

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 presented in this measure are from the ABS and are based on population estimates based on the 2001 Census of Population and Housing. A new set of life expectancy estimates based on the 2006 Census results and Indigenous deaths for the period 2001–2006 is expected to be available in November 2008.

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 Bhat method was used by the ABS to construct a model life table for the Indigenous population which gives an estimation of life expectancy at birth. This method offers improvement over other indirect methods used earlier by the ABS to estimate life expectancy from incomplete data, such as the Preston and Hill (1980) method. Although the Bhat method allows for an adjustment for changes in identification to be taken into account in the estimation of life expectancy, it remains experimental and therefore work needs to be done on such estimates as more robust methods become available.

The ABS has recently produced experimental Indigenous life tables for the 1996–2001 period. To produce reliable age-specific death rates, states with a small number of Indigenous deaths were grouped together with others on the basis of geographic proximity (that is, Victoria with New South Wales, and South Australia with Western Australia). Because of the small number of registered Indigenous deaths, Indigenous life tables were not produced for Tasmania and the Australian Capital Territory. Mortality estimates for New South Wales and Victoria (combined) were used to produce Indigenous population estimates and projections for Tasmania and the Australian Capital Territory.

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 1996–2001, the life expectancy at birth for Indigenous people was estimated to be around 59 years for males and 65 years for females. This was some 17 years lower than life expectancy estimates for the total Australian population for the period 1998–2000 (77 years for males and 82 years for females) (Table 1.17.1 and Figure 1.17.1).
- Life expectancy was lowest for Indigenous males in the Northern Territory (58 years) and for Indigenous females in Queensland (63 years).

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 1996–2001, total population 1998–2000^{(a)(b)}

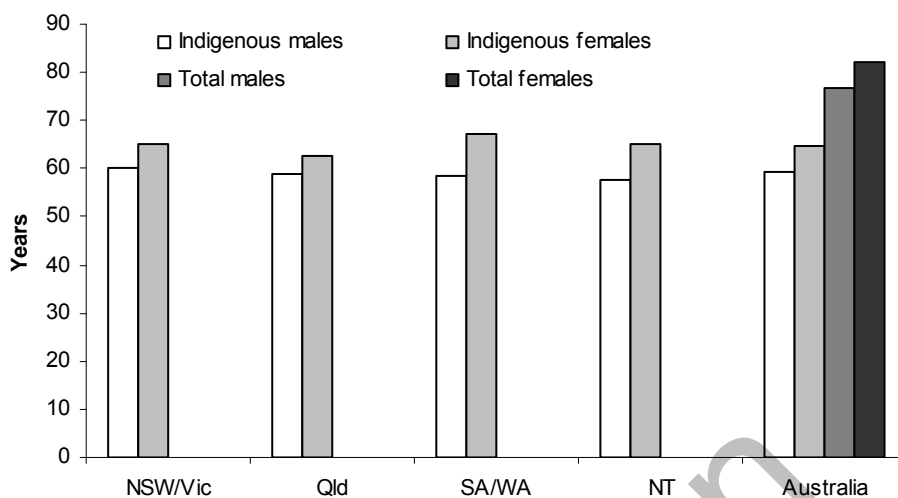
	Males	Females
	Indigenous	
New South Wales/Victoria	60.0	65.1
Queensland	58.9	62.6
South Australia/Western Australia	58.5	67.2
Northern Territory	57.6	65.2
Australia^(c)	59.4	64.8
	Total population	
New South Wales	76.4	82.0
Victoria	77.1	82.3
Queensland	76.4	81.9
Western Australia	76.9	82.6
South Australia	76.6	82.3
Tasmania	75.7	81.2
Australian Capital Territory	78.3	82.3
Northern territory	70.3	75.2
Australia	76.6	82.0

(a) For Tasmania and Australian Capital Territory estimates for the Indigenous population, use New South Wales/Victoria estimates.

(b) Variations in life expectancies by Indigenous status, sex and jurisdiction should be interpreted with care as they are sensitive to differential data quality.

(c) Includes all states and territories.

Sources: ABS 2000a, 2000b, 2000c, 2000d, 2000e, 2000f, 2000g, 2000h; SCATSIH & SIMC 2006.



Source: ABS 2000a; SCATSIH & SIMC 2006.

