Australian Bureau of Statistics

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CAUSES OF DEATH

AUSTRALIA

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CONTENTS

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 year of registration 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.

Two Technical Notes are presented in this publication:

- Coroner Certified Deaths
- ABS Coding of Suicide Deaths

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

CHANGES IN THIS ISSUE

The series of spreadsheets associated with this publication has been expanded from previous years. Additional data is now available as follows:

1. For all states and territories:
   - underlying cause of death , by gender - 10 year time series
   - 2007 underlying cause - standardised death rates and years of potential life lost
   - 2007 selected causes by age at death, numbers and rates

2. Migrant data -causes of death information presented by country of birth . This includes information on leading causes of death and characteristics of death registrations.

In prior years, statistics on perinatal deaths have been included in this publication. However, for 2007 this data will be published as a separate publication, Perinatal Deaths, Australia (cat.no. 3304.0), which will be released in June 2009.

CAUSES OF DEATH REVISIONS

All coroner certified deaths registered after 1 January 2007 will be 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 will enable the use of additional information relating to coroner certified deaths as it becomes available over time. This will result in increased specificity of the assigned ICD-10 codes.

Causes of death data for 2007 coroner certified deaths will be updated as more information becomes available to the ABS. Revised data for 2007 will be published both on a year registration basis and a year of occurrence basis in the 2008 Causes of death publication, due to be released in March 2010, and again in the publication relating to the 2009 collection due for release in 2011. Revisions will only impact on coroner certified deaths, as further information becomes available to the ABS about the causes of these deaths.

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ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACS	automated coding system
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
ASDR	age-specific death rate
ASGC	Australian Standard Geographical Classification
Aust.	Australia
cat. no.	Catalogue number
ERP	estimated resident population
ICD-10	International Classification of Diseases 10th Revision
IMR	infant mortality rate
ISDR	indirect standardised death rate
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
SDR	standardised death rate
Tas.	Tasmania
Vic.	Victoria
WA	Western Australia
WHO	World Health Organization
YPLL	years of potential life lost

CHAPTER 1 INTRODUCTION

CAUSES OF DEATH STATISTICS

Causes of Death statistics, and the use of these statistics for demographic and health purposes, are key to understanding Australian society and for formulation and monitoring of policies. Causes of death information provide insights into the diseases and factors contributing to reduced life expectancy. Causes of death statistics are one of the oldest and most comprehensive set of health statistics available in Australia.

Causes of death statistics in Australia 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) (see Explanatory Notes 30-33 for further information).

Causes of death 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 cause of death. The methodology for the listing used is based on research presented in the Bulletin of the World Health Organisation (See Explanatory Note 45). 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 cause of death data by individual ICD-10 chapter. Data presented in this manner is used to analyse particular causes or groups of similar causes. Information on standardised death rates, age at death and Years of Potential Life Lost for individual and groups of causes is presented in this chapter. Further data is presented by ICD-10 chapter in the datacubes 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 on Suicides and chapter 6 on Deaths of Aboriginal and Torres Strait Islander Australians present summary data on these specific areas of public interest.

Chapter 7, Year of Occurrence, presents data on a year of occurrence basis rather than year of registration, as presented elsewhere in this publication. Year of occurrence allows for seasonal analysis and data are not distorted by the effects of late registrations.

Deaths

As the Australian population continues to increase in both size and age, the number of deaths registered each year also continues to slowly increase. In 2007, there were 137,854 deaths registered in Australia, approximately 4,000 (3.1%) more than the number registered in 2006 (133,739). The standardised death rate (SDR) in 2007 (6.0 deaths per 1,000 standard population) was the same as in 2005 and 2006, which was the lowest on record.

Males accounted for 70,569 (51%) deaths registered in 2007, a slightly lower proportion than the 67,073 (53%) male deaths registered in 1998. Females accounted for 67,285 (49%) of deaths registered in 2007, an increase over the past decade from 60,129 (47%) deaths in 1998.

Further details on numbers of deaths registered can be found in *Deaths, Australia 2006* (cat. no. 3302.0)

Leading Cause of Death

In 2007, 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, both new and old. It was the underlying cause of 16% of all registered deaths in Australia. It accounted for 17% of all male deaths, and 16% of all female deaths registered in 2007.

Underlying Cause of Death

The table below presents summary causes of death data for each major chapter of the ICD-10. Further information on those causes at the 3-character level where 10, 20, or 50 or more deaths were attributed to the cause in 2007 is presented in Chapter 3 of this publication titled Underlying Cause of Death by ICD-10.

1.1 DEATHS, BY ICD-10 CHAPTER LEVEL—2007(a)

Cause of death and ICD Code	*Number* no.	*Proportion of total deaths* %	*Median Age* yrs.	*Standardised Death Rate* rate
Infectious Diseases (A00-B99)	1 858	1.3	79.8	8.1
Cancer (C00-D48)	40 287	29.2	74.9	177.7
Blood and Immunity Disorders (D50-D89)	479	0.3	80.2	2.1
Endocrine, nutritional and metabolic diseases (E00-E90)	5 355	3.9	80.8	23.1
Mental and behavioural disorders (F00-F99)	5 715	4.1	87.0	23.6
Diseases of the nervous system (G00-G99)	5 467	4.0	81.7	23.6
Diseases of the heart and blood vessels (I00-I99)	46 626	33.8	84.2	196.8
Diseases of the respiratory system (J00-J99)	11 577	8.4	82.5	49.6
Diseases of the digestive system (K00-K93)	4 760	3.5	79.6	20.5
Diseases of the skin and subcutaneous tissue (L00-L99)	362	0.3	85.6	1.5
Diseases of the muscles, bones and tendons (M00-M99)	1 091	0.8	83.5	4.6
Diseases of the kidney, urinary system and genitals (N00-N99)	3 324	2.4	84.9	14.0
Conditions originating in the perinatal period (P00-P96)	578	0.4	0.5	2.8
Congenital and chromosomal abnormalities (Q00-Q99)	574	0.4	0.9	2.7
Ill defined causes (R00-R99)	1 895	1.4	63.9	8.5
External causes (V01-Y98)	7 893	5.7	50.8	36.1
ALL CAUSES	**137 854**	**100.0**	**80.5**	**595.2**

(a) Cause of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

Multiple Cause of Death

For the 137,854 deaths registered in Australia in 2007, there were 431,191 causes reported giving a mean of 3.1 causes per death. For 20% of all deaths, only one cause was reported, whereas 36% 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. For further detail on multiple cause, see the Multiple Cause of Death section of this publication (Chapter 4).

NATIONAL HEALTH PRIORITY AREAS

Australia's National Health Priority Areas are diseases and conditions given focused attention because of their significant contribution to the burden of illness and injury in the Australian community.

The eight priority areas are arthritis and musculoskeletal conditions, asthma, cancer control, cardiovascular health, diabetes mellitus, injury prevention and control, mental health and obesity. In 2007, deaths due to the eight National Health Priority Areas accounted for 77% of all underlying causes of death and were either associated with or the underlying cause of 90% of deaths.

In this section, data are aggregated to present broad information about deaths due to each of the National Health Priority Areas.

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 46,626 deaths registered in Australia during 2007, which represents 34% of all deaths. These diseases contributed to a total of 78,351 deaths as either an underlying or associated cause of death.

Five of the top 20 leading causes of death in 2007 were attributable to some form of Cardiovascular Disease. These five causes accounted for 40,688 deaths or 30% of all registered deaths in 2007. See the Leading Causes of Death section for this publication (Chapter 2) for further information.

The standardised death rate for Cardiovascular Disease was 196.8 per 100,000 population in 2007, a decrease from 201.0 per 100,000 population in 2006 and 299.7 per 100,000 population in 1998. The standardised death rate for males in 2007 was 235.6 per 100,000, and 164.4 per 100,000 for females.

Of those deaths due to Cardiovascular Disease, 47% were male and 53% were female. Females dying from these diseases had a slightly higher median age at death, 86.7 years compared with 80.8 years for males. The potential life lost due to Cardiovascular Disease was also higher for males than females, 115,940 years for males compared with 48,970 for females. (See Explanatory Notes 46-50 for further information on Years of Potential Life Lost).

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 2007, cancer was the underlying cause of death for 40,287 registered deaths in Australia. This accounted for

NATIONAL HEALTH PRIORITY AREAS *continued*

CANCER (C00-D48) *continued*

29% of all registered deaths. Cancer contributed to a total of 46,039 deaths as either an underlying or associated cause of death.

The standardised death rate for Cancer was 177.7 per 100,000 population in 2007, a decrease from 180.6 per 100,000 population in 2006 and 199.8 per 100,000 population in 1998. The standardised death rate for males in 2007 was 227.3 per 100,000, and 140.3 per 100,000 for females.

More males than females died of cancer with 130 male deaths per 100 female deaths for the 2007 registration year. The median age of persons dying from cancer in 2007 was 74.7 years for males, 75.3 years for females and 74.9 years for all cancer deaths. Potential life lost due to cancer deaths was 186,439 years for males and 148,808 years for females.

INJURIES (V01-Y98)

Injuries due to 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).

In 2007, Injuries (V01-Y98) accounted for 7,893 deaths, or 5.7% of all registered deaths. The standardised death rate for Injuries was 36.1 per 100,000 of population in 2007, a decrease from 36.7 in 2006 and from 44.6 per 100,000 population in 1998. The standardised death rate for males in 2007 was 50.9 per 100,000 and 22.1 per 100,000 for females.

Compared to women, more men at younger ages have died from Injuries over time. Consistent with previous years, approximately two thirds of the total number of deaths resulting from Injuries were males (5,168, 65%). Median age at death for deaths due to Injuries was 45.5 years for males, 66.6 years for females and 50.8 years overall. Potential life lost due to Injuries were 159,234 years for males and 54,231 years for females.

ARTHRITIS AND MUSCULOSKELETAL DISEASE (M00-M99)

Arthritis and Musculoskeletal Disease (M00-M99) 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 Disease was the underlying cause for 1,091 or 0.8% of all registered deaths in Australia in 2007. Arthritis and Musculoskeletal Disease was identified as either an underlying cause or associated cause of death for 6,091 deaths registered in 2007.

The standardised death rate for Arthritis and Musculoskeletal Disease was 4.6 per 100,000 population in 2007, a decrease from 4.8 per 100,000 population in 2006, but an increase from 4.3 per 100,000 population in 1998. The standardised death rate for males in 2007 was 3.6 per 100,000, and 5.3 per 100,000 for females.

Of all deaths due to Arthritis and Musculoskeletal Disease in 2007, 751 or 69% were females, predominantly in the 75 - 94 year age group. Median age at death for deaths due to these diseases was 80.9 years for males, 85.1 years for females and 83.5 years overall. Potential life lost due to deaths from these diseases was 1,733 years for males and 2,995 years for females.

NATIONAL HEALTH PRIORITY AREAS *continued*

MENTAL HEALTH DISORDERS (F00-F99)

Mental Health Disorders relate to behaviours and conditions which interfere with social functioning and capacity to negotiate daily life. Deaths due to Mental Health Disorders (F00-F99) were identified as the underlying cause of 5,715 registered deaths, representing 4.1% of all registered deaths in Australia during 2007. This was an increase of 559 (11%) when compared with 2006. In total, 19,734 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 2007, the standardised death rate for Mental Health Disorders was 23.6 per 100,000 of population, an increase from 22.3 in 2006 and from 16.5 per 100,000 population in 1998. The standardised death rate for males in 2007 was 23.5 per 100,000, and 23.0 per 100,000 for females.

In 2007, more than half of deaths due to Mental health disorders were of females (3,613, 63%). The median age at death was higher for females at 88.5 years, compared with 84.4 years for males. Consistent with this difference, the potential life lost as a result of deaths due to Mental health disorders was 7,685 years for males and 3,843 years for females.

Dementia (F01-F03) accounted for 88% of Mental health disorders in 2007. There were 5,048 deaths registered in 2007 for which Dementia was the underlying cause. Of these, 1,686 were males, and 3,362 females, giving a sex ration of 50.1 males per 100 female deaths. The median age at death due to dementia was 86.0 years for males, 89.0 years for females, and 87.8 years overall. For further information regarding Dementia, see Explanatory Note 66.

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 3,810 (2.8%) deaths registered deaths in Australia in 2007. Diabetes contributed to 13,101 (9.5%) deaths as either an underlying or associated cause of death.

The standardised death rate for Diabetes was 16.5 per 100,000 population in 2007, an increase from 16.4 per 100,000 population in 2006 and in 1998. The standardised death rate for males in 2007 was 19.9 per 100,000, and 13.8 per 100,000 for females.

Median age at death due to Diabetes was 78.4 years for males, 82.8 years for females and 80.7 years overall. Potential life lost through death due to diabetes was 11,243 years for males and 6,530 years for females.

ASTHMA (J45-J46)

Asthma is a disease which causes narrowing of the airways into the lung causing breathing difficulties. In 2007, Asthma (J45-J46) was the underlying cause for 385 registered deaths, or 0.3% of all deaths. Asthma was identified as either an underlying cause or associated cause of death for 1,325 (1.0%) deaths registered in 2007.

NATIONAL HEALTH PRIORITY AREAS *continued*

ASTHMA (J45-J46) *continued*

The standardised death rate for Asthma was 1.7 per 100,000 population in 2007, a decrease from 1.8 per 100,000 population in 2006 and from 2.7 per 100,000 population in 1998. The standardised death rate for males in 2007 was 1.4 per 100,000, and 1.9 per 100,000 for females.

