



2009

3302.0

# DEATHS

AUSTRALIA

EMBARGO: 11.30AM (CANBERRA TIME) WED 10 NOV 2010

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## INQUIRIES

For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070 or Tracey Coomber on Canberra (02) 6252 5406.

# NOTES

## ABOUT THIS ISSUE

This publication brings together statistics on deaths and mortality in Australia. Data refer to deaths registered during the calendar year shown, unless otherwise stated. State or territory relates to state or territory of usual residence, unless otherwise stated.

Populations used in the calculation of death rates for 2006 and earlier years are the final estimated resident population by age and sex based on results of the *2006 Census of Population and Housing* (2006 Census) and earlier censuses. Death rates for 2008 are calculated using revised 30 June 2008 estimated resident population, while rates for 2009 are calculated using preliminary 30 June 2009 estimated resident population.

## CHANGES IN THIS ISSUE

Death rates for 2008 have been revised using revised 30 June 2008 estimated resident population.

The release of sub-state data in Table 4, Table 5 and Table 6 of the data cubes, available on the ABS website, has been deferred until 9 December 2010.

## LIFE TABLES

Life tables for Australia for 2007-2009 are published in *Life Tables, Australia, 2007-2009* (cat. no. 3302.0.55.001) and included in this issue (see Chapter 4: Life Tables)

The release of state and territory life tables for 2007-2009 (cat nos. 3302.1.55.001 to 3302.8.55.001) has been deferred until 8 December 2010.

## ROUNDING

Calculations as shown in the commentary sections of this publication are based on unrounded figures. Calculations using rounded figures may differ from those published.

It is recommended that when using information presented in this publication, the relevant statistics be rounded. All data are affected by errors in reporting and processing. Death registrations data are also affected by delays in registration.

## CAUSES OF DEATH AND PERINATAL DEATHS

Causes of death information is published under the 3303.0 product family. See *Causes of Death, Australia: Doctor Certified Deaths, Summary Tables* (cat. no. 3303.0.55.001) and *Causes of Death, Australia* (cat. no. 3303.0) for more information.

Perinatal death statistics are published in *Perinatal Deaths, Australia, 2007* (cat. no. 3304.0) and previously, in *Causes of Death, Australia* (cat. no. 3303.0).

## ACKNOWLEDGEMENT

The efforts of Registries of Births, Deaths and Marriages to improve the data quality, coverage and timeliness of death registration information, processes and systems are noted and valued by the ABS.

## CONFIDENTIALITY

Where necessary, tables have had small values suppressed or randomised to protect confidentiality. As a result, sums of components may not add to totals.

Brian Pink  
Australian Statistician

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Victoria (cat. no. 3302.2.55.001)	
Queensland (cat. no. 3302.3.55.001)	
South Australia (cat. no. 3302.4.55.001)	
Western Australia (cat. no. 3302.5.55.001)	
Tasmania (cat. no. 3302.6.55.001)	
Northern Territory (cat. no. 3302.7.55.001)	
Australian Capital Territory (cat. no. 3302.8.55.001)	

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(cat. no. 3105.0.65.001)

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## ABBREVIATIONS .....

<b>ABS</b>	Australian Bureau of Statistics
<b>ACT</b>	Australian Capital Territory
<b>AIHW</b>	Australian Institute of Health and Welfare
<b>ASDR</b>	age-specific death rate
<b>ASGC</b>	Australian Standard Geographical Classification
<b>Aust.</b>	Australia
<b>cat. no.</b>	Catalogue number
<b>DRF</b>	death registration form
<b>ERP</b>	estimated resident population
<b>IMR</b>	infant mortality rate
<b>ISDR</b>	indirect standardised death rate
<b>LGA</b>	local government area
<b>MCCD</b>	medical certificate of cause of death
<b>no.</b>	number
<b>NSW</b>	New South Wales
<b>NT</b>	Northern Territory
<b>Qld</b>	Queensland
<b>SA</b>	South Australia
<b>SACC</b>	Standard Australian Classification of Countries
<b>SAR</b>	Special Administrative Region
<b>SD</b>	statistical division
<b>SDR</b>	standardised death rate
<b>SLA</b>	statistical local area
<b>SSD</b>	statistical subdivision
<b>Tas.</b>	Tasmania
<b>UNSD</b>	United Nations Statistics Division
<b>Vic.</b>	Victoria
<b>WA</b>	Western Australia

DEATHS AND MORTALITY  
RATES

- There were 140,800 deaths registered in Australia in 2009, approximately 3,200 (2.2%) fewer than the number registered in 2008 (143,900).
- The standardised death rate (SDR) decreased to 5.7 deaths per 1,000 standard population in 2009, down from 6.1 in 2008.
- Over the past 20 years, SDRs have decreased for all states and territories.
- The highest SDR in 2009 was in the Northern Territory (7.9 deaths per 1,000 standard population), while the lowest was in the Australian Capital Territory (5.4 deaths per 1,000 standard population).
- Over the past 20 years, death rates have declined for both males and females for all age groups. The largest proportional decreases in male age-specific death rates over this period occurred for ages 10–14 years (down 58%) and 15–19 years (down 54%). For females, the 1–4 years age group experienced the largest proportional decrease (down 54%), followed by females aged 5–9 years (down 50%).

LIFE EXPECTANCY AT  
BIRTH

- Over the past 20 years, life expectancy at birth has improved by 6.0 years for males and 4.3 years for females. Based on current mortality rates, a boy born in 2007–2009 can expect to live 79.3 years, while a girl can expect to live 83.9 years.
- According to United Nations estimates for 2005–10, Australia's life expectancy at birth is ranked among the highest in the world.

## INFANT DEATHS

- In 2009, there were 1,300 infant deaths (deaths of children less than one year of age) registered in Australia, 2.9% more than the number registered in 2008 (1,200).
- The infant mortality rate in 2009 was 4.3 infant deaths per 1,000 live births, a small increase on the rate in 2008 (4.1 infant deaths per 1,000 live births).

DEATHS OF ABORIGINAL  
AND TORRES STRAIT  
ISLANDER AUSTRALIANS

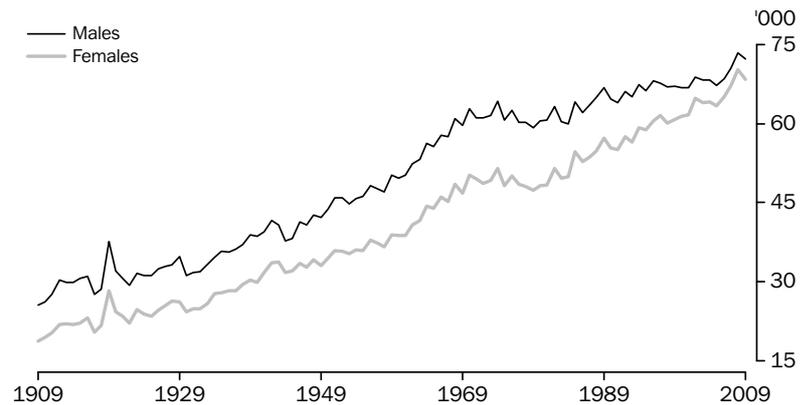
- There were 2,400 deaths registered in Australia in 2009 where the deceased person was identified as being of Aboriginal, Torres Strait Islander or both origins (Indigenous).

INTRODUCTION

During 2009, there were 140,800 deaths (72,300 males and 68,400 females) registered in Australia, a decrease of 3,200 deaths (or 2.2%) compared with the number of deaths registered in 2008 (143,900). Since the late 1980s, the number of deaths registered has increased by around 0.4% per year on average for males and 0.9% per year for females, with year to year fluctuations.

The steady increase in the number of deaths over time reflects the increasing size of the population and, in particular, the increasing number of older people. With the continued ageing of the population, the number of deaths is projected to continue to increase throughout the remainder of the century (see graph 2.14).

**2.1** DEATHS REGISTERED, 1909 to 2009



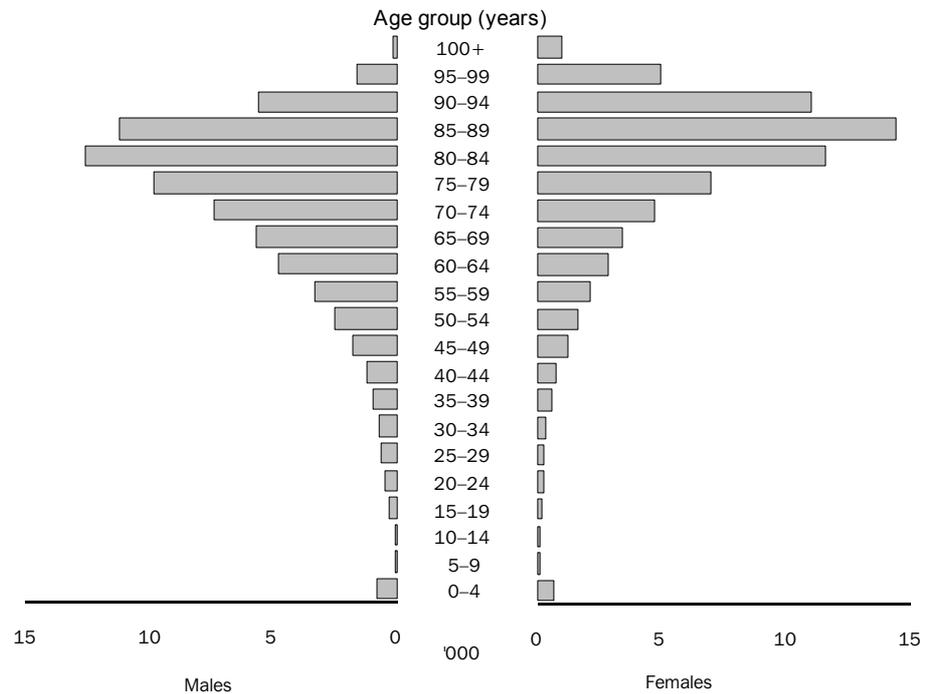
Source: Australian Historical Population Statistics (3105.0.65.001); Deaths, Australia (3302.0).

*Male and female deaths*

There were more male deaths (72,300) registered in 2009 than female deaths (68,400), resulting in a sex ratio of 105.7 male deaths for every 100 female deaths. This ratio has decreased over time, with 116.8 male deaths for every 100 female deaths in 1989.

The distribution of deaths registered in 2009 by age group and sex is illustrated in graph 2.2.

**2.2** DEATHS, Australia, age(a) and sex—2009



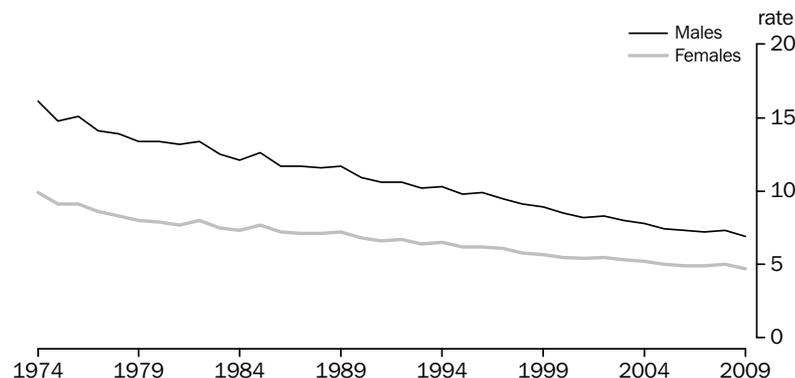
(a) Excludes deaths for which age of death was not stated.

MORTALITY RATES  
Australia

Despite the ageing of the population over the last 20 years, death rates have declined overall. In 1989 the crude death rate was 7.4 deaths per 1,000 population, decreasing to 6.4 in 2009. Given the ageing of Australia's population, the overall decline in the crude death rate indicates a considerable decline in age-specific death rates over the period.

The standardised death rate (SDR), which takes into account the effect of changes in the age structure of Australia's population over time, has also decreased over the past 20 years. In 1989, the SDR was 9.1 deaths per 1,000 standard population, decreasing to 5.7 in 2009 (an overall decrease of 37%). Standardised death rates are calculated using the 2001 total population of Australia as the standard population (see Glossary for more information).

**2.3** STANDARDISED DEATH RATES(a), Australia



(a) Deaths per 1,000 standard population. Standardised death rates are calculated using the 2001 total population of Australia as the standard population.

*Australia continued*

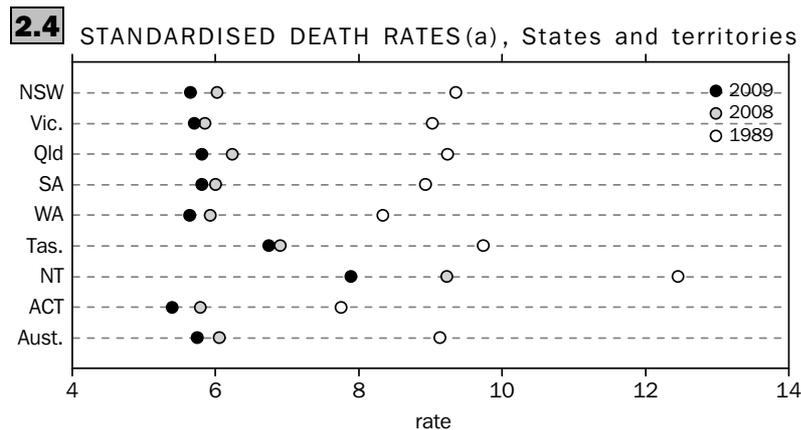
While male mortality rates remain higher than female mortality rates, the difference has narrowed in the past 20 years. In 1989, the SDR for males was 4.5 deaths higher than the female SDR, while in 2009 the male SDR was 2.2 deaths higher than the female rate.

*States and territories*

Over the past 20 years, all states and territories have experienced overall declines in SDRs, with the Northern Territory experiencing the largest numerical decline (from 12.4 deaths per 1,000 standard population in 1989 to 7.9 in 2009) and the Australian Capital Territory experiencing the smallest numerical decline (from 7.7 to 5.4 over the same period).

Similar to the SDR for Australia overall, the declining trend in the state and territory SDRs appears to have slowed in recent years.

In 2009, the Northern Territory's SDR of 7.9 deaths per 1,000 standard population remained much higher than the other states and territories, while Tasmania recorded the second highest SDR (6.7). The lowest SDR was recorded in the Australian Capital Territory, with 5.4 deaths per 1,000 standard population.



(a) Deaths per 1,000 standard population. Standardised death rates are calculated using the 2001 total population of Australia as the standard population.

AGE-SPECIFIC DEATH RATES

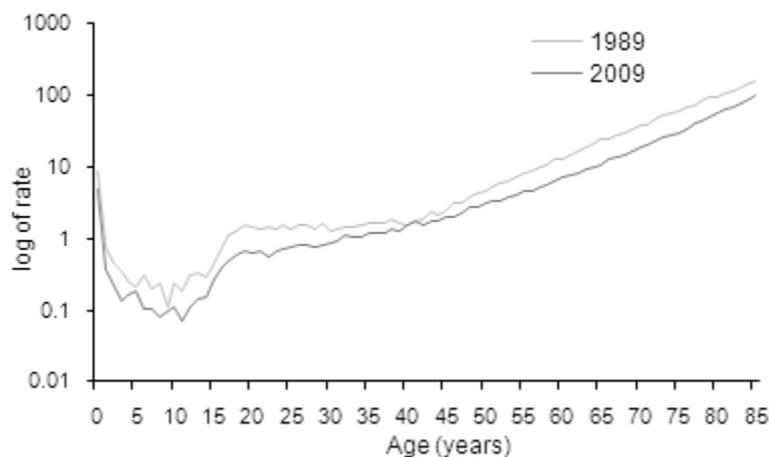
Following relatively high rates of death in infancy, death rates decline sharply through childhood. In 2009, people aged 5–9 years and 10–14 years had the lowest age-specific death rates (ASDRs) in Australia. ASDRs begin to increase from around 15 years of age. For all age groups, except 85 years and over, ASDRs are higher for males than females.

Male ASDRs increase gradually until around age 40–44 years, where they begin to increase more quickly throughout the older age groups (graph 2.5). Age-specific death rates for females aged 15–34 years are relatively low and constant. Steady increases in female ASDRs are evident beyond 45–49 years of age and continue throughout the older age groups (graph 2.6).

Over the past 20 years death rates have declined overall for both males and females for all ages. The largest proportional decreases have occurred in the younger age groups.

