represent approximately 96% of the Indigenous population of Australia. Data are presented by state/territory of usual residence of the patient.

Hospitalisations for which the Indigenous status of the patient was not reported have been included with hospitalisations data for non-Indigenous people under the 'other' category. This is to enable consistency across jurisdictions, as public hospitals in some states and territories do not have a category for the reporting of 'not stated' or inadequately recorded/reported Indigenous status.

Hospitalisation data are presented for the 2-year period July 2004 to June 2006. An aggregate of 2 years of data has been used, as the number of hospitalisations for some conditions is likely to be small for a single year.

The principal diagnosis is the diagnosis established to be the problem that was chiefly responsible for the patient's episode of care in hospital. The additional diagnosis is a condition or complaint either coexisting with the principal diagnosis or arising during the episode of care. The term 'hospitalisation' has been used to refer to a separation which is the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending a change in a type of care (for example, from acute to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

Child hearing screening data

No data are currently available on Aboriginal and Torres Strait Islander children's hearing loss in the Australian Capital Territory, Queensland and Western Australia. New South Wales, Victoria, South Australia, Tasmania and the Northern Territory currently have screening programs for hearing loss at school entry, but comprehensive data are not yet available.

Analysis

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

Self-reported prevalence

Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey on the prevalence of diseases of the ear and mastoid are presented in Table 1.12.1, Figure 1.12.1 and Table 1.12.2.

Prevalence by age

- In 2004–05, approximately 10% of Indigenous children aged 0–14 years reported having ear or hearing problems compared with 3% of non-Indigenous children of the same age. Prevalence rates for ear/hearing problems were 95 per 1,000 population among Indigenous children and 30 per 1,000 population among non-Indigenous children.
- Diseases of the ear and mastoid were more prevalent among Indigenous children aged 5–14 years (12%) than among Indigenous children aged 0–4 years (6%) (Figure 1.12.1).
- Complete or partial deafness/ hearing loss and otitis media were both more prevalent among Indigenous children than among non-Indigenous children. Approximately 5% of Indigenous children aged 0–14 years reported complete or partial hearing loss or deafness compared with 1% of non-Indigenous children. Approximately 4% of Indigenous children of the same age reported otitis media compared with 2% of non-Indigenous children. Otitis media is infection and inflammation of the middle ear space and eardrum. Symptoms include earache, fever and, in some cases, diminished hearing.

Table 1.12.1: Children reporting diseases of the ear and mastoid, by Indigenous status and age group, 2004–05[a]

Age (years)	0–4		5–14		0–14	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
			Per cent			
Complete or partial deafness/ hearing loss	2[b]	1[b]	6*	2*	5*	1*
Otitis media	4*	2*[b]	5*	1*	4*	2*
Other diseases of the ear and mastoid	—[b]	—[c]	2[b]	1	1[b]	—
Total[d][e]	**6***	**2***	**12***	**3***	**10***	**3***
Total number	60,183	1,198,038	120,486	2,561,973	180,669	3,760,010

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05 and National Health Survey 2004–05.

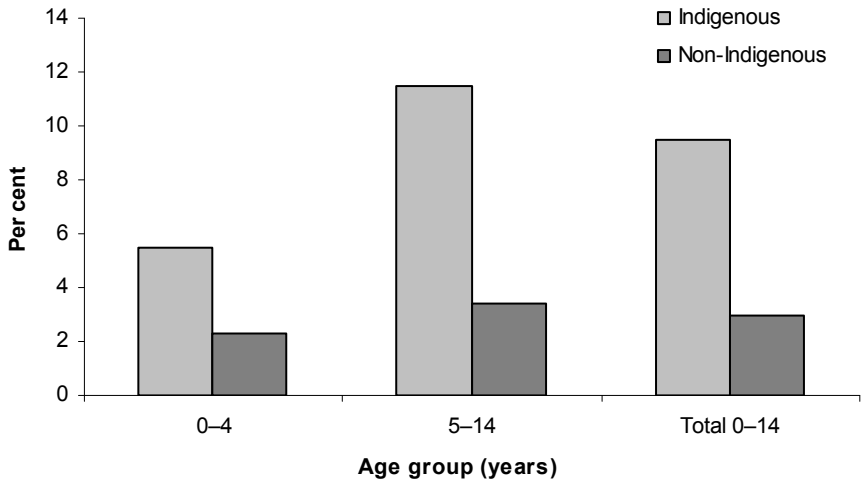
(b) Estimates having a relative standard error of between 25% and 50% and should be used with caution.

(c) Estimate having a relative standard error greater than 50% are considered too unreliable for general use.

(d) Includes 'Type of ear/hearing problem' not known.

(e) Components may not add to total as persons may have reported more than one type of condition.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.



Source: ABS and AIHW analysis of National Aboriginal and Torres Strait Islander Health Survey 2004–05.

Figure 1.12.1: Proportion of children aged 0–14 years reporting ear and hearing problems, by Indigenous status and age group, 2004–05

Prevalence by remoteness and time series

- In 2004–05, prevalence of diseases of the ear and mastoid process was higher among Indigenous children aged 0–14 years in remote areas (12% males and 13% females) than those in non-remote areas (9% males and 8% females) (Table 1.12.2).
- Overall, there has been little change in the prevalence of ear and hearing problems among Indigenous children aged 0–14 years between 2001 and 2004–05, but in remote areas there has been a decline over this period for both Indigenous males (from 18% in 2001 to 12% in 2004–05) and Indigenous females (from 18% in 2001 to 13% in 2004–05).

Table 1.12.2: Indigenous children aged 0–14 years reporting conditions of the ear and mastoid process, by remoteness, 1995, 2001 and 2004–05

	1995[(a)]		2001		2004–05		
	Males	Females	Males	Females	Males	Females	Persons
				Per cent			
Remote	n.a.	n.a.	18	18	12	13	13
Non-remote	7	4	6	11	9	8	8
Total	**n.a.**	**n.a.**	**10**	**13**	**10**	**9**	**10**
Total number	54,392	52,401	90,615	85,878	92,767	87,902	180,699

(a) Data for the National Aboriginal and Torres Strait Islander Health Survey 1995 are available for non-remote regions only. Total numbers are therefore for non-remote areas only.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Prevalence by selected population and health characteristics

Table 1.12.3 presents the proportion of Indigenous children aged 0–14 years who had ear and circulatory problems by selected demographic characteristics and risk factors.

- In 2004–05, among Indigenous children aged 0–14 years, a higher proportion of those who lived in households with regular smokers who smoked at home indoors reported having ear and hearing problems than those who did not live with regular smokers who smoked at home indoors (13% compared to 8%).
- Indigenous children who lived in overcrowded households or in the most disadvantaged quintile of index of disparity where more likely to have ear and hearing problems (both 15%) than Indigenous children who did not live in overcrowded households (8%) or were in the least disadvantaged index of disparity (11%).
- A higher proportion of Indigenous children aged 12–14 years who reported they did not eat vegetables daily and/or did not eat fruit daily reported ear and hearing problems than Indigenous children who did eat fruit and vegetables daily.
- Approximately 11% of Indigenous children whose last consultation with a GP was less than 3 months ago reported ear and hearing problems compared to 8% of Indigenous children who whose last GP consultation was 3 or more months ago.

Table 1.12.3: Proportion of Indigenous children aged 0–14 years with ear/hearing problems, by selected demographic characteristics and risk factors, 2004–05

	Has ear/hearing problems	Does not have ear/hearing problems
	Per cent	
Lives in households with regular smokers		
Yes	10.4	89.6
No	8.0	92.0
Lives in households with regular smokers who smoke at home indoors		
Yes	13.0	87.0
No	8.3	91.7
Overcrowding in housing		
Yes	14.5	85.5
No	8.3	92.0
SEIFA — index of disparity		
Most disadvantaged quintile	14.7	85.3
Least disadvantaged quintile	10.6	89.4
Eats vegetables daily[(a)]		
Yes	7.7	92.3
No	20.8	79.2
Eats fruit daily[(a)]		
Yes	7.8	92.2
No	13.8	86.2
Time since consulted GP/specialist		
Less than 3 months	11.0	89.0
3 months or more	8.4	91.6
Total	**9.5**	**90.5**
Total number	**17,097**	**163,572**

(a) Children aged 12–14 years.

Source: AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Hospitalisations

- For the 2-year period July 2004 to June 2006, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, there were 56,663 hospitalisations from diseases of the ear and mastoid process among children aged 0–14 years, 4.6% of which were hospitalisations of Aboriginal and Torres Strait Islander children.
- Diseases of the ear and mastoid process accounted for 4.4% of total hospitalisations among Indigenous children aged 0–14 years.

Hospitalisations by age and principal diagnosis

- For the 2-year period July 2004 to June 2006, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, for diseases of the ear and mastoid process there were 1,083 hospitalisations among Indigenous children aged 0–4 years, and 1,516 hospitalisations among those aged 5–14 years. This represented 3% and 7% of total hospitalisations among Indigenous children respectively (Table 1.12.4).
- Indigenous children aged 0–4 years were less likely to be hospitalised from diseases of the ear and mastoid process as other children, but Indigenous children aged 5–14 years were 1.4 times more likely to be hospitalised from these diseases as other children.
- Diseases of the middle ear, which include otitis media, were the most common type of ear disease causing hospitalisation among Indigenous children. Indigenous children aged 0–4 years were less likely to be hospitalised for diseases of the middle ear than other children, whereas Indigenous children aged 5–14 years were 1.4 times more likely to be hospitalised than other children (Table 1.12.4).

As well as rates and ratios for the six jurisdictions which have been assessed as having adequate identification of Indigenous hospitalisations in 2004–05, unadjusted and adjusted national level data for children aged 0–14 years are also included in table 1.12.4. The Australia data are adjusted by applying a completeness factor of 89.4%, which is an estimate of the level of Indigenous under-identification in hospital separations data.

- Over the period July 2004 to June 2006, Indigenous children aged 0–14 years in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined were hospitalised for diseases of the ear and mastoid process at similar rates to other Australians.
- When hospital rates are adjusted at the national level for Indigenous under-identification, Indigenous children were hospitalised for diseases of the ear and mastoid process at slightly higher rates than non-Indigenous children (ratio of 1.1).

Hospitalisations for tympanoplasty procedures

Indigenous children aged 0–14 years had reported rates of tympanoplasty procedures with a principal diagnosis of otitis media at almost four times the rate of other children. Differences observed in hospitalisations from otitis media may be due to the chronic nature of the disease among Indigenous children resulting in greater damage to the eardrum.

Table 1.12.4: Hospitalisations for diseases of the ear and mastoid process, by Indigenous status, children aged 0–14 years, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c][d]

	Number		Per cent[e]		Indigenous			Other[e]			
	Indigenous	Other[e]	Indigenous	Other[e]	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	No. per 1,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]
Aged 0–4 years											
Diseases of middle ear and mastoid (H65–H75)	983	28,443	2.7	5.2	8.5	7.9	9.0	12.0	11.9	12.2	0.7*
Other disorders of ear (H90–H95)	51	1,589	0.1	0.3	0.4	0.3	0.6	0.7	0.6	0.7	0.7*
Diseases of the external ear (H60–H62)	47	617	0.1	0.1	0.4	0.3	0.5	0.3	0.2	0.3	1.6*
Diseases of inner ear (H80–H83)	n.p.	37	n.p.	—	n.p.	n.p.	n.p.	—	—	—	n.p.
Total	**1,083**	**30,686**	**2.9**	**5.6**	**9.3**	**8.8**	**9.9**	**13.0**	**12.8**	**13.1**	**0.7***
Aged 5–14 years											
Diseases of middle ear and mastoid (H65–H75)	1,390	21,263	6.4	5.1	6.0	5.7	6.3	4.2	4.2	4.3	1.4*
Other disorders of ear (H90–H95)	59	903	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.2	1.4*
Diseases of the external ear (H60–H62)	66	1,149	0.3	0.3	0.3	0.2	0.4	0.2	0.2	0.2	1.2
Diseases of inner ear (H80–H83)	n.p.	63	n.p.	—	n.p.	n.p.	n.p.	—	—	—	n.p.
Total	**1,516**	**23,378**	**7.0**	**5.6**	**6.5**	**6.2**	**6.8**	**4.7**	**4.6**	**4.7**	**1.4***
Aged 0–14 years											
Diseases of middle ear and mastoid (H65–H75)	2,373	49,706	4.1	5.1	6.8	6.5	7.1	6.7	6.7	6.8	1.0
Other disorders of ear (H90–H95)	110	2,492	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.9
Diseases of the external ear (H60–H62)	113	1,766	0.2	0.2	0.3	0.3	0.4	0.2	0.2	0.3	1.4*
Diseases of inner ear (H80–H83)	3	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Total NSW, Vic, Qld, WA, SA & NT	**2,599**	**54,064**	**4.4**	**5.6**	**7.5**	**7.2**	**7.7**	**7.3**	**7.3**	**7.4**	**1.0**
Total Australia	2,628	56,021	4.4	5.6	7.2	6.9	7.5	7.3	7.2	7.3	1.0
Total Australia adjusted[j][k]	2,937	55,712	4.9	5.5	8.0	7.7	8.3	7.2	7.2	7.3	1.1*

(continued)

Table 1.12.4 (continued): Hospitalisations for diseases of the ear and mastoid process, by Indigenous status, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)(e)]

(a) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006); ICD-10-AM codes H60–H95.

(b) Financial year reporting.

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

(d) Proportion of total hospitalisations for Indigenous and non-Indigenous people in that age group for the period 2004–05 to 2005–06.

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

(f) Age-specific hospitalisation rate using the average Indigenous December populations for the relevant years.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:other.

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

(k) Australian hospitalisation numbers and rates have been adjusted for Indigenous under-identification using a national adjustment factor of 0.89. This factor was derived from a study undertaken by the AIHW in 2007 which assessed the level of Indigenous under-identification in hospital data in all states and territories by comparing information gathered from face-to face interviews in public hospitals with results from hospital records. By applying this factor, the number of Indigenous hospitalisations was increased by 11% and these additional hospitalisations then subtracted from the number of hospitalisations for Other Australians.

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations for all years from 1998–99 to 2005–06—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population. New South Wales and Victoria were identified as having adequate identification of Indigenous hospitalisations from 2004–05 onwards, therefore they were included as part of the current period analysis (2004–05 to 2005–06) but not as part of the time series analyses.

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for diseases of the ear and mastoid process over the 7-year period 1998–99 to 2005–06 are presented in Table 1.12.5 and Figure 1.12.2.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant declines in hospitalisation rates for diseases of the ear and mastoid process among Indigenous children aged 0–14 years during the period 1998–99 to 2005–06, with an average yearly decline in the rate of around 0.2 per 1,000 population. This is equivalent to a 17% reduction in the rate over the period. The declines in hospitalisation rates were significant for both males and females.
- There were also significant declines in hospitalisation rates among other Australian children, with an average yearly decline in the rate of 0.2 per 1,000. This is equivalent to an 18% decline in the rate over the period.
- There was no significant change in the hospitalisation rate ratios or rate difference between Indigenous and other children during the period 1998–99 to 2005–06.

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

Table 1.12.5: Age-standardised hospitalisation rates, rate ratios and rate differences from diseases of the ear and mastoid process, children aged 0–14 years, Qld, WA, SA & NT, 1998–99 to 2005–06[a]

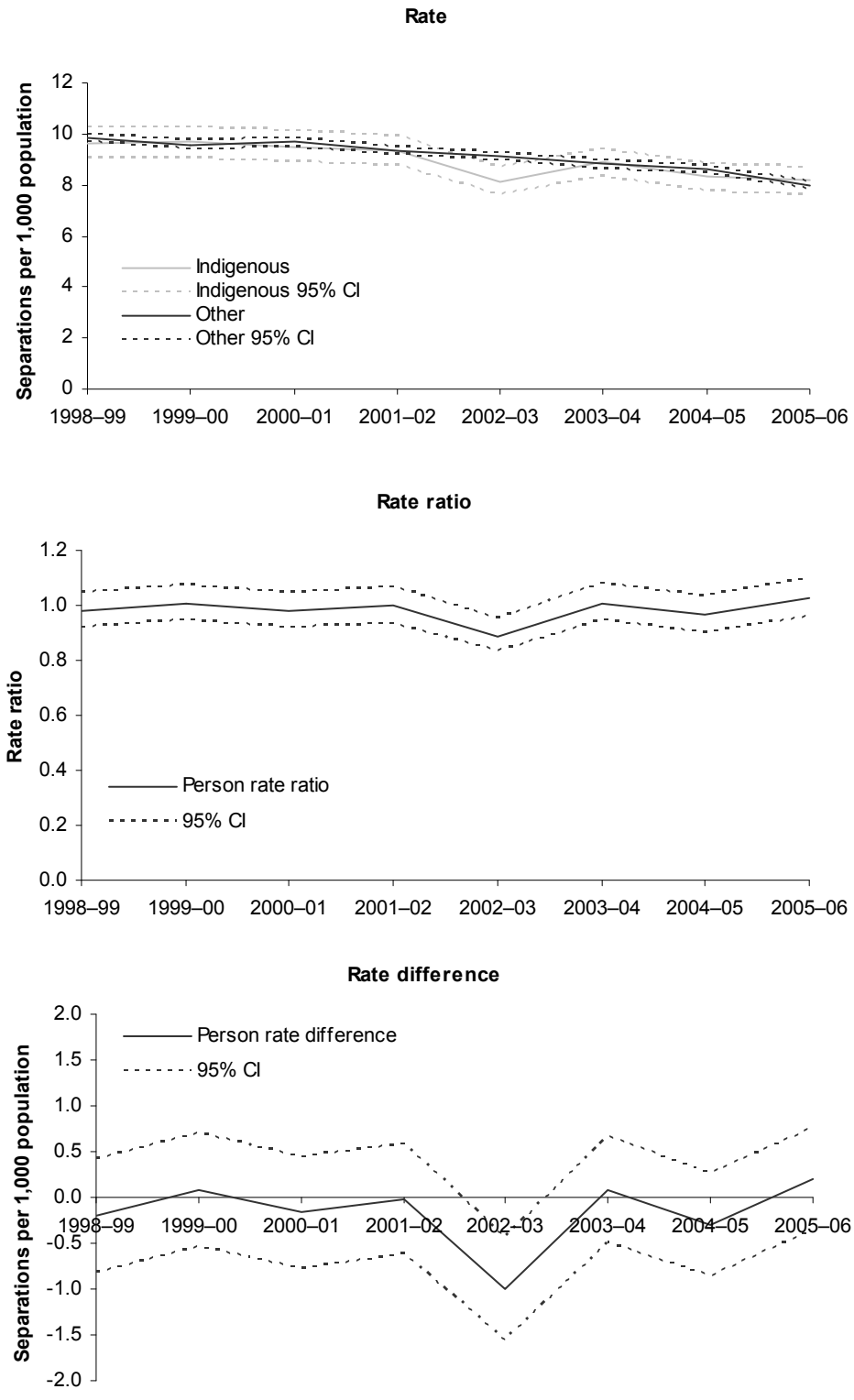
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[b]	% change over period[c]
Indigenous rate (no. per 1,000)										
Males	10.1	10.4	10.4	9.4	8.5	9.5	8.8	9.0	–0.2*	–15.6
Females	9.2	9.0	8.6	9.2	7.8	8.2	7.8	7.3	–0.3*	–19.5
Persons	9.7	9.7	9.5	9.3	8.1	8.9	8.3	8.2	–0.2*	–17.4
Other Australian[d] rate (no. per 1,000)										
Males	11.4	11.1	11.1	10.8	10.7	10.3	10.2	9.4	–0.3*	–15.7
Females	8.2	8.0	8.1	7.8	7.5	7.2	7.0	6.5	–0.2*	–20.4
Persons	9.9	9.6	9.7	9.3	9.1	8.8	8.6	8.0	–0.2*	–17.6
Rate ratio[e]										
Males	0.9	0.9	0.9	0.9	0.8	0.9	0.9	1.0	—	0.8
Females	1.1	1.1	1.1	1.2	1.0	1.1	1.1	1.1	—	1.0
Persons	1.0	1.0	1.0	1.0	0.9	1.0	1.0	1.0	—	0.5
Rate difference[f]										
Males	–1.3	–0.7	–0.7	–1.4	–2.2	–0.8	–1.4	–0.3	—	–16.2
Females	0.9	0.9	0.5	1.4	0.3	1.0	0.8	0.8	—	–11.4
Persons	–0.2	0.1	–0.2	0.0	–1.0	0.1	–0.3	0.2	—	–24.2

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1998–99 to 2005–06.

(a) Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory.
(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(c) Per cent change between 1998–99 and 2005–06 based on the average annual change over the period.
(d) 'Other' includes hospitalisations for non-Indigenous people and those for whom Indigenous status was not stated.
(e) Hospitalisation rates for Indigenous Australians divided by hospitalisation rates for other Australians.
(f) Hospitalisation rates for Indigenous Australians minus hospitalisation rates for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.12.2: Hospitalisation rates, rate ratios and rate differences between Indigenous and other children aged 0–14 years from diseases of the ear and mastoid process, Qld, WA, SA and NT, 1998–99 to 2005–06

General practitioner encounters

Information about general practitioner (GP) encounters is available from the BEACH survey. Information is collected from a random sample of approximately 1,000 general practitioner from across Australia each year. A sample of 100 consecutive encounters is collected from each GP. Data for the 5-year period 2002–03 to 2006–07 are presented in Table 1.12.6.

- In the period 2002–03 to 2006–07 there were 58,145 GP encounters with patients aged 0–14 years, 1,635 (2.8%) of which were with Aboriginal and Torres Strait Islander patients.
- Ear and hearing problems were responsible for 11% of total problems managed among Indigenous patients aged 0–14 years and 9% of total problems managed among other patients of the same age.
- Ear and hearing problems were managed at GP encounters with Indigenous children at similar rates to encounters with other children (at rates of 13.1 and 10.8 per 100 encounters for Indigenous and other children aged 0–14 years respectively).
- Acute otitis media/myringitis was the most common ear and hearing problem managed at GP encounters, responsible for 6.4% of total problems managed among Indigenous patients aged 0–14 years. It made up a greater proportion of problems managed in the 0–4 year age group (7.2%) than at encounters with children aged 5–14 years (5.4%).
- Acute otitis media/myringitis was managed at GP encounters with Indigenous children aged 0–14 years at similar rates to encounters with other children of the same age (7.8 per 100 encounters compared with 7.0).

Table 1.12.6: Ear and hearing problems[a] managed by general practitioners, by Indigenous status of patient, 2002–03 to 2006–07[b][c][d]

	Number		Per cent total problems[e]		Indigenous			Other[f]			
	Indigenous	Other[f]	Indigenous	Other[f]	No. per 100 encounters[g]	95% LCL[h]	95% UCL[i]	No. per 100 encounters[g]	95% LCL[h]	95% UCL[i]	Ratio[j]
					0–4 years						
Acute otitis media/ myringitis	80	2,510	7.2	7.2	8.8	6.3	11.4	8.4	8.0	8.9	1.1
Other infections of ear	25	467	2.3	1.3	2.8	1.5	4.0	1.6	1.4	1.8	1.8
Subtotal infections of ear	*105*	*2,977*	*9.5*	*8.6*	*11.6*	*8.5*	*14.7*	*10.0*	*9.5*	*10.5*	*1.2*
Hearing loss	—	11	—	—	—	—	—	—	—	0.1	—
Other diseases of the ear	12	439	1.1	1.3	1.3	0.4	2.3	1.5	1.1	1.8	0.9
Total diseases of the ear	**117**	**3,427**	**10.6**	**9.9**	**12.9**	**9.5**	**16.4**	**11.5**	**10.8**	**12.2**	**1.1**
					5–14 years						
Acute otitis media/ myringitis	48	1,439	5.4	4.6	6.6	4.2	8.9	5.4	5.1	5.7	1.2
Other infections of ear	29	753	3.3	2.4	4.0	2.0	5.9	2.8	2.6	3.1	1.4
Subtotal infections of ear	*77*	*2,192*	*8.7*	*7.1*	*10.5*	*7.1*	*13.9*	*8.2*	*7.8*	*8.6*	*1.3*
Hearing loss	—	23	—	0.1	—	—	—	0.1	0.1	0.1	—
Other diseases of the ear	21	437	2.4	1.4	2.9	1.5	4.3	1.6	1.4	1.8	1.8
Total diseases of the ear	**98**	**2,652**	**11.1**	**8.5**	**13.4**	**9.3**	**17.5**	**9.9**	**9.5**	**10.4**	**1.3**

(continued)

Table 1.12.6 (continued): Ear and hearing problems[a] managed by general practitioners, by Indigenous status of patient, 2002–03 to 2006–07[b][c][d]

	Number		Per cent total problems[e]		Indigenous			Other[f]			
	Indigenous	Other[f]	Indigenous	Other[f]	No. per 100 encounters[g]	95% LCL[h]	95% UCL[i]	No. per 100 encounters[g]	95% LCL[h]	95% UCL[i]	Ratio[j]
					0–14 years						
Acute otitis media/ myringitis	128	3,949	6.4	6.0	7.8	5.8	9.8	7.0	6.7	7.3	1.1
Other infections of ear	54	1,220	2.7	1.9	3.3	2.1	4.5	2.2	2.0	2.3	1.5
Subtotal infections of ear	*182*	*5,169*	*9.1*	*7.9*	*11.1*	*8.5*	*13.8*	*9.1*	*8.8*	*9.5*	*1.2*
Hearing loss	—	34	—	0.1	—	—	—	0.1	—	0.1	—
Other diseases of the ear	33	876	1.7	1.3	2.0	1.1	2.9	1.6	1.3	1.8	1.3
Total diseases of the ear	**215**	**6,079**	**10.8**	**9.2**	**13.1**	**10.1**	**16.2**	**10.8**	**10.3**	**11.3**	**1.2**

(a) ICPC–2 codes: H00–H99. Acute otitis media/myringitis = H71; other ear infections = H70, H72, H73, H74; hearing loss = H28, H84, H85, H86; other diseases of the ear = H00–H27, H29–H69, H75–H83, H87–H99.

(b) These survey results are likely to undercount the number of Indigenous Australians visiting doctors.

(c) Combined financial year data for 5 years.

(d) Data for Indigenous and other Australians have not been weighted.

(e) Per cent of total problems within age group.

(f) Includes non-Indigenous patients and patients for whom Indigenous status was not stated.

(g) Age-specific rate (no. per 100 encounters). Figures do not add to 100 as more than one problem can be managed at each encounter.

(h) LCL = lower confidence interval.

(i) UCL = upper confidence interval.

(j) Rate ratio Indigenous:other.

Source: AIHW analysis of BEACH survey of general practice, AGPSCC.

Additional information

Ear and hearing problems among Aboriginal children in Western Australia

The Western Australian Aboriginal Child Health Survey collected information on ear and hearing problems among Aboriginal children living in Western Australia in 2001 and 2002.

- Approximately 18% of Aboriginal children were assessed by their carers as having recurring ear infections. Children aged 12–17 years were less likely to have recurring ear infections (14%) than younger children aged 0–3 and 4–11 years (20%). Of those children with recurring ear infections, over two-thirds (69%) had at least one episode in which infection ruptured the eardrum causing ear discharge.
- Overall, approximately 13% of Aboriginal children aged 4–17 years had recurring ear infections with at least one instance of discharging ears, and a further 9% had had an isolated case of discharging ears. The risk of discharging ears in children with recurring ear infections was highest in areas of high and extreme isolation (83%).
- Carers of children aged 4–17 years were also asked about their child's hearing and learning ability. Approximately 7% of children were assessed as having abnormal hearing, 9% with unintelligible speech, 10% as having difficulty with sounds, 5% with a stammer and 9% as having learning difficulties. Younger children aged 4–11 years were more likely to have language difficulties such as unintelligible speech (11%) and difficulty with sounds (13%) than children aged 12–17 years (5% and 4% respectively).
- Aboriginal children with ear infections had a significantly greater risk of abnormal hearing, language problems and learning difficulties. Approximately 30% of children with recurrent ear infections with discharge had abnormal hearing compared with 2% of children with no ear infections. Children with recurring ear infections with discharge were around three times as likely to have difficulty with sounds and twice as likely to have learning difficulties as children with no ear infection.

Child hearing screening

Limited data are currently available on the screening of Aboriginal and Torres Strait Islander children's hearing in most states and territories. Available data are summarised below.

- In South Australia, in 2003, the prevalence of otitis media leading to hearing loss and contributing to communication problems and long-term disability was estimated to be 11.1% for Aboriginal children compared with 4.7% for the general community (SIMC 2004).
- In Victoria, all children are screened for hearing loss at 500 Hz at 30 dB and 1,000, 2,000 and 4,000 Hz at 20 dB through two universal programs—Maternal and Child Health (2–8 weeks) and School Nursing (prep school 5–6 years). In 2004, 58,793 prep children were screened, of whom 724 were recorded as Aboriginal and/or Torres Strait Islander. Of the Indigenous children screened, 598 were recorded with hearing within normal limits and 141 were referred for further action.
- In the Northern Territory in 2004, 62% of school-aged children (aged 4–16 years) tested in remote communities in the Northern Territory were identified with varying degrees of hearing loss in one or both ears. The tests were performed by audiologists and nurse audiometrists who travelled to remote communities. The numbers tested included mostly children who failed hearing screening at school entry (aged 4–5 years) and children with hearing concerns, but also older children who have had existing hearing loss and were being monitored.

Data quality issues

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians and thus overcomes the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in major cities and regional and remote areas, but very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 National Health Surveys.

In remote communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

Western Australian Aboriginal Child Health Survey

Survey data are subject to sampling and non-sampling errors. Confidence intervals are published with the data to provide a guide to the reliability of the estimates. Non-sampling errors can occur in surveys because of questionnaire design problems, respondent difficulty recalling information/lack of appropriate records, and errors made in the recording and processing of the data. Every effort was made to minimise non-sample errors in this survey (Zubrick et al. 2004).

General practitioner data (BEACH)

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample frame has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. In the BEACH survey, 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners, but the extent of this undercount is not measurable.

Hospital separations data

Separations

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

(continued)

Data quality issues (continued)

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections. The 'not stated' category is missing from several collections. It is recommended that the standard wording and categories be used in all jurisdictions (AIHW 2005).

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations of Aboriginal and Torres Strait Islander peoples. 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 2007). 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 (AIHW unpublished data). It has been recommended that reporting of Indigenous hospital separations be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. The proportion of the Indigenous population covered by these six jurisdictions is 96%. The following caveats have also been recommended for analysis of hospitalisation data from selected jurisdictions (ABS & AIHW 2005):

- *Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from Western Australia and the Northern Territory and relatively marked Indigenous under-identification in data from South Australia and Victoria).*
- *Data for these six jurisdictions over-represent Indigenous populations in less urbanised and more remote locations.*
- *Hospitalisation data for these six jurisdictions are not necessarily representative of the jurisdictions not included.*

From the AIHW study it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level.

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 hospital 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 to 2009 *(ABS 2004).*

Child hearing screening

The Australian Capital Territory, Queensland and Western Australia reported that there were no data available on Aboriginal and Torres Strait Islander children's hearing loss. Victoria reported that children are screened for hearing through two universal programs – Maternal and Child Health (2–8 weeks), and School Nursing (prep school 5–6 years). Screening relies on a consent form being completed by the parent. The form is still valid if Indigenous status is not completed. All children are screened for hearing loss at 500 Hz at 30 dB and 1000, 2000 and 4000 Hz at 20 dB. School Nursing has made efforts to improve the quality of the data but the level of accurate identification is uncertain.

(continued)

Data quality issues (continued)

Tasmanian enrolment cards are completed by parents or nurses; asking for Indigenous status is compulsory but responding is voluntary. Children whose hearing loss has been detected and who attend the Australian Hearing Service have their Indigenous status collected (SIMC 2004).

In 2004–05, NSW Health has started a statewide otitis media screening initiative for Aboriginal children aged 0–6 years over a 4-year term. Data are not yet available.

In the Northern Territory, remote nurses from the Maternal and Child Health team perform hearing screening at 1,000 Hz and 4,000 Hz at 25 dB at school entry. Children who fail the hearing screening are then referred to hearing services within the Department of Health and Community Services for follow-up diagnostic assessments.

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1.13 Disability

The prevalence of disability among Aboriginal and Torres Strait Islander people, including children with special needs

Data sources

Data for this measure come from the 2002 National Aboriginal and Torres Strait Islander Social Survey, the 2006 Census of Population and Housing and the Western Australian Aboriginal Child Health Survey.

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The ABS 2002 NATSISS collected information from 9,400 Indigenous Australians across all states and territories of Australia. The sample covered persons aged 15 years and over who were usual residents of private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice. The 2002 NATSISS is the second national social survey of Indigenous Australians conducted by the ABS. Selected non-Indigenous comparisons are available through the 2002 General Social Survey (GSS). The ABS plans to conduct the NATSISS every 6 years. The next survey is planned for 2008.

Census of Population and Housing

The ABS Census of Population and Housing is conducted by the ABS at 5-yearly intervals, with 2006 the most recent, and is designed to include all Australian households. The Census uses the ABS standard Indigenous status question and it is asked for each household member.

The Census data are adjusted for undercounts at the person level to arrive at the estimated resident population (ERP), but no such adjustment is done for the statistics used in this measure.

Western Australian Aboriginal Child Health Survey

This survey was a large-scale investigation into the health of 5,289 Western Australian Aboriginal and Torres Strait Islander children aged 0–17 years. It was undertaken in 2001 and 2002 by the Telethon Institute for Child Health Research in conjunction with the Kulunga Research Network. The survey was the first to gather comprehensive health, educational and developmental information on a population-based sample of Aboriginal and Torres Strait Islander children and their families and communities across the state. Current work is under way to assess applicability of the results of this survey in other jurisdictions.

The International Classification of Functioning, Disability and Health defines disability as a multi-dimensional concept, relating to:

- the body functions and structures of people
- the activities people do and the life areas in which they participate
- the factors in their environment which affect these experiences.

Analyses

Comparisons of NATSISS and Census data

Both the 2002 NATSISS and 2006 Census included measures of disability, but the questions and criteria used in the two surveys differ and thus data from the two sources should not strictly be compared.

The 2002 NATSISS included two measures of disability. The first 'common' measure is based on a set of common criteria used to identify Indigenous people aged 15 years and over with a disability in both remote and non-remote areas. This measure does not include people whose only reported disability was psychological (that is, a nervous or emotional condition and/or mental illness requiring supervision). The second 'broader' measure was collected in non-remote areas only. It includes Indigenous people with a psychological disability and is directly comparable to criteria used to identify non-Indigenous people with a disability in the ABS 2002 General Social Survey. Comparisons between Indigenous and non-Indigenous people are therefore limited to those aged 18 years and over in non-remote areas.

The 2006 Census asked three questions about need for assistance with core activities of self-care, mobility and communication and then a further question about the reason(s) that help was needed. Responses to these questions were used to identify whether there was a core activity need for assistance. Although conceptually consistent with the 'severe/profound core activity limitation' concept from the 2002 NATSISS, the Census criteria asked fewer questions to identify people with disability. Because of this, the proportion of people identified in the 2006 Census as needing assistance with core activities (16,000 or 5.6% for Indigenous persons aged 15 years and over) will generally be lower than comparable estimates of people with a profound/severe core activity limitation from the 2002 NATSISS (15,800 or 7.7% for Indigenous persons aged 15 years and over).

This measure presents data included in the 2006 edition of this report—2002 NATSISS data for Indigenous persons aged 15 years and over and Indigenous and non-Indigenous persons aged 18 years and over for those with a profound/severe core activity limitation —and new data from the 2006 Census for persons of all ages for those who had a core activity need for assistance. Data from the NATSISS are presented first followed by data from the 2006 Census.

In order to include all respondents from the 2002 NATSISS (from remote and non-remote areas), the majority of tables in this measure are based on the disability populations identified using the common criteria, that is, the more restrictive criteria used in remote areas. The broader criteria are used in making comparisons with the non-Indigenous population (from the 2002 General Social Survey), and in the more detailed tables examining disability status of Indigenous people.

NATSISS data

Disability status

Common criteria

The common criteria for disability are based on a set of common criteria used to identify Indigenous people aged 15 years and over with a disability in both remote and non-remote areas. This measure does not include people whose only reported disability was psychological (that is, a nervous or emotional condition and/or mental illness requiring supervision).

Tables 1.13.1, 1.13.2 and 1.13.3 present data on the disability status of Indigenous Australians in 2002 based on the common criteria for disability.

- In 2002, 102,900 (36%) of Indigenous people aged 15 years and over had a disability or a long-term health condition according to the common criteria (Table 1.13.1). Of these, 21,800 or 8% of the population aged 15 years and over had a profound or severe core activity limitation, meaning that they always or sometimes needed assistance with at least one activity of everyday living (self-care, mobility or communication).
- The rate of disability or long-term health condition increased with age. Approximately 70% of people aged 55 years and over had a disability or long-term health condition.
- Overall, the prevalence rate, or proportion of people with a disability or long-term health condition, was similar in males (37%) and females (36%) (Table 1.13.2).
- In 2002, there was little difference between the proportion of Indigenous persons aged 15 years and over reporting a disability or long-term condition in remote and non-remote areas (35% and 37% respectively) (Table 1.13.3).

Table 1.13.1: Disability status, by age group, Indigenous persons aged 15 years and over, 2002

Disability status	15–24 years	25–34 years	35–44 years	45–54 years	55 years and over	Total
			Per cent			
Has profound/severe core activity limitation	3.8	5.9	7.2	12.3	17.4	7.7
Disability/restriction not further defined	19.0	23.1	31.0	37.3	52.2	28.7
Total with disability or long-term health condition	***22.7***	***29.0***	***38.2***	***49.6***	***69.6***	***36.5***
No disability or long-term health condition	77.3	71.0	61.8	50.4	30.4	63.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total number	82,700	71,100	57,800	38,400	32,200	282,200

Source: AIHW analysis of the ABS 2002 National Aboriginal and Torres Strait Islander Social Survey.

Table 1.13.2: Disability status, by sex, Indigenous persons aged 15 years and over, 2002

Disability status	Male	Female	Persons
		Per cent	
Has profound/severe core activity limitation	7.4	8.0	7.7
Disability/restriction not further defined	29.5	28.1	28.7
Total with disability or long-term health condition	***36.9***	***36.1***	***36.5***
No disability or long-term health condition	63.1	63.9	63.5
Total	**100.0**	**100.0**	**100.0**
Total number	135,200	147,000	282,200

Source: AIHW analysis of the ABS 2002 National Aboriginal and Torres Strait Islander Social Survey.

Table 1.13.3: Disability status, by remoteness, Indigenous persons aged 15 years and over, 2002

Disability status	Remote	Non-remote
	Per cent	
Has profound core activity restriction	4.0	2.9
Has severe core activity restriction	4.9	4.4
Disability/restriction not defined	26.5	29.6
Total with disability or long-term health condition	**35.4**	**36.9**
Total number	**77,100**	**205,100**

Source: ABS & AIHW analysis of the ABS 2002 National Aboriginal and Torres Strait Islander Social Survey.

Broader criteria

The broader criteria for disability were used in non-remote areas only. They include Indigenous people with a psychological disability and are directly comparable to criteria used to identify non-Indigenous people with a disability in the ABS 2002 General Social Survey (GSS). The GSS collected information on non-Indigenous persons aged 18 years and over. Comparisons between Indigenous and non-Indigenous people are therefore limited to those aged 18 years and over in non-remote areas using the broader criteria.

Tables 1.13.4 and 1.13.5 present disability rates for Indigenous and non-Indigenous Australians aged 18 years and over using the broader criteria for disability in non-remote areas of Australia.

- In 2002, after adjusting for differences in age structure, Indigenous Australians aged 18 years and over in non-remote areas were 1.4 times more likely to have a disability or long-term condition than non-Indigenous Australians in non-remote areas (Table 1.13.4).
- Indigenous people were twice as likely to have a profound or severe core activity limitation as non-Indigenous Australians.
- Indigenous people had a higher rate of profound and severe core activity limitation than non-Indigenous people in all age groups. The greatest difference in rates occurred in the 45–54 year age group where Indigenous Australians reported a disability or long-term condition at around four times the rate of non-Indigenous people.
- In 2002, Indigenous Australians aged 18 years and over had higher rates of disability than non-Indigenous Australians in all states and territories (rate ratios of between 1.3 and 1.6) except the Northern Territory, where rates were similar for Indigenous and non-Indigenous Australians (Table 1.13.5).
- The proportion of Indigenous Australians with a profound or severe core activity limitation was around three times that for non-Indigenous Australians in Victoria and Tasmania.

Table 1.13.4: Disability status, by Indigenous status and age group, persons aged 18 years and over, non-remote areas, 2002[a]

	18–24		25–34		35–44		45–54		55 and over		Total		Total—age-standardised[b]		
Disability status	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Indig.**	**Non-Indig.**	**Rate ratio**
								Per cent							
Profound/severe core activity limitation	3.6	1.8	6.8	2.2	7.5	4.0	12.4	3.5	14.5	9.6	8.1	4.9	10.5	5.0	2.1
Disability/restriction not further defined	30.0	20.7	32.6	22.3	44.4	27.4	48.5	37.1	62.6	53.6	41.0	34.8	46.1	35.1	1.3
Total with disability or long-term health condition	***33.7***	***22.5***	***39.4***	***24.5***	***51.9***	***31.4***	***60.9***	***40.6***	***77.1***	***63.2***	***49.2***	***39.6***	***56.6***	***40.0***	***1.4***
No disability or long-term health condition	66.3	77.5	60.6	75.5	48.1	68.6	39.1	59.4	22.9	36.8	50.8	60.4	43.4	60.0	0.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**1.0**
Total number	37,439	1,850,494	51,224	2,805,628	42,384	2,864,507	28,249	2,597,818	22,764	4,045,650	182,061	14,164,097	n.a.	n.a.	n.a.

(a) Includes psychological disability.

(b) Directly age-standardised proportions.

Source: AIHW analysis of the ABS National Aboriginal and Torres Strait Islander Social Survey 2002.

Table 1.13.5: Disability status, by Indigenous status and state/territory, persons aged 18 years and over, non-remote areas, 2002[(a)]

			Profound/ severe core activity limitation	Moderate/ mild core activity limitation	With schooling/ employment restriction only	No specific limitation	*Total with disability or long-term health condition*	No disability or long-term health condition	Total
NSW	Indig.	%	10.3	10.9	13.0	22.9	***57.1***	42.9	100.0
	Non-Indig.	%	5.4	6.5	4.8	22.5	***39.1***	60.9	100.0
	Ratio		1.9	1.7	2.7	1.0	***1.5***	0.7	
Vic	Indig.	%	13.1	11.5	10.9	28.4	***63.8***	36.2	100.0
	Non-Indig.	%	4.6[(b)]	7.3	5.4	21.8	***39.1***	60.9	100.0
	Ratio		2.8	1.6	2.0	1.3	***1.6***	0.6	
Qld	Indig.	%	9.7	9.3	6.7	27.8	***53.5***	46.5	100.0
	Non-Indig.	%	4.0[(b)]	9.7	5.2	23.9	***42.7***	57.3	100.0
	Ratio		2.4	1.0	1.3	1.2	***1.3***	0.8	
WA	Indig.	%	9.7	13.5	8.3	25.8	***57.3***	42.7	100.0
	Non-Indig.	%	5.5[(b)]	8.6	6.5	20.6	***41.2***	58.8	100.0
	Ratio		1.8	1.6	1.3	1.3	***1.4***	0.7	
SA	Indig.	%	7.9	9.9	10.3	28.4	***56.4***	43.6	100.0
	Non-Indig.	%	5.9[(b)]	8.8	5.4	21.3	***41.2***	58.8	100.0
	Ratio		1.3	1.1	1.9	1.3	***1.4***	0.7	
Tas	Indig.	%	14.8	13.2	9.9	22.9	***60.7***	39.3	100.0
	Non-Indig.	%	5.9[(b)]	10	6.0	17.6	***39.6***	60.4	100.0
	Ratio		2.5	1.3	1.7	1.3	***1.5***	0.7	
ACT	Indig.	%	9.4[(b)]	8.8[(b)]	8.4[(b)]	30.7	***57.3***	42.7	100.0
	Non-Indig.	%	4.4[(b)]	6.3	3.5	21.3	***35.4***	64.6	100.0
	Ratio		2.1	1.4	2.4	1.4	***1.6***	0.7	
NT	Indig.	%	6.5[(b)]	5.5[(c)]	4.3[(c)]	9.0[(b)]	***25.3[(b)]***	74.7	100.0
	Non-Indig.	%	6.1[(c)]	6.5	3.0	16.6	***32.1***	67.9	100.0
	Ratio		1.1	0.8	1.4	0.5	***0.8***	1.1	

(a) Includes psychological disability.
(b) Estimates with a relative standard error of between 25% and 50% and should be used with caution.
(c) Estimates with a relative standard error greater than 50% are considered too unreliable for general use.

Note: Proportions are age-standardised.

Source: ABS & AIHW analyses of ABS National Aboriginal and Torres Strait Islander Social Survey 2002 and 2002 General Social Survey.

Disability type

Using the common criteria, disabilities and long-term health conditions have been grouped into broad disability types: physical, sensory/speech (sight, hearing or speech) and intellectual.

- In 2002, 24% of Indigenous people aged 15 years and over had a physical disability or long-term health condition, 14% had a sensory/speech disability and 7% had an intellectual disability (Table 1.13.6). One in six Indigenous people (16%) had an unspecified long-term health condition (requiring treatment) which could not be coded to a disability type.
- The proportions of Indigenous people with a sensory/speech, physical or intellectual disability were higher in the older age groups. In the 55 years and over age group, 30% of Indigenous people reported a sensory/speech disability, 50% reported a physical disability and 9% reported an intellectual disability.

Table 1.13.6: Disability type, by age group, Indigenous persons aged 15 years and over, 2002

Disability type	15–24	25–34	35–44	45–54	55 or over	Total
			Per cent			
Sight, hearing, speech	7.6	10.5	13.3	19.3	30.0	13.7
Physical	13.5	16.6	24.0	35.8	50.2	23.6
Intellectual	7.4	6.3	6.7	5.5	9.0	6.9
Total with a disability or long-term health condition[(a)]	***22.7***	***29.0***	***38.2***	***49.6***	***69.7***	***36.5***
Total with no disability or long-term health condition	77.3	71.0	61.8	50.4	30.3	63.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total number	82,800	71,100	57,800	38,300	32,300	282,200

(a) Includes disability type not specified. Note that more than one disability type may be reported and thus the sum of the components may add to more than the total.

Source: AIHW analysis of the ABS National Aboriginal and Torres Strait Islander Social Survey 2002.

Disability by selected population characteristics

Table 1.13.7 presents disability status of Indigenous persons aged 15 years and over in non-remote areas of Australia by selected population characteristics. Data are based on the broader criteria used to identify persons with a disability in non-remote areas.

- In 2002, in non-remote areas, around two-thirds of Indigenous persons aged 15 years and over with a disability or long-term condition did not have a non-school qualification. Around half (51%) of Indigenous persons with a disability reported the highest year of school completed was Year 9 or below.
- Approximately 51% of Indigenous Australians in non-remote areas with a disability were in the lowest quintile of household income, and for 65% their principal source of income was government cash, pensions or allowances.
- The majority of Indigenous persons aged 15 years and over with a disability or long-term condition were not in the labour force in 2002 (54%).
- Approximately 87% of Indigenous persons in non-remote areas with a disability reported they had been involved in social activities in the last 3 months and 89% were able to get support in a time of crisis. Around 54% of Indigenous persons with a disability or long-term condition had been removed, or had a relative that had been removed, from their natural family and 27% currently lived on their homelands.

Table 1.13.7: Disability status, by selected population characteristics, Indigenous persons aged 15 years and over, non-remote areas, 2002

	Has disability or long-term health condition	Has no disability or long-term health condition
	Per cent	
Education		
Attending post-school education institution	11.2	13.6
Non-school qualification[(a)]		
Has a non-school qualification	34.0	37.3
Does not have a non-school qualification	66.0	62.7
Highest school qualification attained[(b)]		
Completed Year 12	12.5	21.8
Completed Year 10/11	36.8	49.0
Completed Year 9 or below	50.7	29.2
Household income		
1st quintile	51.4	36.0
5th quintile	4.8	8.5
Total	56.1	44.5
Principle source of personal income		
Community Development Employment Program (CDEP)	8.3	11.5
Other wage or salary	18.1	35.3
Government cash, pensions, allowances	64.6	42.0
Other sources of income	3.4	2.9
Subtotal received income	*95.2*	*92.3*
Did not receive personal income	4.8	7.7
Employment		
Employed		
Full time	18.8	32.7
Part time	14.6	21.0
Total employed	*33.2*	*53.7*
Unemployed	13.3	14.0
Not in the labour force	53.6	32.3
Transport access		
Can easily get to places needed	64.6	78.3
Cannot, or often has difficulty, getting to places needed	14.1	6.4

(continued)

Table 1.13.7 (continued): Disability status, by selected population characteristics, Indigenous persons aged 15 years and over, non-remote areas, 2002

	Has disability or long-term health condition	Has no disability or long-term health condition
	Per cent	
Family and culture		
Involved in social activities in last 3 months	86.2	92.3
Had undertaken voluntary work in last 12 months	34.0	30.3
Able to get support in time of crisis from someone outside the household	89.3	93.8
Has been removed from natural family	12.0	7.0
Relatives removed from natural family	41.7	35.6
Currently lives in homelands	27.4	22.6
Attended cultural event(s) in last 12 months	27.0	25.7
Total	**47.2**	**52.7**
Total number	**102,900**	**179,300**

(a) Rate for persons aged 25–64 years.

(b) Excludes persons still at school.

Note: Data based on the broader criteria for disability.

Source: AIHW analysis of the ABS National Aboriginal and Torres Strait Islander Social Survey 2002.

Census data

According to the 2006 Census 19,614 Indigenous Australians (4%) had a core activity need for assistance. After adjusting for differences in the age structures of the Indigenous and non-Indigenous populations, Aboriginal and Torres Strait Islander peoples were almost twice as likely as non-Indigenous people to have a core activity need for assistance in 2006 (ABS & AIHW 2008).

Disability by age and sex

- The prevalence of core activity need for assistance increased noticeably from about 35 years of age onwards for both Indigenous men and women (Table 1.13.8). The disability rate ranged from around 1% of Indigenous children aged 0–4 years to 38% of Indigenous persons aged 75 years and over.
- Indigenous Australians had a higher rate of core activity need for assistance than non–Indigenous Australians across all age groups. The greatest differences occurred in the age groups 40–69 years, where Indigenous Australians reported a core activity need for assistance around three times the rate of non-Indigenous Australians (Table 1.13.8).
- Indigenous males were slightly more likely than Indigenous females to have a core activity need for assistance (4.5% compared with 4.1%). In comparison, non-Indigenous females were more likely than non-Indigenous males to have a core activity need for assistance (4.6% compared with 3.9%).

Table 1.13.8: Indigenous persons with core activity need for assistance, by sex and age group, 2006

Age group (years)	Indigenous						Non-Indigenous						Rate ratio		
	Males		Females		Persons		Males		Females		Persons				
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	Males	Females	Persons
0–4	388	1.4	238	0.9	628	1.1	6,421	1.1	3,828	0.7	10,249	0.9	1.2	1.3	1.2
5–9	963	3.3	525	1.9	1,487	2.6	16,422	2.7	8,017	1.4	24,439	2.1	1.2	1.3	1.2
10–14	970	3.3	556	2.0	1,528	2.7	15,799	2.5	8,175	1.4	23,974	1.9	1.3	1.5	1.4
15–19	697	2.8	422	1.8	1,117	2.3	11,191	1.8	7,081	1.2	18,272	1.5	1.6	1.5	1.5
20–24	461	2.5	318	1.7	779	2.1	8,464	1.4	6,403	1.1	14,867	1.2	1.8	1.6	1.8
25–29	381	2.6	308	1.9	688	2.2	7,759	1.3	6,272	1.1	14,031	1.2	1.9	1.8	1.8
30–34	482	3.2	351	2.1	833	2.6	9,404	1.5	7,979	1.2	17,383	1.3	2.1	1.8	2.0
35–39	572	4.0	562	3.4	1,135	3.7	11,819	1.8	10,428	1.5	22,247	1.6	2.2	2.3	2.3
40–44	711	5.6	689	4.8	1,400	5.2	14,661	2.2	13,328	1.9	27,989	2.0	2.6	2.5	2.6
45–49	742	6.9	786	6.6	1,527	6.8	17,062	2.6	16,780	2.4	33,842	2.5	2.7	2.7	2.7
50–54	773	9.0	817	8.7	1,590	8.8	19,558	8.8	19,617	3.1	39,175	3.2	2.8	2.8	2.8
55–59	796	12.7	787	11.3	1,583	12.0	27,660	4.8	23,793	4.1	51,453	4.4	2.6	2.8	2.7
60–64	688	16.3	717	15.1	1,405	15.6	29,695	6.6	22,383	5.0	52,078	5.8	2.5	3	2.7
65–69	500	18.5	578	17.4	1,077	17.9	23,405	6.7	22,483	6.3	45,888	6.5	2.8	2.8	2.8
70–74	382	21.6	581	25.0	962	23.5	24,813	9.1	30,308	10.1	55,121	9.6	2.4	2.5	2.4
75 and over	642	33.3	1232	40.3	1,874	37.6	108,098	22.7	221,711	32.1	329,809	28.2	1.5	1.3	1.3
Total (crude)	**10,147**	**4.5**	**9,468**	**4.1**	**19,613**	**4.3**	**352,231**	**3.9**	**428,586**	**4.6**	**780,817**	**4.3**	**1.2**	**0.9**	**1.0**
Total—age-standardised[(a)]	**. .**	**7.5**	**. .**	**7.2**	**. .**	**7.4**	**. .**	**3.9**	**. .**	**4.2**	**. .**	**4.1**	**1.9**	**1.7**	**1.8**

(a) Age-standardised to the 2001 Australian standard population.

Source: ABS & AIHW analysis of 2006 Census data; ABS & AIHW 2008.

Prevalence of disability among Indigenous children

The 2006 Census was the first national survey to include a question on disability which included Indigenous respondents under 15 years of age.

Table 1.13.9 presents proportions of Indigenous children with core activity need for assistance.

- In 2006, among Indigenous children aged 0–18 years, a higher proportion of males than females required assistance with core activities.
- Indigenous children aged 0–4 years were slightly more likely to have a core activity need for assistance than non-Indigenous children of the same age (ratios of 1.2 for males and 1.3 for females).
- Approximately 3% of Indigenous children aged 5–18 years had a core activity need for assistance. Indigenous males and females in this age group were 1.3 and 1.5 times as likely to have a profound or severe disability as non-Indigenous males and females of the same age.

Table 1.13.9: Indigenous children aged 0–18 years with a core activity need for assistance, by sex, 2006

Age group (years)	Males		Females		Persons		Ratio		
	no.	%	no.	%	no.	%	Males	Females	Persons
0–4	388	1.4	238	0.9	626	1.2	1.2	1.3	1.2
5–18	2,526	3.2	1436	1.9	3,962	2.6	1.3	1.5	1.4
0–18	2,914	2.7	1674	1.6	4,588	2.2	1.3	1.4	1.3

Note: Data exclude those for whom whether needed assistance with core activities was not stated (7% for Indigenous and 2% for non-Indigenous all ages).

Source: ABS & AIHW analysis of 2006 Census data; ABS & AIHW 2008.

Data relating to disability in Indigenous children were also collected in the Western Australia Aboriginal Child Health Survey which collected information on the health of Aboriginal and a small number of Torres Strait Islander children in Western Australia over 2001 and 2002. Parents and carers were asked a number of questions in relation to their child's health and special needs.

An estimated 2% of Indigenous children aged 4–17 years in Western Australia needed help with activities of daily living such as eating, dressing, bathing and going to the toilet. Limitations in vigorous activity were experienced by 4% of children of the same age. Approximately 8% of Indigenous children did not have normal vision in both eyes, and 7% did not have normal hearing in both ears (ABS & AIHW 2005).

Additional information

Indigenous carers

Information on Indigenous carers of persons with a disability, long-term health condition or problems related to old age is available from the 2006 Census. Information on the carers of Indigenous children with a disability, chronic illness or pain is available from the Western Australian Aboriginal Child Health Survey. These data are presented below.

In 2006, the Census collected, for the first time, information on the number of carers aged 15 years and over in Australia. Table 1.13.10 presents data for carers by Indigenous status and age.

- After adjusting for differences in the age structures of the Indigenous and non–Indigenous populations, Indigenous Australians were more likely than non–Indigenous Australians to be caring for another person with a disability, long–term illness or problems related to old age.
- The median age of Indigenous careers was 37 years, compared with 49 years for non–Indigenous carers (ABS & AIHW 2008). The age groups 35–44 years and 45–54 years had the highest proportion of Indigenous carers and the age group 55–64 years had the highest proportion of non-Indigenous carers.
- Indigenous persons aged 15–34 years were almost twice as likely as non-Indigenous persons of the same age to be carers in 2006. The proportion of persons aged 45 years and over who were carers was similar for Indigenous and non-Indigenous people.

Table 1.13.10: Carers[(a)] by Indigenous status and age, 2006

Age group (years)	Indigenous	Non–Indigenous	Rate ratio
	(%)	(%)	
15–24	7.9	4.5	1.7
25–34	12.1	7.5	1.6
35–44	14.7	11.2	1.3
45–54	15.3	15.0	1.0
55–64	14.0	16.5	0.9
65 and over	10.4	10.4	1.0
Total[(b)]	**11.9**	**10.8**	**1.1**
Total—age-standardised[(c)]	**12.4**	**10.5**	**1.2**
Total carers[(a)]	**31,600**	**1,532,057**	**. .**

(a) Persons aged 15 years and over living in private dwellings who provided unpaid care, help or assistance to another person because of their disability, long-term illness or problems related to old age.

(b) Rates are age-specific so will not add to 100%.

(c) Age-standardised to the 2001 final ERP.

Source: ABS & AIHW 2008.

In the survey, carers of Indigenous children were asked whether each child placed a burden on them and the family as a result of any disability, chronic illness or pain. Carers reported that around 5% of children placed a 'little or some' burden on their carers and families, and 3% children placed 'quite a lot or very much' burden on their carers and families. The

experience of burden on carers and families declined with increasing level of relative isolation. Burden was reported to be particularly high in families where children were reported to have impairments in self-care (e.g. activities of daily living). Just over half of the carers of the 380 children who needed special help with eating, dressing, bathing or toileting reported that this placed 'quite a lot or very much' burden on the family (Zubrick et al. 2004).

Data quality issues

Census of Population and Housing

The Census uses the standard Indigenous status question and it is asked for each household member. Measures that are drawn from Census data are subject to broad data concerns relating to the unexplainable growth in the Aboriginal and Torres Strait Islander population since the 1991 Census, and limitations of self-identification. Other Census data issues relate to the accuracy of the Census count itself, for example, whether people are counted more than once, or are undercounted (ABS 1996).

The 2006 Census included a short series of questions in relation to core activity need for assistance. This is a new variable for the 2006 Census. This variable has been developed to measure the number of people with a profound or severe disability, that is, people needing help or assistance in one or more of the three core activity areas of self-care, mobility and communication, because of a disability (lasting6 months or more), long-term health condition (lasting 6 months or more) or old age. This population is a subset of the broader disability population, and is more readily and consistently identifiable than that broader population.

Note that because of the collapsed nature of the questions and different collection methodology, the census data should not be used for prevalence estimate updates between disability survey years. The disability variable in the Census was designed to capture the characteristics of the population of interest rather than to obtain exactly the same population, even though conceptually it is the same as 'profound or severe core activity limitation' from the survey and module approaches.

Although this topic is based on the criteria used in the ABS Survey of Disability, Ageing and Carers, the population measured will differ as a result of the different collection methodology used and reduced question format. On this basis, data for this topic should be taken as an indication of the characteristics of people who report a need for assistance, not as the total prevalence of people with a 'profound or severe core activity limitation' as represented in the survey data.

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians and thus overcomes the problems inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSISS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions (ABS 2004).

Non-Indigenous comparisons are available through the General Social Survey. Time series comparisons are available through the 1994 National Aboriginal and Torres Strait Islander Survey.

In remote communities there were some modifications to the NATSISS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built in edit checks and sequencing.

(continued)

Data quality issues (continued)

Further information on NATSISS data quality issues can be found in the NATSISS 2002 publication (ABS 2004).

Western Australian Aboriginal Child Health Survey

Survey data are subject to sampling and non-sampling errors. Confidence intervals are published with the data to provide a guide to the reliability of the estimates. Non-sampling errors can occur in surveys due to questionnaire design problems, respondent difficulty recalling information/lack of appropriate records, and errors made in the recording and processing of the data. Every effort was made to minimise non-sample errors in this survey.

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1.14 Community functioning

Analysis of factors associated with community functioning for Indigenous Australians

Data sources

Data for this measure come from the 2006 Community Housing and Infrastructure Needs Survey, and the 2002 National Aboriginal and Torres Strait Islander Social Survey.

Community Housing and Infrastructure Needs Survey (CHINS)

The CHINS collects data from all Aboriginal and Torres Strait Islander housing organisations and discrete Aboriginal and Torres Strait Islander communities in Australia. The ABS conducted the CHINS on behalf of the Aboriginal and Torres Strait Islander Commission (ATSIC) and the Office for Aboriginal and Torres Strait Islander Health (OATSIH) in 1999 and 2001. The most recent CHINS was conducted by the ABS in 2006 on behalf of the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) through funding from FaHCSIA. Results from this survey were published in August 2007. Data from the CHINS are held by FaHCSIA and the ABS.

The 2006 information was collected on 496 Indigenous housing organisations which managed a total of 21,854 permanent dwellings. Information was also collected on 1,187 discrete Indigenous communities with a combined population of 92,960. Most of these communities were in Very Remote regions of Australia, with 73% (865) having a population of fewer than 50 people.

In the 2006 CHINS, a community questionnaire collected detailed infrastructure information from all discrete Indigenous communities with a reported usual population of 50 persons or more, as well as for communities which had a reported usual population of fewer than 50 persons but which were not administered by a larger discrete Indigenous community or Resource Agency (375 communities). The 812 other communities had reported usual populations of fewer than 50 persons and were asked a subset of questions from the community questionnaire form, the short community questionnaire (ABS 2007).

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The 2002 NATSISS collected information from 9,400 Indigenous Australians across all states and territories of Australia. The sample covered persons aged 15 years and over who were usual residents of private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice. The 2002 NATSISS is the second national social survey of Indigenous Australians conducted by the ABS. Selected non-Indigenous comparisons are available through the 2002 General Social Survey (GSS). The ABS plans to conduct the NATSISS every 6 years. The next survey is planned for 2008.

Analyses

Community functioning is defined as the ability and freedom of community members and communities to determine the context of their lives (e.g. social, cultural, spiritual,

organisational) and to translate their capability (knowledge, skills, understanding) into action (to make things happen and achieve a life they value).

Community functioning is related to concepts of wellbeing, capability and human functioning in the context of the economic, political and social infrastructure.

Community functioning scores

A workshop was held in June 2008 involving Aboriginal and Torres Strait Islander peoples drawn from a variety of roles across the country to discuss the factors contributing to family and community functioning in Aboriginal and Torres Strait Islander communities. Key themes related to community functioning, and weights for each theme were agreed on at the workshop. Workshop participants ranked themes in order of importance, which then contributed to the themes receiving a weighting. Data items from the 2002 NATSISS were then allocated to each theme. Workshop participants later ranked the data items in order of importance and a weight was applied to each in order to produce a score out of 100. Community functioning scores were calculated for each Indigenous person aged 15 years or over based on these weightings.

Community and individual aspects contributing to community functioning scores

Table 1.14.1 presents the themes and related data items that were used to calculate the community functioning scores.

Power to control choices and options

- In 2002, over two-thirds (82%) of Indigenous Australians reported no stressors related to discrimination or racism and 46% could visit their homelands.
- Over one quarter (26%) of Indigenous persons reported involvement with an Aboriginal and Torres Strait Islander organisation and 90% had support in a time of crisis.

Connectedness to family land and history

- Approximately 70% of Indigenous persons reported recognition of their homeland.
- Around 87% of Indigenous persons aged 15 years and over reported they were not removed from their natural family and 44% reported that their relatives were not removed from their natural family.

Health, chronic disease and substance use

- Around 44% of Indigenous persons aged 15 years and over reported excellent or very good health.
- Around 84% of Indigenous persons had not drunk alcohol at risky/high-risk levels in the 12 months before the survey and 71% had not used illicit substances in the previous 12 months.

Culture

- The majority (68%) of Indigenous Australians participated in at least one cultural event in the previous 12 months and 21% reported they spoke an Aboriginal or Torres Strait Islander language.

Identity

- Just over half (54%) of Indigenous Australians reported identifying with a tribal group or clan.

Continuing employment

- In 2002, approximately 12% of Indigenous persons were employed in the Community Development Employment Projects (CDEP) scheme and a further 34% were employed but not in CDEP.

Education

- Around 18% of Indigenous persons aged 15 years and over completed Year 12 and 32% of Indigenous persons aged 25–64 years had a non-school qualification.

Infrastructure and community

- Around 60% of Indigenous persons were living in a dwelling that had no major structural problems and three-quarters (74%) were living in a dwelling that was not overcrowded.
- Approximately 71% of Indigenous Australians reported having a working telephone, 56% had used a computer in the previous 12 months and 41% had used the internet in the previous 12 months.
- Over half (55%) of Indigenous persons aged 15 years and over reported having access to a motor vehicle.

Coping within the internal world and external world

- Around 25% of Indigenous Australians reported no community problems and 18% reported experiencing no stressors in the 12 months before the survey.
- Around three-quarters of Indigenous persons reported they were not a victim of physical violence in the previous 12 months and did not need legal services in the previous 12 months.

Structure and routine

- Approximately 69% of Indigenous persons reported living in only one dwelling in the previous 12 months.
- Almost half (46%) of Indigenous persons reported they did not have a cash flow problem.

Income

- One quarter of Indigenous persons aged 15 years and over were in the third quintile or above of equivalised household income.
- Approximately 40% of Indigenous persons reported that government support was not the main source of income during the previous 2 years and 41% could raise $2,000 within a week.

Other

- Approximately 91% of Indigenous persons who were unemployed reported experiencing difficulties with finding work. The most common difficulty reported was insufficient education, training and skills (26%).

- Just over two-thirds (68%) of Indigenous persons who were unemployed reported using employment support services in the previous 12 months.
- Around 60% of Indigenous persons reported they went out to cafes, restaurants or bars, and took part in or attended sport or physical activities.

