

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 Australian Institute of Health and Welfare (AIHW) National Mortality Database.

National Mortality Database

The National Mortality Database is a national collection of de-identified unit record level data. It comprises most of the information recorded on death registration forms and medical (cause of death) certificates, including Indigenous status. The AIHW maintains this database. The Registrars of Births, Deaths and Marriages provide information on the characteristics and causes of death of the deceased and the ABS codes this nationally. The medical practitioner certifying the death, or a coroner, supplies the required information on the cause of death. The data are updated each calendar year and are presented by state/territory of usual residence rather than state/territory where death occurs.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander people are registered. However, a proportion of these deceased are not reported as Aboriginal or Torres Strait Islander by the family, health worker or funeral director during the death registration process. That is, while data is provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The funeral director does not always directly ask the Indigenous status question of relatives and friends of the deceased. Detailed breakdowns of Aboriginal and Torres Strait Islander deaths are therefore only provided for five jurisdictions – New South Wales, Queensland, South Australia, Western Australia and the Northern Territory. (AIHW 2010)

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 2003–2008 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

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 2004–2008, in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, the median age at death was 52 years for Indigenous males and 59 years for Indigenous females, compared with 77 years for non-Indigenous males and 83 years for non-Indigenous females in these jurisdictions.
- Over the period 2004–2008, in the five jurisdictions, the median age at death for Indigenous males ranged from 46 years in the Northern Territory to 57 years in New South Wales. For Indigenous females, the median age at death ranged from 54 years in the Northern Territory to 63 years in New South Wales (Table 1.18.1).

Table 1.18.1: Median age at death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2004–2008^{(a)(b)(c)(d)(e)}

	NSW	Qld	WA	SA	NT	NSW, Qld, WA, SA & NT
Indigenous males						
2004	55	53	50	49	43	51
2005	54	51	52	42	45	50
2006	59	55	47	50	45	52
2007	58	54	53	50	45	53
2008	59	53	51	48	52	53
2004–2008	57	53	51	48	46	52
Non-Indigenous males						
2004	77	76	76	77	62	76
2005	77	76	76	77	63	76
2006	77	76	76	78	64	77
2007	78	77	76	78	64	77
2008	78	77	77	79	66	78
2004–2008	77	76	76	78	64	77
Indigenous females						
2004	62	57	63	53	53	60
2005	65	59	57	47	50	57
2006	64	56	56	59	55	58
2007	62	59	59	58	55	59
2008	63	62	63	53	55	60
2004–2008	63	59	60	55	54	59
Non-Indigenous females						
2004	82	82	82	83	71	82
2005	83	82	83	83	70	83
2006	83	83	83	84	74	83
2007	83	83	83	84	69	83
2008	84	83	84	84	75	84
2004–2008	83	83	83	84	71	83

- (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 New South Wales, 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.
- (d) Data are by year of reference and state/territory of usual residence.
- (e) Data exclude registered deaths where Indigenous status was not stated.

Source: 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 1991–2008 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 1991–2008.

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 1991–2008.

- Over the period 1991–2008, 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).
- When analysing age at death by quartiles over the period 1991–2008, there has been a significant increase in the age at death in the first quartile among Indigenous males in two jurisdictions – Western Australia and the Northern Territory, and a significant increase the first quartile age at death for Indigenous females in South Australia.

Table 1.18.2: Median age (years) at death, by Indigenous status and sex, WA, SA and NT, 1991–2008

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Annual change ^(a)	Per cent change over period ^(b)
Indigenous																				
Males	46	49	46	49	48	47	48	45	48	46	48	48	48	47	47	46	50	51	0.1	3.2
Females	55	56	57	60	56	56	53	52	54.5	55	53	52	51	59	52	56	57	58	-0.05*	-1.4
Other																				
Males	73	72	73	73	73	74	74	74	75	75	75	76	76	76	76	77	77	77	0.3*	6.8
Females	79	79	79	80	80	81	81	81	81	81	82	82	82	82	83	83	83	84	0.3*	5.8

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1991–2008.

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

(b) Per cent change between 1991 and 2008 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: ABS and AIHW analysis of ABS Mortality Database.