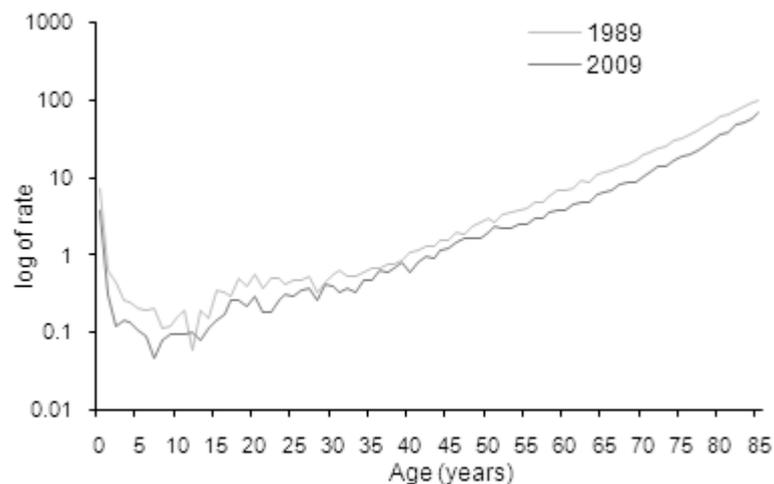
AGE-SPECIFIC DEATH RATES *continued*

**2.5** AGE-SPECIFIC DEATH RATES(a), Males–1989 and 2009



(a) Deaths per 1,000 males.

**2.6** AGE-SPECIFIC DEATH RATES(a), Females–1989 and 2009



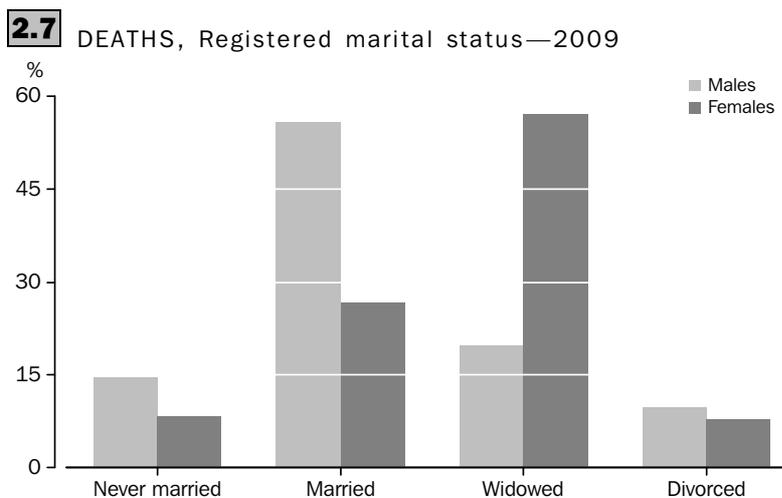
(a) Deaths per 1,000 females.

MARITAL STATUS

Of all men whose deaths were registered during 2009, for whom marital status was known, 56% were in a registered marriage at the time of death, 20% were widowed and 15% were never married. In contrast, 27% of women were in a registered marriage, 57% were widowed and 8% were never married. These differences are a consequence of the greater longevity of women.

MARITAL STATUS

*continued*



As estimated resident population (ERP) by marital status is only available for Census years, the most recent standardised death rates (SDRs) by marital status are for 2006. SDRs by registered marital status show that males and females who had never married had higher SDRs (10.3 and 6.4 deaths per 1,000 standard population respectively) than their married counterparts (6.4 and 3.9 respectively).

COUNTRY OF BIRTH

Australia's overseas-born population accounted for 30% of deaths registered in 2009 (42,300 deaths), despite making up only 26% of the resident population in 2009. This reflects the older age structure of the overseas-born population (with a median age of 44.8 years in 2009) compared with the Australian-born population (with a median age of 33.3 years). However, when the older age structure of the overseas-born population is taken into account, migrants generally have lower death rates than the Australian-born population. This is true for nearly all migrant groups.

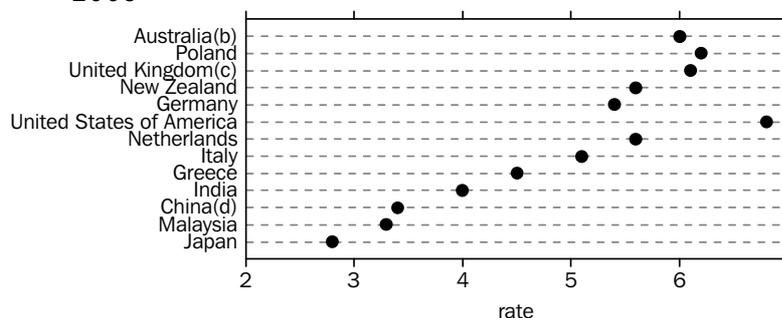
Indirect standardised death rates (ISDRs) allow comparisons of mortality between populations with different age structures where the population of interest may be relatively small. In 2009, men born overseas had an ISDR of 6.3 deaths per 1,000 standard population, 11% lower than the rate for men born in Australia (7.2). Women born overseas had an ISDR of 4.4 deaths per 1,000 standard population, 14% lower than the rate for women born in Australia (5.1).

For individual birthplaces, ISDRs based on deaths registered in Australia differ markedly. Rates for people born in New Zealand (5.6), the United States of America (6.8) and Western European countries such as Germany (5.4) and the Netherlands (5.6) were similar to that of Australian-born persons (6.0) in 2009, while rates for Southern European birthplaces (Italy and Greece) were lower (5.1 and 4.5 respectively). People born in South-East and North-East Asian countries recorded the lowest ISDRs in 2009: people born in China recorded 3.4 deaths per 1,000 standard population, while people born in Malaysia recorded 3.3 deaths per 1,000 standard population. People born in Japan recorded the lowest ISDR of the selected birthplaces in 2009, with 2.8 deaths per 1,000 standard population (54% lower than the rate for the Australian-born population).

COUNTRY OF BIRTH

*continued*

**2.8** INDIRECT STANDARDISED DEATH RATES(a), Country of birth – 2009



(a) Deaths per 1,000 standard population. Standardised death rates are calculated using the 2001 total population of Australia as the standard population.  
 (b) Includes External Territories.  
 (c) United Kingdom, Channel Islands and Isle of Man.  
 (d) Excludes Special Administrative Regions and Taiwan Province.

Of the 42,300 deaths registered in Australia of people born overseas (for whom duration of residence in Australia was known), 67% had resided in Australia for 40 years or more. A further 13% had resided in Australia for 30 to 39 years, and 10% for 20 to 29 years. The remaining 10% of deaths of the overseas-born population were of persons who had resided in Australia for less than 20 years. In 2009, the median duration of residence for deaths registered in Australia of overseas-born persons was 47.2 years.

INFANT DEATHS

In 2009, there were 1,300 infant deaths (deaths of children less than one year of age) registered in Australia (730 male and 530 female). This was a 2.9% increase compared with the number registered in 2008 (1,200).

Between 1989 and 1999, the total number of infant deaths decreased by 3.4% per year on average. Since then, total numbers of infant deaths each year have remained relatively stable in number, fluctuating between 1,200 and 1,400 deaths per year.

Over the past twenty years, the number of male infant deaths has been consistently greater than the number of female infant deaths. In 2009, there were 730 male deaths, 37% more than the number of female deaths (530).

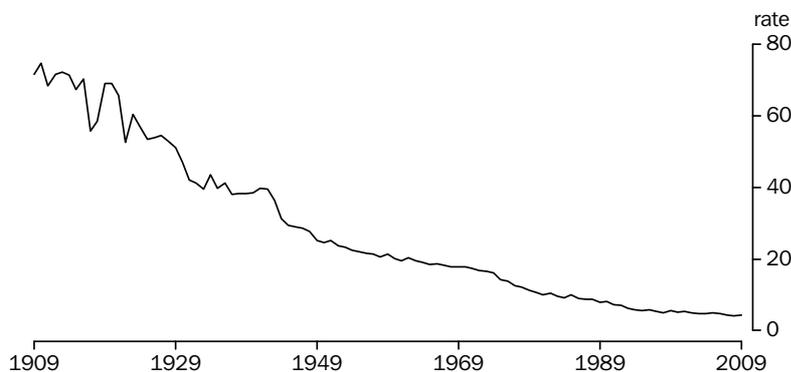
*Infant mortality rates*

The infant mortality rate (IMR) is calculated by dividing the number of infant deaths by the number of live births over a specified period. In 2009, the IMR was 4.3 infant deaths per 1,000 live births. This was slightly higher than the rate in 2008 (4.1) and almost half that recorded in 1989 (8.0).

Over the past 100 years, Australia's infant mortality has declined significantly. For the period 1901 to 1910, around one in 12 infants did not survive to their first birthday (an IMR of 81.8 infant deaths per 1,000 live births in 1905). By 2009, around one in 250 infants did not survive their first year of life.

Infant mortality rates  
continued

**2.9** INFANT MORTALITY RATES (a)—1909 to 2009



(a) Infant deaths per 1,000 live births.

Source: Australian Historical Population Statistics (3105.0.65.001); Deaths, Australia (3302.0)

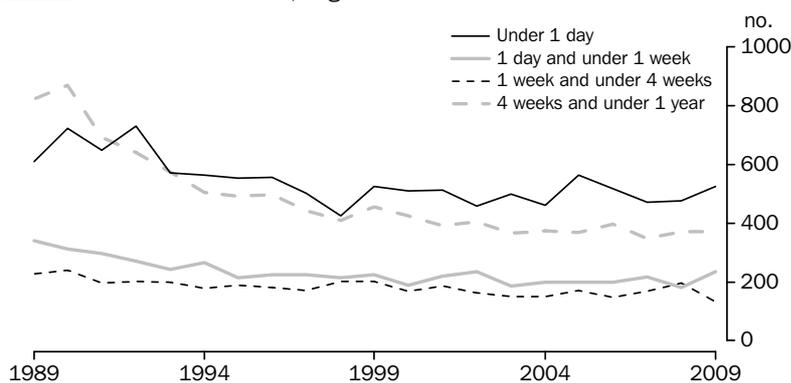
States and territories

Western Australia recorded the lowest IMR in 2009 (3.2 infant deaths per 1,000 live births), followed by the Australian Capital Territory (3.5) and Tasmania (3.6). The Northern Territory's IMR of 7.1 was the highest of the states and territories, followed by Queensland (5.4). Some states and territories have experienced volatility in IMRs from year to year, due in part to the decline in the number of infant deaths, resulting in rates based on small numbers.

Infant age at death

In 2009, 42% of all infant deaths occurred within the first day of life, with a further 29% occurring within the first four weeks of life. Until around 1998, numbers of infant deaths at all ages were decreasing. Since then, the numbers appear to have stabilised with year to year volatility.

**2.10** INFANT DEATHS, Age at death—1989 to 2009



(a) For some infant deaths, only limited information on age at death is known. See paragraph 28 of the Explanatory Notes for more information.

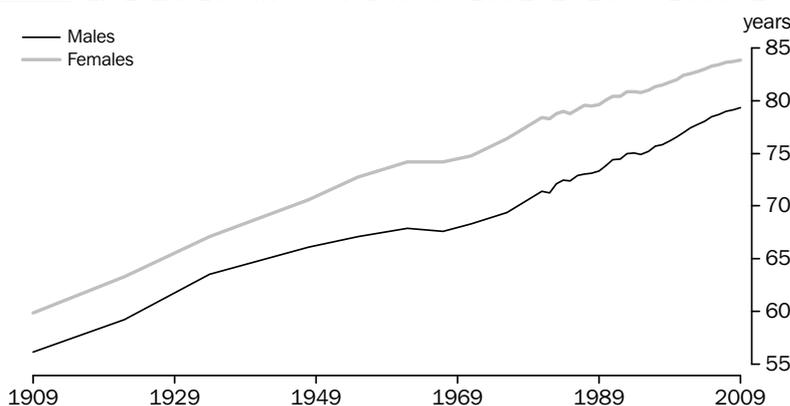
LIFE EXPECTANCY AT BIRTH

Life expectancy at birth represents the average number of years that a baby could expect to live, assuming current age-specific death rates were experienced. In 2007–2009, life expectancy at birth for Australia was 79.3 years for males and 83.9 years for females, an increase of 0.2 years over the life expectancy in 2006–2008 for both sexes.

LIFE EXPECTANCY AT BIRTH *continued*

Over the past century, male life expectancy at birth has increased by 24 years, from 55.2 years in 1901–1910 to 79.3 years in 2007–2009. Similarly, female life expectancy at birth has increased by 25 years, from 58.8 years to 83.9 years. The increase in life expectancy at birth reflects declining death rates at all ages.

**2.11** LIFE EXPECTANCY AT BIRTH—1901–1910 to 2007–2009



Source: Australian Historical Population Statistics (3105.0.65.001); Deaths, Australia (3302.0)

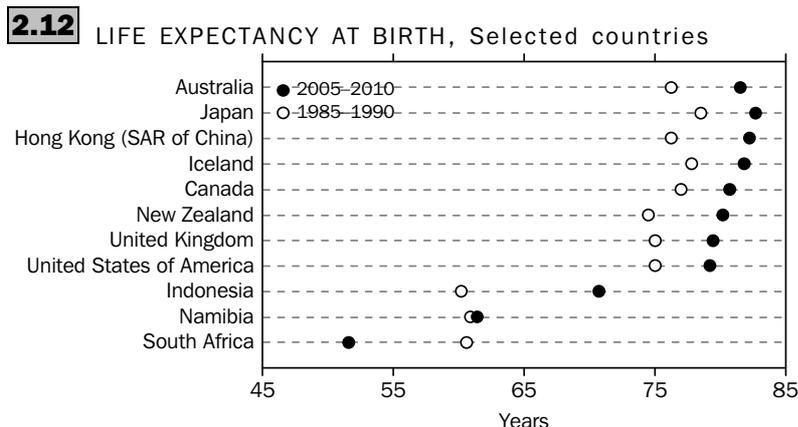
INTERNATIONAL COMPARISON  
*Life expectancy*

Australians have a life expectancy at birth which compares well with that experienced in other developed nations. According to the United Nations in *World Population Prospects: The 2008 Revision* (2009), global life expectancy at birth for 2005–2010 (medium variant) is estimated to be 65.4 years for males and 69.8 years for females. ABS life tables for 2007–2009 indicate that life expectancy at birth for Australian males (79.3 years) and females (83.9 years) continue to be among the highest in the world.

According to United Nations estimates for 2005–2010, life expectancy at birth of Australian males is exceeded only by Iceland, Hong Kong (SAR of China) and Switzerland. Life expectancy at birth of Australian females is exceeded by Japan, Hong Kong (SAR of China), France, Switzerland, and Spain.

Combined Australian male and female life expectancy at birth for 2005–2010 was 81.5 years. This was higher than the level for Canada (80.7 years), New Zealand (80.2 years), the United Kingdom (79.4 years) and the United States of America (79.2 years).

Life expectancy  
continued



Source: United Nations Population Division, 'World Population Prospects: The 2008 Revision', last viewed October 2010, <<http://www.un.org>>.

Infant mortality rate

In *World Population Prospects: The 2008 Revision* (2009), the United Nations estimates the global infant mortality rate for 2005–2010 to be 47.3 infant deaths per 1,000 live births. The United Nations estimate of Australia's IMR (4.5 infant deaths per 1,000 live births) is among the lowest in the world, lower than that of New Zealand (4.6), Canada and the United Kingdom (both 4.8), and the United States of America (5.9). Iceland (2.9) has the lowest IMR, followed by Singapore (3.0) and Sweden (3.1).

On a regional basis, Northern America has the lowest IMR, with 5.8 infant deaths per 1,000 live births, followed by Europe (7.2). The world's regions recording the highest IMRs are Africa (82.6), followed by Asia (41.5), Oceania (22.8), which includes Australia, and then Latin America and the Caribbean (21.8).

YEAR OF OCCURRENCE

The majority of this publication contains deaths data based on year of registration. Although most deaths are registered in the year in which they occur, some deaths are not registered until the following year or later.

Deaths data presented by year of occurrence in this publication are therefore considered preliminary and are subject to change as deaths that occurred up to, and including, 31 December 2009, but have not yet been registered by this date, are registered in subsequent years.

Deaths registered in the same year as they occurred

The likelihood of a death being registered in a year following its occurrence is substantially greater for deaths which occur near the end of the calendar year. Of the 140,800 deaths registered in 2009, 94.8% (133,400 deaths) occurred in 2009 and the remainder (5.2%, or 7,400 deaths) occurred in 2008 or earlier years (the majority of which occurred in December 2008). See paragraphs 26 and 27 of the Explanatory Notes.

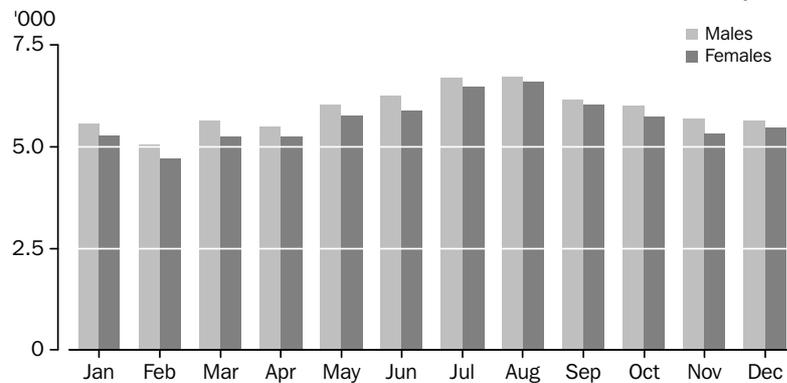
Monthly occurrence of deaths

Deaths tend to occur more often in some months than others. Over the period 2006–2008, an average of 138,800 deaths occurred each year in Australia. The largest numbers of deaths, on average, occurred in the winter months of August (6,700 male deaths and 6,600 female deaths) and July (6,700 male deaths and 6,500 female deaths). In comparison, the smallest numbers of deaths on average (5,100 male deaths and 4,700

Monthly occurrence of deaths continued

female deaths) occurred in the summer month of February (noting that February is the shortest month).