Table 1.14.1: Variables contributing to community functioning and associated scores, Indigenous persons aged 15 years and over, Australia, 2002

Themes and community infrastructure	No.	%	Score
Power to control choices and options			
No stressors reported for discrimination/racism	232,201	82.0	2.99
Can visit homelands	130,287	46.2	2.43
Has support in a time of crisis	255,065	90.4	2.52
Involvement with Aboriginal/Torres Strait Islander organisation	73,605	26.1	1.40
Work allows for cultural responsibilities—can meet responsibilities	62,956	22.3	2.43
Used strategies to meet living expenses	137,002	48.5	2.24
Connectedness to family land and history			
Access to traditional lands			
Recognition of homelands	196,326	69.6	2.96
Lives in homelands	61,700	21.9	1.90
Removal			
Respondent not removed from natural family	245,997	87.2	3.38
Relatives not removed from natural family	125,243	44.4	2.75
Health, chronic disease and substance use			
Self-assessed health status excellent or very good	124,360	44.1	1.95
Has no disability or long term-health condition	179,274	63.5	2.57
Not a regular smoker[(a)]	143,070	50.7	2.31
Has not drunk alcohol in last 12 months at risky/high-risk levels[(b)]	237,320	84.1	2.13
Has not used substances illicitly in last 12 months[(c)]	199,639	71.0	2.04
Culture			
Protection and maintenance of culture			
Main language spoken at home is Aboriginal language/ Torres Strait Islander language	34,003	12.0	1.57
Speaks an Aboriginal/Torres Strait Islander language	59,470	21.1	1.64
Participation in cultural events			
Attended Aboriginal and Torres Strait Islander cultural event in last 12 months			
Attended funeral	131,621	46.6	1.50
Attended ceremony	66,392	23.5	1.71
Attended sports carnival	84,149	29.8	1.07
Attended festival/carnival involving arts, crafts, music or dance	100,823	35.7	1.50
Total events attended in last 12 months	*192,126*	*68.1*	*1.00*
Identity			
Identification with tribal group or language group/clan	152,806	54.1	9.00
Continuing employment			
Employed in CDEP	34,230	12.1	3.64
Employed, not in CDEP	96,165	34.1	4.36

(continued)

Table 1.14.1 (continued): Variables contributing to community functioning and associated scores, Indigenous persons aged 15 years and over, Australia, 2002

Themes and community infrastructure	No.	%	Score
Education			
Year 12 highest year of school completed	47,006	17.9	3.83
Total persons 15 years and over not at school[(d)]	*262,958*	*100.0*	. .
Has a non-school qualification	59,869	32.1	3.17
Total persons aged 25–64 years[(e)]	*186,574*	*100.0*	. .
Having a role			
Has done volunteer work for an organisation in the last 12 months	77,939	27.6	2.57
Expected to have the same employment in 12 months	114,625	40.6	4.43
Infrastructure of community			
Housing			
Living in a dwelling that has no major structural problems	170,547	60.0	0.49
Living in a dwelling that is not overcrowded (Canadian National Occupancy Standard)	209,651	74.0	0.48
Working household facilities for:			
Washing people	278,203	99.0	0.45
Washing clothes and bedding	276,807	98.0	0.41
Storing/preparing foods	260,380	92.0	0.43
Sewerage facilities	276,939	98.0	0.45
Communication services			
Has working telephone	201,239	71.3	0.36
Used computer in last 12 months	156,677	56.0	0.26
Used internet in last 12 months	115,712	41.0	0.26
Transport			
Access to motor vehicles	154,160	55.0	0.33
Can easily get to places needed	197,862	70.0	0.45
Main reasons for not using public transport:			
Prefer to use own transport	82,411	29.0	0.30
No service available	82,205	29.0	0.43
No service available/convenient time	12,070	4.0	0.35
Cost considerations	3,402	1.0	0.38
Other[(f)]	19,471	7.0	0.18

(continued)

Table 1.14.1 (continued): Variables contributing to community functioning and associated scores, Indigenous persons aged 15 years and over, Australia, 2002

Themes and community infrastructure	No.	%	Score
Coping within the internal world and external world/role models			
Community problems			
No community problems reported	19,243	25.3	0.55
Community problems reported, but less than three types	81,172	28.8	0.42
No problems reported for theft	160,788	57.0	0.35
No problems reported for alcohol	187,571	66.5	0.41
No problems reported for illicit drugs	191,165	67.7	0.41
No problems reported for family violence	222,474	78.8	0.44
No problems reported for assault	226,159	80.1	0.41
No problems reported for sexual assault	259,356	91.9	0.50
Total persons who reported a community problem	*207,607*	*73.6*	*0.09*
Stressors			
No stressors reported in last 12 months	50,004	17.7	0.57
Less than three types of stressors reported in the last 12 months[(g)]	156,671	55.5	0.37
No stressors reported for death of a family member or close friend	153,176	54.3	0.44
No stressors reported for serious illness of disability	195,195	69.2	0.39
No stressors reported for not able to get a job	206,059	73.0	0.42
No stressors reported for witness to violence	237,974	84.3	0.41
No stressors reported for member of family sent to jail/currently in jail	227,178	80.5	0.30
Total persons who reported a stressor	*232,122*	*82.3*	*. .*
Crime and justice			
Not a victim of physical or threatened violence in the last 12 months	213,514	75.7	0.55
Did not need legal services in the last 12 months	217,664	77.1	0.39
Did not use legal services in the last 12 months	226,312	80.2	0.35
Not arrested by police in the last 5 years	235,937	83.6	0.37
Not incarcerated in the last 5 years	262,125	92.9	0.42
Structure and routine			
Has no difficulties communicating with service providers in English[(h)]	245,244	86.9	0.44
In the last 12 months, has lived in only one dwelling	195,105	69.0	1.17
No days without money for basic living expenses in the last 12 months[(i)]	158,788	56.3	1.22
No days without money for basic living expenses in the last 2 weeks[(i)]	192,474	68.2	1.28
Did not have a cash flow problem[(i)]	129,627	45.9	1.33
Income			
Equivalised gross household income			
3rd quintile or above	69,310	25.0	0.62

(continued)

Table 1.14.1 (continued): Variables contributing to community functioning and associated scores, Indigenous persons aged 15 years and over, Australia, 2002

Themes and community infrastructure	No.	%	Score
Main current source of personal income			
CDEP	29,166	10.3	0.53
Other wages/salaries	81,970	29.0	0.60
Government pensions and allowances	141,799	50.2	0.48
Total in labour force	169,200	60.0	0.53
Other sources[(j)]	8,723	3.0	0.40
Government support was not the main source of income during the last 2 years	112,828	40.0	0.60
Household financial stress and cash flow problems			
Has a bank account	265,830	94.2	0.48
Could raise $2,000 within a week	114,578	41.0	0.50
Total persons aged 15 years and over	282,205	100.0	100.0
Other			
Unemployed and main difficulty finding work			
Transport problems/distance	5,830	15.0	. .
No jobs at all	4,157	10.7	. .
No jobs in locality or line of work	4,442	11.4	. .
Insufficient education, training, skills	10,189	26.3	. .
Own ill health or disability	2,242	5.8	. .
Racial discrimination	862	2.2	. .
Age	2,479	6.4	. .
Other	4,921	12.7	. .
Total with difficulties	***35,123***	***90.5***	***. .***
Total difficulties reported	***2,483***	***6.4***	***. .***
Unemployed and use of employment support services in last 12 months			
Used services	26,417	68.1	. .
Did not use services			
Needed services	3,370	8.7	. .
Did not need services	8,990	23.2	. .
Total did not use services in last 12 months	*12,360*	*31.9*	*. .*
Involved in social activities in the last 3 months			
Church or religious activities	66,892	23.7	. .
Went out to a café, restaurant or bar	161,166	57.1	. .
Took part or attended sport or physical activities	169,188	60.0	. .
Attended movies, theatre, concert, museum, library or art gallery	122,931	43.6	. .
Other	170,601	60.5	. .
Transport used in the last 2 weeks (private or public)	267,366	95.0	. .
Total persons aged 15 years and over	282,205	100.0	. .

(continued)

Table 1.14.1 (continued): Variables contributing to community functioning and associated scores, Indigenous persons aged 15 years and over, Australia, 2002

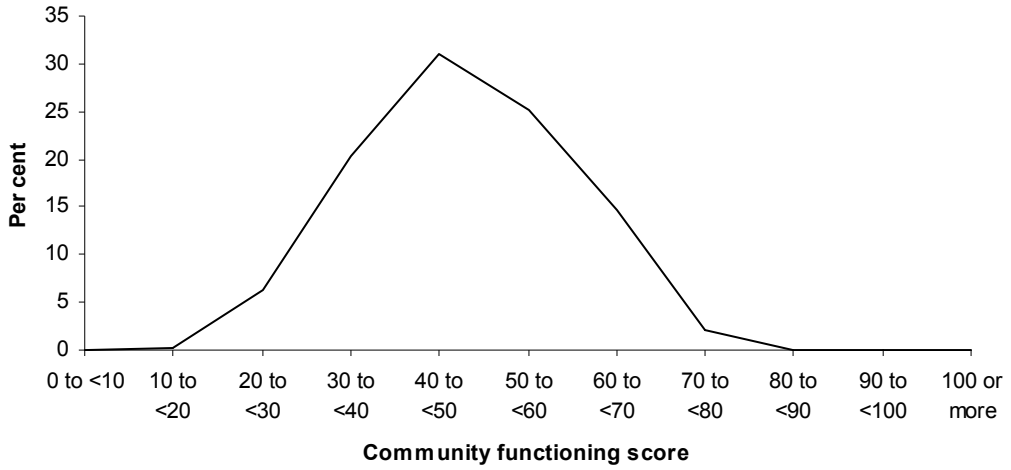
(a) Excludes regular smoker and not stated.
(b) Excludes high-risk, medium-risk and not stated.
(c) Excludes no response, not stated and has used substance in the last 12 months.
(d) Proportion of total persons aged 15 years and over, but not at school.
(e) Proportion of total persons aged 25–64 years.
(f) Includes takes too long, concerned about own personal safety, racial discrimination and other.
(g) Includes values of zero to less than three.
(h) Excludes with assistance.
(i) Non-community responses only.
(j) Excludes not stated.

Source: AIHW and ABS analysis of 2002 NATSISS.

Score distribution

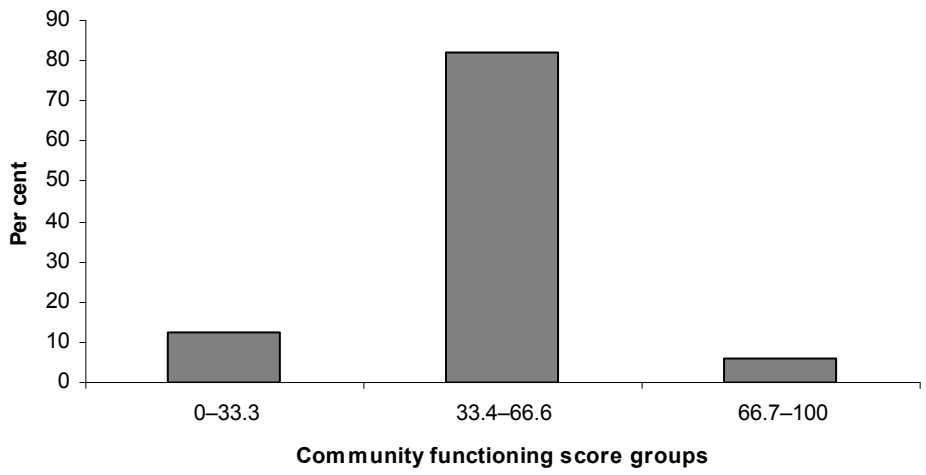
Figures 1.14.1 and 1.14.2 show the distribution of the calculated community functioning scores for Indigenous persons aged 15 years and over. The higher the score, the better the community functioning.

- In 2002, almost one-third (31%) of Indigenous persons aged 15 years and over had community functioning scores between 40 and 50, and over three-quarters had scores between 30 and 60 (Figure 1.14.1).
- Less than one-eighth (12%) of Indigenous persons had community functioning scores below 33, over three-quarters (82%) had scores between 33 and 67 and less than one-tenth (6%) had scores above 67 (Figure 1.14.2).



Source: ABS and AIHW analysis of 2002 NATSISS.

Figure 1.14.1: Distribution of community functioning scores for Indigenous persons aged 15 years and over, 2002



Source: ABS and AIHW analysis of 2002 NATSISS.

Figure 1.14.2: Distribution of community functioning scores for Indigenous persons aged 15 years and over, 2002

Indigenous and non-Indigenous comparisons

Table 1.14.2 presents data for Indigenous Australians from the 2002 NATSISS and for non-Indigenous Australians from the 2002 GSS on community and individual aspects that contribute to community functioning, which are comparable across the two surveys.

- In 2002, after adjusting for differences in age structure, a smaller proportion of Indigenous than non-Indigenous Australians aged 15 years and over were home owners (28% and 73% respectively), reported using a computer in the previous 12 months (44% and 55% respectively) or reported having access to motor vehicles (57% and 85% respectively).
- A higher proportion of Indigenous than non-Indigenous Australians were in the lowest (1st) household equivalised income quintile (38% compared with 18%), and a lower proportion reported that government income was not their main source of income at any point in the previous 2 years (34% compared with 67%).
- Less than half (40%) of Indigenous Australians aged 15 years and over reported that they could raise $2,000 in a week for an emergency compared with 84% of non-Indigenous Australians.
- Around 14% of Indigenous Australians reported completing year 12 compared with 43% of non-Indigenous Australians.
- Approximately 35% of Indigenous Australians reported their health status as excellent/very good compared with 59% of non-Indigenous Australians.

Table 1.14.2: Persons aged 15 years and over living in communities with access to community infrastructure by Indigenous status, Australia, 2002

	Indigenous	Indigenous age-standardised	Non-Indigenous	Non-Indigenous age-standardised	
	No.	%	No.	%	Rate ratio
Community infrastructure					
Housing					
Home owner	66,703	28.1	10,498,555	73.2	0.4
Communication services					
Whether used computer in last 12 months	130,253	43.5	7,972,955	55.0	0.8
Whether used internet in last 12 months	92,749	30.4	6,193,160	42.6	0.7
Transport					
Access to motor vehicles	150,140	57.3	12,226,014	85.0	0.7
Can easily get to the places needed	179,089	71.4	12,117,472	84.4	0.8
Individual aspects					
Community and social capital					
Has done volunteer work for an organisation in the last 12 months	69,266	26.8	4,937,330	34.3	0.8
Crime and justice					
Not a victim of physical or threatened violence in the last 12 months	192,777	80.5	13,065,117	91.1	0.9
Employment status					
Labour force participation	154,019	52.1	9,760,388	67.2	0.8
Expected to have same employment in 12 months	109,759	38.4	8,168,524	56.3	0.7

(continued)

Table 1.14.2 (continued): Persons aged 15 years and over living in communities with access to community infrastructure by Indigenous status, Australia, 2002

	Indigenous	Indigenous age-standardised	Non-Indigenous	Non-Indigenous age-standardised	
	No.	%	No.	%	Rate ratio
Income					
Household equivalised weekly income:					
1st quintile	87,941	37.9	2,554,627	18.1	2.1
5th quintile	13,469	5.0	3,057,455	21.2	0.2
Government support not main source of income at any point in the last 2 years	96,107	34.3	9,734,589	67.3	0.5
Household financial stress and cash flow problems					
Ability to raise money in an emergency—could raise $2,000 within a week	102,285	39.7	12,031,326	83.9	0.5
Health					
Self-assessed health status excellent/very good	105,396	35.2	8,510,044	58.9	0.6
Has no disability or long-term health condition	107,083	36.4	8,656,484	59.9	0.6
Education					
Completed Year 12	46,164	14.1	6,222,919	43.1	0.3
Has a non-school qualification	59,869	31.2	5,836,908	56.9	0.5

Source: AIHW and ABS analysis of 2002 NATSISS.

Community functioning by sex, age, remoteness, state/territory, and time series

Tables 1.14.3, 1.14.4, 1.14.5, 1.14.6 and 1.14.7 present the proportion of Indigenous persons aged 15 years and over with each of the characteristics recognised as contributing to community functioning by sex, age, remoteness, state/territory and time series.

Table 1.14.3: Variables contributing to community functioning, Indigenous persons aged 15 years and over, by sex, Australia, 2002

Themes and community infrastructure	Males		Females	
	No.	%	No.	%
Power to control choices and options				
No stressors reported for discrimination/racism	112,268	83.0	119,933	81.6
Can visit homelands	60,123	44.5	70,165	47.7
Has support in a time of crisis	120,345	89.0	134,720	91.6
Involvement with Aboriginal/Torres Strait Islander organisation	33,996	25.1	39,609	26.9
Work allows for cultural responsibilities—can meet responsibilities	33,981	25.1	28,975	19.7
Used strategies to meet living expenses	63,570	47.0	73,433	50.0
Connectedness to family land and history				
Access to traditional lands				
Recognition of homelands	94,053	69.6	102,273	69.6
Lives in homelands	31,958	23.6	29,742	20.2
Removal				
Respondent not removed from natural family	118,683	87.8	127,314	86.6
Relatives not removed from natural family	60,965	45.1	64,279	43.7
Health, chronic disease and substance use				
Self-assessed health status excellent or very good	63,705	47.1	60,656	41.3
Has no disability or long-term health condition	85,368	63.0	93,905	64.0
Not a regular smoker[(a)]	66,143	49.0	76,927	52.0
Has not drunk alcohol in last 12 months at risky/high-risk levels[(b)]	111,076	82.2	126,244	85.9
Has not used substances illicitly in last 12 months[(c)]	90,906	67.2	108,734	74.0
Culture				
Protection and maintenance of culture				
Main language spoken at home is Aboriginal language/ Torres Strait Islander language	15,819	11.7	18,184	12.4
Speaks an Aboriginal/Torres Strait Islander language	29,336	21.7	30,134	20.5
Participation in cultural events				
Attended Aboriginal and Torres Strait Islander cultural event in last 12 months				
Attended funeral	61,531	45.5	70,090	47.7
Attended ceremony	30,719	22.7	35,673	24.3
Attended sports carnival	40,902	30.3	43,247	29.4
Attended festival/carnival involving arts, crafts, music or dance	42,408	31.4	58,415	39.7
Total events attended in last 12 months	*87,410*	*64.7*	*104,716*	*71.2*

(continued)

Table 1.14.3 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by sex, Australia, 2002

	Males		Females	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**
Identity				
Identification with tribal group or language group/clan	76,861	56.9	75,945	51.7
Continuing employment				
Employed in CDEP	21,392	15.8	12,838	8.7
Employed, not in CDEP	51,317	38.0	44,848	30.5
Education				
Year 12 highest year of school completed[(d)]	21,975	18	25,031	18
Total persons 15 years and over not at school	*125,533*	*100.0*	*137,425*	*100.0*
Has a non-school qualification[(e)]	29,274	33	30,594	31
Total persons aged 25–64 years	*88,122*	*100.0*	*98,453*	*100.0*
Having a role				
Has done volunteer work for an organisation in the last 12 months	36,025	26.6	41,913	28.5
Expected to have the same employment in 12 months	63,935	47.3	50,690	34.5
Infrastructure of community				
Housing				
Living in a dwelling that has no major structural problems	83,700	61.9	86,848	59.1
Living in a dwelling that is not overcrowded (Canadian National Occupancy Standard)	101,683	75.0	107,969	73.0
Working household facilities for:				
Washing people	133,260	98.6	144,943	98.6
Washing clothes and bedding	132,657	98.1	144,151	98.1
Storing/preparing foods	124,088	91.8	136,292	92.7
Sewerage facilities	132,745	98.2	144,194	98.1
Communication services				
Has working telephone	94,933	70.2	106,306	72.3
Used computer in last 12 months	71,123	52.6	85,554	58.2
Used internet in last 12 months	53,376	39.5	62,336	42.4
Transport				
Access to motor vehicles	79,757	59.0	74,403	50.6
Can easily get to places needed	96,393	71.3	101,468	69.0
Main reasons for not using public transport:				
Prefer to use own transport	40,218	29.7	42,193	28.7
No service available	42,522	31.5	39,683	27.0
No service available/convenient time	6,323	4.7	5,747	3.9
Cost considerations	1,638	1.2	1,765	*1
Other[(f)]	9,373	6.9	10,099	6.9

(continued)

Table 1.14.3 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by sex, Australia, 2002

	Males		Females	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**
Coping within the internal world and external world/role models				
Community problems				
No community problems reported	35,140	26.0	36,397	24.8
Community problems reported, but less than three types	38,872	28.8	42,300	28.8
No problems reported for theft	77,022	57.0	83,766	57.0
No problems reported for alcohol	90,415	66.9	97,156	66.1
No problems reported for illicit drugs	91,659	67.8	99,506	67.7
No problems reported for family violence	108,763	80.4	113,711	77.4
No problems reported for assault	107,269	79.3	118,890	80.9
No problems reported for sexual assault	124,966	92.4	134,391	91.4
Total persons who reported a community problem	*98,620*	*73.0*	*108,987*	*74.0*
Stressors				
No stressors reported in last 12 months	27,419	20.3	22,664	15.4
Less than three types of stressors reported in the last 12 months[(g)]	79,059	59.0	77,612	53.0
No stressors reported for death of a family member or close friend	76,853	56.8	76,323	51.9
No stressors reported for serious illness of disability	94,850	70.2	100,344	68.3
No stressors reported for not able to get a job	97,007	71.8	109,052	74.2
No stressors reported for witness to violence	116,441	86.1	121,533	82.7
No stressors reported for member of family sent to jail/currently in jail	109,435	80.9	117,743	80.1
Total persons who reported a stressor	*107,780*	*80.0*	*124,342*	*85.0*
Crime and justice				
Not a victim of physical or threatened violence in the last 12 months	100,472	74.3	113,042	76.9
Did not need legal services in the last 12 months	102,713	76.0	114,951	78.2
Did not use legal services in the last 12 months	106,697	78.9	119,615	81.4
Not arrested by police in the last 5 years	102,524	75.8	133,413	90.8
Not incarcerated in the last 5 years	119,723	88.6	142,402	96.9
Structure and routine				
Has no difficulties communicating with service providers in English[(h)]	118,540	87.7	126,704	86.2
In the last 12 months, has lived in only one dwelling	93,976	69.5	101,130	68.8
No days without money for basic living expenses in the last 12 months[(i)]	77,664	57.4	81,124	55.2
No days without money for basic living expenses in the last 2 weeks[(i)]	93,639	69.3	98,835	67.2
Did not have a cash flow problem[(i)]	62,399	46.2	67,227	45.7
Income				
Equivalised gross household income				
3rd quintile or above	35,446	26.2	33,864	23.0

(continued)

Table 1.14.3 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by sex, Australia 2002

	Males		Females	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**
Main current source of personal income				
CDEP	19,539	14.5	9,627	6.5
Other wages/salaries	44,369	32.8	37,601	25.6
Government pensions and allowances	54,346	40.2	87,453	59.5
Total in labour force	94,987	70.3	74,213	50.5
Other sources(j)	5,772	4.3	2,950	2.0
Government support was not the main source of income during the last 2 years	64,844	48.0	47,984	32.6
Household financial stress and cash flow problems				
Has a bank account	126,151	93.3	139,679	95.0
Could raise $2,000 within a week	56,410	41.7	58,167	39.6
Total persons aged 15 years and over	**135,199**	**100.0**	**147,006**	**100.0**

(a) Excludes regular smoker and not stated.
(b) Excludes high-risk, medium-risk and not stated.
(c) Excludes no response, not stated and has used substance in the last 12 months.
(d) Proportion of total persons aged 15 years and over, but not at school.
(e) Proportion of total persons aged 25–64 years.
(f) Includes takes too long, concerned about own personal safety, racial discrimination and other.
(g) Includes values of zero to less than three.
(h) Excludes with assistance.
(i) Non-community responses only.
(j) Excludes not stated.

Source: AIHW and ABS analysis of 2002 NATSISS.

Table 1.14.4: Variables contributing to community functioning, Indigenous persons aged 15 years and over, by age group, Australia, 2002

Themes and community infrastructure	15–34		35–54		55 years and over	
	No.	%	No.	%	No.	%
Power to control choices and options						
No stressors reported for discrimination/racism	127,902	83.1	76,439	79.5	27,860	86.5
Can visit homelands	68,358	44.4	45,955	47.8	15,974	49.6
Has support in a time of crisis	140,192	91.1	85,798	89.2	29,076	90.3
Involvement with Aboriginal/Torres Strait Islander organisation	34,072	22.1	30,984	32.2	8,549	26.5
Work allows for cultural responsibilities—can meet responsibilities	33,836	22.0	25,268	26.3	3,853	12.0
Used strategies to meet living expenses	82,080	53.3	44,057	45.8	10,865	33.7
Connectedness to family land and history						
Access to traditional lands						
Recognition of homelands	101,365	65.9	70,199	73.0	24,762	76.9
Lives in homelands	30,979	20.1	22,454	23.4	8,267	25.7
Removal						
Respondent not removed from natural family	136,662	88.8	82,512	85.8	26,823	83.3
Relatives not removed from natural family	67,737	44.0	41,328	43.0	16,179	50.2
Health, chronic disease and substance use						
Self-assessed health status excellent or very good	83,875	54.5	35,047	36.4	5,439	16.9
Has no disability or long-term health condition	114,447	74.4	55,084	57.3	9,743	30.3
Not a regular smoker[(a)]	76,709	49.9	45,201	47.0	21,159	65.7
Has not drunk alcohol in last 12 months at risky/high-risk levels[(b)]	131,862	85.7	77,365	80.5	28,094	87.2
Has not used substances illicitly in last 12 months[(c)]	99,914	64.9	72,616	75.5	27,109	84.2

(continued)

Table 1.14.4 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by age group, Australia, 2002

	15–34		35–54		55 years and over	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**	**No.**	**%**
Culture						
Protection and maintenance of culture						
Main language spoken at home is Aboriginal language/ Torres Strait Islander language	18,409	12.0	10,864	11.3	4,730	14.7
Speaks an Aboriginal/Torres Strait Islander language	30,964	20.1	20,090	20.9	8,416	26.1
Participation in cultural events						
Attended Aboriginal and Torres Strait Islander cultural event in last 12 months						
Attended funeral	66,099	43.0	47,820	49.7	17,701	55.0
Attended ceremony	34,255	22.3	23,949	24.9	8,188	25.4
Attended sports carnival	49,941	32.5	26,990	28.1	7,218	22.4
Attended festival/carnival involving arts, crafts, music or dance	57,975	37.7	33,631	35.0	9,217	28.6
Total events attended in last 12 months	*103,315*	*67.2*	*66,942*	*69.6*	*21,868*	*67.9*
Identity						
Identification with tribal group or language group/clan	77,422	50.3	56,076	58.3	19,308	60.0
Continuing employment						
Employed in CDEP	21,578	14.0	11,124	11.6	1,528	*5
Employed, not in CDEP	48,302	31.4	42,010	43.7	5,852	18.2
Education						
Year 12 highest year of school completed[(d)]	33,269	25	12,823	13	915	*3
Total persons 15 years and over not at school	134,672	100	96,085	100	32,201	100
Has a non school qualification[(e)]	23,398	33	31,956	33	4,514	23
Total persons aged 25–64 years	71,104	100.0	96,151	100.0	19,319	100.0

(continued)

Table 1.14.4 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by age group, Australia, 2002

	15–34		35–54		55 years and over	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**	**No.**	**%**
Having a role						
Has done volunteer work for an organisation in the last 12 months	38,216	24.8	31,414	32.7	8,308	25.8
Expected to have the same employment in 12 months	59,025	38.4	48,476	50.4	7,124	22.1
Infrastructure of community						
Housing						
Living in a dwelling that has no major structural problems	90,540	58.8	58,356	60.7	21,651	67.2
Living in a dwelling that is not overcrowded (Canadian National Occupancy Standard)	109,519	71.0	73,921	77.0	26,212	81.0
Working household facilities for:						
Washing people	151,961	98.8	94,786	98.6	31,455	97.7
Washing clothes and bedding	150,827	98.0	94,613	98.4	31,367	97.4
Storing/preparing foods	142,191	92.4	88,278	91.8	29,911	92.9
Sewerage facilities	151,080	98.2	94,449	98.2	31,410	97.5
Communication services						
Has working telephone	107,142	69.6	70,317	73.1	23,780	73.8
Used computer in last 12 months	101,610	66.0	48,872	50.8	6,196	19.2
Used internet in last 12 months	77,973	50.7	34,006	35.4	3,732	11.6
Transport						
Access to motor vehicles	74,096	48.2	64,081	66.6	15,983	49.6
Can easily get to places needed	104,724	68.1	70,528	73.4	22,609	70.2

(continued)

Table 1.14.4 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by age group, Australia, 2002

	15–34		35–54		55 years and over	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**	**No.**	**%**
Main reasons for not using public transport:						
Prefer to use own transport	43,907	28.5	30,312	31.5	8,192	25.4
No service available	41,970	27.3	29,744	30.9	10,491	32.6
No service available/convenient time	5,475	3.6	5,007	5.2	1,588	*5
Cost considerations	2,270	*2	916	*1	216	*1
Other[f]	9,469	6.2	6,390	6.6	3,613	11.2
Coping within the internal world and external world/ role models						
Community problems						
No community problems reported	38,307	24.9	23,751	24.7	9,480	29.4
Community problems reported, but less than three types	43,656	28.4	26,441	27.5	11,075	34.4
No problems reported for theft	88,868	57.8	51,756	53.8	20,164	62.6
No problems reported for alcohol	100,734	65.5	63,116	65.6	23,721	73.7
No problems reported for illicit drugs	102,051	66.3	64,548	67.1	24,566	76.3
No problems reported for family violence	120,780	78.5	74,438	77.4	27,256	84.6
No problems reported for assault	122,276	79.5	76,267	79.3	27,616	85.8
No problems reported for sexual assault	140,822	91.5	88,015	91.5	30,519	94.8
Total persons who reported a community problem	*113,724*	*74.0*	*71,766*	*75.0*	*22,118*	*69.0*
Stressors						
No stressors reported in last 12 months	25,642	16.7	17,105	17.8	7,337	22.8
Less than three types of stressors reported in the last 12 months[g]	83,701	54	52,285	54	20,685	64
No stressors reported for death of a family member or close friend	85,534	55.6	51,430	53.5	16,212	50.3

(continued)

Table 1.14.4 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by age group, Australia, 2002

	15–34		35–54		55 years and over	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**	**No.**	**%**
No stressors reported for serious illness of disability	110,929	72.1	63,870	66.4	20,396	63.3
No stressors reported for not able to get a job	107,873	70.1	71,100	73.9	27,086	84.1
No stressors reported for witness to violence	127,758	83.0	81,849	85.1	28,367	88.1
No stressors reported for member of family sent to jail/currently in jail	121,352	78.9	78,192	81.3	27,634	85.8
Total persons who reported a stressor	*128,211*	*83.3*	*79,046*	*82.2*	*24,864*	*77.2*
Crime and justice						
Not a victim of physical or threatened violence in the last 12 months	107,731	70.0	77,174	80.3	28,609	88.8
Did not need legal services in the last 12 months	117,946	76.7	72,986	75.9	26,732	83.0
Did not use legal services in the last 12 months	122,099	79.4	76,412	79.5	27,801	86.3
Not arrested by police in the last 5 years	121,539	79.0	83,282	86.6	31,116	96.6
Not incarcerated in the last 5 years	140,475	91.3	89,731	93.3	31,919	99.1
Structure and routine						
Has no difficulties communicating with service providers in English[(h)]	133,501	86.8	85,364	88.8	26,380	81.9
In the last 12 months, has lived in only one dwelling	93,651	60.9	73,690	76.6	27,764	86.2
No days without money for basic living expenses in the last 12 months[(i)]	80,874	52.6	55,414	57.6	22,500	69.9
No days without money for basic living expenses in the last 2 weeks[(i)]	101,811	66.2	65,464	68.1	25,198	78.3
Did not have a cash flow problem[(i)]	65,385	42.5	46,076	47.9	18,166	56.4
Income						
Equivalised gross household income						
3rd quintile or above	37,782	24.6	26,646	27.7	4,882	15.2

(continued)

Table 1.14.4 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by age group, Australia, 2002

	15–34		35–54		55 years and over	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**	**No.**	**%**
Main current source of personal income						
CDEP	18,627	12.1	9,376	9.8	1,163	*4
Other wages/salaries	41,838	27.2	35,381	36.8	4,750	14.8
Government pensions and allowances	75,090	48.8	42,718	44.4	23,991	74.5
Total in labour force	98,348	63.9	63,065	65.6	7,787	24.2
Other sources(j)	2,091	1.4	5,583	5.8	1,048	3*
Government support was not the main source of income during the last 2 years	60,787	39.5	45,127	46.9	6,914	21.5
Household financial stress and cash flow problems						
Has a bank account	142,227	92.4	93,334	97.1	30,269	94.0
Could raise $2,000 within a week	62,561	40.7	39,735	41.3	12,282	38.1
Total persons aged 15 years and over	**153,853**	**100.0**	**96,151**	**100.0**	**32,201**	**100.0**

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

(a) Excludes regular smoker and not stated.

(b) Excludes high-risk, medium-risk and not stated.

(c) Excludes no response, not stated and has used substance in the last 12 months.

(d) Proportion of total persons aged 15 years and over, but not at school.

(e) Proportion of total persons aged 25–64 years.

(f) Includes takes too long, concerned about own personal safety, racial discrimination and other.

(g) Includes values of zero to less than three.

(h) Excludes with assistance.

(i) Non-community responses only.

(j) Excludes not stated.

Source: AIHW and ABS analysis of 2002 NATSISS.

Table 1.14.5: Variables contributing to community functioning, Indigenous persons aged 15 years and over, by remoteness, Australia, 2002

	Remote		Non-remote	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**
Power to control choices and options				
No stressors reported for discrimination/racism	64,548	83.7	167,652	81.8
Can visit homelands	36,201	46.9	94,087	45.9
Has support in a time of crisis	67,069	86.9	187,996	91.7
Involvement with Aboriginal/Torres Strait Islander organisation	19,239	24.9	54,366	26.5
Work allows for cultural responsibilities—can meet responsibilities	27,602	35.8	35,354	17.2
Used strategies to meet living expenses	38,277	49.6	98,726	48.1
Connectedness to family land and history				
Access to traditional lands				
Recognition of homelands	66,221	85.8	130,105	63.4
Lives in homelands	29,319	38.0	32,382	15.8
Removal				
Respondent not removed from natural family	65,551	85.0	180,446	88.0
Relatives not removed from natural family	40,707	52.8	84,537	41.2
Health, chronic disease and substance use				
Self-assessed health status excellent or very good	34,119	44.2	90,242	44.0
Has no disability or long-term health condition	49,803	64.6	129,470	63.1
Not a regular smoker[(a)]	36,344	47.1	106,726	52.0
Has not drunk alcohol in last 12 months at risky/high-risk levels[(b)]	63,697	82.6	173,623	84.7
Has not used substances illicitly in last 12 months[(c)]	61,291	79.4	138,348	67.5
Culture				
Protection and maintenance of culture				
Main language spoken at home is Aboriginal language/ Torres Strait Islander language	29,879	38.7	4,124	2.0
Speaks an Aboriginal/Torres Strait Islander language	41,820	54.2	17,650	8.6
Participation in cultural events				
Attended Aboriginal and Torres Strait Islander cultural event in last 12 months				
Attended funeral	57,196	74.1	74,425	36.3
Attended ceremony	34,677	45.0	31,715	15.5
Attended sports carnival	40,730	52.8	43,419	21.2
Attended festival/carnival involving arts, crafts, music or dance	32,160	41.7	68,663	33.5
Total events attended in last 12 months	*67,213*	*87.1*	*124,913*	*60.9*
Identity				
Identification with tribal group or language group/clan	59,079	76.6	93,727	45.7

(continued)

Table 1.14.5 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by remoteness, Australia 2002

	Remote		Non-remote	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**
Continuing employment				
Employed in CDEP	25,037	32.5	9,193	4.5
Employed not in CDEP	14,832	19.2	81,332	39.7
Education				
Year 12 highest year of school completed[(d)]	9,718	13	37,288	20
Total persons 15 years and over not at school	*73,098*	*100*	*189,860*	*100*
Has a non school qualification[(e)]	11,521	23	48,347	36
Total persons aged 25–64 years	*50,674*	*100.0*	*135,900*	*100.0*
Having a role				
Has done volunteer work for an organisation in the last 12 months	12,174	15.8	65,765	32.1
Expected to have the same employment in 12 months	36,523	47.3	78,102	38.1
Infrastructure of community				
Housing				
Living in a dwelling that has no major structural problems	32,118	41.6	138,430	67.5
Living in a dwelling that is not overcrowded (Canadian National Occupancy Standard)	37,047	48.0	172,605	84.2
Working household facilities for:				
Washing people	74,064	96.0	204,139	99.6
Washing clothes and bedding	74,366	96.4	202,442	98.7
Storing/preparing foods	60,055	77.8	200,325	97.7
Sewerage facilities	72,556	94.1	204,383	99.7
Communication services				
Has working telephone	33,317	43.2	167,922	81.9
Used computer in last 12 months	26,545	34.4	130,133	63.5
Used internet in last 12 months	16,678	21.6	99,034	48.3
Transport				
Access to motor vehicles	33,689	43.7	120,470	58.7
Can easily get to places needed	50,579	65.6	147,282	71.8
Main reasons for not using public transport:				
Prefer to use own transport	13,534	17.5	68,877	33.6
No service available	48,838	63.3	33,367	16.3
No service available/convenient time	1,796	*2	10,274	5.0
Cost considerations	276	*—	3,127	1.5
Other[(f)]	1,589	*2.1	17,882	8.7

(continued)

Table 1.14.5 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by remoteness, Australia 2002

	Remote		Non-remote	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**
Coping within the internal world and external world/ role models				
Community problems				
No community problems reported	19,243	24.9	52,295	25.5
Community problems reported, but less than three types	13,375	17.3	67,797	33.1
No problems reported for theft	45,094	58.5	115,694	56.4
No problems reported for alcohol	35,393	45.9	152,178	74.2
No problems reported for illicit drugs	41,582	53.9	149,583	72.9
No problems reported for family violence	45,610	59.1	176,864	86.2
No problems reported for assault	45,406	58.9	180,754	88.1
No problems reported for sexual assault	64,234	83.3	195,122	95.2
Total persons who reported a community problem	*57,244*	*74.2*	*150,364*	*73.3*
Stressors				
No stressors reported in last 12 months	11,194	14.5	38,889	19.0
Less than three types of stressors reported in the last 12 months[(g)]	34,940	45	121,731	59
No stressors reported for death of a family member or close friend	34,507	44.7	118,669	57.9
No stressors reported for serious illness of disability	50,844	65.9	144,351	70.4
No stressors reported for not able to get a job	58,050	75.2	148,009	72.2
No stressors reported for witness to violence	54,001	70.0	183,974	89.7
No stressors reported for member of family sent to jail/currently in jail	57,848	75.0	169,331	82.6
Total persons who reported a stressor	*65,951*	*85.5*	*166,171*	*81.0*
Crime and justice				
Not a victim of physical or threatened violence in the last 12 months	59,649	77.3	153,865	75.0
Did not need legal services in the last 12 months	61,071	79.2	156,593	76.4
Did not use legal services in the last 12 months	63,320	82.1	162,991	79.5
Not arrested by police in the last 5 years	64,132	83.1	171,805	83.8
Not incarcerated in the last 5 years	70,567	91.5	191,557	93.4
Structure and routine				
Has no difficulties communicating with service providers in English[(h)]	60,694	78.7	184,550	90.0
In the last 12 months, has lived in only one dwelling	56,167	72.8	138,938	67.8
No days without money for basic living expenses in the last 12 months[(i)]	45,117	58.5	113,671	55.4
No days without money for basic living expenses in the last 2 weeks[(i)]	51,985	67.4	140,489	68.5
Did not have a cash flow problem[(i)]	17,865	23.2	111,761	54.5
Income				
Equivalised gross household income				
3rd quintile or above	13,023	16.9	56,287	27.4

(continued)

Table 1.14.5 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by remoteness, Australia, 2002

	Remote		Non-remote	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**
Main current source of personal income				
CDEP	21,722	28.2	7,444	3.6
Other wages/salaries	13,932	18.1	68,038	33.2
Government pensions and allowances	34,104	44.2	107,695	52.5
Total in labour force	44,389	57.5	124,811	60.9
Other sources[(j)]	998	1.3	7,724	3.8
Government support was not the main source of income during the last 2 years	34,561	44.8	78,268	38.2
Household financial stress and cash flow problems				
Has a bank account	67,125	87.0	198,705	96.9
Could raise $2,000 within a week	17,755	23.0	96,822	47.2
Total persons aged 15 years and over	**77,145**	**100.0**	**205,060**	**100.0**

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

(a) Excludes regular smoker and not stated.

(b) Excludes high-risk, medium-risk and not stated.

(c) Excludes no response, not stated and has used substance in the last 12 months.

(d) Proportion of total persons aged 15 years and over, but not at school.

(e) Proportion of total persons aged 25–64 years.

(f) Includes takes too long, concerned about own personal safety, racial discrimination and other.

(g) Includes values of zero to less than three.

(h) Excludes with assistance.

(i) Non-community responses only.

(j) Excludes not stated.

Source: AIHW and ABS analysis of 2002 NATSISS.

Table 1.14.6: Variables contributing to community functioning, Indigenous persons aged 15 years and over, by state/territory, Australia, 2002

Themes and community infrastructure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
					Per cent				
Power to control choices and options									
No stressors reported for discrimination/racism	80.5	81.6	81.9	80.2	77.4	93.3	60.1	90.2	82.3
Can visit homelands	35.0	46.6	57.8	43.4	52.0	19.3	71.0	54.1	46.2
Has support in a time of crisis	91.5	88.0	91.0	88.0	90.4	94.1	95.5	88.6	90.4
Involvement with Aboriginal/Torres Strait Islander organisation	26.1	30.5	26.3	25.6	33.6	19.0	46.4	21.4	26.1
Work allows for cultural responsibilities—can meet responsibilities	17.4	16.8	20.5	27.9	22.2	10.3	29.0	37.3	22.3
Used strategies to meet living expenses	45.4	49.4	47.2	61.5	54.5	37.9	47.1	44.9	48.5
Connectedness to family land and history									
Access to traditional lands									
Recognition of homelands	60.1	63.3	72.7	72.2	70.6	41.3	80.7	92.3	69.6
Lives in homelands	23.3	14.5	13.6	27.6	16.4	20.1	9.2	37.1	21.9
Removal									
Respondent not removed from natural family	86.7	82.8	91.9	88.3	85.0	95.1	85.5	77.8	87.2
Relatives not removed from natural family	48.3	32.7	44.6	34.4	41.8	56.9	27.3	50.0	44.4
Health, chronic disease and substance use									
Self-assessed health status excellent or very good	42.8	41.8	43.2	35.2	48.2	46.8	46.7	56.8	44.1
Has no disability or long-term health condition	62.2	55.7	65.0	60.8	61.4	56.0	62.5	73.3	63.5
Not a regular smoker[(a)]	49.3	48.2	50.8	56.0	56.0	58.3	56.9	44.1	50.7
Has not drunk alcohol in last 12 months at risky/high-risk levels[(b)]	81.0	82.6	84.4	83.3	83.5	91.2	85.2	90.4	84.1
Has not used substances illicitly in last 12 months[(c)]	64.9	62.2	73.7	73.2	62.6	74.6	65.0	82.3	70.7

(continued)

Table 1.14.6 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by state/territory, Australia, 2002

Themes and community infrastructure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
					Per cent				
Culture									
Protection and maintenance of culture									
Main language spoken at home is Aboriginal language/ Torres Strait Islander language	**—	*1	5.6	11.5	**12	—	**1	63.2	12.0
Speaks an Aboriginal/Torres Strait Islander language	*3	7.8	15.2	27.3	31.4	*1	10.7	76.6	21.1
Participation in cultural events									
Attended Aboriginal and Torres Strait Islander cultural event in last 12 months									
Attended funeral	36.8	28.8	46.9	62.3	45.0	7.8	39.2	73.3	46.6
Attended ceremony	12.4	15.6	27.9	18.8	15.8	4.1	31.5	57.6	23.5
Attended sports carnival	21.0	16.3	35.2	33.9	31.5	*2	40.3	47.9	29.8
Attended festival/carnival involving arts, crafts, music or dance	29.0	26.3	44.6	37.6	35.8	11.4	50.3	41.3	35.7
Total events attended in last 12 months	*58.6*	*53.2*	*74.5*	*75.7*	*69.3*	*27.8*	*73.3*	*86.6*	*68.1*
Identity									
Identification with tribal group or language group/clan	41.7	47.9	56.2	53.8	63.3	16.4	69.9	88.4	54.1
Continuing employment									
Employed in CDEP	5.0	3.5	11.8	21.1	12.9	**1	*3	27.5	12.1
Employed, not in CDEP	39.3	42.4	33.9	28.5	34.7	49.5	60.2	17.6	34.1
Education									
Year 12 highest year of school completed[(d)]	17	19	24	11	16	16	38	14	18
Total persons 15 years and over not at school	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

(continued)

Table 1.14.6 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by state/territory, Australia, 2002

Themes and community infrastructure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
					Per cent				
Has a non school qualification[(e)]	33	45	31	30	41	34	57	23	32
Total persons aged 25–64 years	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Having a role									
Has done volunteer work for an organisation in the last 12 months	31.6	37.2	28.7	23.6	31.6	37.0	47.4	9.8	27.6
Expected to have the same employment in 12 months	38.6	38.7	39.8	42.4	42.7	44.5	51.2	43.0	40.6
Infrastructure of community									
Housing									
Living in a dwelling that has no major structural problems	64.3	62.3	64.3	59.2	59.9	73.5	69.5	39.5	60.4
Living in a dwelling that is not overcrowded (Canadian National Occupancy Standard)	86.0	85.0	74.0	75.0	76.0	89.0	86.0	38.0	74.0
Working household facilities for:									
Washing people	99.4	100.0	99.0	98.6	99.1	99.8	99.7	94.4	98.6
Washing clothes and bedding	98.9	98.0	99.1	98.0	98.8	99.0	98.0	93.9	98.1
Storing/preparing foods	97.1	97.2	97.1	89.7	93.4	98.5	98.7	68.5	92.3
Sewerage facilities	99.7	98.8	97.9	99.0	99.3	99.8	99.7	92.7	98.1
Communication services									
Has working telephone	81.3	87.6	74.3	62.1	72.2	89.1	90.8	36.9	71.3
Used computer in last 12 months	60.9	65.8	57.8	50.0	60.0	69.6	83.3	31.2	55.5
Used internet in last 12 months	48.4	52.6	41.4	32.6	43.5	53.7	76.2	19.3	41.0
Transport									
Access to motor vehicles	56.7	61.2	53.8	54.0	56.9	73.9	71.1	41.0	54.6
Can easily get to places needed	73.4	71.6	68.5	66.0	67.4	78.0	80.3	67.6	70.1

(continued)

Table 1.14.6 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by state/territory, Australia, 2002

Themes and community infrastructure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
					Per cent				
Main reasons for not using public transport:									
Prefer to use own transport	33.6	34.6	27.7	26.1	25.2	42.2	38.4	20.4	29.2
No service available	21.3	11.4	26.7	33.1	28.9	19.6	**1	61.6	29.1
No service available/convenient time	3.9	6.9	*5	4.2	*2	7.9	*5	*2	4.3
Cost considerations	*2	*1	*1	*1	**—	*1	**—	**—	1.2
Other[f]	8.5	8.4	7.6	6.8	5.2	5.1	10.8	*2	6.9
Coping within the internal world and external world/ role models									
Community problems									
No community problems reported	24.8	23.9	24.5	26.5	24.5	26.1	20.1	28.4	25.3
Community problems reported, but less than three types	32.7	34.2	27.9	26.5	27.9	33.1	36.2	19.8	28.8
No problems reported for theft	54.2	56.1	56.9	60.6	55.3	53.2	46.6	62.5	57.0
No problems reported for alcohol	69.7	77.5	63.4	65.0	67.9	77.8	84.3	56.6	66.5
No problems reported for illicit drugs	68.7	72.3	63.6	70.3	67.0	76.4	77.2	66.3	67.7
No problems reported for family violence	85.1	87.1	73.6	78.5	78.8	91.4	92.5	67.1	78.8
No problems reported for assault	85.6	86.9	79.0	80.7	78.9	90.4	90.9	62.8	80.1
No problems reported for sexual assault	93.9	94.9	87.2	92.7	94.9	97.3	97.4	91.6	91.9
Total persons who reported a community problem	*74.9*	*72.5*	*74.4*	*72.4*	*74.5*	*72.6*	*77.6*	*70.2*	*73.6*
Stressors									
No stressors reported in last 12 months	20.3	18.3	14.0	20.9	21.5	26.1	12.7	12.2	17.7
Less than three types of stressors reported in the last 12 months[g]	60	57	51	58	54	72	41	46	56
No stressors reported for death of a family member or close friend	57.7	60.0	51.3	54.6	54.2	65.9	50.4	46.5	54.3

(continued)

Table 1.14.6 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by state/territory, Australia, 2002

Themes and community infrastructure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
					Per cent				
No stressors reported for serious illness of disability	71.9	67.2	65.6	74.9	68.7	71.1	58.7	65.3	69.2
No stressors reported for not able to get a job	72.5	74.7	68.7	78.2	76.9	76.5	69.7	74.2	73.0
No stressors reported for witness to violence	90.6	87.7	81.3	86.0	83.9	93.1	82.8	70.4	84.3
No stressors reported for member of family sent to jail/currently in jail	83.4	84.6	79.4	74.0	81.2	92.8	79.0	77.2	80.5
Total persons who reported a stressor	*79.7*	*81.7*	*86.0*	*79.1*	*78.5*	*73.9*	*87.3*	*87.8*	*82.3*
Crime and justice									
Not a victim of physical or threatened violence in the last 12 months	77.6	69.7	73.5	74.0	70.4	77.9	66.7	82.6	75.7
Did not need legal services in the last 12 months	77.0	75.9	75.9	74.2	74.6	76.7	73.1	85.4	77.1
Did not use legal services in the last 12 months	79.2	80.1	79.5	78.7	76.6	80.9	80.1	86.9	80.2
Not arrested by police in the last 5 years	82.6	83.0	85.7	77.9	80.5	91.1	85.5	87.1	83.6
Not incarcerated in the last 5 years	93.5	93.3	93.8	89.4	91.8	97.1	94.9	92.2	92.9
Structure and routine									
Has no difficulties communicating with service providers in English[(h)]	89.8	87.8	88.7	81.0	80.1	91.8	95.1	83.3	86.9
In the last 12 months, has lived in only one dwelling	67.7	66.3	65.2	66.4	70.9	78.3	67.4	81.7	69.1
No days without money for basic living expenses in the last 12 months[(i)]	57.2	52.8	55.7	48.9	47.3	63.8	58.8	66.4	56.3
No days without money for basic living expenses in the last 2 weeks[(i)]	70.2	64.5	68.3	63.8	60.1	76.8	71.6	70.7	68.2
Did not have a cash flow problem[(i)]	61.7	51.5	40.8	39.6	48.0	65.4	55.4	17.1	45.9
Income									
Equivalised gross household income									
3rd quintile or above	26.6	28.7	27.1	21.8	22.9	33.1	52.1	11.9	24.6

(continued)

Table 1.14.6 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, by state/territory, Australia, 2002

Themes and community infrastructure	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
					Per cent				
Main current source of personal income									
CDEP	4.1	*3	9.6	18.0	11.1	*1	*2	24.8	10.3
Other wages/salaries	34.0	33.1	28.8	24.5	30.9	37.6	52.4	16.2	29.0
Government pensions and allowances	52.1	52.1	49.2	49.9	50.3	48.1	34.8	49.5	50.2
Total in labour force	61.4	57.5	61.4	61.5	59.8	63.0	68.5	51.6	60.0
Other sources(j)	3.4	5.4	3.9	*1	*1	6.3	*4	**1	3.1
Government support was not the main source of income during the last 2 years	38.2	33.9	44.1	35.4	39.0	42.5	56.3	41.7	40.0
Household financial stress and cash flow problems									
Has a bank account	97.5	97.0	95.3	90.5	93.6	96.0	95.5	86.7	94.2
Could raise $2,000 within a week	44.4	48.0	42.4	38.8	37.0	61.8	71.0	19.6	40.6
Total persons aged 15 years and over	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

* 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) Excludes regular smoker and not stated.

(b) Excludes high-risk, medium-risk and not stated.

(c) Excludes no response, not stated and has used substance in the last 12 months.

(d) Proportion of total persons aged 15 years and over, but not at school.

(e) Proportion of total persons aged 25–64 years.

(f) Includes takes too long, concerned about own personal safety, racial discrimination and other.

(g) Includes values of zero to less than three.

(h) Excludes with assistance.

(i) Non-community responses only.

(j) Excludes not stated.

Source: AIHW and ABS analysis of 2002 NATSISS.

Table 1.14.7: Variables contributing to community functioning, Indigenous persons aged 15 years and over, 1994 and 2002[a]

	1994		2002	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**
Power to control choices and options				
Involvement with Aboriginal/Torres Strait Islander organisation	50,888	24[b]	73,605	26[b]
Connectedness to family land and history				
Access to traditional lands				
Lives in homelands	62,675	29	61,700	22
Health, chronic disease and substance use				
Self-assessed health status excellent or very good	97,265	45[b]	124,361	44[b]
Culture				
Protection and maintenance of culture:				
Main language spoken at home is Aboriginal language/ Torres Strait Islander language	25,468	12[b]	34,003	12[b]
Participating in cultural events				
Attended Aboriginal and Torres Strait Islander cultural event in last 12 months				
Attended funeral	114,115	53	131,621	47
Attended ceremony	41,350	19	66,392	24
Total events attended in last 12 months[c][d]	***151,758***	***71***	***192,126***	***68***
Identity				
Identification with tribal group or language group/clan	124,706	58[b]	152,806	54[b]
Continuing employment				
Employed in CDEP	17,658	8	34,230	12
Employed not in CDEP	60,236[e]	28	96,165	34
Education				
Year 12 highest year of school completed	18,590	9[f]	47,006	18[f]
Total persons 15 years and over not at school	*200,022*	*100*	*262,958*	*100*
Has a non school qualification	27,366[g]	20	59869[g]	32
Total persons aged 25–64 years[h]	*135,899*	*100*	*186,574*	*100*
Crime and justice				
Not a victim of physical or threatened violence in the last 12 months	186,619	87	213,514	76
Did not need legal services in the last 12 months	178,766	83	217,664	77
Did not use legal services in the last 12 months	182,323	85	226,312	80
Not arrested by police in the last 5 years	170,874	80	235,937	84
Structure and routine				
Has no difficulties communicating with service providers in English	188,996	88[b]	245,244	87[b]

(continued)

Table 1.14.7 (continued): Variables contributing to community functioning, Indigenous persons aged 15 years and over, 1994 and 2002[a]

	1994		2002	
Themes and community infrastructure	**No.**	**%**	**No.**	**%**
Income				
Main current source of personal income				
CDEP	16,310	8	29,166	10
Other wages/salaries	54,348	25	81,970	29
Government pensions and allowances	117,108	55	141,799	50
Total in labour force	125,842	59[b]	169,200	60[b]
Total persons aged 15 years and over	**214,626**	**100**	**282,205**	**100**

(a) The content of this table has been restricted to those items in the 1994 NATSIS and the 2002 NATSISS that are comparable.
(b) Difference between the 1994 NATSIS and the 2002 NATSISS data is not statistically significant.
(c) Respondents may have indicated more than one response category.
(d) Includes carnival involving arts, crafts, music, dance or sport.
(e) Includes did not know and not stated.
(f) Calculated as a proportion of 15 years and over not at school.
(g) Includes level not determined.
(h) Includes only those 25–64 years not at school.

Source: AIHW and ABS analysis of 2002 NATSISS & 1994 NATSIS.

Discrete Indigenous communities

Characteristics contributing to community functioning

Tables 1.14.8, 1.14.9 and 1.14.10 present data on characteristics contributing to community functioning in discrete Indigenous communities as collected in the 2006 CHINS.

Housing

- In 2006, almost one-quarter (23%) of permanent dwellings managed by Indigenous housing organisations needed major repair.
- Of the 1,187 discrete Indigenous communities surveyed in the 2006 CHINS, the majority (65%) reported that no-one in the community was living in temporary dwellings.
- In 2006, of the 96% of discrete Indigenous communities that reported having an organised water supply, 84% reported having an organised sewerage supply and 97% reported having an organised electricity supply (97%).

Health and medical services

- Over two-thirds (70%) of discrete Indigenous communities were located 100 kilometres or more from the nearest hospital and over one-third (40%) were located 100 kilometres or more from the nearest Aboriginal primary health care centre.
- In 2006, approximately one-third (32%) of discrete Indigenous communities reported having access to medical emergency air services, representing three-quarters of the total reported usual population of all the discrete Indigenous communities surveyed in CHINS.

Educational services

- Less than one-quarter (23%) of discrete Indigenous communities, representing 73% of the population, reported having a primary school located in the community; 5% of discrete Indigenous communities, representing 31% of the population, reported having a secondary school up to Year 12 located in the community.

Communication services

- Over one-third (42%) of discrete Indigenous communities (representing 16% of the population) reported not having access to a public telephone and almost two thirds (63%, representing 42% of the population) reported not having access to the internet.

Transport

- In 2006, 88% of discrete Indigenous communities reported road, 9% reported air and 3% reported sea as the main mode of transport to the nearest town with major services.

Community services

- One-third of discrete Indigenous communities reported have visitor accommodation facilities, 12% reported aged care accommodation facilities and 9% reported women's refuge accommodation facilities.
- Around one-third of discrete Indigenous communities reported having an arts/cultural centre (31%, representing 57% of the population), a women's centre (31%, representing 56% of the population) or a child care centre (30%, representing 58% of the population) in the community.

- Over one-third (39%) of discrete Indigenous communities reported having no sporting facilities in the community.

Community priority needs plan

- In 2006, over half (52%) of discrete Indigenous communities reported having a community priority needs plan and one-third (35%) were developing a community priority needs plan.
- Of those communities with a community priority needs plan, 90% identified more housing, 56% identified sports facilities, 46% identified upgrading the water supply and 45% identified rubbish collection/disposal as main planning priorities.

Time series comparison

Table 1.14.11 presents data on characteristics contributing to community functioning in discrete Indigenous communities as collected in the 2001 Community Housing and Infrastructure Needs Survey (CHINS).

Housing

- In 2006, of those communities surveyed, approximately 37% of people living discrete Indigenous communities who completed the long community questionnaire experienced sewerage system overflows or leakages in the past 12 months, compared to 56% in 2001.
- In 2006, approximately 29% of people living in discrete Indigenous communities who completed the long community questionnaire experienced an electricity interruption greater than 24 hours in the past 12 months, compared to 10% in 2001.

Health and medical services

- In 2006, approximately 13% of people living in discrete Indigenous communities located ten kilometres or more from a hospital who completed the long community questionnaire did not have a doctor visiting or working in their community, compared to 6% in 2001.

Educational services

- The proportion of people living in discrete Indigenous communities that had a secondary school up to year 12 increased from 5% in 2001 to 23% in 2006.

Table 1.14.8: Number and proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, 2006

	Dwellings		Reported usual population	
Community Infrastructure	**No.**	**%**	**No.**	**%**
Housing				
Condition of permanent dwellings managed by Indigenous housing organisations				
Needing minor or no repairs	15,180	69.5	n.a.	n.a.
Needing major repairs	5,111	23.4	n.a.	n.a.
Needing replacement	1,563	7.2	n.a.	n.a.
Total dwellings	**21,854**	**100.0**	**n.a.**	**n.a.**
	Communities		**Reported usual population**	
	No.	**%**	**No.**	**%**
No-one in community living in temporary dwellings	708	65.3	59,737	64.5
Population living in temporary dwellings	n.a.	n.a.	4,039	4.4
No-one in community requiring permanent dwelling	726	68.2	63,362	68.5
Population requiring permanent housing	n.a.	n.a.	3,886	4.2
Access to clean water				
Organised water supply[b]	1,040	96.4	91,527	99.2
No organised water supply	39	3.6	761	0.8
Drinking water failed testing in last 12 months[c]	48	29.3	12,059	24.1
Drinking water not sent away for testing[d]	45	21.5	4,796	8.7
Experienced 5 or more water interruptions over last 12 months[d]	69	18.9	21,291	25.7
Experienced interruptions to water supply longer than 24 hours[d]	80	21.9	15,665	18.9
Access to sewerage				
Organised sewerage supply[e]	908	83.8	89,925	97.1
No organised system	176	16.2	2,701	2.9
Experienced overflows or leakage[d]	142	39.3	30,140	36.5
Over a 12-month period 10 or more overflows[d]	31	8.6	5,341	6.5
Overflows or leakages longer than 48 hours [d]	81	22.4	14,376	17.4
Not all dwellings connected	200	18.8	4,185	4.5
Access to electricity				
Organised electricity supply	1,049	97.0	92,304	99.7
No organised supply	32	3.0	284	0.3
20 or more interruptions in the last 12 months[d]	41	11.2	13,342	16.1
At least one interruption longer than 24 hours in last 12 months[d]	96	26.2	23,952	29.0
Not all dwellings connected[d]	12	3.3	1,543	1.9
Access to rubbish disposal				
Community has organised rubbish collection[d]	337	92.1	80,180	96.9
Community does not have organised rubbish disposal[d]	29	7.9	2,550	3.1

(continued)

Table 1.14.8 (continued): Number and proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, 2006

	Communities		Reported usual population	
Community Infrastructure	**No.**	**%**	**No.**	**%**
Health and medical services				
Aboriginal primary health care centre				
Located within community	107	10.2	41,450	47.0
Located less than 100 km	530	50.3	21,181	24.0
Located 100 km or more	417	39.6	25,486	28.9
Total stated	1,054	100.0	88,117	100.0
Hospital				
Located within community	10	0.9	14,090	15.3
Located less than 100 km	313	29.0	26,111	28.3
Located 100 km or more	755	70.0	51,992	56.4
Total stated	1,078	100.0	92,193	100.0
Other (state-funded) community health centre				
Located within community	104	9.9	35,737	42.9
Located less than 100 km	576	54.8	24,342	29.2
Located 100 km or more	372	35.4	23,308	28.0
Total stated	1,052	100.0	83,387	100.0
Emergency services[(f)]				
Access to medical emergency air services	316	32.3	52,936	75.2
No access to medical emergency air services	663	67.7	17,424	24.8
Whether health professionals visiting or working in the community[(f)]				
Male Indigenous health worker daily, weekly, fortnightly	122	42.4	39,291	64.2
Male Indigenous health worker monthly or longer	26	9.0	3,685	6.0
No male Indigenous health worker	140	48.6	18,272	29.8
Female Indigenous health worker daily, weekly, fortnightly	159	55.2	48,843	79.7
Female Indigenous health worker monthly or longer	21	7.3	2,294	3.7
No female Indigenous health worker	108	37.5	10,111	16.5
Doctor daily, weekly, fortnightly	118	41.0	37,313	60.9
Doctor monthly or longer	74	25.7	15,888	25.9
No doctor	96	33.3	8,047	13.1
Registered nurse daily, weekly, fortnightly	184	63.9	52,977	86.5
Registered nurse monthly or longer	27	9.4	2,746	4.5
No registered nurse	77	26.7	5,525	9.0

(continued)

Table 1.14.8 (continued): Number and proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, 2006

	Communities		Reported usual population	
Community Infrastructure	**No.**	**%**	**No.**	**%**
Educational services				
Primary				
Located within community	245	22.6	67,405	72.8
Located less than 50 km	533	49.2	20,849	22.5
Located 50 km or more	306	28.2	4,372	4.7
Total stated	1,084	100.0	92,626	100.0
Secondary school up to Year 10				
Located within community	49	4.7	21,909	30.8
Located less than 50 km	409	39.4	24,631	34.7
Located 50 km or more	581	55.9	24,535	34.5
Total stated	1,039	100.0	71,075	100.0
Secondary school up to Year 12				
Located within community	40	3.7	21,213	23.0
Located less than 50 km	295	27.3	25,957	28.1
Located 50 km or more	744	69.0	45,118	48.9
Total stated	1,079	100.0	92,288	100.0
Access to educational services other than school				
Pre-primary	126	34.4	46,426	56.1
Homework centre	29	7.9	8,366	10.1
TAFE courses	70	19.1	30,978	37.4
Other adult education	50	13.7	17,678	21.4
Other educational services	18	4.9	5,757	7.0
No other educational services	198	54.1	23,555	28.5
Communication services				
Public access to community telecommunication facilities				
Public telephones	630	58.1	77,779	84.0
Satellite dish	180	49.2	56,083	67.8
Radio	337	92.1	79,621	96.2
Television	349	95.4	81,540	98.6
Internet	136	37.2	47,848	57.8
Community has no access to a public telephone	454	41.9	14,847	16.0
Community has no access to internet	230	62.8	34,882	42.2

(continued)

Table 1.14.8 (continued): Number and proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, 2006

	Communities		Reported usual population	
Community Infrastructure	**No.**	**%**	**No.**	**%**
Transport				
Access to nearest town				
Main mode of transport				
Road	894	88.0	63,529	78.0
Air	95	9.4	15,363	18.9
Sea	27	2.7	2,520	3.1
Usual method of transport[d]				
Private	260	85.8	56,558	78.7
Public	26	8.6	12,708	17.7
Community-owned vehicle	13	4.3	1,588	2.2
Other	4	1.3	1,000	1.4
Whether transport services available to/from community[d]				
Public	54	17.8	23,407	32.6
Community	72	23.8	18,011	25.1
Road access[d]				
Road access not cut	129	42.6	21,376	29.7
Road access cut 5 or more times	42	13.9	12,074	16.8
Inaccessible by road	35	11.5	16,572	23.1
Airstrip[d]				
Airstrip located in community	147	48.5	49,655	69.1
Airstrip open all year round	109	74.1	37,702	75.9
Airstrip not open all year round	38	25.9	11,953	24.1
Community services[d]				
Accommodation facilities				
Visitor	119	32.5	46,974	56.8
Camping	52	14.2	10,757	13.0
Single men's	48	13.1	16,337	19.7
Single women's	25	6.8	10,724	13.0
Hostel	8	2.2	2,150	2.6
Contract workers	85	23.2	44,468	53.8
Disability	23	6.3	11,315	13.7
Aged	44	12.0	28,447	34.4
Women's refuge	32	8.7	28,835	34.9
Other	4	1.1	2,675	3.2
No accommodation facilities	178	48.6	16,882	20.4

(continued)

Table 1.14.8 (continued): Number and proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, 2006

	Communities		Reported usual population	
Community Infrastructure	**No.**	**%**	**No.**	**%**
Public facilities				
Hall/meeting area	208	56.8	62,740	75.8
Administration building	224	61.2	70,721	85.5
Store	175	47.8	66,153	80.0
Library	44	12.0	31,143	37.6
Arts/cultural centre	114	31.1	46,736	56.5
Women's centre	113	30.9	46,027	55.6
Child care centre	108	29.5	48,257	58.3
Youth centre	71	19.4	36,321	43.9
Canteen	47	12.8	28,893	34.9
Broadcasting facilities	113	30.9	52,291	63.2
Other	39	10.7	13,634	16.5
No public facilities	89	24.3	5,583	6.7
Recreation facilities				
Sports grounds	169	46.2	65,265	78.9
Outdoor basketball/netball courts	177	48.4	59,865	72.4
Indoor or covered sporting facilities	46	12.6	32,437	39.2
Swimming pools	27	7.4	19,328	23.4
Other buildings used for sport	57	15.6	30,406	36.8
Other community sporting facilities	22	6.0	8,443	10.2
No sporting facilities	141	38.5	10,050	12.1
Community priority needs plan[d]				
Communities with a community priority needs plan	189	51.6	48,688	58.9
Of those with plan, needs identified include:				
More housing	170	89.9	45,716	93.9
Upgrade water supply	86	45.5	22,775	46.8
Upgrade electricity supply	71	37.6	15,676	32.2
Upgrade sewerage	82	43.4	22,480	46.2
Rubbish collection/disposal	85	45.0	19,524	40.1
Transport	77	40.7	19,635	40.3
Communication facilities	51	27.0	16,060	33.0
Education facilities	59	31.2	18,155	37.3
Sports facilities	105	55.6	30,620	62.9
Health care facilities	79	41.8	23,025	47.3
Animal control	73	38.6	24,725	50.8
Broadcasting capabilities	51	27.0	17,222	35.4

(continued)

Table 1.14.8 (continued): Number and proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, 2006

	Communities		Reported usual population	
Community Infrastructure	**No.**	**%**	**No.**	**%**
Other	48	25.4	13,082	26.9
Communities developing a community priority needs plan	129	35.2	28,348	34.3
No community priority needs plan being developed	48	13.1	5,694	6.9
Total no. of communities	**1,187**	**100.0**	**92,960**	**100.0**

(a) All proportions were calculated excluding 'not stated' from denominator.

(b) Excluding communities with carted and other organised water supply.

(c) Percentage calculated as a proportion of all discrete Indigenous communities with a reported usual population of 50 persons or more, and communities which have a reported usual population of fewer than 50 persons but which are not administered by a larger discrete Indigenous community or resource agency, excluding communities where water was not sent away for testing and communities connected to town supply.

(d) Percentage calculated as a proportion of all discrete Indigenous communities with a reported usual population of 50 persons or more, and communities which have a reported usual population of fewer than 50 persons but which are not administered by a larger discrete Indigenous community or resource agency.

(e) Excluding communities which reported pit and pan toilets as the main sewerage system type.

(f) Percentage calculated as a proportion of all discrete Indigenous communities with a reported usual population of 50 persons or more, and communities which have a reported usual population of fewer than 50 persons but which are not administered by a larger discrete Indigenous community or resource agency, and which are located 10 kilometres or more from a hospital.

Source: AIHW analysis of 2006 CHINS.