Figure 1.17.1: Life expectancy at birth, Indigenous 1996–2001 and total population 1998–2000, by sex and state/territory

later edition available

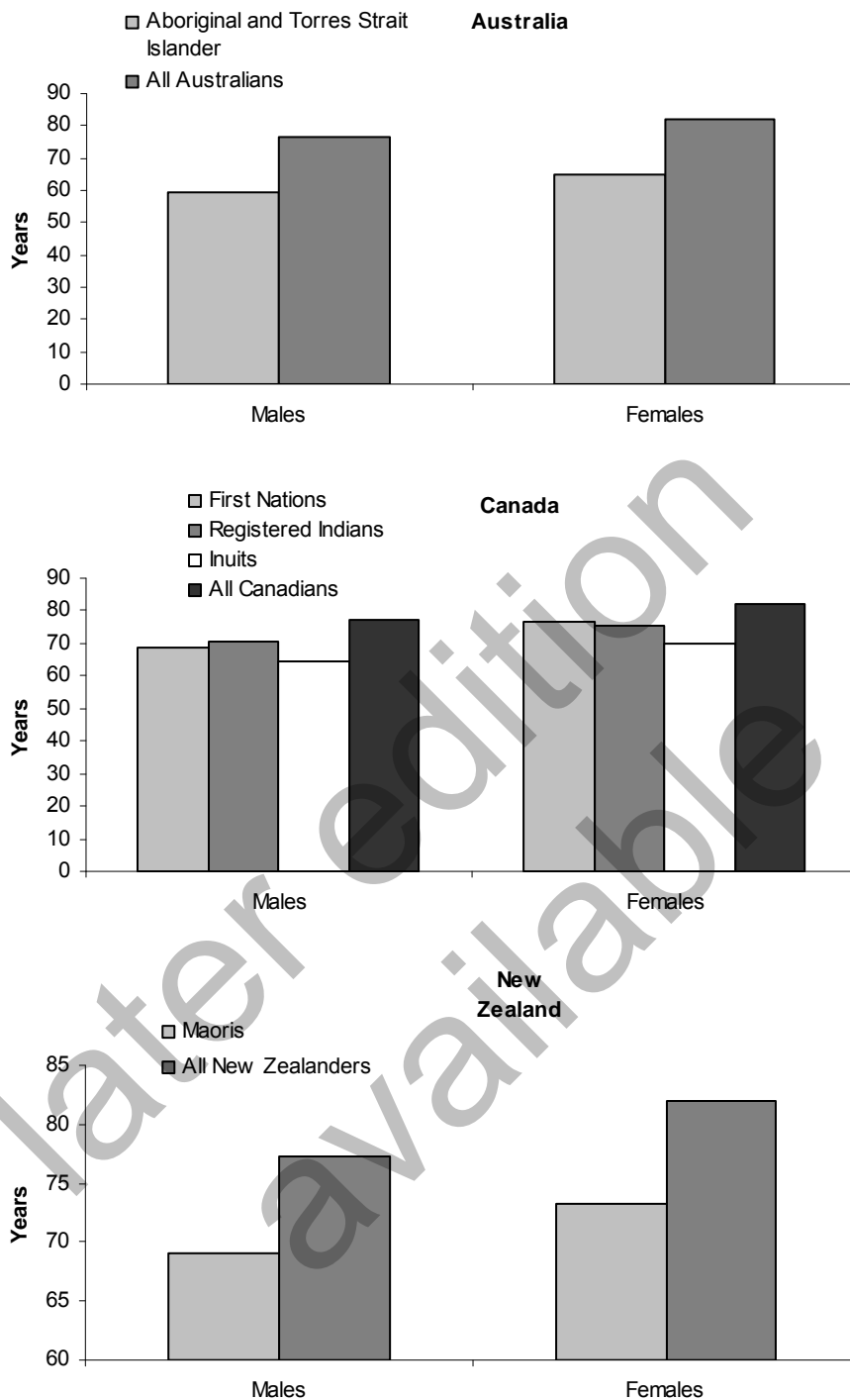
International comparisons

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 are for 1996–2001 and for the total Australian population they are for 1998–2000.
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: SCATSIH & SIMC 2006; 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.

The Bhat method differs from other indirect methods used earlier by the ABS to estimate life expectancy from incomplete data such as the Preston Hill method. Although the Bhat method allows for an adjustment for changes in identification to be taken into account in the estimation of life expectancy, it remains experimental and therefore more work needs to be done on such estimates as more robust methods become available.

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

Life expectancy calculations rely on good numerator and denominator estimates. 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 in the numerator and denominator. The changes in the completeness of identification of Indigenous people in birth and death records may take place at different rates from changes in the identification of Indigenous people in other administrative collections and population estimates (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).

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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