**2.13** DEATHS, Month of death—2006–2008: Preliminary(a)

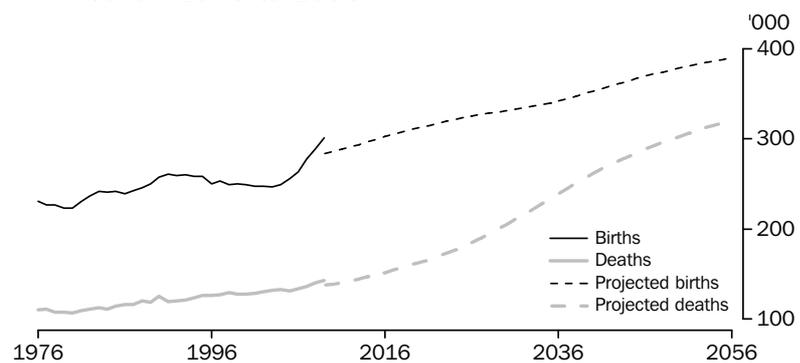


(a) Data for 2006–2008 are presented, as data for 2009 are incomplete due to delays between the occurrence and registration of deaths.

Deaths as a component of population change

Deaths are an important component of population change. In 2009, there were roughly twice as many births as deaths. As the population of Australia ages, the number of deaths each year is projected to increase, and the difference between numbers of births and deaths to decrease. Based on Series B of the most recent ABS population projections (Population Projections, Australia, 2006 to 2101, cat. no. 3222.0), the number of births is projected to remain higher than the number of deaths throughout the projection period.

**2.14** ACTUAL AND PROJECTED BIRTHS AND DEATHS, Year ended 30 June—1976 to 2056



Source: Australian Historical Population Statistics, 2008 (cat. no. 3105.0.65.001)  
 Australian Demographic Statistics, March Quarter 2010 (cat. no. 3101.0)  
 Population Projections, Australia, 2006 to 2101 (cat. no. 3222.0) (Series B)

Deaths as a component of  
population change  
continued

**2.15** COMPONENTS OF POPULATION CHANGE(a), Australia—2004 to 2009

	Births(b)	Deaths(b)	Natural increase	Net overseas migration	Population at end of period	Population increase(c)	
	'000	'000	'000	'000	'000	'000	%
2004	248.6	132.4	116.2	106.4	20 252.1	240.3	1.2
2005	263.4	131.4	132.0	137.0	20 544.1	291.9	1.4
2006	268.5	134.5	134.0	182.2	20 873.7	329.6	1.6
2007	r285.3	r139.8	r145.5	r244.1	r21 263.3	r389.6	r1.9
2008	r294.1	r142.5	r151.6	r315.7	r21 730.6	r467.3	r2.2
2009	p297.9	p140.7	p157.2	p277.7	p22 165.5	p434.9	p2.0

p preliminary figure or series subject to revision

r revised

(a) Calendar year.

(b) For 2008 and earlier years, births and deaths in this table are based on year of occurrence, for population estimation purposes. For 2009, a combination of data based on quarter of occurrence (for the March and June quarters) and quarter of registration (for the September and December quarters) is used. Numbers of deaths in this table will therefore differ from data elsewhere in this publication.

(c) Population increase will not necessarily equal the sum of natural increase and net overseas migration due to intercensal discrepancy. See Glossary for more information.

Source: Australian Demographic Statistics (cat.no. 3101.0)

**2.16** DEATHS, Australia—Selected years

		1989	1999	2004	2005	2006	2007	2008	2009
DEATHS									
<b>Total deaths</b>	no.	<b>124 232</b>	<b>128 102</b>	<b>132 508</b>	<b>130 714</b>	<b>133 739</b>	<b>137 854</b>	<b>143 946</b>	<b>140 760</b>
Males	no.	66 926	67 227	68 395	67 241	68 556	70 569	73 548	72 320
Females	no.	57 306	60 875	64 113	63 473	65 183	67 285	70 398	68 440
Sex ratio	ratio	116.8	110.4	106.7	105.9	105.2	104.9	104.5	105.7
Standardised death rate(a)									
Males	rate	11.7	8.9	7.8	7.4	7.3	7.2	7.3	6.9
Females	rate	7.2	5.7	5.2	5.0	4.9	4.9	5.0	4.7
Persons	rate	9.1	7.1	6.3	6.0	6.0	6.0	6.1	5.7
Crude death rate(b)									
Males	rate	8.0	7.2	6.8	6.6	6.7	6.7	6.9	6.6
Females	rate	6.8	6.4	6.3	6.2	6.3	6.3	6.5	6.2
Persons	rate	7.4	6.8	6.6	6.4	6.5	6.5	6.7	6.4
Median age at death									
Males	years	72.2	74.8	76.6	76.8	77.3	77.5	77.9	77.8
Females	years	78.7	81.4	82.6	82.9	83.3	83.5	83.9	83.9
Persons	years	75.1	77.8	79.5	79.8	80.3	80.5	80.9	80.8
Life expectancy at exact age(c)									
Males									
0	years	73.3	76.2	78.1	78.5	78.7	79.0	79.2	79.3
1	years	73.0	75.7	77.5	77.9	78.1	78.4	78.6	78.7
25	years	49.9	52.5	54.1	54.5	54.7	55.0	55.1	55.2
45	years	31.2	33.8	35.2	35.6	35.7	36.0	36.1	36.3
65	years	14.7	16.6	17.8	18.1	18.3	18.5	18.6	18.7
85	years	4.9	5.5	5.7	5.9	5.9	6.0	5.9	6.0
Females									
0	years	79.6	81.8	83.0	83.3	83.5	83.7	83.7	83.9
1	years	79.2	81.2	82.4	82.7	82.9	83.1	83.1	83.2
25	years	55.7	57.6	58.7	59.0	59.2	59.4	59.4	59.5
45	years	36.3	38.2	39.3	39.6	39.7	39.9	39.9	40.1
65	years	18.7	20.2	21.1	21.4	21.5	21.6	21.6	21.8
85	years	6.2	6.6	6.9	7.1	7.1	7.1	7.0	7.1

## INFANT DEATHS

<b>Total infant deaths</b>	no.	<b>2 004</b>	<b>1 408</b>	<b>1 184</b>	<b>1 302</b>	<b>1 262</b>	<b>1 203</b>	<b>1 226</b>	<b>1 261</b>
Males	no.	1 136	812	678	714	727	655	702	728
Females	no.	868	596	506	588	535	548	524	533
Infant mortality rate(d)									
Males	rate	8.8	6.4	5.2	5.4	5.3	4.5	4.6	4.8
Females	rate	7.1	4.9	4.1	4.7	4.1	3.9	3.6	3.7
Persons	rate	8.0	5.7	4.7	5.0	4.7	4.2	4.1	4.3

(a) Deaths per 1,000 standard population. Standardised death rates use total persons in the 2001 Australian population as the standard population.

(b) Deaths per 1,000 population.

(c) Prior to 1995 life expectancy was based on annual life tables calculated by the Australian Bureau of Statistics. For 1995 onwards, life expectancy has been calculated using data for the three years ending in the year in the table heading.

(d) Infant deaths per 1,000 live births.

**2.17** DEATHS, States and territories—2009

		NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust. (a)
<b>DEATHS</b>										
<b>Total deaths</b>	no.	<b>46 974</b>	<b>35 640</b>	<b>26 316</b>	<b>12 468</b>	<b>12 566</b>	<b>4 188</b>	<b>953</b>	<b>1 648</b>	<b>140 760</b>
Males	no.	23 996	18 065	13 956	6 198	6 578	2 111	593	817	72 320
Females	no.	22 978	17 575	12 360	6 270	5 988	2 077	360	831	68 440
Sex ratio	ratio	104.4	102.8	112.9	98.9	109.9	101.6	164.7	98.3	105.7
Standardised death rate(b)										
Males	rate	6.9	6.9	7.0	7.0	6.7	8.0	9.6	6.2	6.9
Females	rate	4.7	4.7	4.8	4.8	4.7	5.7	6.4	4.7	4.7
Persons	rate	5.7	5.7	5.8	5.8	5.6	6.7	7.9	5.4	5.7
Crude death rate(c)										
Males	rate	6.8	6.7	6.3	7.7	5.8	8.5	5.1	4.7	6.6
Females	rate	6.4	6.4	5.6	7.6	5.4	8.1	3.3	4.7	6.2
Persons	rate	6.6	6.5	5.9	7.7	5.6	8.3	4.2	4.7	6.4
Median age at death										
Male	years	78.2	78.5	76.7	79.1	76.5	77.3	59.8	76.8	77.8
Female	years	84.0	84.4	83.1	84.4	83.2	83.5	65.2	83.2	83.9
Persons	years	81.1	81.5	79.9	81.9	79.7	80.3	61.0	80.0	80.8
<b>INFANT DEATHS</b>										
<b>Total infant deaths</b>	no.	<b>387</b>	<b>278</b>	<b>356</b>	<b>73</b>	<b>99</b>	<b>24</b>	<b>27</b>	<b>17</b>	<b>1 261</b>
Males	no.	218	156	215	39	60	16	13	11	728
Females	no.	169	122	141	34	39	8	14	6	533
Infant mortality rate(d)										
Males	rate	4.6	4.3	6.3	3.8	3.8	4.7	6.5	4.3	4.8
Females	rate	3.7	3.5	4.4	3.6	2.6	2.5	7.7	2.6	3.7
Persons	rate	4.2	3.9	5.4	3.7	3.2	3.6	7.1	3.5	4.3

(a) Includes Other Territories.

(c) Deaths per 1,000 population.

(b) Deaths per 1,000 standard population. Standardised death rates use total persons in the 2001 Australian population as the standard population.

(d) Infant deaths per 1,000 live births.

INTRODUCTION

There were 2,400 deaths registered in Australia in 2009 where the deceased person was identified as being of Aboriginal, Torres Strait Islander or both origins (Indigenous), representing 1.7% of all deaths registered.

A variety of measures of mortality (age-specific death rates, median age at death, infant mortality rates and life expectancy at birth) indicate that the mortality level of Aboriginal and Torres Strait Islander Australians is substantially higher than that of the total Australian population.

The exact scale of difference between the mortality of Aboriginal and Torres Strait Islander Australians and the total population is difficult to establish conclusively, due to quality issues with Aboriginal and Torres Strait Islander Australian deaths data and the uncertainties inherent with estimating and projecting the size and structure of the Aboriginal and Torres Strait Islander Australian population over time.

Caution should be exercised when undertaking analysis of Aboriginal and Torres Strait Islander Australian deaths and mortality and, in particular, trends in Aboriginal and Torres Strait Islander Australian mortality.

Some of the issues affecting the reporting of Aboriginal and Torres Strait Islander Australian mortality include under identification of Aboriginal and Torres Strait Islander Australian deaths, unexplained changes in the number of people identified as Aboriginal and Torres Strait Islander Australian in different data collections and over time, the use of a standard Indigenous status question, changes in administrative processes, and not stated Indigenous status. As a result, changes in numbers of registered Aboriginal and Torres Strait Islander Australian deaths over time may not accurately reflect changes in the numbers of Aboriginal and Torres Strait Islander Australian deaths.

REGISTERED DEATHS OF ABORIGINAL AND TORRES STRAIT ISLANDER AUSTRALIANS

*Identification of Aboriginal and Torres Strait Islander deaths*

The standard approach to calculating mortality rates requires complete and accurate data on deaths that occur within a period, and an estimate of the population exposed to the risk of dying at the mid-point of that period. These data are required by age and sex. Due to the various issues associated with these data for Aboriginal and Torres Strait Islander Australians, as detailed below, mortality rates should be interpreted with caution.

It is considered likely that most deaths of Aboriginal and Torres Strait Islander Australians are registered. However, some of these deaths are not identified as such when they are registered. The extent to which Aboriginal and Torres Strait Islander deaths are identified as Aboriginal and Torres Strait Islander deaths is referred to as Indigenous deaths identification rate.

*Identification of Aboriginal and Torres Strait Islander deaths continued*

Deaths of Aboriginal and Torres Strait Islander Australians may not be correctly identified due to either failure to report the person's Indigenous status on the death registration form, or from the incorrect identification of a person's Indigenous status. Such mis-classification may occur because some Aboriginal and Torres Strait Islander people have non-Indigenous ancestries which may create uncertainty for those completing the death registration form as to how a deceased person should be identified.

Response to the Indigenous origin question may be influenced by a number of factors. These factors may include:

- how the information is collected (e.g. census, survey, or administrative data);
- who provides the information (e.g. the person in question, a relative, a health professional, or an official);
- the perception of why the information is required, and how it will be used;
- educational programs about identifying as Indigenous; and
- cultural aspects and feelings associated with identifying as Aboriginal and Torres Strait Islander Australian.

The level of identification can therefore vary across collections and over time.

As part of the 2006 Census Data Enhancement (CDE) project, the Indigenous Mortality Quality Study was conducted to estimate the extent of under or over-identification of Indigenous status in death registrations compared with the Census. The study involved linking death registrations (for 9 August 2006 to 30 June 2007) to 2006 Census of Population and Housing records, and comparing Indigenous status as recorded in the two collections. The ABS used the linked data, as well as information from the 2006 Census Post Enumeration Survey (PES), to develop a new method for adjusting the number of registered deaths of Aboriginal and Torres Strait Islander Australians for compiling life tables. This method has two key features. First, the use of linked data enabled direct comparison of Indigenous status recorded on the 2006 Census and death registration form. Second, by aligning the death registrations data to the population estimates derived from the 2006 Census and PES, the method ensures consistency between the numerator (that is, estimates of deaths) and the denominator (estimates of population at risk). For more information see *Discussion Paper: Assessment of Methods for Developing Life Tables for Aboriginal and Torres Strait Islander Australians, 2006* (cat no. 3302.0.55.002) and *Experimental Life Tables for Aboriginal and Torres Strait Islander Australians, 2005-2007* (cat no. 3302.0.55.003);

In addition to the factors calculated for adjusting registered Aboriginal and Torres Strait Islander Australian deaths for input into the experimental life tables, a range of other measures of identification were also derived from the Indigenous Mortality Quality Study. For more information see *Experimental Life tables for Aboriginal and Torres Strait Islander Australians, 2005-2007* (cat. no. 3302.0.55.003) and *Information Paper: Census Data Enhancement - Indigenous Mortality Quality Study, 2006-07* (cat. no. 4723.0).

The ABS continues to work with state and territory Registrars of Births, Deaths and Marriages and other stakeholders to improve the level of identification of Aboriginal and Torres Strait Islander Australians in the death registrations system in each jurisdiction. The increased numbers of deaths of Aboriginal and Torres Strait Islander Australians

*Identification of Aboriginal and Torres Strait Islander deaths continued*

recorded in recent years is partly due to substantial improvements in the completeness of the data.

As shown in table 3.1, improvements in the completeness of Aboriginal and Torres Strait Islander Australian deaths data for Australia overall in the late 1990s were largely driven by improvements for Queensland and New South Wales. Queensland began to register deaths as Aboriginal and Torres Strait Islander Australian in 1996. In New South Wales, the number of registered Aboriginal and Torres Strait Islander Australian deaths increased in 1998 to much higher levels than previous years. The numbers of Aboriginal and Torres Strait Islander Australian deaths registered in South Australia and the Northern Territory have remained relatively constant since 1997, suggesting that identification has been relatively stable in these jurisdictions. There are ongoing ABS investigations into the unusual volatility in the number of deaths of Aboriginal and Torres Strait Islander Australians registered in Western Australia in recent years.

An examination of the effect of data quality issues on the interpretation of trends in these data can be found in *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples, 2008* (cat. no. 4704.0).

*Indigenous status on Medical Certificate of Cause of Death*

From 2007 onwards, Indigenous status for deaths registered in Victoria, South Australia, Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory is sourced from both the Death Registration Form (DRF) and the Medical Certificate of Cause of Death (MCCD). Prior to 2007, Indigenous status was sourced from the DRF only. As a result of this change, there were an additional 22 deaths recorded as Aboriginal and Torres Strait Islander Australian in 2009, representing a 0.9% increase in the number of deaths recorded as Aboriginal and Torres Strait Islander Australians for Australia overall. In addition, a further 567 records were reclassified from 'not stated' Indigenous status to 'non-Indigenous'.