Table 1.14.9: Proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, by state/territory, 2006

Community Infrastructure	NSW		Qld		WA		SA		NT	
	Dwellings	Reported usual population	Dwellings	Reported usual population	Dwellings	Reported usual population	Dwellings	Reported usual population	Dwellings	Reported usual population
					Per cent					
Housing										
Condition of permanent dwellings managed by Indigenous housing organisations										
Needing minor or no repairs	78.6	n.a.	67.8	n.a.	62.0	n.a.	71.9	n.a.	68.7	n.a.
Needing major repairs	18.8	n.a.	26.3	n.a.	27.9	n.a.	22.4	n.a.	21.0	n.a.
Needing replacement	2.7	n.a.	5.9	n.a.	10.1	n.a.	5.8	n.a.	10.2	n.a.
Total dwellings	**100.0**	**n.a.**	**100.0**	**n.a.**	**100.0**	**n.a.**	**100.0**	**n.a.**	**100.0**	**n.a.**
	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population
	%	%	%	%	%	%	%	%	%	%
No-one in community living in temporary dwellings	78.9	78.2	48.7	55.4	55.5	68.7	67.9	46.1	71.6	69.6
Population living in temporary dwellings	n.a.	1.2	n.a.	4.3	n.a.	5.8	n.a.	5.7	n.a.	4.2
No-one in community requiring permanent dwelling	86.0	87.1	49.6	56.6	60.6	75.8	72.4	47.6	73.1	74.3
Population requiring permanent housing	n.a.	n.p.	n.a.	4.3	n.a.	5.4	n.a.	5.6	n.a.	4.0
Access to clean water										
Organised water supply[b]	100.0	100.0	95.6	99.9	98.4	99.0	97.4	99.7	95.1	98.6
No organised water supply	0.0	0.0	4.4	n.p.	1.6	1.0	2.6	n.p.	4.9	1.4
Drinking water failed testing in last 12 months[c]	80.0	93.7	16.7	11.1	37.3	38.4	30.8	19.6	21.3	27.0
Drinking water not sent away for testing[d]	16.7	0.0	30.8	12.1	5.6	1.3	48.0	20.1	21.9	7.4
Experienced 5 or more water interruptions over last 12 months[d]	3.8	4.5	21.1	11.1	19.8	30.7	14.3	18.5	24.5	39.1

(continued)

Table 1.14.9 (continued): Proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, by state/territory, 2006

	NSW		Qld		WA		SA		NT	
Community Infrastructure	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population
					Per cent					
Experienced interruptions to water supply longer than 24 hours[d]	18.9	27.2	23.7	13.6	15.4	18.0	35.7	37.4	23.0	20.1
Access to sewerage										
Organised sewerage supply[e]	96.5	99.1	75.2	99.3	94.3	98.2	97.4	99.8	77.4	94.7
No organised system	3.5	n.p.	24.8	0.7	5.7	1.8	2.6	n.p.	22.6	5.3
Experienced overflows or leakage[d]	23.5	28.3	47.4	30.2	40.9	46.2	33.3	39.6	43.2	38.6
Over a 12-month period 10 or more overflows[d]	5.9	8.2	7.9	2.8	8.0	11.8	9.5	12.1	9.4	6.4
Overflows or leakages longer than 48 hours [d]	19.6	25.2	28.9	18.4	26.1	29.9	26.2	28.3	17.3	9.8
Not all dwellings connected	5.3	1.7	47.7	6.9	28.9	4.9	13.2	4.4	11.0	3.3
Access to electricity										
Organised electricity supply	100.0	100.0	95.5	100.0	98.1	99.6	97.4	97.3	96.5	99.8
No organised supply	0.0	0.0	4.5	n.p.	1.9	0.4	2.6	2.7	3.5	0.2
20 or more interruptions in the last 12 months[d]	1.9	3.6	10.5	7.1	20.9	28.0	4.8	3.8	10.8	22.6
At least one interruption longer than 24 hours in last 12 months[d]	13.2	26.3	36.8	32.4	29.7	33.9	35.7	32.3	23.0	24.8
Not all dwellings connected[d]	1.9	n.p.	5.3	3.3	2.2	0.5	9.5	8.6	2.2	0.6
Access to rubbish disposal										
Community has organised rubbish collection[d]	92.5	89.9	100.0	100.0	89.0	90.9	95.2	97.0	90.6	97.4
Community does not have organised rubbish disposal[d]	7.5	10.1	0.0	0.0	11.0	9.1	4.8	3.0	9.4	2.6

(continued)

Table 1.14.9 (continued): Proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, by state/territory, 2006

	NSW		Qld		WA		SA		NT	
Community Infrastructure	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population
					Per cent					
Health and medical services										
Aboriginal primary health care centre										
Located within community	27.8	37.1	14.7	64.4	8.0	22.3	9.0	20.8	8.2	48.1
Located less than 100 km	66.7	57.8	56.0	11.0	32.9	28.6	34.6	23.1	57.8	26.6
Located 100 km or more	5.6	5.1	29.4	24.6	59.0	49.1	56.4	56.1	34.0	25.3
Total stated	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Hospital										
Located within community	1.8	3.2	6.2	48.6	0.8	4.7	0.0	0.0	0.0	0.0
Located less than 100 km	90.9	87.8	38.1	27.8	32.8	29.2	41.0	39.3	17.7	19.7
Located 100 km or more	7.3	9.0	55.8	23.6	66.4	66.1	59.0	60.7	82.3	80.3
Total stated	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Other (state funded) community health centre										
Located within community	13.0	20.1	19.8	67.7	12.0	41.7	14.1	44.9	6.1	34.1
Located less than 100 km	85.2	78.3	51.9	14.4	60.8	31.6	78.2	43.2	46.3	27.6
Located 100 km or more	1.9	1.6	28.3	17.9	27.2	26.7	7.7	11.8	47.6	38.3
Total stated	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Emergency services[(f)]										
Access to medical emergency air services	18.2	19.6	40.2	96.7	37.7	70.7	22.9	61.1	30.3	75.7
No access to medical emergency air services	81.8	80.4	59.8	3.3	62.3	29.3	77.1	38.9	69.7	24.3

(continued)

Table 1.14.9 (continued): Proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, by state/territory, 2006

	NSW		Qld		WA		SA		NT	
Community Infrastructure	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
						Per cent				
Whether health professionals visiting or working in the community[(f)]										
Male Indigenous health worker daily, weekly, fortnightly	63.3	65.0	64.0	82.1	19.4	25.3	50.0	75.9	44.7	66.8
Male Indigenous health worker monthly or longer	3.3	n.p.	24.0	11.7	13.9	10.9	5.9	6.3	4.9	2.8
No male Indigenous health worker	33.3	33.7	12.0	6.2	66.7	63.8	44.1	17.8	50.4	30.4
Female Indigenous health worker daily, weekly, fortnightly	73.3	76.5	96.0	99.6	90.0	60.3	52.9	78.2	54.5	78.7
Female Indigenous health worker monthly or longer	3.3	n.p.	0.0	0.0	23.3	6.2	11.8	6.4	6.5	4.0
No female Indigenous health worker	23.3	22.3	4.0	0.4	126.7	33.6	35.3	15.4	39.0	17.3
Doctor daily, weekly, fortnightly	53.3	64.7	60.0	74.7	44.4	59.4	14.7	19.1	39.0	60.6
Doctor monthly or longer	6.7	3.0	36.0	24.8	20.8	23.0	38.2	59.1	27.6	25.6
No doctor	40.0	32.3	4.0	0.4	34.7	17.7	47.1	21.8	33.3	13.8
Registered nurse daily, weekly, fortnightly	50.0	55.2	88.0	96.5	56.9	73.5	44.1	70.9	71.5	90.9
Registered nurse monthly or longer	13.3	14.5	8.0	3.0	6.9	7.1	5.9	4.3	11.4	3.4
No registered nurse	36.7	30.2	4.0	0.4	36.1	19.3	50.0	24.8	17.1	5.7
Educational services										
Primary										
Located within community	24.6	29.7	28.3	87.1	25.1	62.3	17.9	57.3	20.7	74.3
Located less than 50 km	75.4	70.3	43.4	12.0	40.3	29.8	74.4	39.8	48.2	18.8
Located 50 km or more	0.0	0.0	28.3	0.9	34.6	7.9	7.7	2.9	31.1	7.0

(continued)

Table 1.14.9 (continued): Proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, by state/territory, 2006

	NSW		Qld		WA		SA		NT	
Community Infrastructure	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population
						Per cent				
Total stated	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Secondary school up to Year 10										
Located within community	0.0	0.0	4.5	36.9	8.3	36.8	2.8	18.7	3.8	30.8
Located less than 50 km	92.6	94.6	39.1	28.8	44.6	41.3	41.7	51.6	31.5	24.9
Located 50 km or more	7.4	5.4	56.4	34.3	47.1	21.9	55.6	29.7	64.7	44.2
Total stated	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Secondary school up to Year 12										
Located within community	5.3	5.7	2.7	22.7	6.2	23.0	7.7	28.1	2.1	24.9
Located less than 50 km	87.7	89.2	13.3	34.4	26.4	23.0	37.2	32.7	22.8	17.1
Located 50 km or more	7.0	5.1	84.1	43.0	67.4	54.0	55.1	39.2	75.1	58.0
Total stated	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Access to educational services other than school										
Pre-primary	28.3	44.2	57.9	61.0	38.5	59.1	28.6	61.8	29.5	52.6
Homework centre	11.3	22.1	7.9	3.3	13.2	20.2	2.4	4.7	5.0	11.2
TAFE courses	26.4	38.5	31.6	53.9	13.2	21.2	38.1	63.8	10.8	26.7
Other adult education	13.2	20.2	5.3	5.2	11.0	25.6	7.1	19.8	19.4	32.5
Other educational services	1.9	1.5	7.9	8.1	4.4	8.1	2.4	2.8	6.5	7.0
No other educational services	58.5	44.4	34.2	29.2	56.0	32.2	57.1	29.0	55.4	24.2

(continued)

Table 1.14.9 (continued): Proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, by state/territory, 2006

	NSW		Qld		WA		SA		NT	
Community Infrastructure	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population
					Per cent					
Communication services										
Public access to community telecommunication facilities										
Public telephones	24.6	37.1	45.1	76.7	63.9	90.6	62.8	88.5	60.7	91.9
Satellite dish	7.5	5.3	76.3	67.2	60.4	73.4	42.9	57.8	52.5	76.8
Radio	98.1	98.5	100.0	100.0	90.1	94.4	95.2	96.1	87.8	93.6
Television	100.0	100.0	100.0	100.0	95.6	98.4	97.6	98.5	90.6	97.1
Internet	26.4	24.0	52.6	62.4	39.6	44.8	42.9	60.2	33.1	62.8
Community has no access to a public telephone	75.4	62.9	54.9	23.3	36.1	9.4	37.2	11.5	39.3	8.1
Community has no access to internet	73.6	76.0	47.4	37.6	60.4	55.2	57.1	39.8	66.9	37.2
Transport										
Access to nearest town										
Main mode of transport										
Road	100.0	100.0	78.9	69.7	96.2	94.6	98.7	99.9	83.9	73.1
Air	0.0	0.0	9.2	20.8	2.5	5.2	0.0	0.0	14.3	25.9
Sea	0.0	0.0	11.9	9.5	1.3	n.p.	1.3	n.p.	1.8	1.0
Usual method of transport[d]										
Private	82.1	79.0	61.8	67.2	87.5	84.8	97.6	95.1	89.5	82.7
Public	10.3	13.6	32.4	30.5	0.0	0.0	2.4	4.9	8.8	16.5
Community-owned vehicle	5.1	3.3	5.9	2.2	8.3	6.2	0.0	0.0	1.8	0.8
Other	2.6	4.1	0.0	0.0	4.2	9.0	0.0	0.0	0.0	0.0

(continued)

Table 1.14.9 (continued): Proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, by state/territory, 2006

	NSW		Qld		WA		SA		NT	
Community Infrastructure	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
						Per cent				
Whether transport services available to/from community[d]										
Public	35.9	32.6	50.0	56.9	8.3	19.5	7.3	20.9	12.3	22.0
Community	48.7	55.9	35.3	41.1	29.2	32.0	17.1	26.6	9.6	8.2
Road access[d]										
Road access not cut	82.1	90.1	44.4	32.4	31.9	22.6	65.9	52.5	35.6	31.0
Road access cut 5 or more times	0.0	0.0	27.8	36.3	29.2	35.5	7.3	6.6	12.5	10.1
Inaccessible by road	0.0	0.0	51.4	30.9	2.8	6.2	0.0	0.0	12.3	28.3
Airstrip[d]										
Airstrip located in community	7.7	6.7	58.8	61.8	55.6	72.4	31.7	53.7	61.4	82.4
Airstrip open all year round	100.0	100.0	70.0	61.8	77.5	86.9	76.9	84.3	71.4	81.0
Airstrip not open all year round	0.0	0.0	30.0	41.8	22.5	13.1	23.1	15.7	28.6	19.0
Community services[d]										
Accommodation facilities										
Visitor	9.4	10.3	68.4	66.8	37.4	53.9	26.2	41.1	30.9	59.1
Camping	7.5	6.3	23.7	16.0	24.2	29.3	9.5	9.3	8.6	6.7
Single men's	1.9	1.0	21.1	24.5	19.8	24.6	2.4	8.9	13.7	18.3
Single women's	1.9	1.0	10.5	18.5	9.9	13.1	0.0	0.0	7.2	11.7
Hostel	3.8	3.2	2.6	0.7	2.2	1.9	0.0	0.0	2.2	4.5
Contract workers	1.9	1.0	68.4	70.9	17.6	31.9	9.5	15.4	26.6	59.9
Disability	0.0	0.0	15.8	21.5	7.7	8.4	2.4	8.9	5.8	11.6

(continued)

Table 1.14.9 (continued): Proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, by state/territory, 2006

	NSW		Qld		WA		SA		NT	
Community Infrastructure	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population	Communities	Reported usual population
					Per cent					
Aged	0.0	0.0	28.9	62.8	13.2	21.7	11.9	21.0	10.8	23.2
Women's refuge	0.0	0.0	34.2	66.8	4.4	10.0	0.0	0.0	10.8	27.8
Other	1.9	1.5	2.6	5.6	0.0	0.0	2.4	7.1	0.7	2.3
No accommodation facilities	84.9	83.9	5.3	1.8	37.4	24.2	69.0	53.0	48.2	20.4
Public facilities										
Hall/meeting area	49.1	58.3	86.8	91.9	64.8	72.8	42.9	61.4	49.6	68.5
Administration building	39.6	47.6	92.1	95.1	74.7	88.6	52.4	67.6	54.0	84.5
Store	11.3	21.2	80.0	91.7	51.6	72.8	31.0	53.6	54.7	85.3
Library	7.5	12.5	47.4	58.7	4.4	6.0	0.0	0.0	12.9	40.0
Arts/cultural centre	28.3	34.4	60.5	74.9	26.4	34.3	31.0	51.7	27.3	53.5
Women's centre	13.2	22.3	31.6	49.6	36.3	55.6	23.8	25.4	36.7	69.1
Child care centre	22.6	37.8	60.5	73.0	28.6	49.6	16.7	28.1	28.1	56.6
Youth centre	17.0	28.0	34.2	59.3	16.5	30.3	26.2	46.7	16.5	38.8
Canteen	5.7	11.3	36.8	51.1	5.5	7.2	4.8	5.1	16.5	38.6
Broadcasting facilities	3.8	5.9	73.7	73.1	26.4	47.5	16.7	31.5	37.4	73.1
Other	17.0	15.5	13.2	24.9	11.0	20.0	2.4	7.1	10.1	10.4
No public facilities	41.5	32.1	2.6	0.2	19.8	7.4	40.5	24.3	22.3	5.9
Recreation facilities										
Sports grounds	17.0	29.2	68.4	86.7	50.5	72.9	40.5	67.3	49.6	83.3
Outdoor basketball/netball courts	24.5	36.6	65.8	77.3	58.2	75.0	35.7	60.3	50.4	74.6

(continued)

Table 1.14.9 (continued): Proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, by state/territory, 2006

	NSW		Qld		WA		SA		NT	
Community Infrastructure	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
					Per cent					
Indoor or covered sporting facilities	3.8	9.3	44.7	66.2	5.5	11.0	2.4	3.7	15.1	36.5
Swimming pools	1.9	3.2	18.4	37.3	7.7	16.4	7.1	9.2	6.5	19.7
Other buildings used for sport	7.5	14.1	28.9	40.3	11.0	16.9	14.3	23.5	18.0	45.2
Other community sporting facilities	1.9	3.1	5.3	8.8	8.8	9.7	11.9	24.7	4.3	10.8
No sporting facilities	66.0	48.6	7.9	3.2	29.7	13.2	47.6	25.3	40.3	12.1
Community priority needs plan[(d)]										
Communities with a community priority needs plan	49.1	45.9	55.3	48.5	51.6	62.2	26.2	41.4	59.0	69.5
Of those with plan, needs identified include:										
More housing	68.0	66.6	95.2	98.4	97.9	99.4	90.9	90.8	92.6	97.9
Upgrade water supply	24.0	23.8	57.1	61.4	44.7	44.8	9.1	3.1	55.6	47.2
Upgrade electricity supply	16.0	15.4	28.6	20.3	51.1	53.1	18.2	21.2	40.7	36.2
Upgrade sewerage	24.0	23.8	66.7	75.5	36.2	44.1	36.4	15.7	49.4	37.3
Rubbish collection/disposal	32.0	43.6	42.9	27.3	53.2	63.1	54.5	64.0	44.4	40.4
Transport	60.0	64.3	42.9	21.2	36.2	39.6	36.4	35.4	37.0	51.1
Communication facilities	24.0	24.4	38.1	27.4	23.4	35.9	27.3	15.9	27.2	38.9
Education facilities	32.0	41.9	42.9	46.5	14.9	26.9	36.4	19.1	37.0	38.1
Sports facilities	40.0	46.8	71.4	53.0	57.4	65.3	72.7	68.8	54.3	72.4
Health care facilities	56.0	61.1	47.6	48.7	34.0	45.0	27.3	12.9	43.2	51.1
Animal control	24.0	35.5	47.6	47.8	36.2	41.6	27.3	30.6	44.4	60.9
Broadcasting capabilities	16.0	18.1	38.1	35.7	21.3	42.1	36.4	16.3	30.9	38.6

(continued)

Table 1.14.9 (continued): Proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, by state/territory, 2006

	NSW		Qld		WA		SA		NT	
Community Infrastructure	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
						Per cent				
Other	24.0	40.6	19.0	8.7	36.2	36.0	18.2	15.3	22.2	35.3
Communities developing a community priority needs plan	35.8	45.2	36.8	46.0	35.2	31.5	57.1	51.2	28.1	22.7
No community priority needs plan being developed	15.1	9.0	7.9	5.5	13.2	6.3	16.7	7.4	12.9	7.8
Total no. of communities	**57**	**5,082**	**120**	**27,349**	**277**	**14,023**	**91**	**4,607**	**639**	**41,553**

n.p. Not published where number in population is less than 5.

(a) All proportions were calculated excluding 'not stated' from denominator.

(b) Excluding communities with carted and other organised water supply.

(c) Percentage calculated as a proportion of all discrete Indigenous communities with a reported usual population of 50 persons or more, and communities which have a reported usual population of fewer than 50 persons but which are not administered by a larger discrete Indigenous community or resource agency, excluding communities where water was not sent away for testing and communities connected to town supply.

(d) Percentage calculated as a proportion of all discrete Indigenous communities with a reported usual population of 50 persons or more, and communities which have a reported usual population of fewer than 50 persons but which are not administered by a larger discrete Indigenous community or resource agency.

(e) Excluding communities which reported pit and pan toilets as the main sewerage system type.

(f) Percentage calculated as a proportion of all discrete Indigenous communities with a reported usual population of 50 persons or more, and communities which have a reported usual population of fewer than 50 persons but which are not administered by a larger discrete Indigenous community or resource agency, and which are located 10 kilometres or more from a hospital.

Source: AIHW analysis of 2006 CHINS.

Table 1.14.10: Proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, by remoteness, 2006

	Non-remote		Remote		Very remote	
Community infrastructure	**Dwellings**	**Reported usual population**	**Dwellings**	**Reported usual population**	**Dwellings**	**Reported usual population**
			Per cent			
Housing						
Condition of permanent dwellings managed by Indigenous housing organisations						
Needing minor or no repairs	73.2	n.a.	66.8	n.a.	67.5	n.a.
Needing major repairs	23.0	n.a.	24.1	n.a.	23.5	n.a.
Needing replacement	3.8	n.a.	9.1	n.a.	9.0	n.a.
Total dwellings	**100.0**	**n.a.**	**100.0**	**n.a.**	**100.0**	**n.a.**
	Communities	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
No-one in community living in temporary dwellings	76.0	60.2	61.0	45.6	64.9	68.2
Population living in temporary dwellings	n.a.	5.4	n.a.	4.9	n.a.	4.1
No-one in community requiring permanent dwelling	81.3	63.0	64.1	52.1	76.4	72.4
Population requiring permanent housing	n.a.	5.3	n.a.	4.8	n.a.	4.5
Access to clean water						
Organised water supply[b]	100.0	100.0	87.5	97.5	97.1	99.3
No organised water supply	0.0	0.0	12.5	2.5	2.9	0.7
Drinking water failed testing in last 12 months[c]	54.5	26.4	16.7	1.4	27.9	26.0
Drinking water not sent away for testing[d]	15.4	n.p.	40.0	12.4	21.0	9.7
Experienced 5 or more water interruptions over last 12 months[d]	6.1	4.1	38.6	28.7	18.8	29.6
Experienced interruptions to water supply longer than 24 hours[d]	18.2	11.2	29.5	34.3	21.5	18.1
Access to sewerage						
Organised sewerage supply[e]	97.3	99.6	98.1	99.7	81.5	96.2

(continued)

Table 1.14.10 (continued): Proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, by remoteness, 2006

	Non-remote		Remote		Very Remote	
Community infrastructure	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
			Per cent			
No organised system	2.7	n.p.	1.9	n.p.	19.0	3.8
Experienced overflows or leakage[d]	25.0	15.6	54.5	33.2	40.3	41.2
Over a 12-month period 10 or more overflows[d]	6.3	4.3	2.3	2.0	10.3	7.6
Overflows or leakages longer than 48 hours [d]	21.9	14.3	22.7	10.0	22.5	19.2
Not all dwellings connected	8.0	14.3	10.7	4.1	20.7	3.4
Access to electricity						
Organised electricity supply	100.0	100.0	99.0	100.0	96.6	99.6
No organised supply	0.0	0.0	1.0	n.p.	3.4	0.4
20 or more interruptions in the last 12 months[d]	1.5	1.5	11.4	15.8	13.7	19.1
At least one interruption longer than 24 hours in last 12 months[d]	16.7	41.2	36.4	19.2	27.0	28.0
Not all dwellings connected	4.5	2.9	0.0	0.0	3.5	2.0
Access to rubbish disposal						
Community has organised rubbish collection[d]	90.9	94.8	97.7	99.9	91.4	96.9
Community does not have organised rubbish disposal[d]	9.1	5.2	2.3	n.p.	8.6	3.1
Health and medical services						
Aboriginal primary health care centre						
Located within community	28.8	67.0	10.4	52.7	8.6	42.8
Located less than 100 km	65.8	30.4	78.1	45.4	46.0	20.6
Located 100 km or more	5.5	2.6	11.5	2.0	45.4	36.6

(continued)

Table 1.14.10 (continued): Proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, by remoteness, 2006

	Non-remote		Remote		Very Remote	
Community infrastructure	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
			Per cent			
Total stated	100.0	100.0	100.0	100.0	100.0	100.0
Hospital						
Located within community	5.4	49.3	1.0	28.5	0.6	7.1
Located less than 100 km	91.9	49.2	85.4	69.4	17.4	18.3
Located 100 km or more	2.7	1.5	13.6	2.1	82.0	74.6
Total stated	100.0	100.0	100.0	100.0	100.0	100.0
Other (state funded) community health centre						
Located within community	15.3	41.9	4.1	31.6	10.1	44.8
Located less than 100 km	84.7	58.1	87.6	52.8	48.7	21.3
Located 100 km or more	0.0	0.0	8.2	15.6	41.2	33.9
Total stated	100.0	100.0	100.0	100.0	100.0	100.0
Emergency services[(f)]						
Access to medical emergency air services	6.3	10.0	14.7	60.5	35.3	81.2
No access to medical emergency air services	93.8	90.0	85.3	39.5	64.7	18.8
Whether health professionals visiting or working in the community[(f)]						
Male Indigenous health worker daily, weekly, fortnightly	52.5	58.3	57.1	92.7	39.2	62.2
Male Indigenous health worker monthly or longer	10.0	5.5	0.0	0.0	9.7	6.6
No male Indigenous health worker	37.5	36.2	42.9	7.3	51.1	31.2
Female Indigenous health worker daily, weekly, fortnightly	52.5	61.6	57.1	92.7	55.5	80.0
Female Indigenous health worker monthly or longer	12.5	8.2	0.0	0.0	7.0	3.7
No female Indigenous health worker	35.0	30.3	42.9	7.3	37.4	16.2

(continued)

Table 1.14.10 (continued): Proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, by remoteness, 2006

	Non-remote		Remote		Very Remote	
Community infrastructure	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
			Per cent			
Doctor daily, weekly, fortnightly	45.0	57.5	47.6	88.6	39.6	58.9
Doctor monthly or longer	7.5	6.5	0.0	0.0	31.3	29.6
No doctor	47.5	36.0	52.4	11.4	29.1	11.5
Registered nurse daily, weekly, fortnightly	45.0	54.9	52.4	88.4	68.3	88.8
Registered nurse monthly or longer	7.5	10.2	0.0	0.0	10.6	4.4
No registered nurse	47.5	35.0	47.6	11.6	21.1	6.8
Educational services						
Primary						
Located within community	25.3	61.6	12.4	59.4	23.6	76.9
Located less than 50 km	73.3	38.3	72.4	38.0	44.5	17.3
Located 50 km or more	1.3	n.p.	15.2	2.6	32.0	5.9
Total stated	100.0	100.0	100.0	100.0	100.0	100.0
Secondary school up to Year 10						
Located within community	2.8	36.9	1.0	0.8	5.3	33.7
Located less than 50 km	91.5	61.8	70.6	78.0	31.4	22.0
Located 50 km or more	5.6	1.3	28.4	21.2	63.3	44.3
Total stated	100.0	100.0	100.0	100.0	100.0	100.0
Secondary school up to Year 12						
Located within community	5.3	2.9	1.9	30.6	3.8	25.5
Located less than 50 km	88.0	87.9	67.3	54.2	17.7	13.3
Located 50 km or more	6.7	9.3	30.8	15.2	78.6	61.3
Total stated	100.0	100.0	100.0	100.0	100.0	100.0

(continued)

Table 1.14.10 (continued): Proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, by remoteness, 2006

	Non-remote		Remote		Very Remote	
Community infrastructure	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
			Per cent			
Access to educational services other than school						
Pre-primary	33.3	70.1	20.5	43.9	37.1	55.2
Homework centre	10.6	8.5	11.4	8.9	6.6	10.6
TAFE courses	30.3	68.2	9.1	36.5	18.0	31.4
Other adult education	13.6	17.5	9.1	10.5	14.5	23.8
Other educational services	1.5	0.6	4.5	8.0	5.9	8.1
No other educational services	56.1	25.3	70.5	44.1	50.8	26.7
Communication services						
Public access to community telecommunication facilities						
Public telephones	46.7	77.0	48.6	74.5	60.2	86.7
Satellite dish	6.1	9.8	15.9	28.9	66.0	85.5
Radio	98.5	99.4	100.0	100.0	89.1	95.0
Television	100.0	100.0	100.0	100.0	93.0	97.9
Internet	30.3	35.8	13.6	60.8	43.0	61.8
Community has no access to a public telephone	53.3	23.0	51.4	25.5	39.8	13.3
Community has no access to internet	69.7	64.2	86.4	39.2	57.0	38.2
Transport						
Access to community not located in town						
Main mode of transport						
Road	100.0	100.0	97.6	96.6	86.3	72.8
Air	0.0	0.0	0.0	0.0	10.8	23.7
Sea	0.0	0.0	2.4	3.4	2.8	3.6

(continued)

Table 1.14.10 (continued): Proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, by remoteness, 2006

	Non-remote		Remote		Very Remote	
Community Infrastructure	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
			Per cent			
Usual method of transport[d]						
Private	80.4	89.3	87.0	87.8	86.8	76.0
Public	8.7	4.8	13.0	12.2	8.1	20.5
Community-owned vehicle	8.7	4.4	0.0	0.0	3.8	2.0
Other	2.2	1.5	0.0	0.0	1.3	1.5
Whether transport services available to/from community[d]						
Public	34.8	47.5	13.0	12.2	15.0	31.6
Community	52.2	59.9	30.4	33.0	17.5	18.1
Road access[d]						
Road access not cut	82.6	61.4	78.3	52.0	35.3	27.8
Road access cut 5 or more times	4.3	35.7	13.0	45.0	17.9	13.8
Inaccessible by road	0.0	0.0	4.3	4.2	14.5	28.8
Airstrip[d]						
Airstrip located in community	2.2	9.8	26.1	52.8	59.8	81.2
Airstrip open all year round	100.0	100.0	50.0	32.3	75.0	77.8
Airstrip not open all year round	0.0	0.0	50.0	67.7	25.0	22.2
Community services[d]						
Accommodation facilities						
Visitor	9.1	11.1	9.1	11.1	41.8	65.2
Camping	10.6	5.0	10.6	5.0	15.2	15.1
Single men's	10.6	12.5	10.6	12.5	14.5	23.1

(continued)

Table 1.14.10 (continued): Proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, by remoteness, 2006

	Non-remote		Remote		Very Remote	
Community infrastructure	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
			Per cent			
Single women's	7.6	10.8	7.6	10.8	7.8	15.4
Hostel	3.0	1.3	3.0	1.3	2.0	2.9
Contract workers	4.5	9.1	4.5	9.1	30.1	61.5
Disability	4.5	9.9	4.5	9.9	7.0	11.2
Aged	10.6	51.4	10.6	51.4	12.1	27.7
Women's refuge	4.5	48.9	4.5	48.9	10.2	29.6
Other	3.0	12.8	3.0	12.8	0.8	1.8
No accommodation facilities	74.2	41.1	74.2	41.1	39.8	16.4
Public facilities						
Hall/meeting area	56.1	80.5	56.1	80.5	55.5	72.4
Administration building	50.0	76.1	50.0	76.1	68.4	88.4
Store	13.6	59.0	25.0	75.0	60.5	84.9
Library	9.1	45.8	9.1	29.7	13.3	37.2
Arts/cultural centre	28.8	65.5	15.9	63.5	34.4	53.6
Women's centre	13.6	45.4	18.2	37.4	37.5	60.5
Child care centre	25.8	67.8	22.7	39.7	31.6	59.3
Youth centre	15.2	47.5	15.9	61.4	21.1	40.5
Canteen	6.1	5.1	9.1	40.9	15.2	40.0
Broadcasting facilities	6.1	22.7	11.4	61.5	40.6	71.6
Other	12.1	32.7	11.4	11.8	10.2	13.9
No public facilities	33.3	14.8	34.1	7.8	20.3	5.0

(continued)

Table 1.14.10 (continued): Proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, by remoteness, 2006

	Non-remote		Remote		Very Remote	
Community infrastructure	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
			Per cent			
Recreation facilities						
Sports grounds	28.8	68.2	25.0	75.0	54.3	81.6
Outdoor basketball/netball courts	33.3	63.3	31.8	74.8	55.1	73.8
Indoor or covered sporting facilities	10.6	54.6	15.9	66.1	12.5	31.9
Swimming pools	4.5	38.0	2.3	5.8	9.0	23.1
Other buildings used for sport	13.6	45.9	9.1	42.4	17.2	34.0
Other community sporting facilities	1.5	0.7	11.4	13.4	6.3	11.6
No sporting facilities	51.5	19.1	63.6	19.4	30.9	9.6
Community priority needs plan[(d)]						
Communities with a community priority needs plan	45.5	43.0	72.7	70.5	49.6	60.2
Of those with plan, needs identified include:						
More housing	86.2	121.5	90.3	96.1	92.9	97.2
Upgrade water supply	37.9	50.4	67.7	79.5	42.9	43.8
Upgrade electricity supply	20.7	14.2	61.3	32.0	36.5	36.6
Upgrade sewerage	37.9	79.5	61.3	76.3	41.3	40.2
Rubbish collection/disposal	51.7	62.6	29.0	22.5	48.4	43.7
Transport	58.6	40.7	19.4	19.2	42.9	47.1
Communication facilities	34.5	44.3	9.7	7.1	30.2	38.9
Education facilities	41.4	88.8	9.7	8.9	34.9	39.4
Sports facilities	62.1	107.3	25.8	23.7	62.7	69.7
Health care facilities	58.6	96.8	16.1	16.9	45.2	50.7
Animal control	55.2	106.4	19.4	10.3	40.5	55.7

(continued)

Table 1.14.10 (continued): Proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, by remoteness, 2006

	Non-remote		Remote		Very Remote	
Community Infrastructure	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**	**Communities**	**Reported usual population**
			Per cent			
Broadcasting capabilities	24.1	73.3	3.2	3.8	34.1	39.5
Other	17.2	19.3	12.9	12.4	31.0	32.4
Communities developing a community priority needs plan	43.9	53.9	25.0	29.2	34.8	31.1
No community priority needs plan being developed	10.6	3.0	2.3	n.p.	15.6	8.7
Total no. of communities	**75**	**12,560**	**107**	**10,775**	**1,005**	**69,625**

(a) All proportions were calculated excluding 'not stated' from denominator.

(b) Excluding communities with carted and other organised water supply.

(c) Percentage calculated as a proportion of all discrete Indigenous communities with a reported usual population of 50 persons or more, and communities which have a reported usual population of fewer than 50 persons but which are not administered by a larger discrete Indigenous community or resource agency, excluding communities where water was not sent away for testing and communities connected to town supply.

(d) Percentage calculated as a proportion of all discrete Indigenous communities with a reported usual population of 50 persons or more, and communities which have a reported usual population of fewer than 50 persons but which are not administered by a larger discrete Indigenous community or resource agency.

(e) Excluding communities which reported pit and pan toilets as the main sewerage system type.

(f) Percentage calculated as a proportion of all discrete Indigenous communities with a reported usual population of 50 persons or more, and communities which have a reported usual population of fewer than 50 persons but which are not administered by a larger discrete Indigenous community or resource agency, and which are located 10 kilometres or more from a hospital.

Source: AIHW analysis of 2006 CHINS.

Table 1.14.11: Number and proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, 2001

Community Infrastructure	Dwellings		Reported usual population	
	No.	%	No.	%
Housing				
Condition of permanent dwellings managed by Indigenous Housing Organisations				
needing minor or no repairs	14,990	72.1	n.a.	n.a.
needing major repairs	4,024	19.3	n.a.	n.a.
needing replacement	1,790	8.6	n.a.	n.a.
Total dwellings[b]	**21,287**	**100.0**	**n.a.**	**n.a.**
	Communities		**Reported usual population**	
	No.	**%**	**No.**	**%**
No-one in community living in temporary dwellings	745	61.3	56,759	52.5
Population living in temporary dwellings	n.a.	n.a.	5,602	5.2
No-one in community requiring permanent dwelling	776	63.9	59,868	55.4
Population requiring permanent housing	n.a.	n.a.	5,120	5.3
Access to clean water				
Organised water supply[c]	1,173	96.5	107,797	99.7
No organised water supply	43	3.5	288	0.3
Drinking water failed testing in last 12 months[d]	61	32.6	17,206	24.7
Drinking water not sent away for testing[e]	56	22.8	6,561	8.4
Experienced 5 or more water interruptions over last 12 months[e][f]	n.a.	n.a.	n.a.	n.a.
Experienced interruptions to water supply greater than 24 hours[e][f]	n.a.	n.a.	n.a.	n.a.
Access to sewerage				
Organised sewerage supply[g]	898	73.8	103,402	95.7
No organised system	318	26.2	4,683	4.3
Experienced overflows or leakage[e]	171	43.8	54,123	56.0
Over a 12 month period 10 or more overflows[e]	42	10.8	10,341	10.7
Overflows or leakages longer than 48 hours [e]	104	26.9	30,378	31.7
Not all dwellings connected	62	6.1	3,171	3.0
Access to electricity				
Organised electricity supply	1,136	93.4	107,404	99.4
no organised supply	80	6.6	681	0.6
20 or more interruptions in the last 12 months[e]	60	15.5	17,301	18.0
At least one interruption greater than 24 hours in last 12 months[e]	57	14.8	9,682	10.1
Not all dwellings connected[e]	11	2.8	2,072	1.9
Access to rubbish disposal				
Community has organised rubbish collection[e]	363	92.8	94,481	97.8
Community does not have organised rubbish disposal[e]	28	7.2	2,089	2.2

(continued)

Table 1.14.11 (continued): Number and proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, 2001

Community Infrastructure	Communities		Reported usual population	
	No.	%	No.	%
Health and medical services				
Aboriginal primary health care centre[(f)]				
Located within community	n.a.	n.a.	n.a.	n.a.
Located less than 100km	n.a.	n.a.	n.a.	n.a.
Located 100km or more	n.a.	n.a.	n.a.	n.a.
Total stated	n.a.	n.a.	n.a.	n.a.
Hospital				
Located within community	9	0.7	15,800	14.6
Located less than 100km	364	30.0	35,054	32.4
Located 100km or more	841	69.3	57,222	52.9
Total stated	1,214	100.0	108,076	100.0
Other (state funded) community health centre[(f)]				
Located within community	n.a.	n.a.	n.a.	n.a.
Located less than 100km	n.a.	n.a.	n.a.	n.a.
Located 100km or more	n.a.	n.a.	n.a.	n.a.
Total stated	n.a.	n.a.	n.a.	n.a.
Emergency services[(h)]				
Access to medical emergency air services	525	48.3	64,721	82.6
No access to medical emergency air services	562	51.7	13,661	17.4
Whether health professionals visiting or working in the community[(h)]				
Male Indigenous health worker daily, weekly, fortnightly	89	31.6	34,697	53.4
Male Indigenous health worker monthly or longer	43	15.2	7,526	11.6
No male Indigenous health worker	150	53.2	22,746	35.0
Female Indigenous health worker daily, weekly, fortnightly	166	58.7	53,105	80.4
Female Indigenous health worker monthly or longer	36	12.7	3,905	5.9
No female Indigenous health worker	81	28.6	9,069	13.7
Doctor daily, weekly, fortnightly	167	57.8	57,063	84.7
Doctor monthly or longer	57	19.7	6,167	9.2
No doctor	65	22.5	4,145	6.2
Registered nurse daily, weekly, fortnightly	189	65.4	58,243	86.4
Registered nurse monthly or longer	43	14.9	4,665	6.9
No registered nurse	57	19.7	4,467	6.6

(continued)

Table 1.14.11 (continued): Number and proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, 2001

Community Infrastructure	Communities		Reported usual population	
	No.	%	No.	%
Educational services				
Primary				
Located within community	249	20.7	77,039	71.5
Located less than 50km	602	50.1	25,481	23.6
Located 50km or more	351	29.2	5,283	4.9
Total stated	1,202	100.0	107,803	100.0
Secondary school up to Year 10				
Located within community	67	5.6	34,992	32.5
Located less than 50km	435	36.3	30,522	28.4
Located 50km or more	698	58.2	42,128	39.1
Total stated	1,200	100.0	107,642	100.0
Secondary school up to Year 12				
Located within community	17	1.4	5,905	5.5
Located less than 50km	280	23.2	31,002	28.8
Located 50km or more	909	75.4	70,846	65.7
Total stated	1,206	100.0	107,753	100.0
Access to educational services other than school				
Pre-primary	153	39.8	68,474	71.6
Homework centre	40	10.4	14,466	15.1
TAFE courses	77	20.1	41,594	43.5
Other adult education	21	5.5	14,104	14.8
Other educational services	27	7.0	13,362	14.0
No other educational services	194	50.5	20,943	21.9
Communication services				
Public access to community telecommunication facilities				
Public telephones	597	50.8	84,480	78.7
Satellite dish[(f)]	n.a.	n.a.	n.a.	n.a.
Radio	357	93.5	93,118	97.3
Television	363	95.0	94,299	98.5
Internet[(f)]	n.a.	n.a.	n.a.	n.a.
Community has no access to a public telephone	579	49.2	22,877	21.3
Community has no access to internet[(f)]	n.a.	n.a.	n.a.	n.a.

(continued)

Table 1.14.11 (continued): Number and proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, 2001

Community Infrastructure	Communities		Reported usual population	
	No.	%	No.	%
Transport				
Access to community not located in town				
Main mode of transport				
Road	1,025	89.4	72,062	72.4
Air	86	7.5	21,312	21.4
Sea	36	3.1	6,092	6.1
Usual method of transport[f]				
Private	n.a.	n.a.	n.a.	n.a.
Public	n.a.	n.a.	n.a.	n.a.
Community owned vehicle	n.a.	n.a.	n.a.	n.a.
Other	n.a.	n.a.	n.a.	n.a.
Whether transport services available to/from community[f]				
Public	n.a.	n.a.	n.a.	n.a.
Community	n.a.	n.a.	n.a.	n.a.
Road access[e]				
Road access not cut	114	37.3	20,122	27.9
Road access cut 5 or more times	37	12.2	17,302	24.1
Inaccessible by road	27	8.1	16,534	18.7
Airstrip[d]				
airstrip located in community	167	50.2	61,371	69.3
airstrip open all year round	111	66.5	46,675	76.1
airstrip not open all year round	56	33.5	14,696	23.9
Community services[e]				
Accommodation facilities				
Visitor	135	35.2	56,226	58.8
Camping	85	22.2	26,730	28.0
Single men's	90	23.5	30,411	31.8
Single women's	40	10.4	16,291	17.0
Hostel	15	3.9	9,362	9.8
Contract workers	83	21.7	41,068	42.9
Disability	40	10.4	19,144	20.0
Aged	65	17.0	37,067	38.8
Women's refuge	29	7.6	29,045	30.4
Other	4	1.0	1,357	1.4
No accommodation facilities	149	38.8	17,435	18.2

(continued)

Table 1.14.11 (continued): Number and proportion[a] of discrete Indigenous communities by characteristics contributing to community functioning, 2001

Community Infrastructure	Communities		Reported usual population	
	No.	%	No.	%
Public facilities				
Hall/meeting area	228	59.2	72,691	75.6
Administration building	146	37.9	83,150	86.5
Store	181	47.0	75,636	78.6
Library	49	12.7	32,965	34.3
Arts/cultural centre	91	23.6	40,305	41.9
Women's centre	123	31.9	56,713	59.0
Child care centre	111	28.8	51,116	53.1
Youth centre	60	15.6	35,738	37.2
Canteen	53	13.8	36,624	38.1
Broadcasting facilities[f]	n.a.	n.a.	n.a.	n.a.
Other	51	13.2	25,122	26.1
No public facilities	79	20.5	5,239	5.4
Recreation facilities				
Sports grounds	168	43.8	72,820	76.5
Outdoor basketball/netball courts	183	47.7	69,563	73.1
Indoor or covered sporting facilities	29	7.6	19,316	20.3
Swimming pools	23	6.0	13,749	14.4
Other buildings used for sport	56	14.6	27,821	29.2
Other community sporting facilities	10	2.6	6,820	7.2
No sporting facilities	161	41.9	14,087	14.8
Community priority needs plan[f]				
Communities with a community priority needs plan	n.a.	n.a.	n.a.	n.a.
Of those with plan needs identified include:				
More housing	n.a.	n.a.	n.a.	n.a.
Upgrade water supply	n.a.	n.a.	n.a.	n.a.
Upgrade electricity supply	n.a.	n.a.	n.a.	n.a.
Upgrade sewerage	n.a.	n.a.	n.a.	n.a.
Rubbish collection/disposal	n.a.	n.a.	n.a.	n.a.
Transport	n.a.	n.a.	n.a.	n.a.
Communication facilities	n.a.	n.a.	n.a.	n.a.
Education facilities	n.a.	n.a.	n.a.	n.a.
Sports facilities	n.a.	n.a.	n.a.	n.a.
Health care facilities	n.a.	n.a.	n.a.	n.a.
Animal control	n.a.	n.a.	n.a.	n.a.
Broadcasting capabilities	n.a.	n.a.	n.a.	n.a.

(continued)

Table 1.14.11 (continued): Number and proportion[(a)] of discrete Indigenous communities by characteristics contributing to community functioning, 2001

Community Infrastructure	Communities		Reported usual population	
	No.	%	No.	%
Other	n.a.	n.a.	n.a.	n.a.
Communities developing a community priority needs plan	n.a.	n.a.	n.a.	n.a.
No community priority needs plan being developed	n.a.	n.a.	n.a.	n.a.
Total no. of communities	**1,216**	**100.0**	**108,085**	**100.0**

n.a. Not available

(a) All proportions were calculated excluding not stated from denominator.

(b) Includes condition of permanent dwellings not stated.

(c) Excluding communities with carted and other organised water supply.

(d) Percentage calculated as a proportion of all discrete Indigenous communities with a reported usual population of 50 persons or more, and communities which have a reported usual population of less than 50 persons but which are not administered by a larger discrete Indigenous community or Resource Agency, excluding communities where water not sent away for testing and communities connected to town supply.

(e) Percentage calculated as a proportion of all discrete Indigenous communities with a reported usual population of 50 persons or more, and communities which have a reported usual population of less than 50 persons but which are not administered by a larger discrete Indigenous community or Resource Agency.

(f) Data not collected in 2001 CHINS.

(g) Excluding communities who reported pit and pan toilets as the main sewerage system type.

(h) Percentage calculated as a proportion of all discrete Indigenous communities with a reported usual population of 50 persons or more, and communities which have a reported usual population of less than 50 persons but which are not administered by a larger discrete Indigenous community or Resource Agency, and are located 10 kilometres or more from a hospital.

Source: AIHW analysis of 2001 CHINS.

Data quality issues

Community functioning should be measured at the community level, but many of the data items currently collected are based only on individuals. This will affect how community functioning data can be interpreted.

Community Housing and Infrastructure Needs Survey (CHINS)

The 2006 CHINS collected information on a variety of topics from discrete Aboriginal and Torres Strait Islander communities throughout Australia and on Indigenous organisations that provide rental housing to Aboriginal and Torres Strait Islander peoples. In 2006 CHINS information was collected on 496 Indigenous organisations which managed a total of 21,854 permanent dwellings. The majority of those dwellings were located in the Northern Territory (6,448), Queensland (6,230), New South Wales (4,176) and Western Australia (3,462) (ABS 2007).

The CHINS covers only discrete Indigenous communities. In 2006 the survey collected information from 1,187 discrete Indigenous communities which included approximately 92,960 Aboriginal and Torres Strait Islander peoples or 18% of the total Indigenous population. CHINS data are collected every 5 years. The data are collected from key personnel in Indigenous communities and housing organisations knowledgeable about housing and infrastructure issues.

The estimates are not subject to sampling error, as the CHINS was designed as a complete enumeration of discrete Indigenous communities. However, data could not be obtained from a small number of communities. In addition, the community population was often estimated by community representatives without reference to records.

Further information on the CHINS can be found in the 2006 CHINS summary publication (ABS 2007).

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The NATSISS uses the standard Indigenous status question. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians and thus overcome the problems inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSISS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions (ABS 2004).

Non-Indigenous comparisons are available through the General Social Survey. Time series comparisons are available through the 1994 National Aboriginal and Torres Strait Islander Survey.

In remote communities there were some modifications to the NATSISS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSISS data quality issues can be found in the 2002 NATSISS publication (ABS 2004).

References

ABS (Australian Bureau of Statistics) 2004. National Aboriginal and Torres Strait Islander Social Survey 2002. ABS cat. no. 4714.0. Canberra: ABS.

ABS 2007. Housing and infrastructure in Aboriginal and Torres Strait Islander communities, Australia 2006. ABS cat. no. 4710.0. Canberra: ABS.

1.15 Perceived health status

Self-reported, self-assessed health status of Aboriginal and Torres Strait Islander Australians

Data sources

Data for this measure come from the 2004–05 National Aboriginal and Torres Strait Islander Health Survey and the 2002 National Aboriginal and Torres Strait Islander Social Survey.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The 2004–05 NATSIHS collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians about health-related issues including health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. It is planned to repeat the NATSIHS at 6-yearly intervals, with the next NATSIHS to be conducted in 2010–11. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The 2002 NATSISS collected information from 9,400 Indigenous Australians across all states and territories of Australia. The sample covered persons aged 15 years and over who were usual residents of private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice. The 2002 NATSISS is the second national social survey of Indigenous Australians conducted by the ABS. Selected non-Indigenous comparisons are available through the 2002 General Social Survey (GSS). The ABS plans to conduct the NATSISS every 6 years. The next survey is planned for 2008.

Analyses

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

Self-assessed health status

- In 2004–05 around 43% of the Indigenous population aged 15 years and over reported their health as very good or excellent, 35% reported their health as good and 22% reported their health as fair or poor.
- After adjusting for differences in age structure between the Indigenous and non-Indigenous population, Indigenous Australians were almost twice as likely as non-Indigenous Australians to report their health as fair or poor.

Self-assessed health status by age and sex

- The proportion of Indigenous Australians aged 15–24 years reporting fair or poor health was 9% compared with 50% of those aged 55 years and over (Table 1.15.1). Indigenous Australians were more likely than non-Indigenous Australians to report fair or poor health across all age groups (Figure 1.15.1).
- Indigenous females were more likely to report their health as fair or poor than Indigenous males (24% compared with 19%) (Table 1.15.2).

Table 1.15.1: Self-assessed health status, by Indigenous status and age, persons aged 15 years and over, 2004–05[(a)(b)]

	15–24		25–34		35–44		45–54		55 and over		Total non-age-standardised		Total age-standardised		
	Indig	Non-Indig	Indig	Non-Indig	Indig	Non-Indig	Indig	Non-Indig	Indig	Non-Indig	Indig	Non-Indig	Indig	Non-Indig	Rate ratio
								Per cent							
Self assessed health status															
Excellent	23*	31*	12*	24*	10*	22*	7*	19*	5*	13*	14*	21*	11	21	0.5*
Very good	36	39	37	40	28*	40*	18*	36*	14*	28*	30*	35*	25	36	0.7*
Subtotal excellent/ very good	*59**	*70**	*49**	*64**	*38**	*62**	*25**	*55**	*19**	*41**	*43**	*56**	*36*	*57*	*0.6**
Good	32*	24*	36*	28*	38*	27*	38*	29*	32*	30*	35*	28*	35	28	1.3*
Fair	8	6	12*	7*	18*	9*	24*	11*	31*	19*	16*	11*	20	11	1.8*
Poor	1[(c)]	1	3	2	6*	2*	12*	5*	19*	9*	6*	4*	10	4	2.2*
Subtotal fair/poor	*9*	*7*	*15**	*9**	*24**	*11**	*36**	*16**	*50**	*28**	*22**	*16**	*29*	*15*	*1.9**
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Total number	**92,067**	**2,636,199**	**69,772**	**2,761,354**	**59,057**	**2,899,566**	**39,578**	**2,705,580**	**33,167**	**4,529,678**	**293,641**	**15,532,377**	**293,641**	**15,532,377**	**. .**

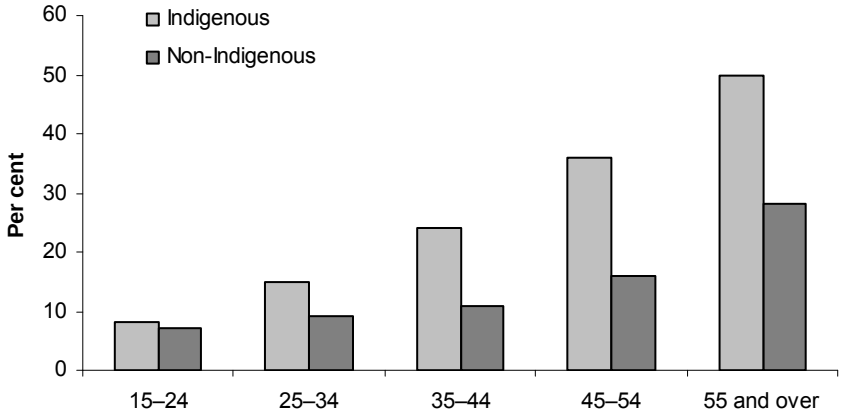
* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Information for some persons aged 15–17 years was provided by a parent or guardian.

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

Sources: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.



Source: ABS 2006.

Figure 1.15.1: Proportion of persons reporting fair or poor health, by Indigenous status and age group, 2004–05

Table 1.15.2: Self-assessed health status, persons aged 15 years and over, by sex and Indigenous status, 2004–05[(a)(b)]

	Non-age-standardised				Age-standardised					
	Males		Females		Males			Females		
Self-assessed health status	**Indig**	**Non-Indig**	**Indig**	**Non-Indig**	**Indig**	**Non-Indig**	**Ratio**	**Indig**	**Non-Indig**	**Ratio**
	%	%	%	%	%	%		%	%	
Excellent	15*	21*	13*	21*	11	21	0.5*	11	22	0.5*
Very good	30*	34*	29*	36*	26	35	0.7*	25	37	0.7*
Subtotal excellent/very good	45*	55*	42*	58*	36	55	0.7*	36	58	0.6*
Good	36*	29*	34*	27*	35	29	1.2*	34	27	1.3*
Fair	14*	12*	17*	11*	19	12	1.6*	20	11	1.9*
Poor	6	5	7*	4*	9	5	2.1*	10	4	2.4*
Subtotal fair/poor	19*	16*	24*	15*	28	16	1.7*	30	15	2.0*
Total	100	100	100	100	100	100	. .	100	100	. .
Total number	**139,595**	**7,666,352**	**154,046**	**7,866,025**	**139,595**	**7,666,352**	**. .**	**154,046**	**7,866,025**	**. .**

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Information for some persons aged 15–17 years was provided by a parent or guardian.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.

Self-assessed health status by state/territory and remoteness

- The proportion of Indigenous Australians aged 15 years and over reporting fair or poor health was similar in all states and territories (between 22% and 23%) except in the Australian Capital Territory and the Northern Territory where 17% and 16% respectively reported their health as fair or poor (Table 1.15.3a). Indigenous Australians were approximately twice as likely as non-Indigenous Australians to report fair or poor health across all states and territories (Table 1.15.3b).
- A higher proportion of Indigenous Australians aged 15 years and over in non-remote areas reported fair or poor health (23%) than Indigenous Australians in remote areas (19%) (Table 1.15.4a). Indigenous Australians were around twice as likely to report their health as fair or poor as non-Indigenous Australians across all remoteness categories (Table 1.15.4b).

Table 1.15.3a: Self-assessed health status, Indigenous persons aged 15 years and over, by state and territory, 2004–05[(a)(b)]

Self-assessed health status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
					Per cent				
Excellent	13	17	13	12	15	19	10	15	14
Very good	30	31	30	24	27	31	39	35	30
Subtotal excellent/very good	*43*	*48*	*42*	*36*	*42*	*50*	*49*	*51*	*43*
Good	34	30	35	42	35	27	34	34	35
Fair	16	15	16	15	17	14	10	13	16
Poor	7	6	6	7	6	9	8[(c)]	3	6
Subtotal fair/poor	*23*	*22*	*23*	*22*	*23*	*23*	*17*	*16*	*22*
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Total number	**85,426**	**18,492**	**79,351**	**42,043**	**16,677**	**11,256**	**2,596**	**37,800**	**293,641**

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Information for some persons aged 15–17 years was provided by a parent or guardian.

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

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Table 1.15.3b: Self-assessed health status, by Indigenous status and state and territory, persons aged 15 years and over, 2004–05[(a)(b)]

Self-assessed health status	NSW		Vic		Qld		WA		SA		Tas		ACT		NT	
	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig[(c)]
								Per cent								
Excellent	11*	21*	12*	23*	10*	20*	9*	22*	12*	21*	16*	22*	7[(d)]*	22*	12	. .
Very good	25*	35*	27*	37*	25*	36*	20*	36*	24*	35*	26*	36*	36	36	31	. .
Total excellent/very good	*36**	*56**	*40**	*59**	*35**	*55**	*29**	*58**	35*	56*	*42**	*58**	*44**	*58**	*42*	. .
Good	35*	28*	30	27	34*	28*	41*	28*	32	29	28	25	32	28	35	. .
Fair	19*	12*	19*	10*	21*	12*	20*	10*	23*	12*	19*	12*	13[(d)]	10	17	. .
Poor	9*	5*	11*	4*	11*	4*	11*	4*	9*	4*	12[(d)]*	6*	11[(d)]	4	5	. .
Total fair/poor	*29**	*16**	*30**	*14**	*31**	*16**	*31**	*14**	32*	15*	*31**	*18**	*24*	*14*	*22*	. .
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Total number	**85,426**	**5,222,355**	**18,492**	**3,944,895**	**79,351**	**2,949,876**	**42,043**	**1,498,665**	**16,677**	**1,200,435**	**11,256**	**366,280**	**2,596**	**252,744**	**37,800**	**. .**

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Information for some persons aged 15–17 years was provided by a parent or guardian.

(c) Sample does not support estimates for the non-Indigenous population in the Northern Territory.

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

Note: Data are age-standardised.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.

Table 1.15.4a: Self-assessed health status, Indigenous persons aged 15 years and over, by remoteness, 2004–05[(a)(b)]

Self-assessed health status	Major Cities	Inner Regional	Outer Regional	*Total non-remote*	Remote	Very Remote	*Total remote*	Total
				Per cent				
Excellent	12	14	15	*14*	14	13	*13*	14
Very good	31	29	30	*30*	24	30	*28*	30
Total excellent/very good	*44*	*43*	*45*	*44*	*38*	*43*	*41*	*43*
Good	32	34	33	*33*	38	41	*40*	35
Fair	16	16	16	*16*	17	13	*14*	16
Poor	8	7	5	*7*	7	3	*5*	6
Total fair/poor	*25*	*23*	*21*	*23*	*24*	*16*	*19*	*22*
Total[(c)]	**100**	**100**	**100**	***100***	**100**	**100**	***100***	**100**
Total number	**89,350**	**58,372**	**65,700**	***213,422***	**24,456**	**55,763**	***80,219***	**293,641**

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Information for some persons aged 15–17 years was provided by a parent or guardian.

(c) Includes self-assessed health status 'not stated'.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey.

Table 1.15.4b: Self-assessed health status, by Indigenous status and remoteness, persons aged 15 years and over, 2004–05[a][b]

	Major Cities			Inner Regional			Outer Regional			*Total non-remote*			Remote			Very Remote[c]	*Total remote*[c]
Self-assessed health status	**Indig.**	**Non-Indig.**	**Ratio[d]**	**Indig.**	**Non-Indig.**	**Ratio[d]**	**Indig.**	**Non-Indig.**	**Ratio[d]**	***Indig.***	***Non-Indig.***	**Ratio[d]**	**Indig.**	**Non-Indig.**	**Ratio[d]**	**Indig.**	***Indig.***
	(%)	(%)		(%)	(%)		(%)	(%)		*(%)*	*(%)*		(%)	(%)		(%)	*(%)*
Excellent	10	22	0.4*	12	21	0.6*	11	18	0.6*	*11*	*21*	*0.5**	11	19	0.6*	11	*11*
Very good	26	35	0.7*	25	37	0.7*	26	36	0.7*	*26*	*36*	*0.7**	21	30	0.7*	26	*24*
Total excellent/very good	*36*	*57*	*0.6**	*37*	*58*	*0.6**	*37*	*54*	*0.7**	*36*	*57*	*0.6**	*32*	*49*	*0.6**	*37*	*35*
Good	31	28	1.1	34	26	1.3*	34	28	1.2*	*33*	*28*	*1.2**	38	35	1.1	41	*40*
Fair	20	11	1.9*	19	12	1.5*	22	13	1.7*	*20*	*11*	*1.8**	20	12	1.7*	17	*18*
Poor	13	4	3.2*	10	4	2.4*	7	5	1.3	*11*	*4*	*2.4**	11	3[e]	3.2*	5	*7*
Total fair/poor	*34*	*15*	*2.3**	*29*	*16*	*1.8**	*29*	*18*	*1.6**	*31*	*15*	*2.0**	*30*	*15*	*2.0**	*22*	*25*
Total[f]	**100**	**100**	**. .**	**100**	**100**	**. .**	**100**	**100**	**. .**	***100***	***100***	*. .*	**100**	**100**	**. .**	**100**	***100***

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Information for some persons aged 15–17 years was provided by a parent or guardian.

(c) Non-Indigenous data were not collected in very remote areas in the National Health Survey.

(d) Indigenous rate divided by non-Indigenous rate.

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

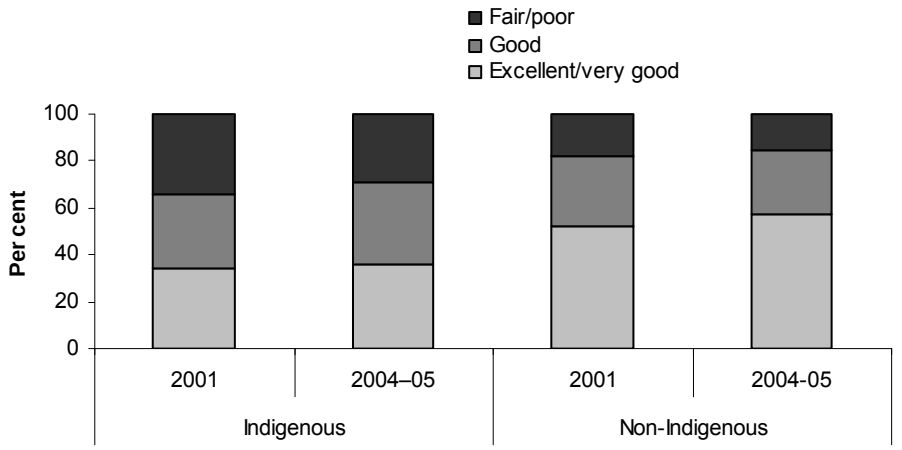
(f) Includes self-assessed health status 'not stated'.

Note: Data are age-standardised.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.

Time series analysis

- There has been a significant decline in Indigenous Australians reporting their health as fair or poor between 2001 (26%) and 2004–05 (22%) (Figure 1.15.2).



Source: ABS and AIHW analysis of 2001 National Health Survey (Indigenous supplement), 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.

Figure 1.15.2: Self-assessed health status, by Indigenous status, 2001 and 2004–05

Self-assessed health status by population, health and social/cultural characteristics

Table 1.15.5 presents data on the association between the self-assessed health status of Indigenous Australians and a number of summary population characteristics.

- In 2004–05, Indigenous Australians aged 15 years and over who reported their highest year of schooling was Year 9 or below were more likely to report their health as fair or poor than Indigenous Australians who had completed Year 11 or 12 as their highest year of schooling (Table 1.15.5).
- A higher proportion of Indigenous Australians who were employed reported their health as excellent or very good than Indigenous Australians who were unemployed or not in the labour force.
- Indigenous Australians who were in the lowest (1st) quintile of household income and index of disparity were more likely to report their health as fair or poor than Indigenous Australians in the highest (5th) quintile for these characteristics.

Table 1.15.6 presents data on the self-assessed health status of Indigenous Australians by the number of long-term conditions reported.

- In 2004–05, a higher proportion of Indigenous Australians with no long-term conditions reported their health as excellent/very good than Indigenous Australians with three or more long-term conditions (49% compared with 27%).

Table 1.15.5: Self-assessed health status, by selected population characteristics and Indigenous status, persons aged 15 years and over, 2004–05[(a)(b)]

	Excellent/very good			Good			Fair/poor			Total	
	Indigenous	Non-Indigenous	Rate ratio[(c)]	Indigenous	Non-Indigenous	Rate ratio[(c)]	Indigenous	Non-Indigenous	Rate ratio[(c)]	Indigenous	Non-Indigenous
	(%)	(%)		(%)	(%)		(%)	(%)		(%)	(%)
Main language spoken at home[(d)]											
English	34	57	0.6*	35	28	1.2*	32	15	2.0*	100	100
Other	23	44	0.5*	45	34	1.3	32	22	1.0	100	100
Highest year of school completed[(e)]											
Year 12	42	62	0.7*	35	27	1.3	24	11	2.2*	100	100
Year 11	39	57	0.7*	41	30	1.4	20	13	1.5	100	100
Year 10	36	53	0.7*	38	31	1.2*	26	16	1.6*	100	100
Year 9 or below[(f)]	30	41	0.7*	36	31	1.2*	34	28	1.2*	100	100
Whether has non-school qualification[(e)]											
Has a non-school qualification	38	59	0.6*	36	28	1.3*	26	13	2.1*	100	100
Does not have a non-school qualification	33	52	0.6*	36	29	1.2*	31	19	1.6*	100	100
Employment											
Employed	43	64	0.7*	39	27	1.4*	18	9	2.0*	100	100
Unemployed	38	48	0.8	25	31	0.8	37	21	1.8	100	100
Not in the labour force	29	47	0.6*	33	28	1.2*	38	26	1.5*	100	100
Household income											
1st quintile	30	42	0.7*	34	29	1.2*	35	29	1.2*	100	100
5th quintile	45	69	0.7*	40	24	1.6	14	7	2.1	100	100

(continued)

Table 1.15.5 (continued): Self-assessed health status, by selected population characteristics and Indigenous status, persons aged 15 years and over, 2004–05[(a)(b)]

	Excellent/very good			Good			Fair/poor			Total	
	Indigenous	Non-Indigenous	Rate ratio[(c)]	Indigenous	Non-Indigenous	Rate ratio[(c)]	Indigenous	Non-Indigenous	Rate ratio[(c)]	Indigenous	Non-Indigenous
	(%)	(%)		(%)	(%)		(%)	(%)		(%)	(%)
Index of disparity											
1st quintile	33	48	0.7*	35	29	1.2*	32	22	1.5*	100	100
5th quintile	49	65	0.8	24	25	1.0	27	10	2.6	100	100
Location											
Remote[(g)]	35	n.p.	n.p.	40	n.p.	n.p.	25	n.p.	n.p.	100	100
Non-remote	36	57	0.6*	33	28	1.2*	31	15	2.0*	100	100
Total persons aged 18 years and over	**34**	**55**	**0.6***	**36**	**28**	**1.3***	**30**	**16**	**1.9***	**100**	**100**
Total persons aged 15 years and over	**36**	**57**	**0.6***	**35**	**28**	**1.3***	**29**	**15**	**1.9***	**100**	**100**

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Information for some persons aged 15–17 years was provided by a parent or guardian.

(c) Indigenous rate divided by non-Indigenous rate.

(d) Persons aged 18 years and over.

(e) Persons not still at school.

(f) Includes persons who never attended school.

(g) Non-Indigenous data were not collected in remote areas in the National Health Survey.

Note: Data are age-standardised.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.

Table 1.15.6: Self-assessed health status, by long-term conditions and Indigenous status, persons aged over 15 years, 2004–05[a][b]

	Number of long-term conditions[c]														
	0			1			2			3+			Total		
Self-assessed health status	Indig.	Non-Indig.	Rate ratio	Indig.	Non-Indig.	Rate ratio	Indig.	Non-Indig.	Rate ratio	Indig.	Non-Indig.	Rate ratio	Indig.	Non-Indig.	Rate ratio
	%	%		%	%		%	%		%	%		%	%	
Excellent	17[d]	36	0.5*	16	31	0.5*	13	23	0.5*	6	13	0.5*	11	21	0.5*
Very good	32	34	0.9	30	42	0.7*	29	40	0.7*	21	32	0.6*	25	36	0.7*
Subtotal excellent/very good	49	70	0.7*	46	72	0.6*	42	63	0.7*	27	45	0.6*	36	57	0.6*
Good	43	25	1.7*	42	23	1.8*	36	28	1.3*	34	32	1.1	35	28	1.3*
Fair	7[d]	4[d]	2.0	12[d]	4	3.0*	16	7	2.3*	26	16	1.6*	20	11	1.8*
Poor	0[e]	1[e]	0.3	1[e]	1[d]	0.7	6[d]	1	4.7*	13	7	2.0*	10	4	2.2*
Subtotal fair/poor	8[d]	5[d]	1.5	12[d]	5	2.6*	22	8	2.7*	39	23	1.7*	29	15	1.9*
Total	**100**	**100**	**. .**	**100**	**100**	**. .**	**100**	**100**	**. .**	**100**	**100**	**. .**	**100**	**100**	**. .**
Total number	66,545	2,232,436	. .	53,944	3,043,357	. .	51,243	2,746,277	. .	121,838	7,510,307	. .	293,571	15,532,377	. .

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

(a) Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05.

(b) Information for some persons aged 15–17 years was provided by a parent or guardian.

(c) Includes chronic long-term conditions and injury only.

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

(e) Estimate has a relative standard error of greater than 50% and is too high for most practical purposes.

Note: Data are age-standardised.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey.

Additional information

Data on the association between self-assessed health status and other health and social/cultural characteristics are presented in a number of other health performance measures included in this framework. These data come from the 2004–05 NATSIHS and the 2002 NATSISS and are summarised below.