Median age at death for deaths due to Asthma was 71.0 years for males, 82.1 years for females and 79.4 years overall. The potential life lost due to asthma deaths was 2,097 years for males and 2,113 years for females.

OBESITY (E66)

When the energy consumed from food and drink is greater than the energy used, fat is deposited on the body, which over time can lead to Obesity. Obesity increases the risk of many other chronic and potentially lethal diseases. There were 169 deaths registered in 2007 where Obesity (E66) was identified as the underlying cause of death. In total, there were 869 deaths where Obesity was mentioned as either underlying cause, or an associated cause of death.

In 2007, the standardised death rate for Obesity was 0.8 per 100,000 of population, the same as it was in 2006, and an increase from 0.7 per 100,000 population in 1998. The standardised death rate for males in 2007 was 0.8 per 100,000 males and for females, 0.7 per 100,000 females.

Of those deaths where Obesity was the underlying cause, 87 (51%) were of males, and 82 (49%) were of females. The median age at death due to Obesity for males and females was also similar, 58.5 years for males and 61.0 years for females. Median age at death was 59.5 years for all deaths due to Obesity. Potential life lost from deaths due to Obesity was 1,873 years for males and 1,431 years for females.

CHAPTER 2 LEADING CAUSES OF DEATH

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. However, different methods of grouping causes of death can result in a vastly different list of leading causes for any given population. The ranking of leading causes of death in this publication are based on research presented in the Bulletin of the World Health Organisation, Volume 84, Number 4, April 2006, 257-336 (see Explanatory Notes 43-45 for further information).

In 2007, the leading underlying cause of death for all Australians was Ischaemic heart diseases (I20-I25), which include angina, blocked arteries of the heart and heart attacks. Ischaemic heart diseases were identified as the underlying cause of 22,729 deaths, 16% of all deaths registered in 2007. While Ischaemic heart diseases have been the leading cause of death in Australia over the past 10 years, the number of deaths due to this cause has decreased, from 28,299 in 1998 to 22,729 in 2007. Similarly, the proportion of deaths where Ischaemic heart diseases were the underlying cause has declined from 22% of all deaths in 1998 to 16% in 2007.

Strokes (I60-I69) have remained the second leading underlying cause of death in 2007. Strokes include haemorrhages, strokes, infarctions and blocked arteries of the brain. Deaths due to this cause have decreased marginally over the last 10 years, from 12,271 deaths in 1998 to 11,491 deaths in 2007. This represents a decrease of 6.4% over that period. The proportion of deaths attributed to Strokes has also decreased over the last 10 years, from 9.6% of deaths in 1998 to 8.3% of deaths in 2007.

Trachea and lung cancer (C33-C34) remains the third leading cause of death since 1998. Deaths due to this cause have increased in number over this time, from 6,742 in 1998 to 7,626 in 2007. This represents an increase of 13%. The proportion of deaths attributed to this cause has also increased marginally, from 5.3% in 1998 to 5.5% in 2007.

Deaths due to Dementia and Alzheimer's disease (F01-F03, G30) have moved from seventh leading cause in 1998 to fourth leading cause in 2007. The number of deaths due to this cause has increased 126% from 3,244 in 1998 to 7,320 in 2007. This is largely due to an increase in deaths due to Dementia (F01-F03), which increased from 1,777 in 1998 to 5,048 in 2007. See Explanatory Note 67 for further information.

The top 10 leading causes of death accounted for 53% of all deaths registered in 2007, and the top 20 leading causes accounted for 67%.

LEADING CAUSES OF DEATH *continued*

2.1 LEADING CAUSES OF DEATH(a), Australia —Selected years—1998–2007

	1998		2002		2007(b)	
Cause of death and ICD code	no.	Rank	no.	Rank	no.	Rank
Ischaemic heart diseases (I20-I25)	28 299	1	26 063	1	22 729	1
Strokes (I60-I69)	12 271	2	12 533	2	11 491	2
Trachea and lung cancer (C33-C34)	6 742	3	7 303	3	7 626	3
Dementia and Alzheimer's disease (F01-F03, G30)	3 244	7	4 364	6	7 320	4
Chronic lower respiratory diseases (J40-J47)	6 134	4	6 256	4	5 762	5
Colon and rectum cancer (C18-C21)	4 640	5	4 649	5	4 107	6
Diabetes (E10-E14)	2 877	9	3 329	9	3 810	7
Blood and lymph cancer (including leukaemia) (C81-C96)	3 527	6	3 791	7	3 603	8
Heart failure (I50-I51)	3 234	8	3 367	8	3 444	9
Diseases of the kidney and urinary system (N00-N39)	2 618	11	2 887	11	3 230	10
Prostate cancer (C61)	2 556	13	2 852	12	2 938	11
Breast cancer (C50)	2 576	12	2 716	13	2 706	12
Influenza and pneumonia (J10-J18)	2 023	14	3 084	10	2 623	13
Pancreatic cancer (C25)	1 610	16	1 834	15	2 248	14
Suicide (X60-X84)(c)	2 683	10	2 320	14	1 880	15
Skin cancer (C43-C44)	1 317	18	1 462	17	1 727	16
Hypertensive diseases (I10-I15)	1 209	20	1 353	20	1 627	17
Cirrhosis and other diseases of liver (K70-K77)	1 245	19	1 354	19	1 437	18
Cardiac arrhythmias (I47-I49)	878	25	1 226	21	1 397	19
Land transport accidents (V01-V89)(d)	1 884	15	1 826	16	1 273	20

(a) Causes listed are the leading causes of death for all deaths registered in 2007 based on the WHO recommended tabulation of leading causes. See Explanatory Notes 43-45 for further information.

(b) Cause of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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 due to limitations in the data. For further information, see Explanatory Notes 77-78 and Technical Note: ABS coding of suicide deaths for further information.

(d) Excludes sequelae of transport accidents (Y85) as per the WHO recommended tabulation of leading causes. Care needs to be taken in interpreting figures relating to transport accidents for 2007. For further information, see Explanatory Notes 73-74.

Leading causes of death by gender

Ischaemic heart diseases (I20-I25) were the leading cause of death for both males and females in 2007, with 12,119 and 10,610 deaths respectively. This reflects a sex ratio of 114 male deaths per 100 female deaths.

The leading causes of death vary between the sexes, in part due to the incidence of gender specific causes, 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:

- Strokes, for which there were 65 male deaths for every 100 female deaths;
- Chronic lower respiratory diseases, for which there were 122 male deaths for every 100 female deaths; and
- Dementia and Alzheimer's disease, for which there were 49 male deaths for every 100 female deaths.

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

- Ischaemic heart disease - 53%
- Trachea and lung cancer - 62%
- Suicide - 77%

Leading causes of death by gender continued

- Blood and lymph cancer (including leukaemia) (C81-C96) - 57%
- Chronic lower respiratory diseases - 55%

2.2 LEADING CAUSES OF DEATH(a), Males—2007(b)

Underlying Cause of Death	*Rank*	*Males*	*Total*
Ischaemic heart diseases (I20-I25)	1	12 119	22 729
Trachea and lung cancer (C33-C34)	2	4 715	7 626
Strokes (I60-I69)	3	4 516	11 491
Chronic lower respiratory diseases (J40-J47)	4	3 169	5 762
Prostate cancer (C61)	5	2 938	2 938
Dementia and Alzheimer's disease (F01-F03, G30)	6	2 415	7 320
Colon and rectum cancer (C18-C21)	7	2 221	4 107
Blood and lymph cancer (including leukaemia) (C81-C96)	8	2 067	3 603
Diabetes (E10-E14)	9	1 923	3 810
Suicide (X60-X84)(c)	10	1 453	1 880

(a) Causes listed are the leading causes of death for male deaths registered in 2007 based on the WHO recommended tabulation of leading causes. See Explanatory Notes 43-45 for further information.

(b) Cause of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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 due to limitations in the data. For further information, see Explanatory Notes 77-78 and Technical Note: ABS coding of suicide deaths for further information.

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

- Strokes (I60-I69) - 61%
- Dementia and Alzheimer's disease (F01-F03, G30)- 67%
- Heart failure (I50-I51) - 60%
- Diseases of the kidney and urinary system (N00-N39) - 55%

2.3 LEADING CAUSES OF DEATH(a), Females—2007(b)

Underlying Cause of Death	*Rank*	*Females*	*Total*
Ischaemic heart diseases (I20-I25)	1	10 610	22 729
Strokes (I60-I69)	2	6 975	11 491
Dementia and Alzheimer's disease (F01-F03, G30)	3	4 905	7 320
Trachea and lung cancer (C33-C34)	4	2 911	7 626
Breast cancer (C50)	5	2 680	2 706
Chronic lower respiratory diseases (J40-J47)	6	2 593	5 762
Heart failure (I50-I51)	7	2 083	3 444
Diabetes (E10-E14)	8	1 887	3 810
Colon and rectum cancer (C18-C21)	9	1 886	4 107
Diseases of the kidney and urinary system (N00-N39)	10	1 792	3 230

(a) Causes listed are the leading causes of death for female deaths registered in 2007 based on the WHO recommended tabulation of leading causes. See Explanatory Notes 43-45 for further information.

(b) Cause of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

CHAPTER 3 UNDERLYING CAUSE OF DEATH BY ICD-10 CHAPTER

INTRODUCTION

An underlying cause of death is 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.

Datacubes

Further information on Underlying Causes of Death is presented in the datacubes associated with this publication. Included are all causes at the 3-character level by sex for Australia and each state/territory of usual residence.

INFECTIOUS DISEASES (A00-B99)

In 2007, Infectious diseases (A00–B99) were the underlying cause of 1,858 registered deaths or 1.3% of all deaths. More males died from Infectious diseases than females in 2007, with 971 deaths registered for males and 887 deaths registered for females.

The median age at death from Infectious diseases in 2007 was 79.8 years, slightly less than the median age for all deaths, which was 80.5 years. The median age at death from this cause has marginally increased over time, with the median age at death for females consistently recorded as being older than that for males. This trend continued in 2007, with the median age at death 82.9 years for females and 76.3 years for males.

Of those deaths due to Infectious diseases, 1,105 (59%) recorded Septicaemia (A40-A41) as the underlying cause of death. Similar numbers of males and females died from Septicaemia in 2007, giving a sex ratio of 94 male deaths per 100 female deaths. Median age at death for this cause was 82.2 years.

Human Immunodeficiency Virus [HIV] disease (B20–B24) accounted for 84 deaths in total in 2007. The number of deaths with HIV as the underlying cause has gradually decreased over the past ten years, dropping from 151 in 1998. In 2007, more males (75) than females (9) have died from HIV, which is consistent with data from previous years. While still substantial, the disparity between the number of men and women dying from HIV has reduced in the 10 years since 1998. This has been driven by the reduction in the number of males with this underlying cause of death, which has fallen from 143 in 1998 to 75 in 2007. In comparison, the number of females has remained relatively consistent over this period. The median age at death due to HIV was 46.3 years in 2007, slightly higher than the median age of 45.3 years in 2006. The median age at death for males was 47.5 years and for females it was 40.5 years.

3.1 SELECTED UNDERLYING CAUSES(a), Infectious Diseases (A00–B99)—2007(b)(c)

Cause of Death and ICD Code	MALES no.	FEMALES no.	PERSONS no.	PROPORTION OF ALL DEATHS %
Infectious diseases (A00-B99)	**971**	**887**	**1 858**	**1.3**
Intestinal infectious diseases (A00-A09)	***39***	***49***	***88***	***0.1***
Other bacterial intestinal infections (A04)	18	13	31	—
Viral and other specified intestinal infections (A08)	10	24	34	—
Tuberculosis (A15-A19)	***25***	***12***	***37***	—
Respiratory tuberculosis, not confirmed bacteriologically or histologically (A16)	15	9	24	—
Other bacterial diseases (A30-A49)	***567***	***599***	***1 166***	***0.8***
Streptococcal septicaemia (A40)	15	9	24	—
Other septicaemia (A41)	519	562	1 081	0.8
Bacterial infection of unspecified site (A49)	12	14	26	—
Viral infections of the central nervous system (A80-A89)	***20***	***16***	***36***	—
Slow virus infections of central nervous system (A81)	15	12	27	—
Viral infections characterized by skin and mucous membrane lesions (B00-B09)	***15***	***25***	***40***	—
Zoster (herpes zoster)(B02)	7	16	23	—
Viral hepatitis (B15-B19)	***65***	***42***	***107***	***0.1***
Chronic viral hepatitis (B18)	57	35	92	0.1
Human immunodeficiency virus (HIV) disease (B20-B24)(d)	***75***	***9***	***84***	***0.1***
Other viral diseases (B25-B34)	***22***	***23***	***45***	—
Viral infection of unspecified site (B34)	16	20	36	—
Sequelae of infectious and parasitic diseases (B90-B94)	***107***	***69***	***176***	***0.1***
Sequelae of other and unspecified infectious and parasitic diseases (B94)	95	53	148	0.1
Other infectious diseases (B99)	***8***	***15***	***23***	—
Other and unspecified infectious diseases (B99)	8	15	23	—

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Cause of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

(d) See Explanatory Note 41 for further information on coding of HIV.

CANCER (C00-D48)

In 2007, Cancer (C00–D48) was the underlying cause of 40,287 registered deaths in Australia. This accounted for 29% of all registered deaths. The ratio of male (22,774) to female (17,513) deaths in 2007 remained steady at 130 male deaths per 100 female deaths. Deaths due to Malignant cancers (C00-C97) account for 39,323 deaths or 98% of all cancers. The median age of persons dying from Malignant cancers has continued to rise, from 72.8 years in 1998 to 74.7 years in 2007.