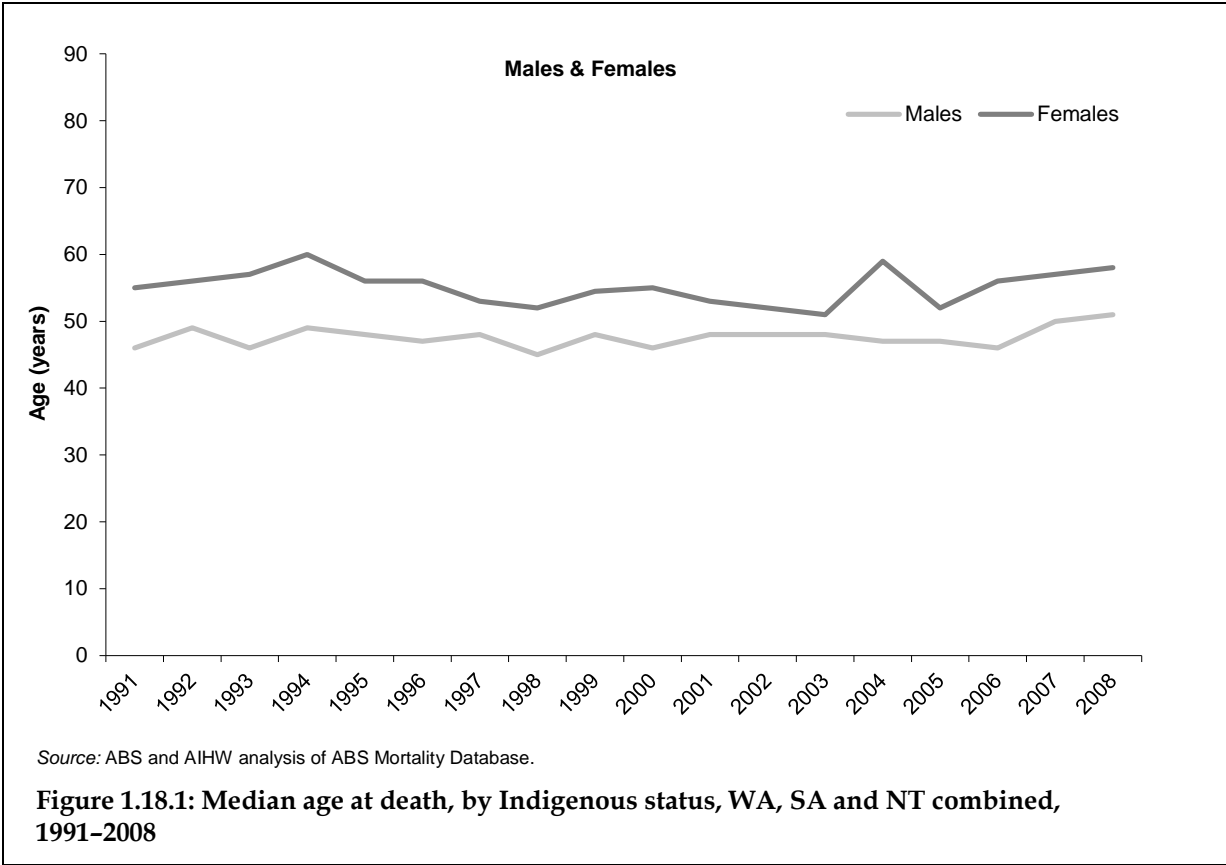


Table 1.18.3: Quartiles of age at death, Indigenous Australians in WA, SA and NT, 1991–2008

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Annual change ^(a)	Per cent 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	39	36	0.5*	35.1*
SA	23	22	27	38	28	26.5	32	32	37	31	34	35	37	35	31	36	34	40	0.7	50.4
NT	26	29.5	26	28	29	32	33	31	30	29	32	33	33	31	32	33	33	36	0.4*	25.9*
WA, SA & NT	25	28	27	30	30	32	33	30	32	31	33	33	34	33	33	34	36	36	0.5	32.4
Females																				
WA	31	34	43	42.5	39	39	40	35	35	35	36	35	32	46	39	41	46	44	0.3	18.6
SA	27.5	33	34	32	41	36	35	39	36	39	45	38.5	40	39	35	44	36	44	0.6*	34.3*
NT	33	37	31.5	37.5	39	36	36	35	36	37	38	33	39	36.5	37	39	40	39	0.2	12.4
WA, SA & NT	31	34	36	38	40	37	37	36	35	37	38	34	38	40	37	40	42	42	0.4*	18.5*
Median age of death																				
Males																				
WA	49	51	48	51	49	48	48	44.5	49	46	51.5	51	50	49.5	52	47	53	51	0.1	4.1
SA	41	37	40	51	45	47	50	43.5	46	49	49.5	48	48	49	42	50	50	48	0.4*	17.1*
NT	46	49	46.5	46	50	46.5	48	45	47	46	45	47	46	43	45	45	45	52	-0.1	-2.3
WA, SA & NT	46	49	46	49	48	47	48	45	48	46	48	48	48	47	47	46	50	51	0.1	3.2
Females																				
WA	59	58	61	62	59	57.5	57	56.5	55	55.5	53.5	52.5	54	63	57	56.5	59	63	-0.1	-1.5
SA	47.5	55	55.5	49	51	54	52	50	50	56	55	54.5	49.5	53	47	59	58	53	0.2	6.7
NT	52	55	51.5	60	56	53.5	52	49	56	53.5	52	49.5	52	53.5	50	55	55	56	0.0	-1.2
WA, SA & NT	55	56	57	60	56	56	53	52	54.5	55	53	52	51	59	52	56	57	58	0.0	-1.5

