

**CAUSES OF DEATH**

AUSTRALIA

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C O N T E N T S

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For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070.

NOTES

IN THIS ISSUE

This publication presents statistics on the number of deaths for reference year by state or territory of Australia, sex, selected age groups, and cause of death classified to the World Health Organisation's International Classification of Diseases (ICD). Version 10 of the ICD has been introduced from 1999.

Explanatory Notes and a technical note describing the impact of Causes of Death revisions are presented in this publication.

Users should read these notes in order to make themselves aware of changes in ABS processes which have had an impact on 2009, 2008 and 2007 data.

CHANGES IN THIS ISSUE

Causes of death data for 2007 has been revised for a second time as part of the causes of death revisions.

Causes of death data for 2008 has been revised for the first time as part of the causes of death revisions.

Year of occurrence data is being released in Chapter 8 of this publication and the associated data cube at the same time as year of registration data.

CAUSES OF DEATH REVISIONS

All coroner certified deaths registered after 1 January 2007 are now subject to a revision process. This is a change from previous years where all ABS processing of causes of death data for a particular reference period were finalised approximately 13 months after the end of the reference period. Where insufficient information was available to code a cause of death (e.g. a coroner certified death was yet to be finalised by the Coroner), less specific ICD-10 codes were assigned as required by the ICD-10 coding rules. The revision process enables the use of additional information relating to coroner certified deaths as it becomes available over time. This may result in increased specificity of the assigned ICD-10 codes.

Final data for 2007 and revised data for 2008 is published in this release on a reference year basis. Final 2008 and revised 2009 data will also be published in the 2010 Causes of Death release in March 2012. The revisions process only impacts on coroner certified deaths which remain open at the finalisation of ABS processing. See Technical Note: Causes of Death Revisions.

PERINATAL DEATHS

Perinatal death statistics will be published in Perinatal Deaths, 2009 (cat. no. 3304.0) in mid May 2011.

ACKNOWLEDGEMENT

This publication draws extensively on information provided freely by the state and territory Registrars of Births, Deaths and Marriages, and the Victorian Institute of Forensic Medicine who manage the National Coroners Information System (NCIS). Their continued cooperation is very much appreciated: without it, the wide range of vitals statistics published by the ABS would not be available.

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CAUSES OF DEATH

Causes of death statistics are key to understanding Australian society and health. The use of these statistics for demographic and health purposes provides significant information for the formulation and monitoring of health and other social policies. For example, causes of death information provide insights into the diseases and factors contributing to reduced life expectancy.

In Australia causes of death statistics are recorded as both underlying cause i.e. the disease or injury which initiated the train of morbid events leading directly to death; and multiple cause i.e. all causes and conditions reported on the death certificate that contributed, were associated with or were the underlying cause of the death (see Glossary for further details).

Causes of death data in this publication are classified using the 10th revision of the International Classification of Diseases (ICD-10). For further information see Explanatory Notes 23-27.

This data can be presented by using varying types of aggregation depending on the requirements of the data user. In this publication, data are presented in a number of ways to allow different types of analysis.

Chapter 2 of this publication presents data ranked by Leading Causes of Death. The methodology for the listing used is based on research presented in the Bulletin of the World Health Organisation, see Explanatory Note 40. Data presented by leading cause is useful when comparing causes of death in different populations and/or over time.

Chapter 3 of this publication presents underlying cause of death data commentary. Data presented in this manner is used to analyse particular causes or groups of similar causes. Information on median age at death and changes over time for selected causes is presented in this chapter with further data presented by ICD-10 chapter in the data cubes associated with this publication.

Chapter 4 presents data on Multiple Causes of Death. Multiple cause of death data is useful in the analysis of all the associated conditions that led to death, rather than the underlying cause alone.

Chapter 5 of this publication presents data based on selected health conditions and diseases. These conditions and diseases are given focused attention because of their significant contribution to the burden of illness and injury in the Australian community.

Chapter 6 on Suicides and Chapter 7 on Deaths of Aboriginal and/or Torres Strait Islander people present summary data on these specific areas of public interest.

Chapter 8 presents data by Year of Occurrence.

Deaths

In 2009, there were 140,760 deaths registered in Australia, 3,186 (2.2%) less than the number registered in 2008 (143,946). The standardised death rate (SDR) decreased to 5.7 deaths per 1,000 standard population in 2009, down from 6.1 in 2008. Standardised death rates are calculated using the 2001 total population of Australia as the standard population (see Glossary for more information).

In 2009, males accounted for 51.4% (72,320) of registered deaths, a slightly higher proportion than females who accounted for 48.6% of registered deaths (68,440).

The number of deaths for both males and females has increased since 2000 (66,817 and 61,474 deaths respectively), but the increase has been larger for females. In 2000 there were 109 male deaths per 100 females, in 2009 this sex ratio dropped to 106 male deaths per 100 females.

Further details on numbers of deaths registered can be found in Deaths, Australia 2009 (cat. no. 3302.0).

Leading Cause of Death

In 2009, Ischaemic heart disease, defined as ICD-10 codes I20-I25, was the leading underlying cause of death in Australia. Ischaemic heart disease includes angina, blocked arteries (heart) and heart attacks. It was the underlying cause of 16.0% of all registered deaths in Australia. It accounted for 16.7% of all male deaths, and 15.3% of all female deaths registered in 2009. Ischaemic heart disease has been the leading cause of death in Australia since 2000.

Underlying Cause of Death

The table below presents summary causes of death data for each major chapter of the ICD-10. Further information on selected cause chapters in 2009 is presented in Chapter 3 of this publication entitled Underlying Cause of Death by Selected ICD-10 Chapters.

1.1 DEATHS, by ICD-10 CHAPTER LEVEL—2009(a)(b)

<i>Cause of death and ICD code</i>	<i>Number</i>	<i>Proportion of total deaths</i>	<i>Median Age</i>	<i>Standardised Death Rate(c)</i>
<i>no.</i>	<i>%</i>	<i> yrs.</i>	<i>rate</i>	
Certain infectious and parasitic diseases (A00-B99)	1 821	1.3	79.3	7.5
Neoplasms (C00-D48)	41 952	29.8	75.1	175.6
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89)	428	0.3	80.0	1.8
Endocrine, nutritional and metabolic diseases (E00-E90)	5 867	4.2	81.0	24.0
Mental and behavioural disorders (F00-F99)	6 522	4.6	87.4	25.2
Diseases of the nervous system (G00-G99)	5 906	4.2	82.3	24.0
Diseases of the circulatory system (I00-I99)	46 106	32.8	84.7	183.4
Diseases of the respiratory system (J00-J99)	11 049	7.8	82.5	44.8
Diseases of the digestive system (K00-K93)	5 011	3.6	80.2	20.5
Diseases of the skin and subcutaneous tissue (L00-L99)	383	0.3	84.7	1.5
Diseases of the musculoskeletal system and connective tissue (M00-M99)	1 078	0.8	83.0	4.3
Diseases of the genitourinary system (N00-N99)	3 405	2.4	85.5	13.5
Certain conditions originating in the perinatal period (P00-P96)	656	0.5	0.5	2.9
Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	632	0.4	1.0	2.8
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)	1 045	0.7	64.7	4.4
External causes of morbidity and mortality (V01-Y98)	8 884	6.3	51.8	38.6
All Causes	140 760	100.0	80.8	574.8

(a) Causes of death data for 2009 are preliminary and subject to a revisions process. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.

(b) See Explanatory Notes 73-84 for further information on specific issues relating to 2009 data.

(c) Standardised Death Rate per 100,000. See Glossary for further information.

Multiple Cause of Death

For the 140,760 deaths registered in Australia in 2009, there were 447,212 causes reported giving a mean of 3.2 causes per death. The mean number of causes reported per death varies with age, sex and underlying cause of death. In 17.8% of all deaths, only one cause was reported, while 37.5% of deaths were reported with three or more causes. For further detail on multiple cause, see Chapter 4 of this publication.

Causes of Death Revisions Process

All coroner certified deaths registered after 1 January 2007 are now subject to a revisions process. Where presented, this publication contains final 2007 and revised 2008 cause of death data. Final 2007 and revised 2008 data are also presented in the Underlying Cause of Death data cubes, the Year of Occurrence data cube and the Suicide data cube. Data released in this publication for 2009 are preliminary data. All coroner certified deaths registered in 2009 will be subject to the revisions process. For further information, see Explanatory Notes 28-32 and Technical Note: Causes of Death Revisions.

OVERVIEW

Ranking causes of death is a useful method of describing patterns of mortality in a population. It allows comparison over time and between populations. However, different methods of grouping causes of death can result in a vastly different list of leading causes for any given population. For this reason ABS ranks leading causes of death in this publication based on research presented in the Bulletin of the World Health Organisation, Volume 84, Number 4, April 2006, 297-304 . For further information see Explanatory Notes 39-41.

In 2009, the leading underlying cause of death for all Australians was Ischaemic heart disease (I20-I25), which includes angina, blocked arteries of the heart and heart attacks. Ischaemic heart diseases were identified as the underlying cause of 22,523 deaths, 16.0% of all deaths registered in 2009. While ischaemic heart diseases have been the leading cause of death in Australia since 2000, the proportion of deaths due to this cause has decreased, from 20.7% (26,521) in 2000 to 16.0% (22,523) in 2009.

Cerebrovascular disease (Strokes, (I60-I69)) have remained the second leading underlying cause of death in 2009. Strokes include haemorrhages, strokes, infarctions and blocked arteries of the brain. Over the last 10 years, deaths due to this cause have decreased by 8.8%, from 12,300 deaths in 2000 to 11,220 deaths in 2009.

Dementia and Alzheimer's disease (F01, F03, G30) was the third leading cause of death in 2009. The number of deaths due to this cause has increased 126.5% from 3,655 in 2000 to 8,277 in 2009. This is largely due to an increase in deaths due to Dementia (F01, F03), which increased from 2,096 in 2000 to 5,836 in 2009. For further information see Explanatory Note 74.

Trachea and lung cancers (C33-C34) were the fourth leading cause of death in 2009. Over the last 10 years, deaths due to this cause have increased by 13.2%, from 6,878 in 2000 to 7,786 in 2009.

The top 10 leading causes of death accounted for 52.8% of all deaths registered in 2009, and the top 20 leading causes accounted for 67.2%.

OVERVIEW *continued***2.1** LEADING CAUSES OF DEATH (a), Australia—Selected years—2000, 2004, 2009 (b)(c)

Cause of death and ICD code	2000		2004		2009	
	no.	Rank	no.	Rank	no.	Rank
Ischaemic heart diseases (I20-I25)	26 521	1	24 576	1	22 523	1
Strokes (I60-I69)	12 300	2	12 041	2	11 220	2
Dementia and Alzheimer disease (F01, F03, G30)	3 655	7	4 606	5	8 277	3
Trachea and lung cancer (C33-C34)	6 878	3	7 264	3	7 786	4
Chronic lower respiratory diseases (J40-J47)	5 962	4	5 785	4	5 978	5
Diabetes (E10-E14)	3 006	9	3 599	8	4 170	6
Colon and rectum cancer (C18-C21)	4 712	5	4 126	6	4 065	7
Blood and lymph cancer (including leukaemia) (C81-C96)	3 744	6	3 820	7	3 810	8
Diseases of the kidney and urinary system (N00-N39)	2 597	12	2 896	10	3 312	9
Heart failure (I50-I51)	3 122	8	2 823	11	3 214	10
Prostate cancer (C61)	2 663	11	2 761	12	3 111	11
Breast cancer (C50)	2 530	13	2 661	13	2 799	12
Pancreatic cancer (C25)	1 737	16	1 978	15	2 204	13
Suicide (X60-X84)(d)	2 363	14	2 098	14	2 130	14
Hypertensive diseases (I10-I15)	1 202	19	1 340	19	1 846	15
Skin cancers (C43-C44)	1 342	17	1 573	17	1 837	16
Influenza and pneumonia (J09-J18)	2 937	10	3 381	9	1 796	17
Cardiac arrhythmias (I47-I49)	964	23	1 229	21	1 549	18
Cirrhosis and other diseases of liver (K70-K77)	1 162	21	1 386	18	1 547	19
Land Transport Accidents (V01-V89)	1 921	15	1 600	16	1 417	20

- (a) Causes listed are the leading causes of death for all deaths registered in 2009, based on WHO recommended tabulation of leading causes. See Explanatory Note 40 for further information.
- (b) Causes of death data for 2009 are preliminary and subject to a revisions process. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.
- (c) See Explanatory Notes 73-84 for further information on specific issues relating to 2009 data.
- (d) Excludes Sequelae of suicide (Y87.0) as per the WHO recommended tabulation of leading causes. Care needs to be taken in interpreting figures relating to suicide. See Explanatory Notes 80-83.

LEADING CAUSES OF DEATH BY GENDER

Ischaemic heart diseases (I20-I25) were the leading cause of death for both males and females in 2009, with 12,047 and 10,476 deaths respectively. This reflects a sex ratio of 115 male deaths per 100 female deaths.

The remaining leading causes of death vary between the sexes, in part due to the incidence of gender-specific diseases, such as prostate or ovarian cancer. However, other causes which may not be gender-specific also showed variance between the sexes. Examples of these included:

- Trachea and lung cancers (C33-34), for which there were 157 male deaths for every 100 female deaths
- Chronic lower respiratory diseases (J40-J47), for which there were 116 male deaths for every 100 female deaths
- Strokes (I60-I69), for which there were 67 male deaths for every 100 female deaths
- Dementia and Alzheimer's disease (F01, F03, G30), for which there were 51 male deaths for every 100 female deaths.

Those causes where a high proportion of deaths were males included:

- Intentional self-harm (Suicide, (X60-X84)) - 76.6%
- Trachea and lung cancers (C33-C34) - 61.1%
- Blood and lymph cancers (including leukaemia) (C81-C96) - 57.1%
- Colon and rectum cancers (C18-C21) - 55.4%

LEADING CAUSES OF
DEATH BY GENDER
continued

- Chronic lower respiratory diseases (J40-J47) - 53.7%
- Ischaemic heart disease (I20-I25) - 53.5%.

2.2 LEADING CAUSES OF DEATH(a), Males—2009(b)(c)

<i>Underlying Cause of Death</i>	<i>Rank</i>	<i>Males</i>	<i>Total</i>
Ischaemic heart diseases (I20-I25)	1	12 047	22 523
Trachea and lung cancer (C33-C34)	2	4 761	7 786
Strokes (I60-I69)	3	4 514	11 220
Chronic lower respiratory diseases (J40-J47)	4	3 209	5 978
Prostate cancer (C61)	5	3 111	3 111
Dementia and Alzheimer disease (F01, F03, G30)	6	2 786	8 277
Colon and rectum cancer (C18-C21)	7	2 253	4 065
Blood and lymph cancer (including leukaemia) (C81-C96)	8	2 175	3 810
Diabetes (E10-E14)	9	2 120	4 170
Suicide (X60-X84)(d)	10	1 631	2 130

- (a) Causes listed are the leading causes of deaths for all deaths registered in 2009 based on the WHO recommended tabulation of leading causes. See Explanatory Note 40 for further information.
- (b) Causes of death data for 2009 are preliminary and subject to a revisions process. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.
- (c) See Explanatory Notes 73-84 for further information on specific issues relating to 2009 data.
- (d) Excludes Sequelae of suicide (Y87.0) as per the WHO recommended tabulation of leading causes. Care needs to be taken in interpreting figures relating to suicide. See Explanatory Notes 80-83.

LEADING CAUSES OF
DEATH BY GENDER
continued

Those causes where a high proportion of deaths were females included:

- Dementia and Alzheimer disease (F01, F03, G30) - 66.3%
- Strokes (I60-I69) - 59.8%
- Heart failure (I50-I51) - 58.6%
- Diseases of the kidney and urinary system (N00-N39) - 54.9%.

2.3 LEADING CAUSES OF DEATH (a), Females—2009(b)(c)

<i>Underlying Cause of Death</i>	<i>Rank</i>	<i>Females</i>	<i>Total</i>
Ischaemic heart diseases (I20-I25)	1	10 476	22 523
Strokes (I60-I69)	2	6 706	11 220
Dementia and Alzheimer disease (F01, F03, G30)	3	5 491	8 277
Trachea and lung cancer (C33-C34)	4	3 025	7 786
Breast cancer (C50)	5	2 772	2 799
Chronic lower respiratory diseases (J40-J47)	6	2 769	5 978
Diabetes (E10-E14)	7	2 050	4 170
Heart failure (I50-I51)	8	1 884	3 214
Diseases of the kidney and urinary system (N00-N39)	9	1 818	3 312
Colon and rectum cancer (C18-C21)	10	1 812	4 065

- (a) Causes listed are the leading causes of deaths for all deaths registered in 2009 based on the WHO recommended tabulation of leading causes. See Explanatory Note 40 for further information.
- (b) See Explanatory Notes 73-84 for further information on specific issues relating to 2009 data.
- (c) Causes of death data for 2009 are preliminary and subject to a revisions process. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.

CHAPTER 3

UNDERLYING CAUSE OF DEATH BY SELECTED ICD-10 CHAPTERS

OVERVIEW

An underlying cause of death is the disease or injury that initiated the train of morbid events leading directly to death. Accidental and violent deaths are classified according to the external cause, that is, to the circumstances of the accident or violence that produced the fatal injury, rather than to the nature of the injury.

Data presented for 2009 is preliminary and subject to a process of revision, with the revisions process only applying to coroner certified deaths. See Explanatory Notes 28-32 for further information on those cause chapters potentially affected by the revisions process.

Data cubes

The following analysis provides insight into selected ICD-10 chapters and specific causes of death. Further information on underlying causes of death is presented in the data cubes associated with this publication. Included in the data cubes are counts, standardised death rates, years of potential life lost and changes over time for all causes at the ICD-10 3-character level by sex for Australia and each state/territory of usual residence.

CANCER (C00-D48)

In 2009, Cancer (C00–D48) was the underlying cause of 41,952 registered deaths in Australia. This accounted for 29.8% of all registered deaths. The ratio of male (23,688) to female (18,264) deaths in 2009 remained steady at 130 males per 100 females. The median age of persons dying from Malignant cancers (C00–C97) has continued to rise from 73.5 years in 2000 to 74.9 years in 2009. Deaths due to malignant cancers accounted for 40,988 deaths or 97.7% of all cancers in 2009.