Cancers of the digestive organs (C15–C26) accounted for 11,010 deaths. Of these, Colon cancer (C18) accounted for the largest number of deaths with 2,539. This represented an increase of 4.4% from 2006 (2,432). The median age at death for people dying of Colon cancer was 74.8 years for males and 79.0 years for females.

Pancreatic cancer (C25) was the second highest contributor to deaths from Cancers of the digestive organs, accounting for 2,248 deaths. There was a small difference between the number of males (1,233) and females (1,015) with Pancreatic cancer as the underlying cause of death in 2007, however, the median age of males dying of Pancreatic cancer (71.4) was lower than for females (76.9) dying of the same cause.

CANCER (C00-D48)
continued

There were 7,922 deaths attributed to Cancers of the respiratory system and heart (C30–C39), accounting for 20% of all malignant cancers. Lung cancer (C34) was the underlying cause of 7,623 (96%) deaths due to Cancers of the respiratory system and heart. The male to female ratio of deaths with Lung cancer as the underlying cause of death, has dropped from 232.1 male deaths per 100 female deaths in 1998 to 161.9 male deaths per 100 female deaths in 2007. However, since 1998, the number of female deaths from this cause has increased by 882 while the number of male deaths has increased by only 7. Males, whose underlying cause of death was Lung cancer, had a marginally lower median age at death (73.3 years) than females (73.5 years) with the same underlying cause.

Prostate cancer (C61) was the underlying cause of 4.2% of all male deaths registered in 2007. Male deaths with this underlying cause have increased gradually from 2,556 in 1998 to 2,952 in 2006, remaining consistent at 2,938 in 2007. The median age at death for Prostate cancer was 81.1 years. This was close to the median age for all deaths (80.5 years) and continues to follow a steady upward trend from 78.6 years in 1998.

For females, Breast cancer (C50) was the underlying cause of 4.0% of all female deaths registered in 2007. Female deaths due to this cause have increased gradually from 2,557 in 1998, to 2,618 in 2006 and 2,680 in 2007. The median age at death was 68.4 years for females, 15.1 years lower than the median age for all female deaths (83.5 years). There were also 26 males with an underlying cause of death of Breast cancer in 2007. The median age at death for these men was 76.3 years.

3.2 SELECTED UNDERLYING CAUSES(a), Cancer (C00–D48)—2007(b)(c)

Cause of Death and ICD Code	MALES no.	FEMALES no.	PERSONS no.	PROPORTION OF ALL DEATHS %
Cancer (C00-D48)	**22 774**	**17 513**	**40 287**	**29.2**
Malignant neoplasms (C00-C97)	*22 248*	*17 075*	*39 323*	*28.5*
Malignant neoplasms of lip, oral cavity and pharynx (C00-C14)	*474*	*202*	*676*	*0.5*
Malignant neoplasm of other and unspecified parts of tongue (C02)	122	47	169	0.1
Malignant neoplasm of other and unspecified parts of mouth (C06)	35	30	65	—
Malignant neoplasm of parotid gland (C07)	29	24	53	—
Malignant neoplasm of tonsil (C09)	40	10	50	—
Malignant neoplasm of oropharynx (C10)	46	15	61	—
Malignant neoplasm of other and ill-defined sites in the lip, oral cavity and pharynx (C14)	56	20	76	0.1
Malignant neoplasms of digestive organs (C15-C26)	*6 327*	*4 683*	*11 010*	*8.0*
Malignant neoplasm of oesophagus (C15)	790	308	1 098	0.8
Malignant neoplasm of stomach (C16)	704	425	1 129	0.8
Malignant neoplasm of small intestine (C17)	50	54	104	0.1
Malignant neoplasm of colon (C18)	1 295	1 244	2 539	1.8
Malignant neoplasm of rectosigmoid junction (C19)	422	319	741	0.5
Malignant neoplasm of rectum (C20)	474	293	767	0.6
Malignant neoplasm of anus and anal canal (C21)	30	30	60	—
Malignant neoplasm of liver and intrahepatic bile ducts (C22)	717	392	1 109	0.8
Malignant neoplasm of gallbladder (C23)	49	125	174	0.1
Malignant neoplasm of other and unspecified parts of biliary tract (C24)	54	37	91	0.1
Malignant neoplasm of pancreas (C25)	1 233	1 015	2 248	1.6
Malignant neoplasm of other and ill-defined digestive organs (C26)	509	441	950	0.7
Malignant neoplasms of respiratory and intrathoracic organs (C30-C39)	*4 955*	*2 967*	*7 922*	*5.7*
Malignant neoplasm of larynx (C32)	192	22	214	0.2
Malignant neoplasm of bronchus and lung (C34)	4 713	2 910	7 623	5.5
Malignant neoplasms of bone and articular cartilage (C40-C41)	*65*	*53*	*118*	*0.1*
Malignant neoplasm of bone and articular cartilage of other and unspecified sites (C41)	57	49	106	0.1
Melanoma and other malignant neoplasms of skin (C43-C44)	*1 169*	*558*	*1 727*	*1.3*
Malignant melanoma of skin (C43)	864	415	1 279	0.9
Other malignant neoplasms of skin (C44)	305	143	448	0.3
Malignant neoplasms of mesothelial and soft tissue (C45-C49)	*597*	*263*	*860*	*0.6*
Mesothelioma (C45)	464	87	551	0.4
Malignant neoplasm of retroperitoneum and peritoneum (C48)	17	65	82	0.1
Malignant neoplasm of other connective and soft tissue (C49)	103	107	210	0.2
Malignant neoplasm of breast (C50)	*26*	*2 680*	*2 706*	*2.0*
Malignant neoplasm of breast (C50)	26	2 680	2 706	2.0
Malignant neoplasms of female genital organs (C51-C58)	—	*1 502*	*1 502*	*1.1*
Malignant neoplasm of vulva (C51)	—	65	65	—
Malignant neoplasm of cervix uteri (C53)	—	208	208	0.2
Malignant neoplasm of corpus uteri (C54)	—	208	208	0.2
Malignant neoplasm of uterus, part unspecified (C55)	—	130	130	0.1
Malignant neoplasm of ovary (C56)	—	848	848	0.6
Malignant neoplasms of male genital organs (C60-C63)	*2 981*	—	*2 981*	*2.2*
Malignant neoplasm of prostate (C61)	2 938	—	2 938	2.1
Malignant neoplasms of urinary tract (C64-C68)	*1 198*	*652*	*1 850*	*1.3*
Malignant neoplasm of kidney, except renal pelvis (C64)	539	316	855	0.6
Malignant neoplasm of bladder (C67)	630	295	925	0.7

3.2 SELECTED UNDERLYING CAUSES(a), Cancer (C00–D48)—2007(b)(c) *continued*

Cause of Death and ICD Code	MALES no.	FEMALES no.	PERSONS no.	PROPORTION OF ALL DEATHS %
Cancer (C00-D48)	**22 774**	**17 513**	**40 287**	**29.2**
Malignant neoplasms (C00-C97)	*22 248*	*17 075*	*39 323*	*28.5*
Malignant neoplasms of eye, brain and other parts of central nervous system (C69-C72)	*683*	*478*	*1 161*	*0.8*
Malignant neoplasm of brain (C71)	666	457	1 123	0.8
Malignant neoplasms of thyroid and other endocrine glands (C73-C75)	*70*	*84*	*154*	*0.1*
Malignant neoplasm of thyroid gland (C73)	41	64	105	0.1
Malignant neoplasms of ill-defined, secondary and unspecified sites (C76-C80)	*1 318*	*1 211*	*2 529*	*1.8*
Malignant neoplasm of other and ill-defined sites (C76)	71	114	185	0.1
Malignant neoplasm without specification of site (C80)	1 242	1 093	2 335	1.7
Malignant neoplasms of lymphoid, haematopoietic and related tissue (C81-C96)	*2 067*	*1 536*	*3 603*	*2.6*
Hodgkin's disease (C81)	43	27	70	0.1
Diffuse non-Hodgkin's lymphoma (C83)	106	44	150	0.1
Peripheral and cutaneous T-cell lymphomas (C84)	37	27	64	—
Other and unspecified types of non-Hodgkin's lymphoma (C85)	573	504	1 077	0.8
Multiple myeloma and malignant plasma cell neoplasms (C90)	369	329	698	0.5
Lymphoid leukaemia (C91)	252	172	424	0.3
Myeloid leukaemia (C92)	544	338	882	0.6
Leukaemia of unspecified cell type (C95)	89	60	149	0.1
Malignant neoplasms of independent (primary) multiple sites (C97)	*318*	*206*	*524*	*0.4*
Malignant neoplasms of independent (primary) multiple sites (C97)	318	206	524	0.4
Other Neoplasms (D00-D48)	*526*	*438*	*964*	*0.7*
Benign neoplasms (D10-D36)	*53*	*53*	*106*	*0.1*
Benign neoplasm of meninges (D32)	19	34	53	—
Neoplasms of uncertain or unknown behaviour (D37-D48)	*473*	*384*	*857*	*0.6*
Neoplasm of uncertain or unknown behaviour of oral cavity and digestive organs (D37)	33	22	55	—
Neoplasm of uncertain or unknown behaviour of brain and central nervous system (D43)	76	61	137	0.1
Myelodysplastic syndromes (D46)	233	159	392	0.3
Other neoplasms of uncertain or unknown behaviour of lymphoid, haematopoietic and related tissue (D47)	79	85	164	0.1

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 50 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

BLOOD AND IMMUNITY DISORDERS (D50-D89)

Blood and immunity disorders (D50–D89) accounted for 479 registered deaths in 2007 representing 0.3% of all registered deaths in 2007. Deaths due to this cause have remained stable over the last 10 years. These deaths were most likely to occur amongst older people, with 69% of males and 82% of females who died from Blood and immunity disorders aged 65 years and over.

The median age at death for females from this cause has historically been higher than the median age at death for males. This trend continued in 2007, with a median age at death for females of 82.6 years and 77.7 years for males.

BLOOD AND IMMUNITY DISORDERS (D50-D89) *continued*

Anaemias (D50–D64) accounted for 211 deaths, or 44% of deaths due to Blood and immunity disorders. While the number of deaths due to Anaemias has remained relatively stable over the last 10 years, Anaemia deaths as a proportion of all Blood and immunity disorders has been steadily falling over the last decade from 53% in 1998 to 44% in 2007. The number of females (136) dying from Anaemias was higher than the number of males (75) dying from the same cause. This pattern has been consistent over the 10 years since 1998.

3.3 SELECTED UNDERLYING CAUSES(a), Blood and Immunity Disorders (D50–D89)—2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Blood and Immunity disorders (D50-D89)	**200**	**279**	**479**	**0.3**
Aplastic and other anaemias (D60-D64)	***61***	***105***	***166***	***0.1***
Other aplastic anaemias (D61)	26	37	63	—
Other anaemias (D64)	34	68	102	0.1
Coagulation defects, purpura and other haemorrhagic conditions (D65-D69)	***47***	***49***	***96***	***0.1***
Other coagulation defects (D68)	16	18	34	—
Purpura and other haemorrhagic conditions (D69)	20	22	42	—
Other diseases of blood and blood-forming organs (D70-D77)	***33***	***31***	***64***	—
Agranulocytosis (D70)	13	10	23	—
Diseases of spleen (D73)	7	13	20	—
Certain disorders involving the immune mechanism (D80-D89)	***45***	***63***	***108***	***0.1***
Other immunodeficiencies (D84)	19	33	52	—
Sarcoidosis (D86)	14	9	23	—

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

ENDOCRINE, NUTRITIONAL AND METABOLIC DISEASES (E00-E90)

Endocrine, nutritional and metabolic diseases (E00–E90) in 2007 accounted for 5,355 registered deaths, representing 3.9% of all registered deaths. Total deaths due to these underlying causes have increased gradually over the last ten years, from 3,965 in 1998 to 5,355 in 2007. The proportion of all deaths due to these causes has also increased slightly over the same period from 3.1% in 1998 to 3.9% in 2007. The median age at death for this cause was 80.8 years, which was very close to the median age of 80.5 years for all deaths in 2007.

Diabetes (E10–E14) was the underlying cause of death for 3,810 people, or 71% of all deaths due to Endocrine, nutritional and metabolic diseases. The highest number of deaths resulting from Diabetes over the past ten years was recorded in 2007, with the proportion of all deaths represented by this cause increasing from 2.3% in 1998 to 2.8% in 2007.

ENDOCRINE, NUTRITIONAL AND METABOLIC DISEASES (E00-E90) *continued*

Obesity (E66) accounted for a total of 169 deaths in 2007. The overall median age at death due to Obesity as the underlying cause was 59.5 years, which was 21.0 years less than the median age for all deaths. At 58.5 years for males and 61.0 years for females, the median age at death resulting from Obesity for males was almost 3 years lower than it was for females.