Indigenous status on  
Medical Certificate of  
Cause of Death  
*continued*

**3.1** INDIGENOUS DEATHS(a), States and territories(b)(c)—1993 to 2009

	NSW	Vic.	Qld(d)	SA	WA	Tas.	NT	ACT	Aust.(e)
1993	194	50	np	111	386	np	376	9	1 134
1994	207	50	np	123	377	np	380	10	1 153
1995	224	50	np	121	384	np	387	9	1 182
1996	177	49	258	118	370	np	328	np	1 306
1997	88	93	531	132	351	5	458	4	1 662
1998	462	123	593	127	378	13	415	3	2 114
1999	435	130	529	116	350	11	399	6	1 976
2000	473	108	535	144	407	np	450	np	2 127
2001	481	93	565	125	345	np	429	np	2 072
2002	516	64	590	107	371	20	462	4	2 136
2003	485	82	569	137	338	23	435	9	2 079
2004	490	54	579	131	400	20	449	10	2 136
2005	507	71	519	142	406	28	454	11	2 141
2006	530	111	584	124	443	20	452	14	2 279
2007	601	95	594	138	502	24	461	6	2 421
2008	559	97	562	141	605	24	467	16	2 472
2009	591	106	632	160	444	30	431	10	2 405

np not available for publication but included in totals where applicable, unless otherwise indicated

- (a) From 2007 onwards, Indigenous status for deaths registered in Victoria, South Australia, Western Australia, Tasmania, Northern Territory and Australian Capital Territory is sourced from both the Death Registration Form and Medical Certificate of Cause of Death.
- (b) State or territory of usual residence.
- (c) Due to differing levels of identification for the states and territories and over time, care should be taken in interpreting change in numbers of deaths. As a result, data for Australia should not be analysed as a time series.
- (d) Queensland began to register Indigenous deaths as Indigenous in 1996.
- (e) Includes Other Territories.

*The standard Indigenous status question*

All states and territories include a question on the death registration form regarding the Indigenous status of the deceased, which must be lodged with the state and territory Registrars of Births, Deaths and Marriages. However, some jurisdictions have had a longer history of recording the Indigenous status of deaths than others. It has only been since the mid to late 1990s that a uniform system of identifying all deaths of Aboriginal and Torres Strait Islander Australians in Australia has been established. The current question for all states and territories (excepting Victoria and the Northern Territory) asks:

"Was the deceased of Aboriginal or Torres Strait Islander origin?"

(If of both Aboriginal and Torres Strait Islander origin, tick both 'yes' boxes.)

- No
- Yes, Aboriginal origin
- Yes, Torres Strait Islander origin.

Victoria and the Northern Territory ask:

"Was the deceased of Aboriginal or Torres Strait Islander origin?"

- No
- Yes, Aboriginal origin
- Yes, Torres Strait Islander origin
- Both

*Not stated responses*

In addition to those deaths identified as being persons of Aboriginal and Torres Strait Islander origin, a number of deaths occur each year for which Indigenous status is not stated on the death registration form (table 3.2). In 2009, there were 1,500 deaths registered in Australia for which Indigenous status was not stated, representing 1.1% of all deaths registered. Queensland had the highest proportion of not stated responses in 2009 (2.9%), followed by New South Wales and Western Australia (both 0.8%).

For some states and territories, including Victoria and Queensland, the number of deaths registered for which Indigenous status was not stated was greater than the number of deaths registered as Indigenous.

As a proportion of all deaths registered, deaths for which Indigenous status was not stated decreased from 1.3% in 2008 to 1.1% in 2009. This was largely due to a decrease in the number of deaths in Victoria and New South Wales for which Indigenous status was not stated.

In July 2010, the ACT Registry of Births, Deaths and Marriages undertook to follow-up registration forms where there was a 'not stated' response to the Indigenous status question. This process led to a significant decrease in Indigenous 'not stated' status observed for the Australian Capital Territory.

It is worth noting that the number of deaths in 2009 for which Indigenous status was not stated (1,500) is of a similar magnitude to the total number of deaths of Aboriginal and Torres Strait Islander Australians (2,400). Despite the relatively low proportion of deaths with unidentified Indigenous status (1.1%), it is likely that some of these were deaths of Aboriginal and Torres Strait Islander Australians, contributing to under-identification deaths of Aboriginal and Torres Strait Islander Australians.

Not stated responses  
continued

### 3.2 DEATHS, Indigenous status—2009

State or territory	INDIGENOUS		NON-INDIGENOUS		NOT STATED		TOTAL
	no.	%	no.	%	no.	%	no.
New South Wales	591	1.3	46 010	97.9	373	0.8	46 974
Victoria	106	0.3	35 328	99.1	206	0.6	35 640
Queensland	632	2.4	24 911	94.7	773	2.9	26 316
South Australia	160	1.3	12 251	98.3	57	0.5	12 468
Western Australia	444	3.5	12 018	95.6	104	0.8	12 566
Tasmania	30	0.7	4 156	99.2	2	—	4 188
Northern Territory	431	45.2	518	54.4	4	0.4	953
Australian Capital Territory	10	0.6	1 629	98.8	9	0.5	1 648
<b>Australia(a)</b>	<b>2 405</b>	<b>1.7</b>	<b>136 827</b>	<b>97.2</b>	<b>1 528</b>	<b>1.1</b>	<b>140 760</b>

— nil or rounded to zero (including null cells)

(a) Includes Other Territories.

#### AGE AT DEATH

Care should be exercised when analysing deaths of Aboriginal and Torres Strait Islander Australians by age as differences in identification by age may lead to biased results.

**3.3** AGE AT DEATH, Indigenous status—2009

	0	1-14	15-24	25-34	35-44	45-54	55-64	65 years and over	Total(a)
State or territory	no.	no.	no.	no.	no.	no.	no.	no.	no.
<b>MALES</b>									
<b>Indigenous</b>									
New South Wales	10	7	14	21	34	61	63	112	322
Queensland	33	7	13	23	54	46	52	104	332
South Australia	np	np	np	np	13	14	20	11	76
Western Australia	np	np	22	21	37	41	35	67	239
Northern Territory	9	np	np	np	42	52	34	49	237
Total(b)	64	30	72	99	180	214	204	343	1 206
<b>Non-Indigenous</b>									
New South Wales	204	67	251	393	633	1 321	2 558	18 023	23 458
Queensland	173	59	154	272	391	789	1 573	9 806	13 217
South Australia	np	np	np	np	157	333	661	4 719	6 085
Western Australia	np	np	93	120	201	406	729	4 645	6 264
Northern Territory	4	np	np	np	22	45	65	194	353
Total(b)	465	171	572	890	1 404	2 894	5 586	37 387	49 377
<b>Total(c)</b>									
New South Wales	218	76	266	414	675	1 402	2 655	18 282	23 996
Queensland	215	70	175	306	469	869	1 690	10 162	13 956
South Australia	39	19	72	108	176	350	683	4 751	6 198
Western Australia	60	29	127	152	250	460	773	4 727	6 578
Northern Territory	13	13	26	35	65	98	99	244	593
Total(b)	545	207	666	1 015	1 635	3 179	5 900	38 166	51 321
<b>FEMALES</b>									
<b>Indigenous</b>									
New South Wales	6	5	4	8	22	34	51	139	269
Queensland	13	11	10	6	30	41	51	138	300
South Australia	np	np	np	np	12	22	11	25	84
Western Australia	np	np	10	9	27	36	34	83	205
Northern Territory	9	np	np	np	35	36	25	74	194
Total(b)	33	26	32	35	126	169	172	459	1 052
<b>Non-Indigenous</b>									
New South Wales	158	58	82	163	315	847	1 531	19 398	22 552
Queensland	122	51	75	90	207	461	920	9 768	11 694
South Australia	np	np	np	np	91	243	417	5 312	6 166
Western Australia	np	np	29	55	106	257	405	4 847	5 754
Northern Territory	5	np	np	np	10	17	21	107	165
Total(b)	352	139	214	345	729	1 825	3 294	39 432	46 331
<b>Total(c)</b>									
New South Wales	169	63	87	172	343	891	1 591	19 662	22 978
Queensland	141	64	90	98	244	518	998	10 207	12 360
South Australia	34	14	31	39	103	267	433	5 348	6 270
Western Australia	39	22	39	67	135	300	445	4 941	5 988
Northern Territory	14	4	6	10	45	53	46	182	360
Total(b)	397	167	253	386	870	2 029	3 513	40 340	47 956

np not available for publication but included in totals where applicable, unless otherwise indicated

(a) Includes deaths for which age was not stated.

(b) Data are for NSW, Qld, SA, WA and NT combined, based on state or territory of usual residence. Victoria, Tasmania and the ACT are excluded due to small numbers of registered Indigenous deaths.

(c) Includes deaths for which Indigenous status was not stated.

**3.3** AGE AT DEATH, Indigenous status—2009 *continued*

State or territory	0	1-14	15-24	25-34	35-44	45-54	55-64	65 years and over	Total(a)
	no.	no.	no.	no.	no.	no.	no.	no.	no.
<b>PERSONS</b>									
<b>Indigenous</b>									
New South Wales	16	12	18	29	56	95	114	251	591
Queensland	46	18	23	29	84	87	103	242	632
South Australia	5	4	13	10	25	36	31	36	160
Western Australia	12	10	32	30	64	77	69	150	444
Northern Territory	18	12	18	36	77	88	59	123	431
Total(b)	97	56	104	134	306	383	376	802	2 258
<b>Non-Indigenous</b>									
New South Wales	362	125	333	556	948	2 168	4 089	37 421	46 010
Queensland	295	110	229	362	598	1 250	2 493	19 574	24 911
South Australia	67	29	88	133	248	576	1 078	10 031	12 251
Western Australia	84	41	122	175	307	663	1 134	9 492	12 018
Northern Territory	9	5	14	9	32	62	86	301	518
Total(b)	817	310	786	1 235	2 133	4 719	8 880	76 819	95 708
<b>Total(c)</b>									
New South Wales	387	139	353	586	1 018	2 293	4 246	37 944	46 974
Queensland	356	134	265	404	713	1 387	2 688	20 369	26 316
South Australia	73	33	103	147	279	617	1 116	10 099	12 468
Western Australia	99	51	166	219	385	760	1 218	9 668	12 566
Northern Territory	27	17	32	45	110	151	145	426	953
Total(b)	942	374	919	1 401	2 505	5 208	9 413	78 506	99 277

(a) Includes deaths for which age was not stated.

(b) Data are for NSW, Qld, SA, WA and NT combined, based on state or territory of usual residence. Victoria, Tasmania and the ACT are excluded due to small numbers of registered Indigenous deaths.

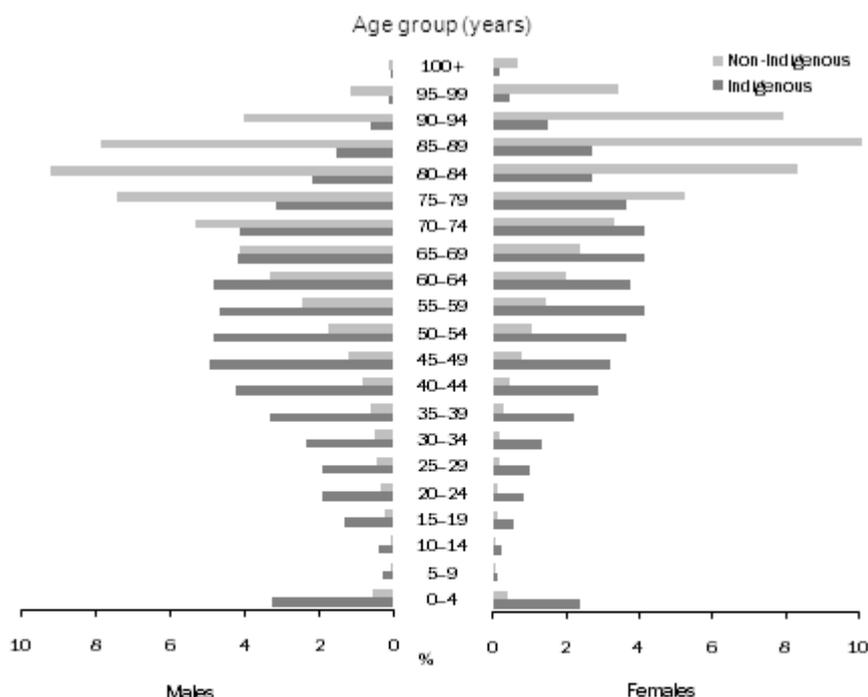
(c) Includes deaths for which Indigenous status was not stated.

AGE AT DEATH  
*continued*

Differences between the age structures of deaths of the Aboriginal and Torres Strait Islander Australians and non-Indigenous populations for the period 2007–2009 are illustrated in graph 3.4. Whereas deaths of non-Indigenous persons are concentrated in the older age groups, deaths of Aboriginal and Torres Strait Islander Australians are more widely spread across all age groups.

Care should be exercised when analysing Aboriginal and Torres Strait Islander Australian and non-Indigenous age at death, as the data may be influenced by differences in identification by age, as well as different age structures of the two populations.

**3.4** PROPORTION OF DEATHS (a)(b), Indigenous status(c), age group(d) and sex–2007–2009



- (a) Data are for NSW, Qld, SA, WA and the NT combined, based on state or territory of usual residence. Victoria, Tasmania and the ACT excluded due to small numbers of registered Indigenous deaths.
- (b) Non-Indigenous deaths calculated as the proportion of all non-Indigenous deaths registered. Indigenous deaths calculated as the proportion of all Indigenous deaths registered.
- (c) Excludes deaths for which Indigenous status was not stated.
- (d) Excludes deaths for which age at death was not stated.

AGE-SPECIFIC DEATH RATES

Age-specific death rates (ASDRs) are available for New South Wales, Queensland, South Australia, Western Australia and the Northern Territory. Victoria, Tasmania and the Australian Capital Territory are excluded due to small numbers of registered deaths of Aboriginal and Torres Strait Islander Australians.

The non-reporting and/or incorrect reporting of a person's Indigenous status on the death registration form means that death rates calculated using the number of registered Aboriginal and Torres Strait Islander Australian deaths may be underestimates of the true death rate. Non-reporting and/or incorrect reporting of a person's Indigenous status on the death registration form may also affect rates for non-Indigenous Australians.

Death rates for 2005–2009 for Aboriginal and Torres Strait Islander Australian males and females in all age groups were higher than rates for non-Indigenous males and females (table 3.5).

For New South Wales and Queensland, ASDRs for Aboriginal and Torres Strait Islander Australians aged 25 to 64 years were more than twice the rates for non-Indigenous Australians. For both males and females, the largest difference was for persons aged 35–44 years, where Aboriginal and Torres Strait Islander Australian age-specific death rates were more than three times higher than those recorded for non-Indigenous males and females.

AGE-SPECIFIC DEATH  
RATES *continued*

For South Australia, Western Australia and the Northern Territory, ASDRs for Aboriginal and Torres Strait Islander Australians in some age groups were five or more times higher than for non-Indigenous Australians. The largest differences occurred among males aged 35 to 44 years and females aged 25 to 44 years.

The denominators used in calculating Aboriginal and Torres Strait Islander Australian age-specific death rates were the 30 June 2007 projections (Series B) published in *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021* (cat. no. 3238.0). Non-Indigenous population estimates are available for Census years only. In the absence of estimates for these years, it is possible to derive denominators for calculating non-Indigenous rates by subtracting the projected Indigenous population (as published in *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021* (cat. no. 3238.0, Series B)) from the total population (as published in *Australian Demographic Statistics* (cat. no. 3101.0)). Such figures have a degree of uncertainty and should be used with caution, particularly as the time from the base year of the projection series increases.