Cancers of the digestive organs (C15–C26) accounted for 11,536 deaths. Of these, Colon cancer (C18) constituted the largest number of deaths (2,324). The median age at death for people dying of colon cancer was 75.3 years for males and 79.0 years for females, with the largest number of deaths occurring between 75 and 84 years of age for both males and females.

Pancreatic cancer (C25) was the second highest contributor to deaths from cancers of the digestive organs, accounting for 2,204 deaths. There was a small difference between the numbers of males (1,142) and females (1,062) with pancreatic cancer as the underlying cause of death. However, the median age of males dying of pancreatic cancer (72.7) was lower than for females (77.1) dying of the same cause.

There were 8,074 deaths attributed to Cancers of the respiratory system and chest (C30–C39), accounting for 19.7% of all malignant cancers. Lung cancer (C34) was the underlying cause of 7,781 (96.4%) deaths due to cancers of the respiratory system and chest. The male to female ratio of deaths with lung cancer as the underlying cause has dropped from 200 male deaths per 100 females in 2000 to 157 male deaths per 100

CANCER (C00-D48)

continued

females in 2009. Since 2000 the number of female deaths from this cause has increased by 737 while the number of male deaths has increased by 175. Males whose underlying cause of death was lung cancer, had a marginally higher median age at death (73.4 years) than females (73.2 years) with the same underlying cause.

Prostate cancer (C61) was the underlying cause of 4.3% of all male deaths registered in 2009. Male deaths from this underlying cause have increased gradually from 2,663 in 2000 to 3,111 in 2009. The median age at death for prostate cancer has steadily increased from 79.0 years in 2000 to 81.3 years in 2009. The current median age at death for prostate cancer is close to the median age for all deaths (80.8 years).

In females, deaths due to Breast cancer (C50) have risen from 2,511 in 2000 to 2,772 in 2009. The female median age at death due to breast cancer was 68.0 years, 2.5 years lower than males (70.5 years) and 15.9 years lower than the median age for all female deaths (83.9 years).

ENDOCRINE,
NUTRITIONAL AND
METABOLIC DISEASES
(E00-E90)

Endocrine, nutritional and metabolic diseases (E00–E90) in 2009 accounted for 4.2% of all registered deaths. Total deaths due to these underlying causes have increased gradually over the last ten years, from 4,157 in 2000 to 5,867 in 2009. The proportion of all deaths due to these causes has also increased over the same period, ranging from 3.2% in 2000 to 4.2% in 2009. The median age at death from these causes was 81.0 years, which was comparable with the median age of 80.8 years for all deaths in 2009.

Diabetes (E10–E14) was the underlying cause of 4,170 deaths. 2009 had the highest number and proportion of deaths resulting from diabetes over the past ten years. The proportion of all deaths represented by this cause increased from 2.3% (3,006 deaths), to 3.0% of all deaths over this period.

Obesity (E66) accounted for a total of 215 deaths in 2009. The overall median age at death due to obesity as the underlying cause was 61.1 years, which was 19.7 years less than the median age for all deaths. At 55.6 years for males and 65.5 years for females, the median age at death resulting from obesity for males was almost 10 years lower than it was for females.

MENTAL AND
BEHAVIOURAL DISORDERS
(F00-F99)

In 2009, Mental and behavioural disorders (F00–F99) were identified as the underlying cause of 6,522 registered deaths, representing 4.6% of all registered deaths in 2009.

There were nearly twice as many female deaths (4,130 or 63.3%) due to mental and behavioural disorders than male deaths (2,392 or 36.7%) registered in 2009. The median age at death was higher for females, at 88.9 years, compared with 84.6 years for males.

Dementia (F01, F03) accounted for 5,836 deaths in 2009. These deaths constitute 89.5% of mental and behavioural disorders in 2009, compared with 68.2% in 2000. The sex ratio of 51 males per 100 female deaths has remained relatively steady since 2000, with 1,975 males and 3,861 females dying of this disease in 2009. The median age at death for persons (88.1 years) dying of dementia was higher than the median age for mental and behavioural disorders (87.4 years) as a whole. See Explanatory Note 74 for further information.

DISEASES OF THE
NERVOUS SYSTEM
(G00-G99)

Diseases of the nervous system (G00–G99) accounted for 5,906 registered deaths in 2009, representing 4.2% of all registered deaths. This follows a gradual increase in deaths attributable to diseases of the nervous system over time, from 4,039 in 2000. The number of deaths due to diseases of the nervous system was higher for females (3,141) than for males (2,765). The median age at death was 79.4 for males and 84.6 for females.

Deaths from Alzheimer's disease (G30) constituted 41.3% (2,441) of all deaths due to diseases of the nervous system and 1.7% of all registered deaths in 2009. Female deaths (1,630) due to Alzheimer's disease were much higher than male deaths (811), with a ratio of 50 male deaths per 100 female deaths. The median age at death due to Alzheimer's disease was 87.0 years.

Parkinson's disease (G20) accounted for 20.2% of all deaths due to diseases of the nervous system and 0.9% of all deaths registered in 2009. There were 1,194 deaths due to this disease, with a median age at death of 83 years. The number of male deaths (684) due to Parkinson's disease was higher than the number of female deaths (510). This was similar to the overall trend for the past 10 years.

DISEASES OF THE
CIRCULATORY SYSTEM
(I00-I99)

Diseases of the Circulatory System (I00–I99), were identified as the underlying cause of 46,106 registered deaths in 2009. This accounted for 32.8% of all registered deaths. The median age at death for diseases of the circulatory system was 84.7 years, higher than the median age for all deaths (80.8 years).

Female deaths represented 52.4% (24,171) of deaths due to these diseases. The past ten years has seen a consistent pattern of more female than male deaths from these underlying causes. Females dying from these diseases had a higher median age at death (87.2 years) than males (81.3 years) dying from the same cause.

Ischaemic heart diseases and strokes combined contributed to 73.2% of deaths due to diseases of the circulatory system.

Ischaemic heart diseases (I20–I25) which includes angina, heart attacks and blocked arteries of the heart, represented a substantial proportion (48.9%) of deaths attributable to diseases of the circulatory system, accounting for 22,523 deaths. Males accounted for 53.5% (12,047) of deaths due to ischaemic heart diseases and females accounted for 46.5% (10,476).

Heart attack (I21) represented 10,335 deaths, which was almost half (45.9%) of all deaths due to ischaemic heart diseases, 22.4% of all diseases of the circulatory system, and a total of 7.3% of all causes. There was a small difference in the number of male and female deaths due to this cause with 5,194 and 5,141 deaths respectively. The median age at death for females from heart attack as their underlying cause of death was 87.3 years while for males the median age was lower at 80.9 years.

Deaths from Stroke (I60–I69) numbered 11,220 in 2009 or 24.3% of all diseases of the heart and blood vessels. The median age at death for females (87.3 years) was higher than males (82.7 years).

DISEASES OF THE
RESPIRATORY SYSTEM
(J00-J99)

Diseases of the respiratory system (J00-J99), which include diseases that impact on the ability to breathe, accounted for 11,049 registered deaths in 2009, which was 7.9% of all registered deaths. In line with the pattern of previous years where more males than females died from this cause, there were 5,833 male deaths compared to 5,216 female deaths due to diseases of the respiratory system. Over the past ten years, females tended to be older than males for this underlying cause. This trend continued in 2009 with the median age at death for males 81.4 years and females 83.7 years.

In 2009, Chronic lower respiratory diseases (J40-J47) were the underlying cause of 5,978 deaths or 4.3% of all registered deaths. Chronic lower respiratory diseases include diseases such as asthma, bronchitis and emphysema. More males than females died from this cause in 2009 (3,209 compared with 2,769). In 2009, the median age at death caused by chronic lower respiratory diseases was 80.4 years for males and 81.3 years for females.

In 2009, Pneumonia (J12-J18) accounted for 1,665 of the 1,796 registered deaths due to Influenza and pneumonia (J09-J18), or 1.2% of all registered deaths in Australia. As in previous years, more females died from pneumonia than males, with 964 female deaths compared with 704 male deaths. The median age at death for males was also lower, 85.3 years compared with 89.4 years for females.

The number of deaths from Pneumonitis (J69), which is similar to pneumonia but results from complications of inhalation of solids and liquids, has increased substantially over time, from 462 deaths in 2000 to 1,203 in 2009. The increase in deaths due to this cause was mainly in the 60 years and over age group. In 2000, 445 people aged 60 years or over died from pneumonitis, whereas in 2009, 1159 people aged 60 years or over died from this underlying cause.

In 2009, Swine flu (Influenza A - H1N1) was the underlying cause of 77 deaths or 0.05% of all registered deaths in Australia. The median age at death was 47.8 years. The ABS implemented World Health Organisation (WHO) guidelines to code all swine flu deaths to the ICD-10 code of Influenza due to certain identified influenza virus (J09). Further information on swine flu deaths within the ABS dataset is provided in Explanatory Note 76.

ILL DEFINED CAUSES
(R00-R99)

Ill-defined causes (R00-R99) accounted for 1,045 deaths registered in Australia in 2009. This represented 0.7% of all registered deaths.

Deaths due to Other ill-defined and unspecified cause of mortality (R99) accounted for 649 deaths, or 62.1% of all deaths due to ill-defined causes. The number of deaths coded to ill-defined causes may be affected by the number of open coronial cases remaining on the National Coroners Information System (NCIS) at the end of the ABS processing period, as the majority of open cases for which no information was available at the end of processing have been coded to Other ill-defined and unspecified causes (R99). 2009 coroner certified deaths are subject to a revisions process. For further information, see Explanatory Notes 28-32.

ILL DEFINED CAUSES
(R00-R99) *continued*

In 2009, there were 78 deaths whose cause was identified as Sudden Infant Death Syndrome (SIDS) (R95). In processing causes of death, the ABS will only code a death to SIDS if specifically mentioned on the death certificate. Open coronial cases could potentially include cases where the cause of death may be determined as SIDS when closed. For further information, see Explanatory Notes 48-60.

For the past 10 years, typically more males have died from SIDS than females. This trend continued in 2009, with 41 male deaths compared to 37 female deaths. The majority of these deaths occurred in the period between 28 days and 1 year of age, with 73 (93.6%) infants in this age range with SIDS as the underlying cause of death in 2009.

EXTERNAL CAUSES
(V01-Y98)

External causes of death relate to cases where the underlying cause of death is determined to be one of a group of causes external to the body (for example suicide, transport accidents, falls, poisoning etc). See Explanatory Note 38 for further information.

In 2009, external causes accounted for 8,884 deaths, or 6.3% of all registered deaths. The standardised death rate was 38.6 per 100,000 of population in 2009, a decrease from 42.5 per 100,000 population in 2000. Males were more likely to die from external causes than females in 2009. The standardised death rate for males was 55.1 per 100,000 compared with 23.2 females per 100,000.

In 2009, the median age at death from these causes was 51.8 years, considerably less than the 80.8 years in 2009. The median age at death for males dying of external causes was 47.4 years, with the median age at death for females at 66.7 years.

Consistent with previous years, just over two-thirds of the total number of deaths resulting from external causes were males (5,886). The difference between the number of male and female deaths was most apparent amongst the 20-44 year age group, with 2,322 male deaths compared to 669 female deaths.

Transport Accidents
(V01-V99, Y85)

Transport accidents (V01-V99, Y85) accounted for 1,501 deaths registered in 2009. This represented 1.1% of all registered deaths in 2009, and 16.9% of all external causes of death. Of these, 194 deaths were of Pedestrians (V01-V09), 211 deaths were of Motorcycle riders (V20-V29) and 743 deaths were of Occupants of a car (V40-V49).

As with most other external causes, more males than females died from transport accidents in 2009 (1,102 compared with 399). For males, 1.5% of deaths registered in 2009 were caused by transport accidents. This was compared with only 0.6% of all female deaths. The median age at death from transport accidents for males was 38.3 years compared to 41.1 years for females. Of all male deaths from external causes, 18.7% were attributed to transport accidents, predominantly amongst males aged 15-44 years. Males in this age group accounted for 57.5% of all male deaths due to transport accidents.

For further information on transport accidents, refer to Explanatory Note 77.

Falls (W00-W19)

Falls (W00-W19) accounted for 1,370 deaths registered in 2009. This represented 1.0% of all registered deaths in 2009, and 15.4% of all external causes of death. Falls have increased by 37.5% over the last five years (996 in 2005).

*Falls (W00-W19)**continued*

Falls were the underlying cause of death for more males than females (704 males, compared with 666 females). The median age at death for falls was 84.8 years, which was considerably higher than the median age at death of 51.8 for all external causes. Of all deaths due to falls, 84.8% (1,163) were of people aged 70 years or more.

Accidental Poisoning (X40-X49)

Accidental poisoning (X40–X49) accounted for 799 deaths registered in 2009. This represented 0.6% of all registered deaths in 2009, and 8.9% of all external causes of death. The number of deaths due to accidental poisoning may be affected by the number of open coroner certified cases, as well as changes in coding practices. See Explanatory Notes 48-60 for further information.

More than twice as many males as females died from accidental poisoning in 2009, with 549 male and 250 female deaths. The median age at death from accidental poisoning was 41.5 years. Median age at death for males was 39.4 years, compared with 48.6 years for females.

Assault (X85-Y09, Y87.1)

Assault (X85–Y09, Y87.1) accounted for 211 deaths in 2009. The deaths from assault represented 0.5% of all registered deaths and 2.4% of all external causes of death in 2009. Over twice as many males (149) as females (61) died from assault in 2009, closely following the trend since 2000. The median age at death for assault was 36.3 years. Median age at death for males was 35.6 years, compared with 37.8 years for females.

ABS statistics for deaths due to assault may differ from other sources of data due to differences in scope and coverage, but also due to the impact of open coroner certified cases on data. See Explanatory Notes 7-14 and 48-60 for further information.

*Intentional Self-Harm**[Suicide] (X60-X84, Y87.0)*

Care should be taken in using and interpreting suicide data contained in this publication. For further information refer to Explanatory Notes 80-83.

There were 2,132 deaths coded to Intentional self-harm (suicide, (X60–X84, Y87.0)) in 2009. Deaths from intentional self-harm represented 1.5% of all registered deaths and 24.0% of all external causes of death in 2009. More than three times as many males as females died from intentional self-harm in 2009, continuing the trend since 2000. The median age at death for intentional self-harm was 43.8 years. Median age at death for males was 43.4 years, compared with 44.9 years for females.

For more detailed information on deaths due to suicide, see Chapter 6 of this publication.

OVERVIEW

Multiple causes of death include all causes and conditions reported on the death certificate (i.e. both underlying and associated causes; see Glossary for further details). These statistics are valuable in providing an accurate portrayal of mortality in deaths attributable to a number of concurrent disease processes.

When analysing data on multiple causes of death, data can be presented in two ways: by counts of deaths or counts by mentions. For example, an individual may have had Breast cancer (C50) and then developed Secondary lung cancer (C78.0). This individual would be counted once if counts were by the number of deaths, but twice if the counts were by the number of mentions of cancer.

DATA CUBES

Further information on multiple causes of death is presented in the data cubes associated with this publication. These include the number of associated causes for all 3-character underlying causes, as well as the number of mentions of each cause at the 3-character level of ICD-10.

Number of Multiple Causes

For the 140,760 deaths registered in Australia in 2009, there were 447,212 causes mentioned, giving a mean of 3.2 causes per death. In 17.8% of all deaths, only one cause was reported, while 37.5% of deaths were reported with three or more causes. The mean number of causes reported per death varies with age, sex and underlying cause of death.

Selected Multiple Causes

In 2009, Malignant cancers (C00-C97) contributed to 33.1% (46,604) of all deaths as either an underlying or multiple cause. There were mentions of 58,182 malignant cancers reported in 2009.

Ischaemic heart diseases (I20-I25), which includes angina, heart attacks, and blocked arteries of the heart, were found to contribute to 26.8% of all deaths as either an underlying or multiple cause.

The following table lists counts of selected causes of death (as opposed to mentions), both underlying and associated causes, appearing on death certificates for deaths registered in 2009.

4.1 SELECTED MULTIPLE CAUSES OF DEATH: 2009(a)(b)(c)

Cause of death and ICD code	UNDERLYING CAUSE		MULTIPLE CAUSE		
	Underlying no.	Proportion of total deaths %	Multiple no.	Proportion of total deaths %	Mean no. of causes no.
All Causes	140 760	100.0	140 760	—	3.2
Malignant cancers (C00-C97)	40 988	29.1	46 604	33.1	2.5
Ischaemic heart diseases (I20-I25)	22 523	16.0	37 704	26.8	3.5
Strokes (I60-I69)	11 220	8.0	20 783	14.8	3.1
Dementia and Alzheimer's disease (F01, F03, G30)	8 277	5.9	19 619	13.9	3.1
Chronic lower respiratory diseases (J40-J47)	5 978	4.2	14 967	10.6	3.6
Diabetes (E10-E14)	4 170	3.0	14 286	10.1	4.3
Diseases of the kidney and urinary system (N00-N39)	3 312	2.4	19 056	13.5	3.7
Heart failure (I50, I51)	3 214	2.3	19 788	14.1	3.2
Suicides (X60-X84, Y87.0)(d)	2 132	1.5	2 139	1.5	2.7
Hypertensive diseases (I10-I15)	1 846	1.3	18 986	13.5	4.4
Influenza and pneumonia (J09-J18)	1 796	1.3	17 522	12.4	2.1
Land transport accidents (V01-V89, Y85.0)	1 436	1.0	1 481	1.1	2.8

— nil or rounded to zero (including null cells)

- (a) Causes of death data for 2009 are preliminary and subject to a revisions process. See Technical Note: Causes of Death Revisions.
- (b) Data cells with small values have been randomly assigned to protect the confidentiality of individuals. As a result, some totals will not equal the sum of their components. Cells with a zero value have not been affected by confidentialisation.
- (c) See Explanatory Notes 73-84 for further information on specific issues relating to 2009 data.
- (d) Care needs to be taken in interpreting figures relating to suicide. See Explanatory Notes 80-83.