3.4 SELECTED UNDERLYING CAUSES(a), Endocrine, Nutritional and Metabolic Diseases (E00–E90)—2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Endocrine, nutritional and metabolic diseases (E00-E90)	**2 634**	**2 721**	**5 355**	**3.9**
Disorders of thyroid gland (E00-E07)	***22***	***95***	***117***	***0.1***
Other hypothyroidism (E03)	10	62	72	0.1
Thyrotoxicosis (hyperthyroidism) (E05)	11	22	33	—
Diabetes mellitus (E10-E14)	***1 923***	***1 887***	***3 810***	***2.8***
Insulin-dependent diabetes mellitus (E10)	185	188	373	0.3
Non-insulin-dependent diabetes mellitus (E11)	773	808	1 581	1.1
Unspecified diabetes mellitus (E14)	965	890	1 855	1.3
Malnutrition (E40-E46)	***30***	***33***	***63***	—
Unspecified protein-energy malnutrition (E46)	26	26	52	—
Obesity and other hyperalimentation (E65-E68)	***87***	***82***	***169***	***0.1***
Obesity (E66)	87	82	169	0.1
Metabolic disorders (E70-E90)	***544***	***586***	***1 130***	***0.8***
Disorders of lipoprotein metabolism and other lipidaemias (E78)	297	295	592	0.4
Disorders of mineral metabolism (E83)	22	15	37	—
Cystic fibrosis (E84)	14	15	29	—
Amyloidosis (E85)	63	33	96	0.1
Volume depletion (E86)	61	135	196	0.1
Other disorders of fluid, electrolyte and acid-base balance (E87)	52	60	112	0.1
Other metabolic disorders (E88)	17	20	37	—

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

MENTAL AND BEHAVIOURAL DISORDERS (F00-F99)

In 2007, Mental and behavioural disorders (F00–F99) were identified as the underlying cause of 5,715 registered deaths, representing 4.1% of all registered deaths during 2007. This was an increase of 559 (11%) when compared with 2006.

There were nearly twice as many female deaths (3,613, 63%) due to Mental and behavioural disorders than male deaths (2,102, 37%) registered in 2007. The median age at death was higher for females at 88.5 years, compared with 84.4 years for males.

The number of deaths due to Dementia (F01-F03) increased substantially in 2006 (up 1,788 or 64% from 2005), due to an increased propensity for certifiers to identify Dementia as a cause of death (See Explanatory Note 67 for further information). In 2007, this has continued with 5,048 deaths attributed to this cause. Dementia accounted for 88% of Mental and behavioural disorders in 2007, compared with 89% in 2006. The sex ratio of 50 male deaths per 100 female deaths has remained relatively steady since 1998,

MENTAL AND BEHAVIOURAL DISORDERS (F00-F99) *continued*

with 1,686 males and 3,362 females dying of this disease in 2007. The median age at death for persons (87.8 years) dying of Dementia was higher than the median age for Mental and behavioural disorders (87.0 years) as a whole.

Mental and behavioural disorders due to the use of alcohol (F10) was the underlying cause of 291 (5.1%) deaths from Mental and behavioural disorders in 2007. More than three times more males than females died from this cause, with 228 male deaths compared with 63 female deaths. The median age at death of persons with Mental and behavioural disorders due to the use of alcohol as the underlying cause of death was 61.9 years. This was almost twenty years lower than the median age of all causes of death (80.5 years). The median age at death of females was 61.3 years, compared with 62.3 years for males. The trends for males and females differ also, with female deaths remaining steady since 1998 and male deaths fluctuating over time, ranging between 167 in 1998 and 229 in 2006.

3.5 SELECTED UNDERLYING CAUSES(a), Mental and Behavioural Disorders (F00–F99)—2007(b)(c)

Cause of Death and ICD Code	*MALES* no.	*FEMALES* no.	*PERSONS* no.	*PROPORTION OF ALL DEATHS* %
Mental and behavioural disorders (F00-F99)	**2 102**	**3 613**	**5 715**	**4.1**
Organic, including symptomatic, mental disorders (F00-F09)	***1 729***	***3 395***	***5 124***	***3.7***
Vascular dementia (F01)(d)	352	546	898	0.7
Unspecified dementia (F03)(d)	1 334	2 816	4 150	3.0
Delirium, not induced by alcohol and other psychoactive substances (F05)	35	25	60	—
Mental and behavioural disorders due to psychoactive substance use (F10-F19)	***313***	***114***	***427***	***0.3***
Mental and behavioural disorders due to use of alcohol (F10)	228	63	291	0.2
Mental and behavioural disorders due to use of tobacco (F17)	63	41	104	0.1
Mental and behavioural disorders due to multiple drug use and use of other psychoactive substances (F19)	18	6	24	—
Schizophrenia, schizotypal and delusional disorders (F20-F29)	***25***	***30***	***55***	—
Schizophrenia (F20)	23	30	53	—
Mood (affective) disorders (F30-F39)	***23***	***43***	***66***	—
Depressive episode (F32)	17	38	55	—

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

(d) See Explanatory Note 67 for further information on data relating to Dementia.

DISEASES OF THE NERVOUS SYSTEM (G00-G99)

Diseases of the nervous system (G00–G99) accounted for 5,467 registered deaths in 2007, representing 4.0% of all registered deaths. This follows a gradual increase in deaths attributable to Diseases of the nervous system over time, from 3,717 in 1998. The number of deaths due to Diseases of the nervous system was higher for females (2,956) than for males (2,511). The median age at death was 79.3 years for males, 84.1 years for females.

DISEASES OF THE NERVOUS SYSTEM (G00-G99) *continued*

Deaths from Alzheimer's Disease (G30) constituted 42% (2,272) of all deaths due to Diseases of the nervous system and 1.6% of all registered deaths in 2007. Female deaths (1,543) due to Alzheimer's Disease were much higher than male deaths (729), with a ratio of 47 male deaths per 100 female deaths. The median age at death due to Alzheimer's Disease was 86.4 years.

Parkinson's Disease (G20) accounted for 20% of all deaths due to Diseases of the nervous system and 0.8% of all deaths registered in 2007. There were 1,109 deaths due to this disease, with a median age at death of 82.7 years. The number of male deaths (672) due to this disease was higher than the number of female deaths (437). This was similar to the overall trend for the past 10 years.

3.6 SELECTED UNDERLYING CAUSES(a), Diseases of the Nervous System (G00–G99)—2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Diseases of the nervous system (G00-G99)	**2 511**	**2 956**	**5 467**	**4.0**
Systemic atrophies primarily affecting the central nervous system (G10-G13)	***386***	***308***	***694***	***0.5***
Huntington's disease (G10)	34	36	70	0.1
Spinal muscular atrophy and related syndromes (G12)	345	265	610	0.4
Extrapyramidal and movement disorders (G20-G26)	***686***	***458***	***1 144***	***0.8***
Parkinson's disease (G20)	672	437	1 109	0.8
Other degenerative diseases of the nervous system (G30-G32)	***829***	***1 644***	***2 473***	***1.8***
Alzheimer's disease (G30)	729	1 543	2 272	1.6
Other degenerative diseases of nervous system, not elsewhere classified (G31)	100	101	201	0.1
Demyelinating diseases of the central nervous system (G35-G37)	***48***	***104***	***152***	***0.1***
Multiple sclerosis (G35)	43	102	145	0.1
Episodic and paroxysmal disorders (G40-G47)	***175***	***142***	***317***	***0.2***
Epilepsy (G40)	143	96	239	0.2
Transient cerebral ischaemic attacks and related syndromes (G45)	15	31	46	—
Polyneuropathies and other disorders of the peripheral nervous system (G60-G64)	***20***	***25***	***45***	—
Other polyneuropathies (G62)	14	14	28	—
Diseases of myoneural junction and muscle (G70-G73)	***81***	***48***	***129***	***0.1***
Myasthenia gravis and other myoneural disorders (G70)	13	12	25	—
Primary disorders of muscles (G71)	66	32	98	0.1
Cerebral palsy and other paralytic syndromes (G80-G83)	***77***	***49***	***126***	***0.1***
Infantile cerebral palsy (G80)	34	28	62	—
Hemiplegia (G81)	14	6	20	—
Paraplegia and tetraplegia (G82)	28	12	40	—
Other disorders of the nervous system (G90-G99)	***166***	***154***	***320***	***0.2***
Disorders of autonomic nervous system (G90)	23	18	41	—
Hydrocephalus (G91)	22	16	38	—
Other disorders of brain (G93)	98	97	195	0.1
Other diseases of spinal cord (G95)	16	19	35	—

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

DISEASES OF THE EYE AND EAR (H00-H95)

Since 1998, a total of 119 deaths have been attributed to Diseases of the eye and ear (H00-H95). Of these, 48 (40%) were male and 71 (60%) were female.

Diseases of the middle ear and mastoid (H65–H75) have accounted for a total of 61 deaths since 1998, 51% of all deaths due to Diseases of the eye and ear. Visual disturbances and blindness (H53–H54) have accounted for a total of 17 deaths (14%).

3.7 SELECTED UNDERLYING CAUSES(a), Diseases of the eye and ear (H00–H95)—1998–2007(b)(c)

Cause of Death and ICD Code	MALES no.	FEMALES no.	PERSONS no.
Diseases of the eye (H00-H59)	**16**	**30**	**46**
Disorders of eyelid, lacrimal system and orbit (H00-H06)	***4***	***7***	***11***
Disorders of orbit (H05)	4	6	10
Visual disturbances and blindness (H53-H54)	***8***	***9***	***17***
Blindness and low vision (H54)	8	9	17
Diseases of the ear (H60-H95)	**32**	**41**	**73**
Diseases of middle ear and mastoid (H65-H75)	***26***	***35***	***61***
Suppurative and unspecified otitis media (H66)	14	26	40
Mastoiditis and related conditions (H70)	10	6	16

(a) Causes selected are those with 10 or more deaths at the 3 digit level of ICD-10.
(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.
(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

DISEASES OF THE HEART AND BLOOD VESSELS (I00-I99)

Diseases of the heart and blood vessels (I00–I99) were identified as the underlying cause of 46,626 registered deaths in 2007. This accounts for 34% of all registered deaths. The median age at death for Diseases of the heart and blood vessels is 84.2 years, slightly higher than the median age for all deaths (80.5 years).

Of these deaths, 53% (24,556) were of females. The pattern of more female than male deaths for these underlying causes was consistent over the last 10 years. Females dying from these diseases had a higher median age at death than males (86.7 years and 80.8 years respectively)

Ischaemic heart diseases (I20–I25) which includes angina, heart attacks and blocked arteries of the heart, represented a substantial proportion of deaths attributable to Diseases of the heart and blood vessels, accounting for 22,729 deaths or 49%. Of those deaths from Ischaemic heart disease, 12,119 (53%) were males, and 10,610 (47%) were females.

Heart attack (I21) represented 11,341 deaths or 24% of all Diseases of the heart and blood vessels, and a total of 8.2% of all causes. There was a small difference in the number of male and female deaths due to this cause with 5,856 and 5,485 deaths respectively. The median age at death due to Heart attack was 86.5 years for females and 80.4 years for males.

DISEASES OF THE HEART AND BLOOD VESSELS (I00-I99) *continued*

Deaths from Stroke (I60–I69) numbered 11,491 in 2007 or 25% of all Diseases of the heart and blood vessels, comparable with the number mentioned in relation to Heart attacks (I21). In contrast to Heart attacks, there were considerably less males 4,516 (39%) with Stroke as the underlying cause of death than females 6,975 (61%). Females at 86.8 years, had a higher median age at death than males at 82.5 years.

3.8 SELECTED UNDERLYING CAUSES(a), Diseases of the Heart and Blood Vessels (I00–I99)—2007(b)(c)

Cause of Death and ICD Code	MALES no.	FEMALES no.	PERSONS no.	PROPORTION OF ALL DEATHS %
Diseases of the heart and blood vessels (I00-I99)	**22 070**	**24 556**	**46 626**	**33.8**
Chronic rheumatic heart diseases (I05-I09)	***85***	***167***	***252***	***0.2***
Rheumatic mitral valve diseases (I05)	48	92	140	0.1
Hypertensive diseases (I10-I15)	***552***	***1 075***	***1 627***	***1.2***
Essential (primary) hypertension (I10)	145	311	456	0.3
Hypertensive heart disease (I11)	195	395	590	0.4
Hypertensive renal disease (I12)	161	303	464	0.3
Hypertensive heart and renal disease (I13)	51	66	117	0.1
Ischaemic heart diseases (I20-I25)	***12 119***	***10 610***	***22 729***	***16.5***
Acute myocardial infarction (I21)	5 856	5 485	11 341	8.2
Other acute ischaemic heart diseases (I24)	145	153	298	0.2
Chronic ischaemic heart disease (I25)	6 105	4 946	11 051	8.0
Pulmonary heart disease and diseases of pulmonary circulation (I26-I28)	***218***	***355***	***573***	***0.4***
Pulmonary embolism (I26)	133	187	320	0.2
Other pulmonary heart diseases (I27)	82	167	249	0.2
Other forms of heart disease (I30-I52)	***3 261***	***4 150***	***7 411***	***5.4***
Acute and subacute endocarditis (I33)	29	23	52	—
Nonrheumatic mitral valve disorders (I34)	63	101	164	0.1
Nonrheumatic aortic valve disorders (I35)	359	447	806	0.6
Endocarditis, valve unspecified (I38)	76	154	230	0.2
Cardiomyopathy (I42)	528	264	792	0.6
Cardiac arrest (I46)	212	186	398	0.3
Atrial fibrillation and flutter (I48)	421	733	1 154	0.8
Other cardiac arrhythmias (I49)	133	88	221	0.2
Heart failure (I50)	1 093	1 775	2 868	2.1
Complications and ill-defined descriptions of heart disease (I51)	268	308	576	0.4
Cerebrovascular diseases (I60-I69)	***4 516***	***6 975***	***11 491***	***8.3***
Subarachnoid haemorrhage (I60)	178	291	469	0.3
Intracerebral haemorrhage (I61)	640	684	1 324	1.0
Other nontraumatic intracranial haemorrhage (I62)	220	249	469	0.3
Cerebral infarction (I63)	401	545	946	0.7
Stroke, not specified as haemorrhage or infarction (I64)	2 027	3 388	5 415	3.9
Other cerebrovascular diseases (I67)	186	284	470	0.3
Sequelae of cerebrovascular disease (I69)	864	1 534	2 398	1.7
Diseases of arteries, arterioles and capillaries (I70-I79)	***1 198***	***1 068***	***2 266***	***1.6***
Atherosclerosis (I70)	86	133	219	0.2
Aortic aneurysm and dissection (I71)	747	501	1 248	0.9
Other peripheral vascular diseases (I73)	268	344	612	0.4
Other disorders of arteries and arterioles (I77)	52	49	101	0.1
Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified (I80-I89)	***109***	***146***	***255***	***0.2***
Phlebitis and thrombophlebitis (I80)	72	116	188	0.1

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 50 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

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 11,577 registered deaths in 2007. This represented 8.4% of all registered deaths. There was a 6.6% increase in deaths caused by Diseases of the respiratory system from 2006. More males than females died from this cause, which is consistent with previous years. In 2007, there were 6,046 male deaths compared to 5,531

DISEASES OF THE RESPIRATORY SYSTEM (J00-J99) *continued*

female deaths due to Diseases of the respiratory system. Over the past ten years, females tended to be slightly older than males for this underlying cause. This trend continued in 2007 with the median age at death for males at 81.2 years and for females at 84.3 years.