(continued)

Table 1.18.3 (continued): Quartiles of age at death, Indigenous Australians in WA, SA and NT, 1991–2008

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Annual change ^(a)	Per cent 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	67	67	0.1	2.3
SA	57	59	56	63	62	62.5	67	67	58	62	63	65	57	66	55	60	64	65	0.2*	4.8*
NT	61	65	61	63	62	60	64	61	63	61	62	62	63	58	59	61	60	64	-0.1*	-2.6*
WA, SA & NT	64	63	62	63	64	64	64	63	62	62	64	63.5	63	62	62	64	64	65	0.0	0.6
Females																				
WA	71	70	74	76	72	69.5	68	69	71	69	69	69	70	77	72	73	74	78	0.2	4.3
SA	62	64	69	67	64	72	68	69	72	70	72	68	65.5	71	70	72	72	67	0.3*	8.5*
NT	66	67	65	72	68	68	67.5	67	71	68	69	66.5	67	69	64	72	70	69	0.1	2.6
WA, SA & NT	67	67	69	73	70	69	68	68	71	68	69	68	68	72	69	73	72	73	0.2*	5.2*

* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 1991–2008.

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

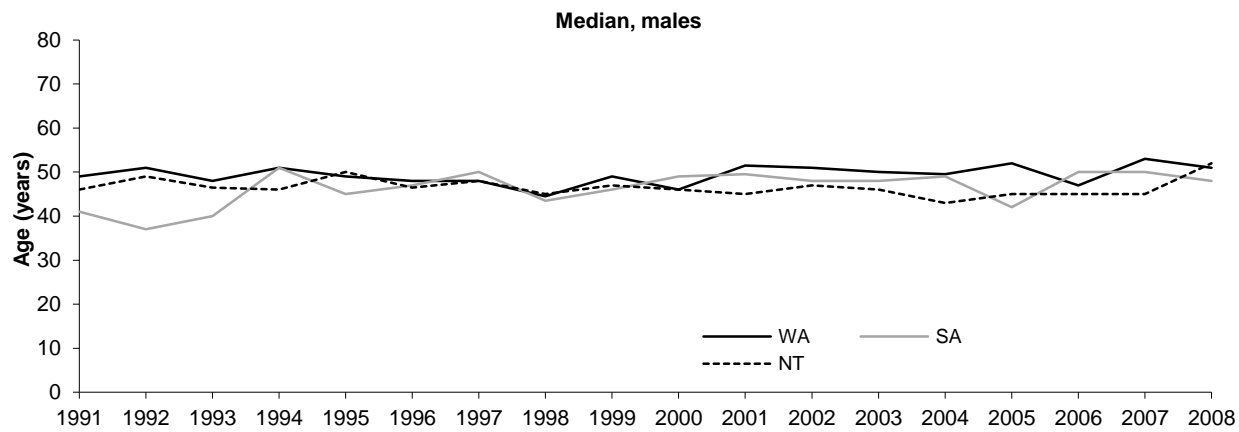
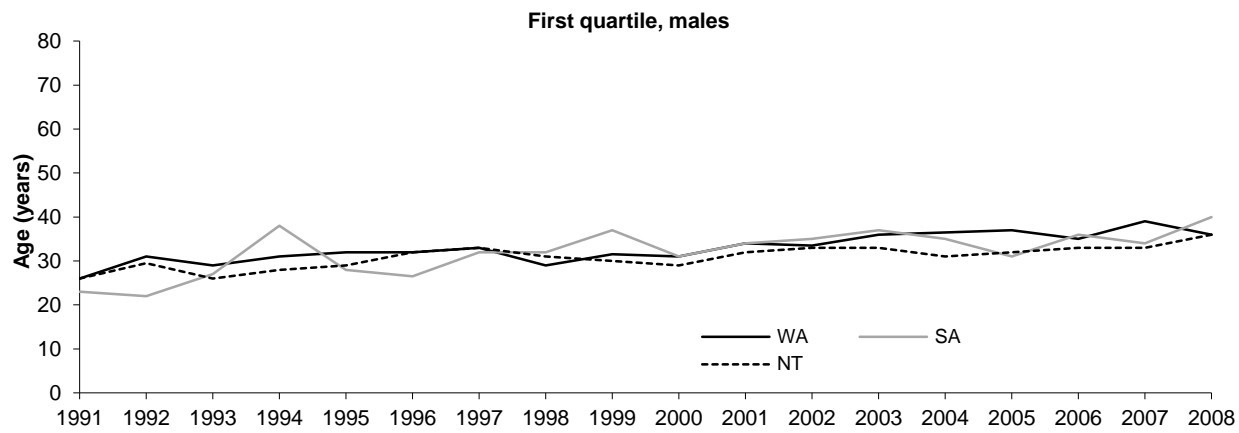
(b) Per cent change between 1991 and 2008 based on the average annual change over the period.