Relationships between Multiple Causes

Influenza and pneumonia (J09-J18) was identified as the underlying cause for 1,796 deaths in 2009. In 41.3% of cases, influenza and pneumonia were reported alone and were typically the least likely of the selected causes to be reported with other associated causes. 2009 marks the first year in which any deaths in Australia have been coded to Influenza due to certain identified influenza virus (J09). This was as a result of the outbreak of the H1N1 virus (swine flu).

In contrast, Diabetes (E10-E14) was reported alone as the underlying cause in only 1.5% of the 4,170 deaths attributed to this cause. It was reported more frequently with the associated causes of Ischaemic heart diseases (I20-I25) including angina, heart attacks and blocked arteries of the heart (49.5%) and Hypertensive diseases ((I10-I15), 32.4%).

The following table illustrates relationships between the various causes of death in 2009.

4.2 SELECTED UNDERLYING CAUSES WITH ASSOCIATED CAUSE: 2009(a)(b)(c)

	SELECTED UNDERLYING CAUSE		REPORTED WITH SELECTED ASSOCIATED CAUSE				
	Underlying	Reported alone	Malignant cancers (C00-C97)	Ischaemic heart disease (I20-I25)	Strokes (I60-I69)	Dementia & Alzheimer's disease (F01, F03, G30)	Chronic lower respiratory diseases (J40-J47)
	no.	%	%	%	%	%	%
All Causes	140 760	17.8	33.1	26.8	14.8	13.9	10.6
Malignant cancers (C00-C97)	40 988	35.3	100.0	8.6	4.2	3.1	6.6
Ischaemic heart diseases (I20-I25)	22 523	11.1	6.5	100.0	9.6	11.1	10.5
Strokes (I60-I69)	11 220	14.6	5.3	12.0	100.0	18.2	3.8
Dementia & Alzheimer's disease (F01, F03, G30)	8 277	11.6	5.0	11.3	10.5	100.0	3.2
Chronic lower respiratory diseases (J40-J47)	5 978	7.1	8.1	19.0	5.2	8.1	100.0
Diabetes (E10-E14)	4 170	1.5	6.8	49.5	21.6	12.8	7.4
Diseases of the kidney & urinary system (N00-N39)	3 312	7.2	4.9	24.6	7.7	10.5	5.0
Heart failure (I50-I51)	3 214	12.1	5.2	2.4	9.3	10.9	10.6
Hypertensive diseases (I10-I15)	1 846	4.4	5.6	1.1	8.9	19.3	7.9
Influenza and pneumonia (J09-J18)	1 796	41.3	1.4	8.2	1.9	3.3	2.4

- (a) Causes of death data for 2009 are preliminary and subject to a revisions process. See Technical Note: Causes of Death Revisions.
- (b) Data cells with small values have been randomly assigned to protect the confidentiality of individuals. As a result, some totals will not equal the sum of their components. Cells with a zero value have not been affected by confidentialisation.
- (c) See Explanatory Notes 73-84 for further information on specific issues relating to 2009 data.

4.2 SELECTED UNDERLYING CAUSES WITH ASSOCIATED CAUSE: 2009(a)(b)(c) *continued*REPORTED WITH SELECTED ASSOCIATED CAUSE *continued*

	Diabetes (E10-E14)	Diseases of the kidney & urinary system (N00-N39)	Heart failure (I50-I51)	Hypertensive diseases (I10-I15)	Influenza and pneumonia (J09-J18)
	%	%	%	%	%
All Causes	10.1	14.1	13.5	12.4	13.5
Malignant cancers (C00-C97)	6.3	7.5	3.8	6.7	6.6
Ischaemic heart diseases (I20-I25)	11.6	13.8	26.2	20.8	6.6
Strokes (I60-I69)	8.2	6.4	5.5	28.8	12.5
Dementia & Alzheimer's disease (F01, F03, G30)	7.6	11.8	7.0	11.6	31.8
Chronic lower respiratory diseases (J40-J47)	7.6	10.0	17.8	9.9	32.2
Diabetes (E10-E14)	100.0	30.9	20.0	32.4	8.9
Diseases of the kidney & urinary system (N00-N39)	8.1	100.0	23.0	4.2	14.9
Heart failure (I50-I51)	8.1	22.9	100.0	6.8	21.3
Hypertensive diseases (I10-I15)	11.1	32.3	37.5	100.0	10.1
Influenza and pneumonia (J09-J18)	3.6	5.3	5.2	2.4	100.0

- (a) Causes of death data for 2009 are preliminary and subject to a revisions process. See Technical Note: Causes of Death Revisions.
- (b) Data cells with small values have been randomly assigned to protect the confidentiality of individuals. As a result, some totals will not equal the sum of their components. Cells with a zero value have not been affected by confidentialisation.
- (c) See Explanatory Notes 73-84 for further information on specific issues relating to 2009 data.

External Causes

Deaths due to external causes are those which occur as a result of accidents, poisonings and/or violence. They are classified according to the event leading to the fatal injury, such as an accidental fall. Multiple cause data for external causes include the nature of injury or poisoning, as well as any other causes reported on the death certificate. ICD-10 codes in the Injury, poisoning and certain other consequences of external causes (S00-T98) cannot be an underlying cause of death, but can be recorded as an associated cause.

In 2009, there were 14,799 deaths where External Causes (V01-Y98) contributed to the death as a multiple cause. There was a mean of 3.4 causes coded for each of the 8,884 deaths with external causes as the underlying cause of death.

Transport accidents (V01-V99, Y85) accounted for 16.9% of all injuries with an external cause as the underlying cause of death, with 41.2% of these injuries being to the head or thorax (S00-S09, S20-S29). Suicide (X60-X84, Y87.0) accounted for 24.0% of total injuries with an external cause as the underlying cause of death, and of these, Asphyxiation (T71) was the most common injury (51.2%).

Care should be taken in interpreting numbers of suicide deaths. For further information, see Explanatory Notes 80-83. For more detailed analysis on suicides, see Chapter 6.

OVERVIEW

Certain health conditions and diseases make a significant contribution to the burden of illness and injury in the Australian community. For example, selected health conditions and diseases - Arthritis, Asthma, Cancer, Cardiovascular Health, Diabetes, Injury Prevention and Control, Mental Health and Obesity - accounted for 77.7% of all underlying causes of death in 2009 and were either associated with or the underlying cause of 90.8% of deaths.

In this section, focussed attention has been given to these selected causes of death, given their significant contribution to mortality in Australia. This information is provided to supplement analysis of leading causes, underlying causes of death and multiple causes of death provided in previous chapters of this publication. Further detail provided here includes Standardised Death Rates (SDR) and Years of Potential Life Lost (YPLL). In this chapter SDRs have been calculated using the direct method of standardisation. For further information see Explanatory Notes 42-45 and refer to the Glossary.

ARTHRITIS AND
MUSCULOSKELETAL
DISEASES (M00-M99)

Arthritis and musculoskeletal diseases are conditions in which there is inflammation of the joints that can cause pain, stiffness, disability and deformity. It also includes other joint problems and disorders of the bones, muscles and their attachments. Arthritis and musculoskeletal diseases (M00-M99) were the underlying cause for 1,078 registered deaths in Australia in 2009. Arthritis and musculoskeletal diseases were identified as either an underlying cause or associated cause of death for 6,410 deaths registered in 2009.

The standardised death rate for arthritis and musculoskeletal diseases was 4.3 per 100,000 population in 2009. The standardised death rate for males in 2009 was 3.2 per 100,000, and 5.2 per 100,000 for females.

Of all deaths due to arthritis and musculoskeletal diseases in 2009, 761 or 70.6% were females, predominantly in the age group 75 to 94 years. Median age at death for deaths due to these diseases was 80.9 years for males, 84.0 years for females and 83.0 years overall. Potential life lost due to deaths from these diseases was 1,898 years for males and 3,250 years for females.

Arthritis (M00-M25) was the underlying cause of 374 deaths, which accounted for 34.7% of all deaths due to these diseases, with the most common age group for males and females being 80-89 years.

ASTHMA (J45-J46)

Asthma is a disease which causes narrowing of the airways into the lung causing breathing difficulties. In 2009, Asthma (J45-J46) was the underlying cause for 411 registered deaths, or 0.3% of all deaths. Asthma was identified as either an underlying cause or associated cause of death for 1,344 deaths registered in 2009.

ASTHMA (J45-J46)

continued

The standardised death rate for asthma was 1.7 per 100,000 population in 2009, a decrease from 2.4 per 100,000 population in 2000. The standardised death rate for males in 2009 was 1.3 per 100,000 and 2.0 per 100,000 for females.

Median age at death for deaths due to asthma was 73.1 years for males, 80.2 years for females and 77.9 years overall. The potential life lost due to asthma deaths was 1,957 years for males and 2,494 years for females.

In 98.5% of cases where asthma was the underlying cause of death, it was not specified whether this was attributed to allergic or non-allergic asthma. Asthma was the underlying cause of death for almost twice as many females as males in 2009 with 46 male deaths for every 100 female deaths.

CANCER (C00-D48)

Cancer refers to a diverse group of diseases in which abnormal cells develop and divide uncontrollably and have the ability to infiltrate and destroy normal body tissue. Cancer can spread throughout the body causing further damage. In 2009, Cancer (C00-D48) was the underlying cause of death for 41,952 registered deaths in Australia. This accounted for 29.8% of all registered deaths. Cancer contributed to a total of 48,165 deaths as either an underlying or associated cause of death.

The standardised death rate for cancer was 175.6 per 100,000 population in 2009, a decrease from 193.2 per 100,000 population in 2000.

The standardised death rate for males in 2009 was 223.4 per 100,000, and 139.2 per 100,000 for females. More males than females died of cancer with 130 male deaths per 100 female deaths for the 2009 reference year. The median age of persons dying from cancer in 2009 was 75.0 years for males, 75.4 years for females and 75.1 years for all cancer deaths. Potential life lost due to cancer deaths was 183,455 years for males and 151,621 years for females.

Prostate cancer (C61) was the underlying cause of 3,111 deaths registered in 2009, 4.3% of all male deaths registered. The median age at death for prostate cancer was 81.3 years. This is close to the median age for all male deaths (77.8 years). Potential life lost from deaths due to prostate cancer was 9,215 years. Breast cancer (C50) was the underlying cause of 2,772 female deaths registered in 2009, 4.1% of all female deaths registered. The median age at death for breast cancer was 68.0 years for females, which is 15.9 years lower than the median age for all female deaths (83.9 years). Potential life lost from deaths due to breast cancer was 33,370 years for females.

Seven of the top 20 leading underlying causes of death in 2009 were attributable to some form of malignant cancer. These seven causes accounted for 25,612 deaths or 18.2% of all registered deaths in 2009. For further analysis of leading causes of death see Chapter 2

CARDIOVASCULAR
DISEASE (I00-I99)

Cardiovascular health relates to the health of the heart and blood vessels. The major underlying causes of death relating to cardiovascular health are coronary heart disease, stroke, heart failure and peripheral vascular disease. Cardiovascular disease (I00-I99) was the underlying cause for 46,106 deaths registered in Australia during 2009, which represents 32.8% of all deaths. These diseases contributed to a total of 80,375 deaths as either an underlying or associated cause of death.

CARDIOVASCULAR
DISEASE (I00-I99)
continued

Five of the top 20 leading underlying causes of death in 2009 were attributable to some form of cardiovascular disease. These five causes accounted for 40,352 deaths, or 28.7% of all registered deaths in 2009. For further analysis of leading causes of death see Chapter 2.

The standardised death rate for cardiovascular disease was 183.4 per 100,000 population in 2009, a decrease from 266.8 per 100,000 population in 2000. The standardised death rate for males in 2009 was 218.8 per 100,000, and 153.1 per 100,000 for females.

Of those deaths due to cardiovascular disease, 47.6% were male and 52.4% were female. Females dying from these diseases had a higher median age at death, 87.2 years compared with 81.3 years for males. The potential life lost due to cardiovascular disease is much higher for males than females; 116,996 years for males compared with 47,420 for females.

DIABETES (E10-E14)

Diabetes is a disorder caused by the inability of the body to control the amount of sugar in the blood. If left untreated, diabetes can severely damage organs in the body. Diabetes (E10-E14) was the underlying cause for 4,170 (3.0%) deaths registered in Australia in 2009. Diabetes contributed to 14,286 (10.1%) deaths as either an underlying or associated cause of death.

The standardised death rate for diabetes was 17.1 per 100,000 population in 2009, an increase from 16.0 per 100,000 population in 2000. The standardised death rate for males in 2009 was 20.6 per 100,000, and 14.2 per 100,000 for females.

Median age at death due to diabetes was 78.5 years for males, 83.3 years for females and 80.9 years overall. Potential life lost through death due to diabetes was 12,576 years for males and 7,128 years for females.

Type II diabetes (E11, non-insulin dependent diabetes) accounted for 1,772 deaths, or 42.5% of all diabetes deaths. This particular type of diabetes was predominant in the 70-94 years age group. Of all deaths due to non-insulin dependent diabetes, 76.8% of males and 79.7% of females were aged 70-94 years.

INJURIES (V01-Y98)

Injuries due to External causes of death (V01-Y98), relate to cases where the underlying cause of death is determined to be one of a group of causes external to the body (for example suicide, transport accidents, falls, poisoning etc).

In 2009, injuries accounted for 8,884 deaths, or 6.3% of all registered deaths. The standardised death rate for injuries was 38.6 per 100,000 of population in 2009, a decrease from 42.5 per 100,000 population in 2000. The standardised death rate for males in 2009 was 55.1 per 100,000 and 23.2 per 100,000 for females.

Over time, more men than women have died from external causes, and at younger ages. Consistent with previous years, approximately two-thirds of the total number of deaths resulting from external causes were males (5,886, or 66.2%). Median age at death for deaths due to injuries registered in 2009 was 47.4 years for males, 66.7 years for females and 51.8 years overall. The potential life lost through deaths due to injuries was 173,191 years for males and 58,998 years for females.

INJURIES (V01-Y98)

continued

Transport accidents (V01-V99, Y85) accounted for 1,501 deaths, 16.9% of all deaths due to injuries. Of these, 1,102 (73.4%) were males and the remaining 399 (26.6%) were females. Transport accidents presented a younger profile in comparison to all deaths due to injuries, with a median age at death of 38.3 years for males, 41.1 years for females and 38.9 years overall. Potential life lost from deaths due to transport accidents was 40,995 years for males and 14,237 years for females.

There were 2,132 deaths due to Intentional self-harm (suicide, (X60-X84, Y87.0)) in 2009, which accounted for 24.0% of all deaths due to injuries. Of these deaths, 1,633 (76.6%) were males and 499 (23.4%) were females. The median age at death for intentional self-harm was 43.4 years for males, 44.9 years for females and 43.8 years overall. Potential life lost from deaths due to intentional self-harm was 55,351 years for males and 16,774 years for females.

Care should be taken in interpreting numbers of suicide death. For further information, see Explanatory Notes 80-83.

MENTAL HEALTH
DISORDERS (F00-F99)

Deaths due to mental health disorders relate to behaviours and conditions which interfere with social functioning and capacity to negotiate daily life. Mental health disorders (F00-F99) were identified as the underlying cause of 6,522 registered deaths, representing 4.6% of all registered deaths in Australia during 2009. In total, 21,384 deaths were due to, or associated with, mental health disorders.

The prevalence of mental health disorders as an underlying cause has increased significantly over the last ten years. In 2009, the standardised death rate for mental health disorders was 25.2 per 100,000 of population, an increase from 16.5 per 100,000 population in 2000. The standardised death rate was 27.4 deaths per 100,000 for both males and females.

In 2009, more than half the deaths due to mental health disorders were females (4,130 or 63.3%). The median age at death was higher for females at 88.9 years, compared with 84.6 years for males. Consistent with this difference, the potential life lost as a result of deaths due to mental health disorders was 7,904 years for males and 3,897 years for females.

Dementia (F01-F03) accounted for 89.5% of deaths due to mental health disorders in 2009. There were 5,836 deaths registered in 2009 for which dementia was the underlying cause. Of these, 1,975 were males, and 3,861 females, giving a sex ratio of 51 males per 100 female deaths. The median age at death due to dementia was 85.7 years for males, 89.2 years for females, and 88.1 years overall.

OBESITY (E66)

Obesity increases the risk of many other chronic and potentially lethal diseases. There were 215 deaths registered in 2009 where Obesity (E66) was identified as the underlying cause of death. In total, there were 1,043 deaths for which obesity was either the underlying cause, or an associated cause of death.

In 2009, the standardised death rate for obesity was 0.9 per 100,000 of population, an increase from 0.6 per 100,000 population in 2000. The standardised death rate for males in 2009 was 1.0 per 100,000 males and 0.9 per 100,000 for females.

OBESITY (E66)

continued

Of those deaths where obesity was the underlying cause, 111 (51.6%) were male, and 104 (48.4%) were female. The median age at death due to obesity for males was 55.6 years and 65.5 years for females. Median age at death was 61.1 years for all deaths due to obesity. Potential life lost from deaths due to obesity was 2,706 years for males and 1,571 years for females.

OVERVIEW

In 2010, a senate inquiry (*The Hidden Toll: Suicide in Australia*) highlighted the potential costs of suicide to individuals, families and communities. Suicide can be defined as the deliberate taking of one's life (Butterworths Concise Australian Legal Dictionary, 1997, Butterworths Sydney). To be classified as a suicide, a death must be recognised as being due to other than natural causes. Detailed information on how deaths are classified as suicide by the ABS can be found in Explanatory Notes 80-83.

This chapter contains summary statistics on suicide deaths registered in Australia, where the underlying cause of death was determined as Intentional self-harm (suicide (X60–X84, Y87.0)). Further information on suicides is presented in the data cubes associated with this publication.

External causes of death are required to be examined by the coroner, who investigates both the mechanism by which a person died, and the intention of the injury (whether accidental, intentional or assault). For a death to be determined a suicide, it must be established by coronial enquiry that the death resulted from a deliberate act of the deceased with the intention of ending his or her own life (intentional self-harm).

The ABS has invested in improvements to suicide data through both a two year revisions process and improved coding practices. However, the number of suicide deaths may be affected by the number of open coronial cases with insufficient information available for coding at the time of ABS processing for publication. Therefore care should be taken in using and interpreting suicide data. For further information, see Explanatory Notes 80-83.