In 2007, Chronic lower respiratory diseases (J40–J47) were the underlying cause of 5,762 deaths or 4.2% 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 2007 (3,169 compared with 2,593). Males also tended to be slightly younger than females dying from this cause over time. In 2007, the median age at death caused by Chronic lower respiratory diseases was 80.2 years for males and 81.2 years for females.

Pneumonia (J12-J18) accounted for 2,550 registered deaths, or 1.8% of all registered deaths in 2007. As in previous years, more females died from Pneumonia than males, with 1,415 female deaths compared with 1,133 male deaths. The median age at death for males was also lower than for females, 84.6 years compared with 89.0 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 119 deaths in 1998 to 1,029 in 2007. This cause of death was most common amongst people ages 60 years and over, who represented 973 deaths due to Pneumonitis (95%).

3.9 SELECTED UNDERLYING CAUSES(a), Diseases of the Respiratory System (J00–J99)—2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Diseases of the respiratory system (J00-J99)	**6 046**	**5 531**	**11 577**	**8.4**
Influenza and pneumonia (J10-J18)	***1 160***	***1 463***	***2 623***	***1.9***
Influenza due to identified influenza virus (J10)	9	11	20	—
Influenza, virus not identified (J11)	20	34	54	—
Bacterial pneumonia, not elsewhere classified (J15)	43	27	70	0.1
Pneumonia, organism unspecified (J18)	1 070	1 374	2 444	1.8
Other acute lower respiratory infections (J20-J22)	***75***	***72***	***147***	***0.1***
Unspecified acute lower respiratory infection (J22)	62	64	126	0.1
Chronic lower respiratory diseases (J40-J47)	***3 169***	***2 593***	***5 762***	***4.2***
Bronchitis, not specified as acute or chronic (J40)	15	17	32	—
Unspecified chronic bronchitis (J42)	12	13	25	—
Emphysema (J43)	387	240	627	0.5
Other chronic obstructive pulmonary disease (J44)(d)	2 550	1 917	4 467	3.2
Asthma (J45)	126	245	371	0.3
Bronchiectasis (J47)	72	153	225	0.2
Lung diseases due to external agents (J60-J70)	***675***	***470***	***1 145***	***0.8***
Pneumoconiosis due to asbestos and other mineral fibres (J61)	92	5	97	0.1
Pneumonitis due to solids and liquids (J69)	569	460	1 029	0.7
Other respiratory diseases principally affecting the interstitium (J80-J84)	***489***	***382***	***871***	***0.6***
Adult respiratory distress syndrome (J80)	18	11	29	—
Pulmonary oedema (J81)	20	30	50	—
Other interstitial pulmonary diseases (J84)	448	339	787	0.6
Suppurative and necrotic conditions of lower respiratory tract (J85-J86)	***24***	***27***	***51***	—
Abscess of lung and mediastinum (J85)	14	13	27	—
Pyothorax (J86)	10	14	24	—
Other diseases of pleura (J90-J94)	***34***	***39***	***73***	***0.1***
Pleural effusion, not elsewhere classified (J90)	22	33	55	—
Other diseases of the respiratory system (J95-J99)	***397***	***472***	***869***	***0.6***
Respiratory failure, not elsewhere classified (J96)	97	90	187	0.1
Other respiratory disorders (J98)	300	382	682	0.5

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

(d) For further information on data relating to Chronic obstructive pulmonary disease, see Explanatory Note 69.

DISEASES OF THE DIGESTIVE SYSTEM (K00-K99)

Diseases of the digestive system (K00–K99) accounted for 4,760 registered deaths in Australia in 2007 or 3.5% of all registered deaths. The number and proportion of all deaths due to diseases of the digestive system have increased steadily over the past ten years up from 3, 967 deaths (3.1% of all deaths) in 1998. Slightly more males (2,402) than females (2,358) died from Diseases of the digestive system in 2007. The median age at death for males (73.9 years) dying from these diseases was considerably lower than for females (83.7 years).

Alcoholic liver disease (K70) accounted for 676 deaths, 14% of all deaths due to Diseases of the digestive system. More males than females died of Alcoholic liver disease, with a ratio of 259.6 males per 100 females. The majority of deaths due to Alcoholic liver disease were of people aged between 45 and 70 years (75%). Median age at death for males was 59.5 years, while for females it was 57.0 years.

DISEASES OF THE DIGESTIVE SYSTEM (K00-K99) *continued*

Diseases of the intestine (K50–K63) has increased from 1,133 deaths in 1998 to 1,595 deaths in 2007. The majority of deaths (1,173) occurred in the 75 to 94 age group, with a median age of 83.8 years.

Diseases of the oesophagus, stomach and duodenum (K20–K31) were the underlying cause of 569 deaths. The median age at death was 83.3 years, which is 2.8 years higher than the median age for all causes of death (80.5 years). The sex ratio for this underlying cause of death was 87 male deaths per 100 female deaths.

3.10 SELECTED UNDERLYING CAUSES(a), Diseases of the Digestive System (K00–K99)—2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
Diseases of the digestive system (K00-K93)	**2 402**	**2 358**	**4 760**	**3.5**
Diseases of oesophagus, stomach and duodenum (K20-K31)	***264***	***305***	***569***	***0.4***
Gastro-oesophageal reflux disease (K21)	21	29	50	—
Other diseases of oesophagus (K22)	46	61	107	0.1
Gastric ulcer (K25)	37	62	99	0.1
Duodenal ulcer (K26)	69	56	125	0.1
Peptic ulcer, site unspecified (K27)	49	62	111	0.1
Gastritis and duodenitis (K29)	12	10	22	—
Other diseases of stomach and duodenum (K31)	18	19	37	—
Hernia (K40-K46)	***67***	***79***	***146***	***0.1***
Inguinal hernia (K40)	30	5	35	—
Diaphragmatic hernia (K44)	12	26	38	—
Unspecified abdominal hernia (K46)	15	18	33	—
Noninfective enteritis and colitis (K50-K52)	***84***	***153***	***237***	***0.2***
Crohn's disease (regional enteritis) (K50)	7	18	25	—
Other noninfective gastroenteritis and colitis (K52)	69	124	193	0.1
Other diseases of intestines (K55-K63)	***538***	***820***	***1 358***	***1.0***
Vascular disorders of intestine (K55)	195	256	451	0.3
Paralytic ileus and intestinal obstruction without hernia (K56)	180	299	479	0.3
Diverticular disease of intestine (K57)	73	150	223	0.2
Other functional intestinal disorders (K59)	15	17	32	—
Other diseases of anus and rectum (K62)	10	17	27	—
Other diseases of intestine (K63)	61	77	138	0.1
Diseases of peritoneum (K65-K67)	***40***	***60***	***100***	***0.1***
Peritonitis (K65)	30	48	78	0.1
Other disorders of peritoneum (K66)	10	12	22	—
Diseases of liver (K70-K77)	***977***	***460***	***1 437***	***1.0***
Alcoholic liver disease (K70)	488	188	676	0.5
Hepatic failure, not elsewhere classified (K72)	150	74	224	0.2
Fibrosis and cirrhosis of liver (K74)	205	110	315	0.2
Other inflammatory liver diseases (K75)	13	20	33	—
Other diseases of liver (K76)	119	63	182	0.1
Disorders of gallbladder, biliary tract and pancreas (K80-K87)	***238***	***268***	***506***	***0.4***
Cholelithiasis (K80)	28	56	84	0.1
Cholecystitis (K81)	44	61	105	0.1
Other diseases of gallbladder (K82)	13	13	26	—
Other diseases of biliary tract (K83)	50	55	105	0.1
Acute pancreatitis (K85)	79	68	147	0.1
Other diseases of pancreas (K86)	24	15	39	—
Other diseases of the digestive system (K90-K93)	***169***	***195***	***364***	***0.3***
Other diseases of digestive system (K92)	165	186	351	0.3

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

DISEASES OF THE SKIN AND SUBCUTANEOUS TISSUE (L00-L98)

Diseases of the skin and subcutaneous tissue (L00-L98) accounted for 362 deaths in Australia in 2007. Of these, 216 (60%) were female and 146 (40%) were male. There were 162 (45%) deaths due to Diseases of the skin and subcutaneous tissue of people aged between 85 and 94 years, and a further 114 (31%) of people aged between 75 and 84 years. The median age at death for all persons was 85.6 years, while the male and female median age at death were 82.8 years and 87.2 years respectively.

DISEASES OF THE SKIN AND SUBCUTANEOUS TISSUE (L00-L98) *continued*

Over the past 10 years, deaths due to Diseases of the skin and subcutaneous tissue have increased 39% from 260 in 1998 to 362 in 2007. The key cause contributing to this increase was Cellulitis (L03), which increased from 81 registered deaths in 1998 to 170 registered deaths in 2007. Of these deaths, 58% were female and 42% were male. The female median age at death of 86.6 years was 3.2 years higher than the male median age at death of 83.4 years. Persons aged 65 years and over accounted for 92% of these deaths due to Cellulitis.

3.11 SELECTED UNDERLYING CAUSES(a), Diseases of the Skin and Subcutaneous Tissue (L00–L98)—2007(b)(c)

Cause of Death and ICD Code	*MALES* no.	*FEMALES* no.	*PERSONS* no.	*PROPORTION OF ALL DEATHS* %
Diseases of the skin and subcutaneous tissue (L00-L99)	**146**	**216**	**362**	**0.3**
Infections of the skin and subcutaneous tissue (L00-L08)	***89***	***115***	***204***	***0.1***
Cellulitis (L03)	71	99	170	0.1
Other local infections of skin and subcutaneous tissue (L08)	13	10	23	—
Other disorders of the skin and subcutaneous tissue (L80-L99)	***48***	***87***	***135***	***0.1***
Decubitus ulcer (L89)	17	16	33	—
Ulcer of lower limb, not elsewhere classified (L97)	15	49	64	—
Other disorders of skin and subcutaneous tissue, not elsewhere classified (L98)	14	21	35	—

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

DISEASES OF THE MUSCLES, BONES AND TENDONS (M00-M99)

Diseases of the muscles, bones and tendons (M00–M99) accounted for 1,091 registered deaths in 2007, which represented 0.8% of all deaths registered in Australia. Over the last ten years, the number of deaths from this cause has increased steadily from 751 in 1998 to 1,091 in 2007, representing an increase from 0.6% of all deaths in 1998 to 0.8% of all deaths in 2007. In 2007, the number of female deaths (751) was more than twice the number of male deaths (340) from this cause, continuing the trend shown in previous years.

The median age at death has gradually increased over the last decade for both males and females. Male median age at death for this cause has increased from 75.6 in 1998 to 80.9 years in 2007. The female median age at death has risen from 80.3 years in 1998 to 85.1 years in 2007.

Osteoporosis (M80–M85) accounted for 289 registered deaths in Australia for 2007, with a median age at death of 89.6 years. More than four times more females than males died from Osteoporosis in 2007, which was a continuation of the pattern displayed in previous years' data. The median age at death from this cause for females has historically been higher than the median age at death for males. This trend persisted in 2007 with the median age at death for females at 90.1 years and for males at 86.1 years.

