

1.20 Sudden infant death syndrome

The number of Aboriginal and Torres Strait Islander infants 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's 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.

While 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 five-year period 2000–2004 due to the small number of deaths from some conditions each year. Data have been analysed using the year of occurrence of death for the period 2000–2003 and year of registration of death for 2004. This is because mortality data by year of occurrence of death are a more accurate reflection of mortality during a particular year than year of registration data, however year of occurrence data for 2004 are still incomplete owing to late registrations.

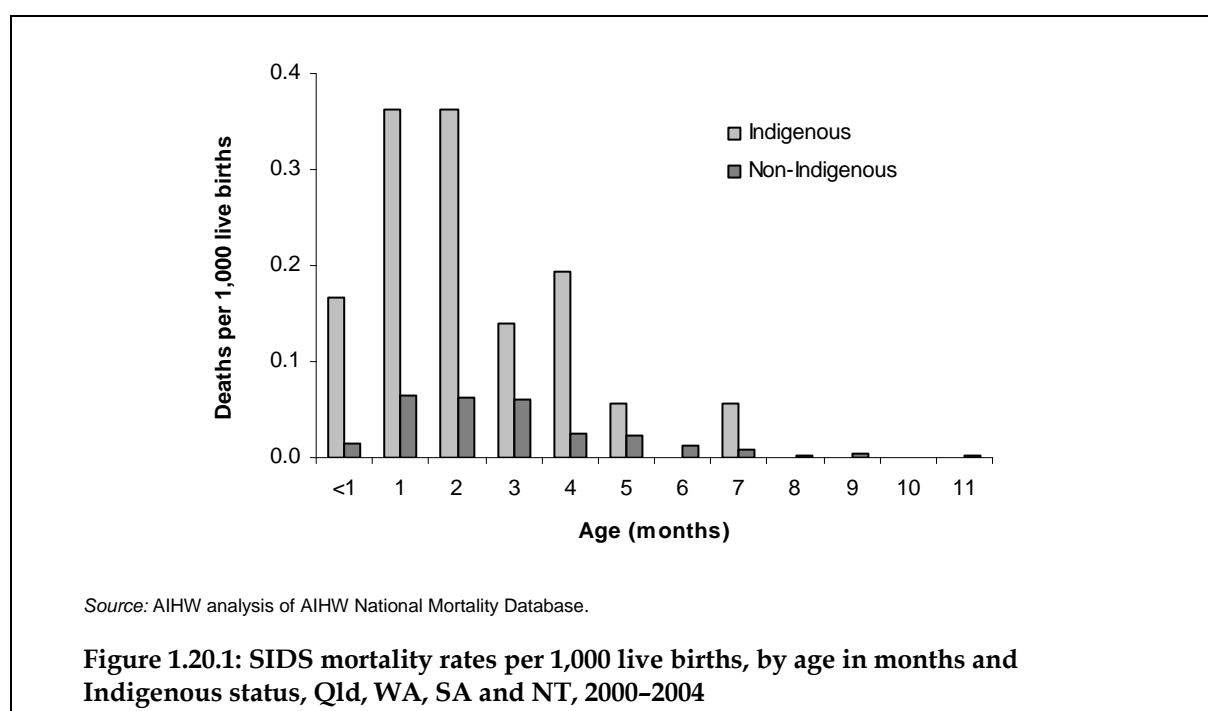
Analyses

Mortality

- For the period 2000–2004, there were 176 deaths from SIDS in Queensland, Western Australia, South Australia and the Northern Territory, 48 (27.3%) of which were deaths of Aboriginal and Torres Strait Islander infants; for 4% of deaths, Indigenous status was not stated.
- SIDS represented approximately 10.9% of all deaths of Aboriginal and Torres Strait Islander infants.

Mortality by age (months)

- For the period 2000–2004, two-thirds (67%) 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 from SIDS occurred at around the age of 1–2 months for Indigenous and non-Indigenous infants (0.36 and 0.06 per 1,000 live births respectively) (Figure 1.20.1). Indigenous infants of this age died at almost six times the rate of non-Indigenous infants.
- Mortality rate ratios between Indigenous and non-Indigenous infants were highest among those aged less than 1 month, where Indigenous infants died from SIDS at 12 times the rate of non-Indigenous infants.



Mortality by state/territory

Table 1.20.1 presents SID deaths, mortality rates and ratios for Queensland, Western Australia, South Australia and the Northern Territory for the period 2000–2004.

- In the four jurisdictions where recording of Indigenous deaths is most complete, mortality rates from SIDS ranged from 0.6 per 1,000 live births in South Australia to 2.0 per 1,000 live births in the Northern Territory, however, 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 almost five times the rate of non-Indigenous infants. In the Northern Territory alone, Indigenous infants died from SIDS at 11 times the rate of non-Indigenous infants.