Further information on the impact of the revisions process the ABS undertakes can be found in the Technical Note: Causes of Death Revisions.

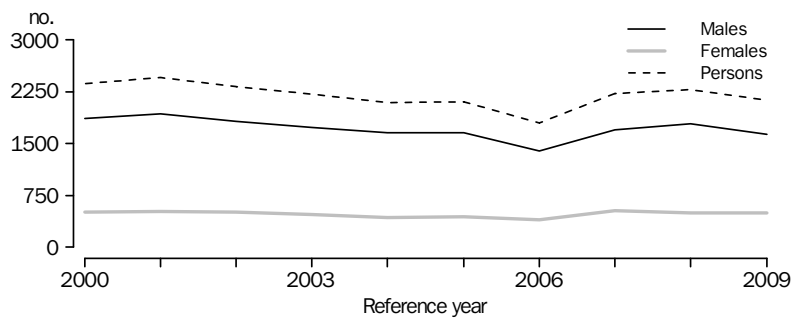
KEY CHARACTERISTICS

There were 2,132 deaths from Intentional self-harm (suicide, (X60–X84, Y87.0)) registered in 2009, resulting in a ranking as the 14th leading cause of all deaths. Over three-quarters (76.6%) of suicides were males, making suicide the 10th leading cause of death for males. Although death by suicide is a relatively uncommon event (occurring at a rate of 9.6 per 100,000 population per year), the human and economic costs are substantial.

KEY CHARACTERISTICS

continued

6.1 SUICIDES (a), NUMBER OF DEATHS: 2000-2009 (b)

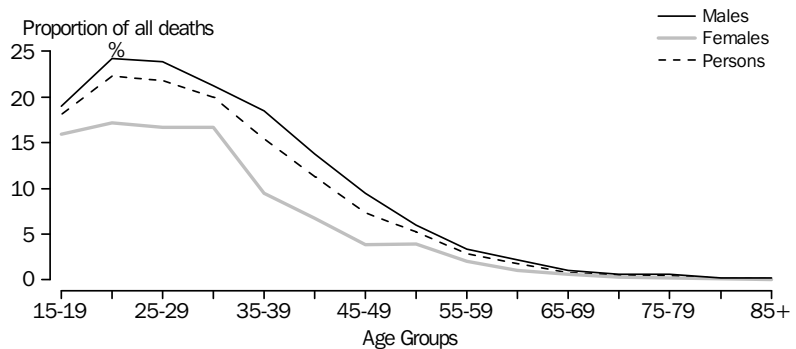


(a) Care needs to be taken in interpreting figures relating to suicide. See Explanatory Notes 80-83. (b) Causes of death data for 2009 are preliminary and subject to a revisions process. Causes of death data for 2008 have been revised and are subject to further revisions. Causes of death data for 2007 have undergone two years of revisions and are final. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.

Suicide as proportion of total deaths

While suicide accounts for only a relatively small proportion (1.5%) of all deaths in Australia, it accounts for a much greater proportion of deaths from all causes within specific age groups (see graph below). For example, in 2009, 22.1% of all male deaths aged 15-24 years were due to suicide. Similarly for females, suicide deaths comprise a much higher proportion of total deaths in younger age groups compared with older age groups.

6.2 SUICIDES (a), BY SELECTED AGE GROUPS: 2009(b)



(a) Care needs to be taken in interpreting figures relating to suicide. See Explanatory Notes 80-83. (b) Causes of death data for 2009 are preliminary and subject to a revisions process. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.

AGE

Median age

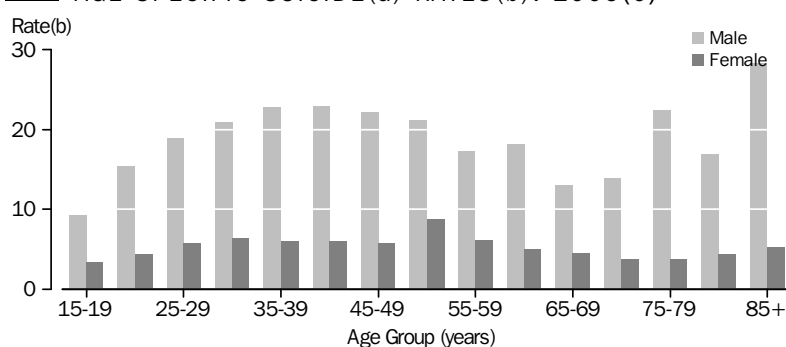
The median age at death for suicide in 2009 was 43.4 years for males, 44.9 years for females and 43.8 years overall. In comparison, the median age for deaths from all causes in 2009 was 77.8 years for males, 83.9 years for females and 80.8 years overall.

Age-specific rates

Age-specific death rates are the number of deaths during the reference year at a specified age per 100,000 of the estimated resident population of the same age (see Glossary for further information). The pattern of age-specific rates in 2009 for suicide in males and females is shown in the graph below and in associated data cubes.

Age-specific rates

continued

6.3 AGE-SPECIFIC SUICIDE (a) RATES (b): 2009(c)

(a) Care needs to be taken in interpreting figures relating to suicide. See Explanatory Notes 80-83.
 (b) Rate per 100,000 estimated resident population for each age group and sex.
 (c) Causes of death data for 2009 are preliminary and subject to a revisions process. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.

The highest age-specific suicide death rate for males in 2009 was observed in the 85 years and over age group (28.2 per 100,000 population). As a proportion of total male deaths in this age group, suicide deaths represented 0.2%. The age-specific death rate for 40-44 year old males was 22.9 per 100,000, and 22.7 per 100,000 for 35-39 year old males. Suicides as a proportion of total male deaths for these age groups were 13.8% and 18.5% respectively. The age-specific suicide rate for males was lowest in the 15-19 year age group (9.3 per 100,000). It should be noted that while this age-specific suicide rate is low in comparison to older age groups, suicide accounted for 19.0% of all deaths of males aged 15-19.

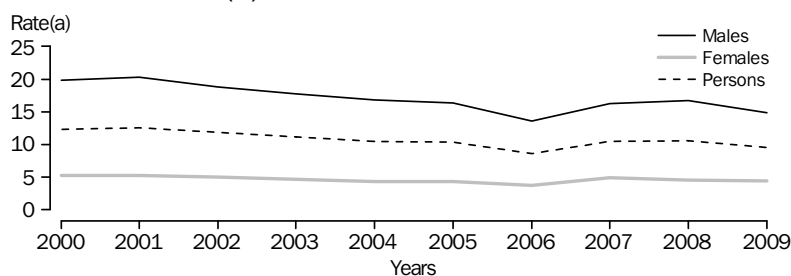
For females the highest age-specific suicide death rate in 2009 was observed in the 50-54 year age group with 8.8 deaths per 100,000. The lowest age-specific death rate for female deaths was in the 15-19 year age group (3.4 deaths per 100,000).

Age-standardised rates

Age standardisation is used to compare death rates over time, as it accounts for any changes in the age-structure of a population over time. The age-standardised suicide rate (for persons) in 2009 was 9.6 per 100,000. This compares with 12.3 per 100,000 in 2000. The age-standardised suicide rate in 2009 for males was 14.9 per 100,000 while the corresponding rate for females was 4.4 per 100,000.

Age-standardised rates
continued

6.4 AGE-STANDARDISED DEATH RATES (a) FOR SUICIDE (b):
2000-2009 (c)



(a) Age-standardised rate per 100,000. Standardised using direct method and the Australian estimated resident population (persons) at 30 June 2001 as standard population.
 (b) Care needs to be taken in interpreting figures relating to suicide. See Explanatory Notes 80-83.
 (c) Causes of death data for 2009 are preliminary and subject to a revisions process. Causes of death data for 2008 have been revised and are subject to further revisions. Causes of death data for 2007 have undergone two years of revisions and are final. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.

METHOD OF SUICIDE

In 2009, the most frequent method of suicide was by Hanging, strangulation or suffocation (X70), a method used in just over half (51.3%) of all suicide deaths. Poisoning by drugs was used in 14.9% of suicide deaths, followed by poisoning by other methods including by alcohol and motor vehicle exhaust (11.7%). Methods using firearms accounted for 7.7% of suicide deaths. The remaining suicide deaths included deaths from drowning, jumping from a high place, and other methods.

Mechanism By Intent -
Selected Causes

Coronial processes to determine the intent of a death (whether intentional self-harm, accidental, homicide, undetermined intent) are especially important for statistics on suicide deaths because information on intent is necessary to complete the coding under ICD-10 coding rules. Coroners' practices in determining the intent of a death may vary across the states and territories. In some cases, no statement of intent will be made by a coroner. The factors effecting coroner determination of intent may include legislative or regulatory barriers, sympathy with the feelings of the family, age of the deceased, or sensitivity to the cultural practices and religious beliefs of the deceased and/or their family. For some mechanisms of death where it may be very difficult to determine suicidal intent (e.g. single vehicle accidents, drownings), the burden of proof required for the coroner to establish that the cause of death was suicide may make a finding of suicide less likely.

The table below presents selected external causes of death by mechanism and intent. It is possible that additional suicide deaths are contained within the Intent categories of Accidental and Undetermined Intent, particularly for the mechanisms of poisoning and hanging. Refer to Explanatory Notes 80-83 for further information.

6.5 SELECTED EXTERNAL CAUSES OF DEATH, Mechanism by intent—2009(a)(b)

<i>Mechanism of death</i>	<i>Accidental death</i>	<i>Intentional self-harm(c)</i>	<i>Assault</i>	<i>Undetermined intent</i>	<i>Other intent(d)</i>	<i>Total</i>
no.	no.	no.	no.	no.	no.	no.
Poisonings (X40-X90, X60-X69, X85-X90, Y10-Y19)	799	566	3	345	0	1 713
Hanging (W75-W84, X70, X91, Y20)	220	1 093	6	127	0	1 446
Drowning and submersion (W65-W74, X71, X92, Y21)	182	43	1	54	0	280
Firearms (W32-W34, X72-X74, X93-X95, Y22-Y24)	6	164	30	24	0	224
Contact with sharp object (W25-W29, X78, X99, Y28)	9	55	74	22	0	160
Falls (W00-W19, X80, Y01,Y30)	1 370	81	0	29	0	1 480
Other(e)	2 736	130	95	393	225	3 579
Total	5 322	2 132	211	994	225	8 884

- (a) Causes of death data for 2009 are preliminary and subject to a revisions process. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.
- (b) Data cells with small values have been randomly assigned to protect the confidentiality of individuals. As a result, some totals will not equal the sum of their components. Cells with a zero value have not been affected by confidentialisation.
- (c) Includes ICD-10 codes X60-X84 and Y87.0. Care needs to be taken in interpreting figures relating to suicide. See Explanatory Notes 80-83.
- (d) Includes Complications of medical and surgical care (Y40-Y84), Legal Intervention and operations of war (Y35-Y36), Sequelae with surgical and medical care as external cause (Y88) and Sequelae of other external causes (Y89).
- (e) Includes sequelea, explosives, smoke/fire/flames, blunt object, jumping or lying before moving object, crashing of motor vehicle, other and unspecified means.

CHAPTER 7

DEATHS OF ABORIGINAL AND/OR TORRES STRAIT ISLANDER PERSONS

OVERVIEW

There were 2,405 deaths registered across Australia in 2009 where the deceased person was identified as being of Aboriginal or Torres Strait Islander origin, or both.

Identification of the deaths of Indigenous Australians can occur on Death Registration Forms and Medical Certificates of Cause of Death. However, it is recognised that not all Indigenous deaths are captured through these processes, leading to under-identification. The extent to which this occurs is referred to as coverage of Indigenous deaths. For further information, see Explanatory Notes 61-70.

The section below provides a brief summary of Indigenous deaths due to selected broad level causes.

DATA CUBES

Further data relating to deaths of Indigenous people can be found in the data cubes associated with this publication. These include leading causes of death for the Indigenous population of Australia and selected states and territories.

CANCER (C00-D48)

Cancer (C00-D48) was the underlying cause of 465 deaths (19.3%) of Indigenous people, of which 50.8% were male and 49.2% were female. In comparison, 30.0% of non-Indigenous deaths were attributed to cancers. The median age of deaths with an underlying cause of cancer was 62.7 years for Indigenous people, and 75.3 years for non-Indigenous people.

Trachea and lung cancers (C33-C34) accounted for 98 deaths or 4.1% of all deaths of Indigenous people. Comparatively, these types of cancer were the underlying cause of death for 5.6% of all deaths of non-Indigenous people in 2009. The sex ratio for Indigenous people who died from Trachea and lung cancers (C33-C34) in 2009 was 158 males per 100 females.

DISEASES OF THE CIRCULATORY SYSTEM (I00-I99)

Deaths caused by Diseases of the circulatory system (I00-I99) accounted for 620 Indigenous deaths in 2009, 25.8% of all Indigenous deaths. The two most common types of circulatory system diseases that contributed to Indigenous deaths were Ischaemic heart diseases (I20-I25) and Stroke (I60-I69).

Ischaemic heart diseases (I20-I25), which include angina, blocked arteries of the heart and heart attacks, were the underlying cause of death for 369 (15.3%) deaths of Indigenous people. Ischaemic heart diseases were also the leading cause of death of non-Indigenous people in 2009, accounting for 16.0% of deaths. The median age at death for Indigenous people who died from ischaemic heart diseases in 2009 was 58.1 years, compared with 84.2 years for non-Indigenous people. The sex ratio for Indigenous people who died from ischaemic heart diseases in 2009 was 149 males per 100 females.

DISEASES OF THE
CIRCULATORY SYSTEM
(I00–I99) *continued*

Cerebrovascular disease (Strokes (I60–I69)), which include haemorrhages, strokes, infarctions and blocked arteries of the brain, accounted for 96 Indigenous deaths in 2009, 4.0% of all Indigenous deaths. This compared with 8.1% of deaths of non-Indigenous people. Median age at death was 68.3 years, compared with 85.6 years for non-Indigenous people throughout Australia.

DIABETES (E10–E14)

Diabetes (E10–E14) was the underlying cause of 192 Indigenous deaths, which represented 8.0% of all deaths of Indigenous people in 2009. This is compared with 2.9% of deaths of non-Indigenous people. The median age at death of Indigenous people who died from diabetes in 2009 was 63.1 years, whereas for non-Indigenous people, it was 81.4 years. The sex ratio for Indigenous deaths due to diabetes was 76 male deaths per 100 female deaths.

RESPIRATORY DISEASES
(J00–J99)

Diseases of the respiratory system (J00–J99) were the underlying cause of 190 Indigenous deaths. This represented 7.9% of all deaths of Indigenous people in 2009, the same proportion as deaths of non-Indigenous people. The median age at death of Indigenous people who died from respiratory diseases was 65.3 years, whereas for non-Indigenous people it was 82.7 years.

The most common types of respiratory disease that contributed to Indigenous deaths were Chronic lower respiratory diseases (J40–J47), which represented 4.9% (119 deaths) of all Indigenous deaths, compared with 4.2% of non-Indigenous deaths.

DISEASES OF THE
DIGESTIVE SYSTEM
(K00–K93)

Diseases of the digestive system (K00–K93) were the underlying cause of 158 Indigenous deaths, which represented 6.6% of all deaths of Indigenous people in 2009, compared with 3.5% of deaths of non-Indigenous people. The median age at death of Indigenous people who died from diseases of the digestive system in 2009 was 53.3 years, whereas for non-Indigenous people, it was 80.8 years.

The most common type of digestive disease that contributed to Indigenous deaths were Diseases of the liver (K70–K77), which represented 4.2% (101 deaths) of all Indigenous deaths, compared with 1.0% of non-Indigenous deaths.

EXTERNAL CAUSES
(V01–Y98)

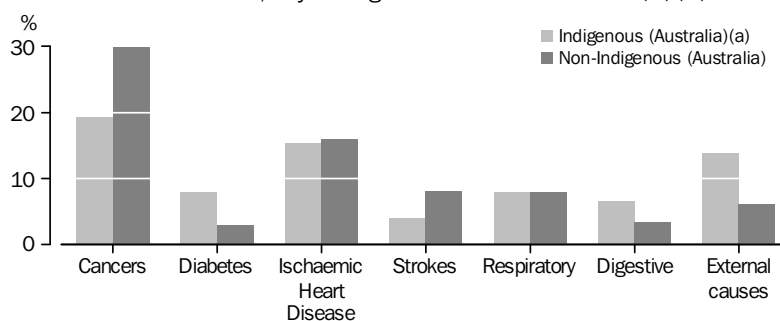
There were 334 deaths of Indigenous people attributed to External causes (V01–Y98) in 2009. This represented 13.9% of all Indigenous deaths, compared with 6.1% of non-Indigenous deaths attributed to external causes. Of those Indigenous deaths due to external causes, 66.8% were male and 33.2% were female. The median age at death for external causes was 32.4 years for Indigenous people and 53.2 years for non-Indigenous people.

Intentional self-harm (suicide, (X60–X84,Y87.0)) and Land transport accidents (V01–V89, Y85.0) were the two leading external causes of death for Indigenous people in 2009. Suicide accounted for 4.0% (97 deaths) of all Indigenous deaths; 72 were males and 25 were females. Land transport accidents accounted for 3.7% (88 deaths) of all Indigenous deaths; 59 were males and 29 were females.

EXTERNAL CAUSES

(V01–Y98) *continued*

7.1 SELECTED UNDERLYING CAUSES OF DEATH AS PROPORTION OF TOTAL DEATHS, By Indigenous status 2009 (b)(c)



(a) Includes deaths of persons identified as Aboriginal, Torres Strait Islander or both Aboriginal and Torres Strait Islander.

(b) See Explanatory Notes 73-84 for further information on specific issues relating to 2009 data.

(c) Causes of death data for 2009 are preliminary and subject to a revisions process. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.

INFANT MORTALITY

A high degree of caution should be exercised when interpreting Indigenous deaths data. For further information, see Explanatory Notes 61-70. Data on infant mortality by Indigenous status is also subject to the high variability caused by small numbers. Further details on Indigenous and non-Indigenous infant mortality can be found in Deaths, Australia 2009 (cat. no. 3302.0).