3.12 SELECTED UNDERLYING CAUSES(M00–M99)(a), Diseases of the Muscles, Bones, and Tendons —2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Diseases of the muscles, bones and tendons (M00-M99)	**340**	**751**	**1 091**	**0.8**
Arthropathies (M00-M25)	***127***	***234***	***361***	***0.3***
Infectious arthropathies (M00-M03)	***33***	***29***	***62***	—
Pyogenic arthritis (M00)	33	29	62	—
Inflammatory polyarthropathies (M05-M14)	***66***	***140***	***206***	***0.1***
Other rheumatoid arthritis (M06)	38	110	148	0.1
Gout (M10)	17	8	25	—
Other arthritis (M13)	6	15	21	—
Arthrosis (M15-M19)	***21***	***58***	***79***	***0.1***
Other arthrosis (M19)	20	47	67	—
Systemic connective tissue disorders (M30-M36)	***67***	***165***	***232***	***0.2***
Other necrotizing vasculopathies (M31)	24	26	50	—
Systemic lupus erythematosus (M32)	11	35	46	—
Systemic sclerosis (M34)	17	66	83	0.1
Other systemic involvement of connective tissue (M35)	5	24	29	—
Soft tissue disorders (M60-M79)	***32***	***39***	***71***	***0.1***
Disorders of muscles (M60-M63)	***21***	***26***	***47***	—
Other disorders of muscle (M62)	13	15	28	—
Other soft tissue disorders (M70-M79)	***11***	***13***	***24***	—
Fibroblastic disorders (M72)	9	11	20	—
Osteopathies and chondropathies (M80-M94)	***90***	***275***	***365***	***0.3***
Disorders of bone density and structure (M80-M85)	***49***	***240***	***289***	***0.2***
Osteoporosis with pathological fracture (M80)	19	115	134	0.1
Osteoporosis without pathological fracture (M81)	6	100	106	0.1
Disorders of continuity of bone (M84)	24	25	49	—
Other osteopathies (M86-M90)	***41***	***35***	***76***	***0.1***
Osteomyelitis (M86)	39	30	69	0.1

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

DISEASES OF THE KIDNEY, URINARY SYSTEM AND GENITALS (N00-N99)

Diseases of the Kidney, urinary system and genitals (N00–N99) accounted for 3,324 registered deaths in Australia in 2007, which was 2.4% of all registered deaths. The median age at death was 84.9 years. More females (1,822) than males (1,502) died of these diseases.

Of these causes, 2,464 (74%) were due to Kidney failure (N17–N19), which increased 14% from 2006 to 2007. The rise in Kidney failure may be due in part to a decrease in the specificity of certification on the Medical Certificate of Cause of Death. Kidney failure is a non-specific cause of death and is generally due to another more serious condition. More females died from this cause than males in 2007, although the difference was small (1,301 females compared with 1,163 males). The median age at death for Kidney failure was 84.9 years, 4.4 years higher than the median age for all deaths.

3.13 SELECTED UNDERLYING CAUSES(a), Diseases of the Kidney, Urinary System and Genitals (N00–N99)—2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Diseases of the kidney, urinary system and genitals (N00-N99)	**1 502**	**1 822**	**3 324**	**2.4**
Glomerular diseases (N00-N08)	***42***	***27***	***69***	***0.1***
Chronic nephritic syndrome (N03)	11	10	21	—
Unspecified nephritic syndrome (N05)	18	8	26	—
Renal tubulo-interstitial diseases (N10-N16)	***38***	***69***	***107***	***0.1***
Tubulo-interstitial nephritis, not specified as acute or chronic (N12)	5	19	24	—
Obstructive and reflux uropathy (N13)	20	15	35	—
Drug and heavy-metal-induced tubulo-interstitial and tubular conditions (N14)	8	20	28	—
Renal failure (N17-N19)	***1 163***	***1 301***	***2 464***	***1.8***
Acute renal failure (N17)	186	232	418	0.3
Chronic renal failure (N18)	658	685	1 343	1.0
Unspecified renal failure (N19)	319	384	703	0.5
Urolithiasis (N20-N23)	***6***	***20***	***26***	—
Calculus of kidney and ureter (N20)	5	17	22	—
Other disorders of kidney and ureter (N25-N29)	***17***	***29***	***46***	—
Other disorders of kidney and ureter, not elsewhere classified (N28)	14	20	34	—
Other diseases of urinary system (N30-N39)	***172***	***346***	***518***	***0.4***
Other disorders of urinary system (N39)	157	336	493	0.4
Diseases of male genital organs (N40-N51)	***64***	—	***64***	—
Hyperplasia of prostate (N40)	40	—	40	—

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

PREGNANCY AND CHILDBIRTH (O00-O99)

Pregnancy and childbirth (O00–O99), as an underlying cause of death, accounted for the deaths of 5 females in Australia in 2007.

Since 1998, this cause has accounted for a total of 100 registered deaths. From 1998 to 2007, Complications of labour and delivery (O60–O75) and Complications within 6 weeks of delivery (O85–O92) accounted for most deaths related to pregnancy and childbirth. Due to small numbers, it is difficult to make comparisons over time.

These deaths are spread across the childbearing age range, and cannot be attributed to any one smaller age group.

3.14 SELECTED UNDERLYING CAUSES(a), Pregnancy and Childbirth (O00–O99)—1998–2007(b)(c)

Cause of Death and ICD Code	MALES no.	FEMALES no.	PERSONS no.
Pregnancy and childbirth (O00-O99)	. .	**100**	**100**
Maternal care related to the fetus and amniotic cavity and possible delivery problems (O30-O48)	. .	***10***	***10***
Complications of labour and delivery (O60-O75)	. .	***26***	***26***
Postpartum haemorrhage (O72)	. .	17	17
Complications predominantly related to the puerperium (O85-O92)	. .	***36***	***36***
Obstetric embolism (O88)	. .	20	20

. . not applicable
(a) Causes selected are those with 10 or more deaths at the 3 digit level of ICD-10.
(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.
(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

CONDITIONS ORIGINATING IN THE PERINATAL PERIOD (P00-P96)

Conditions originating in the perinatal period (P00–P96) were identified as the underlying cause of 578 deaths registered in 2007. Of these, 325 (56%) were males, and 253 (44%) were females.

Although the majority of deaths attributed to this cause occur in the neonatal period (within 28 days of birth), this is not always the case. In 2007, 94% of deaths due to Certain conditions originating in the perinatal period occurred in the neonatal period, while 5.9% of these deaths were in older age groups. For further information on perinatal death statistics, see Explanatory Note 15.

Of note, deaths attributed to Other conditions originating in the perinatal period (P96) increased from 6 in 2005 to 48 in 2006. This is largely a residual code, and the increase may reflect a decline in the specificity of certification. In 2007, deaths for this cause have returned to levels observed prior to 2006.

There were 131 deaths due to Disorders related to short gestation and low birth weight, not elsewhere classified (P07) in 2007, which was consistent with a gradual increase over the last 10 years.

In prior years, statistics on perinatal deaths have been included in this publication. However, for 2007 this data will be published as a separate publication, Perinatal Deaths, Australia (cat.no. 3304.0), which will be released in June 2009.

3.15 SELECTED UNDERLYING CAUSES(a)(b), Conditions Originating in the Perinatal Period (P00–P96)(c)—2007(d)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Conditions originating in the perinatal period (P00-P96)	**325**	**253**	**578**	**0.4**
Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	***130***	***99***	***229***	***0.2***
Fetus and newborn affected by maternal conditions that may be unrelated to present pregnancy (P00)	13	9	22	—
Fetus and newborn affected by maternal complications of pregnancy (P01)	47	37	84	0.1
Fetus and newborn affected by complications of placenta, cord and membranes (P02)	61	51	112	0.1
Disorders related to length of gestation and fetal growth (P05-P08)	***74***	***65***	***139***	***0.1***
Disorders related to short gestation and low birth weight, not elsewhere classified (P07)	70	61	131	0.1
Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	***52***	***38***	***90***	***0.1***
Birth asphyxia (P21)	11	14	25	—
Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)	***19***	***9***	***28***	—
Intracranial nontraumatic haemorrhage of fetus and newborn (P52)	14	9	23	—
Other disorders originating in the perinatal period (P90-P96)	***10***	***19***	***29***	—
Other disturbances of cerebral status of newborn (P91)	9	14	23	—

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(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. It is important to note that cells with a zero value have not been affected by confidentialisation.

(c) Relates to conditions originating in but not necessarily occurring in the perinatal period.

(d) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

CONGENITAL AND CHROMOSOMAL ABNORMALITIES (Q00-Q99)

Congenital and chromosomal abnormalities (Q00-Q99), such as Down's Syndrome, Edward's syndrome, Cerebal Palsy and congenital heart malformations accounted for 574 deaths in 2007. Of these, 293 (51%) were deaths of males and 281 (49%) were deaths of females.

The just over half of these deaths occurred within the first year of life (310 or 54%), however, the remainder were spread relatively evenly over other age groups. Median age at death due to Congenital and chromosomal abnormalities was 0.9 years. This was 79.6 years lower than the median age for all deaths (80.5 years).

Congenital malformations of the heart and blood vessels (Q20–Q28) accounted for 189 deaths or 33% of all deaths due to Congenital and chromosomal abnormalities. The median age for this cause was 8.5 years.

3.16 SELECTED UNDERLYING CAUSES(a), Congenital and Chromosomal Abnormalities (Q00–Q99)—2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Congenital and chromosomal abnormalities (Q00-Q99)	**293**	**281**	**574**	**0.4**
Congenital malformations of the nervous system (Q00-Q07)	***43***	***47***	***90***	***0.1***
Other congenital malformations of brain (Q04)	17	11	28	—
Congenital malformations of the circulatory system (Q20-Q28)	***104***	***85***	***189***	***0.1***
Congenital malformations of cardiac septa (Q21)	19	20	39	—
Congenital malformations of aortic and mitral valves (Q23)	21	14	35	—
Other congenital malformations of heart (Q24)	31	27	58	—
Congenital malformations of the urinary system (Q60-Q64)	***29***	***31***	***60***	—
Cystic kidney disease (Q61)	19	25	44	—
Congenital malformations and deformations of the musculoskeletal system (Q65-Q79)	***20***	***23***	***43***	—
Congenital malformations of the musculoskeletal system, not elsewhere classified (Q79)	15	15	30	—
Other congenital malformations (Q80-Q89)	***38***	***33***	***71***	***0.1***
Other congenital malformations, not elsewhere classified (Q89)	20	20	40	—
Chromosomal abnormalities, not elsewhere classified (Q90-Q99)	***39***	***48***	***87***	***0.1***
Down's syndrome (Q90)	23	26	49	—
Edwards' syndrome and Patau's syndrome (Q91)	12	10	22	—

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

ILL-DEFINED CAUSES (R00-R99)

Ill-defined causes (R00–R99) accounted for 1,895 deaths registered in Australia in 2007, representing 1.4% of all registered deaths. This was an increase of 370 (24%) compared with 2006.

This increase could be attributed to the number of open coronial cases remaining on National Coronial Information System (NCIS) at the end of the ABS processing period. 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). Deaths coded to this cause have increased 156 (14%) compared with 2006. For further information, see Technical Note: Coroner Certified Deaths. Deaths coded to Unattended Death (R98) decreased from 57 in 2006 to 16 in 2007. For further information, see Explanatory Note 70-71. Causes of Death for 2007 data is subject to revision. As a result some deaths currently coded to Ill-Defined Causes may be allocated to more specific codes. See Explanatory Notes 3 - 4 for further information.

In 2007, there were 71 deaths identified as being due to Sudden Infant Death Syndrome (SIDS, R95). This represented an increase from 2006, when 66 deaths were attributed to SIDS. In processing Causes of Death, the ABS will only code a death to SIDS if specifically mentioned on the death certificate. The number of open coronial cases could potentially include additional deaths which would be determined as SIDS deaths when closed. For further information, see Technical Note: Coroner Certified Deaths.

For the past 10 years, more males have died from SIDS than females. This has changed in 2007, with 34 male deaths compared to 37 female deaths. The majority of these deaths

ILL-DEFINED CAUSES (R00-R99) *continued*

occurred in the period between 28 days and 1 year of age, with 59 infants in this age range with SIDS as the underlying cause of death in 2007. Again, this was consistent with previous years.

3.17 SELECTED UNDERLYING CAUSES(a), Ill-Defined Causes (R00–R99)—2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Ill-defined causes (R00-R99)	**1 081**	**814**	**1 895**	**1.4**
Symptoms and signs involving the circulatory and respiratory systems (R00-R09)	***66***	***94***	***160***	***0.1***
Other symptoms and signs involving the circulatory and respiratory systems (R09)	59	79	138	0.1
General symptoms and signs (R50-R69)	***132***	***208***	***340***	***0.2***
Malaise and fatigue (R53)	14	24	38	—
Senility (R54)	41	100	141	0.1
Shock, not elsewhere classified (R57)	19	13	32	—
Other general symptoms and signs (R68)	35	54	89	0.1
Ill-defined and unknown causes of mortality (R95-R99)	***874***	***503***	***1 377***	***1.0***
Sudden infant death syndrome (R95)	34	37	71	0.1
Other ill-defined and unspecified causes of mortality (R99)(d)	831	456	1 287	0.9

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

(d) For further information relating to this data, see Explanatory Notes 70-79.

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 42 for further information.

Causes of Death data for 2007 is subject to revision. This is expected to change the number of deaths coded to External causes. See Explanatory Notes 3 - 4 for further information.

In 2007, External causes accounted for 7,893 deaths, or 5.7% of all registered deaths. This was a slight increase from 2006 when 7,840 deaths (5.9%) were attributed to External causes. The standardised death rate was 36.1 per 100,000 of population in 2007, a decrease from 36.7 in 2006 and from 44.6 per 100,000 population in 1998. Males were more likely to die from External causes than females in 2007. The standardised death rate for males was 50.9 per 100,000 compared with 22.1 per 100,000 for females.

In 2007, the median age at death from these causes was 50.8 years, which was slightly older than the median age of 50.3 years recorded in 2006. Despite this slight increase, the median age at death for External causes was considerably less than the median age of 80.5 years for all registered deaths in 2007. The median age at death for males dying of External causes was 45.5 years, with the median age at death for females 66.6 years.