- In 2002, approximately 45% of Indigenous Australians aged 15 years and over who reported their health as fair/poor had been formally charged by the police compared with 30% of Indigenous Australians who reported their health as excellent or very good (Measure 2.14).
- In 2004–05, the proportion of Indigenous Australians who reported that they usually went to the same GP or medical service was similar for those with reported excellent/very good/good health and those with fair/poor health (89% and 90% respectively) (Measure 3.12).
- In 2002, approximately 21% of Indigenous Australians aged 15 years and over who reported they did not recognise or live on their homeland/traditional country reported their health as fair/poor compared with 24% of Indigenous Australians who reported they recognised and lived on their homeland (Measure 2.17).
- In 2004–05, a higher proportion of Indigenous Australians who reported fair/poor health accessed health care in the last 12 months than Indigenous Australians who reported excellent/very good or good health (64% compared with 44%) (Measure 3.10).
- The proportion of Indigenous Australians aged 18 years who drank at short-term or long-term risky/high-risk levels and reported their health as fair/poor was similar to the proportion of Indigenous Australians in the total population who reported their health as fair/poor (Measure 2.20).
- Approximately 58% of Indigenous Australians in non-remote areas with fair/poor health status reported exercising at sedentary levels compared with 48% of Indigenous Australians with excellent/very good/good health status (Measure 2.22).
- In 2004–05, approximately 65% of Indigenous Australians aged 15–64 years with reported excellent/very good/good health were in the labour force (55% employed) compared with 43% of Indigenous Australians with reported fair/poor health (35% employed) (Measure 2.07).
- A higher proportion of both Indigenous and non-Indigenous Australians aged 18 years who could not get to places when needed reported fair/poor health status than Indigenous and non-Indigenous Australians who could easily get to places when needed (Measure 2.16).

Data quality issues

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) and National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The NATSIHS and NATSISS both use the standard Indigenous status question. The survey samples were specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians and thus overcome the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS and NATSISS are subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in these surveys is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS) and the 2002 General Social Survey. The NHS was conducted in major cities and regional and remote areas, but very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 National Health Surveys and the 1994 National Aboriginal and Torres Strait Islander Survey.

In remote communities there were some modifications to the NATSIHS and NATSISS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS and NATSISS data quality issues can be found in the NATSIHS 2004–05 (ABS 2006) and NATSISS 2002 (ABS 2004) publications.

References

ABS (Australian Bureau of Statistics) 2004. National Aboriginal and Torres Strait Islander Social Survey 2002. ABS cat. no. 4714.0. Canberra: ABS.

ABS 2006. National Aboriginal and Torres Strait Islander Health Survey 2004–05. ABS cat. no. 4715.0. Canberra: ABS.

1.16 Social and emotional wellbeing

The social and emotional wellbeing of Aboriginal and Torres Strait Islander peoples expressed as a percentage by age group, age-standardised rate and ratio

Data sources

Data for this measure come from the National Aboriginal and Torres Strait Islander Health Survey, the National Aboriginal and Torres Strait Islander Social Survey, the Western Australian Aboriginal Child Health Survey, the Bettering the Evaluation and Care of Health survey, the AIHW National Hospital Morbidity Database, the AIHW National Mortality Database, the AIHW National Community Mental Health Care Database, and the AIHW National Residential Mental Health Care Database.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

The 2004–05 NATSIHS collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians about health-related issues including health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. It is planned to repeat the NATSIHS at 6-yearly intervals, with the next NATSIHS to be conducted in 2010–11. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The 2002 NATSISS collected information from 9,400 Indigenous Australians across all states and territories of Australia. The sample covered persons aged 15 years and over who were usual residents of private dwellings. It collected information on a wide range of subjects including family and culture, health, education, employment, income, financial stress, housing, and law and justice. The 2002 NATSISS is the second national social survey of Indigenous Australians conducted by the ABS. Selected non-Indigenous comparisons are available through the 2002 General Social Survey (GSS). The ABS plans to conduct the NATSISS every 6 years. The next survey is planned for 2008.

Western Australian Aboriginal Child Health Survey

This survey was a large-scale investigation into the health of 5,289 Western Australian Aboriginal and Torres Strait Islander children aged 0–17 years. It was undertaken in 2001 and 2002 by the Telethon Institute for Child Health Research in conjunction with the Kulunga Research Network. The survey was the first to gather comprehensive health, educational and developmental information on a population-based sample of Aboriginal and Torres Strait Islander children and their families and communities.

Bettering the Evaluation and Care of Health (BEACH) survey

Information about encounters in general practice is available from the BEACH survey, which is conducted by the AIHW Australian GP Statistics and Classification Centre. Information is collected from a random sample of approximately 1,000 general

practitioners (GPs) from across Australia each year. A sample of 100 consecutive encounters is collected from each GP.

The number of Indigenous patients identified in the BEACH survey is likely to be underestimated. This is because some GPs might not ask about Indigenous status, or the patient may choose not to identify (AIHW 2002). The estimates presented here are also derived from a relatively small sample of GP encounters involving Indigenous Australians.

Because of a late inclusion of a 'not stated' category of Indigenous status in 2001–02 (before which not stated responses were included with non-Indigenous encounters), GP encounters for which Indigenous status was not reported have been included with encounters for non-Indigenous people under the 'other' category.

Data are presented for the 5-year period 2002–03 to 2006–07, during which there were 7,542 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, representing 1.5% of total GP encounters in the survey.

Hospitalisations

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

Data are presented for the six jurisdictions which have been assessed by the AIHW as having adequate identification of Indigenous hospitalisations in 2004–05—New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. These six jurisdictions represent approximately 96% of the Indigenous population of Australia. Data are presented by state/territory of usual residence of the patient.

Hospitalisations for which the Indigenous status of the patient was not reported have been included with hospitalisations data for non-Indigenous people under the 'other' category. This is to enable consistency across jurisdictions, as public hospitals in some states and territories do not have a category for the reporting of 'not stated' or inadequately recorded/reported Indigenous status.

Hospitalisation data are presented for the 2-year period July 2004 to June 2006. An aggregate of 2 years of data has been used, as the number of hospitalisations for some conditions is likely to be small for a single year.

The principal diagnosis is the diagnosis established to be the problem that was chiefly responsible for the patient's episode of care in hospital. The additional diagnosis is a condition or complaint either coexisting with the principal diagnosis or arising during the episode of care. The term 'hospitalisation' has been used to refer to a separation which is the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending a change in a type of care (for example, from acute to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

Mortality

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. Data published in this report may therefore differ slightly from those published in the previous edition for comparable years of data.

Community mental health care

Information on the use of community mental health services by Aboriginal and Torres Strait Islander peoples is available from the AIHW National Community Mental Health Care Database. The information collected in the database is a nationally agreed set of common data elements collected by service providers based on the National Minimum Data Set for Community Mental Health Care.

The quality of Indigenous identification in this database varies by jurisdiction. In 2005–06, Queensland, Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory reported that the quality of their data was suitable for analysis.

As with hospitalisation data, service contacts in which the Indigenous status of the client was not reported have been included with contacts for non-Indigenous clients under the 'other' category.

Residential mental health care

Information on the use of residential mental health services by Aboriginal and Torres Strait Islander peoples is available from the AIHW National Residential Mental Health Care Database. The information collected in the database is a nationally agreed set of common data elements collected by service providers based on the National Minimum Data Set for Residential Mental Health Care.

The quality of Indigenous identification in this database varies by jurisdiction. In 2005–06 there were no residential mental health care services in Queensland and the Northern Territory, and only Western Australia, Tasmania and the Australian Capital Territory reported that the quality of their data was suitable for analysis.

As with hospitalisation data, service contacts for which the Indigenous status of the client was not reported have been included with hospitalisations for non-Indigenous people under the 'other' category.

Analyses

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

Self-reported prevalence

Self-reported data on the social and emotional wellbeing of Aboriginal and Torres Strait Islander peoples are available from the 2004–05 NATSIHS and the 2002 NATSISS. Data from these two surveys are outlined below.

The social and emotional wellbeing module in the 2004–05 NATSIHS comprised selected questions from two established mental health surveys—the Kessler Psychological Distress Scale and the Medical Outcome Short Form (SF-36). The module also included some questions relating to feelings of anger, the impact of psychological distress, cultural identification and stressors.

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 psychological distress items were 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 2008 forthcoming). Psychological distress did not differ significantly by age group or geographic remoteness.

As shown in Table 1.16.1, overall, 71% of Indigenous people reported low/moderate psychological distress levels and 27% reported feelings associated with high/very high levels of psychological distress. No psychological distress score could be calculated for the remaining 2% because of missing data. Indigenous females were significantly more likely than Indigenous males to report high/very high levels of distress (32% and 21%, respectively). In contrast, there were no significant differences in psychological distress levels by age or by remoteness category.

Table 1.16.1: Proportion of Indigenous people aged 18 years and over who reported psychological distress, by level of psychological distress, by demographic characteristics, 2004–05 (per cent)

	Low/ moderate	High/ very high	Total[(a)]
		Per cent	
Sex			
Male	77.1	21.4	100.0
Female	66.2	32.2	100.0
Age			
18–24 years	72.8	26.0	100.0
25–34 years	71.4	27.1	100.0
35–44 years	69.6	29.2	100.0
45–54 years	69.3	29.4	100.0
55 years and over	73.8	23.0	100.0
Remoteness			
Major Cities	74.2	25.2	100.0
Inner Regional	70.8	29.1	100.0
Outer Regional	68.7	29.6	100.0
Remote or Very Remote	70.4	26.0	100.0
Total[(a)]	*71.3*	*27.2*	*100.0*
Total no. of Indigenous people[(a)]	**184,123**	**70,168**	**258,297**

(a) Includes missing responses.

Source: AIHW analysis of the 2004–05 NATSIHS.

By using data from both the 2004–05 NATSIHS and the 2004–05 NHS, the level of psychological distress among Indigenous and non-Indigenous Australians can be compared. 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 2008 forthcoming).

Across all age groups, with the exception of the age group 18–24 years, the rate of distress for Indigenous Australians was at least twice the non-Indigenous rate (Table 1.16.2).

Table 1.16.2: Number and proportion of people aged 18 years and over who reported high or very high levels of psychological distress, by Indigenous status, by age, 2004–05

	Indigenous		Non-Indigenous		
	Number	Per cent[(a)]	Number	Per cent[(a)]	Rate ratio[(b)]
18–24 years	14,727	26.0	299,556	16.1	1.6
25–34 years	18,935	27.1	338,165	12.2	2.2
35–44 years	17,231	29.2	389,503	13.4	2.2
45–54 years	11,656	29.4	369,117	13.6	2.2
55 years and over	7,620	23.0	528,206	11.7	2.0
Total	*70,168*	*26.6*	*1,924,547*	*13.1*	*2.0*
Total no. of people[(c)]	**258,297**	. .	**14,753,256**	. .	. .

(a) The rates for total persons were directly age-standardised, and the rates for each age group are crude rates.

(b) Rate ratio Indigenous:non-Indigenous.

(c) Includes missing responses.

Source: AIHW analysis of the 2004–05 NATSIHS and 2004 NHS.

Significant differences by Indigenous status were also observed for each of the three remoteness categories for which there were data (Table 1.16.3), with the largest difference observed for those in Outer Regional areas, where 2.3 Indigenous adults reported high/very high psychological distress levels for every one non-Indigenous adult who reported the same level of psychological distress.

Table 1.16.3: Number and proportion of people aged 18 years and over who reported high or very high levels of psychological distress, by Indigenous status, by remoteness[(a)], 2004–05

	Indigenous		Non-Indigenous		
	Number	Per cent[(b)]	Number	Per cent[(b)]	Rate ratio[(c)]
Major Cities	19,871	25.4	1,301,362	12.9	2.0
Inner Regional	14,995	27.9	403,581	13.9	2.0
Outer Regional	16,383	29.0	198,968	12.8	2.3
Total[(d)]	*70,168*	*26.6*	*1,924,547*	*13.1*	*2.0*
Total no. of people[(d)(e)]	**258,297**	**. .**	**14,753,256**	**. .**	**. .**

(a) Since the remote sample of the NHS did not have the same scope and coverage as that of the NATSIHS, comparisons of psychological distress can be made only between Indigenous and non-Indigenous people living in non-remote areas of Australia.

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

(c) Rate ratio Indigenous:non-Indigenous.

(d) Includes those living in Remote or Very Remote areas.

(e) Includes missing responses.

Source: AIHW analysis of the 2004–05 NATSIHS and 2004 NHS.

Impact of psychological distress

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 1 day during the previous 4 weeks, and 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.

Visits to health professional

The majority (87%) of those who reported at least some level of psychological distress (a score of more than 5) did not see a doctor or other health professional about their feelings of distress in the 4-week period, but 12% did so (Table 1.16.4). Those who did seek help saw a health professional, on average, 2.1 times during the 4 weeks before interview. Indigenous women were more likely than Indigenous men to have visited a health professional about their distress (14% compared with 8%, respectively). Further, those aged 45–54 years were significantly more likely to have seen a health professional about their distress than those aged 18–24 years (14% and 8%, respectively). Among those who reported one or more visits, the average number of visits did not differ significantly by age, sex or remoteness area.

Table 1.16.4: Proportion of Indigenous people aged 18 years and over who reported a level of psychological distress, by whether saw a health professional because of psychological distress[(a)], by demographic characteristics, 2004–05

	No (0 days)	Yes (1 day or more)		Total[(b)]
	%	%	Average number of visits	%
Sex				
Male	89.5	8.4	2.4	100.0
Female	84.3	14.2	2.0	100.0
Age				
18–24 years	91.3	7.5	2.1	100.0
25–34 years	86.7	12.0	2.2	100.0
35–44 years	85.3	13.0	2.3	100.0
45–54 years	84.1	14.3	1.8	100.0
55 years and over	83.0	12.8	2.2	100.0
Remoteness				
Major Cities	87.4	11.2	2.3	100.0
Inner Regional	86.4	13.2	2.5	100.0
Outer Regional	88.1	10.0	2.0	100.0
Remote or Very Remote	84.4	12.4	1.8	100.0
Total	*86.6*	*11.6*	*2.1*	*100.0*
Total no. of Indigenous people[(b)]	**182,994**	**24,582**	**. .**	**211,390**

(a) Analysis excludes those who had no stress—K5 score = 5 (18%).

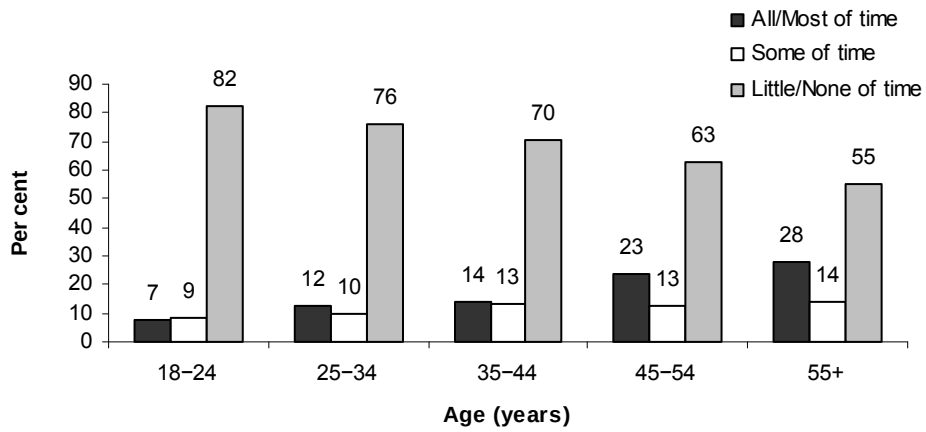
(b) Includes missing responses.

Source: AIHW analysis of the 2004–05 NATSIHS.

Relationship between physical and mental health

Of those who had indicated some level of psychological distress in the previous 4 weeks, 15% said that physical health problems were the main cause of their feelings all or most of the time. Thus, most of the psychological distress that was reported by Indigenous Australians was not an outcome of physical illness.

Although there was no significant difference by sex, there was a clear association with age—as age increased, physical health problems were more likely to be reported as the main cause of feelings of distress all or most of the time (Figure 1.16.1). Indigenous Australians who lived in Major Cities (18%) were more likely than those who lived in Remote or Very Remote areas (11%) to indicate that physical health problems were the main cause of their feelings of distress all or most of the time.



Notes

1. Includes missing responses.
2. Analysis excludes those who had no stress–K5 score = 5 (18%).

Source: AIHW analysis of 2004–05 NATSIHS.

Figure 1.16.1: Proportion of Indigenous people aged 18 years and over who reported a level of psychological distress, by how often physical health problems were the main cause of their psychological distress, by age, 2004–05

Population characteristics

Table 1.16.5 presents the level of psychological distress for Indigenous persons aged 18 years and over by selected population characteristics.

- In 2004–05, a higher proportion of Indigenous persons with fair/poor health reported high/very high levels of psychological distress than Indigenous persons with excellent or very good health (46% compared with 18%).
- Indigenous persons who reported four or more stressors were more likely to have high/very high levels of psychological distress than those who reported three or fewer stressors.
- A higher proportion of Indigenous persons in the lowest income quintile reported high/very high levels of psychological distress than Indigenous persons in the highest income quintile (32% compared with 13%).

- Approximately 31% of Indigenous persons who were renters reported high/very high levels of psychological distress compared with 18% of Indigenous persons who were home owners.
- Indigenous persons who completed Year 9 or below as their highest year of school completed or who did not have a non-school qualification were more likely to have high/very high levels of psychological distress than persons who completed Year 12 or had a non-school qualification.
- Approximately 37% of Indigenous persons who were unemployed reported high/very high levels of psychological distress compared with 21% of Indigenous persons who were employed.

Table 1.16.5: Proportion of people who reported psychological distress, by level of psychological distress, by selected population characteristics, Indigenous persons aged 18 years and over, 2004–05 (per cent)

	Level of psychological distress	
	Low/moderate	High/very high
	%	%
Self-assessed health status		
Excellent/very good	82.2	17.8
Good	73.6	26.4
Fair/poor	54.1	45.9
Number of stressors		
0–3	77.1	22.9
4–7	60.5	39.5
8–11	54.0	46.0
12–15	64.9	35.1
Individual income		
1st quintile (lowest)	67.7	32.3
5th quintile (highest)	86.9	13.1
Housing		
Owner	82.4	17.6
Renter	69.1	30.9
Highest year of school completed		
Year 9 or below	66.9	33.1
Year 10	71.8	28.2
Year 12	80.1	19.9
Whether has non-school qualification		
Has a non-school qualification	75.0	25.0
Does not have a non-school qualification	71.1	28.9
Employment status		
Employed	79.3	20.7
Unemployed	62.6	37.4
Not in labour force	65.1	34.9
Total	**72.4**	**27.6**
Total number	**184,123**	**70,168**

Source: AIHW analysis of 2004–05 NATSIHS.

Stressors

Respondents of the NATSIHS were asked to indicate which (if any) of 15 stressors they, their family and/or friends had experienced during the 12 months before interview (ABS 2006a).

- In 2004–05, approximately 77% of Indigenous people aged 18 years and over reported that they had experienced at least one stressor in the last 12 months. The most common stressors reported were the death of a family member or close friend (42%), serious illness or disability (28%) alcohol-related problems (20%), and a family member sent to, or currently in, jail (19%) (Table 1.16.6).
- The types of stressors reported by respondents differed significantly according to remoteness area. For example, Indigenous adults who lived in Remote or Very Remote areas were significantly more likely than other Indigenous adults to say that they, their family and/or friends had been witness to violence; experienced overcrowding at home; had a member of family sent to jail/currently in jail; or had a gambling problem. Those living in Inner Regional areas reported an average of 2.2 stressors in the previous 12 months, whereas those living in Remote or Very Remote areas reported an average of 3.
- There were significant differences in the number of stressors reported by Indigenous people across age groups. On average, Indigenous people aged 25–44 experienced the highest number of stressors, those aged 55 years and over experienced the lowest number of stressors and those aged 18–24 were the most likely to report they had experienced no stressors in the last 12 months (AIHW 2008 forthcoming).

Table 1.16.6: Proportion of Indigenous people aged 18 years and over reporting a stressor, by remoteness, by type of stressor, 2004–05 (per cent)

	Major Cities	Inner Regional	Outer Regional	Remote or Very Remote	Australia
			Per cent		
Type of stressor					
Serious illness or disability	30.0	28.4	25.8	28.7	28.4
Serious accident	9.9	7.5	6.8	12.1	9.4
Death of a family member or close friend	41.8	39.2	40.5	45.6	42.1
Divorce or separation	12.4	14.2	11.2	7.3	11.1
Not able to get a job	20.2	15.8	16.4	14.6	16.9
Involuntary loss of job	12.4	7.6	5.0	3.7	7.4
Alcohol-related problems	20.9	15.3	18.1	24.1	20.1
Drug-related problems	19.2	14.5	15.9	15.2	16.4
Witness to violence	11.2	10.8	9.5	23.5	14.2
Abuse or violent crime	11.3	10.1	10.1	13.2	11.4
Trouble with the police	15.6	12.9	17.1	19.0	16.3
Gambling problem	12.6	8.8	11.4	19.4	13.5
Member of family sent to jail/currently in jail	17.2	13.6	17.7	24.7	18.7
Overcrowding at home	11.3	8.9	16.1	29.2	16.9
Discrimination/racism	11.7	11.0	10.4	13.1	11.6
None of the above	22.5	22.6	23.8	20.9	22.4
Average number of stressors	*2.6*	*2.2*	*2.3*	*3.0*	*2.6*
Total no. of Indigenous people[(a)]	**78,705**	**51,445**	**55,364**	**72,783**	**258,297**

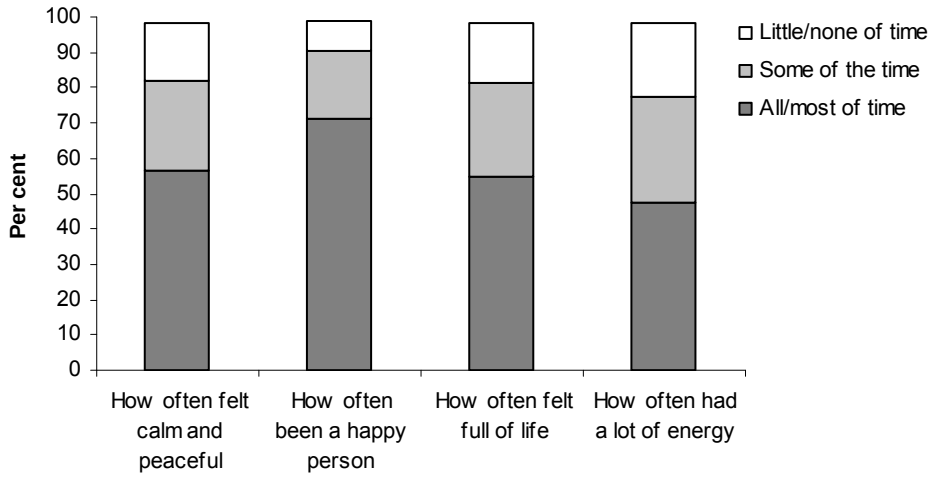
(a) Includes missing responses.

Source: AIHW analysis of the 2004–05 NATSIHS.

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 NATSIHS. These items measured the extent to which respondents felt calm/peaceful, happy, full of life, and had lots of energy. More than half of the adult Indigenous population reported being happy (71%), calm and peaceful (56%) and/or full of life (55%) all or most of the time, and just under half (47%) said they had a lot of energy all or most of the time. Only a relatively small proportion (between 2% and 7%) of Indigenous Australians said they experienced these feelings of positive wellbeing 'none of the time' (Figure 1.16.2).

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, but the only significant difference was between 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 2007b).



Note: Percentages exclude missing responses.

Source: AIHW analysis of the 2004–05 NATISHS.

Figure 1.16.2: Positive wellbeing of Indigenous Australians aged 18 years and over, 2004–05

Cultural, family and community attachments

The 2004–05 NATSIHS and the 2002 NATSISS collected information on a range of social issues relevant to the social and emotional wellbeing of Indigenous Australians including cultural, family and community attachments.

- In 2004–05, approximately 44% of Indigenous people aged 18 years and over reported that they or a relative had been removed from their natural family (Table 1.16.7).
- In 2002, 54% of Indigenous Australians reported they identified with a clan or tribal group, 22% currently lived in traditional lands, 68% had attended cultural events in the last 12 months and 14% did not speak English as a primary language.

Table 1.16.7: Removal from natural family by psychological distress, Indigenous persons aged 18 years and over, 2004–05

	Low	Moderate	High	Very high	Total[(a)]
			Per cent		
Respondent removed (with or without removal of relative)	6.8	7.3	9.4	13.7	8.2
Relative only removed	31.5	39.4	38.6	39.6	35.9
Neither self nor relative removed	61.7	53.3	52.0	46.7	55.9
Total[(b)]	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Total no. of Indigenous people[(a)(b)]	**85,444**	**70,783**	**28,157**	**30,672**	**218,353**

(a) Includes missing responses on variable psychological distress.

(b) Excludes missing responses on variable removal from family (17%).

Note: Percentages calculated with the inclusion of missing responses on variable psychological distress.

Source: AIHW 2008 (forthcoming); AIHW analysis of the 2004–05 NATSIHS.

- In 2002, approximately 90% of Indigenous people aged 15 years and over reported that they had been involved in social activities in the last 3 months (such as religious activities, sporting activities, going out to a café, restaurant or bar) and 28% had undertaken voluntary work in the last 12 months. The large majority of Indigenous people (90%) reported that, in a time of crisis, they could get support from outside the household.

Alcohol and other substance use

The 2004–05 NATSIHS, the 2004 National Drug Strategy Household Survey and the 2002 NATSISS collected information on the alcohol consumption and substance use of Aboriginal and Torres Strait Islander peoples. These data are summarised below.

- The 2004–05 NATSIHS found that approximately 50% of Indigenous Australians aged 18 years and over reported having consumed alcohol in the week before the survey, of whom one-third (16%) reported drinking at long-term risky/high-risk levels. Approximately 55% of Indigenous adults drank at short-term risky/high-risk levels in the last 12 months and 19% drank at short-term risky/high-risk levels at least once a week in the last 12 months.
- In 2004–05, after adjusting for differences in age structure, Indigenous Australians were twice as likely as non-Indigenous Australians to drink at short-term risky/high-risk levels at least once a week in the last 12 months, but equally as likely to drink at long-term risky/high-risk levels in the week before the survey (15% and 14% respectively). Indigenous adults were twice as likely as non-Indigenous Australians to have abstained from alcohol consumption in the last 12 months.
- In 2004–05, approximately 28% of Indigenous people aged 18 years and over reported rates of illicit substance use in the 12 months before the survey. In addition, around 50% of Indigenous Australians aged 18 years and over reported illicit substance use at least once in their lifetime. The substances most commonly used in the last 12 months were marijuana (23%), amphetamines (6%) and analgesics/sedatives (for non-medicinal use) (6%).
- The 2004 National Drug Strategy Household Survey found that illicit drug use among Aboriginal and Torres Strait Islander peoples was higher than for other Australians. For example, 27% of Aboriginal and Torres Strait Islander peoples aged 14 years and over had

used drugs or other substances in the last 12 months compared with 15% of other Australians.

- The 2002 NATSISS reported that in non-remote areas of Australia approximately 4% of Indigenous Australians aged 15 years and over reported they had ever used heroin, 4% had ever used cocaine, 6% had ever used LSD or other synthetic hallucinogens, 5% had ever used ecstasy or designer drugs, 4% had sniffed petrol and 4% had used other inhalants.
- Additional data and information on the consumption of alcohol and the use of illicit drugs can be found in Measures 2.20 and 2.21.

Financial stress

The 2004–05 NATSIHS also collected data on financial stress.

- In 2004–05, about half (49%) of all Indigenous persons aged 15 years and over reported they were living in households in which they could not raise $2,000 within a week in a time of crisis.

Law and justice

- Approximately 20% of Indigenous people aged 15 years and over reported they had used legal services in the last 12 months, 16% had been arrested by the police, 7% had been incarcerated in the last 5 years, and 24% had been a victim of physical or threatened violence in the last 12 months. After adjusting for age differences between the Indigenous and non-Indigenous populations, Indigenous Australians aged 18 years and over experienced double the victimisation rate of non-Indigenous persons.
- The National Inquiry into the Human Rights of People with Mental Illness (HREOC 1993) found that anti-social and self-destructive behaviour—often the result of lack of acceptance, choice and opportunity, the history of dispossession, assimilation, cultural and community genocide and/or undiagnosed mental and social distress—brought Indigenous people into frequent contact with the criminal justice system. Not only may mental illness and/or emotional distress cause Indigenous and other Australians to come into contact with the criminal justice system, but also incarceration may be a risk factor for mental illness (HREOC 1993). Incarceration separates Indigenous people and other nationalities from their communities and culture. However, removal from extended family or community tends to have a significant impact on Indigenous detainees. Indigenous prisoners frequently experience depressive symptoms associated with unresolved anger which can result in suicide attempts. The number of Indigenous deaths in custody is also relatively high. Of the 68 deaths in custody in Australia in 2003, 17 (25%) were Indigenous people (McCall 2004). Indigenous Australians are imprisoned at much higher rates than non-Indigenous Australians. In 2005, the incarceration rate for Indigenous people aged 18 years and over was 1,561 per 100,000 compared with 129 per 100,000 for non-Indigenous people.

Hospitalisations

Mental health related conditions include mental and behavioural disorders (such as schizophrenia and psychoactive substance use) and other mental health conditions (such as Alzheimer's disease and postnatal depression).

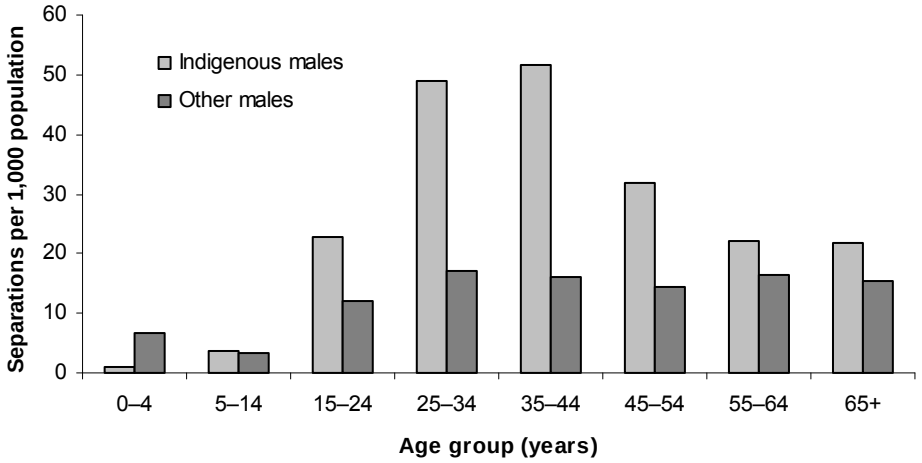
- For the 2-year period July 2004 to June 2006, there were 587,180 hospitalisations from mental health related conditions in New South Wales, Victoria, Queensland, Western

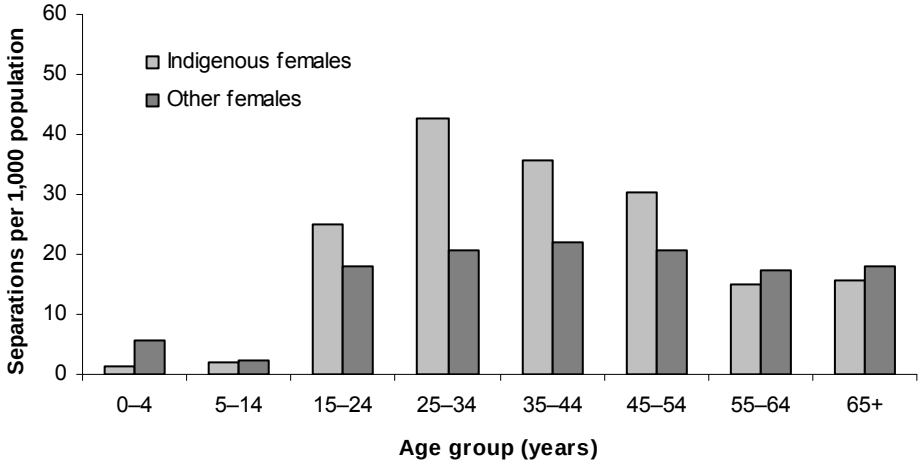
Australia, South Australia and the Northern Territory combined, 20,463 (3.5%) of which were hospitalisations of Aboriginal and Torres Strait Islander peoples.

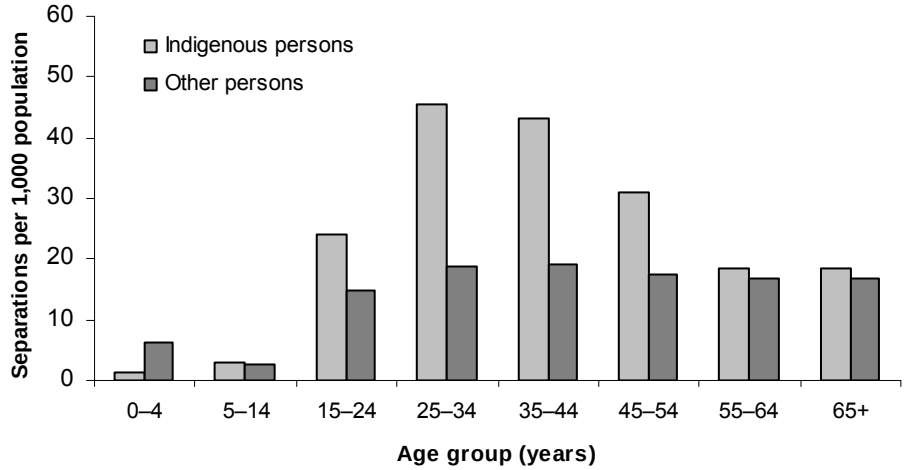
- Mental health related conditions were responsible for 4.4% of all hospitalisations of Aboriginal and Torres Strait Islander Australians.
- Mental and behavioural disorders were the seventh most common group of principal diagnosis for Aboriginal and Torres Strait Islander Australians admitted to hospital, behind care involving dialysis; injury and poisoning; complications of pregnancy and childbirth; diseases of the respiratory system; diseases of the digestive system; symptoms, signs and ill-defined conditions; and abnormal clinical and laboratory findings.

Hospitalisations by age and sex

- For the 2-year period July 2004 to June 2006, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males had higher hospitalisation rates for mental health related conditions than other males across all age groups from 5–14 years and over. Indigenous females had higher hospitalisation rates for mental health related conditions than other females across all age groups from 15–24 years to 45–54 years (Figure 1.16.3).
- The greatest difference in rates occurred in the 25–34 years and 35–44 years age groups where Indigenous males were hospitalised for mental health related conditions at around three times the rate of other males and Indigenous females were hospitalised at twice the rate of other females in these age groups.
- For Indigenous females and other Australian males, hospitalisation rates for mental health related conditions were highest among those aged 25–34 years. For Indigenous males and other Australian females, hospitalisation rates were highest among those aged 35–44 years.
- Approximately 53% of Indigenous Australians hospitalised for mental health related conditions were males (10,760) and 47% were females (9,703).







Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.16.3: Age-specific hospitalisation rates for a principal diagnosis of mental health related conditions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006

Hospitalisations by state/territory

Table 1.16.8 presents hospitalisations for a principal diagnosis of mental health related conditions for the 2-year period July 2004 to June 2006 in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. As well as rates and ratios for the six jurisdictions which have been assessed as having adequate identification of Indigenous hospitalisations in 2004–05, unadjusted and adjusted national level data are included in the table. The Australia data are adjusted by applying a completeness factor of 89.4%, which is an estimate of the level of Indigenous under-identification in hospital separations data.

- Over the period July 2004 to June 2006, in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males were hospitalised for mental health related conditions at twice the rate of other males and Indigenous females were hospitalised for mental health related conditions at 1.4 times the rate of other females.
- When hospital rates are adjusted at the national level for Indigenous under-identification, Indigenous persons were hospitalised for mental health related conditions at 1.9 times the rate of other Australians.
- In South Australia Indigenous Australians were hospitalised for mental health related conditions at around four times the rate of other Australians, and in New South Wales, Western Australia and the Northern Territory Indigenous Australians were hospitalised at around twice the rate of other Australians in these states and territories. In Queensland and Victoria the rate ratios were 1.3.

Table 1.16.8: Hospitalisations for principal diagnosis of mental health related conditions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c]

	Indigenous				Other[d]				
	Number	No. per 1,000[e]	LCL 95%[f]	UCL 95%[g]	Number	No. per 1,000[e]	LCL 95%[f]	UCL 95%[g]	Ratio[h]
NSW									
Males	4,392	38.2	36.8	39.6	92,746	14.1	14.0	14.2	2.7*
Females	3,357	26.8	25.7	27.8	91,694	13.5	13.5	13.6	2.0*
Persons	7,749	32.2	31.3	33.0	184,442	13.8	13.7	13.8	2.3*
Vic									
Males	521	18.9	17.2	20.6	68,791	13.8	13.7	13.9	1.4*
Females	686	27.3	25.1	29.6	113,619	21.9	21.7	22.0	1.3*
Persons	1,207	23.0	21.6	24.4	182,410	17.9	17.8	18.0	1.3*
Qld									
Males	2,253	21.1	20.1	22.2	47,753	12.2	12.1	12.4	1.7*
Females	1,976	17.0	16.1	17.9	62,074	15.8	15.7	16.0	1.1*
Persons	4,229	19.0	18.3	19.6	109,827	14.1	14.0	14.1	1.3*
WA									
Males	1,847	32.0	30.3	33.7	22,217	11.4	11.2	11.5	2.8*
Females	1,934	29.0	27.6	30.5	31,200	16.0	15.8	16.2	1.8*
Persons	3,781	30.3	29.2	31.4	53,417	13.6	13.5	13.8	2.2*
SA									
Males	926	40.5	37.5	43.5	16,512	10.9	10.7	11.1	3.7*
Females	1,145	45.0	42.1	47.9	18,425	11.5	11.3	11.7	3.9*
Persons	2,071	42.7	40.6	44.8	34,937	11.2	11.1	11.3	3.8*
NT									
Males	821	14.4	13.3	15.6	1,041	7.1	6.6	7.6	2.0*
Females	605	10.4	9.5	11.4	643	4.8	4.3	5.2	2.2*
Persons	1,426	12.4	11.7	13.1	1,684	6.0	5.7	6.3	2.1*
NSW, Vic, Qld, WA, SA & NT[i]									
Males	**10,760**	**28.0**	**27.4**	**28.7**	**249,060**	**13.1**	**13.0**	**13.1**	**2.1***
Females	**9,703**	**23.2**	**22.6**	**23.7**	**317,655**	**16.2**	**16.2**	**16.3**	**1.4***
Persons	**20,463**	**25.5**	**25.1**	**25.9**	**566,717**	**14.6**	**14.6**	**14.7**	**1.7***
Australia unadjusted[j]									
Males	11,310	28.1	27.5	28.7	264,076	13.3	13.3	13.4	2.1*
Females	10,106	23.1	22.6	23.6	333,997	16.4	16.3	16.4	1.4*
Persons	21,416	25.5	25.1	25.9	598,095	14.8	14.8	14.9	1.7*
Australia adjusted[j][k]									
Males	12,639	31.4	30.8	32.1	262,747	13.2	13.2	13.3	2.4*
Females	11,293	25.8	25.3	26.3	332,810	16.3	16.3	16.4	1.6*
Persons	23,932	28.5	28.0	28.9	595,579	14.8	14.7	14.8	1.9*

(continued)

Table 1.16.8 (continued): Hospitalisations for principal diagnosis of mental health related conditions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)]

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006); ICD-10-AM codes F00–F99, G30, G47.0, G47.1, G47.2, G47.8, G47,9, 099.3, R44, R45.0, R45.1, R45.4, R48, Z00.4, Z03.2, Z04.6, Z09.3, Z13.3, Z50.2, Z50.3, Z54.3, Z61.9, Z63.1, Z63.8, Z63.9, Z65.8, Z65.9, Z71.4, Z71.5, Z76.0.

(c) Financial year reporting.

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

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

(f) LCL = lower confidence limit.

(g) UCL = upper confidence limit.

(h) Rate ratio Indigenous:other.

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

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

(k) Australian hospitalisation numbers and rates have been adjusted for Indigenous under-identification using a national adjustment factor of 0.89. This factor was derived from a study undertaken by the AIHW in 2007 which assessed the level of Indigenous under-identification in hospital data in all states and territories by comparing information gathered from face-to face interviews in public hospitals with results from hospital records. By applying this factor, the number of Indigenous hospitalisations was increased by 11% and these additional hospitalisations then subtracted from the number of hospitalisations for Other Australians.

Note: Person numbers and rates include hospitalisations for which sex was not stated.

Source: AIHW analysis of National Hospital Morbidity Database.

Hospitalisations by principal diagnosis

Mental health related conditions

Table 1.16.9 presents hospitalisations for a principal diagnosis of mental health related conditions for the 2-year period July 2004 to June 2006 for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory combined.

- Mental and behavioural disorders due to psychoactive substance use was the most common mental health related condition for which Aboriginal and Torres Strait Islander people were hospitalised (36%), followed by schizophrenia, schizotypal and delusional disorders (25%).
- Based on the hospitalisation rates of other males and females, in the six jurisdictions there were three to five times as many hospitalisations for mental and behavioural disorders due to psychoactive substance use among Indigenous males and females as would be expected.
- Indigenous males and females were hospitalised for schizophrenia, schizotypal and delusional disorders at around two to three times the rate of other males and females.

Self-harm and assault

- Although self-harm and assault are not included among the mental health related conditions presented in this indicator, hospitalisations for these conditions may be mental health related. In 2004–05 to 2005–06 in the six jurisdictions, Indigenous males and females were hospitalised for injuries related to assault at 8 and 35 times the rate, and for injuries related to self-harm at 3 times and twice the rate of other males and females respectively (Table 1.16.10).

For more information on assault and self-harm, see Measures 1.03 (Hospitalisation for injury and poisoning) and 2.13 (Community safety).

Table 1.16.9: Hospitalisations of Indigenous persons for principal diagnosis of mental health related conditions, by type of condition and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c][d]

	Males						Females						Persons[e]					
Principal diagnosis	No.	%[f]	No. per 1,000[g]	LCL 95%[h]	UCL 95%[i]	Ratio[j]	No.	%[f]	No. per 1,000[g]	LCL 95%[h]	UCL 95%[i]	Ratio[j]	No.	%[f]	No. per 1,000[g]	LCL 95%[h]	UCL 95%[i]	Ratio[j]
Mental & behavioural disorders due to psychoactive substance use (F10–F19)	4,708	43.8	12.8	12.4	13.3	4.6*	2,603	26.8	6.2	5.9	6.4	3.3*	7,311	35.7	9.3	9.1	9.6	4.0*
Schizophrenia, schizotypal and delusional disorders (F20–F29)	2,962	27.5	6.7	6.4	7.0	2.5*	2,130	22.0	4.8	4.6	5.1	2.3*	5,092	24.9	5.7	5.6	5.9	2.4*
Mood disorders (F30–F39)	1,075	10.0	3.0	2.8	3.2	0.8*	2,073	21.4	5.3	5.1	5.6	0.8*	3,148	15.4	4.2	4.0	4.4	0.8*
Neurotic, stress-related disorders (F40–F49)	1,060	9.9	3.0	2.8	3.2	1.5*	1,617	16.7	3.8	3.6	4.0	1.4*	2,677	13.1	3.4	3.2	3.5	1.5*
Disorders of adult personality and behaviour (F60–F69)	177	1.6	0.4	0.3	0.5	1.7*	303	3.1	0.6	0.6	0.7	0.9*	480	2.3	0.5	0.5	0.6	1.1*
Behavioural and emotional disorders (F90–F98)	307	2.9	0.4	0.3	0.4	1.2*	136	1.4	0.2	0.2	0.2	1.9*	443	2.2	0.3	0.3	0.3	1.3*
Organic, including symptomatic, mental disorders (F00–F09)	158	1.5	1.0	0.7	1.2	1.7*	138	1.4	0.8	0.6	1.0	1.7*	296	1.4	0.9	0.7	1.0	1.7*

(continued)

Table 1.16.9 (continued): Hospitalisations of Indigenous persons for principal diagnosis of mental health related conditions, by type of condition and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[a][b][c][d]

	Males						Females						Persons[e]					
Principal diagnosis	**No.**	**%[f]**	**No. per 1,000[g]**	**LCL 95%[h]**	**UCL 95%[i]**	**Ratio[j]**	**No.**	**%[f]**	**No. per 1,000[g]**	**LCL 95%[h]**	**UCL 95%[i]**	**Ratio[j]**	**No.**	**%[f]**	**No. per 1,000[g]**	**LCL 95%[h]**	**UCL 95%[i]**	**Ratio[j]**
Behavioural syndromes assoc. with physiological disturbances (F50–F59)	15	0.1	—	—	0.1	0.6	84	0.9	0.1	0.1	0.2	0.2*	99	0.5	0.1	0.1	0.1	0.2*
Unspecified mental disorder (F99)	46	0.4	0.1	0.1	0.2	2.7*	32	0.3	0.1	—	0.1	1.4	78	0.4	0.1	0.1	0.1	2.0*
Mental retardation (F70–F79)	25	0.2	—	—	0.1	2.1*	19	0.2	—	—	—	1.7*	44	0.2	—	—	—	2.0*
Disorders of psych. development (F80–F89)	26	0.2	—	—	—	0.4*	15	0.2	—	—	—	0.6	41	0.2	—	—	—	0.5*
Other[k]	201	1.9	0.5	0.4	0.7	0.8*	553	5.7	1.1	1.0	1.3	1.4*	754	3.7	0.8	0.8	0.9	1.1
Total	**10,760**	**100.0**	**28.0**	**27.4**	**28.7**	**2.1***	**9,703**	**100.0**	**23.2**	**22.6**	**23.7**	**1.4***	**20,463**	**100.0**	**25.5**	**25.1**	**25.9**	**1.7***

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006).

(c) Financial year reporting.

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

(e) Includes hospitalisations for which sex was indeterminate or not stated.

(f) Proportion of male, female and total hospitalisations of Indigenous people in the period 2004–05 to 2005–06.

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

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio Indigenous:other.

(k) Other includes ICD-10-AM codes relating to mental health: G30, G47.0, G47.1, G47.2, G47.8, G47.9, O99.3, R44, R45.0, R45.1, R45.4, R48, Z00.4, Z03.2, Z04.6, Z09.3, Z13.3, Z50.2, Z50.3, Z54.3, Z61.9, Z63.1, Z63.8, Z63.9, Z65.8, Z65.9, Z71.4, Z71.5, Z76.0.

Source: AIHW analysis of National Hospital Morbidity Database.

Table 1.16.10: Hospitalisations of Indigenous people with principal diagnosis of injury and poisoning and other consequences of external causes and a first reported external cause of assault and self-harm, by sex, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

	Males						Females						Persons[(e)]					
External cause	No.	%[(f)]	No. per 1,000[(g)]	LCL 95%[(h)]	UCL 95%[(i)]	Ratio[(j)]	No.	%[(f)]	No. per 1,000[(g)]	LCL 95%[(h)]	UCL 95%[(i)]	Ratio[(j)]	No.	%[(f)]	No. per 1,000[(g)]	LCL 95%[(h)]	UCL 95%[(i)]	Ratio[(j)]
Assault (X85–Y09)	4,603	22.4	10.7	10.4	11.1	7.5*	5,074	31.7	10.9	10.6	11.3	35.3*	9,677	26.5	10.8	10.6	11.1	12.3*
Intentional self-harm (X60–X84)	993	4.8	2.3	2.1	2.4	2.5*	1,323	8.3	2.8	2.7	3.0	1.9*	2,316	6.3	2.5	2.4	2.7	2.2*

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

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006). Cause of injury is based on the first reported external causes where the principle diagnosis was 'injury, poisoning and certain other consequences of external causes'.

(c) Financial year reporting.

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

(e) Includes hospitalisations for which sex was indeterminate or not stated.

(f) Proportion of male, female and total hospitalisations of Indigenous people in the period 2004–05 to 2005–06.

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

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio Indigenous:other.

Source: AIHW analysis of National Hospital Morbidity Database.

Average length of stay in hospital (days)

- For the 2-year period July 2004 to June 2006, the average length of stay in hospital due to mental health related conditions was 8 days for Indigenous patients and 9 days for other patients (Table 1.16.11).
- On average, Indigenous males stayed in hospital for longer than Indigenous females for most types of mental and behavioural disorders.
- Mental retardation (disability characterised by significant limitations both in intellectual functioning and adaptive skills) was responsible for the highest number of bed-days of all mental health related conditions (19 days for Indigenous patients and 105 days for other patients). Organic mental disorders (which include dementia, delirium and other mental disorders due to brain damage and dysfunction) and schizophrenia, schizoptypal and delusional disorders were also responsible for a high number of days spent in hospital.
- Other mental health related conditions, including Alzheimer's disease and postnatal depression, were responsible for an average of 4 bed-days for Indigenous patients and an average of 8 bed-days for other patients.

Table 1.16.11: Average length of stay in hospital (days), mental health related conditions, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2004 to June 2006[(a)(b)(c)(d)]

	Indigenous			Other[(e)]		
Mental health related condition	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Mental retardation	30.1	3.5	18.6	95.1	117.5	105.2
Schizophrenia, schizotypal and delusional disorders	18.3	14.8	16.8	20.3	15.9	18.3
Organic mental disorders	15.6	15.5	15.6	20.8	19.5	20.1
Behavioural syndromes associated with psychological disturbances and physical factors	2.1	10.4	9.1	6.3	9.1	8.9
Unspecified mental disorder	9.8	5.7	8.1	11.1	7.2	8.9
Mood disorders	8.1	7.1	7.5	7.4	6.8	7.0
Disorders of adult personality & behaviour	4.8	5.6	5.3	4.7	4.7	4.7
Mental disorders due to psychoactive substance use	4.8	3.4	4.3	4.7	4.0	4.5
Disorders of psychological development	3.9	2.8	3.5	5.0	18.8	8.9
Neurotic, stress-related and somatoform disorders	3.4	3.5	3.5	4.1	4.3	4.2
Behavioural & emotional disorders with onset usually occurring in childhood & adolescence	2.1	2.4	2.2	2.9	3.8	3.1
Total mental & behavioural disorders (F00-F99)	*8.9*	*7.2*	*8.1*	*9.6*	*7.9*	*8.6*
Other mental health conditions	4.2	4.4	4.4	8.2	7.4	7.8
Total	**8.8**	**7.1**	**8.0**	**9.5**	**7.9**	**8.6**

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

(b) Categories are based on the ICD-10-AM fifth edition (National Centre in Health Classification 2006); ICD-10-AM codes F70–F79; F20–F29; F00–F09; F99; F50–F59; F30–F39; F60–F69; F10–F19; F80–F89; F40–F49; F90–F98; F00–F99; G30, G47.0, G47.1, G47.2, G47.8, G47.9, O99.3, R44, R45.0, R45.1, R45.4, R48, Z00.4, Z03.2, Z04.6, Z09.3, Z13.3, Z50.2, Z50.3, Z54.3, Z61.9, Z63.1, Z63.8, Z63.9, Z65.8, Z65.9, Z71.4, Z71.5, Z76.0.

(c) Financial year reporting.

(d) Data are reported by state/territory of usual residence of the patient hospitalised and are for New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland only. These six jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital.

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

Source: AIHW analysis of National Hospital Morbidity Database.

Time series analysis

Time series data are presented for the four jurisdictions that have been assessed as having adequate identification of Indigenous hospitalisations for all years from 1998–99 to 2005–06—Queensland, Western Australia, South Australia and the Northern Territory. These four jurisdictions represent approximately 60% of the Indigenous Australian population. New South Wales and Victoria were identified as having adequate identification of Indigenous hospitalisations from 2004–05 onwards, therefore they were included as part of the current period analysis (2004–05 to 2005–06) but not as part of the time series analyses.

Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for mental health related conditions over the 7-year period 1998–99 to 2005–06 are presented in Table 1.16.12 and Figure 1.16.4.

- In Queensland, Western Australia, South Australia and the Northern Territory, there were significant increases in hospitalisation rates for mental health related conditions among Indigenous females during the period 1998–99 to 2005–06. The fitted trend implies an average yearly increase in the rate of around 0.4 per 1,000, which is equivalent to a 16% increase in the rate over the period.
- There were significant declines in hospitalisation rates for mental health related conditions among other Australians over the same period with an average yearly decline in the rate of around 0.1 per 1,000 (equivalent to a 7% reduction in the rate over the period). The declines in hospitalisation rates were significant for males but not for females.
- There were significant increases in both the hospitalisation rate ratios and rate differences between Indigenous and other Australians during the period 1998–99 to 2005–06. There was a 14% increase in the rate ratio and a 30% increase in the rate difference for persons over the period. This reflects both a relative and absolute increase in the gap between hospitalisation rates of Indigenous and other Australians for mental health related conditions over the period 1998–99 to 2005–06.

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

Table 1.16.12: Age-standardised hospitalisation rates, rate ratios and rate differences from mental health related conditions, Qld, WA, SA and NT, 1998–99 to 2005–06[a]

	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	Annual change[b]	% change over period[c]
Indigenous rate (no. per 1,000)										
Males	24.4	24.4	26.0	24.9	24.5	24.1	23.7	24.7	–0.1	–2.8
Females	19.2	17.0	20.5	20.4	21.3	21.2	21.4	20.8	0.4*	15.9
Persons	21.7	20.5	23.1	22.5	22.8	22.6	22.4	22.6	0.2	5.7
Other Australian[d] rate (no. per 1,000)										
Males	13.6	12.9	13.2	13.0	12.4	12.3	11.8	11.5	–0.3*	–14.7
Females	14.9	14.8	15.0	14.6	15.1	15.1	15.1	14.5	–0.01	0.0
Persons	14.2	13.9	14.1	13.9	13.7	13.7	13.5	13.0	–0.1*	–7.1
Rate ratio[e]										
Males	1.8	1.9	2.0	1.9	2.0	2.0	2.0	2.2	0.04*	14.6
Females	1.3	1.1	1.4	1.4	1.4	1.4	1.4	1.4	0.03*	16.3
Persons	1.5	1.5	1.6	1.6	1.7	1.6	1.7	1.7	0.03*	13.8
Rate difference[f]										
Males	10.8	11.5	12.8	11.9	12.1	11.8	11.9	13.2	0.2	12.4
Females	4.3	2.1	5.5	5.8	6.3	6.1	6.2	6.3	0.4*	72.4
Persons	7.5	6.6	9.0	8.7	9.1	8.8	9.0	9.6	0.3*	30.0

* Represents results with statistically significant increases or decreases at the $p < 0.05$ level over the period 1998–99 to 2005–06.

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

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

(c) Per cent change between 1998–99 and 2005–06 based on the average annual change over the period.

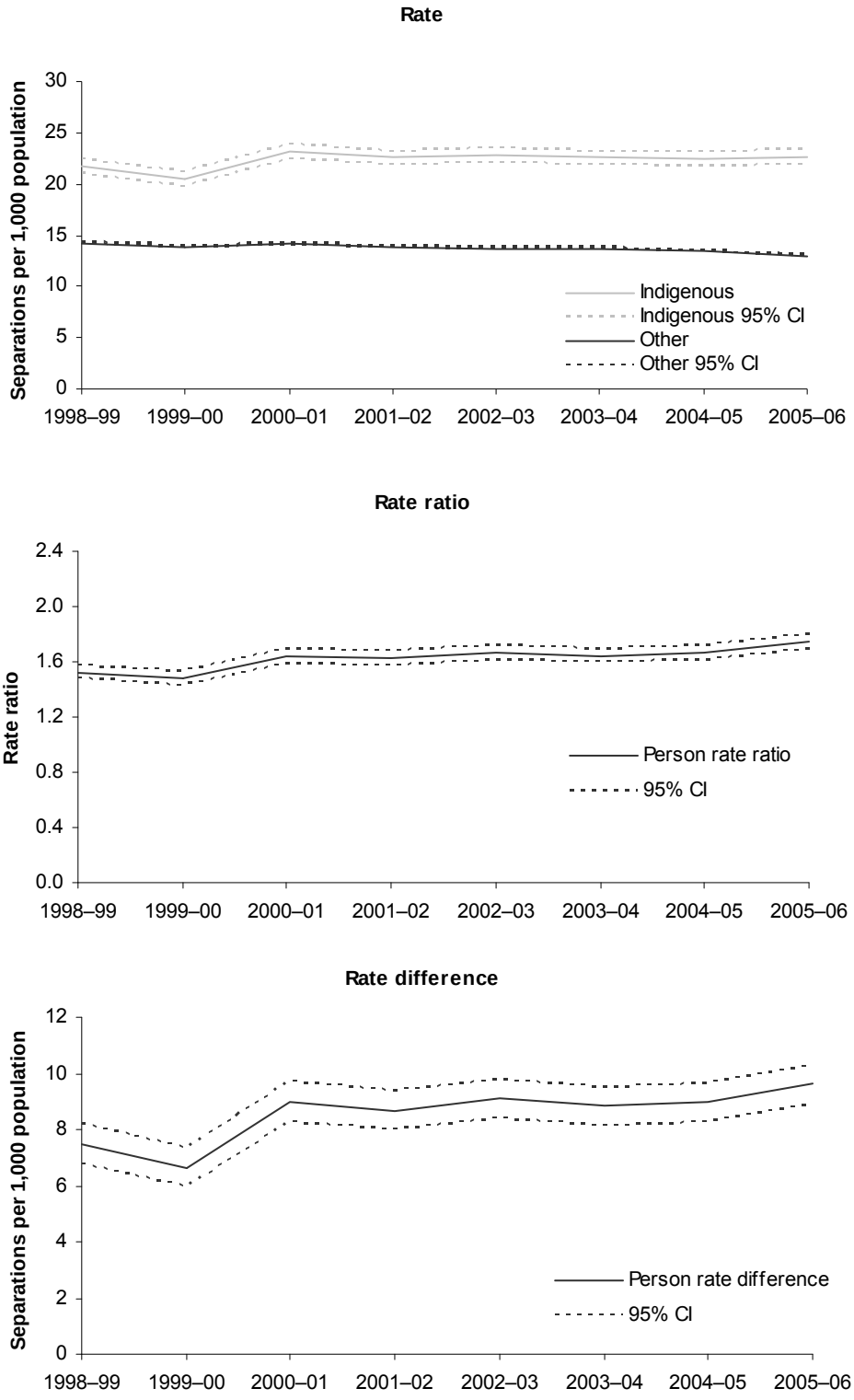
(d) Includes hospitalisations of non-Indigenous Australians and those for whom Indigenous status was not stated.

(e) Hospitalisation rates for Indigenous Australians divided by hospitalisation rates for other Australians.

(f) Hospitalisation rates for Indigenous Australians minus hospitalisation rates for other Australians.

Note: Rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of National Hospital Morbidity Database.



Source: AIHW analysis of National Hospital Morbidity Database.

Figure 1.16.4: Hospitalisation rates, rate ratios and rate differences between Indigenous and other Australians for mental health related conditions, Qld, WA, SA and NT, 1998–99 to 2005–06

Community mental health care services

Community mental health care is defined as care which is provided by specialised public mental health services dedicated to the assessment, treatment, rehabilitation and care of non-admitted clients. This excludes specialised mental health care services for admitted patients, support services that are not provided by specialised mental health care organisations, services provided by non-government organisations, and residential care services.

The number and rate of service contacts per 1,000 population for Aboriginal and Torres Strait Islander peoples varies among the states and territories. This may reflect variations in completeness of Indigenous identification among patients, varying coverage of service contacts for Aboriginal and Torres Strait Islander peoples or for the total population, or different patterns of service use by Indigenous and non-Indigenous persons.

- In 2005–06, the proportion of service contacts for clients of community mental health services who identified themselves as being of Aboriginal and/or Torres Strait Islander origin ranged from 1.4% for Victoria to 30.4% for the Northern Territory.
- There were more service contacts per 1,000 population for Aboriginal and Torres Strait Islander peoples (531.7) than for other Australians (270.3). This was true in all jurisdictions. These rates should be interpreted with caution as there is likely to be an underestimate of the actual number of service contacts for Indigenous clients.
- In 2005–06, Aboriginal and Torres Strait Islander peoples had higher proportions of mental health service contacts for the younger age groups than did other Australians, but lower proportions in the older age groups. For example, 26% and 23% of service contacts for Indigenous Australian males and females respectively were for clients aged between 15 and 24 years compared with 16% and 18% of service contacts for other Australian males and females
- In the older age groups, there were lower proportions of service contacts for Indigenous Australian males and females aged 65 years or more (1% and 2% respectively) than for other Australian males (8%) and females (15%).
- In 2005–06, Indigenous males and females had higher rates of community mental health care service contacts across all age groups except those aged less than 15 years. Differences were most marked in the 25–34 and 35–44 year age groups where Indigenous males and females were between two and three times as likely to be clients of community mental health care services as other Australians in these age groups.

For more information on community mental health services see Measure 3.09 (Access to mental health services).

Residential mental health care services

Residential mental health care refers to care provided by a specialised mental health service that:

- employs mental health trained staff on-site
- provides rehabilitation, treatment or extended care to residents for whom the care is intended to be on an overnight basis and in a domestic-like environment
- encourages residents to take responsibility for their daily living activities.

This excludes non-government-operated services and services that are staffed less than 24 hours a day. There are no residential mental health care services in Queensland or the Northern Territory.

- In 2005–06, there were 2,345 clients of residential mental health care services, of which 64 service contacts (2.7%) were for Aboriginal and Torres Strait Islander peoples.
- The proportion of service contacts for clients of community mental health services who identified themselves as being of Aboriginal and/or Torres Strait Islander origin ranged from 1.4% for Victoria to 5.7% for South Australia.
- There were more service contacts per 1,000 population for Aboriginal and Torres Strait Islander peoples than for other Australians (1.9 and 1.1 respectively). This was true in all jurisdictions except Western Australia. These rates should be interpreted with caution as there is likely to be an underestimate of the actual number of service contacts for Indigenous clients.

For more information on residential mental health services see Measure 3.09 (Access to mental health services).

Mortality

- During the period 2002–2006, there were 9,588 deaths from mental health related conditions in Queensland, Western Australia, South Australia and the Northern Territory combined, 193 (2.0%) of which were deaths of Aboriginal and Torres Strait Islander peoples; for 1.5% of deaths, Indigenous status was not stated.
- Mental health related conditions (such as mental and behavioural disorders due to psychoactive substance use and organic mental disorders) were responsible for approximately 2.5% of all deaths of Aboriginal and Torres Strait Islander peoples.
- Mental and behavioural disorders are the eleventh most common cause of death among Aboriginal and Torres Strait Islander peoples, behind diseases of the circulatory system; external causes; cancer; endocrine, metabolic and nutritional disorders; diseases of the respiratory system; diseases of the digestive system; symptoms, signs and ill-defined conditions; diseases of the genitourinary system; certain conditions originating in the perinatal period; and diseases of the nervous system.

Mortality by age and sex

Table 1.16.13 presents age-specific mortality rates for mental health related conditions for the period 2002–2006 for Queensland, Western Australia, South Australia and the Northern Territory combined.

- Between 2002 and 2006, Indigenous Australians had twice the mortality rates as non-Indigenous Australians for mental health related conditions. Mortality rates for Indigenous males and females were higher across most age groups. Mortality rates were higher for males than for females across most age groups in both the Indigenous and non-Indigenous population.
- Differences were most marked in the 25–34, 35–44 and 45–54 year age groups where Indigenous males died at between 10 and 13 times the rates of non-Indigenous males and Indigenous females died at between 13 and 15 times the rates of non-Indigenous females. These differences in mortality rates are mainly the result of the high number of deaths from mental and behavioural disorders due to psychoactive substance use among the Indigenous population in these age groups.
- Approximately 49% of Indigenous Australians who died from mental health related conditions were males (94 deaths) and 51% (99 deaths) were females.

Table 1.16.13: Mental health related mortality rates per 100,000, by Indigenous status, age group and sex, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)(e)(f)]

	Males			Females		
Age group (years)	Indigenous rate[(g)]	Non-Indigenous rate[(g)]	Rate ratio[(h)]	Indigenous rate[(g)]	Non-Indigenous rate[(g)]	Rate ratio[(h)]
Less than 1	0.0	0.0	. .	0.0	0.0	. .
1–4	1.4	0.0	. .	0.0	0.1	. .
5–14	0.0	0.0	. .	0.6	0.0	. .
15–24	1.4	0.3	5.2*	1.4	0.4	3.5
25–34	10.0	1.0	10.4*	7.7	0.6	13.1*
35–44	22.0	1.7	13.3*	9.4	0.6	15.4*
45–54	27.1	2.7	9.9*	16.4	1.2	14.2*
55–64	43.1	7.1	6.1*	15.7	3.9	4.1*
65–74	114.9	29.9	3.8*	77.9	23.2	3.4*
75 and over	381.0	285.2	1.3	667.5	445.1	1.5*
Total[(i)]	**42.1**	**20.0**	**2.1***	**50.6**	**27.9**	**1.8***

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

(a) ICD-10 codes: F00–F99, G30, G47.0, G47.1, G47.2, G47.8, G47.9, O99.3, R44, R45.0, R45.1, R45.4, R48.

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

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

(d) These data exclude 148 registered deaths where the Indigenous status is not stated.

(e) 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.

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

(g) Age-specific death rates per 100,000 using the average December populations for the relevant years.

(h) Rate ratio Indigenous:other.

(i) Total includes age not stated. Total rates have been directly age-standardised using the Australian 2001 standard population.

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

Source: AIHW analysis of National Mortality Database.

Mortality by cause of death

Mental health related conditions

Deaths for the period 2002–2006 among Aboriginal and Torres Strait Islander peoples in Queensland, Western Australia, South Australia and the Northern Territory combined are presented in Table 1.16.14 by type of mental health related condition.

- For Indigenous males, the most common cause of death was from mental and behavioural disorders due to psychoactive substance (68 deaths or 72%). For Indigenous females it was organic mental disorders, which include dementia, delirium and other mental disorders due to brain damage and dysfunction (52 deaths or 53%).
- In the four jurisdictions combined, Indigenous males and females died from mental health related conditions at around twice the rate of other males and females.
- Indigenous males and females died from mental and behavioural disorders due to psychoactive substance use at 9 and 10 times the rate of other males and females respectively.
- Indigenous females died from organic mental disorders, which include dementia, delirium and other mental disorders due to brain damage and dysfunction, at over twice the rate of non-Indigenous females.

Assault and self-harm

- In addition to the mental health related conditions presented here, there were 359 deaths of Aboriginal and Torres Strait Islander peoples due to self-harm (suicide) (4.7%) and 118 deaths of Aboriginal and Torres Strait Islander peoples due to assault (1.5%) in Queensland, Western Australia, South Australia and the Northern Territory between 2002 and 2006.
- Indigenous Australians died from self-harm and assault at 2 and 10 times the rate of non-Indigenous Australians for these causes of death respectively.
- Mental health related conditions, assault and self-harm together were responsible for 8.7% of all deaths of Indigenous Australians.

Table 1.16.14: Deaths from mental health related conditions for Indigenous Australians, by sex, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)(e)]

	Males					Females					Persons				
Cause of death	**No.**	**No. per 100,000[(f)]**	**LCL 95%[(g)]**	**UCL 95%[(h)]**	**Ratio[(i)]**	**No.**	**No. per 100,000[(f)]**	**LCL 95%[(g)]**	**UCL 95%[(h)]**	**Ratio[(i)]**	**No.**	**No. per 100,000[(f)]**	**LCL 95%[(g)]**	**UCL 95%[(h)]**	**Ratio[(i)]**
Mental and behavioural disorders due to psychoactive substances use (F10–F19)	68	21.9	15.2	28.6	9.2*	34	6.8	4.1	9.6	10.0*	102	13.5	10.3	16.8	9.1*
Organic, including symptomatic mental disorders (F00–F09)	17	15.7	7.9	23.5	1.4	52	34.9	25.1	44.6	2.2*	69	26.9	20.4	33.5	1.9*
Other[(j)]	9	4.5	0.6	8.4	0.7	13	8.9	4.0	13.9	0.8	22	7.2	3.8	10.5	0.8
Total	**94**	**42.1**	**31.2**	**53.1**	**2.1***	**99**	**50.6**	**39.4**	**61.9**	**1.8***	**193**	**47.6**	**39.6**	**55.7**	**1.9***

* 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 and territories are considered to have adequate levels of Indigenous identification in mortality data. Data for these four jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the four jurisdictions should not be assumed to represent the experience in the other jurisdictions.

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

(c) These data exclude 148 registered deaths where the Indigenous status is not stated.

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

(e) Deaths are by year of registration.

(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) Includes ICD-10 codes: F20–F99, G30, G47.0, G47.1, G47.2, G47.8, G47.9, O99.3, R44, R45.0, R45.1, R45.4, R48.