Notes

1. Data based on year of registration of death and state/territory of usual residence.

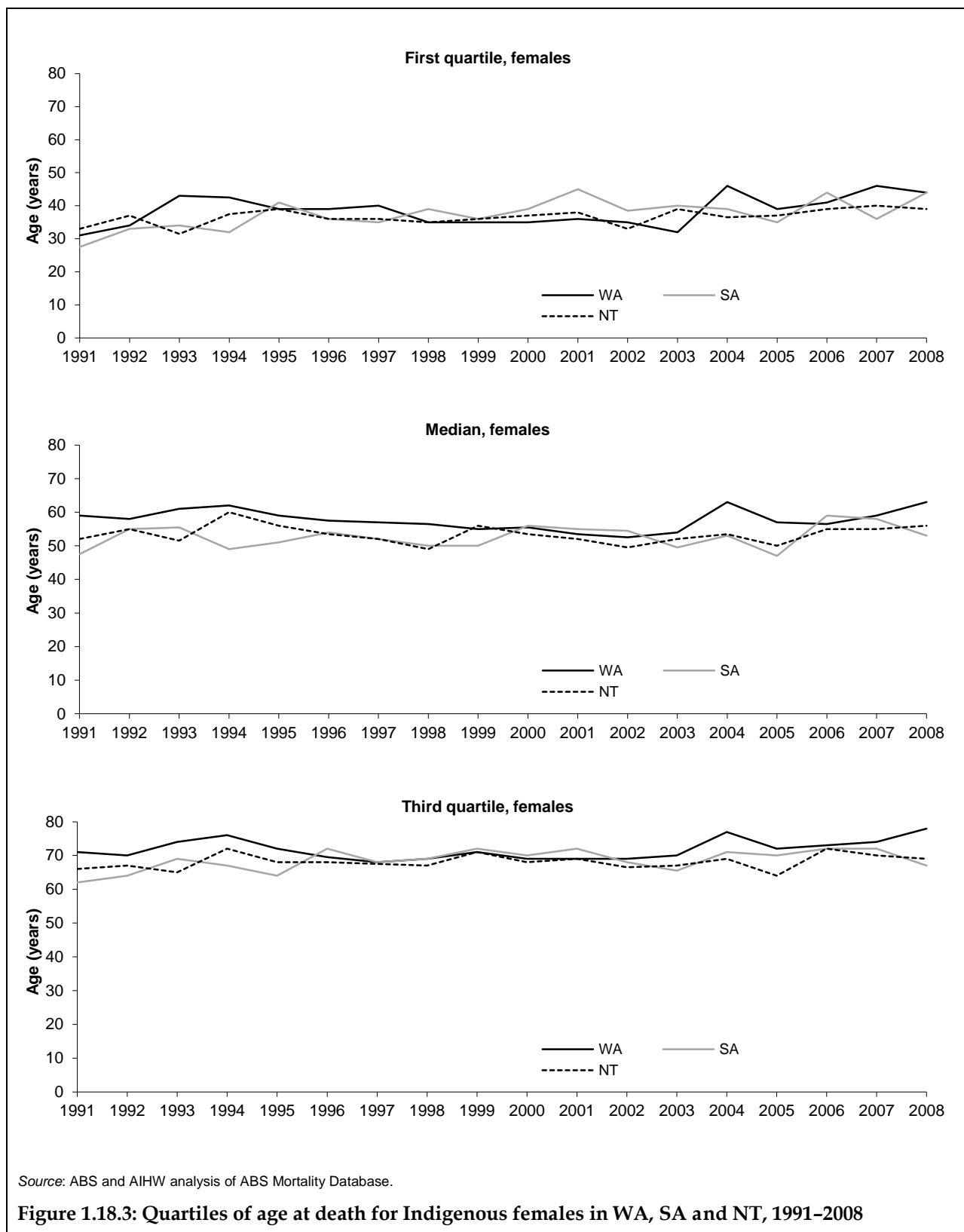
2. Data presented in this table may differ from data presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses.