**3.5** AGE SPECIFIC DEATH RATES(a), Indigenous status and sex—2005-2009(b)

	MALES			FEMALES			PERSONS		
	Indigenous(c)	Non-Indigenous(c)	Rate ratio(d)	Indigenous(c)	Non-Indigenous(c)	Rate ratio(d)	Indigenous(c)	Non-Indigenous(c)	Rate ratio(d)
NEW SOUTH WALES									
0(e)	8.1	4.9	1.7	6.3	3.8	1.7	7.2	4.3	1.7
1-4	35.5	20.7	1.7	32.6	17.2	1.9	34.1	19.0	1.8
5-14	15.0	11.2	1.3	9.5	7.5	1.3	12.3	9.4	1.3
15-24	75.8	52.3	1.5	26.0	21.4	1.2	51.9	37.2	1.4
25-34	184.1	80.6	2.3	104.1	31.6	3.3	143.3	56.0	2.6
35-44	405.1	129.0	3.1	222.5	66.3	3.4	307.8	97.4	3.2
45-54	774.6	284.3	2.7	400.9	171.3	2.3	581.6	227.3	2.6
55-64	1 490.7	668.3	2.2	1 025.5	401.5	2.6	1 250.8	534.6	2.3
65 and over	4 718.4	4 261.7	1.1	4 157.0	3 741.2	1.1	4 405.7	3 974.7	1.1
QUEENSLAND									
0(e)	10.7	5.2	2.0	7.3	4.1	1.8	9.1	4.7	1.9
1-4	59.7	24.9	2.4	47.8	20.6	2.3	53.8	22.8	2.4
5-14	22.8	11.1	2.1	14.1	9.7	1.5	18.6	10.4	1.8
15-24	115.8	60.7	1.9	66.2	23.9	2.8	91.4	42.7	2.1
25-34	221.4	90.0	2.5	101.4	35.6	2.8	160.9	62.9	2.6
35-44	491.7	129.3	3.8	294.4	67.5	4.4	389.1	98.1	4.0
45-54	838.6	272.1	3.1	570.9	158.9	3.6	698.8	215.1	3.2
55-64	1 661.0	661.5	2.5	1 263.7	384.6	3.3	1 449.9	524.5	2.8
65 and over	5 549.8	4 067.4	1.4	4 554.9	3 571.5	1.3	4 971.1	3 802.0	1.3
SOUTH AUSTRALIA									
0(e)	7.3	3.9	1.9	6.6	3.5	1.9	7.0	3.7	1.9
1-4	29.5	28.0	1.1	76.7	17.0	4.5	52.7	22.6	2.3
5-14	17.1	7.0	2.4	17.5	6.9	2.5	17.3	7.0	2.5
15-24	188.4	60.4	3.1	115.4	21.5	5.4	152.1	41.4	3.7
25-34	469.7	103.7	4.5	234.3	33.5	7.0	348.0	69.1	5.0
35-44	838.1	149.5	5.6	444.4	79.1	5.6	633.3	114.3	5.5
45-54	1 123.0	293.4	3.8	941.7	185.7	5.1	1 027.9	239.0	4.3
55-64	2 168.3	689.5	3.1	1 522.4	411.6	3.7	1 832.3	547.9	3.3
65 and over	3 724.5	4 427.1	0.8	3 958.0	3 879.2	1.0	3 862.9	4 121.2	0.9
WESTERN AUSTRALIA									
0(e)	10.9	3.1	3.5	8.1	3.4	2.4	9.5	3.3	2.9
1-4	112.9	22.9	4.9	60.1	12.4	4.9	86.7	17.8	4.9
5-14	33.0	8.6	3.8	19.0	7.5	2.5	26.2	8.1	3.2
15-24	246.9	66.0	3.7	126.4	26.4	4.8	187.7	46.9	4.0
25-34	446.1	89.8	5.0	247.6	39.6	6.3	350.1	65.3	5.4
35-44	898.4	121.9	7.4	530.0	68.2	7.8	711.2	95.4	7.5
45-54	1 510.8	259.9	5.8	943.8	156.4	6.0	1 222.7	208.4	5.9
55-64	2 785.8	602.0	4.6	2 026.8	348.7	5.8	2 381.0	478.3	5.0
65 and over	7 764.8	3 913.0	2.0	6 923.5	3 455.0	2.0	7 287.3	3 666.3	2.0

(a) Deaths per 100,000 population, except age 0.

(b) Death rates based on the average number of death registrations between 2005-2009, divided by the population at 30 June 2007. See commentary.

(c) Deaths where Indigenous status was not stated are excluded. As a result, age-specific death rates may be underestimated.

(d) Indigenous rate divided by the non-Indigenous rate.

(e) Infant deaths per 1,000 live births.

**3.5** AGE SPECIFIC DEATH RATES (a), Indigenous status and sex—2005-2009 (b) *continued*

	MALES			FEMALES			PERSONS		
	Indigenous(c)	Non-Indigenous(c)	Rate ratio(d)	Indigenous(c)	Non-Indigenous(c)	Rate ratio(d)	Indigenous(c)	Non-Indigenous(c)	Rate ratio(d)
NORTHERN TERRITORY									
0(e)	16.0	4.0	4.0	11.3	4.2	2.7	13.8	4.1	3.4
1-4	83.3	19.5	4.3	87.2	25.4	3.4	85.2	22.4	3.8
5-14	44.7	22.4	2.0	44.3	10.8	4.1	44.5	16.8	2.7
15-24	309.3	101.6	3.0	124.5	37.1	3.4	217.7	71.1	3.1
25-34	539.8	101.2	5.3	264.1	33.1	8.0	398.1	67.9	5.9
35-44	1 156.9	159.2	7.3	664.6	66.1	10.0	901.0	115.3	7.8
45-54	1 839.1	374.7	4.9	1 209.5	168.9	7.2	1 505.9	277.5	5.4
55-64	2 835.7	837.0	3.4	2 025.8	324.3	6.2	2 387.0	616.8	3.9
65 and over	7 088.5	3 688.9	1.9	5 516.1	2 792.5	2.0	6 118.2	3 301.2	1.9
TOTAL (f)									
0(e)	10.4	4.6	2.2	7.6	3.8	2.0	9.0	4.2	2.1
1-4	60.6	22.9	2.6	51.5	17.5	2.9	56.2	20.3	2.8
5-14	24.2	10.5	2.3	17.3	8.1	2.1	20.9	9.3	2.2
15-24	153.8	58.0	2.7	74.0	23.0	3.2	114.8	40.9	2.8
25-34	312.5	87.0	3.6	159.5	34.0	4.7	235.2	60.7	3.9
35-44	648.3	130.6	5.0	369.2	68.2	5.4	502.5	99.3	5.1
45-54	1 076.2	279.5	3.9	682.5	167.3	4.1	871.8	223.0	3.9
55-64	1 935.0	661.3	2.9	1 411.1	390.1	3.6	1 658.2	526.3	3.2
65 and over	5 642.3	4 181.2	1.3	4 864.4	3 675.7	1.3	5 194.5	3 905.3	1.3

(a) Deaths per 100,000 population, except age 0.

(b) Death rates based on the average number of death registrations between 2005-2009, divided by the population at 30 June 2007. See commentary.

(c) Deaths where Indigenous status was not stated are excluded. As a result, age-specific death rates may be underestimated.

(d) Indigenous rate divided by the non-Indigenous rate.

(e) Infant deaths per 1,000 live births.

(f) Data are for NSW, Qld, WA, SA, and NT combined, based on state or territory of usual residence.

**MEDIAN AGE AT DEATH**

Care should be exercised when analysing Aboriginal and Torres Strait Islander Australian median age at death, as in addition to the issues previously identified, it may also be affected by differences in identification by age. For example, higher levels of identification of Aboriginal and Torres Strait Islander Australian infant deaths compared with older age groups may result in the median age at death being underestimated.

As with age-specific death rates, median age at death data for Aboriginal and Torres Strait Islander Australians are only included in this publication for New South Wales, Queensland, South Australia, Western Australia and the Northern Territory. Victoria, Tasmania and the Australian Capital Territory are excluded due to small numbers of registered deaths of Aboriginal and Torres Strait Islander Australians.

In 2009, the median age at death of Aboriginal and Torres Strait Islander Australian males varied across the states and territories, from 48 years in South Australia to 57 years in New South Wales, compared with 67 years in the Northern Territory to 79 years in South Australia for non-Indigenous males. Similarly, the median age at death of Aboriginal and Torres Strait Islander Australian females was lower than for non-Indigenous females, 53 years in South Australia to 66 years in New South Wales compared with 72 years in Northern Territory to 85 years in South Australia.

MEDIAN AGE AT DEATH  
*continued*

**3.6** MEDIAN AGE AT DEATH, Indigenous status(a)—2004 to 2009

	NSW	Qld	SA	WA	NT	Total(b)
MALES						
<b>Indigenous</b>						
2004	55.8	53.7	49.5	50.0	43.8	51.2
2005	54.3	51.1	42.4	52.8	45.8	50.4
2006	59.3	55.6	50.4	47.9	45.4	52.4
2007	58.1	54.7	50.5	53.3	45.9	53.1
2008	59.9	53.2	49.0	51.2	52.1	53.8
2009	57.2	53.2	48.0	50.6	48.3	52.5
<b>Non-Indigenous</b>						
2004	77.0	76.2	77.6	76.3	63.0	76.8
2005	77.2	76.4	77.9	76.6	63.7	76.9
2006	77.8	76.7	78.3	76.9	64.7	77.4
2007	78.1	77.1	78.7	76.9	64.6	77.7
2008	78.5	77.3	79.2	77.1	66.3	78.0
2009	78.4	77.2	79.3	77.3	66.6	78.0
FEMALES						
<b>Indigenous</b>						
2004	62.7	57.9	53.5	63.6	54.0	60.1
2005	65.8	59.5	47.5	57.8	50.4	57.9
2006	64.8	57.0	59.3	57.0	55.3	59.0
2007	63.0	59.5	58.3	59.3	55.7	59.5
2008	63.8	62.3	53.5	64.0	56.0	60.5
2009	65.9	62.6	53.0	58.7	55.4	61.3
<b>Non-Indigenous</b>						
2004	82.8	82.5	83.3	82.3	71.3	82.7
2005	83.1	82.6	83.7	83.2	70.5	83.1
2006	83.5	83.1	84.1	83.1	75.0	83.4
2007	83.7	83.3	84.3	83.4	69.3	83.6
2008	84.2	83.7	84.6	84.1	75.7	84.1
2009	84.1	83.4	84.6	83.6	71.8	83.9

- (a) Care should be exercised when comparing median age at death of Indigenous and non-Indigenous Australians. See Commentary.
- (b) Data are for NSW, Qld, WA, SA, and NT combined, based on state or territory of usual residence. Victoria, Tasmania and the Australian Capital Territory are excluded due to small numbers of registered Indigenous deaths.

INFANT MORTALITY RATE

Infant mortality rates, calculated as the number of infant deaths per 1,000 live births registered during a specific period are presented in table 3.7. For the selected states and territories, rates for Aboriginal and Torres Strait Islander Australians are around twice the rates for all Australians.

INFANT MORTALITY RATE  
*continued*

**3.7** INFANT MORTALITY RATES(a), Indigenous status—2004–2006 to 2007–2009

	NSW	Qld	SA	WA	NT	Total(b)
INDIGENOUS (c)						
<b>Males</b>						
2004–2006	7.9	14.5	8.2	13.0	21.0	12.7
2005–2007	10.0	11.0	10.2	10.6	19.1	11.7
2006–2008	8.3	8.4	6.8	11.5	15.1	9.6
2007–2009	7.4	8.5	6.5	10.3	13.4	8.9
<b>Females</b>						
2004–2006	7.0	7.6	4.9	10.7	12.1	8.4
2005–2007	7.7	7.2	7.4	9.8	12.1	8.4
2006–2008	7.1	7.4	5.9	8.8	11.9	8.1
2007–2009	6.1	6.6	7.0	5.1	10.9	6.7
<b>Persons</b>						
2004–2006	7.5	11.1	6.7	11.9	16.7	10.6
2005–2007	8.9	9.1	8.9	10.2	15.7	10.1
2006–2008	7.7	7.9	6.4	10.1	13.6	8.9
2007–2009	6.8	7.6	6.7	7.7	12.2	7.8
NON-INDIGENOUS (c)						
<b>Males</b>						
2004–2006	5.2	5.3	3.7	3.9	3.7	4.9
2005–2007	5.0	5.2	4.2	3.1	3.6	4.7
2006–2008	4.9	5.3	3.5	2.9	4.4	4.6
2007–2009	4.6	5.2	4.0	2.7	4.8	4.4
<b>Females</b>						
2004–2006	4.0	4.0	3.6	3.9	5.7	4.0
2005–2007	3.9	4.3	3.8	3.8	4.9	4.0
2006–2008	3.7	4.1	3.2	3.2	3.3	3.7
2007–2009	3.7	4.2	3.1	2.7	2.9	3.6
<b>Persons</b>						
2004–2006	4.6	4.7	3.6	3.9	4.7	4.4
2005–2007	4.5	4.8	4.0	3.4	4.2	4.4
2006–2008	4.3	4.7	3.4	3.0	3.8	4.1
2007–2009	4.1	4.7	3.5	2.7	3.9	4.0
TOTAL (d)						
<b>Males</b>						
2004–2006	5.4	6.1	4.0	4.6	11.0	5.4
2005–2007	5.2	5.7	4.6	3.7	10.1	5.2
2006–2008	5.1	5.7	3.7	3.5	8.8	5.0
2007–2009	4.7	5.6	4.1	3.3	8.3	4.8
<b>Females</b>						
2004–2006	4.2	4.3	3.7	4.4	8.4	4.3
2005–2007	4.1	4.5	3.9	4.2	7.8	4.3
2006–2008	3.9	4.4	3.4	3.6	6.7	4.0
2007–2009	3.8	4.5	3.3	2.8	6.0	3.9
<b>Persons</b>						
2004–2006	4.8	5.2	3.8	4.5	9.7	4.9
2005–2007	4.7	5.1	4.3	3.9	9.0	4.8
2006–2008	4.5	5.1	3.5	3.5	7.8	4.5
2007–2009	4.3	5.1	3.7	3.0	7.2	4.3

- (a) Infant deaths per 1,000 live births. The volatility in infant mortality rates is partially due to the relatively small number of infant deaths registered.
- (b) Data are for NSW, Qld, SA, WA, and NT combined, based on state or territory of usual residence. Victoria, Tasmania and the Australian Capital Territory are excluded due to small numbers of registered Indigenous deaths.
- (c) Deaths where Indigenous status was not stated are excluded. As a result, infant mortality rates may be underestimated.
- (d) Includes not stated Indigenous status.

EXPERIMENTAL LIFE  
TABLES FOR ABORIGINAL  
AND TORRES STRAIT  
ISLANDER AUSTRALIANS

Life tables for the Aboriginal and Torres Strait Islander Australian population for the period 2005 to 2007 were published in May 2009 in *Experimental Life Tables for Aboriginal and Torres Strait Islander Australians, 2005–2007* (cat. no. 3302.0.55.003).

At the national level, life expectancy at birth for Aboriginal and Torres Strait Islander Australian males is estimated to be 67.2 years, 12 years less than life expectancy at birth for non-Indigenous males (78.7 years). Life expectancy at birth for Aboriginal and Torres Strait Islander Australian females is estimated to be 72.9 years, 10 years less than life expectancy at birth for non-Indigenous females (82.6 years).

Life expectancy at birth differs across the states and territories (table 3.8). For Aboriginal and Torres Strait Islander Australian males, life expectancy at birth is highest in New South Wales (69.9 years) and lowest in the Northern Territory (61.5 years). A similar pattern exists for Aboriginal and Torres Strait Islander Australian females, with the highest life expectancy at birth in New South Wales (75.0 years) and the lowest in the Northern Territory (69.2 years).

Differences in life expectancy at birth estimates between non-Indigenous and Aboriginal and Torres Strait Islander Australians are greatest in the Northern Territory (14 years for males and 12 years for females) and Western Australia (14 years for males and 12 years for females).

EXPERIMENTAL LIFE  
TABLES FOR ABORIGINAL  
AND TORRES STRAIT  
ISLANDER AUSTRALIANS  
*continued*

**3.8** LIFE EXPECTANCY AT BIRTH(a), Indigenous status—2005–2007

	LIFE EXPECTANCY AT BIRTH			Difference between non-Indigenous and Indigenous life expectancy at birth(b)
	Indigenous	Non-Indigenous	Total(c)	
	years	years	years	years
MALES				
NSW	69.9	78.7	78.5	8.8
Qld	68.3	78.6	78.4	10.4
WA	65.0	79.0	78.7	14.0
NT	61.5	75.7	72.0	14.2
Aust.(d)	67.2	78.7	78.5	11.5
FEMALES				
NSW	75.0	82.5	82.4	7.5
Qld	73.6	82.5	82.3	8.9
WA	70.4	82.9	82.5	12.5
NT	69.2	81.2	77.6	11.9
Aust.(d)	72.9	82.6	82.4	9.7
DIFFERENCE BETWEEN MALES AND FEMALES				
NSW	-5.1	-3.9	-3.9	..
Qld	-5.3	-3.9	-4.0	..
WA	-5.4	-3.8	-3.9	..
NT	-7.7	-5.4	-5.6	..
Aust.(d)	-5.6	-3.8	-3.9	..

- (a) Due to significant changes in methodology for adjusting registered deaths, estimates of life expectancy at birth for 2005–2007 are not comparable to previously published estimates.
- (b) Differences are based on unrounded estimates.
- (c) Estimates of life expectancy at birth for the total population presented in this table differ from estimates in Deaths, Australia, 2006 (cat. no. 3302.0). See paragraph 39 of the Explanatory Notes.
- (d) Includes all states and territories.

CHAPTER **4**      **LIFE TABLES** .....