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

Source: AIHW analysis of National Mortality Database

General practitioner encounters

Information about general practitioner (GP) encounters is available from the BEACH survey. Data for the 5-year period 2002–03 to 2006–07 are presented below. Mental health related problems (psychological problems) were the sixth most common type of problems managed at GP encounters with Aboriginal and Torres Strait Islander patients during this period. The other five most common types of problems were respiratory conditions, circulatory conditions, endocrine and metabolic problems, musculoskeletal conditions and skin problems.

- In the period 2002–03 to 2006–07 there were 7,542 GP encounters with Aboriginal and Torres Strait Islander patients recorded in the survey, at which 11,219 problems were managed. Of these, 9.7% (1,088) were mental health related problems (Table 1.16.15).
- Depression was the most common mental health related problem managed at GP encounters with Indigenous patients, followed by drug abuse (licit or illicit), anxiety and sleep disturbance.
- Mental health related problems were managed at a rate of 14.4 per 100 GP encounters with Indigenous patients compared to a rate of 11.7 per 100 GP encounters with other patients.
- After adjusting for differences in age distribution, mental health related problems were managed at GP encounters with Indigenous patients at a similar rate to encounters with other patients.
- Alcohol, drug and tobacco abuse were managed at GP encounters with Indigenous patients at around three times the rate at encounters with other patients.
- Schizophrenia was also more commonly managed at GP encounters with Indigenous patients than with other patients (at around twice the rate).

Table 1.16.15: Most frequently reported mental health related problems[a] managed by general practitioners, by Indigenous status of patient, 2002–03 to 2006–07[b][c][d]

	Number		% of total problems		Crude rate (no. per 100 encounters)						Age-standardised rate (no. per 100 encounters)[e]		
Problem managed	Indigenous	Other[f]	Indigenous	Other[f]	Indigenous	95% LCL[g]	95% UCL[h]	Other	95% LCL[g]	95% UCL[h]	Indigenous	Other[f]	Ratio[i]
Depression (P03, P76)	272	19,216	2.4	2.7	3.6	2.9	4.3	4.0	3.9	4.1	3.3	3.9	0.8
Drug abuse (P19)	148	2,354	1.3	0.3	2.0	1.1	2.8	0.5	0.4	0.6	1.5	0.5	3.0
Anxiety (P01, P74)	115	8,600	1.0	1.2	1.5	1.0	2.0	1.8	1.7	1.8	1.4	1.8	0.8
Sleep disturbance (P06)	97	7,847	0.9	1.1	1.3	1.0	1.6	1.6	1.6	1.7	1.3	1.6	0.8
Alcohol abuse (P15, P16)	83	1,685	0.7	0.2	1.1	0.7	1.5	0.3	0.3	0.4	0.9	0.3	2.7
Schizophrenia (P72)	75	2,203	0.7	0.3	1.0	0.6	1.4	0.5	0.4	0.5	0.8	0.5	1.9
Tobacco abuse (P17)	65	1,618	0.6	0.2	0.9	0.5	1.2	0.3	0.3	0.4	0.8	0.3	2.5
Acute stress reaction (P02)	58	2,932	0.5	0.4	0.8	0.5	1.1	0.6	0.6	0.6	0.8	0.6	1.3
Affective psychosis (P73)	20	892	0.2	0.1	0.3	0.1	0.4	0.2	0.2	0.2	0.2	0.2	1.1
Dementia (P70)	14	2,439	0.1	0.3	0.2	0.1	0.3	0.5	0.5	0.5	0.7	0.5	1.5
Other[j]	141	6,694	1.3	0.9	1.9	1.4	2.3	1.4	1.3	1.5	1.6	1.4	1.2
Total mental health	**1,088**	**56,480**	**9.7**	**7.8**	**14.4**	**11.9**	**16.9**	**11.7**	**11.4**	**12.0**	**13.5**	**11.6**	**1.2**

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

(b) These survey results are likely to undercount the number of Indigenous Australians visiting doctors.

(c) Combined financial year data for 5 years.

(d) Data for Indigenous and other Australians have not been weighted.

(e) Directly age-standardised rate (no. per 100 encounters). Figures do not add to 100 as more than one problem can be managed at each encounter.

(f) Includes non-Indigenous patients and patients for whom Indigenous status was not stated.

(g) LCL = lower confidence interval.

(h) UCL = upper confidence interval.

(i) Rate ratio Indigenous:other.

(j) ICPC–2 codes: P04–P05, P07–P13, P18, P20, P22–P25, P27–P29, P71, P75,P77–P82, P85–P86, P98–P99.

Source: AIHW analysis of BEACH survey of general practice, AGPSCC.

Additional information

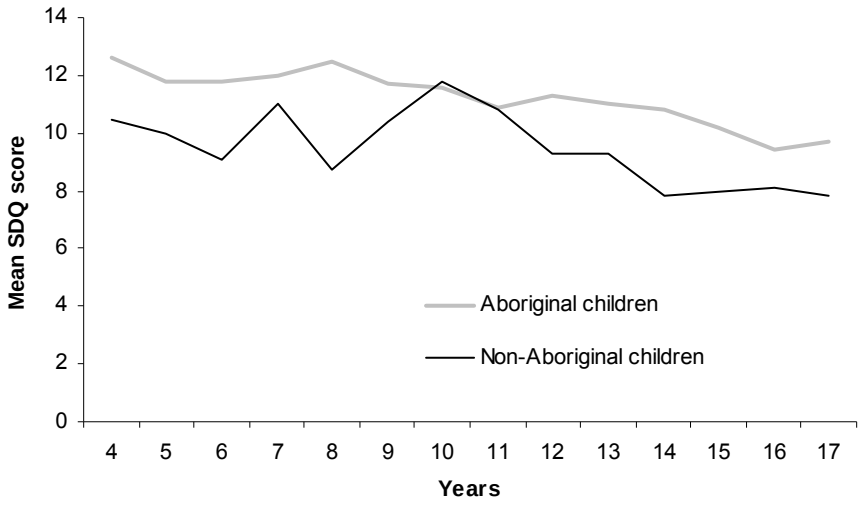
Social and emotional wellbeing of Aboriginal children

The Western Australian Aboriginal Child Health Survey (WAACHS) collected information on the social and emotional wellbeing of Aboriginal children and a small number of Torres Strait Islander children over 2001 and 2002. It found that a variety of health conditions, social circumstances and behaviours experienced by individuals, their carers and families can have an impact on the social and emotional wellbeing of Indigenous children (Zubrick et al. 2005). Some of the findings from the survey are presented below. Note that the term 'Aboriginal' is used here and in the survey but refers to both Aboriginal and Torres Strait Islander children.

Emotional and behavioural difficulties

The Strengths and Difficulties Questionnaire (SDQ), used throughout the world to measure emotional and behavioural difficulties in children, was modified for Aboriginal children in the WAACHS. The SDQ contains questions that explore emotional symptoms, conduct problems, hyperactivity, peer problems and social behaviour.

- Approximately 24% of Aboriginal children aged 4–17 years surveyed were assessed from the SDQ completed by their carers as being at high risk of clinically significant emotional or behavioural difficulties compared with 15% of other children (Zubrick et al. 2005).
- Aboriginal children had higher mean SDQ scores than other children at all ages between 4 and 17 years except for ages 10 and 11 where mean scores were similar (Figure 1.16.5).
- Male Aboriginal children were twice as likely as female Aboriginal children to be at high risk of clinically significant emotional or behavioural difficulties.
- Those children living in areas of extreme isolation were less at risk than those living in urban areas.



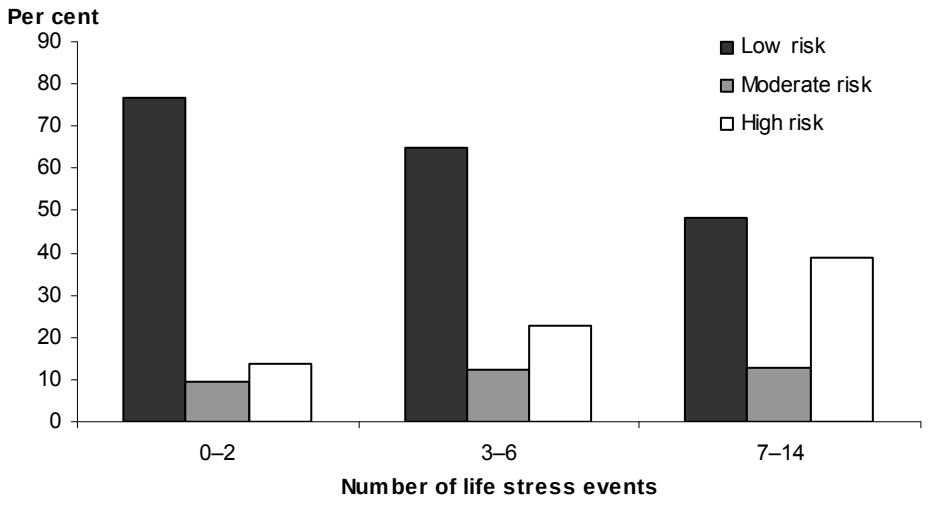
Sources: Zubrick et al. 2005; Computer-assisted telephone interview survey conducted for the WAACHS by the Survey Research Centre at the University of Western Australia.

Figure 1.16.5: Mean Strengths and Difficulties Questionnaire (SDQ) total score, by age, Aboriginal and non-Aboriginal children aged 4–17 years, WA, 2001, 2002

Family and household factors

The WAACHS looked at a range of family and household factors which could affect the social and emotional wellbeing of children. Factors which were found to be associated with high risk of clinically significant emotional or behavioural difficulties in Aboriginal children included the number of stress events experienced by the family in the 12 months before the survey (such as illness, hospitalisation, death of a close family member, family break-up, arrests, job loss, financial difficulties), quality of parenting, family functioning and family care arrangements. Residential mobility, the physical health of the child (speech, hearing and vision problems), the physical health of the carer and the carer's use of mental health services were also associated with an increased risk of clinically significant emotional or behavioural difficulties in children.

- For example, around 22% of children aged 4–17 years in Western Australia were living in families where seven or more life stress events had occurred over the preceding 12 months. Of these children, 39% were at high risk of clinically significant emotional or behavioural difficulties compared with 14% of children in families where two or fewer life stress events had occurred (Figure 1.16.6).



Source: Zubrick et al. 2005.

Figure 1.16.6: Proportion of Aboriginal children aged 4–17 years at low, moderate and high risk of clinically significant emotional or behavioural difficulties, by number of life stress events, WA, 2001, 2002

- Around one-quarter of Aboriginal children were living in families with poor quality of parenting (measured by how often carers praised their children, hit or smacked their children and laughed together with their children) and one-fifth of children were living in families that functioned poorly (families with poor communication and decision making, poor emotional support, limited time spent together and poor family cooperation). These children were over twice as likely to be at high risk of emotional and behavioural difficulties as children living in families with very good quality of parenting or very good family functioning (Zubrick et al. 2005).

Health risk factors

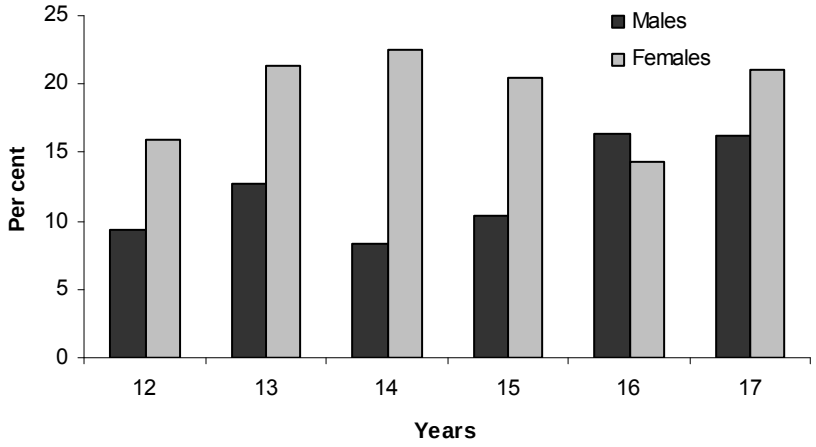
A number of health risk factors were also found to be associated with a high risk of clinically significant emotional and behavioural difficulties.

- An estimated 18% of Western Australian Aboriginal young people aged 12–17 years who smoked regularly were at high risk of emotional and behavioural difficulties compared with 7% of non-smokers.
- Approximately 29% of young people aged 12–17 years who used marijuana/cannabis daily were at risk of clinically significant emotional or behavioural difficulties compared with 9% of young people who had never used marijuana/cannabis. Although Indigenous males were more likely to use marijuana than Indigenous females, particularly at age 17 (45% compared with 21%), Indigenous females who used marijuana/cannabis were more likely to be at risk of clinically significant emotional or behavioural difficulties than Indigenous males.
- Young people who did not participate in organised sport were twice as likely to be at high risk of emotional and behaviour difficulties compared with young people who did participate in sport (16% and 8% respectively).
- Those who had been subject to racism in the preceding 6 months were more than twice as likely to be at high risk of emotional and behavioural difficulties than those who had not experienced racism.

Suicidal behaviour

An additional survey was administered by the Telethon Institute to Aboriginal young people aged 12–17 years to measure rates of suicidal thoughts and suicide attempts.

- Suicidal thoughts were reported by around one in six (16%) Western Australian Aboriginal people aged 12–17 years in the 12 months before the survey.
- Overall, a higher proportion of Aboriginal females reported they had seriously thought about ending their own life than Aboriginal males (20% compared with 12%). This was true for all ages from 12 to 17 years except for those aged 16 where Indigenous males were more likely than females to report having thought about ending their own life (Figure 1.16.7).
- Of those who had suicidal thoughts in the 12 months before the survey, 39% reported they had attempted suicide in the same period. This finding is similar to the proportion of the general young population aged 12–16 years who reported suicide attempts in the 1993 Western Australian Child Health Survey (Zubrick et al 2005).
- Aboriginal young people who had been exposed to family violence were more than twice as likely to have thought about ending their own life (22%) as Aboriginal young people who had not been exposed to family violence (9%).
- A higher proportion of Aboriginal males reported they had thought about ending their own life if they had low self-esteem (21%) than if they had high self-esteem (5%).
- Suicidal thoughts were associated with a number of health risk behaviours. The proportion of Aboriginal young people who reported suicidal thoughts was significantly higher among those who smoked regularly, used marijuana, drank to excess in the 6 months before the survey, were exposed to some form of family violence and who had a friend who had attempted suicide.



Source: Zubrick et al. 2005.

Figure 1.16.7: Proportion of Aboriginal young people who had seriously thought about ending own life, by sex and age, WA, 2001, 2002

Effects of forced separation

- Children of Aboriginal carers who had been forcibly separated from their natural family by past removal policies and practices or removed from country to a welfare institution or a mission were twice as likely to be at high risk of clinically significant emotional or behavioural difficulties as children whose primary carer had not been forcibly separated from their natural family. These children also had higher rates of conduct and hyperactivity problems.
- Children whose primary carers had been forcibly separated from their natural families were over 1.5 times as likely to be at high risk of clinically significant conduct problems and 2.5 times as likely to be at high risk of clinically significant hyperactivity problems (Zubrick et al. 2005).

Data quality issues

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) and National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

The NATSIHS and NATSISS both use the standard Indigenous status question. The survey samples were specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians and thus overcome the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS and NATSISS are subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in these surveys is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS) and the 2002 General Social Survey. The NHS was conducted in major cities and regional and remote areas, but very remote areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 National Health Surveys and the 1994 National Aboriginal and Torres Strait Islander Survey.

In remote communities there were some modifications to the NATSIHS and NATSISS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS and NATSISS data quality issues can be found in the NATSIHS 2004–05 (ABS 2006a) and NATSISS 2002 (ABS 2004a) publications.

Western Australian Aboriginal Child Health Survey

Survey data are subject to sampling and non-sampling errors. Confidence intervals are published with the data to provide a guide to the reliability of the estimates. Non-sampling errors can occur in surveys because of questionnaire design problems, respondent difficulty recalling information/lack of appropriate records, and errors made in the recording and processing of the data. Every effort was made to minimise non-sample errors in this survey.

General practitioner data (BEACH)

Information about general practitioner encounters is available from the Bettering the Evaluation and Care of Health (BEACH) survey. The BEACH data on Indigenous Australians should be treated with care. First, the sample frame has not been designed to produce statistically significant results for population subgroups such as Indigenous Australians. Second, the identification of Indigenous Australians is not complete. In the BEACH survey, 'not stated' responses to the Indigenous identification question are often higher than the 'yes' responses. It can be assumed, therefore, that the survey consistently undercounts the number of Indigenous Australians visiting general practitioners, but the extent of this undercount is not measurable.

(continued)

Data quality issues (continued)

Hospital separations data

Separations

The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery. In terms of mental health service delivery, there are a number of different service delivery models ranging from ambulatory care in community mental health services and hospitals and non-ambulatory care in hospitals and residential services.

Indigenous status question

Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections. The 'not stated' category is missing from several collections. It is recommended that the standard wording and categories be used in all jurisdictions (AIHW 2005).

Under-identification

The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander peoples. 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 2007). 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 (AIHW unpublished data). It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. The proportion of the Indigenous population covered by these six jurisdictions is 96%. The following caveats have also been recommended for analysis of hospitalisation data from selected jurisdictions (ABS & AIHW 2005):

- *Interpretation of results should take into account the relative quality of the data from the jurisdictions included (currently a small degree of Indigenous under-identification in data from Western Australia and the Northern Territory and relatively marked Indigenous under-identification in data from South Australia and Victoria).*
- *Data for these six jurisdictions over-represent Indigenous populations in less urbanised and more remote locations.*
- *Hospitalisation data for these six jurisdictions are not necessarily representative of the jurisdictions not included.*

From the AIHW study it was possible to produce correction factors for the level of Indigenous under-identification in hospital data for each jurisdiction and at the national level.

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 hospital 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 to 2009 *(ABS 2004b).*

(continued)

Data quality issues (continued)

National Community Mental Health Care Database (NCMHCD)

The quality of the Indigenous identification in this database varies by jurisdiction.

The number and rate of service contacts per 1,000 population for Aboriginal and Torres Strait Islander peoples vary among the states and territories. This may reflect variations in completeness of Indigenous identification among patients or different patterns of service use by Indigenous and non-Indigenous persons.

All states and territories use the standard ABS question of Indigenous status. For a number of jurisdictions, the NCMHCD data reported for the 'Both Aboriginal and Torres Strait Islander' category are suspected to be affected by misinterpretation of the category to include non-Aboriginal and Torres Strait Islander peoples (for example, Maoris and South Sea Islanders) and use of the category as 'Indigenous, not further specified'.

All state and territory health authorities provided information on the quality of the data for the NCMHCD 2005–06. New South Wales stated that the quality of Indigenous data has not been evaluated. Victoria considered the quality of Indigenous data was not acceptable because of lack of consistency in data entry across its services. Queensland reported that the quality of Indigenous data is acceptable at the broad level, that is, in distinguishing Indigenous Australians and other Australians, but that there are quality issues regarding the coding of more specific details (that is, 'Aboriginal', 'Torres Strait Islander', 'Both Aboriginal and Torres Strait Islander'). Queensland also reported that several strategies have been implemented to improve the quality of Indigenous data and noted that a replacement for the existing collection system with in-built validation checks would further improve the quality of these data. Western Australia reported that the quality of Indigenous status data for 2005–06 was acceptable; however, the data could be improved with the appropriate resources, training and reporting standards. South Australia indicated that there has been limited analysis of the quality of Indigenous status data; therefore, the quality of the data is uncertain at this stage. Tasmania reported the quality of its data to be acceptable; the Australian Capital Territory considered the quality of its Indigenous status data to be acceptable, noting that there is some room for improvement regarding the reporting of the 'not stated' category. The Northern Territory indicated its Indigenous status data to be of acceptable quality

National Residential Mental Health Care Database (NRMHCD)

The quality of the Indigenous identification in this database varies by jurisdiction.

The number and rate of service contacts per 1,000 population for Aboriginal and Torres Strait Islander peoples varies among the states and territories. This may reflect variations in completeness of Indigenous identification among patients or different patterns of service use by Indigenous and non-Indigenous persons.

Data from the NRMHCD on Indigenous status should be interpreted with caution because of the varying quality and completeness of Indigenous identification across all jurisdictions. Only Western Australia, Tasmania and the Australian Capital Territory considered their Indigenous status data of acceptable quality. New South Wales has not evaluated the quality of its Indigenous data. Likewise, limited analysis was done on indigenous data in South Australia. Victoria considered the quality of Indigenous data not acceptable because of the lack of consistency in data entry across its services.

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.

(continued)

Data Quality issues (continued)

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%, 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 2006b).

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 to 2009 *(ABS 2004b).*

Cause of death coding

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

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1.17 Life expectancy at birth

The life expectancy of Aboriginal and Torres Strait Islander males and females for a given period.

Data sources

Life expectancy estimates for the years 2005–2007 presented in this measure are from the ABS and are based on population estimates based on the 2006 Census of Population and Housing.

Data on potential years of life lost before age 65 are calculated by the AIHW and are derived from the AIHW National Mortality Database.

Life expectancy estimates

Life expectancy refers to the average number of years a person of a given age and sex can expect to live, if current age- and sex-specific death rates continue to apply throughout his or her lifetime.

Estimates of life expectancy are drawn from life tables. To construct a life table, data on total population, births and deaths are needed, and the accuracy of the life table depends on the completeness of these data. Because of uncertainty about the estimates of these components for Aboriginal and Torres Strait Islander peoples, experimental methods are used to calculate life expectancies for the Indigenous population. These life expectancies should only be used as an indicative summary measure of life expectancy of the Indigenous population.

The ABS used a direct demographic method to derive 2005–2007 life tables for the Indigenous population by adjusting death registrations data by identification rates obtained from the Census Data Enhancement (CDE) Indigenous Mortality Quality Study. The ABS previously used indirect methods (Bhat with and without unexplained growth, and Hill) to derive experimental life tables for Indigenous Australians. These indirect methods require extensive assumptions and often produce implausible outcomes in relation to the apparent undercoverage measures over time. They are also sensitive to the accuracy of population estimates. After extensive consultation, the ABS adopted a direct demographic method for the compilation of Indigenous life tables (ABS, 2009).

Unlike the indirect method, the direct method of deriving Indigenous life tables for life expectancy estimates is not reliant on assumptions. That is, instead of relying on indirect and modelled estimates to derive coverage estimates of Indigenous deaths, the direct method enables the calculation of coverage rates by directly comparing the Indigenous status reported on death and Census data for linked records. This data linkage technique ensures consistency across collections and produces life expectancy estimates that are considered more plausible (ABS, 2008). There are however, limitations that must be noted.

The derived Indigenous deaths identification rates relate to a very restricted time frame of 11 months, and there remains a relatively high level of unlinked records for which Indigenous status is unknown (ABS, 2008).

Due to the small number of Indigenous deaths in Victoria, South Australia, Tasmania and the Australian Capital Territory, Indigenous life tables were not produced for these jurisdictions (ABS, 2009).

Because different methods of deriving Indigenous life tables were used in the 2006 and 2008 HPF reports, comparisons should not be made and in no way should changes in life expectancy between these reports be interpreted as changes in life expectancy over time.

Mortality

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.

Analyses

Life expectancy

- Over the period 2005–2007, the life expectancy at birth for Indigenous people was estimated to be around 67 years for males and 73 years for females. This is some 10 years lower than life expectancy estimates for the total Australian population for the same period (79 years for males and 82 years for females) (Table 1.17.1 and Figure 1.17.1).
- Life expectancy was lowest for Indigenous males and females in the Northern Territory (62 years and 69 years, respectively).

A study of causes of the inequality in life expectancy between Indigenous and non-Indigenous Australians in the Northern Territory found that the main contributors to the gaps in life expectancy are non-communicable diseases including conditions such as respiratory diseases, cardiovascular diseases and diabetes. These conditions are more prevalent in ageing populations. The study also found that communicable diseases, maternal, perinatal and nutritional conditions and injury contributed far less to the life expectancy gap (Zhao & Dempsey 2006).

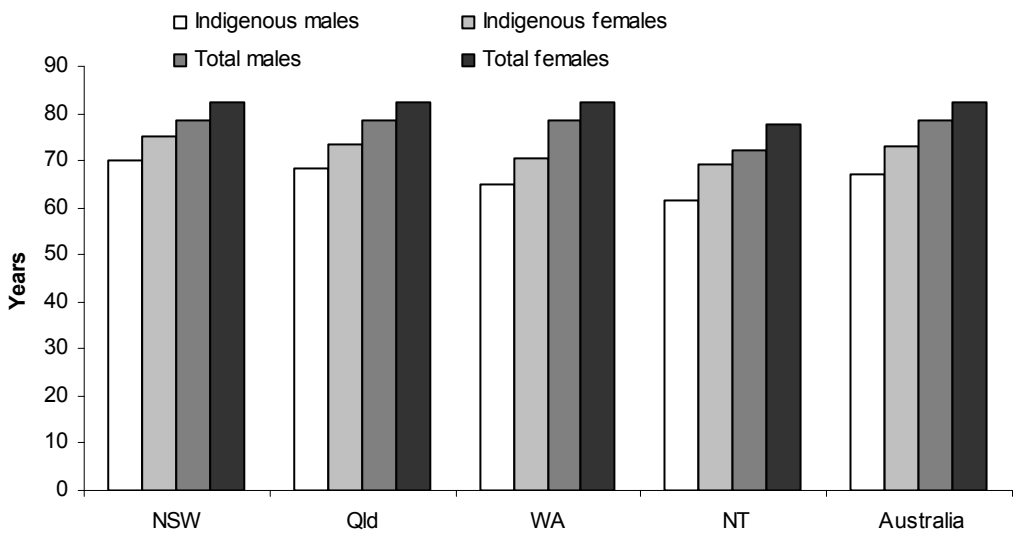
Table 1.17.1: Life expectancy at birth, Indigenous and total population 2005–2007, by sex and state/territory[(a)]

	Males	Females
	Indigenous	
New South Wales	69.9	75.0
Queensland	68.3	73.6
Western Australia	65.0	70.4
Northern Territory	61.5	69.2
Australia[(b)]	**67.2**	**72.9**
	Total population	
New South Wales	78.5	82.4
Queensland	78.4	82.3
Western Australia	78.7	82.5
Northern territory	72.0	77.6
Australia[(b)]	**78.5**	**82.4**

(a) Due to significant changes in methodology, estimates of life expectancy at birth for 2005–07 are not comparable to previously published estimates.

(b) Includes all states and territories.

Sources: ABS 2009.



Source: ABS 2009.

Figure 1.17.1: Life expectancy at birth, Indigenous and total population 2005–2007, by sex and state/territory

International comparisons

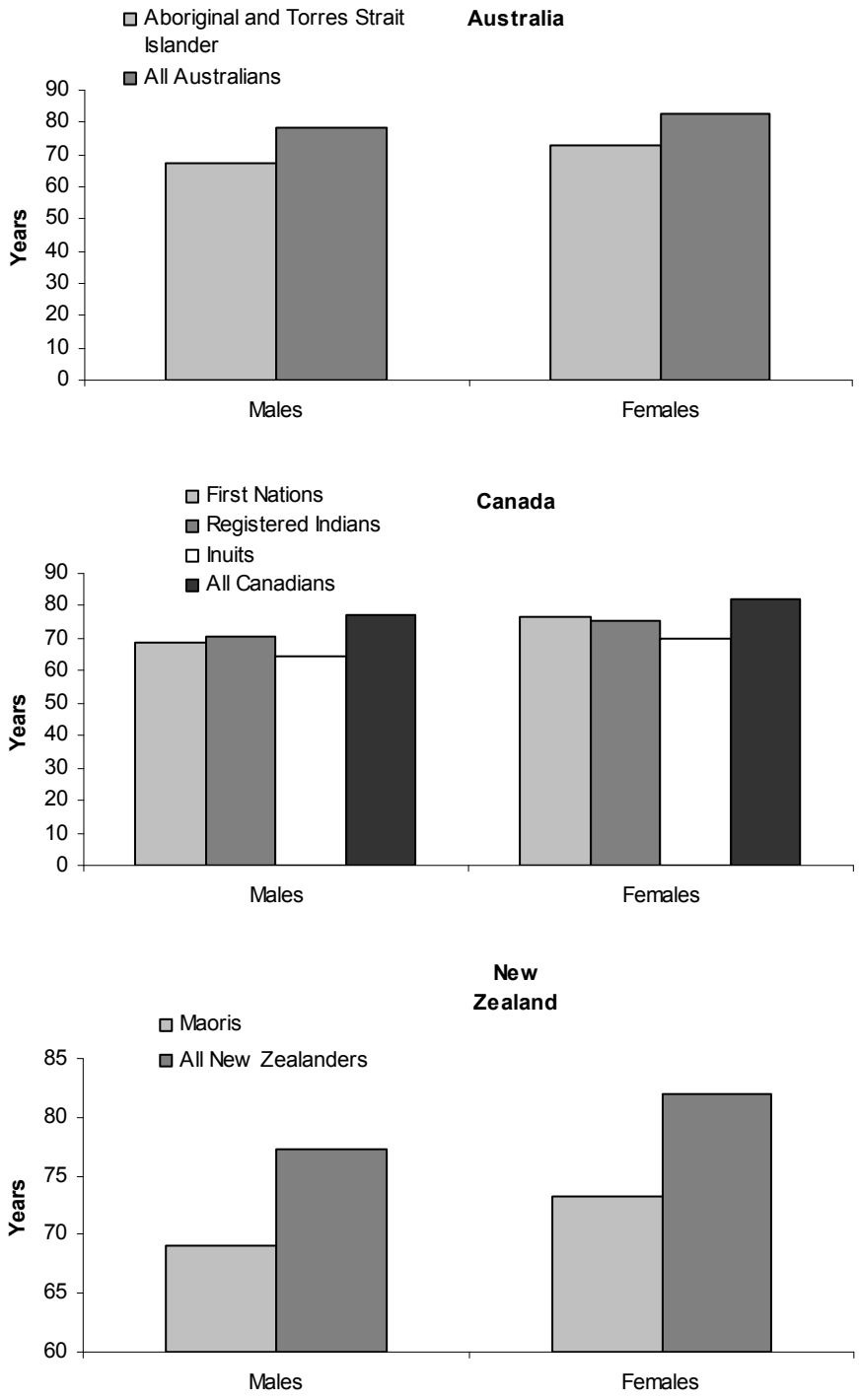
International indigenous data are available for New Zealand, the United States and Canada.

There are several common issues that adversely affect the quality of Indigenous mortality data in these three countries and Australia. These include the lack of an accurate denominator for the Indigenous population (mainly due to undercounting) and the lack of agreement over which is the best population denominator to use when they exist (for example, whether to use single ethnic response groups or multiple ethnic response groups). There are differences in how Indigenous status is defined in the different countries. There have also been frequent modifications to the ethnicity question recorded in the censuses in some of these countries. These changes in the census ethnicity question have led to difficulties in comparing mortality trends over time and have also produced difficulties in estimating inter-census population denominator counts.

An important issue in relation to the quality of Indigenous mortality data is the undercounting of deaths (the numerator for mortality data). In each of the four countries, the undercounting of Indigenous deaths is likely to lead to an underestimation of the relative size of disparities that exist between Indigenous and non-Indigenous populations. This will affect life expectancy estimates.

The life expectancy estimates presented below are not strictly comparable because of differences in the methods used to estimate life expectancy. Moreover, the populations covered by these estimates are variable across the three countries.

- The life expectancy for Maoris for 2000–02 was 69.0 years for males and 73.2 years for females (Statistics New Zealand 2005).
- The life expectancy of Canadian First Nations people in 2000 was 68.9 years for males and 76.6 years for females (Health Canada 2005). The life expectancy for Canadian registered Indians in 2001 was 70.4 for males and 75.5 for females (India and Northern Affairs Canada 2005) and the life expectancy for Canadian Inuit people for the period 1999-2003 was 64.4 years for males and 69.8 years for females (Statistics Canada unpublished data). This compared to a life expectancy of 77.0 years for all Canadian males and 82.1 years for all Canadian females (Statistics Canada unpublished data).
- Life expectancy at birth is not readily available for American Indians in the United States. The most recent published data on the life expectancy of American Indians are projected life expectancies for 1999. In 1999, the projected life expectancy for American Indian males was 72.8 compared with 74.0 for total males, and 82.0 for American Indian females compared with 79.7 for total females (based on low series population estimates) (National Projections Program, Population Division, US Census Bureau).



Notes

1. Life expectancy estimates for Aboriginal and Torres Strait Islander peoples and all Australians are for 2005–2007.
2. Life expectancy estimates for First Nations are for 2000; Registered Indians are for 2001; Inuits are for 1999-2003 and the total Canadian population are for 2001.
3. Life expectancy estimates for Maoris and the total New Zealand population are for 2000–2002.

Sources: ABS 2009; Health Canada 2005; Statistics Canada unpublished; Indian and Northern Affairs Canada 2005; Statistics New Zealand 2005.

Figure 1.17.2: Life expectancy at birth for males and females in Australia, Canada and New Zealand, by Indigenous status, various years

Years of potential life lost

Potential years of life lost (PYLL) is a measure of premature or untimely death. It represents the total number of years of life lost before a given age (for example, 65 years). If dying before the age of 65 is considered premature then a person dying at age 55 would have lost 10 years of potential life. This measure gives more importance to the causes of death that occurred at younger ages than those that occurred at older ages.

The PYLL due to death is calculated for each person who died before age 65. Deaths of people aged 65 years and over are not included in the calculation. Potential years of life lost correspond to the sum of the PYLL contributed for each individual. The rate is obtained by dividing total potential years of life lost by the total population less than 65 years of age.

Table 1.17.2 presents the number and rate of potential years of life lost for Indigenous and non-Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory over the period 2002–2006.

- Between 2002 and 2006, approximately 74% of Indigenous males and 64% of Indigenous females died before the age of 65, compared with 26% of non-Indigenous males and 16% of non-Indigenous females.
- For the period 2002–2006, there were 86,303 and 52,872 years of potential life lost before the age of 65 for Indigenous males and females respectively.
- The rate of potential years of life lost per 1,000 population was 123.3 for Indigenous males and 74.3 for Indigenous females, compared with 33.8 for non-Indigenous males and 19.1 for non-Indigenous females.
- For every death of Indigenous males and females over the period 2002–2006, an average of 25–27 years of life were lost before the age of 65 years, compared with 18 years for non-Indigenous males and females.

Table 1.17.2: Potential years of life lost before age 65 years (PYLL), Qld, WA, SA & NT, 2002–2006[(a)(b)(c)]

	Deaths aged under 65 years		PYLL (65)		
	No.	% of deaths	No.	Deaths per 1,000[(d)]	No. years per death
Indigenous					
Males	3,252	74.4	86,303	123.3	26.5
Females	2,123	63.9	52,872	74.3	24.9
Non-Indigenous					
Males	31,060	25.8	550,355	33.8	17.7
Females	17,190	15.7	303,246	19.1	17.6

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

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

(c) Data are based on year of registration of death.

(d) Deaths per 1,000 population.

Source: AIHW analysis of National Mortality Database.

Additional information

Life expectancy in the Northern Territory

A study was undertaken by Wilson et al. (2007) to assess the extent of changes in life expectancy at birth for Indigenous Australians living in the Northern Territory over the period 1967–2004. Life expectancy at birth figures were calculated via life table calculations using Indigenous mortality data and population data from the Northern Territory.

The study found that the life expectancy at birth of Indigenous Australians has risen considerably in the Northern Territory, increasing from 52 years for males and 54 years for females in the late 1960s to around 60 years for males and 68 years for females in 2004. The gap between Indigenous and total Australian female life expectancy in the Northern Territory has narrowed between 1967 and 2004, but the gap between Indigenous and total Australian male life expectancy has remained the same.

Wilson et al. (2007) reported that declines in infant mortality accounted for a large amount of the increases in life expectancy for the Northern Territory Indigenous population between the late 1960s and mid 1980s, especially for males. A significant proportion of female life expectancy gains in this early period also came from other childhood and adult ages. From the mid 1980s to the early 2000s, declines in mortality at age 45 and over were responsible for the majority of life expectancy gains for both Indigenous males and females in the Northern Territory. For the total Australian population, improvements in middle age and older adult mortality were responsible for the vast majority of gains to Australian life expectancy over the entire period 1967–2004.

The gains in life expectancy for Indigenous males and females in the Northern Territory reported by Wilson et al. (2007) indicate that Indigenous health status has improved considerably in recent decades in the Northern Territory. There is still, however, substantial disparity between life expectancy measures of the Indigenous and non-Indigenous populations.

Data quality issues

Life expectancy estimates

Estimates of life expectancy are drawn from life tables. To construct a life table, data on total population, births and deaths are needed, and the accuracy of the life table depends on the completeness of these data. Because of uncertainty about the estimates of these components for Aboriginal and Torres Strait Islander peoples, experimental methods are used to calculate life expectancies for the Indigenous population. These experimental life expectancies should only be used as an indicative summary measure of life expectancy of the Indigenous population.

Although the direct demographic method to compile Indigenous life tables and life expectancy estimates is an improvement on indirect methods used earlier by the ABS in that it is data based and does not rely on assumption, there are still limitations to this method. That is, the derived Indigenous deaths identification rates relate to a very restricted time frame of 11 months, and there remains a relatively high level of unlinked records for which Indigenous status is unknown (ABS, 2008).

Births and deaths

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their birth and death registration forms. However, New South Wales, Victoria, South Australia, the Northern Territory and the Australian Capital Territory all have slightly different wording to 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 births and deaths in Australia are registered. However, the Indigenous status of the person is not always recorded/recorded correctly. The incompleteness of Indigenous identification means the number of births and deaths registered as Indigenous is an underestimate of births and deaths occurring in the Aboriginal and Torres Strait Islander population. As a result, the observed differences between Indigenous and non-Indigenous rates are under-estimates 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. Note that as the data quality improves, the states and territories to be included here should be reviewed.

The ABS calculated the implied coverage (identification) of Indigenous deaths for the period 2002–2006 using population estimates: New South Wales 45%, Victoria 32%, Queensland 51%, South Australia 62%, Western Australia 72%, Northern Territory 90%, Tasmania and the Australian Capital Territory were not calculated because of small numbers, Australia 55% (ABS 2007).

(continued)

Data quality issues (continued)

Numerator and denominator

To calculate life expectancy estimates using a direct demographic method, it is important to ensure that the classification of records as Indigenous is consistent in both the numerator and denominator (ABS, 2008). However, because the numerator (deaths) and denominator (population) are based on different collections and different collection methods, there is an inconsistency of Indigenous identification between the two. The Census Data Enhancement (CDE) Indigenous Mortality Quality Improvement Study linked Census records with death registration records to examine these inconsistencies, and a method was developed to adjust death registration data by identification rates obtained through this study, to ensure consistency in the Indigenous identification of records across collections. This data linkage technique enables the direct calculation of identification rates with no assumptions necessary (ABS, 2009). There are, however, limitations that must still be noted.

That is, the derived Indigenous deaths identification rates relate to a very restricted time frame (11 months from early August 2006 to the end of June 2007) and the appropriateness of these rates for past or future periods is unknown. In addition, there remains a relatively high level (26%) of unlinked Indigenous death records which may introduce bias to the results if the characteristics or features of these records are different to linked records (ABS, 2008).

International comparisons

International Indigenous data are available for New Zealand, the United States and Canada.

In New Zealand, research has been undertaken that attempts to adjust for this undercounting by a process of probabilistic record linkage of death registration data with census data. This research has produced estimates of the considerable extent of the undercounting of Maori deaths. This adjusted data could not be used in international comparisons unless the data in the other countries were also adjusted (Bramley et al. 2004).

In Canada the national mortality database administered by Statistics Canada does not contain ethnicity data. The regional offices of Health Canada collect mortality data for the indigenous, on-reserve, First Nations population. Via a series of partnerships with each provincial vital statistics registrar, First Nations specific death certificate information is sent to the regional First Nations and Inuit Health Branch regional office. However, in a number of areas no such relationships exist (for example, the Atlantic, Ontario, and Quebec regions), and therefore data are obtained directly from the local communities, or not at all. The availability of Indigenous mortality data in Canada is further limited by the lack of information for off-reserve, or non-status, Indigenous peoples.

The varying degrees of completeness and accuracy of the Indigenous mortality databases that exist within the four countries are likely to affect the comparisons.

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1.18 Median age at death

The age at which exactly half the deaths registered (or occurring) in a given time period were deaths of people above that age and half were deaths below that age

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 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. Data published in this report may therefore differ slightly from those published in the previous edition for comparable years of data.

Analyses

Care should also be exercised when analysing Indigenous median age at death, as differences in identification by age may lead to biased summary indicators such as median age at death. Better identification of Indigenous infant deaths compared with older age groups will result in observed median age at death being underestimated. Median age at death values are influenced to some extent by the age structure of a population. The Indigenous population has a younger age structure than the non-Indigenous population and this is reflected in the median age at death of the two populations.

Median age at death by state/territory

- Over the period 2002–2006, in Queensland, Western Australia, South Australia and the Northern Territory combined, the median age at death was 49 years for Indigenous males and 56 years for Indigenous females, compared with 76 years for non-Indigenous males and 82 years for non-Indigenous females in these jurisdictions.
- Over the period 2002–2006, in the four jurisdictions, the median age at death for Indigenous males ranged from 45 years in the Northern Territory to 52 years in

Queensland. For Indigenous females, the median age at death ranged from 52 years in the Northern Territory and South Australia to 59 years in Queensland (Table 1.18.1).

Table 1.18.1: Median age at death, by Indigenous status and sex, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)]

	Qld	WA	SA	NT	Qld, WA, SA & NT
			Indigenous males		
2002	51	51	48	47	49
2003	51	50	48	46	49
2004	53	49.5	49	43	49
2005	51	52	42	45	49
2006	55	47	50	45	49
2002–2006	**52**	**50**	**47**	**45**	**49**
			Non-Indigenous males		
2002	75	75	77	62.5	76
2003	75	76	77	65	76
2004	76	76	77	62.5	76
2005	76	76	77	63	76
2006	76	76	78	64	77
2002–2006	**76**	**76**	**77**	**63**	**76**
			Indigenous females		
2002	58	52.5	54.5	49.5	55
2003	62	54	49.5	52	56
2004	57	63	53	53.5	58
2005	59	57	47	50	55
2006	56.5	56.5	59	55	56
2002–2006	**59**	**57**	**52**	**52**	**56**
			Non-Indigenous females		
2002	82	82	82	70	82
2003	82	82	83	74	82
2004	82	82	83	71	82
2005	82	83	83	70	82
2006	83	83	84	74.5	83
2002–2006	**82**	**82**	**83**	**71**	**82**

(a) 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 Aboriginal and Torres Strait Islander population.

(b) Variations in median age at death by Indigenous status, sex and jurisdiction should be interpreted with care as they are sensitive to differential data quality.

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

(d) Data are by year of registration of death and state/territory of usual residence

Sources: AIHW analysis of National Mortality Database.

Time series analysis

Total deaths can be partitioned into quartiles by age at death (the first quartile is the age below which 25% of all deaths occur, the median is the age below which 50% of all deaths occur, and the third quartile is the age below which 75% of all deaths occur). An analysis of this kind can reveal changes in patterns of mortality over time, such as an increase in the proportion of deaths occurring at older ages and a corresponding decrease in the proportion occurring at younger ages.

But any such changes must be interpreted with care before any inferences can be drawn regarding an improvement or deterioration in the mortality of Indigenous Australians. Fluctuations in the level of Indigenous mortality over time partly reflect changing levels of identification of Indigenous deaths and population estimates. Quartiles of age at death are also affected by changes in age distribution of the population resulting, for example, from changes in fertility, and therefore they support comparisons only if fertility rates remain consistent over the period being analysed.

Longer term mortality trend data are limited to three jurisdictions—Western Australia, South Australia and the Northern Territory, which have over 10 years of adequate identification of Indigenous deaths in their recording systems. As there is a consistent time series of population estimates from 1991, data for the period 1991–2006 have been used for the analysis of Indigenous mortality trends.

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), quartiles of death and median age of death for Indigenous Australians have been compared with those of 'other' Australians (which include deaths of both non-Indigenous people and people for whom Indigenous status was not stated).

Table 1.18.2 and Figure 1.18.1 present trends in the median age at death for Indigenous and other Australians in Western Australia, South Australia and the Northern Territory combined over the period 1991–2006.

Table 1.18.3 and Figure 1.18.2 present quartiles of age at death for Indigenous Australians in Western Australia, South Australia and the Northern Territory by jurisdiction over the period 1991–2006.

- Over the period 1991–2006, there was no significant change in the median age at death for Indigenous males and females in Western Australia, South Australia and the Northern Territory combined (Table 1.18.2). Over the same period, there were increases in the median age at death for other males and other females in Western Australia, South Australia and the Northern Territory combined of around 6% for males and 5% for females (Table 1.18.2).
- When analysing age at death by quartiles over the period 1991–2006, there has been a significant increase in the age at death in the first quartile among Indigenous males in all three jurisdictions—Western Australia, South Australia and the Northern Territory—and among Indigenous females in South Australia (Table 1.18.3).

Table 1.18.2: Median age at death, by Indigenous status and sex, WA, SA and NT, 1991–2006

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change over period[(b)]
Indigenous																		
Males	46	49	46	49	48	47	48	45	48	46	48	48	48	47	47	46	–0.03	–1.1
Females	55	56	57	60	56	56	53	52	54.5	55	53	52	51	59	52	56	–0.2	–5.2
Other																		
Males	73	72	73	73	73	74	74	74	75	75	75	76	76	76	76	77	0.3*	6.1
Females	79	79	79	80	80	81	81	81	81	81	82	82	82	82	83	83	0.3*	5.1

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1991–2006.

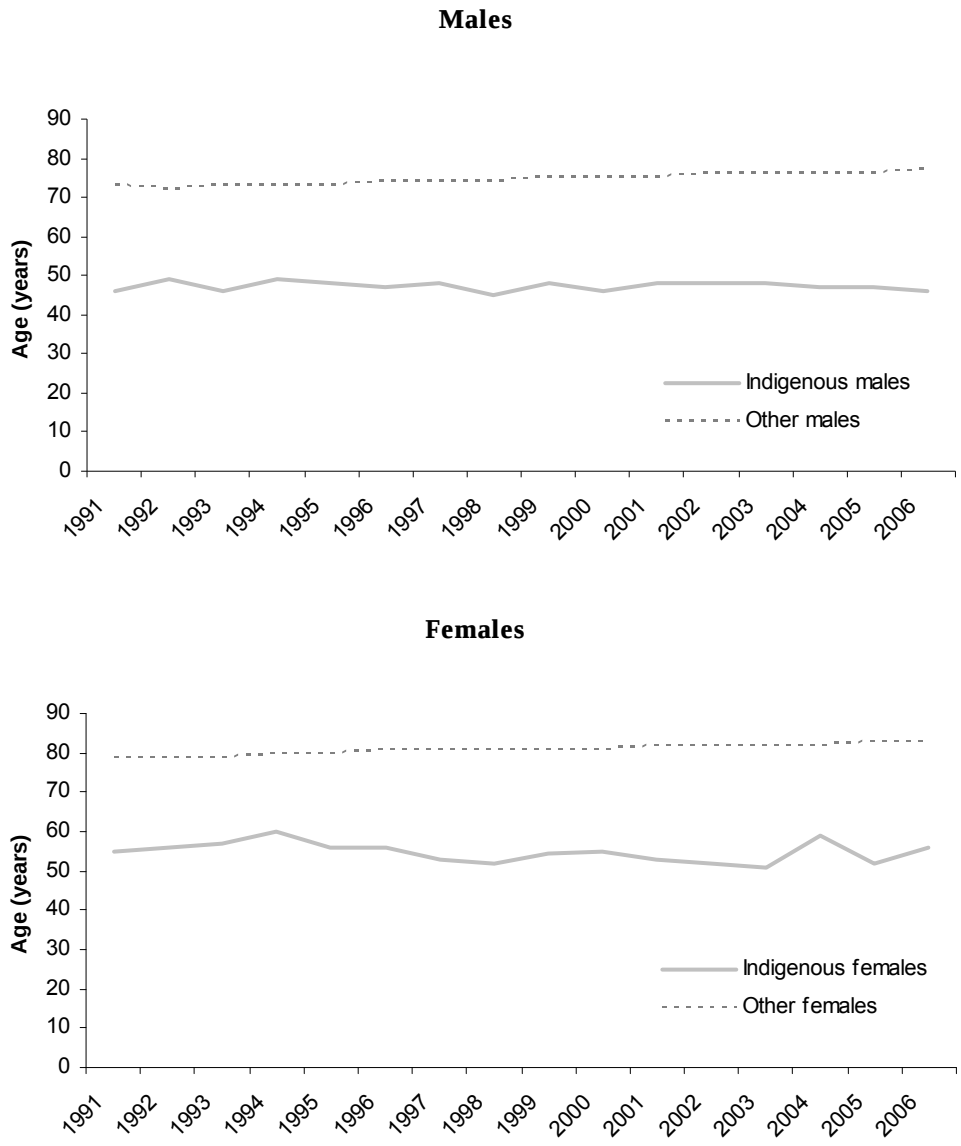
(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

(b) Per cent change between 1991 and 2006 based on the average annual change over the period.

Notes

1. Data based on year of registration of death and state/territory of usual residence.
2. Data presented in this table may differ from data 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 1.18.1: Median age at death, by Indigenous status, WA, SA and NT combined, 1991–2006

Table 1.18.3: Quartiles of age at death, Indigenous Australians in WA, SA and NT, 1991–2006

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[a]	% change over period[b]
First quartile of age at death																		
Males																		
WA	26	31	29	31	32	32	33	29	31.5	31	34	33.5	36	36.5	37	35	0.5*	30.3
SA	23	22	27	38	28	26.5	32	32	37	31	34	35	37	35	31	36	0.7*	46.0
NT	26	29.5	26	28	29	32	33	31	30	29	32	33	33	31	32	33	0.4*	21.4
Females																		
WA	31	34	43	42.5	39	39	40	35	35	35	36	35	32	46	39	41	0.1	6.8
SA	27.5	33	34	32	41	36	35	39	36	39	45	38.5	40	39	35	44	0.6*	35.1
NT	33	37	31.5	37.5	39	36	36	35	36	37	38	33	39	36.5	37	39	0.2	8.7
Median age at death																		
Males																		
WA	49	51	48	51	49	48	48	44.5	49	46	51.5	51	50	49.5	52	47	0.0	0.9
SA	41	37	40	51	45	47	50	43.5	46	49	49.5	48	48	49	42	50	0.4*	16.4
NT	46	49	46.5	46	50	46.5	48	45	47	46	45	47	46	43	45	45	–0.2*	–6.6
Females																		
WA	59	58	61	62	59	57.5	57	56.5	55	55.5	53.5	52.5	54	63	57	56.5	–0.3	–6.4
SA	47.5	55	55.5	49	51	54	52	50	50	56	55	54.5	49.5	53	47	59	0.1	4.0
NT	52	55	51.5	60	56	53.5	52	49	56	53.5	52	49.5	52	53.5	50	55	–0.2	–4.7

(continued)

Table 1.18.3 (continued): Quartiles of age at death, Indigenous Australians in WA, SA and NT, 1991–2006

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change over period[(b)]
Third quartile of age at death																		
Males																		
WA	66	64	65	64	68	66	63	65	62.5	66	66	66.5	65	66	64	67	0.0	1.0
SA	57	59	56	63	62	62.5	67	67	58	62	63	65	57	66	55	60	0.1	1.9
NT	61	65	61	63	62	60	64	61	63	61	62	62	63	58	59	61	–0.2	–3.9
Females																		
WA	71	70	74	76	72	69.5	68	69	71	69	69	69	70	77	72	73	0.0	0.5
SA	62	64	69	67	64	72	68	69	72	70	72	68	65.5	71	70	72	0.4*	9.7
NT	66	67	65	72	68	68	67.5	67	71	68	69	66.5	67	69	64	72	0.1	1.7

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1991–2006.

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

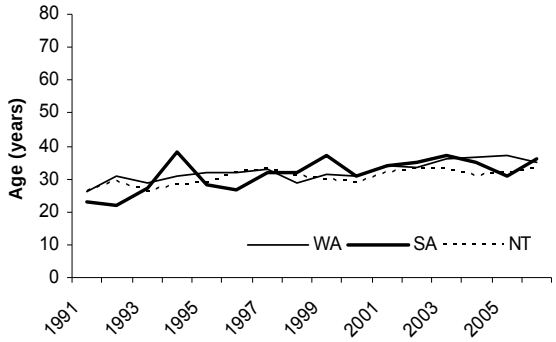
(b) Per cent change between 1991 and 2006 based on the average annual change over the period.

Notes

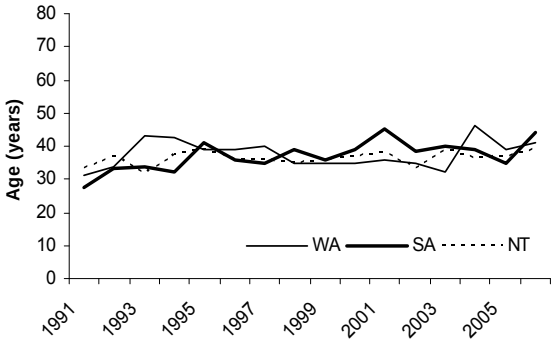
1. Data based on year of registration of death and state/territory of usual residence.
2. Data presented in this table may differ from data presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses.

Source: AIHW analysis of National Mortality Database.

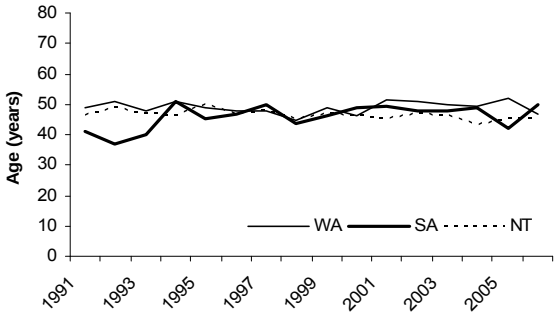
First quartile, males



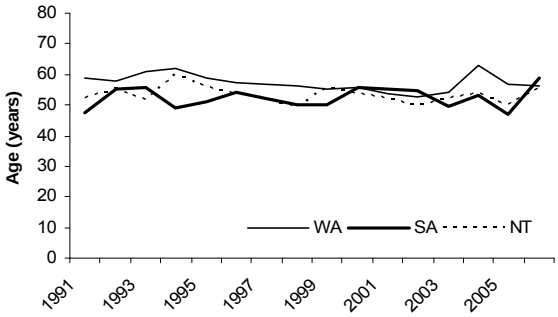
First quartile, females



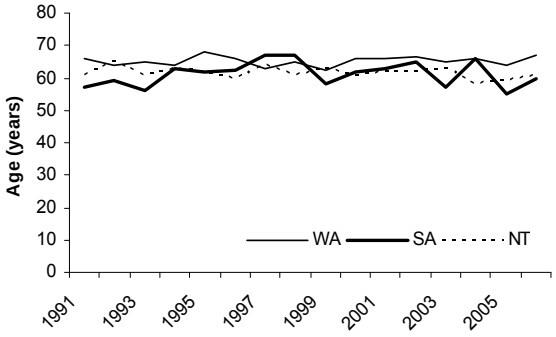
Median age at death, males



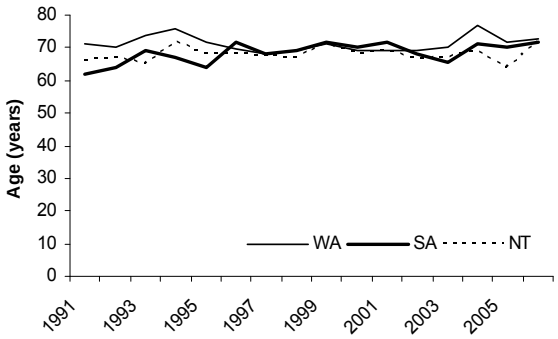
Median age at death, females



Third quartile, males



Third quartile, females



Source: AIHW analysis of National Mortality Database.

Figure 1.18.2: Quartiles of age at death for Indigenous males and females in WA, SA and NT, 1991–2006

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 1.18.4 and Figure 1.18.3. Queensland has had adequate identification of Indigenous deaths in its recording systems since 1998, and these deaths have been compared with those of non-Indigenous Australians (excluding deaths for which Indigenous status was not stated).

- Over the period 1998–2006, there was no significant change in the median age at death for Indigenous males and females in Queensland, Western Australia, South Australia and the Northern Territory combined. Over the same period, there were significant increases in the median age at death for non-Indigenous males and other females of around 4% for males and 3% for females (Table 1.18.4).

Table 1.18.4: Median age at death, by Indigenous status and sex, Qld, WA, SA and NT, 1998–2006

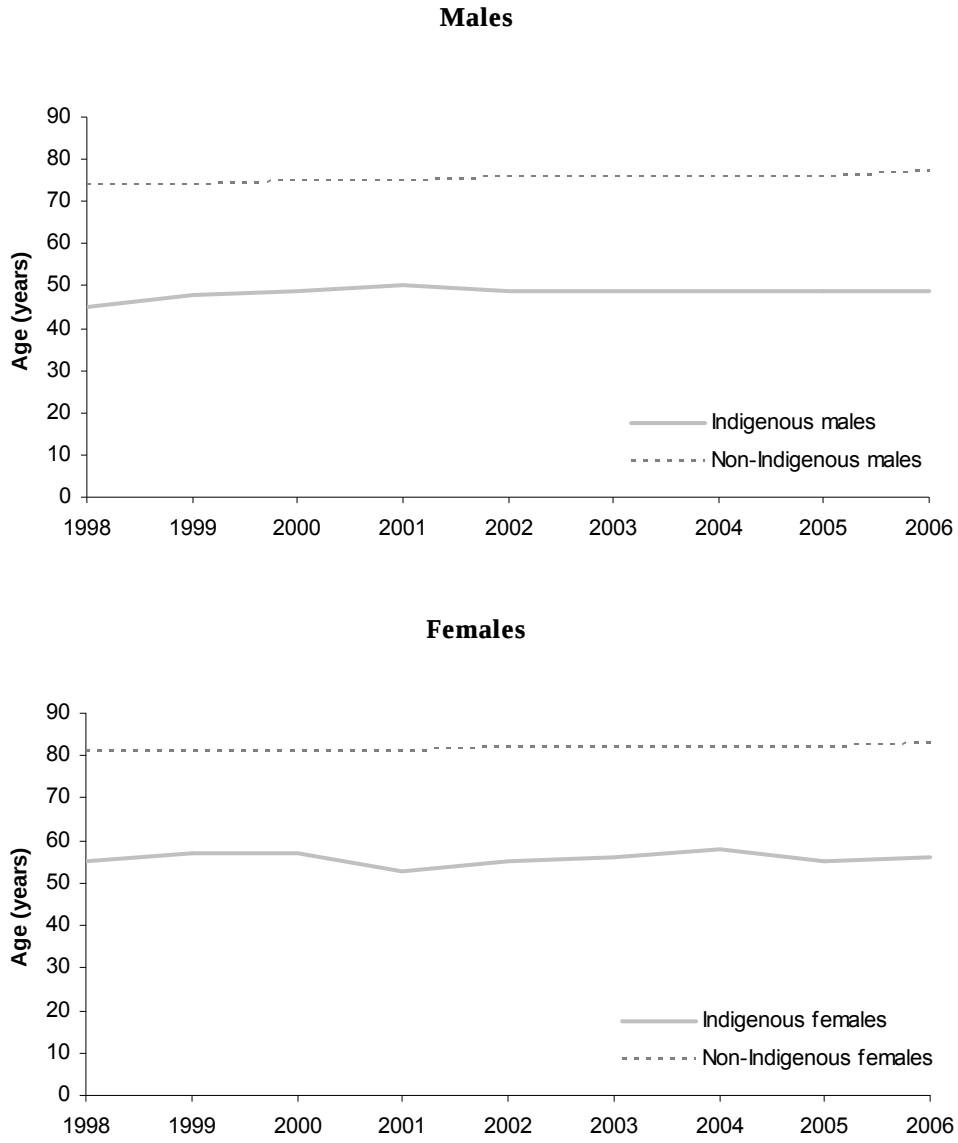
	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change over period[(b)]
Indigenous											
Males	45	48	49	50	49	49	49	49	49	0.3	5.3
Females	55	57	57	53	55	56	58	55	56	0.05	0.7
Non-Indigenous											
Males	74	74	75	75	76	76	76	76	77	0.4*	3.8
Females	81	81	81	81	82	82	82	82	83	0.2*	2.3

* 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.

Note: Data based on year of registration of death and state/territory of usual residence.

Source: AIHW analysis of National Mortality Database.



Source: AIHW analysis of National Mortality Database.

Figure 1.18.3: Median age at death, by Indigenous status, Qld, WA, SA and NT combined, 1998–2006

International comparisons

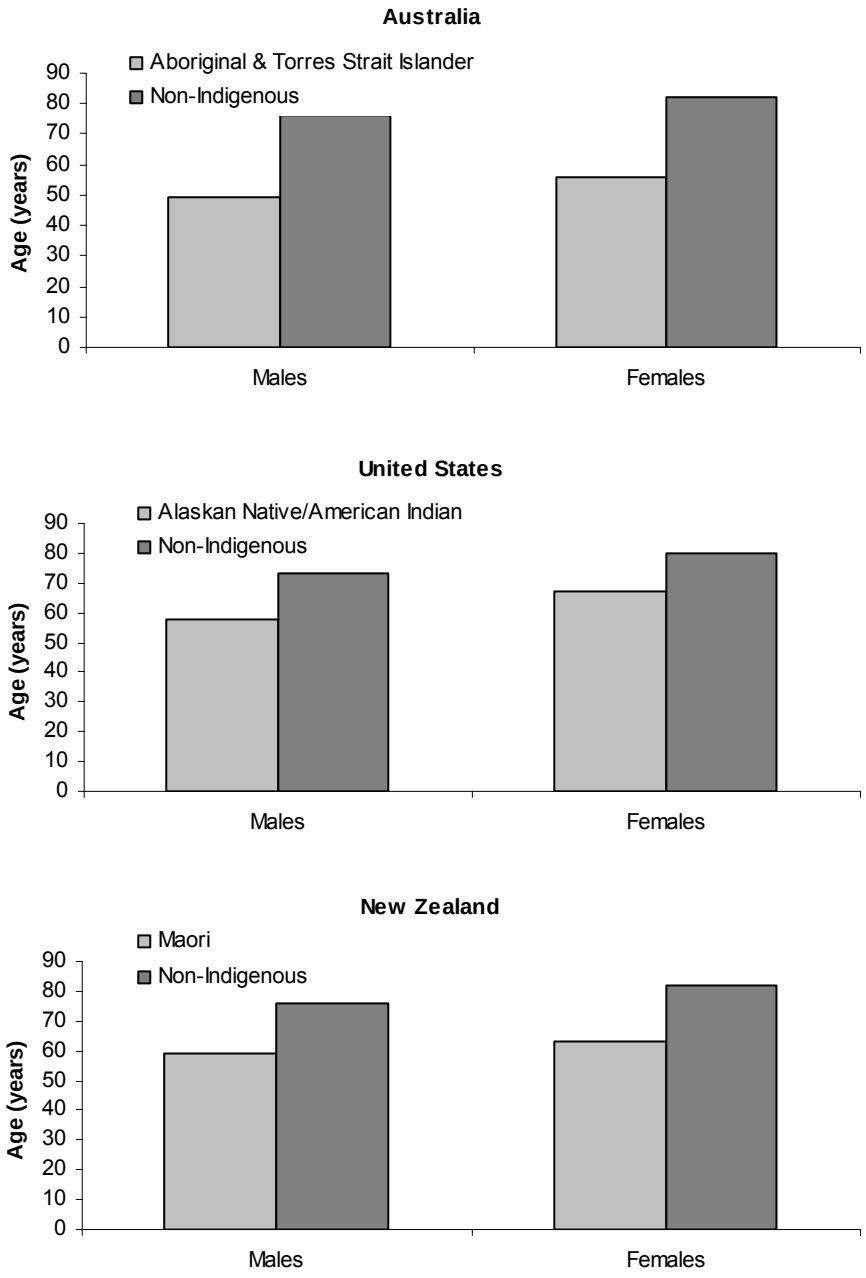
International indigenous data are available for New Zealand, the United States and Canada.

There are several common issues that adversely affect the quality of Indigenous mortality data in these three countries and Australia. These include the lack of an accurate denominator value for the Indigenous population and the lack of agreement over which population denominator values to use if they do exist. There are differences in how Indigenous status is defined in the different countries. There have also been frequent modifications to the ethnicity question recorded in the censuses in some of these countries. These frequent changes in the census ethnicity question have led to difficulties in comparing mortality trends over time and have also produced difficulties in estimating population denominator counts between censuses.

The most important issue in regard to the quality of Indigenous mortality data is the undercounting of deaths (the numerator for mortality data). In each of the four countries, the undercounting of Indigenous deaths is likely to lead to an underestimation of the relative size of disparities that exist between Indigenous and non-Indigenous populations.

The median age at death is available for American Indians and Alaskan Natives and is presented below. Median age at death is not available for Canadian First Nations because, for this population group, data are not accurately available by single year age groups. Because of differences in coverage of Indigenous deaths in the three countries, the median age at death should not be strictly compared between countries and the data presented below should be interpreted with caution.

- In the United States, for the period 2002–2005 the median age at death for American Indians and Alaskan Natives was 58 years for males and 67 years for females, compared with 73 years for non-Indigenous males and 80 years for non-Indigenous females (United States Department of Health and Human Services unpublished data).
- In New Zealand, for the period 2002–2006, the median age at death for Maoris was 59 years for males and 63 years for females, compared with 76 years for non-Indigenous males and 82 years for non-Indigenous females (Statistics New Zealand, unpublished data).
- The median age at death for Aboriginal and Torres Strait Islander peoples is well below that of American Indians/Alaskan Natives and New Zealand Maoris (Figure 1.18.4).



Notes

1. Australia data are 2002–2006 for Qld, WA, SA and NT, Aboriginal and Torres Strait Islander peoples and non-Indigenous Australians.
2. US data are for 2002–2005 for US Indians/Alaskan Natives and non-Indigenous Americans.
3. New Zealand data are for 2002–2006 for Maoris and the non-Indigenous New Zealand population.
4. Because of differences in coverage of Indigenous deaths in the three countries, the median age at death should not be strictly compared between countries.

Sources: AIHW analysis of National Mortality Database; United States Department of Health and Human Services; Statistics New Zealand.

Figure 1.18.4: Median age at death, by Indigenous status, Australia, United States and New Zealand, 2002–2006

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 over 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%, Northern Territory 90%, Tasmania and the Australian Capital Territory were not calculated due to small numbers, Australia 55% (ABS 2007).

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 to 2009*(ABS 2004).*

International comparisons

International Indigenous data are available for New Zealand, the United States and Canada.

In New Zealand, research has been undertaken that attempts to adjust for this undercounting by a process of probabilistic record linkage of death registration data with census data. This research has produced estimates of the considerable extent of the undercounting of Maori deaths. This adjusted data could not be used in international comparisons unless the data in the other countries were also adjusted (Bramley et al. 2004).

(continued)

Data quality issues (continued)

In Canada the national mortality database administered by Statistics Canada does not contain ethnicity data. The regional offices of Health Canada collect mortality data for the Indigenous, on-reserve, First Nations population. Via a series of partnerships with each provincial vital statistics registrar, First Nations specific death certificate information is sent to the regional First Nations and Inuit Health Branch regional office. However, in a number of areas no such relationships exist (for example, the Atlantic, Ontario and Quebec regions), and therefore data are obtained directly from the local communities, or not at all. The availability of Indigenous mortality data in Canada is further limited by the lack of information that is available for off-reserve, or non-status, Indigenous peoples.

The varying degrees of completeness and accuracy of the Indigenous mortality databases that exist within the four countries are likely to affect the comparisons.

References

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Bramley D, Hebert P, Jackson R & Chassin M 2004. Indigenous disparities in disease-specific mortality, a cross-country comparison: New Zealand, Australia, Canada, and the United States. New Zealand Medical Journal 117(1207). <www.nzma.org.nz/journal/117-1207/1215>.

1.19 Infant mortality

The number of Aboriginal and Torres Strait Islander people who die in the first year of life, expressed as a rate (per 1,000 live births) for that period

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.

Several years of data have been combined 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.

Analyses

Mortality

- Over the period 2002–2006 there were 2,408 deaths of infants in Queensland, Western Australia, South Australia and the Northern Territory, 455 (19%) of which were deaths of Aboriginal and Torres Strait Islander infants and 62 (3%) were of infants for whom Indigenous status was not stated.
- The mortality rate for Indigenous infants was 12.3 per 1,000 live births compared with 4.2 per 1,000 live births for non-Indigenous infants in Queensland, Western Australia, South Australia and the Northern Territory combined. Indigenous infants died at around three times the rate of non-Indigenous infants in these jurisdictions (Table 1.19.1).