Infant mortality rates for Indigenous Australians are around twice the rates for all Australians. Of all Indigenous infant deaths (aged under twelve months) registered in 2009, almost half (49.0%) were attributed to Conditions originating in the perinatal period (P00–P96). This was a similar proportion to that of non-Indigenous infant deaths (51.6%).

INTRODUCTION

Information contained in the preceding chapters of this publication refer to deaths registered during the 2009 calendar year. In this chapter, death statistics are based on year of occurrence, that is, the year in which the death actually occurred, rather than the year it was registered. The presentation of year of occurrence data in this publication facilitates international comparisons.

There are a proportion of deaths that occur in a year which are not registered until subsequent years. The international standard for publishing on a year of occurrence basis is to include deaths registered within the relevant occurrence year, and deaths for that same occurrence year which are registered the year immediately following. For example, deaths occurring in 2008 that have been registered in both 2008 and 2009 are presented below.

Analysis of deaths in Australia has shown that the numbers of deaths registered after the second year are not significant; that is, there is a very small number of deaths registered after the second year.

Year of occurrence data allow for seasonal analysis, and data are not distorted by the effects of late registrations or changes in time lags in processing registrations. In those countries where registration systems are complete and timely, there is no significant difference between the number of deaths derived on a year of registration basis and the number of deaths derived on a year of occurrence basis.

For Australia, approximately 95% of deaths registered in a particular year occur in that year. However, variations can occur in certain subsets of the population and for particular causes of death. For instance, 93.9% of all deaths registered in 2008 occurred in the same year. However only 86.4% of Indigenous deaths and 89.9% of deaths due to external causes registered in 2008 occurred in that year. More detailed data for specific causes or population groups are available from the ABS on request.

COMPARISON OF YEAR OF OCCURRENCE AND YEAR OF REGISTRATION DATA FOR 2008

The following table shows the number of deaths occurring in 2008 which were registered in 2008 and 2009. 11.6% of deaths of Aboriginal and Torres Strait Islander people occurring in 2008 (and registered in either 2008 or 2009) were registered late, in 2009. This compares with 5.0% for the total population.

A late registration is defined as a death which is registered after the end of the year in which the death occurred. For example, a death which occurred in 2008 but was registered in 2009 or later is classified as a late registration.

8.1 SELECTED CAUSES: 2008 Year of Occurrence (a)(b)(c)(d)

<i>Cause of death and ICD-10 code</i>	<i>Registered in 2008</i> no.	<i>Registered in 2009</i> no.	<i>Total as at 2009</i> no.	<i>Late Registrations</i> %
INDIGENOUS (e)				
All Causes(f)	2 137	280	2 417	11.6
TOTAL (g)				
All Causes(f)	135 235	7 100	142 335	5.0
Certain infectious and parasitic diseases (A00-B99)	1 845	117	1 962	6.0
Neoplasms (C00-D48)	39 897	1 907	41 804	4.6
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89)	475	22	497	4.4
Endocrine, nutritional and metabolic diseases (E00-E90)	5 539	302	5 841	5.2
Mental and behavioural disorders (F00-F99)	6 071	320	6 391	5.0
Diseases of the nervous system (G00-G99)	5 668	305	5 973	5.1
Diseases of the circulatory system (I00-I99)	45 649	2 179	47 828	4.6
Diseases of the respiratory system (J00-J99)	10 664	549	11 213	4.9
Diseases of the digestive system (K00-K93)	4 647	262	4 909	5.3
Diseases of the skin and subcutaneous tissue (L00-L99)	382	23	405	5.7
Diseases of the musculoskeletal system and connective tissue (M00-M99)	1 113	59	1 172	5.0
Diseases of the genitourinary system (N00-N99)	3 170	171	3 341	5.1
Certain conditions originating in the perinatal period (P00-P96)	537	74	611	12.1
Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	554	38	592	6.4
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)	1 053	70	1 123	6.2
External causes of morbidity and mortality (V01-Y98)	7 955	699	8 654	8.1

- (a) Causes of death data for 2009 are preliminary and subject to a revisions process. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.
- (b) See Explanatory Notes 73-84 for further information on specific issues relating to 2009 data.
- (c) Causes of death data for 2008 have been revised and are subject to further revisions. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.

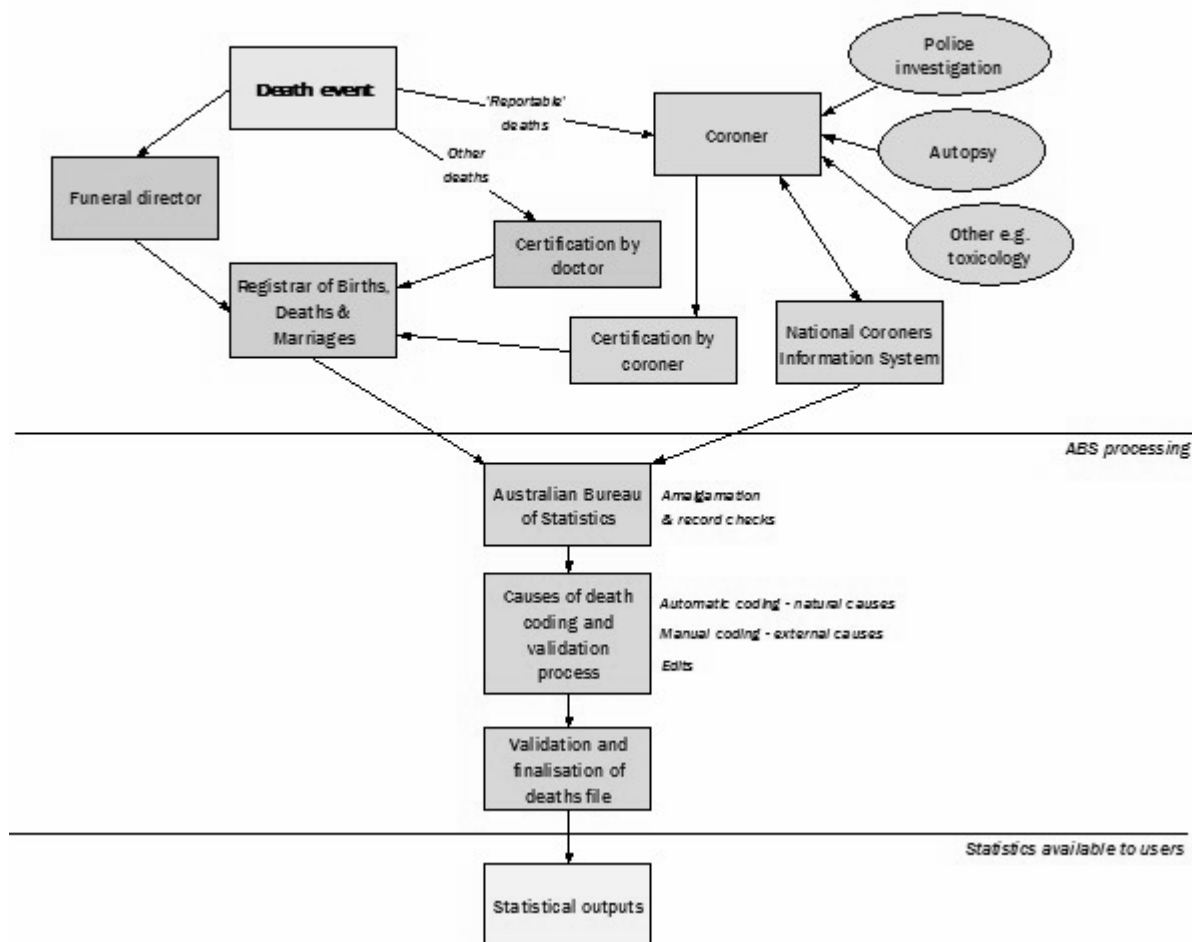
- (d) Causes of death data for 2007 have undergone two years of revisions. See Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.
- (e) Includes deaths of persons identified as Aboriginal, Torres Strait Islander or both Aboriginal and Torres Strait Islander.
- (f) Includes deaths due to Diseases of the eye and adnexa (H00-H59), Diseases of the ear and mastoid processes (H60-H95) and Pregnancy, childbirth and the puerperium (O00-O99).
- (g) Includes total deaths for Australia.

EXPLANATORY NOTES

INTRODUCTION

- 1** This publication contains statistics on causes of death for Australia.
- 2** In order to complete a death registration, the death must be certified by either a doctor using the Medical Certificate of Cause of Death, or by a coroner. Approximately 85-90% of deaths each year are certified by a doctor. The remainder are reported to a coroner. Although there is variation across jurisdictions in what constitutes a death that is reportable to a coroner, they are generally reported in circumstances such as:
 - where the person died unexpectedly and the cause of death is unknown
 - where the person died in a violent or unnatural manner
 - where the person died during or as a result of an anaesthetic
 - where the person was 'held in care' or in custody immediately before they died
 - where the identity of the person who has died is unknown.
- 3** The registration of deaths is the responsibility of the eight individual state and territory Registrars of Births, Deaths and Marriages. As part of the registration process, information about the cause of death is supplied by the medical practitioner certifying the death or by a coroner. Other information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred. The information is provided to the Australian Bureau of Statistics (ABS) by individual Registrars for coding and compilation into aggregate statistics. In addition, the ABS supplements this data with information from the National Coroners Information System (NCIS). The following diagram shows the process undertaken in producing cause of death statistics for Australia.

Australian Cause of Death Statistics System



INTRODUCTION *continued*

- 4 The data presented in this publication are also included in a series of data cubes that are available on the ABS website.
- 5 A Glossary is also provided which details definitions of terminology used.
- 6 These Explanatory Notes provide salient details relevant to the ABS Causes of Death collection.

2009 SCOPE AND COVERAGE

Scope of causes of death statistics

- 7 The statistics in chapters 1-7 relate to the number of deaths registered, not those which actually occurred, in the years shown. Number of deaths by year of occurrence are published in Chapter 8 and data cube 13.
- 8 The ABS Causes of Death collection includes all deaths that occurred and were registered in Australia, including deaths of persons whose usual residence is overseas. Deaths of Australian residents that occurred outside Australia may be registered by individual Registrars, but are not included in ABS deaths or causes of death statistics.
- 9 The current scope of the statistics includes:
 - all deaths being registered for the first time
 - deaths in Australia of temporary visitors to Australia
 - deaths occurring within Australian Territorial waters
 - deaths occurring in Australian Antarctic Territories or other external territories (excluding Norfolk Island)
 - deaths occurring in transit (i.e. on ships or planes) if registered in the State of 'next port of call'

*Scope of causes of death
statistics continued*

- deaths of Australian Nationals overseas who were employed at Australian legations and consular offices (i.e. deaths of Australian diplomats while overseas) where able to be identified
- deaths that occurred in earlier reference periods that have not been previously registered (late registrations).

10 The scope of the statistics excludes:

- still births / fetal deaths (these are included in Perinatal Deaths, Australia (cat. no. 3304.0))
- repatriation of human remains where the death occurred overseas
- deaths overseas of foreign diplomatic staff (where these are able to be identified)
- deaths occurring on Norfolk Island.

11 The scope for each reference year of the Death Registrations includes:

- deaths registered in the reference year and received by the ABS in the reference year
- deaths registered in the reference year and received by ABS in the first quarter of the subsequent year
- 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.

12 Death records received by ABS during the March quarter 2010 which were initially registered in 2009 (but for which registration was 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. Approximately 4% to 6% of deaths occurring in one year are not registered until the following year or later.

13 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
- deaths registered during the two years prior to the reference year but not received by ABS until the reference year.

*Coverage of causes of death
statistics*

14 Ideally, for compiling annual time series, the number of events (deaths) should be recorded and reported as those occurring within a given reference period such as a calendar year. However, due to lags in registration of events, not all deaths are registered in the year that they occur. Therefore, the occurrence event is approximated by the ABS through the addition of the event on a state/territory register of deaths. Also, some additions to the register can be delayed in being received by the ABS from a Registrar (processing or data transfer lags).

In effect there are 3 dates attributable to each death registration:

- the date of occurrence (of the death)
- the date of registration or inclusion on the State/Territory register
- the month in which the registered event is lodged with the ABS.

2009 CLASSIFICATIONS
*Socio-Demographic
Classifications*

15 A range of socio-demographic data are available from the ABS Causes of Death collection. Standard classifications used in the presentation of causes of death statistics include age, sex, birthplace, marital status, multiple birth and Indigenous status. Statistical standards for social and demographic variables have been developed by the ABS. Where these are not published in the Causes of Death publication or data cubes, they can be sourced on request from the ABS.

*Socio-Demographic**Classifications continued*

MARITAL STATUS

16 Within ABS causes of death statistics, marital status relates to registered marital status. Registered marital status refers to formally registered marriages or divorces for which the partners hold a certificate.

17 For further information about marital status refer to Family, Household and Income Unit Variables, 2005 (cat. no. 1286.0)

Geographic Classifications

AUSTRALIAN STANDARD GEOGRAPHICAL CLASSIFICATION (ASGC)

18 The ASGC is an 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. ABS causes of death statistics are coded to Statistical Local Area (SLA) and can be produced for aggregates of these, for example, Statistical Division, Statistical Sub-Division and State. For further information about the ASGC refer to Australian Standard Geographical Classification (ASGC) (cat. no. 1216.0).

19 The ABS has developed a new standard classification for geography, the Australian Statistical Geography Standard (ASGS). The ASGS will be implemented for the 2011 Causes of Death reference period. For further information about the ASGS refer to Australian Statistical Geography Standard (ASGS) (cat. no. 1270.0.55.001).

STANDARD AUSTRALIAN CLASSIFICATION OF COUNTRIES (SACC)

20 The SACC groups neighbouring countries into progressively broader geographic areas on the basis of their similarity in terms of social, cultural, economic and political characteristics. ABS causes of death statistics are coded using the SACC, as the collection includes overseas residents whose death occurred while they were in Australia.

21 Birthplaces within Australia are coded to the state/territory level where possible. The supplementary codes contain the relevant state and territory 4-digit codes.

22 For further information about the classification, refer to Standard Australian Classification of Countries (SACC), (Second Edition) (cat. no. 1269.0).

Health Classifications

INTERNATIONAL CLASSIFICATION OF DISEASES (ICD)

23 The International Classification of Diseases (ICD) is the international standard classification for epidemiological purposes and is designed to promote international comparability in the collection, processing, classification, and presentation of causes of death statistics. The classification is used to classify diseases and causes of disease or injury as recorded on many types of medical records as well as death records. The ICD has been revised periodically to incorporate changes in the medical field. Currently ICD 10th revision is used for Australian causes of death statistics.

24 ICD-10 is a variable-axis classification meaning that the classification does not group diseases only based on anatomical sites, but also on the type of disease. Epidemiological data and statistical data is grouped according to:

- epidemic diseases
- constitutional or general diseases
- local diseases arranged by site
- developmental diseases
- injuries.

25 For example, a systemic disease such as septicaemia is grouped with infectious diseases; a disease primarily affecting one body system, such as a myocardial infarction is grouped with circulatory diseases; and a congenital condition such as spina bifida is grouped with congenital conditions.

26 For further information about the ICD refer to WHO International Classification of Diseases (ICD).

Health Classifications
continued

REVISIONS PROCESS

27 The ICD 10th Revision is also available online.

28 An ongoing issue for the ABS Causes of Death collection has been that the quality of the data can be affected by the length of time required for the coronial process to be finalised and the coroner case closed. For some time, these concerns have been raised by key users of causes of death data regarding the quality of external causes data (e.g. deaths due to intentional self-harm (Suicides), homicides, Sudden Infant Death Syndrome (SIDS) and motor vehicle accidents). The ABS have addressed these data quality concerns in two ways:

- first, by increasing the length of time from the end of the reference period to publication of data from 11 to 15 months to allow for a longer time period to receive information on coroner certified deaths
- second, by introducing a process of revisions to causes of death data.

29 Up to and including deaths registered in 2006, ABS Causes of Death processing was finalised at a point in time. At this point, not all deaths registered in the reference year which were referred to the coroner, had been investigated, the case closed and relevant information loaded into the National Coroners Information System (NCIS). The coronial process can take several years if an inquest is being held or complex investigations are being undertaken. In these instances, the cases remain open on the NCIS. Coroners' cases that have not been closed can impact on data quality as less specific ICD codes often need to be applied in the absence of a coroners finding.

30 To improve the quality of ICD coding, all coroner certified deaths registered after 1 January 2007 are now subject to a revisions process. The revisions process enables the use of additional information relating to coroner certified deaths either 12 or 24 months after initial processing. This increases the specificity of the assigned ICD-10 codes over time. As 12 or 24 months of time has passed since initial processing, many coronial cases will be closed, with the coroner having determined the underlying cause of death and allowing the ABS to code a more specific cause of death. If the case remains open on the NCIS, ABS will investigate and use additional information from police reports, toxicology reports, autopsy reports and coroners' findings to assign a more specific cause of death to these open cases.

31 In this publication and associated data cubes, in addition to 2009 preliminary data, 2008 revised data and 2007 final data have also been published. See Technical Note: Causes of Death Revisions for further information on the impact of the revisions process.

32 As 2007 reference year data are the first series of data to be finalised through the revisions process, a review will be undertaken into the impact of the overall revisions process. The results of this review will be used to determine the most appropriate strategy for future revisions.

2009 MORTALITY CODING

33 The extensive nature of the ICD enables classification of causes of death at various levels of detail. For the purpose of this publication, data is presented according to the ICD at the chapter level, with further disaggregation for major causes of death.

34 To enable the reader to see the relationship between the various summary classifications used in this publication, all tables show in brackets the ICD codes which constitute the causes of death covered.

Updates to ICD-10

35 The Updating and Revision Committee (URC), a WHO advisory group on updates to ICD-10, maintains the cumulative and annual lists of approved updates to the ICD-10 classification. The updates to ICD-10 are of numerous types including addition and deletion of codes, changes to coding instructions and modification and clarification of terms.

Updates to ICD-10 continued

36 The cumulative list of ICD-10 updates can be found online.

Automated coding

37 The ABS uses automated cause of death coding software (Medical Mortality Data System (MMDS)). The MMDS applies ICD rules to all death records, diseases and conditions listed on the death certificate. Approximately 70-80% of records can be coded using the MMDS without manual intervention.

External Causes of Death

38 Where an accidental or violent death occurs, the underlying cause is classified according to the circumstances of the fatal injury, rather than the nature of the injury, which is coded separately.