## 4.1 LIFE TABLE, Australia—Males—2007–2009

Age	$l_x(a)$ no.	$q_x(b)$ rate	$L_x(c)$ no.	$ex(d)$ years	Age	$l_x(a)$ no.	$q_x(b)$ rate	$L_x(c)$ no.	$ex(d)$ years
0	100 000	0.00486	99 566	79.3	51	94 995	0.00332	94 839	30.8
1	99 514	0.00040	99 492	78.7	52	94 679	0.00359	94 511	29.9
2	99 474	0.00024	99 461	77.8	53	94 339	0.00388	94 159	29.0
3	99 449	0.00018	99 440	76.8	54	93 974	0.00418	93 780	28.1
4	99 431	0.00014	99 424	75.8	55	93 581	0.00451	93 372	27.2
5	99 417	0.00012	99 411	74.8	56	93 159	0.00488	92 934	26.3
6	99 405	0.00011	99 400	73.8	57	92 704	0.00530	92 462	25.4
7	99 394	0.00010	99 389	72.8	58	92 213	0.00577	91 950	24.6
8	99 384	0.00010	99 379	71.8	59	91 680	0.00631	91 395	23.7
9	99 375	0.00009	99 370	70.8	60	91 101	0.00692	90 791	22.9
10	99 365	0.00009	99 361	69.8	61	90 471	0.00762	90 131	22.0
11	99 356	0.00010	99 351	68.8	62	89 781	0.00840	89 410	21.2
12	99 346	0.00011	99 341	67.9	63	89 027	0.00928	88 620	20.4
13	99 336	0.00013	99 330	66.9	64	88 201	0.01027	87 755	19.5
14	99 323	0.00017	99 315	65.9	65	87 295	0.01137	86 806	18.7
15	99 306	0.00026	99 295	64.9	66	86 303	0.01257	85 768	18.0
16	99 281	0.00037	99 264	63.9	67	85 217	0.01387	84 635	17.2
17	99 245	0.00046	99 223	62.9	68	84 036	0.01525	83 403	16.4
18	99 199	0.00056	99 172	61.9	69	82 754	0.01676	82 070	15.7
19	99 144	0.00062	99 114	61.0	70	81 367	0.01845	80 626	14.9
20	99 083	0.00066	99 050	60.0	71	79 866	0.02037	79 063	14.2
21	99 017	0.00068	98 984	59.1	72	78 239	0.02257	77 368	13.5
22	98 950	0.00069	98 916	58.1	73	76 473	0.02510	75 526	12.8
23	98 882	0.00071	98 847	57.1	74	74 553	0.02801	73 524	12.1
24	98 812	0.00073	98 776	56.2	75	72 465	0.03133	71 346	11.4
25	98 740	0.00076	98 702	55.2	76	70 195	0.03513	68 978	10.8
26	98 664	0.00080	98 625	54.3	77	67 728	0.03945	66 410	10.1
27	98 585	0.00083	98 544	53.3	78	65 057	0.04432	63 633	9.5
28	98 503	0.00087	98 461	52.3	79	62 173	0.04980	60 642	9.0
29	98 417	0.00091	98 373	51.4	80	59 077	0.05593	57 441	8.4
30	98 328	0.00095	98 282	50.4	81	55 772	0.06275	54 038	7.9
31	98 235	0.00099	98 186	49.5	82	52 272	0.07029	50 449	7.4
32	98 137	0.00103	98 087	48.5	83	48 598	0.07860	46 699	6.9
33	98 037	0.00107	97 985	47.6	84	44 778	0.08769	42 822	6.4
34	97 932	0.00110	97 878	46.6	85	40 852	0.09759	38 862	6.0
35	97 824	0.00114	97 768	45.7	86	36 865	0.10833	34 867	5.6
36	97 712	0.00119	97 654	44.7	87	32 872	0.11993	30 894	5.2
37	97 596	0.00124	97 536	43.8	88	28 929	0.13239	27 003	4.9
38	97 475	0.00129	97 413	42.8	89	25 100	0.14618	23 251	4.5
39	97 349	0.00136	97 284	41.9	90	21 430	0.16259	19 670	4.2
40	97 217	0.00143	97 149	41.0	91	17 946	0.17984	16 308	3.9
41	97 079	0.00151	97 006	40.0	92	14 719	0.19713	13 238	3.7
42	96 932	0.00161	96 854	39.1	93	11 817	0.21417	10 520	3.5
43	96 775	0.00172	96 693	38.1	94	9 286	0.23066	8 182	3.3
44	96 609	0.00185	96 520	37.2	95	7 144	0.24490	6 238	3.1
45	96 429	0.00200	96 334	36.3	96	5 395	0.25820	4 670	3.0
46	96 236	0.00217	96 133	35.3	97	4 002	0.27150	3 435	2.8
47	96 028	0.00236	95 916	34.4	98	2 915	0.28300	2 483	2.7
48	95 801	0.00257	95 680	33.5	99	2 090	0.29403	1 767	2.6
49	95 555	0.00281	95 423	32.6	100	1 476	0.30505	(e) 3 706	2.5
50	95 287	0.00306	95 143	31.7					

(a)  $l_x$  — number of persons surviving to exact age  $x$ .

(b)  $q_x$  — proportion of persons dying between exact age  $x$  and exact age  $x+1$ .

(c)  $L_x$  — number of person years lived within the age interval  $x$  to  $x+1$ .

(d)  $ex$  — expectation of life at exact age  $x$ .

(e) At age 100,  $L_{100+}$  is shown.

## 4.2 LIFE TABLE, Australia—Females—2007–2009

Age	$l_x(a)$ no.	$q_x(b)$ rate	$L_x(c)$ no.	$ex(d)$ years	Age	$l_x(a)$ no.	$q_x(b)$ rate	$L_x(c)$ no.	$ex(d)$ years
0	100 000	0.00397	99 648	83.9	51	97 149	0.00203	97 051	34.4
1	99 603	0.00035	99 584	83.2	52	96 952	0.00217	96 847	33.5
2	99 569	0.00016	99 560	82.2	53	96 741	0.00232	96 630	32.5
3	99 553	0.00013	99 547	81.3	54	96 516	0.00249	96 398	31.6
4	99 540	0.00011	99 535	80.3	55	96 276	0.00269	96 149	30.7
5	99 529	0.00010	99 525	79.3	56	96 017	0.00292	95 879	29.8
6	99 520	0.00008	99 516	78.3	57	95 737	0.00319	95 587	28.9
7	99 512	0.00008	99 508	77.3	58	95 432	0.00349	95 268	27.9
8	99 504	0.00007	99 500	76.3	59	95 099	0.00382	94 920	27.0
9	99 497	0.00007	99 493	75.3	60	94 736	0.00419	94 540	26.1
10	99 489	0.00007	99 486	74.3	61	94 338	0.00460	94 124	25.3
11	99 482	0.00008	99 478	73.3	62	93 904	0.00505	93 670	24.4
12	99 474	0.00009	99 470	72.3	63	93 429	0.00554	93 174	23.5
13	99 466	0.00010	99 461	71.3	64	92 912	0.00607	92 634	22.6
14	99 456	0.00012	99 450	70.3	65	92 348	0.00666	92 045	21.8
15	99 443	0.00016	99 436	69.3	66	91 733	0.00731	91 402	20.9
16	99 428	0.00020	99 418	68.4	67	91 062	0.00805	90 701	20.0
17	99 408	0.00023	99 397	67.4	68	90 329	0.00888	89 935	19.2
18	99 385	0.00025	99 373	66.4	69	89 528	0.00982	89 095	18.4
19	99 360	0.00026	99 347	65.4	70	88 649	0.01088	88 174	17.5
20	99 335	0.00026	99 322	64.4	71	87 684	0.01208	87 163	16.7
21	99 309	0.00026	99 296	63.4	72	86 625	0.01342	86 053	15.9
22	99 284	0.00026	99 271	62.5	73	85 463	0.01494	84 834	15.1
23	99 258	0.00026	99 245	61.5	74	84 186	0.01669	83 495	14.4
24	99 232	0.00028	99 218	60.5	75	82 781	0.01873	82 019	13.6
25	99 204	0.00030	99 190	59.5	76	81 231	0.02114	80 387	12.8
26	99 175	0.00032	99 159	58.5	77	79 514	0.02398	78 577	12.1
27	99 143	0.00033	99 127	57.5	78	77 607	0.02731	76 566	11.4
28	99 110	0.00035	99 093	56.6	79	75 488	0.03120	74 331	10.7
29	99 075	0.00037	99 057	55.6	80	73 133	0.03570	71 850	10.0
30	99 039	0.00039	99 019	54.6	81	70 522	0.04089	69 103	9.4
31	99 000	0.00041	98 980	53.6	82	67 639	0.04680	66 079	8.8
32	98 959	0.00044	98 938	52.6	83	64 473	0.05350	62 772	8.2
33	98 916	0.00046	98 893	51.7	84	61 024	0.06103	59 184	7.6
34	98 870	0.00049	98 846	50.7	85	57 299	0.06945	55 330	7.1
35	98 822	0.00053	98 796	49.7	86	53 320	0.07878	51 236	6.6
36	98 770	0.00056	98 742	48.7	87	49 120	0.08906	46 945	6.1
37	98 714	0.00061	98 684	47.8	88	44 745	0.10077	42 502	5.6
38	98 654	0.00066	98 622	46.8	89	40 236	0.11526	37 925	5.2
39	98 589	0.00072	98 554	45.8	90	35 598	0.13128	33 260	4.8
40	98 518	0.00078	98 481	44.9	91	30 925	0.14822	28 620	4.5
41	98 442	0.00085	98 400	43.9	92	26 341	0.16580	24 135	4.1
42	98 358	0.00093	98 313	42.9	93	21 974	0.18378	19 924	3.9
43	98 266	0.00102	98 217	42.0	94	17 936	0.20191	16 086	3.6
44	98 166	0.00112	98 112	41.0	95	14 314	0.21790	12 713	3.4
45	98 056	0.00123	97 997	40.1	96	11 195	0.23470	9 840	3.2
46	97 936	0.00135	97 871	39.1	97	8 568	0.24790	7 466	3.1
47	97 804	0.00147	97 733	38.2	98	6 444	0.26210	5 565	2.9
48	97 660	0.00161	97 583	37.2	99	4 755	0.27393	4 074	2.8
49	97 503	0.00175	97 419	36.3	100	3 452	0.28598	(e) 9 271	2.7
50	97 333	0.00189	97 242	35.3					

(a)  $l_x$  — number of persons surviving to exact age  $x$ .

(b)  $q_x$  — proportion of persons dying between exact age  $x$  and exact age  $x+1$ .

(c)  $L_x$  — number of person years lived within the age interval  $x$  to  $x+1$ .

(d)  $ex$  — expectation of life at exact age  $x$ .

(e) At age 100,  $L_{100+}$  is shown.

### 4.3 LIFE EXPECTANCY, Australia(a)—Selected years(b)

	AGE (YEARS)									
	0	1	10	20	30	40	50	60	70	80
MALE										
1989	73.3	73.0	64.2	54.5	45.2	35.9	26.7	18.4	11.5	6.6
1994	75.0	74.5	65.7	56.0	46.6	37.2	28.0	19.4	12.3	7.0
1997–1999	76.2	75.7	66.8	57.1	47.8	38.4	29.2	20.5	13.1	7.5
2002–2004	78.1	77.5	68.6	58.9	49.4	39.9	30.6	21.8	14.1	8.0
2003–2005	78.5	77.9	69.0	59.2	49.7	40.2	31.0	22.2	14.4	8.2
2004–2006	78.7	78.1	69.3	59.5	49.9	40.4	31.2	22.3	14.5	8.2
2005–2007	79.0	78.4	69.6	59.7	50.2	40.7	31.4	22.6	14.7	8.3
2006–2008	79.2	78.6	69.7	59.9	50.3	40.8	31.5	22.7	14.8	8.3
2007–2009	79.3	78.7	69.8	60.0	50.4	41.0	31.7	22.9	14.9	8.4
FEMALE										
1989	79.6	79.2	70.4	60.5	50.8	41.1	31.7	22.8	14.9	8.5
1994	80.9	80.3	71.5	61.6	51.8	42.1	32.7	23.7	15.5	8.8
1997–1999	81.8	81.2	72.3	62.5	52.7	43.0	33.5	24.5	16.2	9.3
2002–2004	83.0	82.4	73.5	63.6	53.8	44.1	34.6	25.5	17.0	9.8
2003–2005	83.3	82.7	73.8	63.9	54.1	44.4	34.9	25.7	17.2	9.9
2004–2006	83.5	82.9	74.0	64.1	54.3	44.5	35.0	25.8	17.3	9.9
2005–2007	83.7	83.1	74.2	64.3	54.5	44.7	35.2	26.0	17.4	10.0
2006–2008	83.7	83.1	74.2	64.3	54.5	44.7	35.2	26.0	17.4	10.0
2007–2009	83.9	83.2	74.3	64.4	54.6	44.9	35.3	26.1	17.5	10.0

- (a) Prior to 1995, life expectancy was based on annual life tables calculated by the ABS. From 1995 to 1998, the life tables were produced as a joint venture between the ABS and the Australian Government Actuary. For Census years, the Australian Government Actuary also produces life tables. See paragraph 45 of the Explanatory Notes for more information.
- (b) From 1995 onwards, life expectancy has been calculated using three years of data.

**4.4**

## PROBABILITY OF SURVIVING FROM BIRTH TO SPECIFIC AGES,

Australia(a)—Selected years(b)

	AGE (YEARS)								
	1	10	20	30	40	50	60	70	80
MALES									
1989	99.1	98.8	98.2	96.8	95.3	92.9	85.9	68.8	37.9
1994	99.3	99.1	98.6	97.5	96.0	93.8	88.0	72.9	43.4
1997–1999	99.4	99.2	98.7	97.5	96.1	93.9	88.8	75.5	48.0
2002–2004	99.5	99.3	98.9	98.0	96.9	94.8	90.4	79.3	54.4
2003–2005	99.5	99.3	99.0	98.1	96.9	94.9	90.6	79.9	55.8
2004–2006	99.5	99.3	99.0	98.1	97.0	95.1	90.8	80.4	56.7
2005–2007	99.5	99.3	99.0	98.2	97.1	95.1	90.9	80.8	58.0
2006–2008	99.5	99.3	99.1	98.3	97.2	95.2	91.1	81.1	58.5
2007–2009	99.5	99.4	99.1	98.3	97.2	95.3	91.1	81.4	59.1
FEMALES									
1989	99.3	99.0	98.8	98.3	97.7	96.1	92.0	82.2	59.1
1994	99.5	99.3	99.1	98.7	98.1	96.7	93.1	84.5	63.3
1997–1999	99.5	99.4	99.1	98.7	98.1	96.7	93.5	85.7	66.3
2002–2004	99.6	99.4	99.2	98.9	98.3	97.1	94.3	87.4	70.2
2003–2005	99.5	99.4	99.2	98.9	98.4	97.1	94.4	87.8	71.1
2004–2006	99.5	99.4	99.3	98.9	98.4	97.2	94.5	88.1	71.6
2005–2007	99.6	99.4	99.3	99.0	98.4	97.3	94.6	88.4	72.4
2006–2008	99.6	99.4	99.3	99.0	98.5	97.3	94.7	88.5	72.7
2007–2009	99.6	99.5	99.3	99.0	98.5	97.3	94.7	88.6	73.1

- (a) Based on life tables. Prior to 1995, life expectancy was based on annual life tables calculated by the ABS. From 1995 to 1998, life tables were produced as a joint venture between the ABS and the Australian Government Actuary. For Census years, the Australian Government Actuary also produces life tables. See paragraph 45 of the Explanatory Notes for more information.
- (b) From 1995 onwards, life expectancy has been calculated using three years of data.

## EXPLANATORY NOTES .....

### INTRODUCTION

**1** This publication contains statistics for deaths and mortality in Australia. Detailed information can be obtained from data cubes (in Microsoft Excel format) available for download from the ABS website (see paragraph 57).

**2** A glossary is provided detailing definitions of terminology used. A list of abbreviations is also available.

### SCOPE AND COVERAGE

**3** Statistics in this publication relate to the number of deaths registered during the calendar year shown, unless otherwise stated. Statistics relating to deaths by year of occurrence can be obtained from data cubes available for download from the ABS website (see paragraph 57).

#### *Scope of death statistics*

**4** The ABS Death Registrations collection includes all deaths that occurred and were registered in Australia, including deaths of persons whose place of usual residence was overseas. Deaths of Australian residents that occurred outside Australia may be registered by individual Registrars, but are not included in ABS death statistics.

**5** The scope of the statistics includes:

- all deaths being registered for the first time;
- deaths of temporary visitors to Australia (including visitors from Norfolk Island);
- deaths that occurred within Australian Territorial waters;
- deaths that occurred in Australian Antarctic Territories or other external territories (excluding Norfolk Island);
- deaths that occurred in transit (i.e. on ships or planes) if registered in the state or territory of "next port of call";
- deaths of Australian nationals employed overseas at Australian legations and consular offices (i.e. deaths of Australian diplomats while overseas) where able to be identified; and
- deaths that occurred in earlier years that have not previously been registered (late registrations).