Mortality by sex

- Over the period 2002–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined, the mortality rate for Indigenous male infants was 14.4

per 1,000 live births compared with 10.1 per 1,000 live births for Indigenous female infants (Table 1.19.1).

- Over the same period Indigenous male and female infants died at around three times the rate of non-Indigenous infants.

Table 1.19.1: Infant mortality rates per 1,000 live births, by Indigenous status and sex, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)(e)]

	Indigenous				Non-Indigenous				
	Deaths	No. per 1,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Deaths	No. per 1,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Rate ratio[(i)]
Males	272	14.4	12.7	16.2	1,036	4.5	4.2	4.8	3.2*
Females	183	10.1	8.6	11.6	855	3.9	3.7	4.2	2.6*
Persons	455	12.3	11.2	13.4	1,891	4.2	4.0	4.4	2.9*

* 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 jurisdictions are considered to have adequate levels of Indigenous identification in mortality data for these periods. They do not represent a quasi-Australian figure.

(b) Data exclude 62 registered infant deaths where Indigenous status was not stated over the period 2002–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined.

(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 infant deaths and, depending on the under-identification in births, may either underestimate or overestimate the rates. 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 infant mortality may differ from the estimates for 'all causes'.

(d) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous infant mortality rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous infant mortality rates because of these data quality issues.

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

(f) No. per 1,000 live births.

(g) LCL = lower confidence limit.

(h) UCL = upper confidence limit.

(i) Rate ratio Indigenous:non-Indigenous.

Source: AIHW analysis of National Mortality Database.

Mortality by state/territory

Table 1.19.2 presents infant deaths, mortality rates and rate ratios for Queensland, Western Australia, South Australia and the Northern Territory for the years 1996–1998, 1999–2001, 2002–2004 and 2005–2006.

- For the period 1996–1998, there were 189 deaths of Aboriginal and Torres Strait Islander infants in Western Australia, South Australia and the Northern Territory combined. Indigenous infant mortality rates were 8.3 per 1,000 live births in South Australia, 18.3 per 1,000 in Western Australia and 23.7 per 1,000 in the Northern Territory. In South Australia, Indigenous infants died at twice the rate of non-Indigenous infants and in Western Australia and the Northern Territory, Indigenous infants died at around four times the rate of non-Indigenous infants.
- For the period 1999–2001, there were 296 deaths of Indigenous infants in Queensland, Western Australia, South Australia and the Northern Territory combined. Infant mortality rates ranged from 8.0 per 1,000 live births in South Australia to 19.2 per 1,000 live births in the Northern Territory. In Western Australia and the Northern Territory, Indigenous infants died at three to five times the rate of non-Indigenous infants. In Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous infants died at three times the rate of non-Indigenous infants.
- For the period 2002–2004, there were 270 deaths of Aboriginal and Torres Strait Islander infants in the four jurisdictions. Infant mortality rates ranged from 9.4 per 1,000 live

births in South Australia to 15.4 per 1,000 live births in the Northern Territory. In Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous infants died at three times the rate of non-Indigenous infants.

- For the period 2005–2006, there were 185 deaths of Aboriginal and Torres Strait Islander infants in the four jurisdictions. Infant mortality rates ranged from 6.9 per 1,000 live births in South Australia to 16.1 per 1,000 live births in the Northern Territory. In Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous infants died at three times the rate of non-Indigenous infants.

Mortality by cause of death

- In the period 2002–2006, the most common group of diseases causing mortality among Indigenous infants was conditions originating in the perinatal period such as birth trauma, disorders related to fetal growth, complications of pregnancy, labour and delivery, and respiratory and cardiovascular disorders specific to the perinatal period. Indigenous infants died at three times the rate of non-Indigenous infants for these conditions (Table 1.19.3).
- Congenital malformations, deformations and chromosomal abnormalities and sudden infant death syndrome (SIDS) were also leading causes of death among Indigenous infants who died at twice and five times the rates of non-Indigenous infants respectively for these conditions.
- Indigenous infants also died at much higher rates for respiratory diseases, infectious and parasitic diseases, and injury and poisoning than non-Indigenous infants (nine, four and four times the rates respectively).

Table 1.19.2: Infant mortality rates per 1,000 live births, by Indigenous status, Qld, WA, SA and NT, 1996–1998, 1999–2001, 2002–2004 and 2005–2006[(a)(b)(c)(d)(e)(f)(g)]

	Indigenous				Non-Indigenous				
	Deaths	No. per 1,000[(h)]	LCL 95%[(i)]	UCL 95%[(j)]	Deaths	No. per 1,000[(h)]	LCL 95%[(i)]	UCL 95%[(j)]	Rate ratio[(k)]
					1996–98[(b)]				
WA	82	18.3	14.3	22.3	332	4.8	4.2	5.3	3.8*
SA	15	8.3	4.1	12.5	239	4.4	3.9	5.0	1.9*
NT	92	23.7	18.8	28.5	39	5.6	3.9	7.4	4.2*
					1999–2001				
Qld	111	11.7	9.5	13.9	721	5.5	5.1	5.9	2.1*
WA	81	16.6	13.0	20.2	251	3.6	3.2	4.1	4.6*
SA	15	8.0	3.9	12.0	219	4.3	3.7	4.8	1.9*
NT	89	19.2	15.2	23.2	37	5.7	3.9	7.6	3.3*
Qld, WA, SA & NT[(a)]	**296**	**14.2**	**12.6**	**15.8**	**1,228**	**4.7**	**4.5**	**5.0**	**3.0***
					2002–04				
Qld	111	10.9	8.9	12.9	643	4.7	4.4	5.1	2.3*
WA	69	14.1	10.8	17.5	222	3.3	2.8	3.7	4.3*
SA	18	9.4	5.1	13.8	184	3.7	3.1	4.2	2.6*
NT	72	15.4	11.8	18.9	39	6.1	4.2	8.0	2.5*
Qld, WA, SA & NT[(a)]	**270**	**12.5**	**11.0**	**14.0**	**1,088**	**4.2**	**3.9**	**4.4**	**3.0***
					2005–06				
Qld	81	11.4	8.9	13.9	452	4.6	4.2	5.1	2.4*
WA	45	12.3	8.7	15.8	199	4.0	3.4	4.5	3.1*
SA	10	6.9	2.6	11.2	133	3.8	3.2	4.5	1.8
NT	49	16.1	11.6	20.6	19	4.4	2.4	6.4	3.6*
Qld, WA, SA & NT[(a)]	**185**	**12.1**	**10.4**	**13.8**	**803**	**4.3**	**4.0**	**4.6**	**2.8***

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

Table 1.19.2 (continued): Infant mortality rates per 1,000 live births, by Indigenous status, Qld, WA, SA and NT, 1996–1998, 1999–2001, 2002–2004 and 2005–2006[(a)(b)(c)(d)(e)(f)(g)]

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

(b) A subtotal for Queensland, Western Australia, South Australia and the Northern Territory has not been provided for the period 1996–1998, as Indigenous mortality data for Queensland are reliable only from 1998 onwards.

(c) Data are presented in 3- and 2-year groupings because of small numbers each year.

(d) Data exclude 90 registered infant deaths where Indigenous status was not stated over the period 1996–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined.

(e) 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 infant deaths and, depending on the under-identification in births, may either underestimate or overestimate the rates. 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 infant mortality may differ from the estimates for 'all causes'.

(f) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous infant mortality rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous infant mortality rates because of these data quality issues.

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

(h) No. per 1,000 live births.

(i) LCL = lower confidence limit.

(j) UCL = upper confidence limit.

(k) Rate ratio Indigenous:non-Indigenous.

Source: AIHW analysis of National Mortality Database.

Table 1.19.3: Causes of infant death by Indigenous status, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)(e)]

	Number of deaths		No. per 1,000[(f)]		
Cause of death	**Indigenous**	**Non-Indigenous**	**Indigenous**	**Non-Indigenous**	**Rate ratio[(g)]**
Certain conditions originating in the perinatal period (P00–P96)	209	937	5.7	2.1	2.7*
Signs, symptoms & ill-defined conditions (R00-R99)	101	214	2.7	0.5	5.7*
SIDS (R95)[(h)]	*39*	*88*	*1.1*	*0.2*	*5.4**
Congenital malformations (Q00–Q99)	54	447	1.5	1.0	1.5*
Diseases of the respiratory system (J00–J99)	35	49	0.9	0.1	8.6*
Injury & poisoning (V01–Y99)	19	60	0.5	0.1	3.8*
Infectious and parasitic diseases (A00–B99)	11	32	0.3	0.1	4.2*
Diseases of the circulatory system (I00–I99)	7	27	0.2	0.1	3.1*
Other conditions[(i)]	19	125	0.5	0.3	1.8*
Total	**455**	**1,891**	**12.3**	**4.2**	**2.9***

* 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 and 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) These data exclude 62 infant deaths where the Indigenous status is not stated.

(d) Although most deaths of Indigenous infants are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous infant deaths and, depending on the under-identification in births, may either underestimate or overestimate the rates. Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

(e) Deaths are by year of registration.

(f) No. per 1,000 live births.

(g) Rate ratio Indigenous:non-Indigenous.

(h) Data presented for SIDS are a subset of data presented for signs, symptoms and ill-defined conditions presented in this table.

(i) Other conditions include: neoplasms; diseases of blood and blood-forming organs; endocrine, nutritional and metabolic diseases; mental and behavioural disorders; diseases of the nervous system; diseases of the eye and adnexa; diseases of the ear and mastoid process; diseases of the digestive system; diseases of the musculoskeletal system and connective tissues; diseases of the genitourinary system; and diseases of the skin and subcutaneous tissue.

Source: AIHW analysis of National Mortality Database.

Mortality by associated causes of death

Table 1.19.4 presents underlying causes of deaths for Indigenous infants by associated causes of death for the period 2002–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined.

- In the period 2002–2006, just over half (52%) of infant deaths were reported with no associated causes of death.
- Deaths of Indigenous infants were most commonly reported with conditions originating in the perinatal period (32%) and congenital malformations, deformations and chromosomal abnormalities (7%) as associated causes of death.
- Indigenous infants who died from infectious and parasitic diseases, respiratory diseases or congenital malformations as an underlying cause of death were commonly reported with conditions originating in the perinatal period as an associated cause of death (18%, 20% and 52% respectively).

Table 1.19.4: Underlying and associated causes of death for Indigenous infants, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)(e)]

	Underlying cause of death									
Associated cause of death	**Conditions originating in perinatal period**	**Signs, symptoms & ill-defined conditions (excluding SIDS)**	**Congenital malformations**	**SIDS**	**Disease of respiratory system**	**Injury & poisoning**	**Infectious & parasitic diseases**	**Disease of circulatory system**	**Other conditions[(f)]**	**Total**
					Per cent					
Reported alone (no associated causes)	45.9	100.0	22.2	92.3	45.7	0.0	63.6	57.1	15.8	51.9
Conditions originating in perinatal period (P00–P96)	49.3	0.0	51.9	0.0	20.0	0.0	18.2	0.0	26.3	31.9
Congenital malformations (Q00–Q99)	3.3	0.0	37.0	2.6	2.9	0.0	9.1	14.3	10.5	7.3
Diseases of the respiratory system (J00–J99)	2.4	0.0	11.1	0.0	20.0	10.5	0.0	14.3	21.1	5.5
Injury & poisoning (V01–Y98)	0.0	0.0	3.7	0.0	2.9	94.7	0.0	0.0	5.3	4.8
Infectious & parasitic diseases (A00–B99)	1.4	0.0	3.7	2.6	14.3	0.0	0.0	14.3	26.3	3.7
Signs, symptoms & ill-defined conditions (R00–R99)	2.4	0.0	3.7	2.6	0.0	15.8	0.0	14.3	15.8	3.3
Circulatory diseases (I00–I99)	1.0	0.0	11.1	0.0	2.9	0.0	0.0	42.9	5.3	2.9
Other conditions[(f)]	4.3	0.0	9.3	0.0	5.7	10.5	18.2	14.3	42.1	6.4
Total deaths	**209**	**62**	**54**	**39**	**35**	**19**	**11**	**7**	**19**	**455**

(continued)

Table 1.19.4 (continued): Underlying and associated causes of death for Indigenous infants, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)(e)]

(a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These four states and 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) These data exclude 62 infant deaths where the Indigenous status is not stated.

(d) Although most deaths of Indigenous infants are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous infant deaths and, depending on the under-identification in births, may either underestimate or overestimate the rates. Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

(e) Deaths are by year of occurrence except the latest year, which is based on year of registration.

(f) Other conditions include: neoplasms; diseases of blood and blood-forming organs; endocrine, nutritional and metabolic diseases; mental and behavioural disorders; diseases of the nervous system; diseases of the eye and adnexa; diseases of the ear and mastoid process; diseases of the digestive system; diseases of the musculoskeletal system and connective tissues; diseases of the genitourinary system; and diseases of the skin and subcutaneous tissue.

Note: Sum of components may exceed 100% as more than one associated cause of death can be reported for each death.

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.

As there is a consistent time series of population estimates from 1991, data for the period 1991–2006 have been used for the analysis of Indigenous mortality in this indicator.

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

Infant mortality rates, rate ratios and rate differences between Indigenous and other Australian infants over the period 1991–2006 in Western Australia, South Australia and the Northern Territory are presented in Table 1.19.5 and Figure 1.19.1.

- Over the period 1991–2006, there were significant declines in recorded mortality rates for Indigenous infants and other infants in Western Australia, South Australia and the Northern Territory combined. The fitted trend implies an average yearly decline in the rate of around 0.8 per 1,000 births for Indigenous infants (equivalent to a 47% reduction in the rate over the period) and 0.1 per 1,000 births for other infants (equivalent to a 34% reduction in the rate over the period) (Table 1.19.5).
- Over the same period, there were significant declines in the mortality rate ratios and rate differences between Indigenous and other Australian infants of around 20% and 51% respectively (Table 1.19.5).

Fluctuations in the level of Indigenous mortality over time partly reflect changing levels of identification of Indigenous deaths and population estimates. Given the variability in the measures of Indigenous mortality, caution should be exercised in assessing trends in Indigenous mortality over time and comparisons between jurisdictions and with the non-Indigenous population.

Table 1.19.5: Infant mortality rates, rate ratios and rate differences, WA, SA and NT, 1991–2006

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change over period[(b)]
Indigenous rate (no. per 1,000 live births)																		
Persons	24.5	25.5	21.7	17.4	17.9	20.4	18.7	16.7	16.0	18.3	14.4	15.7	13.1	12.9	13.1	12.4	–0.8*	–47.4*
Other[(c)] rate (no. per 1,000 live births)																		
Persons	5.7	5.9	5.1	4.8	5.1	5.1	4.6	4.3	4.2	3.8	4.5	4.3	3.5	3.3	4.4	3.9	–0.1*	–34.2*
Rate ratio[(d)]																		
Persons	4.3	4.3	4.2	3.7	3.5	4.0	4.0	3.9	3.8	4.8	3.2	3.7	3.7	3.8	3.0	3.2	–0.1*	–19.8*
Rate difference[(e)]																		
Persons	18.8	19.6	16.6	12.6	12.8	15.2	14.0	12.4	11.8	14.5	9.9	11.4	9.6	9.5	8.7	8.5	–0.6*	–51.4*

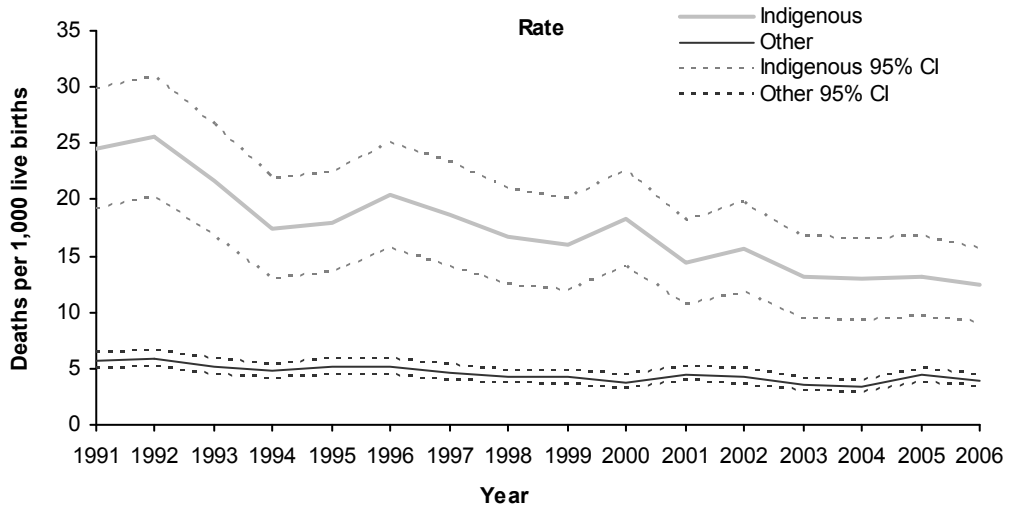
* Represents results with statistically significant increases or decreases at the $p < 0.05$ level over the period 1991–2006.

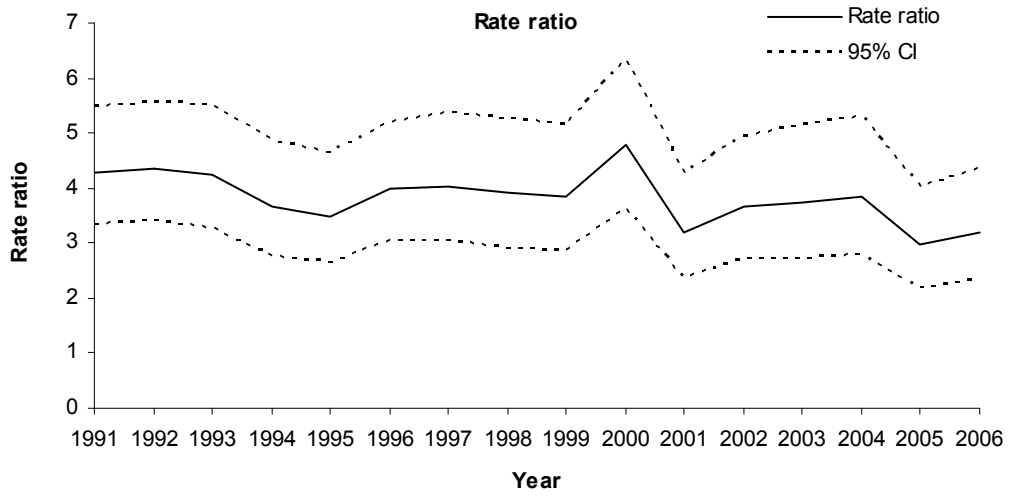
(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(b) Per cent change between 1991 and 2006 based on the average annual change over the period.
(c) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.
(d) Mortality rate for Indigenous Australians divided by the mortality rate for other Australians.
(e) Mortality rate for Indigenous Australians minus the mortality rate for other Australians.

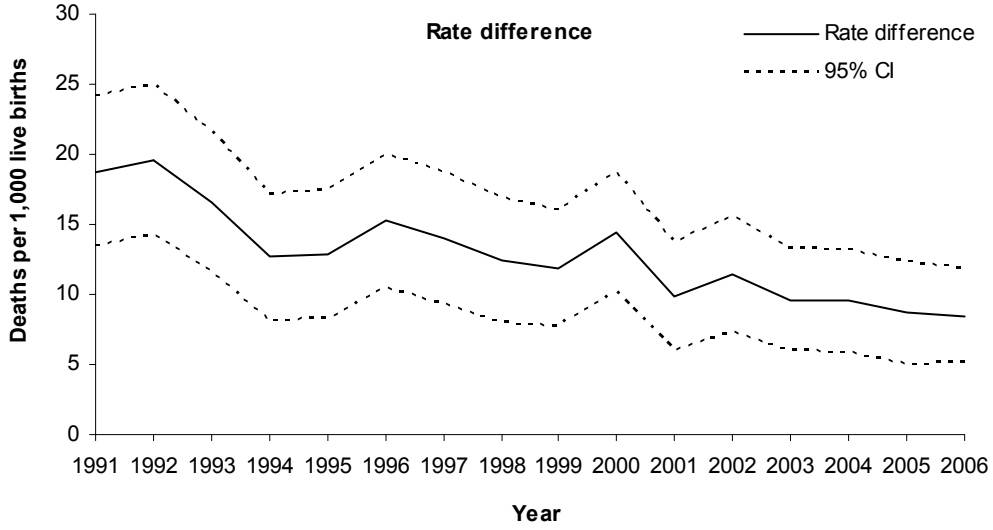
Notes

1. 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.
2. The average of births over the period 1993–1995 in Western Australia was used for births in that state in 1991 and 1992, as there were errors in the number of births recorded in these years.

Source: AIHW analysis of National Mortality Database.







Source: AIHW analysis of National Mortality Database.

Figure 1.19.1: Infant mortality rates, rate ratios and rate differences between Indigenous and other Australians, WA, SA and NT, 1991–2006

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 infants in Table 1.19.6 and Figure 1.19.2. 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, there were significant declines in recorded mortality rates for Indigenous and non-Indigenous infants in Queensland, Western Australia, South Australia and the Northern Territory combined. The fitted trend implies an average yearly decline in the rate of around 0.5 per 1,000 births for Indigenous infants (equivalent to a 25% reduction in the rate over the period) and 0.1 per 1,000 births for other infants (equivalent to an 18% reduction in the rate over the period) (Table 1.19.6).
- Over the same period, there was no significant change in the mortality rate ratios, but there was a significant decline in the mortality rate differences between Indigenous and other Australian infants (decline of 29%).

Table 1.19.6: Infant mortality rates, rate ratios and rate differences, Qld, WA, SA and NT, 1998–2006[a]

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[b]	% change over period[c]
Indigenous rate (no. per 1,000 live births)											
Persons	15.2	14.7	14.9	13.0	14.0	11.6	11.8	12.6	11.6	–0.5*	–24.9*
Non-Indigenous rate (no. per 1,000 live births)											
Persons	5.1	4.7	4.7	4.8	4.8	3.8	4.0	4.4	4.2	–0.1*	–17.8*
Rate ratio[d]											
Persons	3.0	3.2	3.1	2.7	3.0	3.1	3.0	2.9	2.7	0.0	–8.4
Rate difference[e]											
Persons	10.2	10.1	10.1	8.2	9.3	7.8	7.8	8.2	7.4	–0.4*	–28.5*

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

(a) Data exclude 90 registered infant deaths where Indigenous status was not stated over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined.

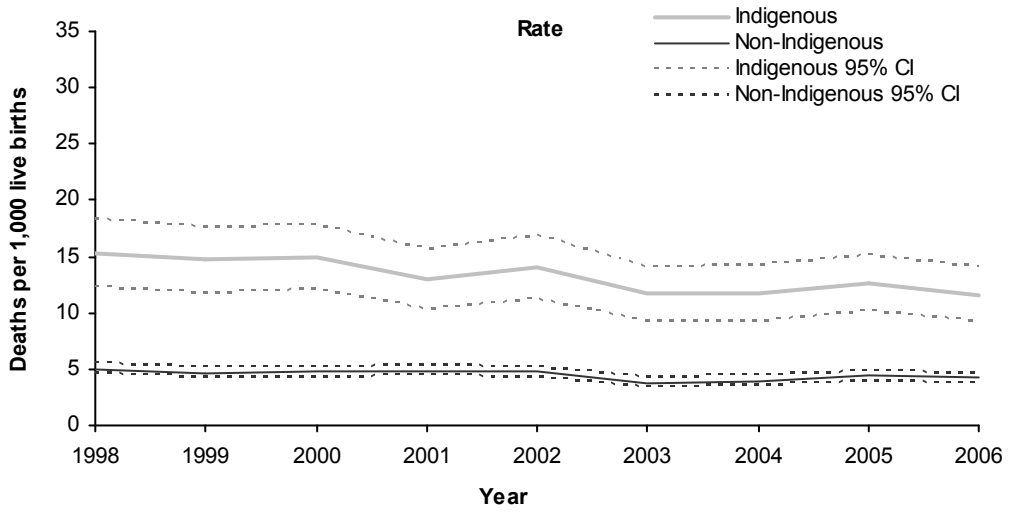
(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

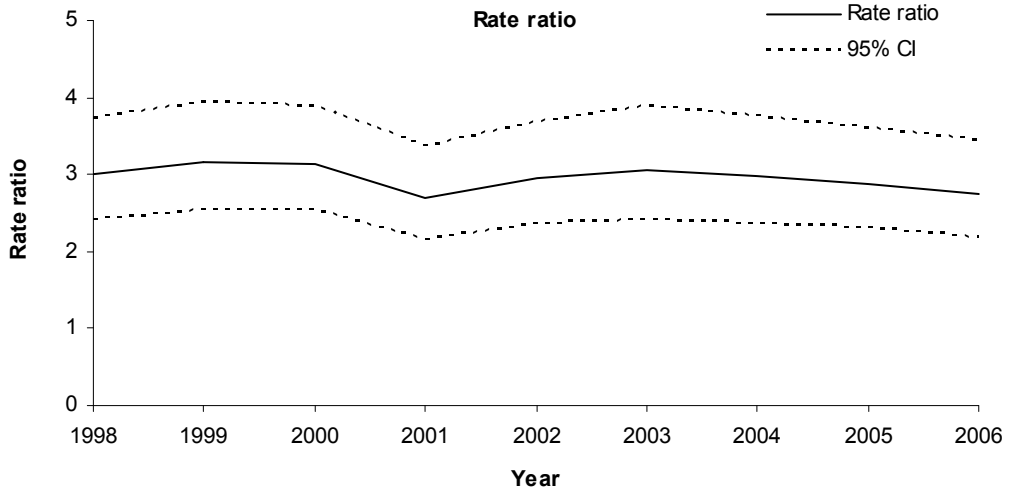
(c) Per cent change between 1998 and 2006 based on the average annual change over the period.

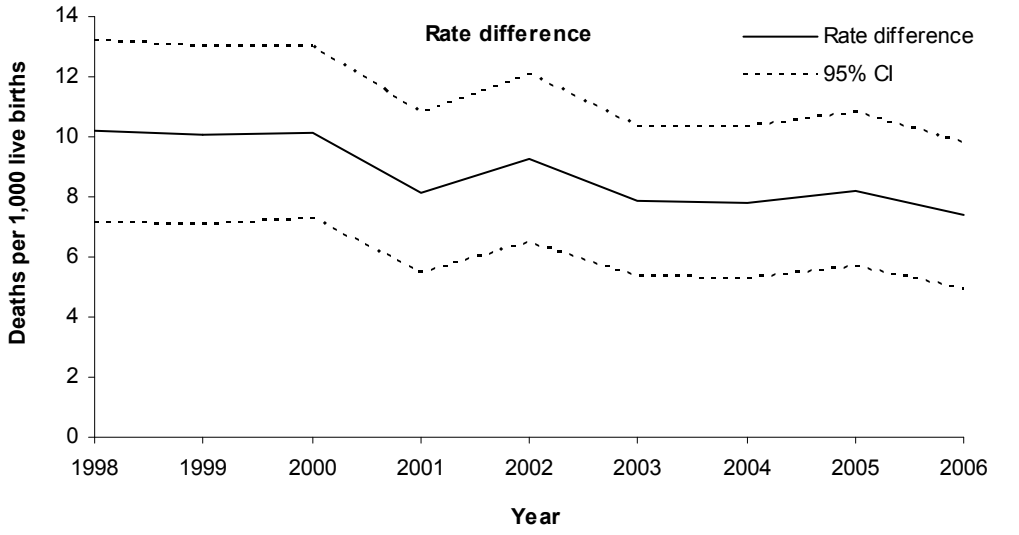
(d) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(e) 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 1.19.2: Infant mortality rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians, Qld, WA, SA and NT, 1998–2006

Sensitivity of mortality trends to changes in identification

- The fitted trends described above for the period 1991–2006 in Western Australia, South Australia and the Northern Territory have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for identification were posted—constant identification, increasing identification and decreasing identification.
  - Under the constant identification scenario, the numbers of deaths for the period under study were adjusted using the following identification estimates derived from the most recent ABS analyses (relating to the period 2002–2006):
    - Western Australia 72%
    - South Australia 62%
    - Northern Territory 90%.
  - Under the increasing identification scenario, deaths were adjusted by linearly increasing the identification through the period under study—from 64% in 1991 to 72% in 2006 for Western Australia, from 52% to 62% for South Australia, and from 80% to 90% for the Northern Territory.
  - Under the decreasing identification scenario, deaths were adjusted by linearly decreasing the identification from 80% in 1991 to 72% in 2006 for Western Australia, from 72% to 62% for South Australia, and from 100% to 90% for the Northern Territory.
- The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; of course, if any actual shift in identification was more extreme than has been posted under these scenarios, then the observed trends in mortality might not persist.
- The declines in infant mortality rates for Indigenous and other Australians, and the declines in the mortality rate differences between Indigenous and other infants during the period 1991–2006 remained statistically significant under all three identification scenarios. The decline in the mortality rate ratios between Indigenous and other infants remained statistically significant only under the constant and increasing identification scenarios.

Time series analysis by cause of death

Table 1.19.7 presents infant mortality rates by cause of death for the periods 1991–1996 and 1997–2006.

- Over the periods 1991–1996 and 1997–2006, the most common causes of death among Indigenous infants were certain conditions originating in the perinatal period, SIDS and congenital malformations.
- Between 1991–1996 and 1997–2006, there were declines in infant mortality rates for congenital malformations, SIDS, certain conditions originating in the perinatal period and diseases of the respiratory system for Indigenous infants.

Table 1.19.7: Causes of infant death, by Indigenous status, WA, SA and NT, 1991–1996 and 1997–2003[a][b][c][d][e]

	Number of deaths		No. per 1,000[f]		Rate ratio[h]
	Indigenous	Other[g]	Indigenous	Other[g]	
			1991–1996		
Certain conditions originating in the perinatal period (760–779)	157	626	7.6	2.3	3.3*
Congenital malformations (740–759)	69	387	3.4	1.4	2.3*
Signs, symptoms & ill-defined conditions (780–799)	110	245	5.4	0.9	5.9*
SIDS (798)[i]	*106*	*241*	*5.2*	*0.9*	*5.8**
Diseases of the respiratory system (460–519)	41	24	2.0	0.1	22.4*
Injury & poisoning (800–999)	15	40	0.7	0.1	4.9*
Infectious and parasitic diseases (001–139)	18	15	0.9	0.1	15.7*
Diseases of the circulatory system (390–459)	11	13	0.5	0.05	11.1*
Other conditions[j]	15	72	0.7	0.3	2.7*
Total	**436**	**1,422**	**21.2**	**5.3**	**4.0***
			1997–2006		
Certain conditions originating in the perinatal period (P00–P96)	243	793	6.4	1.9	3.5*
Congenital malformations (Q00–Q99)	83	439	2.2	1.0	2.1*
Signs, symptoms & ill-defined conditions (R00–R99)	124	231	3.3	0.5	6.1*
SIDS (R95)[i]	*69*	*125*	*1.8*	*0.3*	*6.2**
Diseases of the respiratory system (J00–J99)	44	36	1.2	0.1	13.8*
Injury & poisoning (V01–Y99)	23	71	0.6	0.2	3.7*
Infectious and parasitic diseases (A00–B99)	17	24	0.4	0.1	8.0*
Diseases of the circulatory system (I00–I99)	9	23	0.2	0.1	4.4*
Other conditions[j]	24	129	0.6	0.3	2.1*
Total	**567**	**1,746**	**15.0**	**4.1**	**3.7***

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

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

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

(c) Although most deaths of Indigenous infants are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous infant deaths and, depending on the under-identification in births, may either underestimate or overestimate the rates. Different causes of death may have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates.

(d) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous infant mortality rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous infant mortality rates because of these data quality issues.

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

(f) No. per 1,000 live births.

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

(h) Rate ratio Indigenous:non-Indigenous.

(i) Data presented for SIDS are a subset of data presented for signs, symptoms and ill-defined conditions in this table.

(j) 'Other conditions' include: neoplasms; diseases of blood and blood-forming organs; endocrine, nutritional and metabolic diseases; mental and behavioural disorders; diseases of the nervous system; diseases of the eye and adnexa; diseases of the ear and mastoid process; diseases of the digestive system; diseases of the musculoskeletal system and connective tissues; diseases of the genitourinary system; and diseases of the skin and subcutaneous tissue.

Note: 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.

International comparisons

International indigenous data are available for New Zealand, the United States and Canada.

There are several common issues that adversely affect the quality of Indigenous mortality data in these three countries and Australia. These include the lack of an accurate denominator value for the Indigenous population and the lack of agreement over which population denominator values to use if they do exist. There are differences in how Indigenous status is defined in the different countries. There have also been frequent modifications to the ethnicity question recorded in the censuses in some of these countries. These frequent changes in the census ethnicity question have led to difficulties in comparing mortality trends over time and have also produced difficulties in estimating inter-census population denominator counts. Another difficulty is that data are not always available for the same time periods.

The most important issue in relation to the quality of Indigenous mortality data is the undercounting of deaths (the numerator for mortality data). In each of the four countries, the undercounting of Indigenous deaths is likely to lead to an underestimation of the relative size of disparities that exist between Indigenous and non-Indigenous populations.

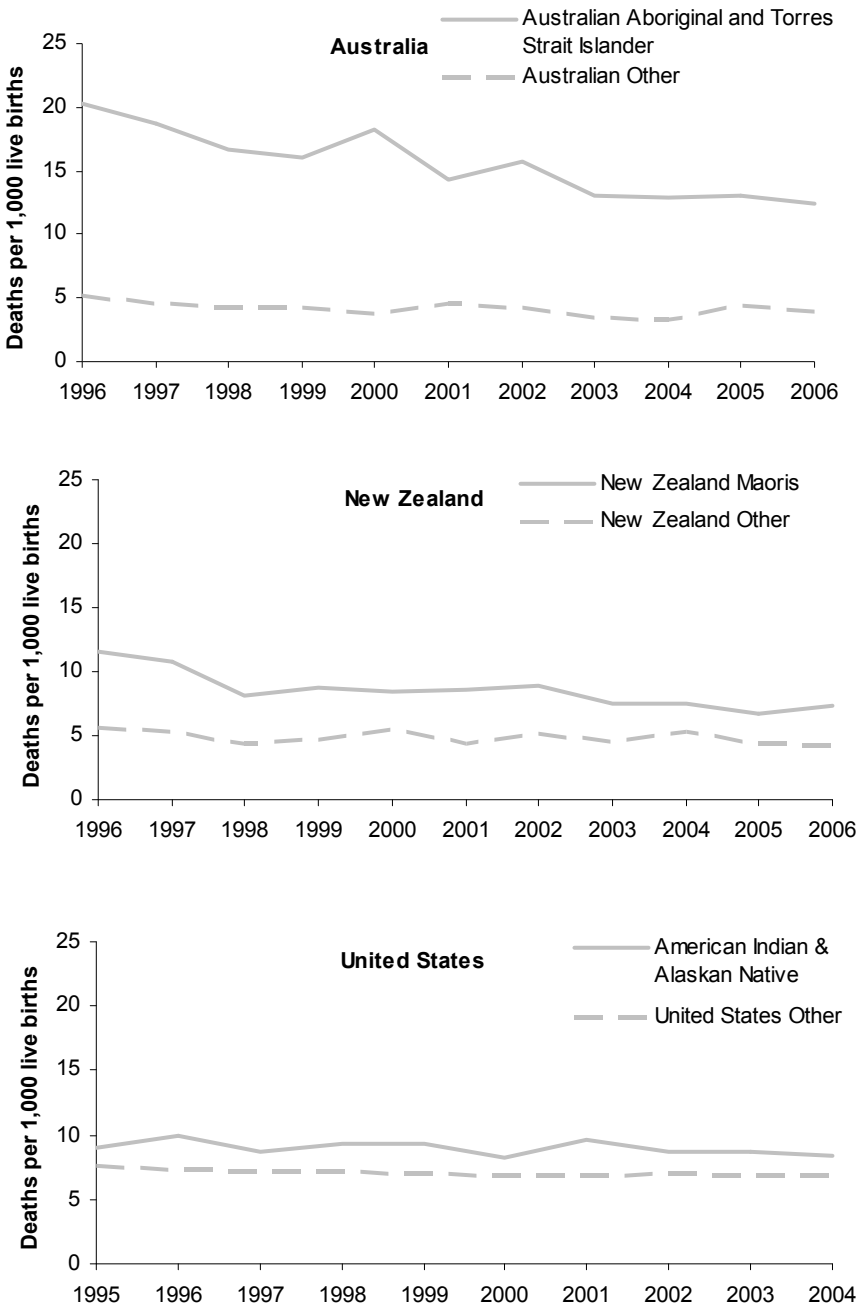
International statistics on infant mortality show that Indigenous infants in the United States, Canada and New Zealand have higher mortality rates than infants in the general population but the gap is not as great as for Aboriginal and Torres Strait Islander infants. The infant mortality rate for Aboriginal and Torres Strait Islander infants is around three times that for non-Indigenous infants (12 per 1,000 live births compared with 5 per 1,000 live births). The latest available data from the United States, Canada and New Zealand are outlined below.

- For the period 2002–2004, the infant mortality rate of babies born to American Indian or Alaskan Native mothers was 8.6 per 1,000 live births, compared with 6.9 per 1,000 live births for babies born to all mothers in the United States (United States department of Health and Human Services unpublished data).
- For the period 2002–2006 in New Zealand, the mortality rate of Maori infants was 7.5 per 1,000 live births, compared with 4.7 per 1,000 live births for non-Indigenous infants (Statistics New Zealand unpublished data).
- In 2000, the mortality rate of Canadian First Nations infants was 6.4 per 1,000 live births, compared with the 2001 Canadian rate of 5.2 per 1,000 live births (Health Canada 2005).

Time series

Infant mortality data are available from 1996 to 2006 for the Maori population in New Zealand, and from 1995 to 2004 for the American Indian and Alaskan Native populations in the United States. These data are presented in Figure 1.19.3 along with data for Australia for the period 1996–2006. Reliable time series of infant mortality data for Canadian First Nations is not available at present.

- In New Zealand between 1996 and 2006 there was a significant decline in mortality for Maori infants. The fitted trend implies an average yearly decline in the rate of around 0.4 per 1,000 live births, which is equivalent to a 33% reduction in the rate over this period. Over the same period there was no significant decline in non-Indigenous infant mortality (Statistics New Zealand unpublished data).
- In the United States between 1995 and 2004 there was no significant decline in infant mortality for American Indians and Alaskan Natives. Over the same period there was a significant decline in other infant mortality (a reduction of 9%) (United States Department of Health and Human Services, unpublished data).



Note: Australia data is for Western Australia, South Australia & the Northern Territory combined.

Source: AIHW analysis of National Mortality Database; Statistics New Zealand; United States Department of Health and Human Services.

Figure 1.19.3: Infant mortality rates per 1,000 live births, by Indigenous status, Australia (1996–2006), New Zealand (1996–2006) and the United States (1995–2004)

Additional information

Children aged under 5 years mortality

Table 1.19.8 presents the main causes of death among Indigenous children aged 0–4 years in Queensland, Western Australia, South Australia and the Northern Territory combined for the period 2002–2006.

- Over the period 2002–2006, there were 551 deaths of Indigenous children aged 0–4 years in Queensland, Western Australia, South Australia and the Northern Territory combined, which represented 19% of total deaths of children aged 0–4 years in these jurisdictions.
- Indigenous children aged 0–4 years in these jurisdictions died at around three times the rate of non-Indigenous children.
- The most common causes of death among Indigenous children were conditions originating in the perinatal period (40%), symptoms, signs & ill-defined conditions (20%), congenital malformations (11%) and injury and poisoning (11%). Indigenous children died at around three times the rate of non-Indigenous children for conditions originating in the perinatal period and injury and poisoning; at almost six times the rate of non-Indigenous children for symptoms, signs and ill-defined conditions, and at twice the rate of non-Indigenous children for congenital malformations.
- Indigenous children died from respiratory diseases at seven times the rate of other children and from infectious and parasitic diseases and diseases of the circulatory system at around four times the rate of non-Indigenous children.

Table 1.19.8: Causes of death among children aged 0–4 years by Indigenous status, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)(e)]

Cause of death	Number of deaths		No. per 100,000[(f)]		Rate ratio[(g)]
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	
Certain conditions originating in the perinatal period (P00–P96)	209	947	115.8	41.5	2.8*
Signs, symptoms & ill-defined conditions (R00-R99)	109	250	60.4	11.0	5.5*
Congenital malformations (Q00–Q99)	61	477	33.8	20.9	1.6*
Injury & poisoning (V01–Y99)	59	251	32.7	11.0	3.0*
Diseases of the respiratory system (J00–J99)	39	68	21.6	3.0	7.2*
Diseases of the nervous system (G00–G99)	20	85	11.1	3.7	3.0*
Infectious and parasitic diseases (A00–B99)	17	51	9.4	2.2	4.2*
Diseases of the circulatory system (I00–I99)	13	44	7.2	1.9	3.7*
Other conditions[((h)]	24	161	13.3	7.1	1.9*
Total	**551**	**2334**	**305.2**	**102.4**	**3.0***

* 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 and 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) These data exclude 79 deaths of children aged 0–4 years where the Indigenous status is not stated.

(d) Although most deaths of Indigenous children are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate Indigenous child mortality rates.

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

(f) No. per 100,000 population.

(g) Rate ratio Indigenous:non-Indigenous.

(h) Other conditions include: neoplasms; diseases of blood and blood-forming organs; endocrine, nutritional and metabolic diseases; mental and behavioural disorders; diseases of the eye and adnexa; diseases of the ear and mastoid process; diseases of the digestive system; diseases of the musculoskeletal system and connective tissues; diseases of the genitourinary system; and diseases of the skin and subcutaneous tissue.

Source: AIHW analysis of National Mortality Database.

Time series analyses

Infant mortality rates, rate ratios and rate differences between Indigenous and other Australian children aged 0–4 years over the period 1991–2006 in Western Australia, South Australia and the Northern Territory are presented in Table 1.19.9.

- Over the period 1991–2006, there were significant declines in recorded mortality rates for Indigenous children and other children in Western Australia, South Australia and the Northern Territory. The fitted trend implies an average yearly decline in the rate of around 14 deaths per 100,000 for Indigenous children (equivalent to a 36% reduction in the rate over the period) and 3 deaths per 100,000 for other infants (equivalent to a 36% reduction in the rate over the period).
- Over the same period, there were no significant changes in the mortality rate ratios but significant declines in the mortality rate differences between Indigenous and other Australian children (36%).

Table 1.19.9: Mortality rates, rate ratios and rate differences for children aged 0–4 years, WA, SA and NT, 1991–2006

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change over period[(b)]
Indigenous rate (no. per 100,000)																		
Persons	594.0	535.4	506.5	425.0	396.5	458.9	419.8	324.4	367.9	460.6	371.0	385.2	312.5	306.6	390.2	309.3	–14.3*	–36.1
Other[(c)] rate (no. per 100,000)																		
Persons	134.3	148.5	129.7	117.4	128.1	124.7	116.6	106.7	104.4	92.2	108.5	102.4	90.9	82.3	109.4	95.8	–3.2*	–35.9
Rate ratio[(d)]																		
Persons	4.4	3.6	3.9	3.6	3.1	3.7	3.6	3.0	3.5	5.0	3.4	3.8	3.4	3.7	3.6	3.2	0.0	–7.0
Rate difference[(e)]																		
Persons	459.7	386.9	376.8	307.5	268.4	334.2	303.2	217.7	263.4	368.4	262.5	282.8	221.6	224.2	280.8	213.4	–11.1*	–36.2

* Represents results with statistically significant increases or decreases at the $p < 0.05$ level over the period 1991–2006.

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

(b) Per cent change between 1991 and 2006 based on the average annual change over the period.

(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.

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

Source: AIHW analysis of National Mortality Database.

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 children aged 0–4 years in Table 1.19.10. Queensland has had adequate identification of Indigenous deaths in its recording systems since 1998, and these deaths have been compared with those of non-Indigenous Australians (excluding deaths for which Indigenous status was not stated).

- Over the period 1998–2006, there were non-significant declines in recorded mortality rates for Indigenous children and significant declines in recorded mortality rates for non-Indigenous children in Queensland, Western Australia, South Australia and the Northern Territory combined (a decline of 16% over the period).
- Over the same period, there was no significant change in the mortality rate ratios or rate differences between Indigenous and non-Indigenous children.

Table 1.19.10: Mortality rates, rate ratios and rate differences for children aged 0–4 years, Qld, WA, SA and NT, 1998–2006[a]

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[b]	% change over period[c]
Indigenous rate (no. per 100,000)											
Persons	308.2	318.1	342.4	325.0	324.9	280.8	293.6	344.8	282.0	–2.8	–7.2
Non-Indigenous rate (no. per 100,000)											
Persons	125.3	112.9	110.4	114.0	111.3	93.2	98.4	103.8	105.2	–2.5*	–16.3
Rate ratio[d]											
Persons	2.5	2.8	3.1	2.9	2.9	3.0	3.0	3.3	2.7	0.0	12.6
Rate difference[e]											
Persons	182.9	205.2	232.0	211.0	213.6	187.6	195.2	241.0	176.8	–0.2	–1.0

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

(a) Data exclude 116 registered deaths where Indigenous status was not stated over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined.
(b) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(c) Per cent change between 1998 and 2006 based on the average annual change over the period.
(d) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.
(e) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database.

Data quality issues

Mortality

Deaths

The mortality rate for Indigenous Australians can be influenced by late registration of deaths, identification of Indigenous 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 2007a).

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

Infant mortality data also rely on birth registration data. Unfortunately, as with deaths, some Indigenous births are not correctly identified as Indigenous. The estimated identification of births as Indigenous in 2002–06 was 95%. Identification for the states and territories ranged from 83% for the Australian Capital Territory to 107% for the Northern Territory (ABS 2007b). Given the identification is higher in births than deaths it is likely that Indigenous infant mortality rates are underestimated.

(continued)

Data quality issues (continued)

The numerator and denominator are not based on the same collection or the same method of collection. Births are registered by the parents while death registration forms are completed by doctors and funeral directors. Therefore, there would be inconsistency of Indigenous identification between the numerator and denominator.

International comparisons

International Indigenous data are available for New Zealand, the United States and Canada. Data quality is an important issue in all countries with small Indigenous populations. The mortality rates are therefore likely to be underestimated to some degree for each of the Indigenous groups. The scope of data collections in Canada and the United States is often limited to the registered or reserve Indigenous populations and therefore does not cover the whole Indigenous population. International comparisons need to take into account that the definition of Indigenous status is specific to each country.

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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1.20 Perinatal mortality

The number of Aboriginal and Torres Strait Islander babies who die in the perinatal period, expressed as a rate (per 1,000 births)

Data sources

Data for this measure come from the ABS Deaths Registration Database.

The ABS Deaths Registration Database contains details of all deaths registered in Australia including information on fetal (stillbirths) and neonatal deaths (deaths occurring in live births up to 28 days of age), by age of the baby, sex, state/territory of birth, Indigenous status and cause of death (ICD-10).

The National Perinatal Data Collection also contains data on fetal and neonatal deaths, by sex, state/territory of birth and the Indigenous status of the mother, but it does not collect information on cause of death for all jurisdictions. Work is under way for this collection to include data on obstetric antecedent factors that initiated the sequence of events leading to death based on the Perinatal Society of Australia and New Zealand Perinatal Death Classification for all jurisdictions.

Data from the ABS Deaths Registration Database have been used in this measure, as cause of death can be ascertained and neonatal deaths are more comprehensively captured in this database.

Data are presented by state/territory of usual residence rather than state/territory of death. Although identification of Indigenous deaths is incomplete in all state and territory registration systems, four jurisdictions (Queensland since 1998, 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.

Several years of data have been combined because of the small number of deaths from some conditions each year. The latest year for which mortality data are currently available is 2006, but Indigenous status information on fetal deaths is not available for that year. Therefore, data in this measure have been analysed for the period 2001–2005 using the year of registration of death.

The perinatal mortality rate is defined by the ABS as the number of deaths (fetal deaths and neonatal deaths) of babies of at least 400 grams birthweight or, if birthweight is unavailable, a gestational age of at least 20 weeks, up to 28 completed days after birth per 1,000 live births during a given period. This definition has been used for the purposes of this measure.

Analyses

Mortality

Mortality by sex

- Over the period 2001–2005, there were 495 deaths (285 male, 207 female) of Indigenous perinatal infants and 3,524 deaths (1,918 male, 1,582 female) of non-Indigenous perinatal infants in Queensland, Western Australia, South Australia and the Northern Territory combined.
- The perinatal mortality rate for Indigenous infants was around 14 per 1,000 births compared with 10 per 1,000 births for non-Indigenous infants.
- Perinatal mortality rates were higher for males than females for both Indigenous and non-Indigenous infants. The perinatal mortality rate for Indigenous males was 15 per 1,000 births compared with 12 per 1,000 births for Indigenous females. The perinatal mortality rate for non-Indigenous males was 9 per 1,000 births compared with 7 per 1,000 births for non-Indigenous females (Table 1.20.1)

Table 1.20.1: Perinatal mortality rates per 1,000 births, by Indigenous status and sex, Qld, WA, SA & NT[(a)], 2001–2005

	Indigenous		Non-Indigenous	
	Deaths	No. per 1,000 births	Deaths	No. per 1,000 births
Males	285	15.2	1,918	8.5
Females	207	11.6	1,582	7.4
Persons[(b)]	495	13.5	3,524	8.1

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

(b) Includes sex indeterminate.

Note: Data are based on state of usual residence and year of registration of death.

Source: ABS Deaths Registration database.

Mortality by state/territory

Perinatal mortality rates per 1,000 births among Indigenous and non-Indigenous babies are presented in Table 1.20.2 for Queensland, Western Australia, South Australia and the Northern Territory for the years 1996–1998, 1999–2001, and 2002–2005.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, there were 315 perinatal deaths of Indigenous babies in 1996–1998, 350 perinatal deaths of Indigenous babies in 1999–2001 and 372 perinatal deaths of Indigenous babies in 2002–2005.
- Over the period 2002–2005, the perinatal mortality rate for Indigenous babies in Queensland, Western Australia, South Australia and the Northern Territory combined was 12.5 per 1,000 live births compared with 7.9 for non-Indigenous babies.
- Indigenous perinatal mortality rates ranged from 9.5 per 1,000 live births in Western Australia to 18.8 per 1,000 births in the Northern Territory in 2002–05.

- In 2002–05 Indigenous babies in the Northern Territory and South Australia died in the perinatal period at twice the rate of non-Indigenous babies in these jurisdictions. In Queensland, Indigenous babies died in the perinatal period at around 1.5 times the rate of non-Indigenous babies. In Western Australia there was no statistically significant difference between Indigenous and non-Indigenous perinatal death rates.
- The majority of perinatal deaths were fetal deaths. In 2002–2005, the fetal death rate was 6.8 per 1,000 births among Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory combined compared to 5.3 among non-Indigenous Australians. The neonatal death rate among Indigenous babies for the same period was 5.9 per 1,000 live births compared with 2.6 among non-Indigenous babies.

Table 1.20.2: Fetal, neonatal and perinatal mortality rates per 1,000 births, by Indigenous status, Qld, WA, SA and NT, 1996–1998 to 2002–2005[a][b][c][d][e][f]

	1996–1998[g]					1999–2001					2002–2005				
	No.	No. per 1,000	LCL 95%[h]	UCL 95%[i]	Rate ratio[i]	No.	No. per 1,000	LCL 95%[h]	UCL 95%[i]	Rate ratio[j]	No.	No. per 1,000	LCL 95%[h]	UCL 95%[i]	Rate ratio[j]
							Fetal deaths								
Qld															
Indigenous	61	7.0	5.2	8.8	1.2	75	7.8	6.1	9.6	1.5*	76	5.5	4.2	6.7	1.0
Non-Indigenous	759	5.7	5.3	6.1		701	5.3	4.9	5.7		966	5.2	4.9	5.6	
WA															
Indigenous	56	12.3	9.1	15.6	2.4*	49	9.9	7.2	12.7	1.9*	37	5.5	3.8	7.3	1.0
Non-Indigenous	366	5.2	4.7	5.8		371	5.3	4.8	5.9		494	5.3	4.8	5.8	
SA															
Indigenous	12	6.6	2.9	10.3	1.2	23	12.1	7.1	17.0	2.4*	22	8.3	4.8	11.8	1.6*
Non-Indigenous	299	5.5	4.9	6.1		255	5.0	4.3	5.6		356	5.3	4.7	5.8	
NT															
Indigenous	45	11.4	8.1	14.8	2.3*	46	9.8	7.0	12.7	1.7*	65	10.4	7.9	13.0	1.8*
Non-Indigenous	35	5.0	3.4	6.7		37	5.7	3.9	7.5		49	5.7	4.1	7.3	
Qld, WA, SA & NT[c]															
Indigenous	**174**	**9.2**	**7.8**	**10.5**	**1.7***	**193**	**9.2**	**7.9**	**10.5**	**1.7***	**200**	**6.8**	**5.8**	**7.7**	**1.3***
Non-Indigenous	**1,459**	**5.5**	**5.2**	**5.8**		**1,364**	**5.2**	**5.0**	**5.5**		**1,865**	**5.3**	**5.0**	**5.5**	

(continued)

Table 1.20.2 (continued): Fetal, neonatal and perinatal mortality rates per 1,000 births, by Indigenous status, Qld, WA, SA and NT, 1996–1998 to 2002–2005[a][b][c][d][e][f]

	1996–1998[g]					1999–2001					2002–2005				
	No.	No. per 1,000	LCL 95%[h]	UCL 95%[i]	Rate ratio[j]	No.	No. per 1,000	LCL 95%[h]	UCL 95%[i]	Rate ratio[j]	No.	No. per 1,000	LCL 95%[h]	UCL 95%[i]	Rate ratio[j]
							Neonatal deaths								
Qld															
Indigenous	57	6.6	4.9	8.3	1.8*	59	6.2	4.6	7.8	1.9*	82	5.9	4.6	7.2	2.0*
Non-Indigenous	485	3.6	3.3	4.0		435	3.3	3.0	3.6		555	3.0	2.8	3.3	
WA															
Indigenous	35	7.8	5.2	10.4	2.9*	40	8.2	5.7	10.7	3.8*	27	4.1	2.5	5.6	1.9*
Non-Indigenous	186	2.7	2.3	3.0		151	2.2	1.8	2.5		201	2.2	1.9	2.5	
SA															
Indigenous	n.p.	n.p.	n.p.	n.p.	n.p.	9	4.8	1.7	7.9	1.9	10	3.8	1.4	6.2	1.7
Non-Indigenous	134	2.5	2.1	2.9		126	2.5	2.0	2.9		153	2.3	1.9	2.6	
NT															
Indigenous	46	11.8	8.4	15.3	3.6*	49	10.6	7.6	13.5	2.5*	53	8.6	6.3	10.9	3.1*
Non-Indigenous	23	3.3	2.0	4.7		27	4.2	2.6	5.8		24	2.8	1.7	3.9	
Qld, WA, SA & NT[c]															
Indigenous	**141**	**7.5**	**6.3**	**8.7**	**2.4***	**157**	**7.5**	**6.3**	**8.7**	**2.6***	**172**	**5.9**	**5.0**	**6.8**	**2.2***
Non-Indigenous	**828**	**3.1**	**2.9**	**3.4**		**739**	**2.9**	**2.7**	**3.1**		**933**	**2.6**	**2.5**	**2.8**	

(continued)

Table 1.20.2 (continued): Fetal, neonatal and perinatal mortality rates per 1,000 births, by Indigenous status, Qld, WA, SA and NT, 1996–1998 to 2002–2005[a][b][c][d][e][f]

	1996–1998[g]					1999–2001					2002–2005				
	No.	No. per 1,000	LCL 95%[h]	UCL 95%[i]	Rate ratio[j]	No.	No. per 1,000	LCL 95%[h]	UCL 95%[i]	Rate ratio[j]	No.	No. per 1,000	LCL 95%[h]	UCL 95%[i]	Rate ratio[j]
							Perinatal deaths								
Qld															
Indigenous	118	13.4	11.0	15.9	1.5*	134	13.9	11.6	16.3	1.6*	158	11.3	9.5	13.0	1.4*
Non-Indigenous	1,244	9.3	8.7	9.8		1,136	8.5	8.0	9.0		1,521	8.2	7.8	8.6	
WA															
Indigenous	91	19.9	15.8	24.0	2.5*	89	17.9	14.2	21.6	2.4*	64	9.5	7.2	11.9	1.3
Non-Indigenous	552	7.8	7.2	8.5		522	7.5	6.9	8.1		695	7.4	6.9	8.0	
SA															
Indigenous	15	8.2	4.1	12.4	1.0	32	16.7	10.9	22.5	2.3*	32	12.0	7.9	16.2	1.6*
Non-Indigenous	433	8.0	7.2	8.7		381	7.4	6.6	8.1		509	7.5	6.8	8.1	
NT															
Indigenous	91	22.9	18.2	27.6	2.7*	95	20.1	16.0	24.1	2.0*	118	18.8	15.4	22.2	2.2*
Non-Indigenous	58	8.3	6.2	10.5		64	9.8	7.4	12.2		73	8.5	6.5	10.4	
Qld, WA, SA & NT[c]															
Indigenous	**315**	**16.5**	**14.6**	**18.3**	**1.9***	**350**	**16.5**	**14.8**	**18.2**	**2.0***	**372**	**12.5**	**11.3**	**13.8**	**1.6***
Non-Indigenous	**2,287**	**8.6**	**8.2**	**9.0**		**2,103**	**8.1**	**7.7**	**8.4**		**2,798**	**7.9**	**7.6**	**8.2**	

(continued)

Table 1.20.2 (continued): Fetal, neonatal and perinatal mortality rates per 1,000 births, by Indigenous status, Qld, WA, SA and NT, 1996–1998 to 2002–2005[(a)(b)(c)(d)(e)(f)]

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

(a) Shading indicates that the Indigenous identification is likely to be less than 50% complete.

(b) Data are presented in 3-year groupings because of small numbers each year.

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

(d) Although most perinatal deaths of Indigenous perinatal babies are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous perinatal mortality rate. There may also be under-identification of Indigenous babies in the denominator and the under-identification may be different for fetal deaths and live births, which would also affect the perinatal mortality rate. The ABS calculated the completeness of identification of Indigenous deaths for the period 1999–2003 using population estimates as 54% for Queensland, 72% for Western Australia, 66% for South Australia and 95% for the Northern Territory. The completeness of Indigenous identification for perinatal deaths may differ from the estimates for 'all causes'.

(e) Because of changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous perinatal mortality rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous perinatal mortality rates because of these data quality issues.

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

(g) Queensland data are only reliable from 1998 (National Health Performance Committee 2004).

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio Indigenous:non-Indigenous.

Source: ABS Deaths Registration Database.

Mortality by cause of death

Table 1.20.3 presents fetal, neonatal and total perinatal deaths of Indigenous and non-Indigenous babies by main underlying cause of death. Note that perinatal cause of death data should be used with caution as the level of identification by cause is unknown and may not be suitable for the calculation of rates.

- Over the period 2001–2005, in Queensland, Western Australia, South Australia and the Northern Territory combined, of conditions which originate in the fetus or infant, the most common cause of perinatal death among Indigenous babies was 'other conditions originating in the perinatal period' (such as birth trauma) which were reported as an underlying or associated cause of death in 41% of deaths of Indigenous babies. For 23% of Indigenous babies, disorders relating to length of gestation and fetal growth were reported as the main underlying cause of death.
- Of conditions which originate in the mother, the most common cause of perinatal death among Indigenous babies was the fetus or newborn affected by complications of the placenta, cord and membranes (30%). For approximately 18% of Indigenous babies, the fetus and newborn affected by maternal complications of pregnancy was reported as the main underlying cause of death.
- For fetal deaths, the most common causes of death among Indigenous babies were other conditions originating in the perinatal period (62%) and fetus or newborn affected by complications of the placenta, cord and membranes (38%). For neonatal deaths, the most common causes of death among Indigenous babies were fetus and newborn affected by maternal complications of pregnancy (31%) and disorders related to length of gestation and fetal growth (31%).

Table 1.20.3: Main underlying cause of death for perinatal babies, by Indigenous status, Qld, WA, SA and NT, 2001–2005[(a)(b)(c)(d)(e)]

	Foetal deaths				Neonatal deaths				Perinatal deaths			
	Total number		Per cent		Total number		Per cent		Total number		Per cent	
Cause of death	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.
Main condition in the fetus/infant												
Disorders related to length of gestation and fetal growth (P05–P08)	45	238	16.5	10.2	68	254	30.6	21.3	113	492	22.8	14.0
Respiratory and cardiovascular disorders specific to the perinatal period (P20–P29)	25	291	9.2	12.5	39	239	17.6	20.1	64	530	12.9	15.0
Infections specific to the perinatal period (P35–P39)	9	45	3.3	1.9	19	84	8.6	7.1	28	129	5.7	3.7
Other conditions originating in the perinatal period (P10–P15 and P50–P96)	169	1,355	61.9	58.1	34	227	15.3	19.1	203	1,582	41.0	44.9
Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99)	25	381	9.2	16.3	38	324	17.1	27.2	63	705	12.7	20.0
Other conditions	—	23	—	1.0	24	63	10.8	5.3	24	86	4.8	2.4
Total deaths	**273**	**2,333**	**100.0**	**100.0**	**222**	**1,191**	**100.0**	**100.0**	**495**	**3,524**	**100.0**	**100.0**
Main condition in the mother												
Fetus and newborn affected by complications of placenta, cord and membranes	104	733	38.1	31.4	45	218	20.3	18.3	149	951	30.1	27.0
Fetus and newborn affected by maternal complications of pregnancy	21	215	7.7	9.2	68	404	30.6	33.9	89	619	18.0	17.6
Fetus and newborn affected by maternal conditions that may be unrelated to present pregnancy	48	395	17.6	16.9	23	72	10.4	6.0	71	467	14.3	13.3
Fetus and newborn affected by other complications of labour and delivery and noxious influences transmitted via placenta or breast milk	12	148	4.4	6.3	6	41	2.7	3.4	18	189	3.6	5.4
Total deaths	**273**	**2,333**	**100.0**	**100.0**	**222**	**1,191**	**100.0**	**100.0**	**495**	**3,524**	**100.0**	**100.0**

(continued)

Table 1.20.3 (continued): Main underlying cause of death for perinatal babies, by Indigenous status, Qld, WA, SA and NT, 2001–2005[(a)(b)(c)(d)(e)]

(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) Includes all fetuses and babies delivered weighing at least 400 grams or, if birthweight is unavailable, at gestational age of 20 weeks or more.

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

(d) Data based on state of usual residence of mother.

(e) Deaths are by year of registration.

Source: ABS Deaths Registration Database.

Time series analysis

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

As there is a consistent time series of population estimates from 1991, data for the period 1991–2005 have been used for the analysis of Indigenous mortality in this indicator.

Because of the late inclusion of a 'not stated' category for 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).

Fluctuations in the level of Indigenous mortality over time partly reflect changing levels of identification of Indigenous deaths and population estimates. Given the volatility in the measures of Indigenous mortality, caution should be exercised in assessing trends in Indigenous mortality over time and comparisons between jurisdictions and with the non-Indigenous population.

Perinatal mortality rates, rate ratios and rate differences between Indigenous and other babies over the period 1991–2005 are presented in Table 1.20.4 and Figure 1.20.1.

- Over the period 1991–2005, there were significant declines in perinatal mortality rates of Indigenous babies in Western Australia, South Australia and the Northern Territory. The fitted trend implies an average yearly decline in the rate of around 0.8 deaths per 1,000 births, which is equivalent to a 51% decline in the rate over this period.
- Over the same period, there were also significant declines in perinatal mortality rates of other babies, with an average yearly decline in the rate of around 0.2 deaths per 1,000 births, which is equivalent to a 24% decline in the rate over this period.
- There were significant declines in both the mortality rate ratios and mortality rate differences between Indigenous and other babies between 1991 and 2005 (33% decline in the rate ratio and 70% decline in the rate difference).
- There was a large drop in the number of perinatal deaths of Indigenous infants in Western Australia in 2002, which has resulted in a decline in the perinatal mortality rate for Indigenous infants in the three jurisdictions combined for that year (Figure 1.20.1). It is not known why there were so few Indigenous perinatal deaths in Western Australia in 2002.

Fetal and neonatal mortality rates

- Fetal mortality rates are available for the period 1991–2005. Over this period there was a significant decline in the fetal mortality rate for both Indigenous and other babies (47% decline for Indigenous and 15% decline for other babies). There was also a significant decline in the mortality rate ratio and mortality rate difference between Indigenous and other fetuses between 1991 and 2005.
- Neonatal mortality rates are available for the period 1991–2006. Over this period there was a significant decline in the neonatal mortality rate for both Indigenous and other babies (41% decline for Indigenous and 35% decline for other babies). There was also a significant decline in the mortality rate ratio and mortality rate difference between Indigenous and other neonates between 1991 and 2005.

Table 1.20.4: Perinatal mortality rates, rate ratios and rate differences, WA, SA and NT, 1991–2005

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Annual change[(a)]	% change over period[(b)]
Indigenous rate (no. per 1,000 births)																	
Number	79	89	96	77	65	61	71	65	69	80	67	34	70	48	62		
Rate	22.8	25.2	27.4	21.9	18.8	17.4	20.9	18.7	18.7	20.2	16.9	9.1	17.7	12.2	15.4	–0.8*	–50.8
Other[(c)] rate (no. per 1,000 births)																	
Number	429	423	423	360	424	404	339	300	316	333	318	321	332	299	325		
Rate	9.5	9.4	9.2	8.0	9.4	9.1	7.8	6.9	7.3	7.7	7.7	7.7	7.9	7.1	7.4	–0.2*	–23.5
Rate ratio[(d)]	2.4	2.7	3.0	2.7	2.0	1.9	2.7	2.7	2.6	2.6	2.2	1.2	2.2	1.7	2.1	–0.1*	–33.2
Rate difference[(e)]	13.4	15.8	18.1	13.9	9.4	8.3	13.2	11.8	11.4	12.5	9.2	1.4	9.7	5.2	8.0	–0.7*	–70.1

* Represents statistically significant increases or decrease over the period 1991–2005 at the $p < 0.05$ level.

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

(b) Per cent change between 1991 and 2005 based on the average annual change over the period.

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

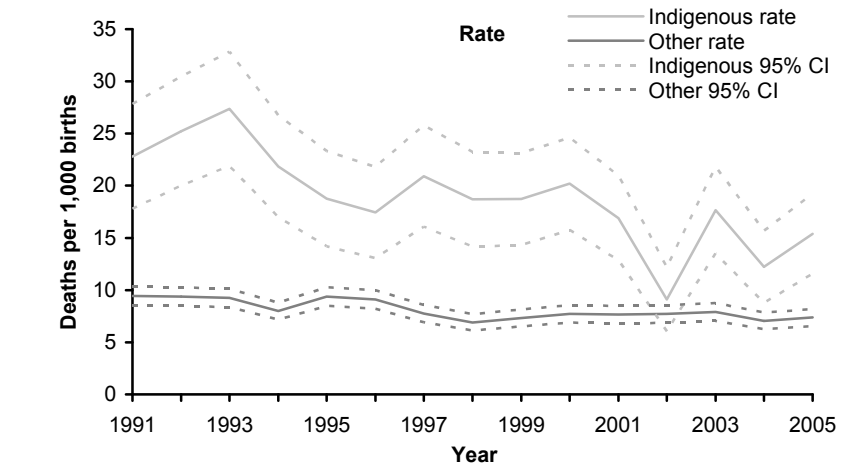
(d) Mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

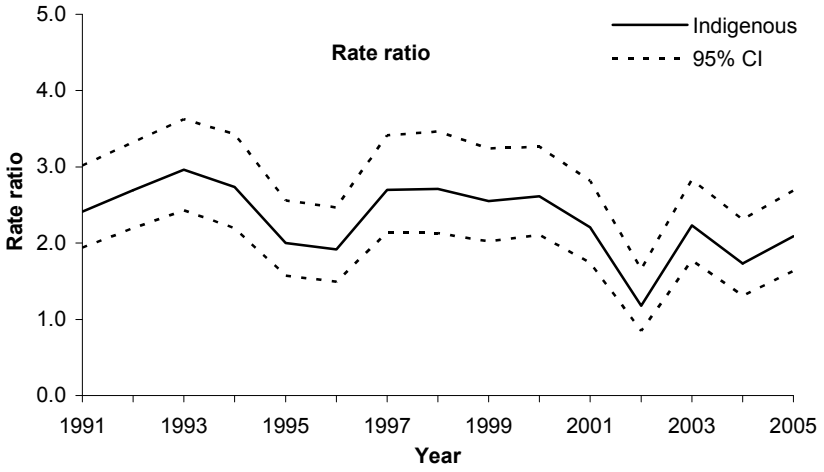
(e) Mortality rate for Indigenous Australians minus the mortality rate for other Australians.