Leading Causes of Death

39 Ranking causes of death is a useful method of describing patterns of mortality in a population and allows comparison over time and between populations. However, different methods of grouping causes of death can result in a vastly different list of leading causes for any given population. A ranking of leading causes of death based on broad cause groupings such as 'cancers' or 'heart disease' does not identify the leading causes within these groups, which is needed to inform policy on interventions and health advocacy. Similarly, a ranking based on very narrow cause groupings or including diseases that have a low frequency, can be meaningless in informing policy.

40 Tabulations of leading causes presented in this publication are based on research presented in the Bulletin of the World Health Organisation, Volume 84, Number 4, April 2006, 297-304. The determination of groupings in this list is primarily driven by data from individual countries representing different regions of the world. Other groupings are based on prevention strategies, or to maintain homogeneity within the groups of cause categories.

41 A number of organisations publish lists of leading causes of death. However, the basis for determining the leading causes may vary. For example, many lists are based on Years of Potential Life Lost (YPLL) and are designed to present data based on the burden of mortality and disease to the community. The ABS listing of leading causes is based on the numbers of deaths and is designed to present information on incidence of mortality rather than burden of mortality.

Years of Potential Life Lost (YPLL)

42 Years of Potential Life Lost (YPLL) measures the extent of 'premature' mortality, which is assumed to be any death between the ages of 1-78 years inclusive, and aids in assessing the significance of specific diseases or trauma as a cause of premature death.

43 Estimates of YPLL are calculated for deaths of persons aged 1-78 years based on the assumption that deaths occurring at these ages are untimely. The inclusion of deaths under one year would bias the YPLL calculation because of the relatively high mortality rate for that age, and 79 years was the median age at death when this series of YPLL was calculated using 2001 as the standard year. As shown below, the calculation uses the current ABS standard population of all persons in the Australian population at 30 June 2001. This standard is revised every 10 years.

44 YPLL is derived from:

$$YPLL = \sum_x (D_x(79 - A_x))$$

where:

A_x = adjusted age at death. As age at death is only available in completed years the midpoint of the reported age is chosen (e.g. age at death 34 years was adjusted to 34.5).

D_x = registered number of deaths at age x due to a particular cause of death.

YPLL is directly standardised for age using the following formula:

$$YPLL_s = \sum_x (D_x(79 - A_x)C_x)$$

where the age correction factor C_x is defined for age x as:

$$C_x = \frac{N_x}{N_s} \cdot \frac{1}{N_x} \cdot N$$

where:

*Years of Potential Life Lost
(YPLL) continued*

N = estimated number of persons resident in Australia aged 1-78 years at 30 June 2009

N_x = estimated number of persons resident in Australia aged x years at 30 June 2009

N_{xs} = estimated number of persons resident in Australia aged x years at 30 June 2001 (standard population)

N_s = estimated number of persons resident in Australia aged 1-78 years at 30 June 2001 (standard population)

45 The data cubes contain directly standardised death rates and YPLL for males, females and persons. In some cases the summation of the results for males and females will not equate to persons. The reasons for this is that different standardisation factors are applied separately for males, females and persons.

State and Territory Data

46 Causes of death statistics for states and territories in this publication have been compiled in respect of the state or territory of usual residence of the deceased, regardless of where in Australia the death occurred and was registered. Deaths of persons usually resident overseas which occur in Australia are included in the state/territory in which their death was registered.

47 Statistics compiled on a state or territory of registration basis are available on request.

DATA QUALITY

Coroner Certified Deaths

48 In compiling causes of death statistics, the ABS employs a variety of measures to improve quality, which include:

- providing certifiers with certification booklets for guidance in reporting causes of death on medical certificates, see Information Paper: Certification of Death (cat. no. 1205.0.55.001)
- seeking detailed information from the National Coroners Information System (NCIS)
- editing checks at the individual record and aggregate levels.

49 The quality of causes of death coding can be affected by changes in the way information is reported by certifiers, by lags in completion of coroner cases and the processing of the findings. While changes in reporting and lags in coronial processes can affect coding of all causes of death, those coded to *Chapter XVIII: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified* and *Chapter XX: External causes of morbidity and mortality* are more likely to be affected because the code assigned within the chapter may vary depending on the coroner's findings (in accordance with ICD-10 coding rules).

50 Over time, improvements have been made to the quality of the causes of death data published by the ABS. Two processing improvements were introduced to the ABS Causes of Death collection in 2008 (the context and details of these improvements are described below). These improvements relate to the way the ABS codes coroner certified deaths and have had the effect of significantly improving the quality of cause of death codes assigned to coroner certified cases.

51 In order to complete a death registration, the death must be certified by either a doctor using the Medical Certificate of Cause of Death, or by a coroner. It is the role of the coroner to investigate the circumstances surrounding all reportable deaths and to establish wherever possible the circumstances surrounding the death, and the cause(s) of death. Generally most deaths due to external causes will be referred to a coroner for investigation; this includes those deaths which are possible instances of Intentional self-harm (Suicide).

52 When coronial investigations are complete, causes of death information is passed to the Registrar of Births, Deaths and Marriages, as well as to the NCIS. The ABS uses the NCIS as the only source of data to code coroner certified deaths. Where a case remains open on the NCIS at the time the ABS ceases processing and insufficient information is

*Coroner Certified Deaths**continued*

available to code a cause of death (e.g. a coroner certified death was yet to be finalised by the coroner), less specific ICD codes are assigned as required by the ICD coding rules.

53 The specificity with which open cases are able to be allocated an ICD-10 code is directly related to the amount and type of information available on the NCIS. The amount of information available for open cases varies considerably from no information to detailed police, autopsy and toxicology reports. There may also be interim findings of 'intent'.

54 The manner or intent of an injury which leads to death, is determined by whether the injury was inflicted purposefully or not (in some cases, intent cannot be determined) and, when it is inflicted purposefully (intentional), whether the injury was self-inflicted (suicide) or inflicted upon another person (assault).

55 The first of the new processing improvements introduced from 2008 relates to the way that the ABS utilises information on the Medical Certificate of Cause of Death. For both open and closed coroners cases, more time is now taken to investigate part 2 of the certificate when a non-specific underlying cause was shown in part 1. Part 2 of the certificate details conditions that may have contributed to the death but were not part of the sequence of events that led to death.

56 The second new processing improvement relates to the use of additional information available on the NCIS. Increased resources and time were spent investigating coroners reports to identify specific causes of death. This involved making increased use of police reports, toxicology reports, autopsy reports and coroners findings for both open and closed cases to minimise the use of non-specific causes and intents.

57 The introduction of these processes has resulted in improved data quality in relation to assigning unspecified cause codes to coroner certified deaths. There has been a decrease of 555 (47.8%) in the number of coroner certified deaths attributed to Other ill-defined and unspecified causes of mortality (R99) from 1,160 in 2007 (preliminary) to 605 in 2009 (preliminary).

58 As less specific codes are generally associated with open rather than closed coroner certified cases, the new processes have had the effect of significantly improving the quality of cause of death codes assigned to open cases. Additionally, a large number of deaths investigated by coroners are due to external causes, therefore the new processes have also had the effect of improving these data.

59 Prior to 2008, these two processes were not routinely followed in relation to coroner certified cases. However, they have been applied to the revised 2007 data and the preliminary and revised 2008 data.

60 The 2009 data provided in this publication has not yet been subjected to the revisions process, which will further improve the quality of the data. Therefore, the data on 2009 causes of death is considered preliminary and refers to the point in time when initial 2009 processing was finalised. The 2009 data will go through the revisions process twice, and will be released in the ABS Causes of Death publications in 2012 (2009 revised) and 2013 (2009 final).

Indigenous deaths

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

62 Identification of the deaths of Indigenous Australians can occur on Death Registration Forms and Medical Certificates of Causes of Death. However it is recognised that not all Indigenous deaths are captured through these processes, leading to under-identification. While 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.

Indigenous deaths continued

63 There are several data collection forms on which people are asked to state whether they are of 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 an Aboriginal and/or Torres Strait Islander on a specific form is known as their propensity to identify.

64 Propensity to identify as an Aboriginal and/or Torres Strait Islander 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
- cultural aspects and feelings associated with identifying as Aboriginal and Torres Strait Islander Australian.

65 In addition to those deaths where the deceased is identified as an Aboriginal and/or Torres Strait Islander, a number of deaths occur each year where Indigenous status is not stated on the death registration form. In 2009, there were 1,528 deaths registered in Australia for whom Indigenous status was not stated, representing 1.1% of all deaths registered.

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

67 Chapter 7 of this publication and data cube 12 provide information on causes of death for Aboriginal and/or Torres Strait Islander Australians. Due to the data quality issues outlined below, detailed disaggregations of deaths of Aboriginal and/or Torres Strait Islander Australians are provided only for New South Wales, Queensland, Western Australia and the Northern Territory.

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

- 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
- ongoing ABS investigations into the unusual volatility in the number of deaths of Aboriginal and/or Torres Strait Islander Australians registered in Western Australia in recent years.

69 The ABS undertakes significant work aimed at improving Indigenous identification. Quality studies conducted as part of the Census Data Enhancement project have investigated the levels and consistency of Indigenous identification between the 2006 Census and death registrations. See Information Paper: Census Data Enhancement - Indigenous Mortality Quality Study, 2006-07 (cat. no. 4723.0), released on 17 November 2008.

<i>Indigenous deaths continued</i>	<p>70 An assessment of various methods for adjusting incomplete Indigenous death registration data for use in compiling Indigenous life tables and life expectancy estimates is presented in Discussion Paper: Assessment of Methods for Developing Life Tables for Aboriginal and Torres Strait Islander Australians, 2006 (cat. no. 3302.0.55.002), released on 17 November 2008.</p>
DEATHS BY TYPE OF CERTIFIER	<p>71 For deaths registered in 2009, 13.3% were certified by a coroner. There are variations between jurisdictions in relation to deaths certified by a coroner, ranging from 11.3% deaths certified by a coroner in Queensland to 32.6% of deaths certified by a coroner in the Northern Territory. The proportion of deaths certified by a coroner in 2009 is comparable to previous years.</p> <p>72 All causes of death can be grouped to describe the type of death whether it be from a disease or condition, or from an injury or whether the cause is unknown. These are generally described as:</p> <ul style="list-style-type: none"> ■ Natural Causes - deaths due to diseases (for example diabetes, cancer, heart disease etc) (A00-Q99, R00-R98) ■ External Causes- deaths due to causes external to the body (for example Suicide, transport accidents, falls, poisoning etc) (V01-Y98) ■ Unknown Causes - deaths where it is unable to be determined whether the cause was natural or external (R99).
SPECIFIC ISSUES FOR 2009 DATA	<p>73 As outlined below a number of issues should be taken into account by users when analysing the 2009 Causes of Death data.</p>
<i>Dementia (F01,F03)</i>	<p>74 Since 2006, there has been a significant increase in the number of deaths coded to Dementia (F01,F03). Updates to the coding instructions in ICD-10 has resulted in the assignment of some deaths shifting from Cerebrovascular diseases (I60-I69) to Vascular dementia (F01). In addition, changes to the <i>Veterans' Entitlements Act 1986</i> and <i>Military Rehabilitation and Compensation Act 2004</i>, and a subsequent promotional campaign targeted at health professionals, now allow for death from vascular dementia of veterans or members of the defence forces to be related to relevant service. This is believed to have had an effect on the number of deaths attributed to dementia.</p>
<i>Exposure to uncontrolled fire, not in building or structure (X01)</i>	<p>75 The number of deaths attributable to Exposure to uncontrolled fire, not in building or structure (X01), increased from 7 in 2008 to 165 in 2009. This increase is primarily due to deaths resulting from the Victorian bushfires. The 2009 Victorian Bushfires Royal Commission stated that there were 173 deaths resulting from the bushfires. Additional quality checks were conducted on cases relating to the Victorian bushfires and records were coded as per standard ICD rules.</p>
<i>Swine flu</i>	<p>76 The H1N1 influenza strain (commonly known as swine flu) was determined to be the underlying cause of 77 deaths in 2009. As a new strain of influenza, swine flu was not originally included in the ICD-10 classification. A decision was made by the WHO to include deaths associated with swine flu in Influenza due to certain identified influenza virus (J09).</p>
<i>Transport Accidents (V01-V79, Y32)</i>	<p>77 There were 1,290 deaths attributed to Road traffic accidents (V01-V79) in 2009, and a further 81 deaths coded as Crashing of a motor vehicle, undetermined intent (Y32). When making comparisons between road deaths from the ABS Causes of Death collection and road deaths from other sources, the scope and coverage rules applying to each collection should be considered. It should be noted that the number of road traffic related deaths attributed to transport accidents for 2009 is expected to change (and most likely increase) as data is subject to the revisions process, see Explanatory Notes 28-32.</p>

Assault (X85-Y09, Y87.1)

78 The number of deaths recorded as Assault (X85-Y09, Y87.1) i.e. murder, manslaughter and their sequelae, published in the ABS Causes of Death publication, differ from those published by the ABS in Recorded Crime - Victims, Australia, 2009 (cat. no. 4510.0). Reasons for the different counts include differences in scope and coverage of the two collections, as well as legal proceedings that are pending finalisation. It is important to note that the number of deaths attributed to assault for 2009 is expected to change (and most likely increase) as Causes of Death data is subject to the revisions process, see Explanatory Notes 28-32.

79 The following codes may include cases which could potentially have been assaults but for which the intent was determined to be other than Assault (X85-Y09, Y87.1). Such cases cannot be separately identified in the final ABS Causes of Death statistics:

- Falls (W13, W15, W17)
- Striking, contact and exposure (W20-W22, W25, W27, W40, W49, W50, W51, W81)
- Firearm discharge (W32, W33, W34)
- Accidental strangulation/hanging/suffocation (W75, W76, W83, W84)
- Contact with knife, sword or dagger (W26)
- Exposure to unspecified factor (X59)
- Events of Undetermined Intent (Y20-Y34)
- Other ill-defined and Unspecified Causes of Mortality (R99).

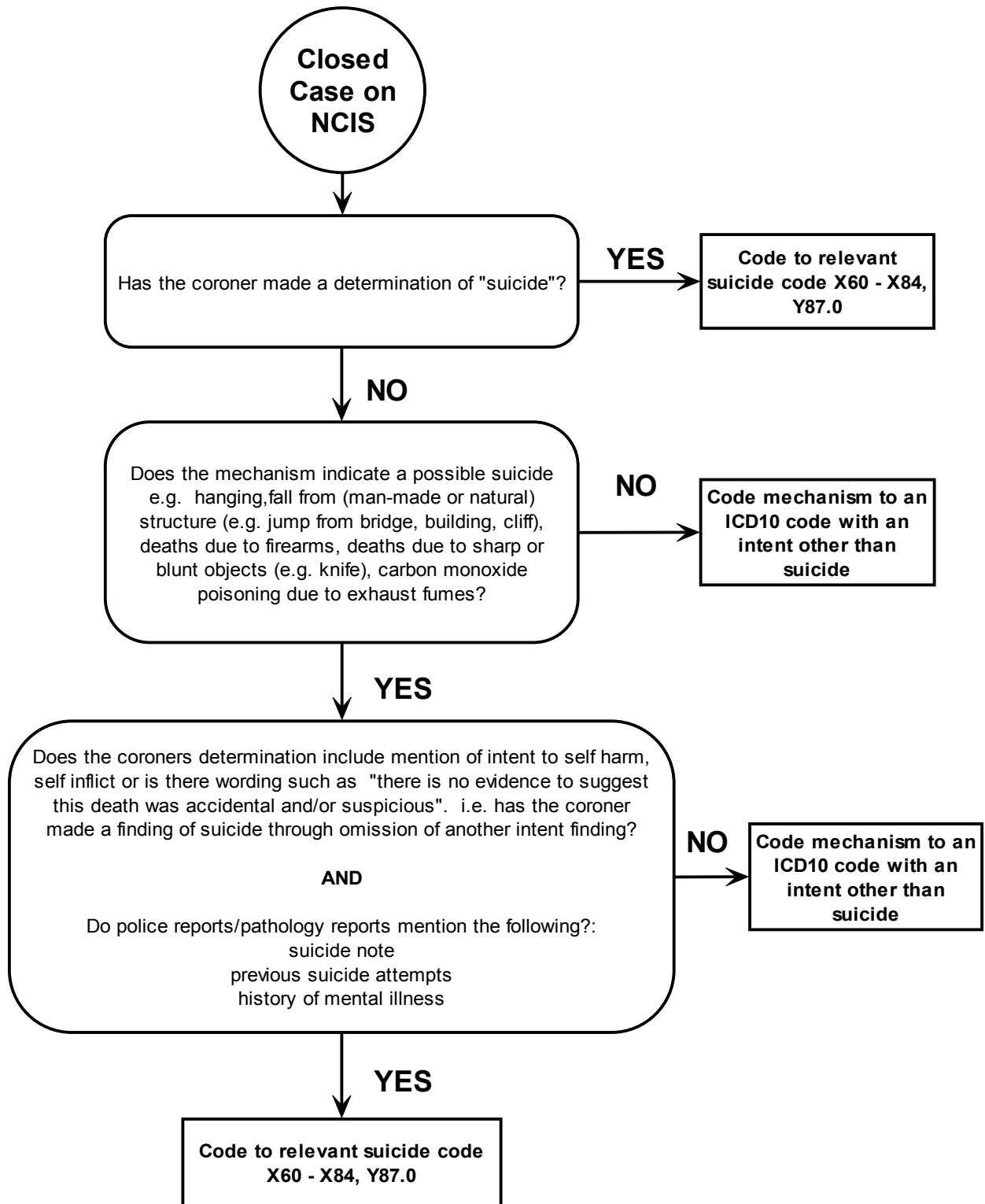
*Intentional Self-Harm
[Suicide] (X60-X84, Y87.0)*