Source: ABS and AIHW analysis of ABS Mortality Database.



Source: ABS and AIHW analysis of ABS Mortality Database.

Figure 1.18.2: Quartiles of age at death for Indigenous males in WA, SA and NT, 1991-2008



Additional trends analysis has been presented for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined from 2001 to 2008 for Indigenous and non-Indigenous Australians in Table 1.18.4 and Figure 1.18.4. Queensland has had adequate identification of Indigenous deaths in its recording systems since 1998, and

NSW has adequate identification in Indigenous deaths in its recording system since 2001. These deaths have been compared with those of non-Indigenous Australians (excluding deaths for which Indigenous status was not stated).

- Over the period 2001–2008, there was a significant change in the median age at death for Indigenous males (3%) but not females in New South Wales, 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 3% for males and 2% for females (Table 1.18.4).

Table 1.18.4: Median age at death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2001–2008

	2001	2002	2003	2004	2005	2006	2007	2008	Annual change ^(a)	Per cent change over period ^(b)
Indigenous										
Males	55	54.5	54	55	53	55	53	53	–0.2*	–3.1*
Females	60	61	61	62	61	62	59	60	–0.1	–1.1

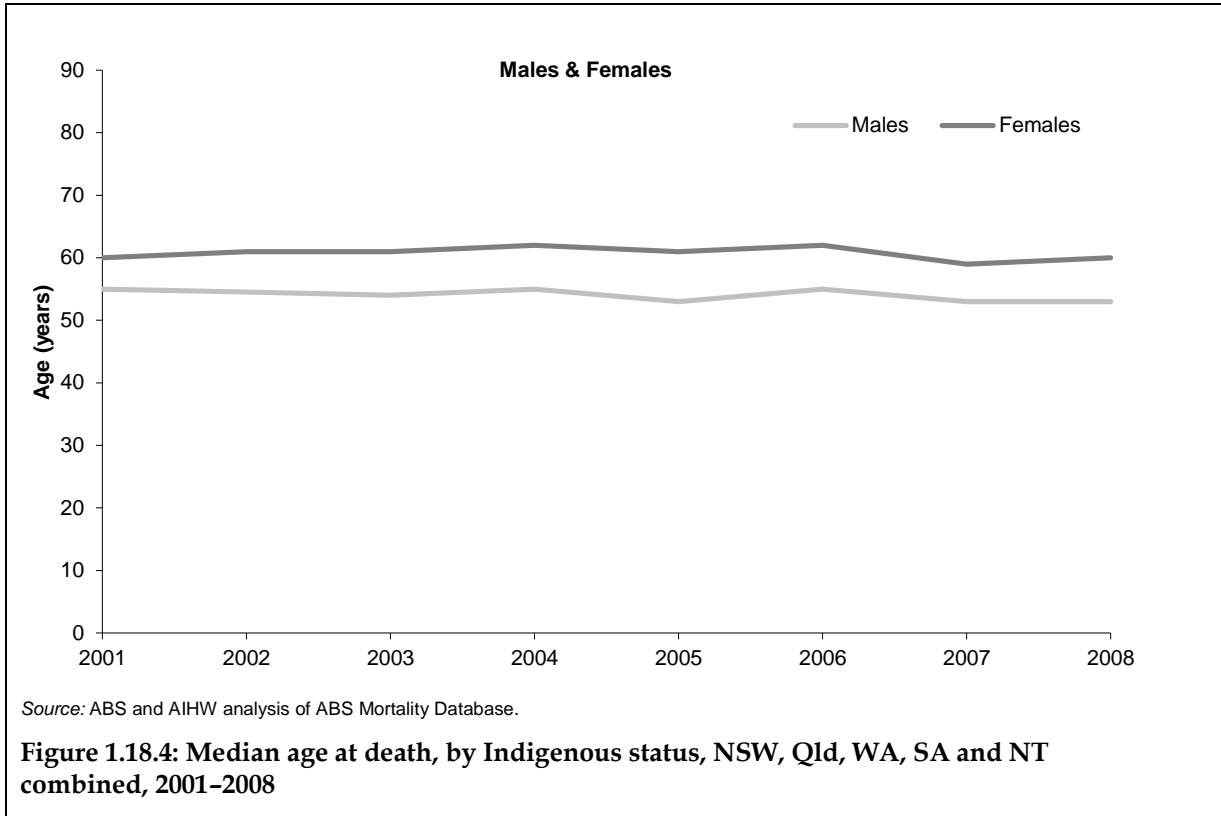
* Represents results with statistically significant increases or declines at the $p < 0.05$ level over the period 2001–08.