Table 1.20.1: SIDS mortality rates per 1,000 live births, by Indigenous status, Qld, WA, SA and NT, 2000–2004^{(a)(b)(c)(d)(e)(f)}

	Indigenous				Non-Indigenous				Rate ratio ^(j)
	Deaths	Rate ^(g)	LCL 95% ^(h)	UCL 95% ⁽ⁱ⁾	Deaths	Rate ^(g)	LCL 95% ^(h)	UCL 95% ⁽ⁱ⁾	
Qld	24	1.4	0.9	2.0	85	0.4	0.3	0.5	3.8*
WA	6	0.7	0.1	1.3	18	0.2	0.1	0.2	4.6*
SA	n.p.	0.6	-0.2	1.5	16	0.2	0.1	0.3	3.3*
NT	16	2.0	1.0	3.0	n.p.	0.2	-0.1	0.4	10.8*
Qld, WA, SA & NT	48	1.3	1.0	1.7	121	0.3	0.2	0.3	4.8*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p<.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 54% for Queensland, 72% for Western Australia, 66% for South Australia and 95% for the Northern Territory. The completeness of Indigenous identification for SIDS may differ from the estimates for 'all causes'.

(c) Data are presented in five-year groupings due to small numbers each year.

(d) Data exclude 21 deaths where Indigenous status was not stated in Queensland, Western Australia, South Australia and the Northern Territory.

(e) While 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 occurrence except the latest year which is based on year of registration.

(g) Rate 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 AIHW 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. Due to changes in the classification and coding of causes of death from ICD-9 (used until 1996) to ICD-10 (used from 1997 onwards) which affects the comparability of the data, the analysis reported for this indicator has been done for two time periods – 1991-1996 and 1997-2003. Data for 2004 were not used because of late registration of some deaths. Data are presented in three-four year groupings due to low numbers of deaths from SIDS each year.

Due to 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 deaths for which 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 2000-2003 are presented in Table 1.20.2 and Figure 1.20.2.

- Over the period 1991-1993 to 1994-1996, there were non-significant declines in mortality rates from SIDS for Indigenous infants in Western Australia, South Australia and the Northern Territory. Over the same period there were significant declines in mortality rates from SIDS for other infants (a decline of around 0.3 deaths per 1,000).
- Over the period 1997-1999 to 2000-2003, there were significant declines in mortality rates from SIDS for both Indigenous and other infants in Western Australia, South Australia and the Northern Territory. There was a decline of around 2.2 deaths per 1,000 for Indigenous infants and 0.3 deaths per 1,000 for other infants over this period.

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 comparisons 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 analysis of trends in SIDS over time (Freemantle et al. 2005).

Table 1.20.2: SIDS mortality rates, rate ratios and rate differences per 1,000 live births, WA, SA and NT, 1991–1993 to 1994–1996 and 1997–1999 to 2000–2003

	1991–1993	1994–1996	Difference in rates ^(a)	1997–1999	2000–2003	Difference in rates ^(a)
Indigenous deaths from SIDS	59	47		38	22	
Other deaths from SIDS	141	93		72	39	
Indigenous rate per 1,000 ^(b)	5.8	4.6	-1.2	3.7	1.4	-2.2*
Other ^(c) rate per 1,000 ^(b)	1.0	0.7	-0.3*	0.6	0.2	-0.3*
Rate ratio ^(d)	5.5	6.6		6.6	6.1	
Rate difference ^(e)	4.7	3.9		3.1	1.2	

* Represents statistically significant differences at the $p < .05$ level over the period 1991–1993 to 1994–1996 and 1997–1999 to 2000–2003.

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

(b) Rates are per 1,000 live births.

(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.