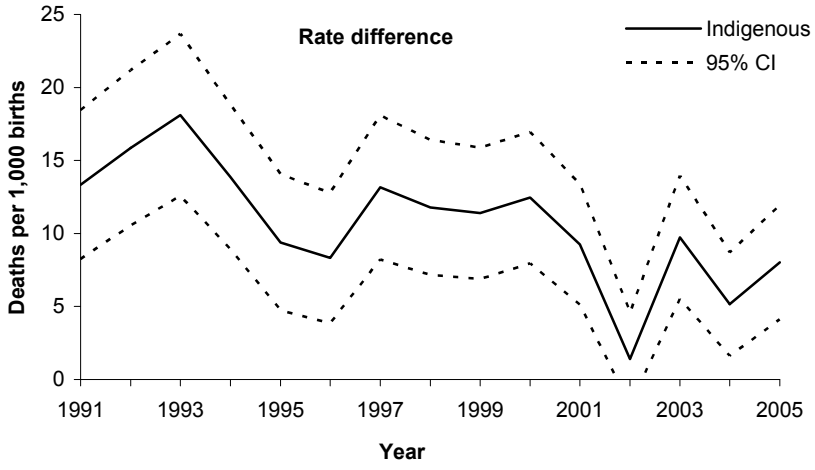
Notes

1. Perinatal deaths were not available in South Australia in 1996.
2. The average of births over the period 1993–1995 in Western Australia was used for births in 1991 and 1992, as there were errors in the number of Indigenous births recorded.

Source: ABS Deaths Registration Database.







Source: ABS Deaths Registration Database.

Figure 1.20.1: Perinatal mortality rates, rate ratios and rate differences between Indigenous and other Australians, WA, SA and NT, 1991–2005

Sensitivity of mortality trends to changes in identification

- The fitted trends described above have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for identification were posted—constant identification, increasing identification and decreasing identification.
  - Under the constant identification scenario, the numbers of deaths for the period under study were adjusted using the following identification estimates derived from the most recent ABS analyses (relating to the period 2002–2005):
    - Western Australia 72%
    - South Australia 62%
    - Northern Territory 90%.
  - Under the increasing identification scenario, deaths were adjusted by linearly increasing the identification through the period under study—from 64% in 1991 to 72% in 2005 for Western Australia, from 52% to 62% for South Australia, and from 80% to 90% for the Northern Territory.
  - Under the decreasing identification scenario, deaths were adjusted by linearly decreasing the identification from 80% in 1991 to 72% in 2005 for Western Australia, from 72% to 62% for South Australia, and from 100% to 90% for the Northern Territory.
- The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; of course, if any actual shift in identification was more extreme than has been posted under these scenarios, then the observed trends in mortality might not persist.
- All of the observed trends in perinatal mortality mentioned above remained statistically significant under all three identification scenarios except for the decline in the rate ratio, which did not remain significant under the decreasing identification scenario.

International comparisons

International data are available for New Zealand, the United States and Canada using the World Health Organization (WHO) definition of perinatal mortality. However, the WHO definition differs significantly from the Australian definition of the perinatal period. Australian data include babies of at least 400 grams (or at least 20 weeks if birthweight is unavailable) whereas the WHO definition starts at 500 grams (22 weeks if birthweight is unavailable). In addition, the WHO defines perinatal deaths as less than 7 days whereas Australia includes deaths up to 28 days. Perinatal mortality rates of Aboriginal and Torres Strait Islander babies are therefore not comparable to rates for Indigenous populations in the other countries. Therefore, international comparisons have not been presented here.

Additional information

Influencing factors

The main risk factors for perinatal mortality are low birthweight and pre-term birth. Other factors which may be associated with perinatal mortality are smoking during pregnancy, infection, maternal nutrition and underutilisation of antenatal services. Data on these influencing factors is available from the National Perinatal Data Collection and the state and territory perinatal data collections.

Low birthweight/pre-term birth

- Over the period 2003–2005, babies born to Indigenous mothers were twice as likely to have low birthweight as babies born to non-Indigenous mothers (12% compared with 6%). In Australia (excluding Tasmania and the Northern Territory for 2003), 81% of perinatal deaths among babies born to Indigenous mothers had low birthweight compared with 78% among babies born to non-Indigenous mothers.
- Between 2003 and 2005, live-born babies of Indigenous mothers were also more likely to be pre-term than live-born babies born to non-Indigenous mothers (14% compared with 8%) (see Measure 1.01 for more information on low birthweight babies). Over the same period, approximately 59% of perinatal deaths of babies born to Indigenous mothers in Australia (excluding Tasmania and the Northern Territory for 2003) had a gestation period of less than 28 weeks. The proportion for babies born to non-Indigenous mothers was similar (58%) (see Measure 1.01 for more information on low birthweight infants).

Smoking during pregnancy

- Data on smoking during pregnancy show that in 2005 Indigenous mothers were three times more likely to smoke during pregnancy than non-Indigenous mothers (52% compared with 16%). Smoking during pregnancy rates were highest in South Australia (66%) followed by New South Wales and Western Australia (54%) (see Measure 2.19 for more information on smoking during pregnancy).

Underutilisation of antenatal care services

- In 2005, in the two jurisdictions where data are collected on the duration of pregnancy at first antenatal visit (New South Wales and the Northern Territory), Indigenous mothers were two to three times as likely as non-Indigenous mothers to be in their third trimester of pregnancy at their first antenatal session and less likely to be in their first trimester.
- In the three jurisdictions where data were collected in 2005 on the number of antenatal sessions attended during pregnancy (Queensland, South Australia and the Northern Territory), Indigenous mothers were less likely to have attended five or more antenatal sessions during pregnancy than non-Indigenous mothers (see Measure 3.01 for more information on antenatal care).

Data quality issues

Mortality data

Deaths

The mortality rate for Indigenous Australians can be influenced by late registration of deaths, identification of Indigenous 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. The National Perinatal Data Collection has more significant problems with compliance with the standard wording.

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 over 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 2007a).

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

The perinatal mortality rate also relies on birth registration data. Unfortunately, as with deaths, some Indigenous births are not correctly identified as Indigenous. The estimated identification of births as Indigenous in 2002–06 was 95%. Identification for the states and territories ranged from 83% for the Australian Capital Territory to 107% for the Northern Territory (ABS 2007b). Given that the identification is higher in births than deaths, it is likely that Indigenous perinatal mortality rates are underestimated.

(continued)

Data quality issues (continued)

The numerator and denominator are not based on the same collection or the same method of collection. Births are registered by the parents whereas death registration forms are completed by doctors and funeral directors. Therefore there would be inconsistency of Indigenous identification between the numerator and denominator.

Cause of death coding

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

International data

International data are available for New Zealand, the United States and Canada using the WHO definition of perinatal mortality. However, the WHO definition differs markedly from the Australian definition of the perinatal period (see above) which was developed to be relevant for the Australian context. Therefore, Australian data include babies of at least at 400 grams (at least 20 weeks if birthweight is unavailable) whereas the WHO definition starts at 500 grams (22 weeks if birthweight is unavailable). In addition, the WHO defines perinatal deaths as less than 7 days whereas Australia includes deaths up to 28 days (Laws & Sullivan 2004). It would be possible to analyse Australian data on the WHO definitional basis, but it is not recommended for this performance measure.

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1.21 Sudden infant death syndrome

The number of Aboriginal and Torres Strait Islander infants aged less than 12 months who die from sudden infant death syndrome (SIDS), expressed as a rate (per 1,000 live births) for that period

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.

Analyses

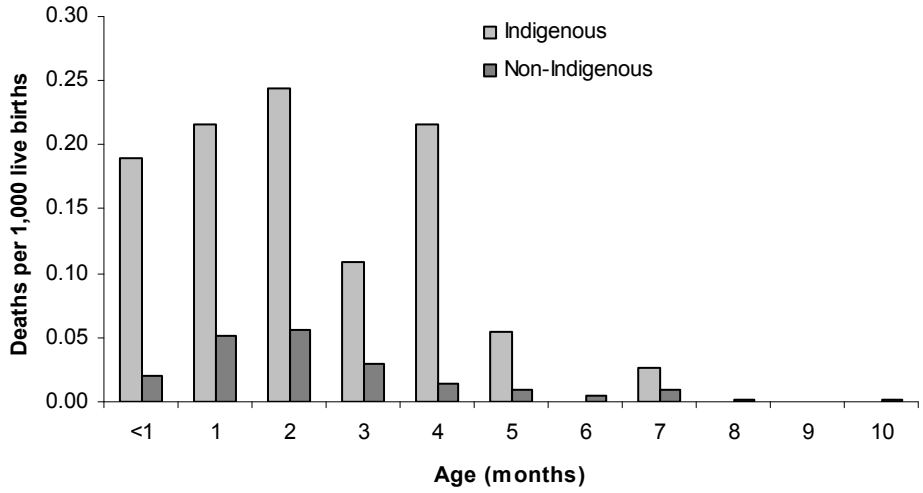
Mortality

- For the period 2002–2006, there were 133 deaths from SIDS in Queensland, Western Australia, South Australia and the Northern Territory, 39 (29%) of which were deaths of Aboriginal and Torres Strait Islander infants; in 5% Indigenous status was not stated.
- SIDS represented approximately 11% of all deaths of Aboriginal and Torres Strait Islander infants Australia-wide.

Mortality by age (months)

- For the period 2002–2006, the majority (62%) of all deaths from SIDS among Aboriginal and Torres Strait Islander infants in Queensland, Western Australia, South Australia and the Northern Territory combined occurred in the first 2 months of life.

- The highest mortality rates for SIDS occurred at around the age of 2–3 months for Indigenous and non-Indigenous infants (0.24 and 0.06 per 1,000 live births respectively) (Figure 1.21.1). Indigenous infants of this age died at over four times the rate of non-Indigenous infants.
- Mortality rate ratios between Indigenous and non-Indigenous infants were highest among those aged 4 months, where Indigenous infants died from SIDS at 16 times the rate of non-Indigenous infants.



Source: AIHW analysis of National Mortality Database.

Figure 1.21.1: SIDS mortality rates per 1,000 live births, by age in months and Indigenous status, Qld, WA, SA and NT, 2002–2006

Mortality by state/territory

Table 1.21.1 presents SIDS deaths, mortality rates and ratios for Queensland, Western Australia, South Australia and the Northern Territory for the period 2002–2006.

- In the four jurisdictions where recording of Indigenous deaths is most complete, mortality rates for SIDS ranged from 0.3 per 1,000 live births in South Australia to 1.8 per 1,000 live births in the Northern Territory, but these rates were not significantly different from one another.
- In Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous infants died from SIDS at over five times the rate of non-Indigenous infants.

Table 1.21.1: SIDS mortality rates per 1,000 live births, by Indigenous status, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)(e)(f)]

	Indigenous				Non-Indigenous				
	Deaths	Rate[(g)]	LCL 95%[(h)]	UCL 95%[(i)]	Deaths	Rate[(g)]	LCL 95%[(h)]	UCL 95%[(i)]	Rate ratio[(j)]
Qld	20	1.2	0.6	1.7	62	0.3	0.2	0.3	4.3*
WA	n.p.	0.5	0.01	0.9	n.p.	0.1	0.03	0.1	6.2*
SA	n.p.	0.3	–0.3	0.9	14	0.2	0.1	0.3	1.8
NT	14	1.8	0.9	2.8	n.p.	0.3	–0.04	0.6	6.5*
Qld, WA, SA & NT	**39**	**1.1**	**0.7**	**1.4**	**88**	**0.2**	**0.2**	**0.2**	**5.4***

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

n.p. Not published where numbers are less than 5.

(a) ICD-10 code: R95.

(b) 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. The ABS calculated the completeness of identification of Indigenous deaths for the period 1999–2003 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 SIDS may differ from the estimates for 'all causes'.

(c) Data exclude six registered infant deaths where Indigenous status was not stated over the period 2002–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined.

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

(e) 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 infant deaths and, depending on the under-identification in births, may either underestimate or overestimate the rates.

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

(g) No. per 1,000 live births.

(h) LCL = lower confidence limit.

(i) UCL = upper confidence limit.

(j) Rate ratio Indigenous:non-Indigenous.

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 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 until 1996) to ICD–10 (used from 1997 onwards) which affects the comparability of the data, the analysis reported for this indicator has been done for two time periods—1991–1996 and 1997–2006. Data are presented in 3- to 4-year groupings because of low numbers of deaths from SIDS each year.

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).

SIDS mortality rates, rate ratios and rate differences between Indigenous and other Australian mortality from SIDS over the period 1991–1993 to 1994–1996 and 1997–1999 to 2004–2006 are presented in Table 1.21.2 and Figure 1.21.2.

- Over the period 1991–1993 to 1994–1996, there were non-significant declines in mortality rates for SIDS for Indigenous infants in Western Australia, South Australia and the Northern Territory. Over the same period there were significant declines in mortality rates for SIDS for other infants (a decline of around 0.4 deaths per 1,000 live births) (Table 1.21.2).
- Over the period 1997–1999 to 2004–2006, there were significant declines in mortality rates for SIDS for both Indigenous and other infants in Western Australia, South Australia and the Northern Territory. The fitted trend implies an average yearly decline in the rate of around 0.5 per 1,000 births for Indigenous infants (equivalent to a 111% decline over the period) and 0.1 per 1,000 births for other infants (equivalent to a 105% decline) (Table 1.21.2).
- Over the same period, there was a significant decline in the mortality rate ratio between Indigenous and other infants of around 0.3 per 1,000 live births. There was also a significant decline in the mortality rate difference of around 0.4 per 1,000 live births.

Fluctuations in the level of Indigenous mortality over time partly reflect changing levels of identification of Indigenous deaths and population estimates. Given the variability in the measures of Indigenous mortality, caution should be exercised in assessing trends in Indigenous mortality over time and comparisons between jurisdictions and with the non-Indigenous population.

In addition, analysis of infant mortality data in Western Australia has found a shift away in recent years from a classification of 'SIDS' towards a classification of 'unascertainable', particularly for Aboriginal infants. This has implications for the analysis of trends in SIDS over time (Freemantle et al. 2005).

Table 1.21.2: SIDS mortality rates, rate ratios and rate differences per 1,000 live births, by Indigenous status, WA, SA and NT, 1991–1993 to 1994–1996 and 1997–1999 to 2004–2006

	Deaths		No. per 1,000[(a)]		Rate ratio[(c)]	Rate difference[(d)]
	Indigenous	Other[(b)]	Indigenous	Other[(b)]		
1991–1996						
1991–1993	62	149	6	1.1	5.5	4.9
1994–1996	44	92	4.3	0.7	6.2	3.6
Difference in rates[(e)]	. .	. .	–1.8	–0.4*	. .	. .
1997–2006						
1997–1999	38	70	3.7	0.5	6.8	3.1
2000–2003	25	42	1.6	0.3	6.5	1.4
2004–2006	6	13	0.5	0.1	5	0.4
Annual change[(f)]	. .	. .	–0.5*	–0.1*	–0.3*	–0.4*
% change over period[(9)]	. .	. .	–111.1	–105.1	–33.2	–112.2

* Represents statistically significant differences at the p < 0.05 level over the period 1991–1993 to 1994–1996 and 1997–1999 to 2004–2006.

(a) Rates are per 1,000 live births.

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

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

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

(e) Mortality rate for 1994–1996 minus mortality rate for 1991–1993.

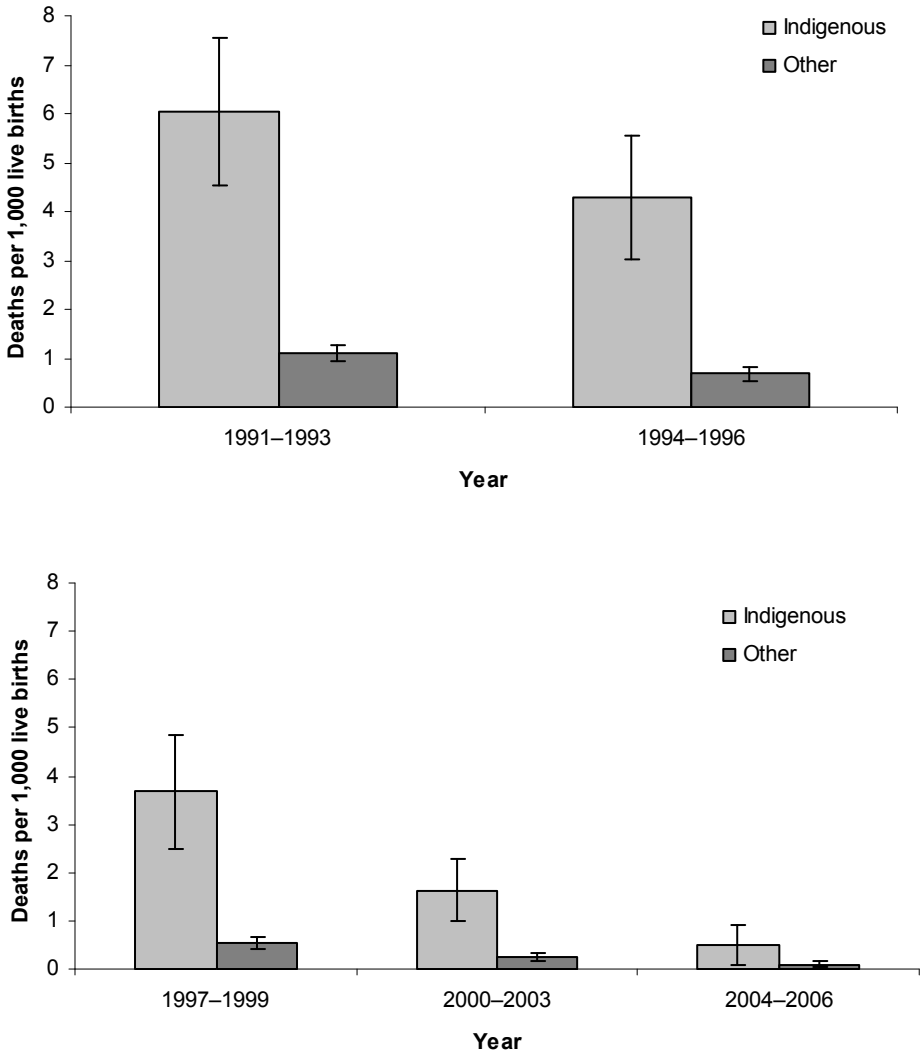
(f) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.

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

Notes

1. Data are presented in 3-year and 4-year groupings because of the small number of Indigenous deaths from SIDS each year.
2. The completeness of identification of Indigenous deaths can vary by age.
3. Deaths and 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 1.21.2: SIDS mortality rates per 1,000 live births, by Indigenous status, WA, SA and NT, 1991–1993 to 1994–1996 and 1997–1999 to 2004–2006

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 1.21.3 and Figure 1.21.3. 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 1998–1999 to 2004–2006, there were significant declines in mortality rates for SIDS for both Indigenous and non-Indigenous infants in Queensland, Western Australia, South Australia and the Northern Territory combined. The fitted trend implies an average yearly decline in the rate of around 0.3 per 1,000 births for Indigenous infants (equivalent to an 86% decline in the rate) and 0.1 per 1,000 births for non-Indigenous infants (equivalent to an 89% reduction in the rate) (Table 1.21.2).
- Over the same period, there was no significant change in the mortality rate ratios but there were significant declines in the mortality rate differences between Indigenous and non-Indigenous infants of around 85%.

Table 1.21.3: SIDS mortality rates, rate ratios and rate differences per 1,000 live births, by Indigenous status, Qld, WA, SA and NT, 1998–1999 to 2004–2006[a]

	1998–1999	2000–2001	2002–2003	2004–2006	Annual change[b]	% change over period[c]
Deaths						
Indigenous	37	24	24	15	. .	. .
Non-Indigenous	96	75	40	48	. .	. .
Rate (number per 1,000)[d]						
Indigenous	2.8	1.7	1.7	0.7	–0.3*	–85.7
Non-Indigenous	0.6	0.4	0.2	0.2	–0.1*	–89.0
Rate ratio[e]	**5.1**	**3.9**	**7.2**	**3.8**	**–0.1**	**–7.8**
Rate difference[f]	**2.3**	**1.2**	**1.4**	**0.5**	**–0.2***	**–84.9**

* Represents statistically significant differences at the $p < 0.05$ level over the period 1998–2006.

(a) Data exclude 13 registered infant deaths for which Indigenous status was not stated over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined.

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

(c) Per cent change between 1998 and 2006 based on the average annual change over the period.

(d) Rates are per 1,000 live births.

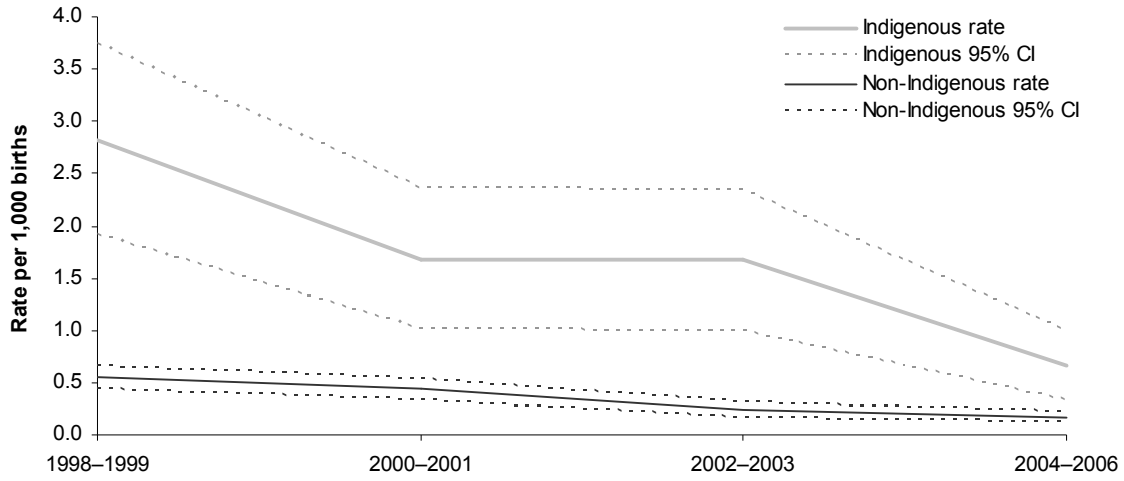
(e) Mortality rate for Indigenous Australians divided by the mortality rate for other Australians.

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

Notes

1. Data are presented in 2-year and 3-year groupings because of the small number of Indigenous deaths from SIDS each year.
2. The completeness of identification of Indigenous deaths can vary by age.

Source: AIHW analysis of National Mortality Database.



Source: AIHW analysis of National Mortality Database.

Figure 1.21.3: SIDS mortality rates per 1,000 live births, by Indigenous status, Qld, WA, SA and NT, 1998–1999 to 2004–2006

International comparisons

International indigenous mortality data are available for New Zealand, the United States and Canada.

There are several common issues that adversely affect the quality of Indigenous mortality data in these three countries and Australia. These include the lack of an accurate denominator value for the Indigenous population (mainly because of undercounting) and the lack of agreement over which population denominator values to use if they do exist (for example, whether to use single ethnic response groups or the multiple ethnic response groups). There are differences in how Indigenous status is defined in the different countries. There have also been frequent modifications to the ethnicity question recorded in the censuses in some of these countries. These frequent changes in the census ethnicity question have led to difficulties in comparing mortality trends over time and have also produced difficulties in estimating population denominator counts between censuses.

The most important issue in relation to the quality of Indigenous mortality data is the undercounting of deaths (the numerator for mortality data). In each of the four countries, the undercounting of Indigenous deaths is likely to lead to an underestimation of the relative size of disparities that exist between Indigenous and non-Indigenous populations.

International statistics on infant mortality show that Indigenous infants in the United States have lower mortality rates for SIDS than other infants, and in New Zealand, Indigenous infants have higher mortality rates for SIDS than other infants, but the gap is not as great as for Aboriginal and Torres Strait Islander infants. The infant mortality rate for SIDS for Aboriginal and Torres Strait Islander infants is around five times that for non-Indigenous infants (1.1 per 1,000 live births compared with 0.2 per 1,000 live births). The latest available data from the United States and New Zealand are outlined below. Data are not provided for Canada, as information on the cause of death of infants is incomplete and not suitable for the calculation of rates. Note that the figures provided for Australia and New Zealand are based

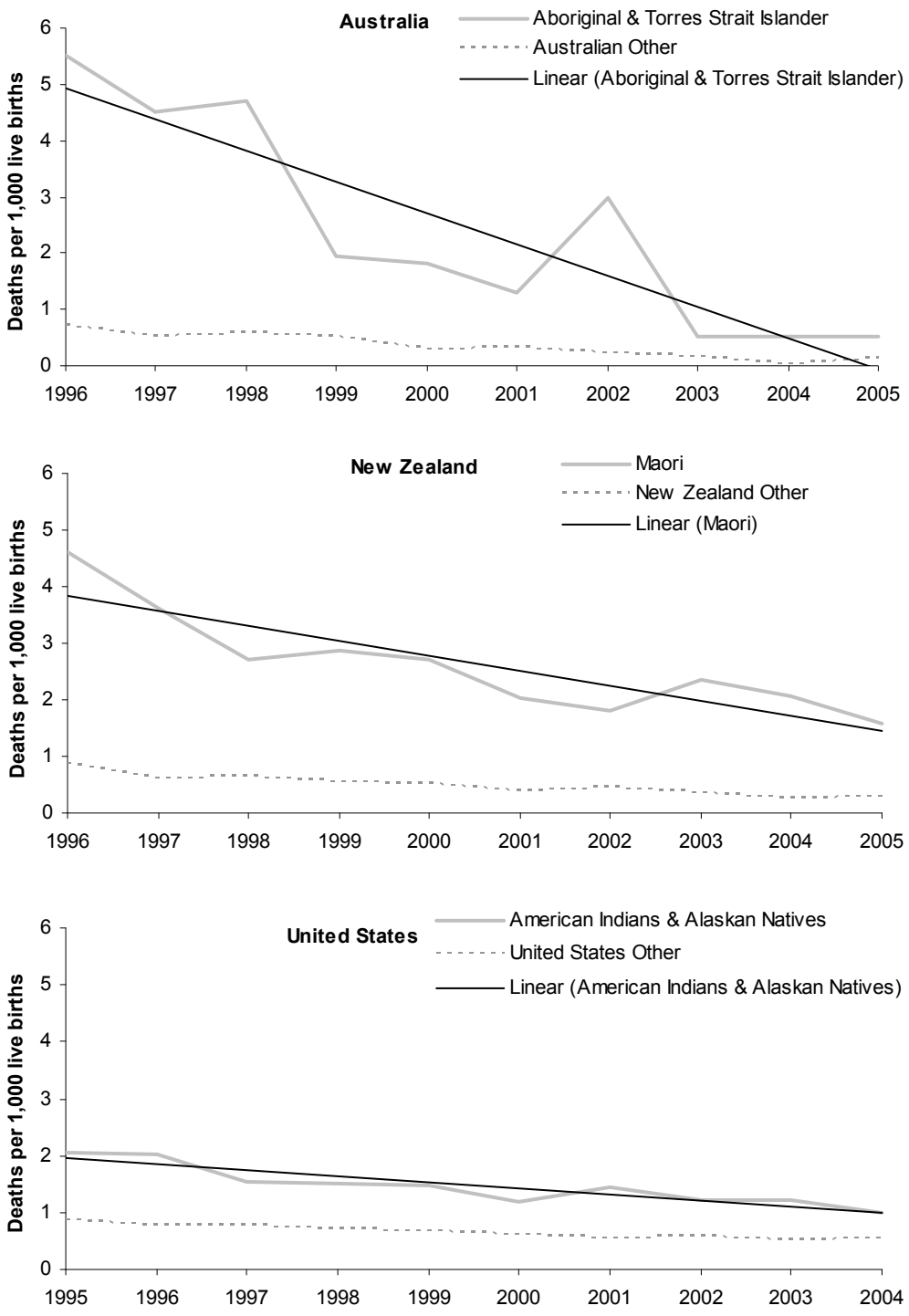
on births according to the race of the parents, whereas those provided for the United States are based on births according to the race of the mother.

- During the period 2002–2004, the death rate from SIDS was 1.2 per 1,000 live births among American Indians and Alaskan Natives compared with 0.5 per 1,000 live births for other people in the United States (United States Department of Health and Human Services unpublished data).
- For the period 2002–2005, the mortality rate for SIDS was 1.9 per 1,000 live births among New Zealand Maoris, compared with 0.3 per 1,000 live births among non-Indigenous people in New Zealand (Statistics New Zealand unpublished data).

Time series

SIDS mortality data are available from 1996 to 2005 for the Maori population in New Zealand, and from 1995 to 2004 for the American Indian and Alaskan Native population in the United States. These data are presented in Figure 1.21.4 along with data for Australia for the period 1996–2005.

- In New Zealand between 1996 and 2005 there were significant declines in mortality from SIDS in the Maori population. The fitted trend implies an average yearly decline in the rate of around 0.3 per 1,000 live births, which is equivalent to a 52% reduction in the rate over this period. There were also significant declines in non-Indigenous SIDS mortality rates between 1996 and 2005 (a reduction of 60%) (Statistics New Zealand unpublished data).
- In the United States between 1995 and 2004 there were significant declines in mortality from SIDS in the American Indian and Alaskan Native population. The fitted trend implies an average yearly decline in the rate of around 0.1 per 1,000 live births which is equivalent to a 46% reduction in the rate over this period. There were also significant declines in SIDS mortality rates for other persons in the United States between 1995 and 2004 (a reduction of 39%) (United States Department of Health and Human Services unpublished data).



Note: Australia data are for Western Australia, South Australia and the Northern Territory combined.

Source: AIHW analysis of National Mortality Database; Statistics New Zealand; United States department of Health and Human Services.

Figure 1.21.4: SIDS mortality rates per 1,000 live births, by Indigenous status, Australia (1996–2005), New Zealand (1996–2005) and the United States (1995–2004)

Data quality issues

Mortality data

Deaths

The mortality rate for Indigenous Australians can be influenced by late registration of deaths, identification of Indigenous 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 2007a).

Note that different causes may have levels of under-identification that differ from the all-cause coverage estimates. Note alsothat 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

The perinatal mortality rate also relies on birth registration data. Unfortunately, as with deaths, some Indigenous births are not correctly identified as Indigenous. The estimated identification of births as Indigenous in 2002–06 was 95%. Identification for the states and territories ranged from 83% for the Australian Capital Territory to 107% for the Northern Territory (ABS 2007b). Given the identification is higher in births than deaths it is likely that Indigenous mortality rates are underestimated.

(continued)

Data quality issues (continued)

The numerator and denominator are not based on the same collection or the same method of collection. Births are registered by the parents whereas death registration forms are completed by doctors and funeral directors. Therefore, there would be inconsistency of Indigenous identification between the numerator and denominator.

SIDS identification

In addition to the data quality problems outlined above common to all Indigenous mortality data, there is an additional problem with SIDS data in Australia and internationally. There have been numerous initiatives to standardise the definitions and practices to distinguish between SIDS and other causes of unexpected infant death. However, problems still exist in the accurate identification of SIDS and there is no consistency of definition used by clinicians, researchers or pathologists in Australia. Research in Australia has shown poor-quality pathological examination of infants who died unexpectedly with 65% of autopsies studied failing minimum quality standards and another study where infant autopsies had been performed by non-pathologists in isolated regions. Without adequate rigour there is the danger of misclassification of infant deaths (Byard 2001). At this stage it is unknown whether there are any variations by state/territory and by Indigenous status in these problems. A study in Western Australia has found an increase in the number of 'unascertainable' deaths with a corresponding decrease in 'SIDS' deaths suggesting a change in the categorisation of deaths over time. A scrutiny of the autopsy reports indicates that in previous years a number of these 'unascertainable' deaths would have been classified as SIDS.

International comparisons

International Indigenous data are available for New Zealand, the United States and Canada. Data quality is an important issue in all countries with small Indigenous populations. The mortality rates are therefore likely to be underestimated to some degree for each of the Indigenous groups. The scope of data collections in Canada and the United States is often limited to the registered or reserve Indigenous populations and therefore does not cover the whole Indigenous population. International comparisons need to take into account that the definition of Indigenous status is specific to each country.

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.

References

ABS (Australian Bureau of Statistics) 1997. Occasional paper: Mortality of Aboriginal and Torres Strait Islander Australians. ABS cat. no. 3315.0. Canberra: ABS.

ABS 2006. Causes of death 2004. ABS cat. no. 3303.0. Canberra: ABS.

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ABS 2007b. Births Australia 2006. ABS cat. no. 3301.0. Canberra: ABS.

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1.22 All causes age-standardised death rates

The number of Aboriginal and Torres Strait Islander Australian deaths, expressed as a rate by age group, age-standardised rate and rate ratio

Data sources

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.

Analyses

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

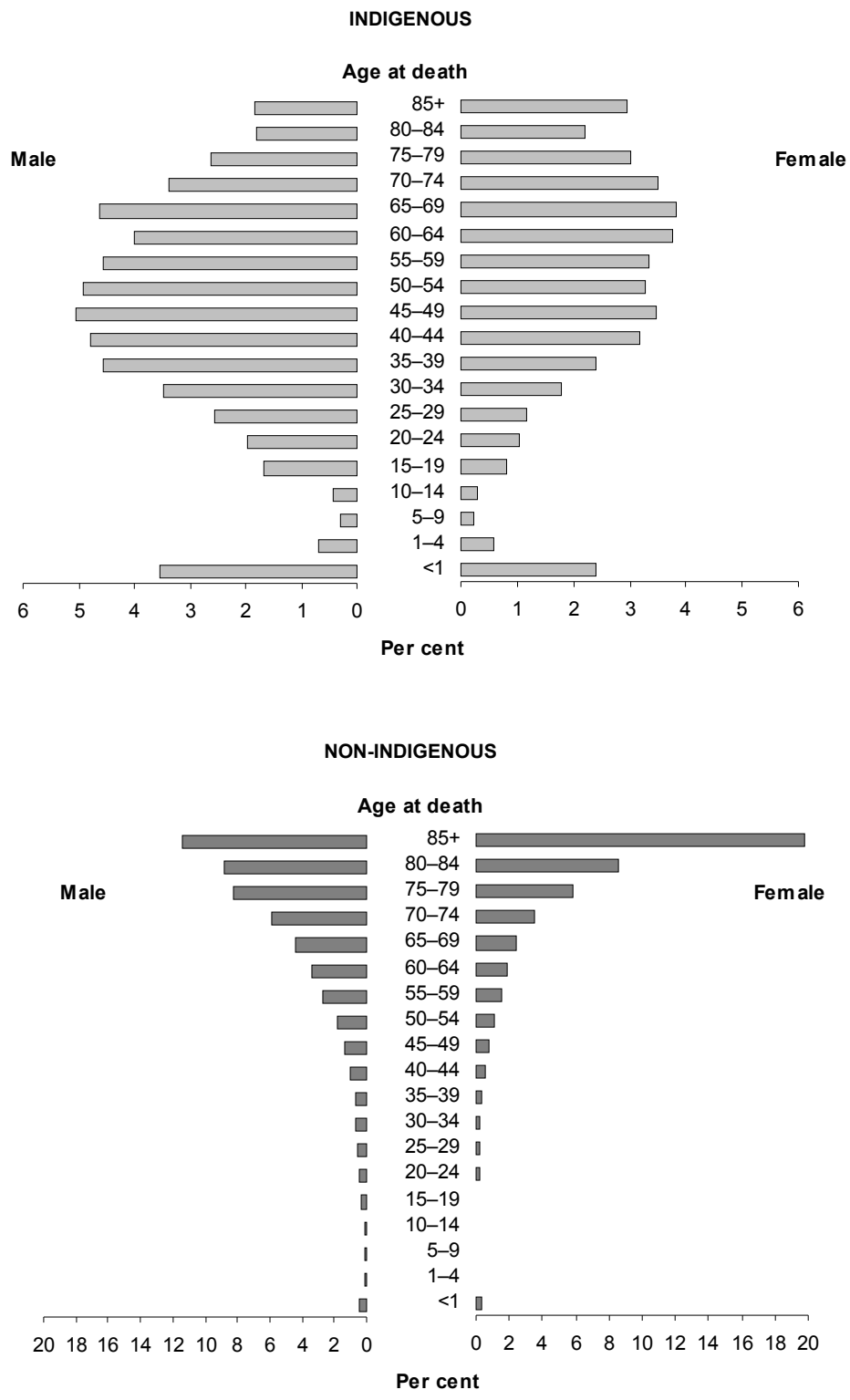
Mortality

- For the period 2002–2006, there were 241,102 deaths in Queensland, Western Australia, South Australia and the Northern Territory, 7,692 (3.2%) of which were deaths of people who identified as Aboriginal or Torres Strait Islander origin and 3,313 (1.4%) of which were deaths for whom Indigenous status was not recorded.

Mortality by age and sex

Figure 1.22.1 presents the age distribution of deaths among Aboriginal and Torres Strait Islander peoples compared with non-Indigenous Australians, and Table 1.22.1 presents age-specific mortality rates for the period 2002–2006 for Queensland, Western Australia, South Australia and the Northern Territory combined.

- The age distribution of deaths among Aboriginal and Torres Strait Islander peoples is very different from that for non-Indigenous Australians. The Indigenous population has a high proportion of deaths occurring in the middle age groups as well as for infants. In comparison, the non-Indigenous population has the large majority of deaths occurring in the older age groups (Figure 1.22.1). Approximately 70% of deaths among Indigenous Australians occur before the age of 65 years compared with 21% of deaths among non-Indigenous Australians.
- For the period 2002–2006, in Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous males and females had higher mortality rates than non-Indigenous males and females across all age groups (Table 1.22.1).
- The greatest difference in rates occurred in the 25–34, 35–44, and 45–54 year age groups where Indigenous males and females died at four, six and five times the rate respectively of non-Indigenous males and females in these age groups (Table 1.22.1).



Source: AIHW analysis of National Mortality Database.

Figure 1.22.1: Age distribution of deaths among Indigenous and non-Indigenous Australians, Qld, WA, SA and NT, 2002–2006

Table 1.22.1: All causes age-specific mortality rates per 100,000, by Indigenous status and sex, Qld, WA, SA and NT, 2002–2006[(a) (b) (c) (d) (e)]

	Males			Females			Persons		
	Indig. rate[(f)]	Non-Indig. rate[(f)]	Rate ratio[(g)]	Indig. rate[(f)]	Non-Indig. rate[(f)]	Rate ratio[(g)]	Indig. rate[(f)]	Non-Indig. rate[(f)]	Rate ratio[(g)]
Less than 1	1,452.8	448.9	3.2*	1,028.9	391.8	2.6*	1,246.3	421.2	3.0*
1–4	70.9	26.9	2.6*	62.2	21.3	2.9*	66.6	24.2	2.8*
0–4 years	*351.9*	110.1	3.2*	*256.5*	94.2	2.7*	*305.2*	102.4	3.0*
5–14	30.2	11.7	2.6*	22.8	9.2	2.5*	26.6	10.5	2.5*
15–24	193.2	72.4	2.7*	100.5	28.4	3.5*	147.2	50.9	2.9*
25–34	419.4	101.4	4.1*	192.1	37.9	5.1*	301.8	69.9	4.3*
35–44	829.2	136.6	6.1*	446.3	73.7	6.1*	627.8	105.1	6.0*
45–54	1,381.2	279.5	4.9*	847.7	170.3	5.0*	1,101.4	224.9	4.9*
55–64	2,358.4	692.6	3.4*	1,711.9	400.7	4.3*	2,013.7	549.2	3.7*
65–74	5,030.8	1,944.2	2.6*	3,627.8	1,105.2	3.3*	4,247.3	1,519.4	2.8*
75 and over	9,144.6	7,500.3	1.2*	8,180.6	6,190.6	1.3*	8,573.2	6,724.8	1.3*
Total[(h)]	**1,532.2**	**724.3**	**2.1***	**1,136.6**	**521.2**	**2.2***	**1,318.0**	**615.7**	**2.1***

* 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 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) These data exclude 3,313 registered deaths where the Indigenous status is not stated.

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

(e) Deaths are by year of registration.

(f) Age-specific rate per 100,000 population.

(g) Rate ratio Indigenous:non-Indigenous.

(h) Total rates have been directly age-standardised using the 2001 Australian standard population.

Source: AIHW analysis of National Mortality Database.

Mortality by state/territory

Table 1.22.2 presents the number of deaths and mortality rates for the 5-year period 2002–2006 for Indigenous and non-Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory.

- In Queensland, Western Australia, South Australia and the Northern Territory combined, Indigenous Australians died at twice the rate of non-Indigenous Australians.
- In Queensland, Western Australia and South Australia, Indigenous Australians died at around twice the rate of non-Indigenous Australians. In the Northern Territory, Indigenous Australians died at 2.5 times the rate of non-Indigenous Australians.

Table 1.22.2: All causes mortality, by Indigenous status, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)]

State/territory	Implied coverage[(e)] (%)	Number of deaths			Indigenous			Non-Indigenous			Ratio[(i)]
		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)]	
Qld	51	2,841	115,542	1,656	1,184.3	1,129.4	1,239.2	620.0	616.4	623.5	1.9*
WA	72	1,958	54,173	630	1,357.8	1,283.7	1,432.0	592.9	587.9	597.9	2.3*
SA	62	641	58,077	988	1,089.4	982.6	1,196.2	627.6	622.5	632.7	1.7*
NT	90	2,252	2,305	39	1,661.1	1,574.1	1,748.0	664.4	632.7	696.0	2.5*
Qld, WA, SA & NT[(j)]	**. .**	**7,692**	**230,097**	**3,313**	**1,318.0**	**1,280.9**	**1,355.1**	**615.7**	**613.2**	**618.2**	**2.1***

* 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) Implied coverage is the estimation of the proportion of Indigenous deaths accurately identified as Indigenous in the mortality data collections—estimated to be 55% nationally. *Note:* Tasmania and Australian Capital Territory implied coverage rates were not calculated because of small numbers.

(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.

(j) These data exclude 3,313 registered deaths where the Indigenous status is not stated.

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.

As there is a consistent time series of population estimates from 1991, data for the period 1991–2006 have been used for the analysis of Indigenous mortality in this measure.

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

Mortality rates, rate ratios and rate differences between Indigenous and other Australians over the period 1991–2006 are presented in Table 1.22.3 and Figure 1.22.2.

- In the period 1991–2006, there were significant declines in recorded mortality rates in Western Australia, South Australia and the Northern Territory combined for Indigenous Australians. The fitted trend implies an average yearly decline in the rate of around 14 per 100,000 (equivalent to a 13% reduction in the rate over this period). The fitted trend showed significant declines in recorded deaths for Indigenous males and females of 11 per 100,000 and 16 per 100,000 respectively (equivalent to a 9% and 15% reduction in the rate over this period) (Table 1.22.3). Most of the observed declines are attributable to significant declines in Indigenous mortality in Western Australia and the Northern Territory.
- There were also significant declines in recorded mortality rates for other males and females between 1991 and 2006. The fitted trend implies an average yearly decline in the rate of around 14 per 100,000 for other Australians (equivalent to a 27% reduction in the rate over this period).
- There were significant increases in the mortality rate ratios between Indigenous and other Australians for males and persons over the period 1991–2006, and a significant increase in the mortality rate difference for males over the same period.

Fluctuations in the level of Indigenous mortality over time partly reflect changing levels of coverage of Indigenous deaths and population estimates. Given the volatility in the measures of Indigenous mortality, caution should be exercised in assessing trends in Indigenous mortality over time and comparisons between jurisdictions and with the non-Indigenous population.

Table 1.22.3: Age-standardised mortality rates, rate ratios and rate differences, WA, SA and NT, 1991–2006

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change[(b)]
Indigenous rate (no. per 100,000)[(c)]																		
Males	1,818.8	1,760.1	1,717.0	1,797.5	1,864.2	1,698.5	1,918.3	1,798.8	1,609.7	1,802.7	1,791.1	1,539.2	1,699.5	1,663.4	1,629.0	1,709.7	–10.5*	–8.7
Females	1,571.3	1,371.3	1,414.3	1,474.3	1,349.0	1,142.3	1,328.8	1,237.7	1,260.3	1,380.4	1,071.3	1,220.3	1,034.4	1,393.9	1,221.7	1,324.4	–16.0*	–15.3
Persons	1,694.8	1,560.0	1,562.3	1,631.4	1,590.6	1,404.2	1,594.1	1,496.1	1,429.5	1,575.4	1,395.5	1,364.7	1,337.2	1,525.0	1,410.5	1,505.0	–14.1*	–12.5
Other rate (no. per 100,000)[(d)]																		
Males	979.2	954.5	975.4	974.8	916.2	932.5	887.0	859.7	825.9	811.0	778.0	771.8	761.3	717.4	718.1	693.6	–20.8*	–31.9
Females	628.7	623.2	641.3	625.0	604.1	616.1	600.2	576.3	556.3	548.1	548.1	553.0	542.1	512.6	507.2	511.3	–9.3*	–22.1
Persons	782.5	769.1	789.0	778.6	743.0	757.0	728.5	704.2	677.8	666.6	652.8	652.8	642.2	607.2	605.3	596.4	–14.0*	–26.8
Rate ratio[(e)]																		
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	2.5	0.04*	31.4
Females	2.5	2.2	2.2	2.4	2.2	1.9	2.2	2.1	2.3	2.5	2.0	2.2	1.9	2.7	2.4	2.6	0.01	6.2
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	2.3	2.5	0.02*	16.9
Rate difference[(f)]																		
Males	839.6	805.6	741.6	822.7	948.0	766.1	1,031.3	939.1	783.8	991.8	1,013.1	767.4	938.2	946.0	910.8	1,016.1	10.3*	18.4
Females	942.5	748.0	772.9	849.3	744.9	526.3	728.6	661.4	704.0	832.3	523.1	667.3	492.3	881.4	714.4	813.0	–6.8	–10.8
Persons	912.2	790.9	773.3	852.8	847.7	647.2	865.6	792.0	751.8	908.8	742.6	712.0	695.0	917.8	805.3	908.6	–0.1	–0.2

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1991–2006.

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

(b) Per cent change between 1991 and 2006 based on the average annual change over the period.

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

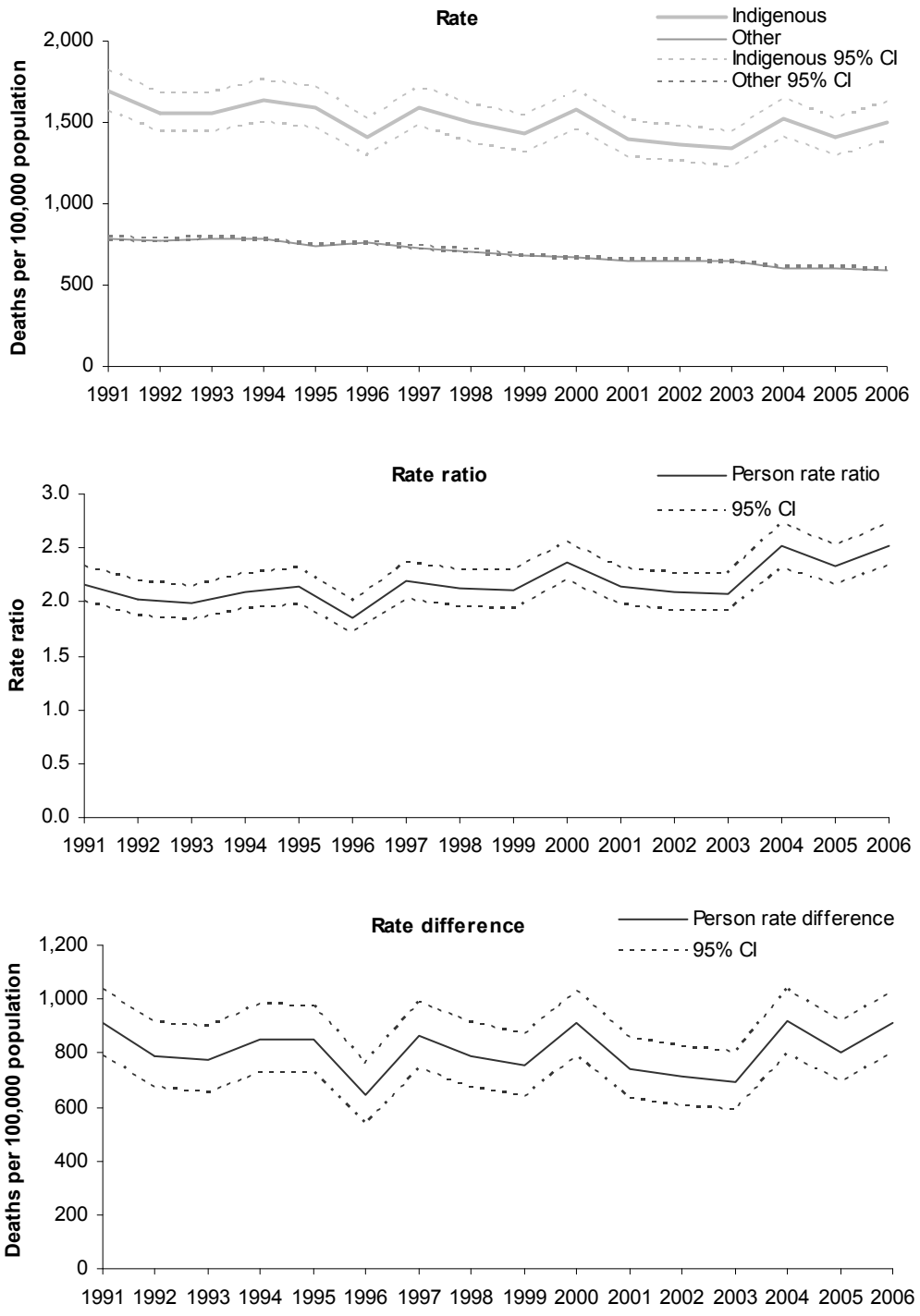
(d) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(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 1.22.2: Mortality rates, rate ratios and rate differences between Indigenous and other Australians, WA, SA and NT, 1991–2006

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 1.22.4 and Figure 1.22.3. 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, there were non-significant declines in recorded mortality rates in Queensland, Western Australia, South Australia and the Northern Territory combined for Indigenous Australians.
- Over the same period, there were significant declines in recorded mortality rates for non-Indigenous males and females in the four jurisdictions. The fitted trend implies an average yearly decline in the rate of around 14 per 100,000 for non-Indigenous persons (equivalent to a 16% reduction in the rate over this period).
- There were significant increases in the mortality rate ratios between Indigenous and non-Indigenous Australians over the period 1998–2006 (17% increase), and no significant changes in the mortality rate differences over the same period.

Table 1.22.4: Age-standardised mortality rates, rate ratios and rate differences, Qld, WA, SA and NT, 1998–2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[a]	% change[b]
Indigenous rate (no. per 100,000)[c]											
Males	1,616.7	1,493.6	1,613.0	1,625.5	1,491.8	1,562.1	1,560.6	1,428.3	1,618.3	–6.0	–2.9
Females	1,154.9	1,145.0	1,236.4	1,001.9	1,150.6	1,040.5	1,235.7	1,086.0	1,178.6	–0.8	–0.5
Persons	1,369.1	1,308.8	1,409.4	1,281.7	1,304.1	1,280.7	1,386.9	1,247.0	1,376.4	–3.4	–2.0
Non-indigenous rate (no. per 100,000)[d]											
Males	868.5	828.8	802.6	771.0	765.7	745.3	727.8	697.4	691.3	-21.3*	–19.6
Females	577.1	568.1	545.7	539.3	552.3	527.1	519.0	504.9	505.5	–9.0*	–12.5
Persons	709.2	687.3	662.5	645.9	650.8	627.8	616.1	594.9	592.6	–14.2*	–16.1
Rate ratio[e]											
Males	1.9	1.8	2.0	2.1	1.9	2.1	2.1	2.0	2.3	0.05*	20.9
Females	2.0	2.0	2.3	1.9	2.1	2.0	2.4	2.2	2.3	0.03	13.8
Persons	1.9	1.9	2.1	2.0	2.0	2.0	2.3	2.1	2.3	0.04*	16.9
Rate difference[f]											
Males	748.2	664.8	810.4	854.5	726.1	816.8	832.8	730.9	927.0	15.3	16.4
Females	577.8	576.9	690.8	462.6	598.3	513.5	716.7	581.1	673.1	8.3	11.5
Persons	659.9	621.6	746.8	635.9	653.3	652.9	770.7	652.0	783.7	10.9	13.2

* 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.

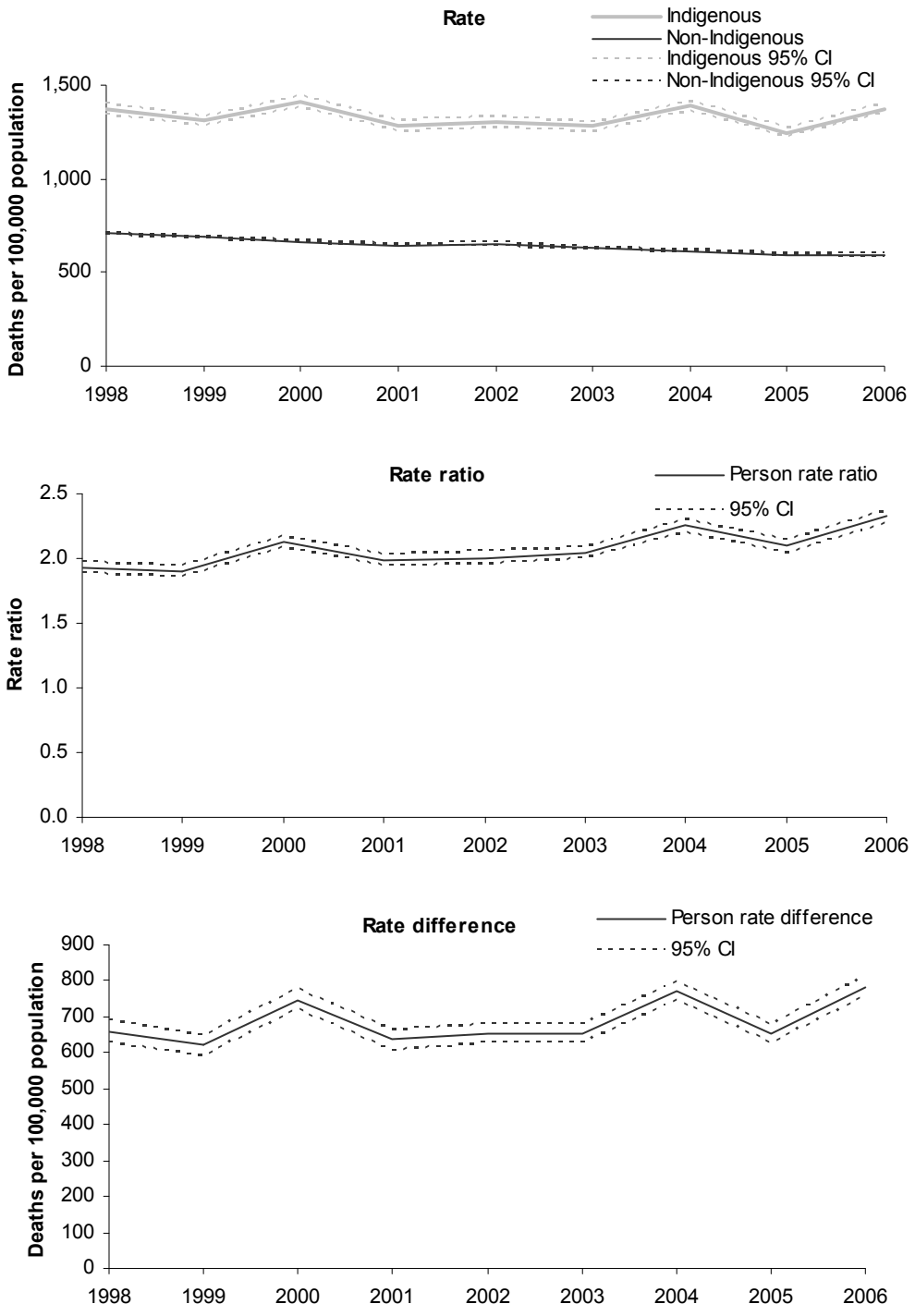
(c) Rates have been directly age-standardised using the 2001 Australian standard population.

(d) Excludes deaths of those 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 1.22.3: Mortality rates, rate ratios and rate differences between Indigenous and non-Indigenous Australians, Qld, WA, SA and NT, 1998–2006

Sensitivity of mortality trends to changes in identification

- The fitted trends described above for the period 1991–2006 in Western Australia, South Australia and the Northern Territory have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for coverage were posted—constant identification, increasing identification and decreasing identification.
  - Under the constant identification scenario, the numbers of deaths for the period under study were adjusted using the following under-identification estimates derived from the most recent ABS analyses (relating to the period 2002–2006):
    - Western Australia 72%
    - South Australia 62%
    - Northern Territory 90%.
  - Under the increasing identification scenario, deaths were adjusted by linearly increasing the identification through the periods under study—from 64% in 1991 to 72% in 2006 for Western Australia, from 52% to 62% for South Australia, and from 80% to 90% for the Northern Territory.
  - Under the decreasing identification scenario, deaths were adjusted by linearly decreasing the identification from 80% in 1991 to 72% in 2006 for Western Australia, from 72% to 62% for South Australia, and from 100% to 90% for the Northern Territory.

The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; of course, if any actual shift in identification was more extreme than has been posted under these scenarios, then the observed trends in 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 observed declines in mortality rates over the period 1991–2006 for Indigenous males and persons overall remained statistically significant under the decreasing identification scenario only. The decline in mortality rates for Indigenous females over this period did not remain statistically significant under any identification scenario.
- The observed declines in mortality rates over the period 1991–2006 for other males and females remained statistically significant under all three identification scenarios.
- The increase in mortality rate ratios for males and persons and the increase in the mortality rate difference for males over the period 1991–2006 remained statistically significant under all three identification scenarios.

International comparisons

International indigenous data are available for New Zealand, the United States and Canada.

There are several common issues that adversely affect the quality of Indigenous mortality data in these three countries and Australia. These include the lack of an accurate denominator value for the Indigenous population and the lack of agreement over which population denominator values to use if they do exist. There are differences in how Indigenous status is defined in the different countries. There have also been frequent modifications to the ethnicity question recorded in the censuses in some of these countries. These frequent changes in the census ethnicity question have led to difficulties in comparing mortality trends over time and have also produced difficulties in estimating population denominator counts between censuses.

The most important issue in relation to the quality of Indigenous mortality data is the undercounting of deaths (the numerator for mortality data). In each of the four countries, the undercounting of Indigenous deaths is likely to lead to an underestimation of the relative size of disparities that exist between Indigenous and non-Indigenous populations.

The mortality rates presented below have been directly age-standardised to the WHO World Standard population 2001–2025 to allow for comparisons to be made between the four countries.

International statistics on all-cause mortality show that Indigenous people in the United States, Canada and New Zealand have higher mortality rates than the general population, but the gap is not as great as for Aboriginal and Torres Strait Islander Australians. The all-cause mortality rate for Aboriginal and Torres Strait Islander Australians is around twice that for non-Indigenous Australians (970 per 100,000 compared with 399 per 100,000 for Queensland, Western Australia, South Australia and the Northern Territory combined when directly age-standardised to the World Standard Population). The latest available data from the United States, New Zealand and Canada are outlined below.

- For the period 2002–2006 in New Zealand, the age-standardised all-cause mortality rate for the Maori population was 761 per 100,000, compared with 410 per 100,000 for the non-Indigenous population (Statistics New Zealand unpublished data).
- For the period 2002–2005 in the United States, the age-standardised all-cause mortality rate for American Indians/Alaskan Natives was 487 per 100,000, which was lower than the age standardised all-cause mortality rate for non-Indigenous persons over this period (552 per 100,000) (United States Department of Health and Human Services unpublished data).
- For the period 2001–2002 in Canada, the age standardised all-cause mortality rate for First Nations was 1,062 per 100,000 for males and 754 per 100,000 for females, which was higher than the age standardised all-cause mortality rate for total Canadian persons over this period (559 per 100,000 for males and 384 per 100,000 for females) (Health Canada unpublished data).

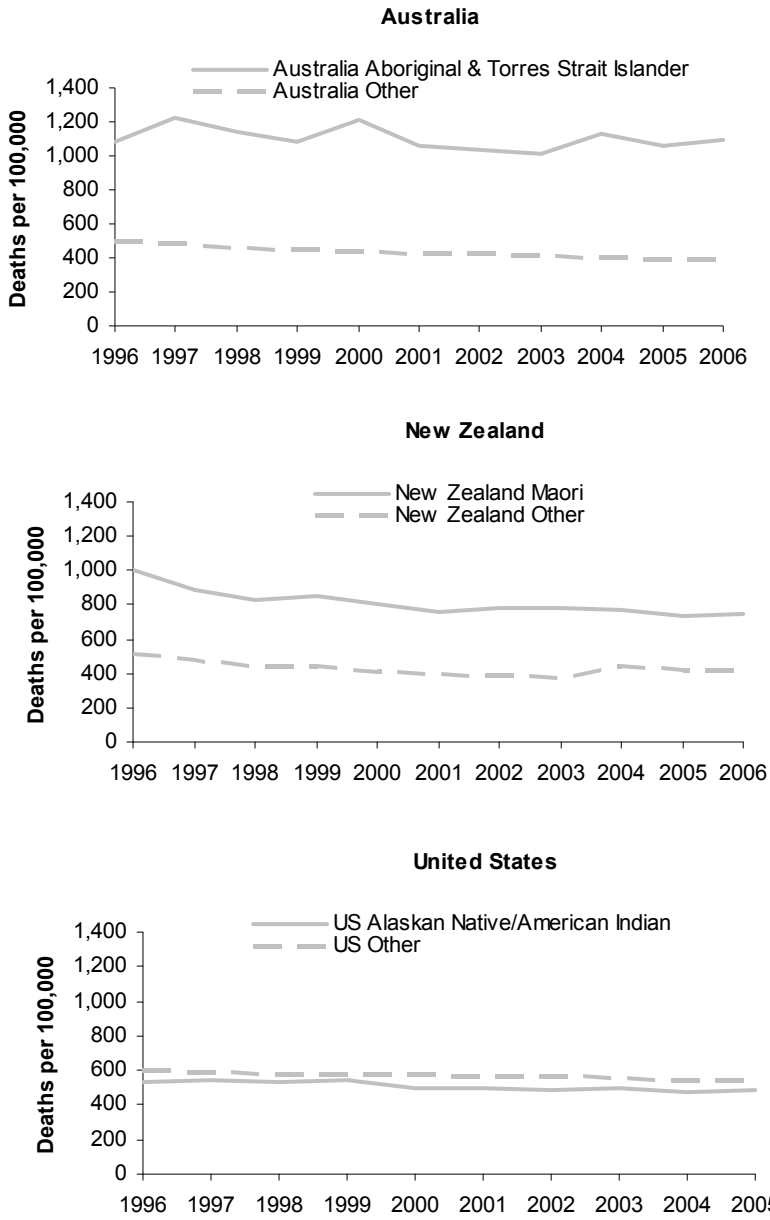
Time series

Mortality data are available from 1996 to 2006 for the Maori population in New Zealand and from 1991 to 2005 for the American Indian/Alaskan Native population in the United States. Reliable time series of mortality data for the First Nations population in Canada is not currently available.

- In New Zealand between 1996 and 2006 there was a significant decline in all-cause mortality rates for the Maori population. The fitted trend implies an average yearly decline in the rate of around 20 per 100,000 which is equivalent to a 20% reduction in the rate over this period. There was also a significant decline in non-Indigenous all-cause mortality rates in New Zealand between 1996 and 2006 (a reduction of 15%).
- In the United States between 1991 and 2005 there was a significant decline in all-cause mortality rates for American Indians/Alaskan Natives. The fitted trend implies an average yearly decline in the rate of around 5 per 100,000 which is equivalent to a 14% reduction in the rate over this period. There was also a significant decline in non-Indigenous all-cause mortality rates in the United States between 1991 and 2005 (a reduction of 13%).

Figure 1.22.4 presents the age-standardised all cause mortality rates for the Indigenous and non-Indigenous populations in Australia, New Zealand and the United States over the period 1996–2006.

- The age-standardised all-cause mortality rate for Aboriginal and Torres Strait Islander peoples was higher than that for Maori and American Indians/Alaskan Natives for all years between 1996 and 2006.



Notes

1. Australia data are for Western Australia, South Australia & the Northern Territory combined.
2. Rates are directly age-standardised to the World Standard Population 2001–2025.

Source: AIHW analysis of National Mortality Database; Statistics New Zealand; United States Department of Health and Human Services.

Figure 1.22.4: Age standardised mortality rates, by Indigenous status, Australia, New Zealand and the United States, 1996–2006

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 to 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).

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 to 2009 *(ABS 2004).*

International comparisons

International indigenous data are available for New Zealand, the United States and Canada. Data quality is an important issue in all countries with small Indigenous populations. The mortality rates are therefore likely to be underestimated to some degree for each of the Indigenous groups. The scope of data collections in Canada and the United States are often limited to the registered or reserve Indigenous populations and therefore do not cover the whole Indigenous population. International comparisons need to take into account that the definition of Indigenous status is specific to each country.

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1.23 Leading causes of mortality

Causes of death of Aboriginal and Torres Strait Islander Australians, expressed as a rate by age group, age-standardised rate and rate ratio

Data sources

Data for this measure come from the 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.

Analyses

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

Mortality

Mortality by cause of death

Tables 1.23.1 and 1.23.2 present data on the major causes of death of Indigenous Australians over the period 2002–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined.

- Over the period 2002–2006, the most common cause of death among Indigenous Australians was circulatory diseases (26%), followed by external causes (injury and

poisoning) (16%). Indigenous Australians died from these causes of death at two and three times the rate of non-Indigenous Australians respectively (Table 1.23.1).

- Cancer was also a major cause of death among both Indigenous and non-Indigenous Australians, responsible for 15% of Indigenous and 30% of non-Indigenous deaths. Lung cancer is the most common type of cancer from which Indigenous Australians died at almost twice the rate of non-Indigenous Australians.
- Over the period 2002–2006, Indigenous Australians died from diabetes at nine times the rate of non-Indigenous Australians and from kidney diseases at four times the rate of non-Indigenous Australians.
- 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 cause-specific deaths in the Indigenous population. This is usually expressed as a proportion of excess death from all causes. Diseases of the circulatory system accounted for the highest proportion of excess deaths among Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory over the period 2002–2006 (26% of deaths). Other major causes of excess deaths were external causes (injury and poisoning), endocrine, nutritional and metabolic diseases and diseases of the respiratory system. Deaths due to these causes were responsible for almost two-thirds (64%) of excess deaths among Indigenous persons (Table 1.23.2).

Table 1.23.1: Causes of mortality, by Indigenous status, Qld, WA, SA and NT, 2002–2006[a][b][c][d][e]

Underlying cause of death	Number			Per cent			Indigenous			Non-Indigenous			Ratio[i]
	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]	
Circulatory diseases (I00–I99)	2,008	82,697	1,223	26.1	35.9	36.9	411.7	390.1	433.2	221.4	219.9	222.9	1.9*
External causes (V01–Y98)	1,224	14,170	421	15.9	6.2	12.7	105.8	98.0	113.6	38.3	37.7	38.9	2.8*
Cancer (C00– D48)	1,184	68,882	603	15.4	29.9	18.2	240.0	224.2	255.8	183.2	181.9	184.6	1.3*
Lung cancer (C34)[j]	*276*	*13,237*	*114*	*3.6*	*5.8*	*3.4*	*57.7*	*50.1*	*65.3*	*35.2*	*34.6*	*35.8*	*1.6**
Cervical cancer (C53)[j][k]	*35*	*404*	*8*	*0.5*	*0.2*	*0.2*	*6.2*	*3.7*	*8.6*	*1.1*	*1.0*	*1.2*	*5.7**
Endocrine, metabolic & nutritional disorders (E00–E89)	694	8,198	96	9.0	3.6	2.9	151.1	138.2	164.0	22.0	21.5	22.4	6.9*
Diabetes (E10–E14)[j]	*609*	*5,702*	*60*	*7.9*	*2.5*	*1.8*	*133.6*	*121.6*	*145.7*	*15.3*	*14.9*	*15.7*	*8.8**
Respiratory diseases (J00–J99)	653	19,880	313	8.5	8.6	9.4	136.4	123.8	149.0	53.4	52.6	54.1	2.6*
Digestive diseases (K00–K93)	450	7,691	120	5.9	3.3	3.6	67.4	59.6	75.1	20.5	20.0	20.9	3.3*
Conditions originating in perinatal period (P00–P96)	213	963	21	2.8	0.4	0.6	7.7	6.7	8.7	2.8	2.6	2.9	2.8*
Nervous system diseases (G00–G99)	193	7,906	130	2.5	3.4	3.9	26.8	21.8	31.8	21.2	20.7	21.7	1.3*

(continued)

Table 1.23.1 (continued): Causes of mortality, by Indigenous status, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)(e)]

Underlying cause of death	Number			Per cent			Indigenous			Non-Indigenous			Ratio[(i)]
	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)]	
Kidney diseases (N00–N29)	179	3,564	48	2.3	1.5	1.4	40.2	33.2	47.1	9.6	9.2	9.9	4.2*
Infectious & parasitic diseases (A00–B99)	168	2,737	38	2.2	1.2	1.1	22.9	18.4	27.3	7.3	7.0	7.6	3.1*
Other causes[(l)]	726	13,409	300	9.4	5.8	9.1	108.1	97.2	119.0	36.1	35.5	36.7	3.0*
All causes	**7,692**	**230,097**	**3,313**	**100.0**	**100.0**	**100.0**	**1318.0**	**1280.9**	**1355.1**	**615.7**	**613.2**	**618.2**	**2.1***

* 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 and 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) Rates exclude 3,313 registered deaths where the Indigenous status is not stated.