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

(b) Per cent change between 2001 and 2008 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: ABS and AIHW analysis of ABS Mortality Database.



International comparisons

International indigenous data are available for New Zealand and the United States.

There are several common issues that adversely affect the quality of Indigenous mortality data in these two 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 under-counting of deaths (the numerator for mortality data). In each of the three countries, the under-counting 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. Because of differences in coverage of Indigenous deaths in the three countries, the median age at death between countries should be compared with care and the data presented below should be interpreted with caution.

- In the United States, for the period 2004–2006 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 2004–2008, the median age at death for Maoris was 60 years for males and 64 years for females, compared with 77 years for non-Indigenous males and 82 years for non-Indigenous females (Statistics New Zealand, unpublished data).

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. At present, there is considerable variation across the states and territories in the completeness of mortality and hospital data for Indigenous people.

Indigenous status question

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms. However, while data is provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question is not always directly asked. Detailed breakdowns of Indigenous deaths are therefore only provided for five jurisdictions – New South Wales, Queensland, South Australia, Western Australia and the Northern Territory.

Indigenous status information from the two sources are kept in the database, although these may not be consistent for an individual.

In 2004, a new range of codes were introduced as part of the effort to standardise and improve Indigenous identification in data collection nationally.

Indigenous Mortality Quality Study

The ABS conducted a number of quality studies based on the 2006 Census of Population and Housing and other data sets as part of the Census Data Enhancement (CDE) project. The CDE Indigenous Mortality Quality Study linked Census records with death registration records and examined differences in the reporting of Indigenous status across the two data sets.

There were 106,945 registered death records available to be linked in the study. Of these, 1,800 (1.7%) were identified as Indigenous on the death registration. Of the total registered deaths, 98,898 (92%) were linked to a Census record. However, a much lower linkage rate was achieved for Indigenous deaths, with more than one quarter of all Indigenous death registrations (26% or 473) unable to be linked to a Census record. As a result, Indigenous death records were over-represented in the unlinked death registrations.

As well as being over-represented in unlinked death registrations, unlinked Indigenous death records had different characteristics to linked Indigenous death registrations.

Indigenous death records with older ages at death and from non-remote regions were more likely to be linked.

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.

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%, Australia 55% (Tasmania and the Australian Capital Territory were not calculated because of small numbers) (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).

Problems associated with identification result in an underestimation of deaths and hospital separations for Indigenous people.

Numerator and denominator

Rate and ratio calculations rely on good numerator and denominator data. There are changes in the completeness of identification of Indigenous people in death records. These 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 2021* (ABS 2009).

List of symbols used in tables

- n.a. not available
- rounded to zero (including null cells)
- 0 zero
- .. not applicable
- n.e.c. not elsewhere classified
- n.f.d. not further defined
- n.p. not available for publication but included in totals where applicable, unless otherwise indicated

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.

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 2008. Information Paper : Census Data Enhancement – Indigenous Mortality Quality Study. Cat. No. 472 3.0. Canberra: ABS.

ABS 2009. Experimental estimates and projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021. 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, AIHW cat. no. IHW 14. Canberra: ABS & AIHW.

AIHW 2010. Australia’s health 2010. Australia’s health series no. 12. Cat. no. AUS 122. Canberra: AIHW.

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>.

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