EXTERNAL CAUSES (V01-Y98) *continued*

Consistent with previous years, just over two-thirds of the total number of deaths resulting from External causes were males. The difference between the number of male and female deaths was most apparent amongst the 25-34 year age group, with 879 male deaths compared to 238 female deaths.

3.18 SELECTED UNDERLYING CAUSES(a), External Causes (V01–Y98)—2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
External causes (V01-Y98)	**5 168**	**2 725**	**7 893**	**5.7**
Transport accidents (V01-V99, Y85)(d)	*1 020*	*342*	*1 361*	*1.0*
Other external causes of accidental injury (W00-X59)	*1 651*	*1 379*	*3 030*	*2.2*
Falls (W00-W19)	569	621	1 190	0.9
Exposure to inanimate mechanical forces (W20-W49)	69	13	82	0.1
Struck by thrown, projected or falling object (W20)	16	4	20	—
Caught, crushed, jammed or pinched in or between objects (W23)	18	2	21	—
Accidental drowning and submersion (W65-W74)	131	52	183	0.1
Drowning and submersion while in natural water (W69)	59	13	72	0.1
Drowning and submersion following fall into natural water (W70)	17	4	21	—
Unspecified drowning and submersion (W74)	38	16	54	—
Other accidental threats to breathing (W75-W84)	115	105	220	0.2
Inhalation and ingestion of food causing obstruction of respiratory tract (W79)	30	19	49	—
Inhalation and ingestion of other objects causing obstruction of respiratory tract (W80)	59	68	127	0.1
Exposure to smoke, fire and flames (X00-X09)	42	16	58	—
Exposure to uncontrolled fire in building or structure (X00)	23	9	32	—
Exposure to forces of nature (X30-X39)	28	24	52	—
Exposure to excessive natural cold (X31)	22	15	37	—
Accidental poisoning by and exposure to noxious substances (X40-X49)	377	198	575	0.4
Accidental exposure to other and unspecified factors (X58-X59)	286	342	628	0.5
Exposure to unspecified factor (X59)	285	342	627	0.5
Other external causes of mortality (X60-Y36)	*2 307*	*830*	*3 137*	*2.3*
Intentional self-harm (X60-X84, Y87)(e)	1 455	427	1 884	1.4
Assault (X85-Y09, Y87.1)(f)	107	62	163	0.1
Event of undetermined intent (Y10-Y34, Y87.2)(g)	746	345	1 091	0.8
Complications of medical and surgical care (Y40-Y84, Y88)	*130*	*129*	*259*	*0.2*
Drugs, medicaments and biological substances causing adverse effects in therapeutic use (Y40-Y59)	28	31	59	—
Surgical operation and other surgical 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)	77	85	162	0.1
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 (Y84)	18	7	25	—
Sequelae of external causes of morbidity and mortality (Y85-Y89)	*85*	*55*	*140*	*0.1*
Sequelae of other accidents (Y86)	50	40	90	0.1

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

(d) Includes sequelae of transport accidents (Y85). Care needs to be taken in interpreting figures relating to transport accidents for 2007. See Explanatory Notes 73-74 for further information.

(e) Includes sequelae of suicide (Y87.0). Care needs to be taken in interpreting figures relating to suicide due to limitations of the data. See Explanatory Notes 77-78 and Technical Note: ABS coding of suicide deaths for further information.

(f) Includes sequelae of assault (Y87.1). Care needs to be taken in interpreting figures relating to assault. See Explanatory Notes 75-76 for further details.

(g) Includes sequelae of events of undeterminated intent (Y87.2). For further information relating to this data, see Explanatory Notes 79-81.

Transport Accidents (V01-V99, Y85)

Transport accidents (V01–V99, Y85) accounted for 1,361 deaths registered in 2007. This represented 1.0% of all registered deaths in 2007, and 17% of all External causes of death. Of these, 710 deaths were of occupants of a car, 182 deaths were of pedestrians and 184 deaths were of motorcycle riders.

Transport Accidents (V01-V99, Y85) continued

As with most other External causes, more males than females died from Transport accidents in 2007 (1,020 compared with 341). For males, 1.4% of total male deaths registered in 2007 were caused by Transport accidents. This was compared with only 0.5% of all female deaths. Males also had a lower median age at death than females, with a median age of 36.3 years for males compared with 40.5 years for females. Of all male deaths from External causes, 20% were attributed to Transport accidents, predominantly amongst males aged 15-44 years. Males in this age group accounted for 60% of all male deaths due to transport accidents.

For information on quality of data on Transport accidents, refer to Explanatory Notes 73-74

3.19 SELECTED UNDERLYING CAUSES(a), Transport Accidents (V01–V99, Y85)(b)—2007(c)(d)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Transport Accidents (V01-V99, Y85)	**1 020**	**342**	**1 361**	**1.0**
Pedestrian injured in transport accident (V01-V09)	***122***	***60***	***182***	***0.1***
Pedestrian injured in collision with car, pick-up truck or van (V03)	74	51	125	0.1
Pedestrian injured in collision with heavy transport vehicle or bus (V04)	19	5	24	—
Pedestrian injured in collision with railway train or railway vehicle (V05)	21	3	25	—
Motorcycle rider injured in transport accident (V20-V29)	***175***	***9***	***184***	***0.1***
Motorcycle rider injured in collision with car, pick-up truck or van (V23)	57	5	62	—
Motorcycle rider injured in collision with fixed or stationary object (V27)	80	4	82	0.1
Car occupant injured in transport accident (V40-V49)	***491***	***219***	***710***	***0.5***
Car occupant injured in collision with car, pick-up truck or van (V43)	133	84	217	0.2
Car occupant injured in collision with heavy transport vehicle or bus (V44)	37	16	53	—
Car occupant injured in collision with fixed or stationary object (V47)	213	85	298	0.2
Car occupant injured in noncollision transport accident (V48)	97	28	125	0.1
Occupant of pick-up truck or van injured in transport accident (V50-V59)	***42***	***11***	***53***	—
Occupant of pick-up truck or van injured in collision with fixed or stationary object (V57)	19	6	25	—
Other land transport accidents (V80-V89)	***51***	***20***	***71***	***0.1***
Motor- or nonmotor-vehicle accident, type of vehicle unspecified (V89)	16	7	23	—
Air and space transport accidents (V95-V97)	***31***	***5***	***36***	—
Accident to powered aircraft causing injury to occupant (V95)	28	1	32	—
Sequelae of transport accidents (Y85)	***18***	***4***	***21***	—

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Includes sequelae of transport accidents (Y85). Care needs to be taken in interpreting figures relating to transport accidents for 2007. See Explanatory Notes 73-74 for further information.

(c) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(d) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

Falls (W00-W19)

Falls (W00–W19) accounted for 1,190 deaths registered in 2007. This represented 0.9% of all registered deaths in 2007, and 15% of all External causes of death. Falls have increased 68% over the past 5 years from 709 in 2003. See Explanatory Note 72 for further information on data relating to falls.

Falls (W00-W19) continued

Falls was one of the few categories within External causes with more females than males (621 females, compared with 569 males). This has been the case for the past four years. The median age at death for Falls was 85.0 years, which was considerably higher than the median age at death of 50.8 for all External causes. Of all deaths due to Falls, 83% were of people aged 70 years or more.

3.20 SELECTED UNDERLYING CAUSES(a), Falls (W00–W19)—2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Falls (W00-W19)	**569**	**621**	**1 190**	**0.9**
Fall on same level from slipping, tripping and stumbling (W01)	125	130	255	0.2
Fall involving bed (W06)	18	26	44	—
Fall on and from stairs and steps (W10)	33	24	57	—
Fall on and from ladder (W11)	23	—	23	—
Fall from, out of or through building or structure (W13)	26	6	32	—
Other fall from one level to another (W17)	18	8	26	—
Other fall on same level (W18)	11	24	35	—
Unspecified fall (W19)	293	376	669	0.5

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

Accidental Poisoning (X40-X49)

Accidental poisoning (X40–X49) accounted for 575 deaths registered in 2007. This represented 0.4% of all registered death 2007, and 7.3% of all External causes of death. Accidental poisoning have decreased 18% compared with 2006. The number of deaths due to accidental poisoning may be affected by the number of open coronial cases on NCIS, as well as changes in coding practices. See Technical Note: Coroner Certified Deaths for further information.

Almost twice as many males as females died from accidental poisoning in 2007, continuing the trend of the past 10 years since 1998. The median age at death for Accidental poisoning was 40.4 years. Median age at death for males was 36.7 years, compared with 49.4 years for females.

3.21 SELECTED UNDERLYING CAUSES(a), Accidental Poisoning (X40–X49)—2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Accidental poisoning (X40-X49)	**377**	**198**	**575**	**0.4**
Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified (X41)	33	28	61	—
Accidental poisoning by and exposure to narcotics and psychodysleptics (hallucinogens), not elsewhere classified (X42)	119	27	146	0.1
Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances (X44)	151	110	261	0.2
Accidental poisoning by and exposure to alcohol (X45)	50	16	66	—

— nil or rounded to zero (including null cells)
(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.
(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.
(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

Assault (X85-Y09,Y87.1)

Assault (X85–Y09, Y87.1) accounted for 165 deaths in 2007. The deaths from Assault represented 0.1% of all registered deaths and 2.1% of all External causes of death in 2007. Almost twice as many males as females died from Assault in 2007, continuing the trend of the 10 years since 1998. The median age at death for Assault was 37.7 years. Median age at death for males was 37.8 years, compared with 37.5 years for females.

Cause of Death 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 coroners cases on ABS data. See Explanatory Notes 75 – 76 for further information.

3.22 SELECTED UNDERLYING CAUSES(a), Assault (X85–Y09, Y87.1)—2007(b)(c)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Assault (X85-Y09, Y87.1)(d)	**107**	**62**	**163**	**0.2**
Assault by hanging, strangulation and suffocation (X91)	1	7	10	—
Assault by other and unspecified firearm discharge (X95)	10	6	16	—
Assault by sharp object (X99)	49	25	74	0.1
Assault by bodily force (Y04)	15	7	22	—
Assault by unspecified means (Y09)	8	6	14	—

— nil or rounded to zero (including null cells)
(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.
(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.
(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.
(d) Includes sequelae of assault (Y87.1). Care needs to be taken in interpreting figures relating to assault. See Explanatory Notes 75-76 for further details.

Suicide (X60-X84,Y87.0)

Care should be taken in using and interpreting suicide data contained in this publication due to concerns regarding data quality. For further information refer to Explanatory Notes 77-78.

Suicide (X60-X84,Y87.0) continued

There were 1,881 deaths coded to Intentional self-harm [suicide] (X60–X84, Y87.0) in 2007, a small increase on the 1,799 deaths in 2006. Deaths from Intentional self-harm represented 1.4% of all registered deaths and 24% of all External causes of death in 2007. More than three times as many males as females died from Intentional self-harm in 2007, continuing the trend of the 10 years since 1998. The median age at death for Intentional self-harm was 42.5 years. Median age at death for males was 41.7 years, compared with 44.5 years for females.

For further information on deaths due to suicide, see the Suicides section (Chapter 6) of this publication and Technical Notes - Coroner Certified Deaths and ABS Coding of Suicide Deaths.

3.23 SELECTED UNDERLYING CAUSES(a), Suicide (X60–X84, X87.0)(b)—2007(c)(d)

Cause of Death and ICD Code	MALES	FEMALES	PERSONS	PROPORTION OF ALL DEATHS
	no.	no.	no.	%
Suicide (X60-X84, Y87.0)	**1 455**	**427**	**1 884**	**1.4**
Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified (X61)	23	32	55	—
Intentional self-poisoning by and exposure to narcotics and psychodysleptics (hallucinogens), not elsewhere classified (X62)	17	11	28	—
Intentional self-poisoning by and exposure to other and unspecified drugs, medicaments and biological substances (X64)	46	81	127	0.1
Intentional self-poisoning by and exposure to other gases and vapours (X67)	164	32	196	0.1
Intentional self-harm by hanging, strangulation and suffocation (X70)	826	184	1 010	0.7
Intentional self-harm by drowning and submersion (X71)	19	18	37	—
Intentional self-harm by rifle, shotgun and larger firearm discharge (X73)	113	3	116	0.1
Intentional self-harm by other and unspecified firearm discharge (X74)	34	4	38	—
Intentional self-harm by sharp object (X78)	32	8	40	—
Intentional self-harm by jumping from a high place (X80)	57	18	75	0.1
Intentional self-harm by jumping or lying before moving object (X81)	27	13	40	—

— nil or rounded to zero (including null cells)

(a) Causes selected are those with 20 or more deaths at the 3 digit level of ICD-10.

(b) Includes sequelae of suicide (Y87.0). Care needs to be taken in interpreting figures relating to suicide due to limitations of the data. See Explanatory Notes 77-78 and Technical Note: ABS coding of suicide deaths for further information.

(c) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(d) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

CHAPTER 4 MULTIPLE CAUSES OF DEATH

MULTIPLE CAUSES OF DEATH

Introduction

Multiple causes of death statistics include all causes and conditions reported on the death certificate (i.e. both underlying and associated causes; see Glossary for further details). 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.