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

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

(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 and cervical cancer are a subset of the data presented for all cancers; data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table.

(k) Rates for cervical cancer are for females only.

(l) Includes: diseases of the blood and blood-forming organs and certain disorders involving the immune system, mental & behavioural disorders, diseases of the eye and adnexa, diseases of the ear and mastoid process, diseases of the skin & subcutaneous tissue, diseases of the musculoskeletal system and connective tissue, diseases of the genitourinary system (excluding kidney diseases), pregnancy, childbirth & the puerperium, congenital malformations, deformations and chromosomal abnormalities, symptoms, signs and abnormal clinical findings not elsewhere classified.

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

Source: AIHW analysis of National Mortality Database.

Table 1.23.2: Main causes of excess Indigenous deaths, by sex, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)]

	Males				Females				Total			
Underlying cause of death	**Observed**	**Expected**	**Excess**	**% excess**	**Observed**	**Expected**	**Excess**	**% excess**	**Observed**	**Expected**	**Excess**	**% excess**
	No.	**No.**	**No.**	**%**	**No.**	**No.**	**No.**	**%**	**No.**	**No.**	**No.**	**%**
Circulatory diseases (I00–I99)	1,128	349	779	26.4	880	311	569	25.8	2,008	670	1,338	26.1
External causes (V01–Y98)	845	282	563	19.1	379	103	276	12.5	1,224	393	831	16.2
Endocrine, metabolic & nutritional disorders (E00–E89)	328	41	287	9.7	366	38	328	14.9	694	80	614	12.0
Diabetes (E10–E14)[(d)]	*291*	*26*	*265*	*9.0*	*318*	*23*	*295*	*13.4*	*609*	*50*	*559*	*10.9*
Respiratory diseases (J00–J99)	378	86	292	9.9	275	76	199	9.0	653	164	489	9.5
Cancer (C00–D48)	614	406	208	7.0	570	353	217	9.8	1,184	767	417	8.1
Lung cancer (C34)[(d)]	*162*	*84*	*78*	*2.6*	*114*	*52*	*62*	*2.8*	*276*	*139*	*137*	*2.7*
Cervical cancer (C53)[(d)]	*. .*	*. .*	*. .*	*. .*	*35*	*7*	*28*	*1.3*	*35*	*7*	*28*	*0.6*
Digestive diseases (K00–K93)	260	44	216	7.3	190	36	154	7.0	450	81	369	7.2
Kidney diseases (N00–N29)	80	13	67	2.3	99	14	85	3.9	179	26	153	3.0
Conditions originating in perinatal period (P00–P96)	127	40	87	2.9	86	35	51	2.3	213	75	138	2.7
Infectious & parasitic diseases (A00–B99)	94	20	74	2.5	74	14	60	2.7	168	34	134	2.6
Nervous system diseases (G00–G99)	129	42	87	3.0	64	45	19	0.9	193	86	107	2.1
Other causes[(e)]	386	94	292	9.9	340	95	245	11.1	726	190	536	10.5
All causes	**4,369**	**1,417**	**2,952**	**100.0**	**3,323**	**1,119**	**2,204**	**100.0**	**7,692**	**2,566**	**5,126**	**100.0**

(a) Data are reported for Queensland, Western Australia, South Australia and the Northern Territory only. These 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) Deaths are by year of registration of death and state/territory of usual residence.

(d) Data for lung cancer and cervical cancer are a subset of the data presented for all cancers; data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table.

(e) Includes: diseases of the blood and blood-forming organs and certain disorders involving the immune system; mental & behavioural disorders; diseases of the eye and adnexa; diseases of the ear and mastoid process; diseases of the skin & subcutaneous tissue; diseases of the musculoskeletal system and connective tissue; diseases of the genitourinary system (excluding kidney diseases); pregnancy, childbirth & the puerperium; congenital malformations, deformations and chromosomal abnormalities; symptoms, signs and abnormal clinical findings not elsewhere classified.

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

Source: AIHW analysis of National Mortality Database.

Circulatory diseases

- Over the period 2002–2006, there were 2,008 deaths of Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory combined from circulatory diseases. Indigenous Australians died from circulatory diseases at around twice the rate of non-Indigenous Australians (Table 1.23.3).
- The most common type of circulatory disease causing death among Indigenous Australians was ischaemic heart disease (including heart attack and angina), followed by cerebrovascular disease (including stroke). Indigenous Australians died from these diseases at around twice the rate of non-Indigenous Australians.
- Over the period 2002–2006, Indigenous Australians died from hypertensive disease at four times the rate of non-Indigenous Australians. Indigenous Australians died from rheumatic heart disease (which predominantly affects children) at 9 times the rate of non-Indigenous Australians.

Table 1.23.3: Deaths of Indigenous Australians from circulatory diseases, by sex, Qld, WA, SA and NT, 2002–2006[a][b][c][d][e]

	Males						Females						Persons					
	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]
Ischaemic heart disease (I20–I25)	714	63.3	277.1	252.0	302.2	1.9*	427	48.5	173.5	154.7	192.3	1.8*	1,141	56.8	221.3	206.0	236.6	1.9*
Acute myocardial infarction (I21)[j]	*349*	*30.9*	*136.3*	*118.6*	*153.9*	*1.8**	*192*	*21.8*	*84.4*	*70.9*	*97.9*	*1.6**	*541*	*26.9*	*108.6*	*97.8*	*119.5*	*1.7**
Cerebrovascular disease (I60–I69)	157	13.9	86.3	70.1	102.4	1.7*	173	19.7	83.0	69.0	96.9	1.5*	330	16.4	84.7	74.2	95.3	1.5*
Stroke (I60–I64)[j]	*126*	*11.2*	*65.6*	*51.8*	*79.3*	*1.7**	*146*	*16.6*	*66.5*	*54.2*	*78.8*	*1.5**	*272*	*13.5*	*66.4*	*57.2*	*75.6*	*1.6**
Other heart disease (I26–I52)	160	14.2	68.3	54.6	82.0	2.3*	127	14.4	50.7	40.3	61.1	1.8*	287	14.3	58.6	50.2	66.9	2.0*
Rheumatic heart disease (I00–I09)	30	2.7	6.2	3.2	9.1	6.1*	67	7.6	16.0	11.5	20.5	10.9*	97	4.8	11.5	8.7	14.3	9.0*
Hypertension disease (I10–I15)	36	3.2	17.5	10.9	24.1	3.4*	58	6.6	26.8	19.0	34.6	4.3*	94	4.7	23.1	17.7	28.4	3.9*
Other diseases of the circulatory system (I70–I99)	31	2.7	11.9	7.0	16.7	0.8	28	3.2	12.5	7.2	17.7	1.2	59	2.9	12.4	8.7	16.2	1.0
Total circulatory diseases	**1,128**	**100.0**	**467.2**	**433.2**	**501.2**	**1.9***	**880**	**100.0**	**362.4**	**334.8**	**390.1**	**1.8***	**2,008**	**100.0**	**411.7**	**390.1**	**433.2**	**1.9***

* 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) These data exclude 1,223 deaths where the Indigenous status was not stated.

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

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

(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 presented for acute myocardial infarction are a subset of data presented for ischaemic heart disease; data presented for stroke are a subset of data presented for cerebrovascular disease in this table.

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

Source: AIHW analysis of National Mortality Database.

External causes (injury and poisoning)

- Over the period 2002–2006, there were 1,224 deaths of Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory combined from external causes. Indigenous Australians died from external causes at almost three times the rate of non-Indigenous Australians (Table 1.23.4).
- The most common type of external cause of death among Indigenous Australians was intentional self-harm (suicide), followed by transport accidents and assault. Indigenous Australians died from intentional self-harm and transport accidents at 2 and 3 times the rate of non-Indigenous Australians respectively. Indigenous males and females died from assault at 9 and 10 times the rate of non-Indigenous males and females respectively.

Table 1.23.4: Deaths of Indigenous Australians from external causes of injury and poisoning, by sex, Qld, WA, SA and NT, 2002–2006[a][b][c][d][e]

	Males						Females						Persons					
	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]
Intentional self-harm (X60–X84)	294	34.8	42.4	36.8	48.0	2.4*	65	17.2	7.7	5.7	9.6	1.8*	359	29.3	24.3	21.5	27.1	2.2*
Accidents																		
Transport accidents (V01–V99)	239	28.3	38.4	32.1	44.7	2.7*	116	30.6	18.1	14.2	22.0	4.1*	355	29.0	27.7	24.2	31.3	3.0*
Accidental drowning or accidental threats to breathing (W65–W84)	81	9.6	12.1	9.0	15.3	3.3*	33	8.7	5.0	2.5	7.5	3.5*	114	9.3	8.5	6.5	10.5	3.3*
Accidental poisoning by and exposure to noxious substances (X40–X49)	35	4.1	5.3	3.5	7.2	1.5*	21	5.5	3.7	2.0	5.3	2.2*	56	4.6	4.5	3.2	5.7	1.7*
Exposure to electric current/smoke/fire/ animals/nature (W85–W99, X00–X39)	23	2.7	4.6	1.9	7.3	4.2*	14	3.7	2.1	0.7	3.4	3.9*	37	3.0	3.2	1.9	4.6	3.9*
Accidental falls (W00–W19)	22	2.6	7.1	3.2	11.1	1.7	14	3.7	5.5	2.0	9.0	1.8	36	2.9	6.3	3.7	9.0	1.7*
Exposure to inanimate mechanical forces (W20–W49)	16	1.9	2.0	0.9	3.0	1.5	6	1.6	0.7	0.1	1.4	3.8*	22	1.8	1.4	0.8	2.0	1.8*

(continued)

Table 1.23.4 (continued): Deaths of Indigenous Australians from external causes of injury and poisoning, by sex, Qld, WA, SA and NT, 2002–2006[a][b][c][d][e]

	Males						Females						Persons					
	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]
Other external causes of accidental injury (W50–W64 X50–X59)	46	5.4	18.5	11.2	25.7	3.6*	34	9.0	11.1	6.4	15.7	2.5*	80	6.5	14.3	10.2	18.3	3.0*
Assault (X85–Y09)	66	7.8	10.4	7.6	13.1	9.5*	52	13.7	6.8	4.8	8.8	9.9*	118	9.6	8.5	6.8	10.1	9.5*
Complications of medical or surgical care (Y40–Y84)	3	0.4	2.0	–0.5	4.6	1.8	14	3.7	4.9	2.0	7.7	5.0*	17	1.4	3.6	1.6	5.5	3.4*
Other external causes[j]	20	2.4	5.3	1.9	8.7	3.7*	10	2.6	2.2	0.4	4.1	4.0*	30	2.5	3.6	1.8	5.4	3.6*
Total external causes	**845**	**100.0**	**148.2**	**134.5**	**161.9**	**2.7***	**379**	**100.0**	**67.6**	**58.7**	**76.5**	**3.0***	**1,224**	**100.0**	**105.8**	**98.0**	**113.6**	**2.8***

* 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) These data exclude 421 deaths where the Indigenous status was not stated.

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

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

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

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

Source: AIHW analysis of National Mortality Database.

Neoplasms (cancer)

- Over the period 2002–2006, there were 1,184 deaths of Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory combined from cancer. Indigenous Australians died from cancer at around 1.3 times the rate of non-Indigenous Australians (Table 1.23.5).
- The most common type of cancer causing mortality among Indigenous Australians was cancer of the digestive organs, from which they died at 1.3 times the rate of non-Indigenous Australians.
- The second most common type of cancer causing mortality among Indigenous Australians was cancer of the respiratory and inthrathoracic organs, which comprises predominantly lung cancer. Indigenous Australians died from lung cancer at almost twice the rate of non-Indigenous Australians.
- Over the period 2002–2006, there were 35 deaths of Indigenous females in the four jurisdictions from cervical cancer. Indigenous females died from cervical cancer at almost six times the rate of non-Indigenous Australians.

Table 1.23.5: Deaths of Indigenous Australians from neoplasms (cancer), by sex, Qld, WA, SA and NT, 2002–2006[a][b][c][d][e]

	Males						Females						Persons					
Site of neoplasm	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]
Digestive organs (C15–C26)	189	30.8	84.1	69.7	98.5	1.4*	118	20.7	46.3	36.9	55.7	1.2	307	25.9	63.2	55.0	71.3	1.3*
Respiratory and inthrathoracic organs (C30–C39)	179	29.2	86.7	72.1	101.2	1.6*	120	21.1	42.4	34.1	50.6	1.8*	299	25.3	61.6	53.8	69.4	1.7*
Bronchus & lung (C34)[j]	*162*	*26.4*	*80.1*	*66.0*	*94.1*	*1.6**	*114*	*20.0*	*40.6*	*32.4*	*48.7*	*1.8**	*276*	*23.3*	*57.7*	*50.1*	*65.3*	*1.6**
Ill-defined, secondary & unspecified site (C76–C80)	45	7.3	22.8	14.9	30.7	1.8*	50	8.8	22.7	15.7	29.6	2.3*	95	8.0	22.8	17.5	28.0	2.0*
Lymphoid, haematopoietic and related tissue (C81–C96)	48	7.8	22.2	14.4	30.1	0.9	43	7.5	13.9	9.0	18.9	0.9	91	7.7	17.4	13.1	21.7	0.9
Female genital organs (C51–C58)	. .	. .	. .	. .	. .	. .	86	15.1	30.1	22.8	37.4	2.4*	86	7.3	16.8	12.6	20.9	2.5*
Cervix (C53)[j]	. .	. .	. .	. .	. .	. .	*35*	*6.1*	*11.1*	*6.8*	*15.5*	*5.5**	*35*	*3.0*	*6.2*	*3.7*	*8.6*	*5.7**
Lip, oral cavity and pharynx (C00–C14)	54	8.8	20.3	14.0	26.6	4.2*	25	4.4	7.9	4.5	11.2	5.1*	79	6.7	13.4	10.1	16.8	4.3*
Breast (C50)	. .	. .	. .	. .	. .	. .	73	12.8	24.5	18.1	31.0	1.1	73	6.2	13.6	10.0	17.3	1.1

(continued)

Table 1.23.5 (continued): Deaths of Indigenous Australians from neoplasms (cancer), by sex, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)(e)]

Site of neoplasm	Males						Females						Persons					
	No.	%	No. per 100,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Rate ratio[(i)]	No.	%	No. per 100,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Rate ratio[(i)]	No.	%	No. per 100,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Rate ratio[(i)]
Malignant neoplasms of urinary tract (C64–C68)	19	3.1	11.0	5.2	16.8	0.8	13	2.3	4.1	1.6	6.6	0.7	32	2.7	7.0	4.2	9.8	0.8
Male genital organs (C60–C63)	29	4.7	17.6	10.3	24.9	0.6*	. .	. .	. .	. .	. .	. .	29	2.4	7.5	4.5	10.6	0.5*
Other malignant neoplasms[(k)]	37	6.0	12.4	7.5	17.4	0.5*	30	5.3	8.8	4.9	12.7	0.7	67	5.7	10.5	7.4	13.6	0.6*
Non-malignant neoplasms (D00–D48)	14	2.3	7.8	2.7	13.0	1.6	12	2.1	5.0	1.7	8.3	1.6	26	2.2	6.2	3.3	9.0	1.6
Total neoplasms	**614**	**100.0**	**285.0**	**258.1**	**311.8**	**1.2***	**570**	**100.0**	**205.7**	**186.5**	**224.9**	**1.4***	**1,184**	**100.0**	**240.0**	**224.2**	**255.8**	**1.3***

* 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 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) These data exclude 603 deaths where the Indigenous status was not stated.

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

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

(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 presented for bronchus & lung cancer are a subset of data presented for all respiratory and inthrathoracic organs; data presented for cervix cancer are a subset of data presented for all cancers of the female genital organs in this table.

(k) Includes neoplasms of bone and articular cartilage; melanoma & other neoplasms of skin; neoplasms of mesothelial and soft tissue; neoplasms of eye, brain and other parts of central nervous system; neoplasms of thyroid and other endocrine glands.

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

Source: AIHW analysis of National Mortality Database.

Respiratory diseases

- Over the period 2002–2006, there were 653 deaths of Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory combined from respiratory diseases. Indigenous Australians died from respiratory diseases at almost three times the rate of non-Indigenous Australians (Table 1.23.6).
- The most common type of respiratory disease causing death among Indigenous Australians was chronic lower respiratory diseases (including asthma, bronchitis and emphysema), followed by influenza and pneumonia. Indigenous Australians died at around three times and twice the rate of non-Indigenous Australians for these diseases respectively.

Table 1.23.6: Deaths of Indigenous Australians from respiratory diseases, by sex, Qld, WA, SA and NT, 2002–2006[a][b][c][d][e]

	Males						Females						Persons					
	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]	No.	%	No. per 100,000[f]	LCL 95%[g]	UCL 95%[h]	Rate ratio[i]
Chronic lower respiratory diseases (J40–J47)	209	55.3	111.1	93.3	128.8	3.2*	155	56.4	65.3	53.7	76.8	3.3*	364	55.7	85.0	75.0	95.0	3.2*
Pneumonia and influenza (J10–J18)	110	29.1	40.4	30.3	50.5	2.4*	85	30.9	29.4	21.5	37.2	1.9*	195	29.9	34.4	28.2	40.7	2.1*
Other respiratory disease (J00–06, J20–39, J60–99)	59	15.6	21.2	13.9	28.6	1.5*	35	12.7	13.6	8.4	18.8	1.6*	94	14.4	17.0	12.7	21.3	1.5*
Total respiratory diseases	**378**	**100.0**	**172.7**	**150.9**	**194.4**	**2.6***	**275**	**100.0**	**108.2**	**93.3**	**123.1**	**2.5***	**653**	**100.0**	**136.4**	**123.8**	**149.0**	**2.6***

* 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) These data exclude 313 deaths where the Indigenous status was not stated.

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

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

(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.

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

Source: AIHW analysis of National Mortality Database.

Diseases of the genitourinary system

- Over the period 2002–2006, there were 220 deaths of Indigenous Australians in Queensland, Western Australia, South Australia and the Northern Territory combined from diseases of the genitourinary system. Indigenous Australians died from genitourinary disease at around four times the rate of non-Indigenous Australians (Table 1.23.7).
- The most common type of genitourinary disease causing mortality among Indigenous Australians was renal failure, from which they died at around four times the rate of non-Indigenous Australians.
- Over the period 2002–2006, Indigenous males and females died from renal tubulo-intestinal disorders at around nine and five times the rate of non-Indigenous males and females respectively. Over the same period, Indigenous males and females died from glomerular disease (a disease of the kidneys) at four and eight times the rate of non-Indigenous males and females respectively.

Table 1.23.7: Deaths of Indigenous Australians from diseases of the genitourinary system, by sex, Qld, WA, SA and NT, 2002–2006[(a)(b)(c)(d)(e)]

	Males						Females						Persons					
	No.	%	No. per 100,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Rate ratio[(i)]	No.	%	No. per 100,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Rate ratio[(i)]	No.	%	No. per 100,000[(f)]	LCL 95%[(g)]	UCL 95%[(h)]	Rate ratio[(i)]
Renal failure (N17–N19)	64	66.7	35.2	24.8	45.5	3.7*	77	62.1	32.3	24.1	40.6	4.4*	141	64.1	33.4	27.0	39.9	4.0*
Other diseases of the urinary system (N30–N39)	11	11.5	8.2	2.8	13.5	2.9*	19	15.3	10.0	5.0	14.9	2.5*	30	13.6	9.2	5.6	12.9	2.6*
Renal tubulo-intestinal diseases (N10–N16)	8	8.3	4.1	0.6	7.6	8.7*	9	7.3	3.3	0.7	5.9	4.6*	17	7.7	3.6	1.6	5.7	6.0*
Glomerular disease (N00–N08)	8	8.3	1.9	0.5	3.2	4.3*	8	6.5	2.3	0.6	3.9	7.6*	16	7.3	2.1	1.0	3.2	5.9*
Other diseases of the genitourinary system[(j)]	5	5.2	4.0	0.1	7.8	3.5*	11	8.9	3.6	1.1	6.2	7.9*	16	7.3	3.7	1.5	5.8	5.0*
Total genitourinary diseases	**96**	**100.0**	**53.3**	**40.4**	**66.1**	**3.7***	**124**	**100.0**	**51.5**	**41.1**	**61.9**	**4.0***	**220**	**100.0**	**52.1**	**44.0**	**60.2**	**3.9***

* 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) These data exclude 73 deaths where the Indigenous status was not stated.

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

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

(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) Includes: urolithiasis; other disorders of the kidney & urether; disease of male genital organs; disorders of breast; inflammatory disorders of the female pelvic organs; non-inflammatory disorders of the female genital tract; other disorders of the genitourinary tract.

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

Source: AIHW analysis of 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 is 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 circulatory diseases, external causes (injury and poisoning), respiratory diseases, diabetes, cancer and kidney-related diseases over the period 1991–1996 and 1997–2006 are presented in tables 1.23.8a to 1.23.13a and Figure 1.23.1.

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 tables 1.23.8b to 1.23.13b. 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).

Circulatory diseases

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there were non-significant declines in mortality rates for circulatory diseases among Indigenous Australians and significant declines in mortality rates for circulatory diseases among other Australians (Table 1.23.8a).
- Over the period 1997–2006 there were significant declines in mortality rates for circulatory diseases among Indigenous and other Australians. The fitted trend implies an average yearly decline in the rate of around 21 deaths per 100,000 for Indigenous Australians (equivalent to a 31% reduction in the rate over this period) and 11 deaths per 100,000 for other Australians (equivalent to a 33% reduction on the rate over this period). Over the same period, there was no significant change in mortality rate ratios and a significant decline in the mortality rate difference between Indigenous and other Australians from circulatory diseases (Table 1.23.8a).
- Over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined, there were significant declines in mortality rates for circulatory diseases among Indigenous Australians (20% decline) and non-Indigenous Australians (30% decline). There was a significant increase in the rate ratio between Indigenous and other Australians from circulatory diseases (13%) (Table 1.23.8b).

External causes (injury and poisoning)

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory, there were non-significant declines in mortality rates for injury and poisoning among Indigenous Australians. Over the same period there were no significant changes in

the mortality rates for other Australians. There were also no significant changes in the mortality rate ratio or rate difference between Indigenous and other Australians from injury and poisoning over the period 1991–1996 (Table 1.23.9a).

- Over the period 1997–2006 there was an apparent increase in the mortality rate from injury and poisoning for Indigenous Australians, but this increase did not obtain statistical significance. Over the same period there was a significant decline in the mortality rate for injury and poisoning for other Australians (16% decline over the period). There were significant increases in both the mortality rate ratio and mortality rate difference between Indigenous and other Australians for injury and poisoning over the period 1996–2006 (Table 1.23.9a).
- Over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined, there was no significant change in mortality rates for external causes among Indigenous Australians. Over the same period there was a significant decline in mortality rates among non-Indigenous Australians (21% decline). There was a significant increase in the rate ratio between Indigenous and other Australians for external causes (23%) (Table 1.23.9b).

Cancer

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory, there was an apparent decline in the mortality rate for cancer for Indigenous Australians, however, this decline did not obtain statistical significance. Over the same period there was no significant change in the mortality rate for cancer for other Australians (Table 1.23.10a).
- Over the period 1997–2006, there were non-significant increases in mortality rates for cancer among Indigenous Australians and significant declines in mortality rates for cancer among other Australians (10% decline over the period). There were significant increases in the mortality rate ratios and rate differences between Indigenous and other Australians for cancer over the period 1997–2006 reflecting both a relative and an absolute increase in the gap between mortality rates for Indigenous and other Australians from cancer (Table 1.23.10a).
- Over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined, there were non-significant increases in mortality rates for cancer among Indigenous Australians and significant declines in mortality rates for cancer among non-Indigenous Australians (10% decline). There were significant increases in the mortality rate ratios and rate differences between Indigenous and other Australians for cancer over the period 1998–2006 (Table 1.23.10b).

Respiratory diseases

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there was a significant decline in mortality rates for respiratory diseases among Indigenous Australians (decrease of 18%) and a non-significant decline in mortality rates for respiratory diseases among other Australians. There was no significant change in the rate ratio but there was a significant decline in the rate difference between Indigenous and other Australians for respiratory diseases over the period 1991–1996 (Table 1.23.11a).
- Over the period 1997–2006, there were no significant changes in the mortality rates for respiratory diseases for Indigenous Australians, but there were significant declines in the mortality rates for respiratory diseases for other Australians (decline of 14%). There were no significant changes in either the mortality rate ratio or mortality rate difference

between Indigenous and other Australians for respiratory diseases over this period (Table 1.23.11a).

- Over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined, there were no significant changes in the mortality rates for respiratory diseases for Indigenous Australians or other Australians. There were no significant changes in either the mortality rate ratio or mortality rate difference between Indigenous and other Australians for respiratory diseases over this period (Table 1.23.11b).

Diabetes

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there were non-significant increases in mortality rates for diabetes among Indigenous Australians and significant increases in mortality rates for diabetes among other Australians (increase of 39%) (Table 1.23.12a).
- Over the period 1997–2006, there were no significant changes in the mortality rates for diabetes for Indigenous or other Australians (Table 1.23.12a).
- Over the period 1998–2006 in Queensland, Western Australia, South Australia and the Northern Territory combined, there was no significant change in mortality rates for diabetes among Indigenous Australians and significant increases in mortality rates for diabetes among non-Indigenous Australians (6% increase). There was no significant change in the mortality rate ratios or rate differences between Indigenous and non-Indigenous Australians over this period (Table 1.23.12b).

Kidney diseases

- Over the period 1991–1996 in Western Australia, South Australia and the Northern Territory combined, there were no significant changes in mortality rates for kidney diseases among Indigenous Australians, but significant increases in mortality rates for kidney diseases among other Australians (increase of 30%). There were apparent declines in the mortality rate ratios and rate differences between Indigenous and other Australians from kidney diseases, but these did not obtain statistical significance (Table 1.23.13a).
- Over the period 1997–2006, there were non-significant declines in mortality rates for kidney diseases for Indigenous Australians and no significant change in mortality rates for kidney diseases for other Australians. There were apparent declines in the mortality rate ratios and rate differences between Indigenous and other Australians for kidney diseases, but these did not obtain statistical significance (Table 1.23.13a).
- Over the period 1998–2006, in Queensland, Western Australia, South Australia and the Northern Territory combined, there were no significant changes in mortality rates for kidney diseases for Indigenous or non-Indigenous Australians (Table 1.23.13a).

Note that fluctuations in the level of Indigenous mortality over time partly reflect changing levels of coverage of Indigenous deaths and population estimates. Given the volatility in the measures of Indigenous mortality, caution should be exercised in assessing trends in Indigenous mortality over time and comparisons between jurisdictions and with the non-Indigenous population.

Table 1.23.8a: Age-standardised mortality rates, rate ratios and rate differences, circulatory diseases, WA, SA and NT, 1991–1996 and 1997–2006

	1991	1992	1993	1994	1995	1996	Annual change[(a)]	% change[(b)]	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change[(b)]
Indigenous deaths per 100,000[(c)]	553.6	517.0	479.9	632.4	540.8	421.7	–12.5	–11.2	606.0	539.4	510.4	505.0	415.6	396.3	406.9	481.3	412.4	374.2	–20.8*	–30.9
Other[(d)] deaths per 100,000[(c)]	364.1	349.2	357.6	344.8	324.0	316.4	–9.3*	–12.8	297.6	285.0	267.3	251.6	245.2	236.5	229.9	210.3	208.2	198.3	–10.9*	–32.8
Rate ratio[(e)]	1.5	1.5	1.3	1.8	1.7	1.3	—	1.1	2.0	1.9	1.9	2.0	1.7	1.7	1.8	2.3	2.0	1.9	—	1.2
Rate difference[(f)]	189.5	167.8	122.3	287.7	216.8	105.3	–3.1	–8.2	308.3	254.4	243.1	253.4	170.4	159.7	177.0	271.0	204.2	175.9	–10.0*	–29.1

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and 1997–2006.

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

(b) Per cent change between 1991 and 1996 and 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.

Table 1.23.8b: Age-standardised mortality rates, rate ratios and rate differences, circulatory diseases, Qld, WA, SA and NT, 1998–2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change[(b)]
Indigenous deaths per 100,000[(c)]	511.7	473.4	454.7	407.2	418.9	424.1	446.7	381.3	391.1	–12.6*	–19.8
Non-Indigenous deaths per 100,000[(c)]	291.5	278.5	257.2	249.4	243.7	231.1	221.1	210.5	203.5	–10.8*	–29.6
Rate ratio[(d)]	1.8	1.7	1.8	1.6	1.7	1.8	2.0	1.8	1.9	0.03*	13.0
Rate difference[(e)]	220.2	195.0	197.6	157.9	175.3	193.0	225.6	170.8	187.6	–1.9	–6.8

* 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) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(e) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database.

Table 1.23.9a: Age-standardised mortality rates, rate ratios and rate differences, external causes, WA, SA and NT, 1991–1996 and 1997–2006

	1991	1992	1993	1994	1995	1996	Annual change[(a)]	% change[(b)]	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change[(b)]
Indigenous deaths per 100,000[(c)]	172.0	137.3	126.7	138.3	120.7	139.4	–5.7	–16.7	110.8	139.1	105.3	130.6	127.1	124.4	123.8	114.3	150.4	132.3	1.8	14.5
Other[(d)] deaths per 100,000[(c)]	43.6	42.5	43.8	41.9	41.2	44.4	–0.1	–0.7	41.8	47.7	41.8	43.8	41.1	38.8	39.9	37.9	39.8	37.8	–0.8*	–16.4
Rate ratio[(e)]	3.9	3.2	2.9	3.3	2.9	3.1	–0.1	–16.3	2.6	2.9	2.5	3.0	3.1	3.2	3.1	3.0	3.8	3.5	0.1*	34.3
Rate difference[(f)]	128.4	94.8	82.9	96.4	79.6	95.0	–5.7	–22.2	69.0	91.4	63.4	86.8	86.0	85.6	84.0	76.4	110.5	94.6	2.5*	33.2

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 & 1997–2006.

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

(b) Per cent change between 1991 and 1996 and 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.

Table 1.23.9b: Age-standardised mortality rates, rate ratios and rate differences, external causes, Qld, WA, SA and NT, 1998–2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change[(b)]
Indigenous deaths per 100,000[(c)]	122.7	90.8	106.5	105.8	102.8	108.5	97.1	120.8	100.5	–0.2	–1.6
Non-Indigenous deaths per 100,000[(c)]	46.8	43.0	44.8	41.6	39.7	39.5	38.6	37.9	35.8	–1.2*	–20.9
Rate ratio[(d)]	2.6	2.1	2.4	2.5	2.6	2.7	2.5	3.2	2.8	0.07*	22.6
Rate difference[(e)]	75.9	47.8	61.7	64.2	63.1	69.0	58.5	83.0	64.7	1.0	10.3

* 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) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(e) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database.

Table 1.23.10a: Age-standardised mortality rates, rate ratios and rate differences, cancer, WA, SA and NT, 1991–1996 and 1997–2006

	1991	1992	1993	1994	1995	1996	Annual change[a]	% change[b]	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[a]	% change[b]
Indigenous deaths per 100,000[c]	229.8	245.9	216.0	215.2	242.6	200.6	–4.5	–9.7	245.9	224.4	196.9	263.4	214.9	233.2	247.3	243.4	227.2	279.1	3.2	11.5
Other[d] deaths per 100,000[c]	206.3	200.8	211.2	211.9	203.1	207.0	0.3	0.8	203.2	194.4	195.3	192.4	190.4	191.4	187.7	181.7	180.9	182.7	–2.2*	–9.7
Rate ratio[e]	1.1	1.2	1.0	1.0	1.2	1.0	—	–10.5	1.2	1.2	1.0	1.4	1.1	1.2	1.3	1.3	1.3	1.5	0.03*	23.3
Rate difference[f]	23.5	45.1	4.9	3.3	39.5	–6.4	–4.8	–101.9	42.7	30.0	1.6	71.0	24.5	41.8	59.6	61.7	46.3	96.4	5.3*	112.4

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and1997–2006.

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

(b) Per cent change between 1991 and 1996 and 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.

Table 1.23.10b: Age-standardised mortality rates, rate ratios and rate differences, cancer, Qld, WA, SA and NT, 1998–2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[a]	% change[b]
Indigenous deaths per 100,000[c]	218.3	224.2	259.6	236.6	220.5	242.6	251.7	225.3	259.6	2.6	9.7
Non-Indigenous deaths per 100,000[c]	198.6	195.7	191.7	188.4	190.7	185.2	182.9	179.9	178.2	–2.5*	–10.1
Rate ratio[d]	1.1	1.1	1.4	1.3	1.2	1.3	1.4	1.3	1.5	0.03*	22.3
Rate difference[e]	19.8	28.5	67.9	48.2	29.8	57.4	68.8	45.4	81.4	5.1*	207.7

* 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) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(e) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database.

Table 1.23.11a: Age-standardised mortality rates, rate ratios and rate differences, respiratory diseases, WA, SA and NT, 1991–1996 and 1997–2006

	1991	1992	1993	1994	1995	1996	Annual change[(a)]	% change[(b)]	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change[(b)]
Indigenous deaths per 100,000[(c)]	269.6	231.3	253.1	221.4	216.2	217.5	–9.6*	–17.9	152.9	193.2	143.5	164.2	164.8	162.1	142.7	193.6	137.1	175.0	–0.1	–0.4
Other[(d)] deaths per 100,000[(c)]	60.6	65.5	61.0	59.0	53.8	58.9	–1.3	–10.7	63.3	57.6	54.2	60.1	57.5	63.0	62.3	55.0	50.5	48.4	–1.0*	–14.4
Rate ratio[(e)]	4.5	3.5	4.1	3.8	4.0	3.7	–0.1	–8.8	2.4	3.4	2.6	2.7	2.9	2.6	2.3	3.5	2.7	3.6	0.1	20.4
Rate difference[(f)]	209.1	165.8	192.1	162.4	162.4	158.6	–8.3*	–20.0	89.7	135.6	89.3	104.2	107.3	99.1	80.4	138.6	86.5	126.7	0.9	9.5

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and1997–2006.

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

(b) Per cent change between 1991 and 1996 and 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.

Table 1.23.11b: Age-standardised mortality rates, rate ratios and rate differences, respiratory diseases, Qld, WA, SA and NT, 1998–2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change[(b)]
Indigenous deaths per 100,000[(c)]	148.4	116.5	146.7	150.8	147.2	134.2	148.5	116.4	137.6	–0.9	–5.1
Non-Indigenous deaths per 100,000[(c)]	55.5	52.7	56.5	53.9	58.5	57.6	54.0	49.9	47.7	–0.7	–9.8
Rate ratio[(d)]	2.7	2.2	2.6	2.8	2.5	2.3	2.8	2.3	2.9	0.02	5.2
Rate difference[(e)]	92.9	63.8	90.2	96.9	88.7	76.6	94.5	66.5	89.8	–0.3	–2.3

* 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) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.

(e) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database.

Table 1.23.12a: Age-standardised mortality rates, rate ratios and rate differences, diabetes, WA, SA and NT, 1991–1996 and 1997–2006

	1991	1992	1993	1994	1995	1996	Annual change[(a)]	% change[(b)]	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change[(b)]
Indigenous deaths per 100,000[(c)]	114.6	122.7	142.2	122.4	124.4	134.8	2.5	10.8	132.3	95.4	120.3	154.4	154.8	138.1	108.8	140.4	137.8	140.8	1.9	13.2
Other[(d)] deaths per 100,000[(c)]	13.7	13.9	16.0	17.4	16.9	19.1	1.1*	39.3	17.6	15.0	15.0	15.1	15.4	15.8	15.1	16.3	15.8	17.0	—	2.5
Rate ratio[(e)]	8.4	8.8	8.9	7.0	7.4	7.0	–0.4*	–21.9	7.5	6.3	8.0	10.2	10.0	8.8	7.2	8.6	8.7	8.3	0.1	11.3
Rate difference[(f)]	100.9	108.7	126.2	104.9	107.6	115.7	1.4	6.9	114.8	80.4	105.3	139.3	139.4	122.3	93.6	124.0	122.0	123.8	1.9	14.8

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and1997–2006.

(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(b) Per cent change between 1991 and 1996 and 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.

Table 1.23.12b: Age-standardised mortality rates, rate ratios and rate differences, diabetes, Qld, WA, SA and NT, 1998–2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change[(b)]
Indigenous deaths per 100,000[(c)]	120.6	124.3	158.9	125.7	135.7	107.1	147.4	122.1	156.7	1.6	10.6
Non-Indigenous deaths per 100,000[(c)]	14.9	14.8	15.1	14.5	14.9	14.5	15.5	15.5	16.0	0.1*	6.0
Rate ratio[(d)]	8.1	8.4	10.5	8.7	9.1	7.4	9.5	7.9	9.8	—	3.7
Rate difference[(e)]	105.7	109.5	143.7	111.2	120.8	92.5	132.0	106.7	140.7	1.5	11.3

* 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) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.
(e) Mortality rate for Indigenous Australians minus the mortality rate for non-Indigenous Australians.

Source: AIHW analysis of National Mortality Database.

Table 1.23.13a: Age-standardised mortality rates, rate ratios and rate differences, kidney diseases, WA, SA and NT, 1991–1996 and 1997–2006

	1991	1992	1993	1994	1995	1996	Annual change[(a)]	% change[(b)]	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change[(b)]
Indigenous deaths per 100,000[(c)]	56.1	23.1	48.4	19.8	44.8	50.1	0.2	1.7	53.1	70.9	87.4	83.0	29.1	45.7	64.6	38.9	38.4	79.7	–1.6	–27.6
Other[(d)] deaths per 100,000[(c)]	7.3	6.4	8.4	7.1	8.0	9.6	0.4*	30.0	11.1	10.5	9.8	10.2	10.9	10.7	10.5	10.5	9.9	10.6	—	–2.1
Rate ratio[(e)]	7.7	3.6	5.8	2.8	5.6	5.2	–0.3	–17.7	4.8	6.7	8.9	8.1	2.7	4.3	6.2	3.7	3.9	7.5	–0.2	–29.7
Rate difference[(f)]	48.8	16.7	40.0	12.7	36.8	40.5	–0.2	–2.5	42.0	60.4	77.6	72.8	18.2	35.0	54.1	28.4	28.4	69.1	–1.6	–34.4

* Represents results with statistically significant increases or declines at the p < 0.05 level over the periods 1991–1996 and1997–2006.

(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(b) Per cent change between 1991 and 1996 and 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.

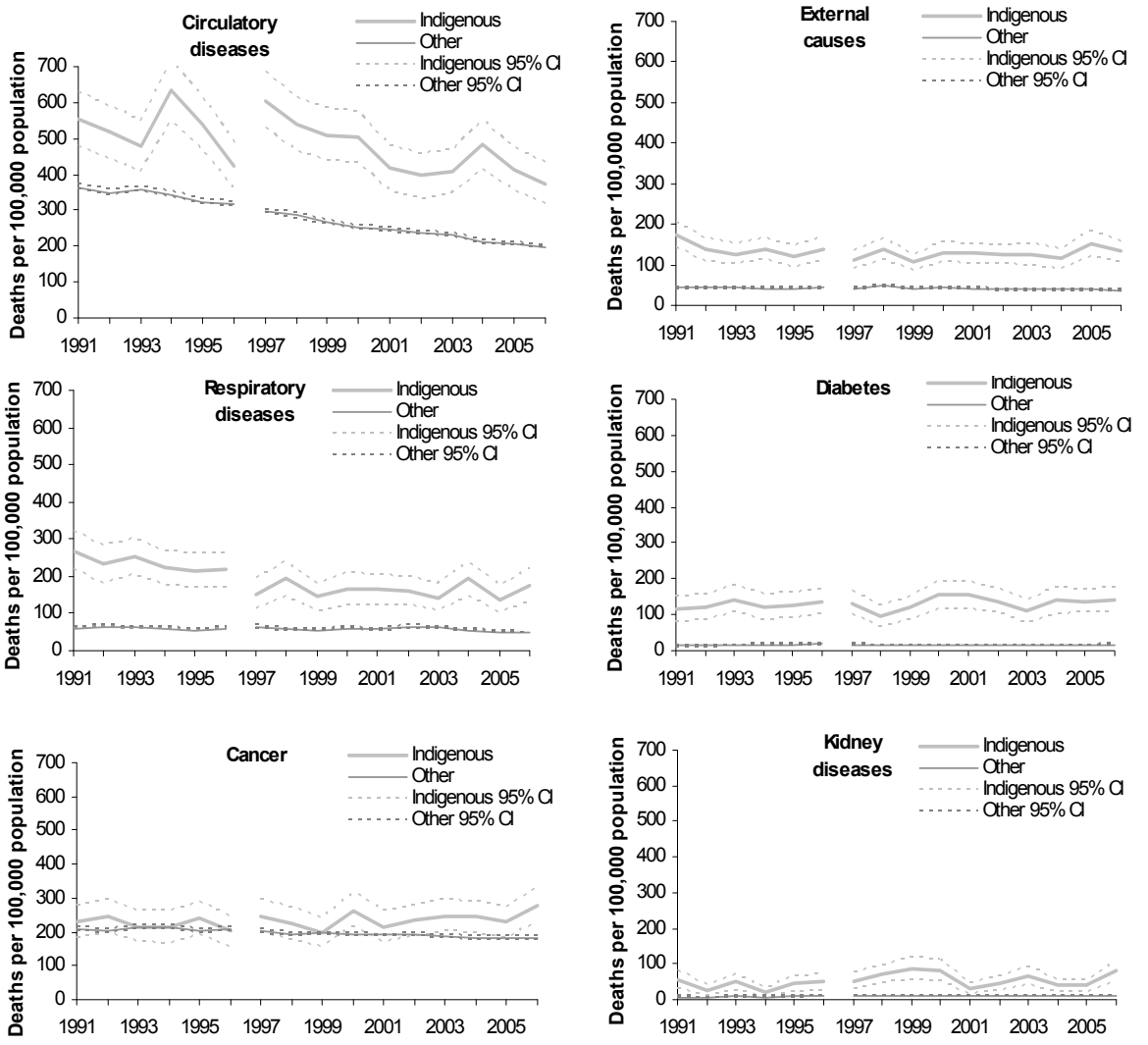
Table 1.23.13b: Age-standardised mortality rates, rate ratios and rate differences, kidney diseases, Qld, WA, SA and NT, 1998–2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual change[(a)]	% change[(b)]
Indigenous deaths per 100,000[(c)]	49.4	58.4	63.7	26.0	30.0	39.8	32.1	29.8	67.6	–1.0	–16.9
Non-Indigenous deaths per 100,000[(c)]	10.1	10.1	9.0	10.4	9.7	9.4	9.4	9.3	9.9	–0.1	–4.5
Rate ratio[(d)]	4.9	5.8	7.1	2.5	3.1	4.2	3.4	3.2	6.8	–0.1	–15.2
Rate difference[(e)]	39.4	48.3	54.7	15.6	20.3	30.4	22.7	20.4	57.7	–1.0	–20.1

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

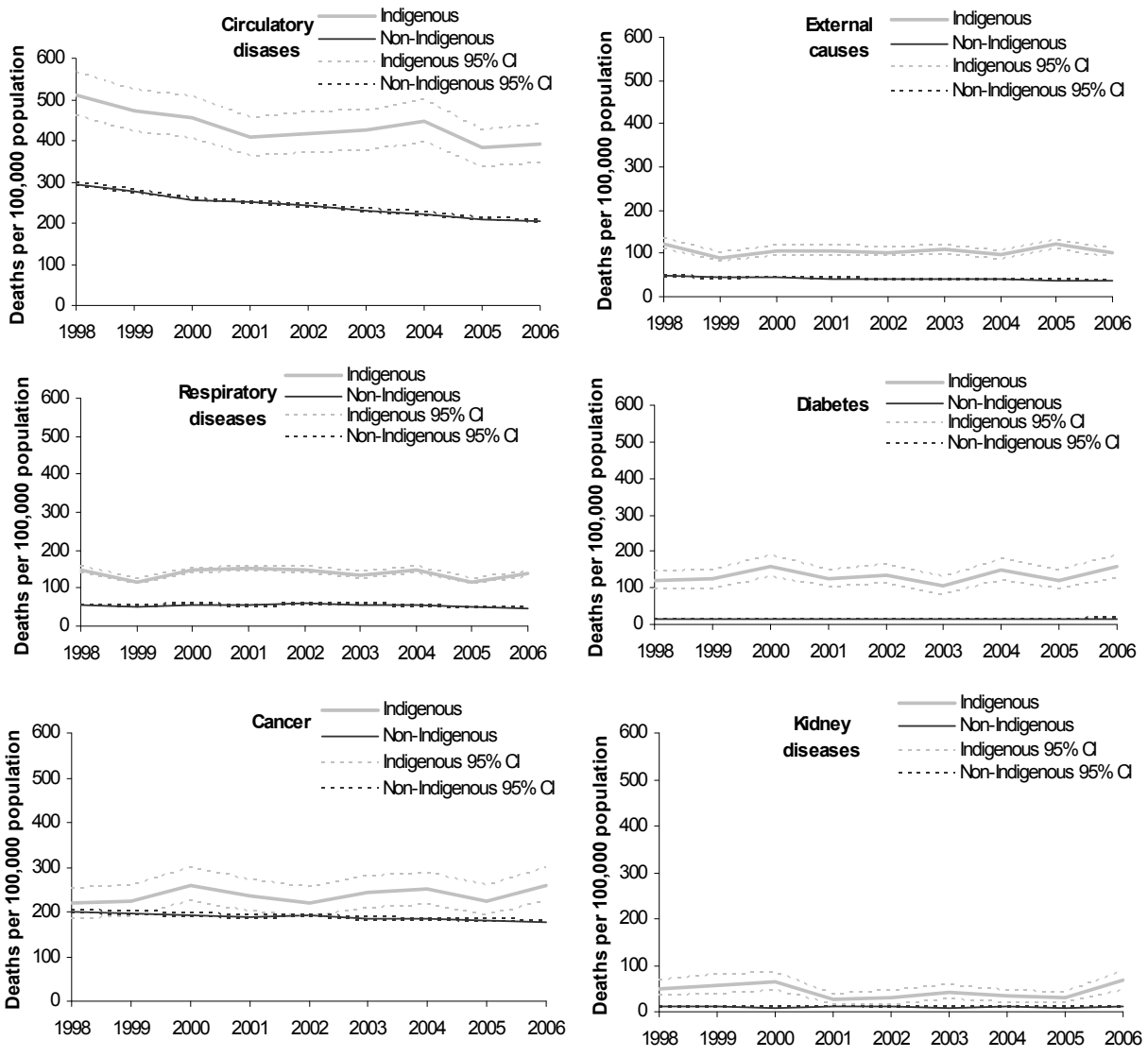
(a) Average annual change in rates, rate ratios and rate differences determined using linear regression analysis.
(b) Per cent change between 1998 and 2006 based on the average annual change over the period.
(c) Rates have been directly age-standardised using the 2001 Australian standard population.
(d) Mortality rate for Indigenous Australians divided by the mortality rate for non-Indigenous Australians.
(e) 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 1.23.1: Mortality rates for Indigenous and other Australians, selected causes of death, WA, SA and NT, 1991–1996 and 1997–2006



Source: AIHW analysis of National Mortality Database.

Figure 1.23.2: Mortality rates for Indigenous and non-Indigenous Australians, selected causes of death, Qld, WA, SA and NT, 1998–2006

Sensitivity of mortality trends to changes in identification

- The fitted trends described above for the period 1991–2006 in Western Australia, South Australia and the Northern Territory for the two leading causes of mortality—circulatory diseases and external causes (injury and poisoning)—have been examined for their sensitivity to changes in Indigenous identification. Three scenarios for coverage were posted—constant identification, increasing identification and decreasing identification.
  - Under the constant identification scenario, the numbers of deaths for the period under study were adjusted using the following under-identification estimates derived from the most recent ABS analyses (relating to the period 2002–2006):
    - Western Australia 72%
    - South Australia 62%
    - Northern Territory 90%.
  - Under the increasing identification scenario, deaths were adjusted by linearly increasing the identification through the periods under study—from 64% in 1991 to 72% in 2006 for Western Australia, from 52% to 62% for South Australia, and from 80% to 90% for the Northern Territory.
  - Under the decreasing identification scenario, deaths were adjusted by linearly decreasing the identification from 80% in 1991 to 72% in 2006 for Western Australia, from 72% to 62% for South Australia, and from 100% to 90% for the Northern Territory.

The adjustments in the latter two scenarios were based on judgments about the largest plausible shifts in identification during the period; if any actual shift in identification was more extreme than has been posted 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 observed declines in mortality rates for circulatory disease among other Australians over the period 1991–1996 remained statistically significant under all three identification scenarios. The observed declines in the mortality rates for circulatory diseases among Indigenous and other Australians over the period 1997–2006 also remained statistically significant under all three identification scenarios. The decline in the mortality rate difference over this later period did not remain statistically significant under any identification scenario.
- The observed decline in the mortality rate for other Australians for injury and poisoning over the period 1997–2006 remained statistically significant under the increasing and decreasing identification scenarios. The increase in the mortality rate ratio over this period remained significant under all three identification scenarios and the increase in the mortality rate difference remained significant under the constant and decreasing identification scenarios.

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%, Northern Territory 90%, Tasmania and the Australian Capital Territory were not calculated due to 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).

(continued)

Data quality issues (continued)

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 to 2009 *(ABS 2004).*

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.

References

ABS (Australian Bureau of Statistics) 1997. Occasional paper: Mortality of Aboriginal and Torres Strait Islander Australians. ABS cat. no. 3315.0. Canberra: ABS.

ABS 2004. Experimental estimates and projections: Aboriginal and Torres Strait Islander Australians 1991 to 2009. ABS cat. no. 3238.0. Canberra: ABS.

ABS 2007. Deaths Australia 2006. ABS cat. no. 3302.0. Canberra: ABS.

ABS 2006. Causes of death 2004. ABS cat. no. 3303.0. Canberra: ABS.

ABS & AIHW (Australian Institute of Health and Welfare) 2005. The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2005. ABS cat. no. 4704.0, AIHW Cat. no. IHW14. Canberra: ABS & AIHW.

1.24 Maternal mortality

Maternal deaths of Aboriginal and Torres Strait Islander women expressed as a rate per 100,000 Indigenous confinements and rate ratio

Data sources

Data for this measure come from the National Maternal Deaths Data collection and the publications *Maternal deaths in Australia 1997–1999* (AIHW: Slaytor et al. 2004), *Maternal deaths in Australia 2000–2002* (AIHW: Sullivan & King 2006) and *Maternal deaths in Australia 2003–2005* (AIHW: Sullivan et al. 2008) published by the AIHW National Perinatal Statistics Unit.

Each state and territory has a review process for maternal deaths. Death data are supplied on a request basis to the AIHW National Perinatal Statistics Unit in paper-based and electronic format using the national maternal death data form.

Information identifying Indigenous status has been available since 1970 but only for cases classified as direct maternal deaths. Information identifying Indigenous status for indirect and incidental deaths has been collected only since 1991. It has therefore been possible to calculate the maternal mortality rate for Aboriginal and Torres Strait Islander women since 1991.

Maternal deaths where Indigenous status was unknown have been included in rates with non-Indigenous deaths before the 1997–1999 triennium. All calculations of maternal mortality by Indigenous status from 1997–1999 onwards exclude deaths where Indigenous status is unknown. In 1997–1999, Indigenous status was reported for 77 (89%) of the 87 maternal deaths.

In line with international conventions, the maternal mortality rate is calculated using direct and indirect deaths, excluding incidental deaths, and uses the total number of confinements of at least 20 weeks gestation or 400 grams birthweight as the denominator.

Each state and territory has a perinatal collection based on birth notification forms completed by midwives and other staff, using information obtained from mothers and from hospital and other records. These data are provided in electronic format annually to the AIHW National Perinatal Statistics Unit, and are used to calculate the denominator for rates.

A maternal death is defined by the World Health Organization as 'The death of a woman while pregnant or within 42 days of the termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes' (WHO 1992). This definition includes deaths of women from pregnancy, terminations of pregnancy, spontaneous abortion, miscarriage and ectopic pregnancy, but it excludes deaths from assisted reproduction technologies where pregnancy has not occurred.

Direct deaths result from obstetric complications of the pregnant state (pregnancy, labour and puerperium), from interventions, omissions or incorrect treatment, or from a chain of events resulting from any of the above. They are complications of the pregnancy itself (for

example, eclampsia, amniotic fluid embolism, rupture of the uterus, postpartum haemorrhage).

Indirect deaths result from pre-existing disease or disease that developed during pregnancy and was not due to direct obstetric causes, but which may have been aggravated by the physiological effects of pregnancy (for example, heart disease, diabetes, renal disease).

Incidental deaths result from conditions occurring during pregnancy, where the pregnancy is unlikely to have contributed significantly to the death, although it is sometimes possible to postulate a distant association (for example, road accidents, malignancies).

Late maternal deaths (defined as the death of a woman from direct or indirect obstetric causes more than 42 days but less than 1 year after termination of pregnancy) have not been included in the analysis as they have not been routinely collected in Australia until recently.

Analyses

Maternal mortality

- For the period 2003–2005, there were six maternal deaths of Aboriginal and Torres Strait Islander women, two direct maternal deaths and four indirect maternal deaths. These deaths accounted for 10.0% of the 60 maternal deaths where Indigenous status was known.
- The maternal mortality rate for Aboriginal and Torres Strait Islander women was 23 per 100,000 confinements in 1991–1993, 17 per 100,000 confinements in 1994–1996, 24 per 100,000 confinements in 1997–99, 46 per 100,000 in 2000–2002 and 22 per 100,000 in 2003–2005 (Table 1.24.1).
- The maternal mortality rates for Indigenous women were between two and five times the maternal mortality rates for non-Indigenous women over the past five 3-year groupings 1991–1993, 1994–1996, 1997–1999, 2000–2002 and 2003–2005.
- The maternal mortality rate for Indigenous women was variable over the past five3-year groupings. Although rates were similar for 1991–1993, 1997–1999 and 2003–2005 (between 22 and 24 per 100,000), the rate in 1994–1996 was lower at around 17 per 100,000 confinements and the rate for 2000–2002 was much higher at around 46 per 100,000 confinements. (Figure 1.24.1).
- These rates must be interpreted with caution because of the incomplete recording of Indigenous status and the small numbers of maternal deaths each year. As a result of incomplete ascertainment of Indigenous status, the Indigenous maternal mortality rates are likely to be underestimations of the true rates.

Table 1.24.1: Indigenous maternal mortality rates, 1991–1993 to 2003–2005

Years	Direct & indirect deaths	Total Indigenous confinements[(a)]	Indigenous maternal mortality rate[(a)]	Non-Indigenous maternal mortality rate[(a)(b)]	Rate ratio[(c)]
1991–1993	5	21,539	23.2	5.9	3.9
1994–1996	4	22,996	17.4	8.3	2.1
1997–1999	6	25,530	23.5	6.7	3.5
2000–2002	12	26,128	45.9	8.7	5.3*
2003–2005	6	27,901	21.5	7.4	2.9

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

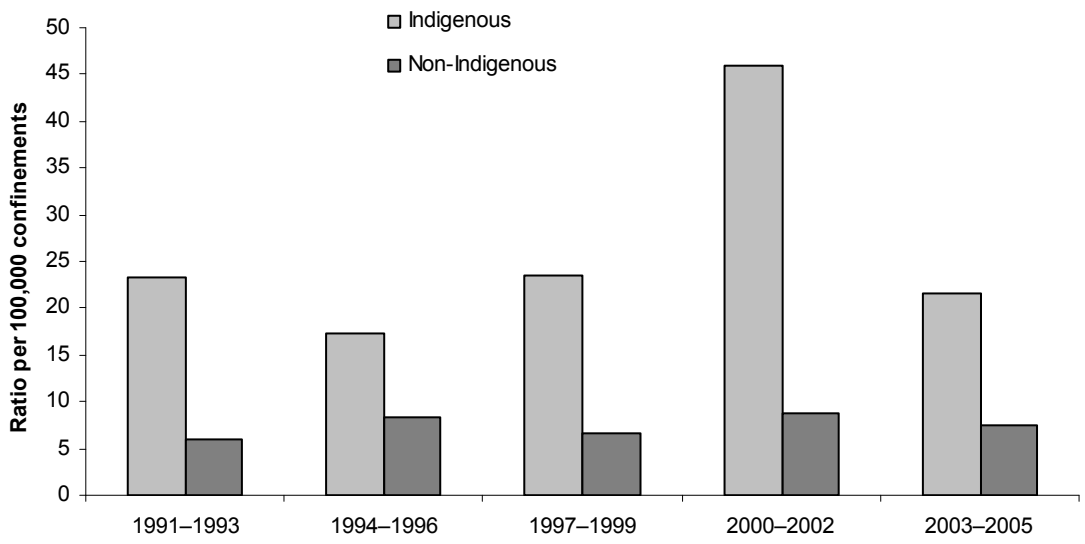
(a) Ratio per 100,000 confinements calculated using direct and indirect deaths only.

(b) For 1991–1993 and 1994–1996, the non-Indigenous maternal mortality rate includes non-Indigenous deaths and deaths where Indigenous status is unknown. For 1997–1999, 2000–2002 and 2003–2005, deaths where Indigenous status is unknown have been excluded.

(c) Maternal mortality rate for Indigenous mothers divided by maternal mortality rate for non-Indigenous mothers.

Note: Excludes incidental deaths.

Source: National Maternal Deaths Data Collection.



Notes

1. Ratio per 100,000 confinements calculated using direct and indirect deaths only.
2. For 1991–1993 and 1994–1996, the non-Indigenous maternal mortality rate includes non-Indigenous deaths and deaths where Indigenous status is unknown. For 1997–1999 and 2000–2002 and 2003–2005, deaths where Indigenous status is unknown have been excluded.

Source: National Maternal Deaths Data Collection.

Figure 1.24.1: Maternal mortality ratios, by Indigenous status, 1991–1993 to 2003–2005

Data quality concerns

Maternal mortality

Maternal deaths

Note that the small number of Indigenous maternal deaths may be statistically variable and caution must be used in comparison and interpretation of these statistics.

Indigenous status question

All states and territories have a specific data item in the National Maternal Mortality Database to record Indigenous status.

Under-identification

Incomplete recording of Indigenous status leads to under-coverage of Indigenous mothers in this data collection. Between 1997 and 1999, Indigenous status was recorded for 75 (83%) of the 90 maternal deaths during childbirth. This represents a decline in recording of Indigenous status from 92% in 1991–1993 (AIHW: Slaytor et al. 2004). It is hoped that Indigenous identification will improve in the future, so that the proportion of maternal deaths where Indigenous status was not recorded will be reduced.

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

References

AIHW: Slaytor EK, Sullivan EA & King JF 2004. Maternal deaths in Australia 1997–1999. Maternal deaths series no. 1. Cat. no. PER 24. Sydney: AIHW (Australian Institute of Health and Welfare) National Perinatal Statistics Unit.

AIHW: Sullivan EA & King JF 2006. Maternal deaths in Australia 2000–2002. Maternal deaths series no. 2. Cat. no. PER 32. Sydney: AIHW National Perinatal Statistics Unit.

AIHW: Sullivan EA, Hall B & King JF 2008. Maternal deaths in Australia 2003–2005. Maternal deaths series no. 3. Cat. no. PER 42. Sydney: AIHW National Perinatal Statistics Unit.

WHO (World Health Organization) 1992. International statistical classification of disease and related health problems. Tenth Revision. Volume II. Geneva: WHO.

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)]

Mortality category	Number			Per cent			No. per 100,000[(e)]		Ratio[(f)]
	Indigenous	Non-Indigenous	Not stated	Indigenous	Non-Indigenous	Not stated	Indigenous	Non-Indigenous	
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.

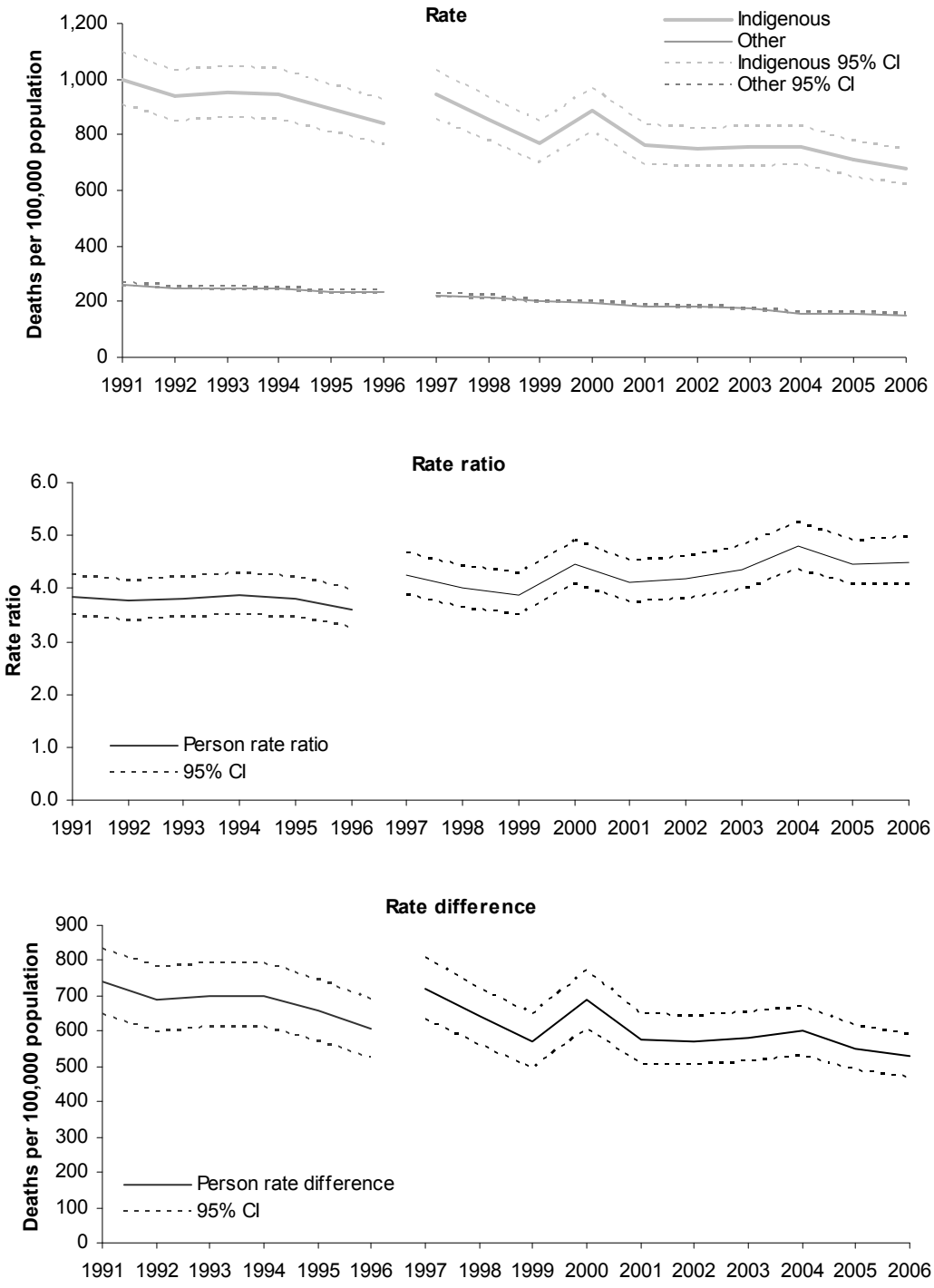
(d) 'Other' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated.

(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%).

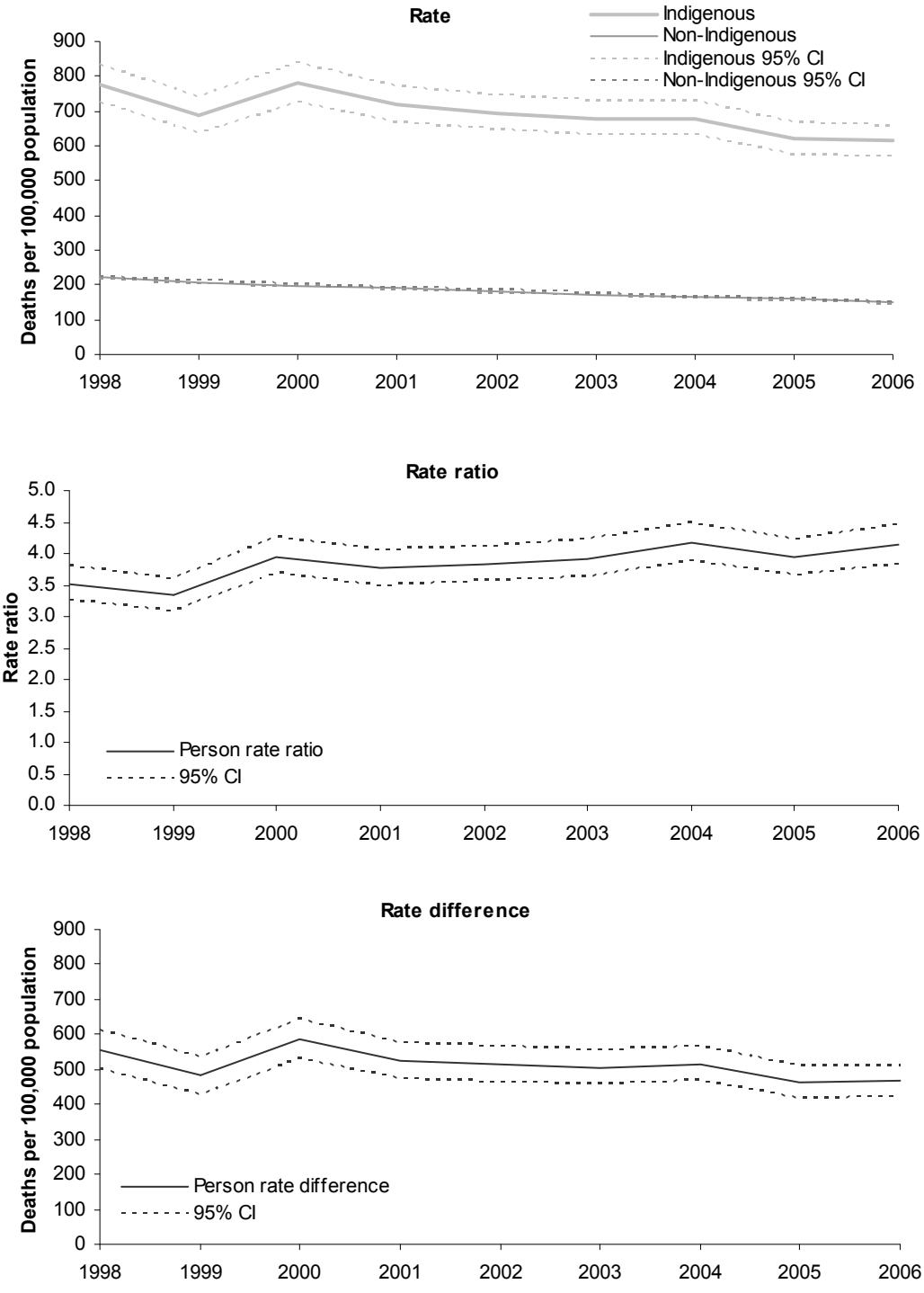
Table 1.25.7: Age-standardised mortality rates, rate ratios and rate differences, avoidable causes, persons aged 0–74 years, Qld, WA, SA & NT, 1998–2006

	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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