**6** The scope of the statistics excludes:

- still births/fetal deaths (these are accounted for in perinatal death statistics published in *Perinatal Deaths, Australia*, cat. no. 3304.0, and previously, *Causes of Death, Australia*, cat. no. 3303.0);
- repatriation of human remains of decedents whose death occurred overseas;
- deaths of foreign diplomatic staff in Australia (where able to be identified); and
- deaths occurring on Norfolk Island.

**7** The scope for each reference year of the Death Registrations collection includes:

- deaths registered in the reference year and received by ABS in the reference year;
- deaths registered in the reference year and received by ABS in the first quarter of the subsequent year; and
- deaths registered in the years prior to the reference year but not received by ABS until the reference year or the first quarter of the subsequent year, provided that these records have not been included in any statistics from earlier periods.

*Scope of death statistics  
continued*

**8** Death records received by ABS during the March quarter 2010 which were initially registered in 2009 (but not fully completed until 2010) were assigned to the 2009 reference year. Any registrations relating to 2009 which were received by ABS from April 2010 were assigned to the 2010 reference year.

**9** Prior to 2007, the scope for the reference year of the Death Registrations collection included:

- deaths registered in the reference year and received by ABS in the reference year;
- deaths registered in the reference year and received by ABS in the first quarter of the subsequent year; and
- deaths registered during the two years prior to the reference year but not received by ABS until the reference year.

*Coverage of death statistics*

**10** Ideally, for compiling annual time series, the number of events (deaths) should be recorded as all those occurring within a given reference period such as a calendar year. Due to lags in registration of deaths and the provision of that information to the ABS from state/territory Registrars of Births, Deaths and Marriages, data in this publication are presented on a year of registration basis.

**11** In effect, there are three dates attributable to each death registration:

- the date of occurrence (of the death);
- the date of registration or inclusion on the state/territory register; and
- the month and year in which the registered event is provided to the ABS.

CLASSIFICATIONS

*Marital status*

**12** Marital status relates to the registered marital status of the deceased at the time of death, which refers to formally registered marriages or divorces for which a certificate is held.

**13** From 2007 onwards, marital status at death is provided by registries as legal marital status. Previously, a mix of legal and social marital status was used by some states and territories.

*Australian Standard  
Geographical Classification*

**14** The Australian Standard Geographical Classification (ASGC) is a hierarchical classification system consisting of six interrelated classification structures. The ASGC provides a common framework of statistical geography and thereby enables the production of statistics which are comparable and can be spatially integrated.

**15** For further information refer to Australian Standard Geographical Classification (ASGC) (cat. no. 1216.0).

*Standard Australian  
Classification of Countries*

**16** The Standard Australian Classification of Countries (SACC) (Second Edition) groups neighbouring countries into progressively broader geographical areas on the basis of their similarity in terms of social, cultural, economic and political characteristics.

**17** For further information refer to Standard Australian Classification of Countries (SACC) Second Edition (cat. no. 1269.0).

DATA SOURCES

**18** Registration of deaths is the responsibility of state and territory Registrars of Births, Deaths and Marriages. Information about the deceased is acquired from a Death Registration Form (DRF) which is completed by the funeral director, based on information supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred. As part of the registration process, information on the cause of death is either supplied by the medical practitioner certifying the death on a Medical Certificate of Cause of Death (MCCD), or supplied as a result of a coronial investigation. This information is provided to the ABS by individual Registrars for coding and compilation into aggregate statistics shown in this publication.

State and territory data

**19** As a result of an amendment made in 1992 to section 17(a) of the *Acts Interpretation Act 1901–1973 (Cwlth)* the Indian Ocean territories of Christmas Island and Cocos (Keeling) Islands have been included as part of geographic Australia, hence another category of the state and territory classification has been created. This category is known as 'Other Territories' and includes Christmas Island, the Cocos (Keeling) Islands and Jervis Bay Territory.

**20** Prior to 1993, deaths of persons usually resident in Christmas Island and Cocos (Keeling) Islands were included with Off-Shore Areas and Migratory in Western Australia, while deaths of persons usually resident in Jervis Bay Territory were included with the Australian Capital Territory. In 2009, there were 7 deaths of persons usually resident in Christmas Island, the Cocos (Keeling) Islands and Jervis Bay Territory.

**21** Death statistics for states and territories have been compiled and presented according to the state or territory of usual residence of the deceased, regardless of where in Australia the death occurred and was registered, except where otherwise stated. Deaths which took place outside Australia are excluded from the statistics.

**22** In the following table, data are presented on a state or territory of registration basis. Deaths which took place outside Australia are excluded from the statistics. Deaths of persons who were usual residents of Australia's Other Territories (Christmas Island, Cocos (Keeling) Islands and Jervis Bay Territory) are registered in other Australian states.

DEATHS, State or territory of usual residence and state or territory of registration—2009

State or territory of usual residence	STATE OR TERRITORY OF REGISTRATION								
	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
NSW	46 091	207	367	30	19	8	3	249	46 974
Vic.	167	35 303	90	44	15	8	5	8	35 640
Qld	212	37	26 020	12	18	np	10	np	26 316
SA	40	30	13	12 357	10	np	13	np	12 468
WA	13	18	4	7	12 515	np	6	np	12 566
Tas.	10	24	4	np	4	4 143	—	np	4 188
NT	9	5	9	17	10	np	901	np	953
ACT	42	5	5	np	—	np	—	1 595	1 648
<b>Aust. (a)</b>	<b>46 585</b>	<b>35 629</b>	<b>26 512</b>	<b>12 469</b>	<b>12 595</b>	<b>4 167</b>	<b>938</b>	<b>1 865</b>	<b>140 760</b>

— nil or rounded to zero (including null cells)  
 np not available for publication but included in totals where applicable, unless otherwise indicated  
 (a) Includes Other Territories.

State and territory data  
continued

**23** In 2009, there were 295 deaths registered in Australia of persons who usually lived overseas. These have been included in this publication with state and territory of usual residence classified according to the state or territory in which the death was registered.

#### DEATHS, Persons usually resident overseas—2003 to 2009

	2003	2004	2005	2006	2007	2008	2009
<b>State or territory of registration</b>							
New South Wales	100	98	100	92	95	106	85
Victoria	48	56	33	50	46	54	49
Queensland	109	81	77	88	83	73	86
South Australia	19	16	12	8	13	13	4
Western Australia	44	40	46	60	50	45	51
Tasmania	10	5	7	6	6	3	8
Northern Territory	6	6	12	11	13	13	8
Australian Capital Territory	—	5	4	4	9	3	4
<b>Australia</b>	<b>336</b>	<b>307</b>	<b>291</b>	<b>319</b>	<b>315</b>	<b>310</b>	<b>295</b>

— nil or rounded to zero (including null cells)

Sub-state/territory mortality  
rates

**24** Indirect standardised death rates for sub-state/territory regions (for example, Statistical Divisions) presented in this publication are average rates for three years ending in the reference year. Rates for Australia and the states and territories in all other tables are based on single years of death registration data.

#### DATA QUALITY

**25** In compiling death statistics, the ABS employs a variety of measures to improve the quality of the death registrations collection. While every opportunity is taken to ensure that the highest quality of statistics are provided, the following are known issues associated with the statistics included in this publication.

Interval between occurrence  
and registration of deaths

**26** For the most part, statistics in this publication refer to deaths registered during the calendar year shown. There is usually an interval between the occurrence and registration of a death (referred to as a registration 'lag'), and as a result, some deaths occurring in one year are not registered until the following year or later. This can be caused by either a delay in the submission of a completed form to the registry, or a delay by the registry in processing the death. Deaths which occur in November and December are also likely to be registered in the following year.

#### DEATHS REGISTERED IN 2009, Year of occurrence —Selected years

Year of occurrence	STATE OR TERRITORY OF REGISTRATION								
	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	%	%	%	%	%	%	%	%	%
2006 and earlier	—	0.2	—	0.1	0.2	0.1	0.3	0.1	0.1
2007	—	0.1	—	—	0.1	—	0.6	0.1	0.1
2008	4.0	6.8	5.5	4.4	3.7	4.1	13.8	5.3	5.1
2009	95.9	93.0	94.4	95.6	96.1	95.8	85.3	94.6	94.8

— nil or rounded to zero (including null cells)

**27** Of the 140,800 deaths registered in 2009, 94.8% occurred in 2009, while 5.1% occurred in 2008 and the remainder (0.1%) occurred in 2007 or earlier years.

Unknown infant age at death

**28** For some infant deaths, only limited information for age at death is known. These deaths are included in the following categories:

*Unknown infant age at death  
continued*

- not stated minutes and not stated hours (i.e. age at death was under one day) are included in 'Under one day'
- not stated days (i.e. age at death was at least one day but under one month) are included in 'One week to under four weeks'
- not stated months (i.e. age at death was at least one month but under one year) are included in 'Four weeks to under one year'.

*Indigenous deaths and  
mortality rates*

**29** The ABS Death Registrations collection identifies a death as being of Aboriginal and/or Torres Strait Islander (Indigenous) origin where the deceased is identified as being of Aboriginal and/or Torres Strait Islander origin through the death registration process.

**30** While it is considered likely that most deaths of Aboriginal and Torres Strait Islander Australians are registered, a proportion of these deaths are not identified as such by the family, health worker or funeral director during the death registration process. That is, whilst data are provided to the ABS for the Indigenous status question for 98.9% of all deaths, there are concerns regarding the accuracy of the data. The Indigenous status question may not always be directly asked of relatives and friends of the deceased by the funeral director.

**31** This publication includes the number of registered deaths of Aboriginal and Torres Strait Islander Australians for all jurisdictions. However, due to the data quality issues outlined below, detailed disaggregations of deaths of Aboriginal and Torres Strait Islander Australians are provided only for New South Wales, Queensland, South Australia, Western Australia and the Northern Territory. In *Chapter 3 - Deaths of Aboriginal and Torres Strait Islander Australians*, the 'total' variable is an aggregation of these five states.

**32** There are several data collection forms on which people are asked to state whether they are Aboriginal and/or Torres Strait Islander origin. Due to a number of factors, the results are not always consistent. The likelihood that a person will identify, or be identified, as Aboriginal and Torres Strait Islander Australian on a specific form is known as their propensity to identify. Propensity to identify as Aboriginal and Torres Strait Islander can be thought of as the proportion of the total, unknown, number of people who identify as such on a specific form.

**33** Propensity to identify as Aboriginal and Torres Strait Islander Australian is determined by a range of factors, including:

- how the information is collected (e.g. census, survey, or administrative data);
- who provides the information (e.g. the person in question, a relative, a health professional, or an official);
- the perception of why the information is required, and how it will be used;
- educational programs about identifying as Indigenous; and
- cultural aspects and feelings associated with identifying as Aboriginal and Torres Strait Islander Australian.

**34** In addition to those deaths identified as Aboriginal and Torres Strait Islander Australian, a number of deaths occur each year where Indigenous status is not stated on the death registration form. In 2009, there were 1,500 deaths registered in Australia for whom Indigenous status was not stated, representing 1.1% of all deaths registered.

**35** Data presented in this publication may therefore underestimate the level of Aboriginal and Torres Strait Islander deaths and mortality in Australia. Caution should be exercised when interpreting data for Aboriginal and Torres Strait Islander Australians presented in this publication, especially with regard to year-to-year changes.

*Indigenous deaths and mortality rates continued*

**36** Due to the increased focus on the mortality rates of Aboriginal and Torres Strait Islander Australians, a number of projects have been undertaken to investigate the quality of these data. These include:

- a Council of Australian Governments (COAG)-funded assessment of Indigenous identification in key data sets, for example, the birth and death registration systems managed by state and territory Registries of Births, Deaths and Marriages;
- data integration projects undertaken by several state and territory government departments using health and death records;
- follow-up activities conducted by the Australian Capital Territory Registry of Births, Deaths and Marriages in order to reduce the number of registration forms where there was a 'not stated' response to the question on Indigenous status; and
- ongoing ABS investigations into the unusual volatility in the number of deaths of Aboriginal and Torres Strait Islander Australians registered in Western Australia in recent years.

**37** As discussed in Chapter 3, the ABS also conducted the Indigenous Mortality Quality Study as part of the Census Data Enhancement Project following the 2006 Census to investigate the consistency of Indigenous identification between death registrations and the 2006 Census. See *Information Paper: Census Data Enhancement—Indigenous Mortality Quality Study, 2006–07* (cat. no. 4723.0). The ABS has also recently announced plans for a repeat of the Indigenous mortality project with the 2011 Census. See *Census Data Enhancement Project: An Update, Oct 2010* (cat no. 2062.0).

*Indigenous life tables*

**38** Life tables for the Aboriginal and Torres Strait Islander population for the period 2005 to 2007 were published in May 2009 in *Experimental Life Tables for Aboriginal and Torres Strait Islander Australians, 2005–2007* (cat. no. 3302.0.55.003).

**39** Estimates of life expectancy at birth for the total population presented in *Experimental Life Tables for Aboriginal and Torres Strait Islander Australians, 2005–2007* (cat. no. 3302.0.55.003) differ from estimates published in *Deaths, Australia, 2006* (cat. no. 3302.0). Estimates presented in *Experimental Life Tables for Aboriginal and Torres Strait Islander Australians, 2005–2007* (cat. no. 3302.0.55.003) are derived from abridged life tables with an upper age limit of 85 years and over, using numbers of deaths registered in 2005–2007 and the population as at 30 June 2006, while life expectancy estimates in *Deaths, Australia, 2006* (cat. no. 3302.0) are based on complete life tables with an upper age group of 115 years and over, using deaths according to month of occurrence in 2005–2007 and quarterly population estimates. In addition, graduation processes applied to both sets of life tables differ. See paragraphs 40 to 49 for more information on life tables.

LIFE TABLES

**40** A life table is a statistical model used to represent mortality of a population. In its simplest form, a life table is generated from age-specific death rates and the resulting values are used to measure mortality, survivorship and life expectancy.

**41** Life tables in this publication are current, or period, life tables, based on death rates for a short period of time during which mortality has remained much the same. Mortality rates used in the Australian and state and territory life tables are based on death registrations and estimated resident population for the period 2007–2009. The life tables do not take into account future assumed improvements in mortality.

**42** Life tables are presented separately for males and females. The life table depicts the mortality experience of a hypothetical group of newborn babies throughout their entire lifetime. It is based on the assumption that this group is subject to the age-specific mortality rates of the reference period. Typically this hypothetical group is 100,000 in size.

LIFE TABLES *continued*

**43** To construct a life table, data on population, deaths and births are needed. Mortality rates are smoothed to avoid fluctuations in the data. Apart from mortality rates themselves ( $q_x$ ), all other functions of the life table are derived from  $q_x$ . The life tables presented in this publication contain four columns of interrelated information. These functions are:

- $l_x$ —the number of persons surviving to exact age  $x$ ;
- $q_x$ —the proportion of persons dying between exact age  $x$  and exact age  $x+1$ . It is the mortality rate, from which other functions of the life table are derived;
- $L_x$ —the number of person years lived within the age interval  $x$  to  $x+1$ ; and
- $e_x$ —life expectancy at exact age  $x$ .

*Life tables based on assumed improvements in mortality*

**44** Life tables based on assumed improvements in mortality are produced by the ABS using assumptions on future life expectancy at birth, based on recent trends in life expectancy. Mortality rates derived from these life tables are used as inputs to ABS population projections. For further information see *Population Projections, Australia, 2006 to 2101* (cat. no. 3222.0).

*Australian life tables*

**45** The 2007–2009 life tables differ from those published prior to the 1995 edition of this publication in a number of important respects. First, they are based on three years of death registrations and estimated resident population data. This is designed to reduce the impact of year-to-year statistical variations, particularly at younger ages where there are small numbers of deaths, and at very old ages where the population at risk is small. Second, the deaths and population data are based on Australian residents who are physically present in Australia over the three-year period; i.e. Australian residents temporarily overseas are excluded. Third, they have been actuarially graduated on the same principles which are used for the quinquennial Australian life tables prepared by the Australian Government Actuary.

*State and territory life tables*

**46** Life tables for the states and territories are produced on the same principles as the Australian life tables. For the years 1994–1996 to 1999–2001, these are available in the Demography (cat. nos. 3311.1–3311.8) set of publications. State and territory life tables for the period 2000–2002 are available on request. State and territory life tables for the period 2001–2003 and onwards are published in *Life Tables* (cat. nos. 3302.1.55.001–3302.8.55.001). Note that the release of state and territory life tables for 2007–2009 has been deferred until 8th December 2010.

*Statistical Division life tables*

**47** Due to the deferral of the state and territory life tables, estimates of life expectancy at birth for Statistical Divisions for 2007–2009 are not yet available. It is expected that these will be available 9 December 2010.

**48** Life expectancy at birth for Statistical Divisions have been calculated with reference to state and territory life tables, using Brass' Logit System. Small area life tables are based on age-specific death rates for each area, some of which may be zero where no deaths are recorded at these ages. Brass' Logit technique enables the calculation of smooth abridged life tables for regions which have defective age-specific death rates, by adjusting them with reference to a standard life table. The technique does not alter the overall level of mortality, but the age-specific functions of the life table are smoothed.