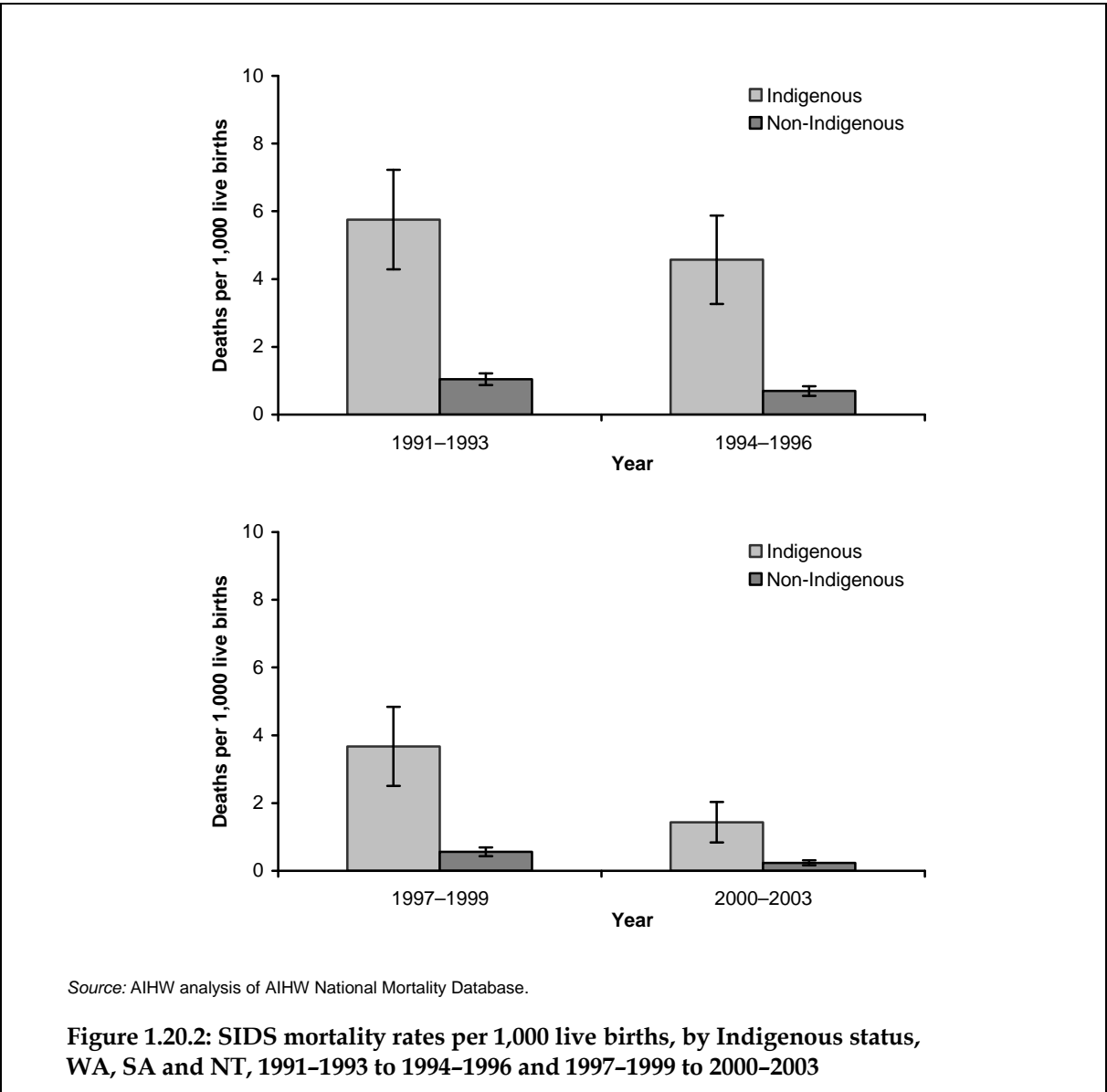
(e) Mortality rate for Indigenous Australians minus the mortality rate for other Australians.

Notes

1. Data are presented in three-year groupings due to 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 AIHW National Mortality Database.



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 due to 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 inter-census population denominator counts.

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 from SIDS than other infants, and in New Zealand, Indigenous infants have higher mortality rates from 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 seven times that for non-Indigenous infants (1.4 per 1,000 live births compared to 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.

- During the period 2000–2003, the death rate from SIDS was 0.6 per 1,000 live births among American Indians and Alaskan Natives compared to 1.2 per 1,000 live births for non-Indigenous people in the United States (United States department of Health and Human Services unpublished data). It should be noted that these figures are based on births according to the race of the mother not the parents as are the data for Australia and New Zealand.
- In 2001, the mortality rate for SIDS was 2.0 per 1,000 live births among New Zealand Maoris, compared to 0.4 per 1,000 live births among non-Indigenous people in New Zealand (Statistics New Zealand, unpublished data).

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. Due to the small size of the Indigenous population these factors can significantly impact on 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). While 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/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.

While 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. Prior to 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 2000–2004 using population estimates: New South Wales – 46%, Victoria – 35%, Queensland – 53%, South Australia – 66%, Western Australia – 72%, the Northern Territory – 94%, Tasmania and the Australian Capital Territory were not calculated due to small numbers, Australia – 57% (ABS 2005).

It should be noted that different causes may have different levels of under-identification that differ from the 'all cause' coverage estimates. It should also be noted 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 to 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 2000–04 was 94%. Identification for the states and territories ranged from 69% for the Australian Capital Territory to 108% for the Northern Territory (ABS 2005b). 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 while 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 this adequate rigour there is 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 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.

Cause of death coding

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

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