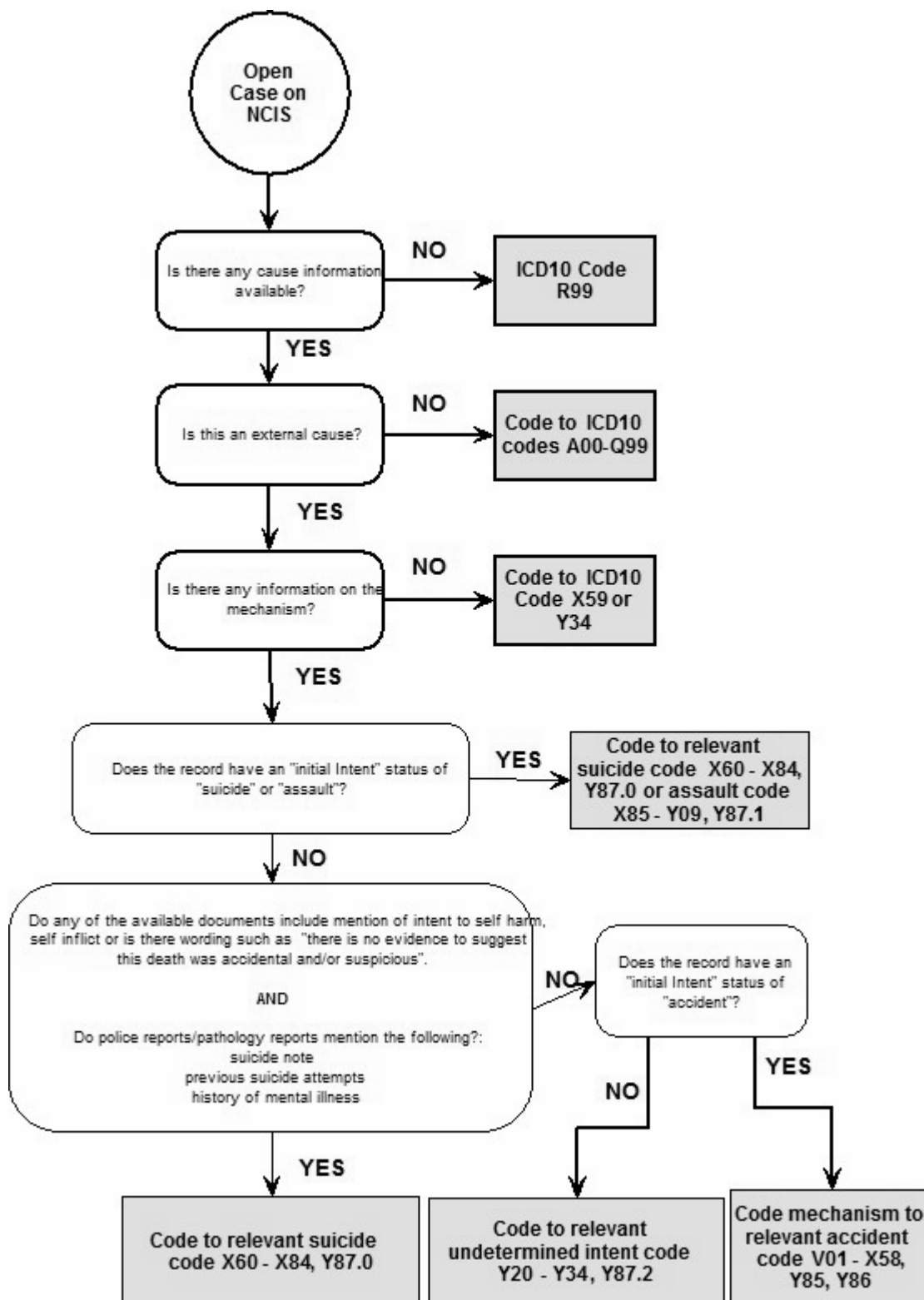
80 The number of deaths recorded as Intentional self-harm (Suicide)(X60-X84, Y87.0) has decreased over the last 10 years, from 2,367 in 2000 to 2,132 in 2009. This decrease can be partly attributed to the variances in the way the ABS has coded coroner certified deaths over time. See Explanatory Notes 48-60, for further information. This will have an influence on the number of deaths due to suicide, as the majority of open coroner cases are deaths due to external causes.

81 In addition, the number of deaths attributed to suicide for 2009 is expected to increase as data is subject to the revisions process, see Explanatory Notes 28-32 for further information on the causes of death revisions process.

82 Suicide deaths in children are an extremely sensitive issue for families and coroners. The number of child suicides registered each year is low in relative terms and is likely to be underestimated. For that reason this publication does not include detailed information about suicides for children aged under 15 years in the commentary or data cubes.

83 For processing of deaths registered from 1 January 2007, revised instructions for ABS coders were developed in order to ensure consistency in the coding of suicide deaths and compliance with the revised notes for coding to the undetermined intent categories. At the time that the ABS ceases processing, each coroners record on the NCIS will have a status of 'open' or 'closed'. The NCIS case status impacts on how deaths are coded with regard to suicides. With the introduction of the revisions process for all deaths registered from 1 January 2007, additional information received by the ABS may lead to a more specific cause of death code being assigned. Below is a summary of the suicide coding process used by the ABS.





Undetermined intent
(Y10-Y34, Y87.2)

84 Due to changes in coding rules for ICD-10 in 2007, processing of data up to and including the 2006 reference year assigned a finding of 'Undetermined intent' only where this was the official coronial finding. Other deaths where either intent was 'not known' or 'blank' on the NCIS record, were coded with an intent of 'accidental'. From 2007, a death is coded to an 'Undetermined intent' code where the NCIS intent field is: 'could not be determined'; 'unlikely to be known'; or 'blank'. This change in coding practice has resulted in a significant increase in deaths allocated to these codes from 2007 onwards.

Undetermined intent
(Y10-Y34, Y87.2) continued

However, it is important to note that it is expected that the number of deaths attributed to 'Undetermined intent' codes will decrease as revisions of preliminary data are undertaken, see Explanatory Notes 28-32.

CONFIDENTIALISATION OF
DATA

85 Data cells with small values have been randomly assigned to protect confidentiality. As a result some totals will not equal the sum of their components. Cells with 0 values have not been affected by confidentialisation.

EFFECTS OF ROUNDING

86 Where figures have been rounded, discrepancies may occur between totals and sums of the component items.

ABS PRODUCTS

87 ABS products and publications are available free of charge from the ABS website. Click on Statistics to gain access to the full range of ABS statistical and reference information. For details on products scheduled for release in the coming week, click on the Future Releases link on the ABS homepage.

ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACS	automated coding system
AIDS	Acquired Immune Deficiency Syndrome
AIHW	Australian Institute of Health and Welfare
ANZSCO	Australian and New Zealand Standard Classification of Occupations
ASDR	age-specific death rate
ASGC	Australian Standard Geographical Classification
Aust.	Australia
cat. no.	Catalogue number
CDR	crude death rate
CM	Clinically Modified
COAD	chronic obstructive airways disease
DRF	death registration form
ERP	estimated resident population
HIV	Human Immunodeficiency Virus
ICD-10	International Classification of Diseases 10th Revision
IHD	ischaemic heart disease
IMR	infant mortality rate
ISDR	indirect standardised death rate
MCCD	medical certificate of cause of death
MMDS	Medical Mortality Data System
no.	number
NCHS	National Centre for Health Statistics
NCIS	National Coroners Information System
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
SA	South Australia
SACC	Standard Australian Classification of Countries
SDR	standardised death rate
SIDS	Sudden Infant Death Syndrome
SLA	statistical local area
Tas.	Tasmania
URC	Updating and Revision Committee
Vic.	Victoria
WA	Western Australia
WHO	World Health Organization
YPLL	years of potential life lost

DATA INPUT

The following tables contain data used in calculating the various rates referred to in this publication.

The first table presents Estimated Resident Population as at 30 June 2009. These data have been used to calculate Standardised Death Rates, Age-specific death rates and Years of Potential Life Lost for 2009 data.

A1.1 ESTIMATED RESIDENT POPULATION, by age and sex: 30 June 2009

	<i>Males</i>	<i>Females</i>	<i>Persons</i>
Under 1	151 948	143 859	295 807
1-4	578 256	548 356	1 126 612
5-9	696 248	661 520	1 357 768
10-14	721 021	684 390	1 405 411
15-19	772 360	726 483	1 498 843
20-24	833 096	780 236	1 613 332
25-29	815 569	790 602	1 606 171
30-34	751 549	750 791	1 502 340
35-39	802 894	815 042	1 617 936
40-44	758 395	769 099	1 527 494
45-49	778 578	794 054	1 572 632
50-54	711 782	726 734	1 438 516
55-59	647 166	658 991	1 306 157
60-64	583 968	585 343	1 169 311
65-69	429 966	438 509	868 475
70-74	330 783	355 146	685 929
75-79	255 810	296 164	551 974
80-84	183 493	248 463	431 956
85-89	93 398	162 128	255 526
90-94	27 687	64 842	92 529
95 and over	6 396	20 621	27 017
All ages	10 930 363	11 021 373	21 951 736

The second table presents the number of live births for Australia for selected years, 2000 to 2009. These data have been used in calculating infant death rates - the number of deaths of children under one year of age per 1,000 live births in the same period.

A1.2 LIVE BIRTHS REGISTERED, Australia: 2000, 2005-2009

	<i>Males</i>	<i>Females</i>	<i>Persons</i>
2000	128 190	121 446	249 636
2005	133 428	126 363	259 791
2006	136 692	129 257	265 949
2007	146 456	138 757	285 213
2008	152 287	144 334	296 621
2009	152 019	143 719	295 738

INTRODUCTION

There are standard ways for listing causes of death and there are formal recommendations concerning lists for tabulation to assist international comparisons. The World Health Organisation (WHO) provides a number of standard tabulation lists for presentation of causes of death statistics, that assist international comparability. WHO also recommend that when there is not a need for international comparability then lists can be designed to meet local needs. These special lists can be developed for example to monitor progress of local health programmes. The following tabulation lists have been developed, based on those used by the United States National Center for Health Statistics¹, to assist users in examining data for firearm, drug and alcohol related deaths.

FIREARM DEATHS
TABULATION LIST

Causes of death attributable to firearm mortality include ICD-10 codes:

- W32-W34, Accidental discharge of firearms;
- X72-X74, Intentional self-harm (suicide) by discharge of firearms;
- X93-X95, Assault (homicide) by discharge of firearms;
- Y22-Y24, Discharge of firearms, undetermined intent; and
- Y35.0, Legal intervention involving firearm discharge.

Deaths from injury by firearms exclude deaths due to explosives and other causes indirectly related to firearms.

DRUG INDUCED DEATHS
TABULATION LIST

Causes of death attributable to drug-induced mortality include ICD-10 codes:

- D52.1, Drug-induced folate deficiency anaemia;
- D59.0, Drug-induced haemolytic anaemia;
- D59.2, Drug-induced nonautoimmune haemolytic anaemia;
- D61.1, Drug-induced aplastic anaemia;
- D64.2, Secondary sideroblastic anaemia due to drugs and toxins;
- E06.4, Drug-induced thyroiditis;
- E16.0, Drug-induced hypoglycaemia without coma;
- E23.1, Drug-induced hypopituitarism;
- E24.2, Drug-induced Cushing's syndrome;
- E27.3, Drug-induced adrenocortical insufficiency;
- E66.1, Drug-induced obesity;
- F11.0-F11.5, Use of opioids causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F11.7-F11.9, Use of opioid causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F12.0-F12.5, Use of cannabis causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F12.7-F12.9, Use of cannabis causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F13.0-F13.5, Use of sedative or hypnotics causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F13.7-F13.9, Use of sedative or hypnotics causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F14.0-F14.5, Use of cocaine causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F14.7-F14.9, Use of cocaine causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.

DRUG INDUCED DEATHS
 TABULATION LIST *continued*

- F15.0-F15.5, Use of caffeine causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F15.7-F15.9, Use of caffeine causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F16.0-F16.5, Use of hallucinogens causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F16.7-F16.9, Use of hallucinogens causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F17.0, Use of tobacco causing intoxication
- F17.3-F17.5, Use of tobacco causing dependence, withdrawal or psychosis
- F17.7-F17.9, Use of tobacco causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F18.0-F18.5, Use of volatile solvents causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F18.7-F18.9, Use of volatile solvents causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F19.0-F19.5, Use of multiple drugs and other psychoactive substances causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F19.7-F19.9, Use of multiple drugs and other psychoactive substances causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- G21.1, Other drug-induced secondary Parkinsonism;
- G24.0, Drug-induced dystonia;
- G25.1, Drug-induced tremor;
- G25.4, Drug-induced chorea;
- G25.6, Drug-induced tics and other tics of organic origin;
- G44.4, Drug-induced headache, not elsewhere classified;
- G62.0, Drug-induced polyneuropathy;
- G72.0, Drug-induced myopathy;
- I95.2, Hypotension due to drugs;
- J70.2, Acute drug-induced interstitial lung disorders;
- J70.3, Chronic drug-induced interstitial lung disorders;
- J70.4, Drug-induced interstitial lung disorder, unspecified;
- L10.5, Drug-induced pemphigus;
- L27.0, Generalized skin eruption due to drugs and medicaments;
- L27.1, Localized skin eruption due to drugs and medicaments;
- M10.2, Drug-induced gout;
- M32.0, Drug-induced systemic lupus erythematosus;
- M80.4, Drug-induced osteoporosis with pathological fracture;
- M81.4, Drug-induced osteoporosis;
- M83.5, Other drug-induced osteomalacia in adults;
- M87.1, Osteonecrosis due to drugs;
- R78.1, Finding of opiate drug in blood;
- R78.2, Finding of cocaine in blood;
- R78.3, Finding of hallucinogen in blood;
- R78.4, Finding of other drugs of addictive potential in blood;
- R78.5, Finding of psychotropic drug in blood;
- X40-X44, Accidental poisoning by and exposure to drugs, medicaments and biological substances;
- X60-X64, Intentional self-poisoning (suicide) by and exposure to drugs, medicaments and biological substances;
- X85, Assault (homicide) by drugs, medicaments and biological substances; and

DRUG INDUCED DEATHS
TABULATION LIST *continued*

Y10-Y14, Poisoning by and exposure to drugs, medicaments and biological substances, undetermined intent.

Drug-induced causes exclude accidents, homicides, and other causes indirectly related to drug use. Also excluded are newborn deaths associated with mother's drug use.

ALCOHOL INDUCED DEATHS
TABULATION LIST

Causes of death attributable to alcohol-induced mortality include ICD-10 codes:

- E24.4, Alcohol-induced pseudo-Cushing's syndrome;
- F10, Mental and behavioural disorders due to alcohol use;
- G31.2, Degeneration of nervous system due to alcohol;
- G62.1, Alcoholic polyneuropathy;
- G72.1, Alcoholic myopathy;
- I42.6, Alcoholic cardiomyopathy;
- K29.2, Alcoholic gastritis;
- K70, Alcoholic liver disease;
- K86.0, Alcohol-induced chronic pancreatitis;
- R78.0, Finding of alcohol in blood;
- X45, Accidental poisoning by and exposure to alcohol;
- X65, Intentional self-poisoning by and exposure to alcohol; and
- Y15, Poisoning by and exposure to alcohol, undetermined intent.

Alcohol-induced causes exclude accidents, homicides, and other causes indirectly related to alcohol use. This category also excludes newborn deaths associated with maternal alcohol use.

1. Miniño AM, Heron MP, Murphy SL, Kochanek, KD. Deaths: Final Data for 2004. National vital statistics reports; vol 55 no 19. Hyattsville, MD: National Center for Health Statistics. 2007.

TECHNICAL NOTE CAUSES OF DEATH REVISIONS OVERVIEW

1 All coroner certified deaths registered after 1 January 2007 are now subject to a revisions process. For information on the revisions process see Explanatory Notes 28-32 for further information.

2 This technical note outlines the impact of the revisions process on 2007 data (where two years of revisions have been conducted) and 2008 data (where revisions have been conducted for one year).

2007 REGISTRATION YEAR

3 Table 1 shows the impact of the revisions on the 2007 data at the ICD-10 chapter level as the data has moved from being preliminary through to revised and then final. ICD-10 chapters most notably impacted through the full revisions process were:

- Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99) - reduction of 879 deaths
- External causes of morbidity and mortality (V01-Y98) - increase of 337 deaths
- Diseases of the circulatory system (I00-I99) - increase of 332 deaths.

TABLE 1: CAUSES OF DEATH REVISIONS (PRELIMINARY, REVISED, FINAL)—by ICD-10 chapter: 2007

	Preliminary	Revised	Final	Change (preliminary to final)	Change (Preliminary to Final)
	no	no	no	no	%
Certain infectious and parasitic diseases (A00-B99)	1 858	1 860	1 857	-1	-0.1
Neoplasms (C00-D48)	40 287	40 305	40 331	44	0.1
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89)	479	480	483	4	0.8
Endocrine, nutritional and metabolic diseases (E00-E90)	5 355	5 367	5 380	25	0.5
Mental and behavioural disorders (F00-F99)	5 715	5 716	5 693	-22	-0.4
Diseases of the nervous system (G00-G99)	5 467	5 474	5 485	18	0.3
Diseases of the circulatory system (I00-I99)	46 626	46 821	46 958	332	0.7
Diseases of the respiratory system (J00-J99)	11 577	11 596	11 623	46	0.4
Diseases of the digestive system (K00-K93)	4 760	4 789	4 804	44	0.9
Diseases of the skin and subcutaneous tissue (L00-L99)	362	363	364	2	0.6
Diseases of the musculoskeletal system and connective tissue (M00-M99)	1 091	1 091	1 105	14	1.3
Diseases of the genitourinary system (N00-N99)	3 324	3 327	3 331	7	0.2
Certain conditions originating in the perinatal period (P00-P96)	578	585	587	9	1.6
Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	574	582	595	21	3.7
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)	1 895	1 419	1 016	-879	-46.4
External causes of morbidity and mortality (V01-Y98)	7 893	8 066	8 230	337	4.3
Total (a)	137 854	137 854	137 854	—	—

— nil or rounded to zero (including null cells)

(a) Includes deaths due to Diseases of the eye and adnexa (H00-H59), Diseases of the ear and mastoid process (H60-H95) and Pregnancy, childbirth and puerperium (O00-O99)

4 The reduction in the number of deaths assigned to Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99) is a positive outcome from the revisions process. This reflects how additional information that has become available after the preliminary data has been released has assisted coders in assigning a more specific underlying cause of death. The increase in deaths assigned to External

2007 REGISTRATION YEAR

continued

causes of morbidity and mortality (V01-Y98) and Diseases of the circulatory system (I00-I99) are also expected as these make up the majority (75.6%) of all coroner certified deaths.