**49** The Brass' Logit technique essentially compares mortality between the regional and standard life tables across ages, then a line of best fit is calculated to describe that relationship by age. The line of best fit is then used in conjunction with the standard life table to determine death rates for the small area life table. For a more detailed description of Brass' Logit System, refer to Brass (1975) *Methods for Estimating Fertility and Mortality from Limited and Defective data*.

## CAUSES OF DEATH

**50** Causes of death information is published under the 3303.0 product family. For more information see *Causes of Death, Australia: Doctor Certified Deaths, Summary Tables, 2009* (cat. no. 3303.0.55.001) scheduled for release on 26 November 2010, and *Causes of Death, Australia, 2009* (cat. no. 3303.0) scheduled for release in March 2011.

## CONFIDENTIALITY

**51** The *Census and Statistics Act 1905* provides the authority for the ABS to collect statistical information, and requires that statistical output shall not be published or disseminated in a manner that is likely to enable the identification of a particular person or organisation. This requirement means that the ABS must take care and make assurances that any statistical information about individual respondents cannot be derived from published data.

**52** Where necessary, tables in this publication have had small values suppressed or randomised to protect confidentiality. As a result, sums of components may not add exactly to totals.

## ROUNDING

**53** Calculations as shown in the commentary sections of this publication are based on unrounded figures. Calculations using rounded figures may differ from those published. Where figures have been rounded in tables, discrepancies may occur between sums of component item and totals.

## ACKNOWLEDGEMENTS

**54** The ABS' publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. The efforts of Registries of Births, Deaths and Marriages to improve the data quality, coverage and timeliness of death registration information, processes and systems are noted and valued by the ABS. Their continued cooperation is very much appreciated; without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence as required by the *Census and Statistics Act 1905*.

## RELATED PRODUCTS

**55** Other ABS products which may be of interest to users include:

- *ABS Directions in Aboriginal and Torres Strait Islander Statistics, Jun 2007* (cat. no. 4700.0)
- *Australian Demographic Statistics* (cat. no. 3101.0)
- *Australian Demographic Trends* (cat. no. 3102.0)
- *Australian Historical Population Statistics* (cat. no. 3105.0.65.001)
- *Australian Social Trends* (cat. no. 4102.0)
- *Australian Standard Geographical Classification (ASGC)* (cat. no. 1216.0)
- *Births, Australia* (cat. no. 3301.0)
- *Causes of Death, Australia* (cat. no. 3303.0)
- *Causes of Death, Australia: Doctor Certified Deaths, Summary Tables* (cat. no. 3303.0.55.001)
- *Census Data Enhancement Project: An Update, Oct 2010* (cat. no. 2062.0)
- *Discussion Paper: Assessment of Methods for Developing Life Tables for Aboriginal and Torres Strait Islander Australians, 2006* (cat. no. 3302.0.55.002)
- *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021* (cat. no. 3238.0)
- *Experimental Estimates of Aboriginal and Torres Strait Islander Australians, Jun 2006* (cat. no. 3238.0.55.001)
- *Experimental Life Tables for Aboriginal and Torres Strait Islander Australians, 2005–2007* (cat. no. 3302.0.55.003)
- *Information Paper: ABS Causes of Death Statistics: Concepts, Sources, and Methods* (cat. no. 3317.0.55.002)
- *Information Paper: Census Data Enhancement—Indigenous Mortality Quality Study, 2006–07* (cat. no. 4723.0)
- *Life Tables* (cat. nos. 3302.0.55.001–3302.8.55.001)

RELATED PRODUCTS *continued*

- *Perinatal Deaths, Australia* (cat. no. 3304.0)
- *Population Estimates: Concepts, Sources and Methods, 2009* (cat. no. 3228.0.55.001)
- *Population Projections, Australia, 2006 to 2101* (cat. no. 3222.0)
- *Standard Australian Classification of Countries (SACC)* (cat. no. 1269.0)
- *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples* (cat. no. 4704.0)

**56** ABS products and publications are available free of charge from the ABS website <<http://www.abs.gov.au>>. Click on Statistics to gain access to the full range of ABS statistical and reference information.

ADDITIONAL STATISTICS  
AVAILABLE

**57** More detailed death and mortality statistics can be obtained from data cubes (in Microsoft excel format) available for download from the ABS website in *Deaths, Australia, 2009* (cat. no. 3302.0):

- Table 1: Deaths, Summary, States and territories, 1999 to 2009
- Table 2: Death rates, Summary, States and territories, 1999 to 2009
- Table 3: Life expectancy, Selected ages, States and territories, 1999 to 2009
- Table 4: Deaths, Summary, Statistical Divisions, 2004 to 2009
- Table 5: Deaths, Summary, Statistical Local Areas, 2004 to 2009
- Table 6: Deaths, Summary, Local Government Areas, 2004 to 2009
- Table 7: Deaths, Age at death, Marital status, Australia, 2009
- Table 8: Deaths, Country of birth, Australia, 2009
- Table 9: Infant deaths, Age at death, States and territories, 1999 to 2009
- Table 10: Deaths, Year of occurrence, Age at death, States and territories, 1999 to 2009
- Table 11: Median age at death, Year of occurrence, States and territories, 1999 to 2009
- Table 12: Deaths, Year and month of occurrence, States and territories, 1999 to 2009
- Table 13: Infant deaths, Year of occurrence, Age at death, Australia, 1999 to 2009
- Table 14: Infant deaths, Year and month of occurrence, States and territories, 2007 to 2009
- Table 15: Deaths, Indigenous status, States and territories, 1991 to 2009
- Table 16: Median age at death, Indigenous status, Selected states and territories, 1991 to 2009
- Table 17: Infant mortality rates, Indigenous status, Selected states and territories, 1991 to 2009
- Table 18: Age specific death rates, Indigenous status, Selected states and territories, 2005–2009

**58** For additional articles on deaths (including causes of death) and mortality published by the ABS, see Appendix: Feature Articles List.

**59** As well as the statistics included in this and related publications, the ABS may have other relevant data available on request. Inquiries should be made to the National Information and Referral Service on 1300 135 070.

**60** The ABS also issues a daily Release Advice on the website which details the products to be released in the week ahead.

## GLOSSARY .....

<b>Age-specific death rate</b>	Age-specific death rates (ASDRs) are the number of deaths (occurred or registered) during the calendar year at a specified age per 1,000 of the estimated resident population of the same age at the mid-point of the year (30 June). Pro rata adjustment is made in respect of deaths for which the age of the deceased is not given.
<b>Balance of state or territory</b>	The aggregation of all Statistical Divisions (SD) within a state or territory other than its Capital City SD. See Major Statistical Region in <i>Australian Statistical Geographical Classification (ASGC)</i> (cat. no. 1216.0).
<b>Country of birth</b>	The classification of countries used is the Standard Australian Classification of Countries (SACC). For more detailed information refer to the <i>Standard Australian Classification of Countries (SACC)</i> (cat. no. 1269.0).
<b>Crude death rate</b>	The crude death rate (CDR) is the number of deaths registered during the calendar year per 1,000 estimated resident population at 30 June. For years prior to 1992, the crude death rate was based on the mean estimated resident population for the calendar year.
<b>Death</b>	Death is the permanent disappearance of all evidence of life after birth has taken place. The definition excludes all deaths prior to live birth. For the purposes of the ABS Death Registration collection, a death refers to any death which occurs in, or en route to Australia and is registered with a state or territory Registry of Births, Deaths and Marriages.
<b>Estimated resident population (ERP)</b>	The official measure of the population of Australia is based on the concept of residence. It refers to all people, regardless of nationality or citizenship, who usually live in Australia, with the exception of foreign diplomatic personnel and their families. It includes residents who are overseas for less than 12 months. It excludes overseas visitors who are in Australia for less than 12 months.
<b>External territories</b>	Australian external territories include Australian Antarctic Territory, Coral Sea Islands Territory, Norfolk Island, Territory of Ashmore and Cartier Islands, and Territory of Heard and McDonald Islands.
<b>Indigenous</b>	Persons who identify themselves as being of Aboriginal and/or Torres Strait Islander origin.
<b>Indigenous death</b>	The death of a person who is identified as being of Aboriginal and/or Torres Strait Islander (Indigenous) origin on the Death Registration Form (DRF). From 2007, Indigenous origin for deaths registered in South Australia, Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory is also derived from the Medical Certificate of Cause of Death (MCCD).
<b>Indirect standardised death rate (ISDR)</b>	See Standardised death rate (SDR).
<b>Infant death</b>	An infant death is the death of a live-born child who dies before reaching his/her first birthday.
<b>Infant mortality rate (IMR)</b>	The number of deaths of children under one year of age in a specified period per 1,000 live births in the same period.
<b>Intercensal discrepancy</b>	Intercensal discrepancy is the difference between two estimates at 30 June of a census year population, the first based on the latest census and the second arrived at by updating the 30 June estimate of the previous census year with intercensal components of population change which take account of information available from the latest census.

<b>Intercensal discrepancy</b> <i>continued</i>	It is caused by errors in the start and/or finish population estimates and/or in estimates of births, deaths or migration in the intervening period which cannot be attributed to a particular source. For further information see <i>Population Estimates: Concepts, Sources and Methods, 2009</i> (cat. no. 3228.0.55.001).
<b>Life expectancy</b>	Life expectancy refers to the average number of additional years a person of a given age and sex might expect to live if the age-specific death rates of the given period continued throughout his/her lifetime.
<b>Life table</b>	<p>A life table is a tabular, numerical representation of mortality and survivorship of a cohort of births at each age of life. The conventional life table is based on the assumption that as the cohort passes through life it experiences mortality at each age in accordance with a predetermined pattern of mortality rates which do not change from year to year. The life table thus constitutes a hypothetical model of mortality, and even though it is usually based upon death rates from a real population during a particular period of time, it does not describe the real mortality which characterises a cohort as it ages.</p> <p>Due to differences in mortality patterns between males and females at different ages, life tables are generally constructed separately for each sex.</p>
<b>Live birth</b>	A live birth is the birth of a child who, after delivery, breathes or shows any other evidence of life such as a heartbeat.
<b>Local Government Area (LGA)</b>	LGA is a spatial unit which represents the whole geographical area of responsibility of an incorporated Local Government Council, an Aboriginal or Island Council in Queensland, or a Community Government Council (CGC) in the Northern Territory. An LGA consists of one or more SLAs. LGAs aggregate directly to form the incorporated areas of states/territories. The creation and delimitation of LGAs is the responsibility of the state and territory Governments. The number of LGAs, their names and their boundaries vary over time. Further information concerning LGAs is contained in <i>Australian Standard Geographic Classification (ASGC)</i> (cat.no.1216.0).
<b>Marital status</b>	<p>Two separate concepts are measured by the ABS. These are registered marital status and social marital status.</p> <p>Registered marital status refers to formally registered marriages and divorces. Registered marital status is a person's relationship status in terms of whether he or she has, or has had, a registered marriage with another person. Accordingly, people are classified as either 'never married', 'married', 'widowed', or 'divorced'.</p> <p>Social marital status is the relationship status of an individual with reference to another people who is usually resident in the household. A marriage exists when two people live together as husband and wife, or partners, regardless of whether the marriage is formalised through registration. Individuals are, therefore, regarded as married if they are in a de facto marriage, or if they are living with the person to whom they are registered as married. Under social marital status, a person is classified as either 'married' or 'not married' with further disaggregation of 'married' to distinguish 'registered married' from 'de facto married'.</p>
<b>Median value</b>	For any distribution the median value (age, duration, interval) is that value which divides the relevant population into two equal parts, half falling below the value, and half exceeding it. Where the value for a particular record has not been stated, that record is excluded from the calculation.
<b>Mortality</b>	Death.
<b>Natural increase</b>	Excess of births over deaths.
<b>Net overseas migration (NOM)</b>	<p>Net overseas migration is the net gain or loss of population through immigration to Australia and emigration from Australia. It is:</p> <ul style="list-style-type: none"> <li>■ based on an international traveller's duration of stay being in or out of Australia for 12 months or more;</li> </ul>

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<b>Net overseas migration (NOM)</b> <i>continued</i>	<ul style="list-style-type: none"> <li>■ the difference between;           <ul style="list-style-type: none"> <li>■ the number of incoming international travellers who stay in Australia for 12 months or more, who <i>are not</i> currently counted within the population, and are then added to the population (NOM arrivals); and</li> <li>■ the number of outgoing international travellers (Australian residents and long-term visitors to Australia) who leave Australia for 12 months or more, who <i>are</i> currently counted within the population, and are then subtracted from the population (NOM departures).</li> </ul> </li> </ul> <p>Under the current method for estimating final net overseas migration this term is based on a traveller's actual duration of stay or absence using the '12/16 month rule'. Preliminary NOM estimates are modelled on patterns of traveller behaviours observed in final NOM estimates for the same period one year earlier.</p>
<b>Other Territories</b>	<p>Following the 1992 amendments to the <i>Acts Interpretation Act</i> to include the Indian Ocean Territories of Christmas Island and the Cocos (Keeling) Islands as part of geographic Australia, another category at the state and territory level has been created, known as Other Territories. Other Territories include Jervis Bay Territory, previously included with the Australian Capital Territory, as well as Christmas Island and the Cocos (Keeling) Islands.</p>
<b>Population growth</b>	<p>For Australia, population growth is the sum of natural increase and net overseas migration. For states and territories, population growth also includes net interstate migration. After the census, intercensal population growth also includes an allowance for intercensal discrepancy.</p>
<b>Sex ratio</b>	<p>The sex ratio relates to the number of males per 100 females.</p>
<b>Standardised death rate (SDR)</b>	<p>Standardised death rates (SDRs) enable the comparison of death rates between populations with different age structures by relating them to a standard population. The ABS standard populations relate to the years ending in 1 (e.g. 2001). The current standard population is all persons in the Australian population at 30 June 2001. SDRs are expressed per 1,000 or 100,000 persons. There are two methods of calculating standardised death rates:</p> <ul style="list-style-type: none"> <li>■ The direct method—this is used when the populations under study are large and the age-specific death rates are reliable. It is the overall death rate that would have prevailed in the standard population if it had experienced at each age the death rates of the population under study.</li> <li>■ The indirect method—this is used when the populations under study are small and the age-specific death rates are unreliable or not known. It is an adjustment to the crude death rate of the standard population to account for the variation between the actual number of deaths in the population under study and the number of deaths which would have occurred if the population under study had experienced the age-specific death rates of the standard population.</li> </ul> <p>Wherever used, the definition adopted is indicated.</p>
<b>Standardised mortality ratio</b>	<p>The ratio of the actual number of deaths in the population under study and the number of deaths which would have occurred if the population under study had experienced the age-specific death rates of the standard population (see also Standardised death rate, the indirect method).</p>
<b>State or territory of registration</b>	<p>State or territory of registration refers to the state or territory in which the event was registered.</p>
<b>State or territory of usual residence</b>	<p>State or territory of usual residence refers to the state or territory of usual residence of:</p> <ul style="list-style-type: none"> <li>■ the population (estimated resident population);</li> <li>■ the mother (birth collection);</li> <li>■ the deceased (death collection).</li> </ul>

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<b>Statistical Division (SD)</b>	Statistical Divisions (SDs) consist of one or more Statistical Subdivisions (SSD). The divisions are designed to be relatively homogeneous regions characterised by identifiable social and economic units within the region, under the unifying influence of one or more major towns or cities. Further information concerning SDs is contained in <i>Australian Standard Geographic Classification (ASGC)</i> (cat. no. 1216.0).
<b>Statistical Local Area (SLA)</b>	Statistical Local Areas (SLAs) are, in most cases, identical with, or have been formed from a division of, whole Local Government Areas (LGAs). In other cases, they represent unincorporated areas. In aggregate, SLAs cover the whole of a state or territory without gaps or overlaps. In some cases, legal LGAs overlap statistical subdivision boundaries and therefore comprise two or three SLAs (Part A, Part B and, if necessary, Part C). Further information concerning SDs is contained in <i>Australian Standard Geographic Classification (ASGC)</i> (cat. no. 1216.0).
<b>Statistical Subdivision (SSD)</b>	In aggregate, Statistical Subdivisions (SSD) cover the whole of Australia without gaps or overlaps. They are defined as socially and economically homogeneous regions characterised by identifiable links between the inhabitants. In the non-urban areas an SSD is characterised by identifiable links between the economic units within the region, under the unifying influence of one or more major towns or cities. Further information concerning SSDs is contained in <i>Australian Standard Geographical Classification (ASGC)</i> (cat. no. 1216.0).
<b>Usual residence</b>	Usual residence within Australia refers to that address at which the person has lived or intends to live for a total of six months or more in a given reference year.
<b>Year of occurrence</b>	Data presented on year of occurrence basis relate to the date the death occurred.
<b>Year of registration</b>	Data presented on year of registration basis relate to the date the death was registered.

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