5 Table 2 provides more detail in relation to changes in data associated with the revisions process concerning selected causes from the External causes of morbidity and mortality (V01-Y98) and Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99) chapters.

6 The number of deaths in 2007 due to the following selected causes notably reduced as a result of the revisions process:

- Other ill-defined and unspecified causes of mortality (877 deaths)
- Event of undetermined intent (726 deaths)
- Accidental exposure to other and unspecified factors (114 deaths).

7 The number of deaths in 2007 due to the following selected causes notably increased as a result of the revisions process:

- Intentional self-harm (347 deaths)
- Accidental poisoning by and exposure to noxious substances (188 deaths)
- Car occupant injured in transport accident (148 deaths)
- Falls (147 deaths)
- Other land transport accidents (60 deaths)
- Assault (54 deaths).

TABLE 2: SELECTED CAUSES OF DEATH REVISIONS (PRELIMINARY, REVISED, FINAL): 2007

	Preliminary	Revised	Final	Change (preliminary to final)	Change (Preliminary to Final)
	no	no	no	no	%
Sudden infant death syndrome (R95)	71	83	82	11	15.5
Other ill-defined and unspecified causes of mortality (R99)	1 287	802	410	-877	-68.1
Pedestrian injured in transport accident (V01-V09)	182	210	231	49	26.9
Pedal cyclist injured in transport accident (V10-V19)	34	34	45	11	32.4
Motorcycle rider injured in transport accident (V20-V29)	184	201	230	46	25.0
Car occupant injured in transport accident (V40-V49)	710	756	858	148	20.8
Occupant of pick-up truck or van injured in transport accident (V50-V59)	53	61	74	21	39.6
Occupant of heavy transport vehicle injured in transport accident (V60-V69)	32	37	50	18	56.3
Other land transport accidents (V80-V89)	71	76	131	60	84.5
Water transport accidents (V90-V94)	31	32	36	5	16.1
Air and space transport accidents (V95-V97)	36	42	53	17	47.2
Falls (W00-W19)	1 190	1 223	1 337	147	12.4
Exposure to inanimate mechanical forces (W20-W49)	82	89	107	25	30.5
Accidental drowning and submersion (W65-W74)	183	186	191	8	4.4
Other accidental threats to breathing (W75-W84)	220	222	229	9	4.1
Exposure to electric current, radiation and extreme ambient air temperature and pressure (W85-W99)	15	19	20	5	33.3
Exposure to smoke, fire and flames (X00-X09)	58	64	72	14	24.1
Exposure to forces of nature (X30-X39)	52	54	55	3	5.8
Accidental poisoning by and exposure to noxious substances (X40-X49)	575	645	763	188	32.7
Accidental exposure to other and unspecified factors (X58-X59)	628	617	514	-114	-18.2
Intentional self-harm (X60-X84)(a)	1 880	2 053	2 227	347	18.5
Assault (X85-Y09)	162	192	216	54	33.3
Event of undetermined intent (Y10-Y34)	1 089	829	363	-726	-66.7
Drugs, medicaments and biological substances causing adverse effects in therapeutic use (Y40-Y59)	59	59	60	1	1.7
Surgical and other medical procedures as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure (Y83-Y84)	187	184	183	-4	-2.1
Sequelae of external causes of morbidity and mortality (Y85-Y89)	140	139	143	3	2.1

(a) Care needs to be taken in interpreting figures relating to suicide. See Explanatory Notes 80-83.

2007 REGISTRATION YEAR

continued

8 The revisions process has increased the specificity of coding in relation to mechanism and intent. This is demonstrated by reductions in the number of deaths categorised using "other" type codes and increases in deaths with more specific mechanism codes. There has also been a reduction in the number of deaths with undetermined intent and a commensurate increase in the number of deaths coded as accidental, intentional self-harm and assault.

2008 REGISTRATION YEAR

9 Compared to 2007, the revisions process has had a smaller impact on the 2008 data. This is considered to be primarily due to improved specificity of 2008 preliminary coding compared with 2007 preliminary coding, see Explanatory Notes 28-32 for further information. It is expected that final revisions on the 2008 data will have further impact as coroners investigate and close more cases.

10 Table 3 shows the impact of the revisions on the 2008 data at the ICD-10 chapter level as the data has moved from being preliminary to revised. The largest change is a decrease of 86 deaths attributed to Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99).

TABLE 3: CAUSES OF DEATH REVISIONS (PRELIMINARY, REVISED)—by ICD-10 chapter: 2008

	Preliminary	Revised	Change (Preliminary to Revised)	Change (Preliminary to Revised)
	no	no	no	%
Certain infectious and parasitic diseases (A00-B99)	1 935	1 966	31	1.6
Neoplasms (C00-D48)	42 418	42 421	3	—
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89)	503	503	—	—
Endocrine, nutritional and metabolic diseases (E00-E90)	5 900	5 899	-1	—
Mental and behavioural disorders (F00-F99)	6 406	6 408	2	—
Diseases of the nervous system (G00-G99)	5 961	5 971	10	0.2
Diseases of the circulatory system (I00-I99)	48 456	48 455	-1	—
Diseases of the respiratory system (J00-J99)	11 260	11 270	10	0.1
Diseases of the digestive system (K00-K93)	4 939	4 946	7	0.1
Diseases of the skin and subcutaneous tissue (L00-L99)	401	401	—	—
Diseases of the musculoskeletal system and connective tissue (M00-M99)	1 179	1 178	-1	-0.1
Diseases of the genitourinary system (N00-N99)	3 319	3 326	7	0.2
Certain conditions originating in the perinatal period (P00-P96)	595	597	2	0.3
Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	609	606	-3	-0.5
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)	1 243	1 157	-86	-6.9
External causes of morbidity and mortality (V01-Y98)	8 804	8 824	20	0.2
Total (a)	143 946	143 946	—	—

— nil or rounded to zero (including null cells)

(a) Includes deaths due to Diseases of the eye and adnexa (H00-H59), Diseases of the ear and mastoid process (H60-H95) and Pregnancy, childbirth and puerperium (O00-O99)

11 Table 4 below shows for 2008, selected causes from the External causes of morbidity and mortality (V01-Y98) and Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99), the two chapters expected to be influenced through the revisions process. Despite an increase of only 20 records overall within the external causes chapter, there have been some larger movements at the 2-character classification level.

12 The number of deaths in 2008 due to the following selected causes notably decreased as part of the revisions process:

- Event of undetermined intent (413 deaths)
- Other ill-defined and unspecified causes of mortality (96 deaths)
- Accidental exposure to other and unspecified factors (63 deaths).

2008 REGISTRATION YEAR

continued

13 The number of deaths in 2008 due to the following selected causes notably increased as part of the revisions process:

- Accidental poisoning by and exposure to noxious substances (162 deaths)
- Intentional self-harm (91 deaths)
- Falls (64 deaths)
- Car occupant injured in transport accident (53 deaths).

TABLE 4: SELECTED CAUSES OF DEATH REVISIONS (PRELIMINARY, REVISED): 2008

	Preliminary	Revised	Change (Preliminary to Revised)	Change (Preliminary to Revised)
	no	no	no	%
Sudden infant death syndrome (R95)	59	67	8	13.6
Other ill-defined and unspecified causes of mortality (R99)	874	778	-96	-11.0
Pedestrian injured in transport accident (V01-V09)	183	206	23	12.6
Motorcycle rider injured in transport accident (V20-V29)	226	251	25	11.1
Car occupant injured in transport accident (V40-V49)	742	795	53	7.1
Occupant of pick-up truck or van injured in transport accident (V50-V59)	34	51	17	50.0
Occupant of heavy transport vehicle injured in transport accident (V60-V69)	41	47	6	14.6
Other land transport accidents (V80-V89)	54	62	8	14.8
Water transport accidents (V90-V94)	32	33	1	3.1
Air and space transport accidents (V95-V97)	44	42	-2	-4.5
Falls (W00-W19)	1 348	1 412	64	4.7
Exposure to inanimate mechanical forces (W20-W49)	85	95	10	11.8
Accidental drowning and submersion (W65-W74)	159	169	10	6.3
Other accidental threats to breathing (W75-W84)	208	219	11	5.3
Exposure to smoke, fire and flames (X00-X09)	72	78	6	8.3
Exposure to forces of nature (X30-X39)	58	58	—	—
Accidental poisoning by and exposure to noxious substances (X40-X49)	622	784	162	26.0
Accidental exposure to other and unspecified factors (X58-X59)	878	815	-63	-7.2
Intentional self-harm (X60-X84)(a)	2 190	2 281	91	4.2
Assault (X85-Y09)	203	215	12	5.9
Event of undetermined intent (Y10-Y34)	1 162	749	-413	-35.5
Drugs, medicaments and biological substances causing adverse effects in therapeutic use (Y40-Y59)	48	49	1	2.1
Surgical and other medical procedures as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure (Y83-Y84)	187	181	-6	-3.2
Sequelae of external causes of morbidity and mortality (Y85-Y89)	156	153	-3	-1.9

— nil or rounded to zero (including null cells)

(a) Care needs to be taken in interpreting figures relating to suicide. See Explanatory Notes 80-83.

GLOSSARY

Age-specific death rate	Age-specific death rates (ASDRs) are the number of deaths (occurred or registered) during the reference year at a specified age per 100,000 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. ASDR for deaths under 1 year of age are calculated based on 1,000 live births for that year.
Associated causes	All causes listed on a death certificate other than the underlying cause.
Australian Standard Geographical Classification (ASGC)	The ASGC provides a common framework of statistical geography and thereby enables the production of statistics which are comparable and can be spatially integrated. See Explanatory Notes 18-19 for more information.
Cause of death	The causes of death to be entered on the medical certificate of cause of death are all those diseases, morbid conditions or injuries which either resulted in or contributed to death and the circumstances of the accident or violence that produced any such injuries.
Certifier type	Deaths may be certified by either a medical practitioner, using the Medical Certificate of Cause of Death, or a coroner. Natural causes are predominantly certified by doctors, whereas external and unknown causes are usually certified by a coroner. However, some deaths for natural causes are referred to coroners for investigation, for example unaccompanied deaths.
Confidentialised	From 2007 data cells with small values have been randomly assigned to protect confidentiality. As a result some totals will not equal the sum of their components. It is important to note that cells with 0 values have not been affected by confidentialisation.
Coroner certified deaths	Deaths which were certified by a coroner. Deaths certified by a coroner represent 10-15% of all deaths each year. Coroner cases remain open while cause of death investigations are undertaken and are closed when coronial investigations are complete. Following completion, causes of death information is passed to the Registrar of Births, Deaths and Marriages, as well as to the National Coroners Information System (NCIS). All coroner certified deaths registered after 01 January 2007 are subject to a revisions process. For more information see Technical Note: Causes of Death Revisions and Explanatory Notes 28-32.
Country of birth	The classification of countries used is the Standard Australian Classification of Countries (SACC). For more detailed information refer to the Standard Australian Classification of Countries (SACC) (cat. no. 1269.0).
Crude death rate	The crude death rate (CDR) is the number of deaths registered during the reference year per 100,000 estimated resident population at 30 June.
Datacubes	Are a series of spreadsheets which present causes of death data. Causes of Death datacubes can be found on the web page under the Downloads tab. See iNote for Datacubes for more information on Cause of Death datacubes.
Death	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 Deaths and Causes of Death collections of the Australian Bureau of Statistics (ABS), 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.

Doctor certified deaths	Deaths which were certified by a doctor or medical practitioner, which were not required to be referred on to a coroner. Deaths certified by a doctor represent 85-90% of all deaths each year. Doctor certified deaths are not subject to the revisions process.
Estimated resident population (ERP)	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 usual residents who are overseas for less than 12 months. It excludes overseas visitors who are in Australia for less than 12 months.
External causes of death	Deaths due to causes external to the body (for example suicide, transport accidents, falls, poisoning etc). ICD-10 codes V01-Y98.
External territories	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.
ICD	International Statistical Classification of Diseases and Related Health Problems. The purpose of the ICD is to permit the systematic recording, analysis, interpretation and comparison of mortality and morbidity data collected in different countries or areas and at different times. The ICD, which is endorsed by the World Health Organisation (WHO), is primarily designed for the classification of diseases and injuries with a formal diagnosis. The ICD-10 is the current classification system, which is structured using an alphanumeric coding scheme. Each disease or health condition (as identified by a doctor or coroner) is assigned an identification code. Cause of death statistics can be produced for aggregates of these, for example, chapter level (letter), 2-digit code (first two numbers of the assigned code), and 3-digit code (three numbers of the assigned code). See Explanatory Notes 23-27 for more information on ICD. Further information is available from the WHO website.
Indigenous	Persons who identify themselves as being of Aboriginal and/or Torres Strait Islander origin.
Indigenous death	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).
Indirect standardised death rate (ISDR)	See Standardised death rate (SDR).
Infant death	An infant death is the death of a live born child who dies before reaching his/her first birthday.
Intent	The manner or 'intent' of an injury which leads to death, is determined by whether the injury was inflicted purposefully or not (in some cases, intent cannot be determined). The determination of 'intent' for each death is essential for determining the appropriate ICD-10 code to use for a death. See Explanatory Note 84 for more information.
Leading causes of death	Ranking causes of death is a useful method of describing patterns of mortality in a population and allows comparison over time and between populations. The ranking of leading causes of death in this publication is based on research presented in the Bulletin of the World Health Organisation, Volume 84, Number 4, April 2006, 297-304 (see Explanatory Notes 39-41 for further information).
Mechanism of death	Mechanism of external cause of death by which a person may die include: poisoning; hanging and other threats to breathing; drowning and submersion; firearms; contact with sharp object; and falls.
Median age at death	This refers to the age at death at the 50th percentile for the relevant demographic group.
Morbid train of events	The events and diseases which lead to death.

Mortality	Death
Multiple causes of death	All morbid conditions, diseases and injuries entered on the death certificate. These include those involved in the morbid train of events leading to death which were classified as either the underlying cause, the immediate cause, or any intervening causes and those conditions which contributed to death, but were not related to the disease or condition causing death. For deaths where the underlying cause was identified as an external cause (for example, injury or poisoning, etc) multiple causes include circumstances of injury and the nature of injury, as well as any other conditions reported on the death certificate.
National Coroners Information System (NCIS)	The NCIS is a national data storage system which contains information about all deaths referred to a coroner since July 2000 (January 2001 for Queensland).
Natural cause of death	Deaths due to diseases (for example diabetes, cancer, heart disease etc) which are not external or unknown.
Neonatal period	The neonatal period commences at birth and ends 28 completed days after birth.
Other territories	Following the 1992 amendments to the Acts Interpretation Act 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.
Perinatal death	A death that is either a fetal death (i.e. a death prior to the complete expulsion or extraction from its mother as a product of conception of 20 completed weeks of gestation or with a birth weight of at least 400 grams), or a neonatal death (i.e. death of a live born baby within 28 completed days of birth).
Rate ratio	Rate ratio is calculated by dividing the standardised death rate for one group (such as all persons with a usual residence of Queensland) by the standardised death rate for the total relevant population (such as all persons with a usual residence of Australia).
Reference year	The year that presented data refers to. For example, this publication presents data for the 2009 reference year, as well as some historical data for the 2000 to 2008 reference years. From 2007, data for a particular reference year includes all deaths registered in Australia for the reference year that are received by the ABS by the end of the March quarter of the subsequent year. For example, data for the 2009 reference year includes all deaths registered in Australia for 2009 that were received by the ABS by the end of March 2010. See Explanatory Notes 8-14 for more information about scope and coverage.
Registration year	Data presented on a year of registration basis relate to the date the death was registered with the relevant state or territory Registrar of Births, Deaths and Marriages. In most cases the year of registration and year of occurrence for a particular death will be the same, but in some cases there may be a delay between occurrence and registration of death. For more information see Chapter 8 Year of Occurrence.
Registry of Births, Deaths and Marriages	Each state and territory has a Registry of Births, Deaths and Marriages. It is a legal requirement that all deaths are recorded by the relevant Registry for the state or territory in which the death occurred.
Reportable deaths	Deaths which are reported to a coroner. See Explanatory Note 2 for further information on what constitutes a reportable death.
Revisions process	When additional information about an open coroner certified death is received by the ABS, a more specific ICD-10 code may be applied, thereby revising the cause of death. See Explanatory Notes 28-32 and Technical Note: Causes of Death Revisions for further information on the revisions process and the impact on specific years' data.

Sex ratio	The number of males per 100 females. The sex ratio is defined for total population, at birth, at death and among age groups by appropriately selecting the numerator and denominator of the ratio.
Standardised death rate (SDR)	<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> <p>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.</p> <p>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.</p> <p>SDRs throughout this publication have been calculated using the direct method.</p>
State or territory of registration	The state or territory in which the death was registered. It is the state in which the death occurred, but is not necessarily the deceased's state or territory of usual residence.
State or territory of usual residence	The state or territory in which the person has lived or intended to live for a total of six months or more in a given reference year.
Underlying cause of death	The disease or injury which initiated the train of morbid events leading directly to death. Accidental and violent deaths are classified according to the external cause, that is, to the circumstances of the accident or violence which produced the fatal injury rather than to the nature of the injury.
Unknown cause of death	Deaths for which it is not possible to determine between a natural and an external cause.
Usual residence	Usual residence within Australia refers to that address at which the person has lived or intended to live for a total of six months or more in a given reference year.
Year of occurrence	Data presented on a year of occurrence basis relate to the date the death occurred rather than when it was registered with the relevant state or territory Registrar of Births, Deaths and Marriages. See Explanatory Note 14 and Chapter 8 Year of Occurrence for more information.
Years of potential life lost (YPLL)	YPLL measures the extent of premature mortality, where premature mortality is assumed to be any death at ages of 1-78 years inclusive. By estimating YPLL for deaths of people aged 1-78 years it is possible to assess the significance of specific diseases or trauma as a cause of premature death. See Explanatory Notes 42-45 for an explanation of the calculation of YPLL.

FOR MORE INFORMATION . . .

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