Datacubes

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

Number of Multiple Causes

For the 137,854 deaths registered in Australia in 2007, there were 431,191 causes mentioned, giving a mean of 3.1 causes per death. In 21% of all deaths, only one cause was reported, while 37% 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 2007, Malignant cancers (C00-C97) contributed to 32% (44,564) of all deaths as either an underlying or multiple cause. There were 56,114 mentions of Malignant cancers reported in 2007.

Ischaemic heart diseases (I20-I25) which includes angina, heart attacks, and blocked arteries of the heart, were found to contribute to 27% of all deaths as either an underlying or multiple cause.

The following table lists selected causes of death, both underlying and associated causes, appearing on death certificates for deaths registered in 2007.

4.1 SELECTED MULTIPLE CAUSES OF DEATH(a)—2007(b)(c)

Cause of death and ICD code	UNDERLYING CAUSE		MULTIPLE CAUSE		Mean no. of causes per death
	Number of deaths	Proportion of total deaths (%)	Number of deaths	Proportion of total deaths (%)	
All Causes	**137 854**	—	**137 854**	—	**3.2**
Malignant cancers (C00-C97)	39 323	28.5	44 564	32.3	2.5
Ischaemic heart diseases (I20-I25)	22 729	16.5	37 337	27.1	3.5
Strokes (I60-I69)	11 491	8.3	20 479	14.9	3.1
Dementia and Alzhiemer's disease (F01-F03, G30)(d)	7 320	5.3	17 809	12.9	3.0
Chronic lower respiratory diseases (J40-J47)	5 762	4.2	13 867	10.1	3.6
Diabetes (E10-E14)	3 810	2.8	13 101	9.5	4.3
Heart failure (I50, I51)	3 444	2.5	20 098	14.6	3.8
Diseases of the kidney and urinary system (N00-N39)	3 230	2.3	17 792	12.9	3.1
Influenza and pneumonia (J10-J18)	2 623	1.9	17 993	13.1	2.5
Hypertensive diseases (I10-I15)	1 627	1.2	17 675	12.8	4.5
Suicides (X60-X84, Y870)(e)	1 881	1.4	1 887	1.4	2.6
Land transport accidents (V01-V89, Y850)(f)	1 294	0.9	1 337	1.0	2.8

— nil or rounded to zero (including null cells)

(a) Number of deaths and percentages may add to more than totals because a death certificate can report more than one leading multiple cause.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

(d) See Explanatory Note 67 for further information on data relating to Dementia.

(e) Includes sequelae of suicide (Y87.0). Care needs to be taken in interpreting figures relating to suicide due to limitations of the data. See Explanatory Notes 77-78 and Technical Note: ABS coding of suicide deaths for further information.

(f) Includes sequelae of transport accidents (Y85). Care needs to be taken in interpreting figures relating to transport accidents for 2007. See Explanatory Notes 73-74 for further information.

Relationships between Multiple Causes

Influenza and pneumonia (J10-J18) was identified as the underlying cause for 2,623 deaths in 2007. In 46% of cases, Influenza and pneumonia were reported alone and was the least likely of the selected causes to be reported with other associated causes.

In contrast, Diabetes (E10-E14) was reported alone as the underlying cause in only 1.6% of the 3,230 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 (51%) and Hypertensive diseases (I10-I15, 32%).

The following table illustrates relationships between the various causes of death in 2007.

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

	UNDERLYING CAUSE	REPORTED ALONE	PROPORTION REPORTED WITH SELECTED ASSOCIATED CAUSE			
Underlying Cause of Death	no.	%	*Cancers (C00-D48)* %	*Ischaemic heart disease (I20-I25)* (d) %	*Strokes (I60-I69)* %	*Dementia & Alzheimer's disease (F01-F03, G30)* %
All Causes	**137 854**	**20.5**	**32.3**	**27.1**	**14.9**	**12.9**
Cancers (C00-D48)	39 323	36.6	100	8.6	3.7	2.9
Ischaemic heart diseases (I20-I25)(d)	22 729	12.4	6.3	100	9.6	10.6
Strokes (I60-I69)	11 491	17.2	5.1	12.6	100	16.4
Dementia & Alzheimer's disease (F01-F03, G30)	7 320	13.2	4.8	10.6	9.5	100
Chronic lower respiratory diseases (J40-J47)(e)	5 762	7.1	7.8	19.2	5.1	7.2
Diabetes (E10-E14)	3 810	1.6	6.6	50.9	21.7	13.3
Heart failure (I50-I51)	3 444	17.5	4.5	2.0	10.0	11.4
Diseases of the kidney & urinary system (N00-N39)	3 230	11.2	5.0	22.7	7.9	12.2
Influenza and pneumonia (J10-J18)	2 623	45.9	0.9	9.0	1.8	4.1
Hypertensive diseases (I10-I15)	1 627	4.7	6.5	1.8	10.5	18.9

(a) This table presents data for selected causes only. Therefore numbers and percentages due to reporting of underlying cause with selected associated causes do not add to totals.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

(d) Includes angina, heart attacks, and blocked arteries of the heart

(e) Includes asthma, bronchitis and emphysema

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

PROPORTION REPORTED WITH SELECTED ASSOCIATED CAUSE *continued*

Underlying Cause of Death	*Chronic lower respiratory diseases (J40-J47)*(d)	*Diabetes (E10-E14)*	*Heart failure (I50-I51)*	*Diseases of the kidney & urinary system (N00-N39)*	*Influenza and pneumonia (J10-J18)*	*Hypertensive diseases (I10-I15)*
	%	%	%	%	%	%
All Causes	**10.1**	**9.5**	**14.6**	**12.9**	**13.1**	**12.8**
Cancers (C00-D48)	6.1	6.2	4.0	7.1	6.9	6.2
Ischaemic heart diseases (I20-I25)(e)	9.3	10.9	26.9	13.2	6.3	20.2
Strokes (I60-I69)	3.7	7.5	5.6	6.0	12.6	27.0
Dementia & Alzheimer's disease (F01-F03, G30)	3.0	6.4	7.7	10.2	35.7	10.4
Chronic lower respiratory diseases (J40-J47)(d)	100	6.9	17.7	9.9	33.3	10.2
Diabetes (E10-E14)	6.9	100	20.6	30.5	9.1	31.7
Heart failure (I50-I51)	10.4	6.2	100	19.0	18.1	6.4
Diseases of the kidney & urinary system (N00-N39)	5.4	8.1	23.3	100	13.2	4.4
Influenza and pneumonia (J10-J18)	1.9	3.4	8.0	8.2	100	3.5
Hypertensive diseases (I10-I15)	7.4	9.8	39.2	33.1	9.2	100

(a) This table presents data for selected causes only. Therefore numbers and percentages due to reporting of underlying cause with selected associated causes do not add to totals.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(c) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

(d) Includes asthma, bronchitis and emphysema

(e) Includes angina, heart attacks, and blocked arteries of the heart

External Causes

In 2007, there were 26,828 deaths where External causes (V01-Y98) contributed to the death as either an underlying or multiple cause. There was a mean of 3.4 causes coded for each of the 7,893 deaths due to External causes.

Transport accidents (V01-V99, Y85) accounted for 18% of all injuries due to External causes, with 48% of these injuries being to the head or thorax. Suicide (X60-X84,Y87.0) accounted for 24% of all injuries due to External causes, and of these, Asphyxiation (T71) was the most common injury (54%).

Care should be taken in interpreting numbers of suicide deaths due to limitations in the data. For further information, see Explanatory Notes 77-78.

CHAPTER 5 SUICIDES

SUICIDES

Introduction

Suicide continues to be a major public health issue. In terms of leading causes, Intentional self-harm (X60–X84, Y87.0) or suicide, was ranked 15th of all deaths registered in Australia in 2007. Males accounted for over three-quarters of all suicide deaths in 2007, resulting in a ranking as the 10th leading cause of death of males. Although death by suicide is a relatively uncommon event (occurring at a rate of about 1 per 10,000 population per year), the human and economic costs are substantial.

Suicide can be defined as the deliberate taking of one's life[1]. 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 Technical Note: ABS Coding of Suicide Deaths.

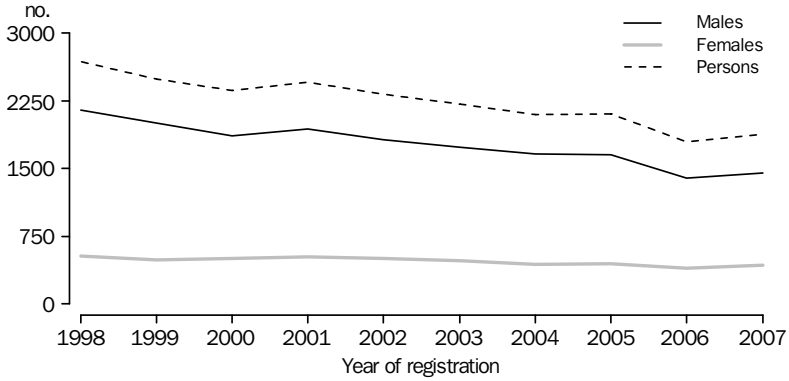
This chapter contains summary statistics on deaths registered in Australia between 1998 and 2007, where the underlying cause of death was determined as intentional self-harm (X60–X84, Y87.0) or suicide.

Care should be taken in using and interpreting suicide data due to issues affecting data quality. It is important to note that 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 further information, see Explanatory Notes 81-82 and Technical Note: ABS Coding of suicide deaths. The number of deaths attributed to suicides for 2007 will change as data is revised. See Explanatory Notes 3 - 4.

Datacubes

Further information on suicides is presented in the datacubes associated with this publication. These contain more detailed data on suicides including state and territory data.

5.1 SUICIDES, NUMBER OF DEATHS—1998-2007(a)



(a) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

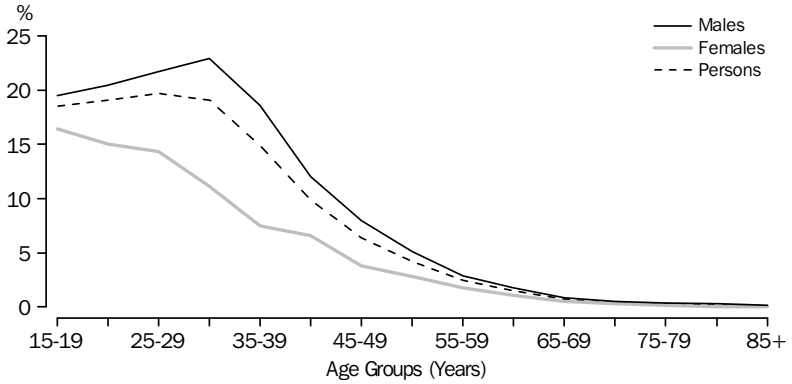
Overall Trends

There were 1,881 deaths from suicide registered in 2007. Over three-quarters (77%) of suicides were males.

Suicide as proportion of total deaths

While suicide accounts for only a relatively small proportion (1.4%) of all deaths in Australia, it does account for a much greater proportion of deaths from all causes within specific age groups (see graph below). For example, in 2007, 21% of all male deaths under 35 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.

5.2 SUICIDES AS A PROPORTION OF ALL DEATHS, BY SELECTED AGE GROUPS—2007(a)



(a) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

Age

MEDIAN AGE

The median age at death for suicide in 2007 was 41.7 years for males and 44.5 years for females and 42.5 years for persons. In comparison, the median age for deaths from all causes in 2007 was 77.5 years for males and 83.5 years for females.

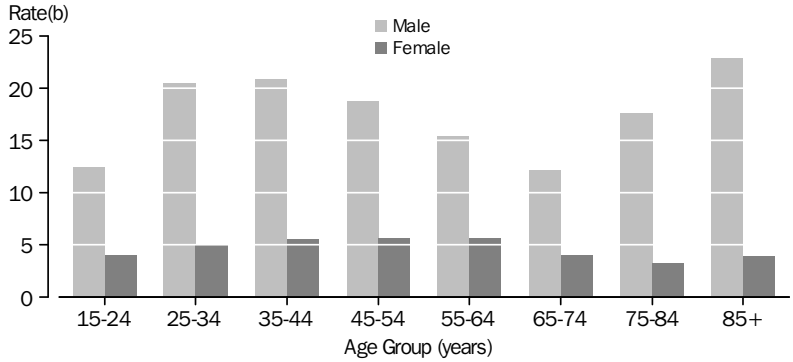
AGE-SPECIFIC RATES

Age-specific death rates are the number of deaths during the calendar 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 2007 for suicide in males and females is shown in the graph below.

Age continued

AGE-SPECIFIC RATES *continued*

5.3 AGE-SPECIFIC SUICIDE RATES—2007(a)



(a) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.
(b) Deaths per 100,000 estimated resident population for each age group and sex.

The highest age-specific suicide death rate for males in 2007 was observed in the 85 years and over age group (23 per 100,000). However, this number is inflated by the small population, and the relatively high number of deaths in this age group. As a proportion of total deaths in this age group, suicide deaths were relatively low (0.2%). The age-specific death rates for the 45-54 years age group were 18.7 per 100,000 males, and 20.8 per 100,000 males in the 35-44 year age group. Suicides as a proportion of total deaths for these age groups were 6.3% and 15% respectively. The age-specific suicide rate for males was lowest in the 15-24 years age group (12.5 per 100,000), however, this cause represented 20.2% of all deaths in this age group.

For females the highest age-specific suicide death rate in 2007 was observed in the 45-54 years age group and the 55-64 years age group both with 5.7 deaths per 100,000. The lowest age-specific death rate for female deaths was in the 75-84 years age group (3.3 per 100,000).

AGE-STANDARDISED RATES

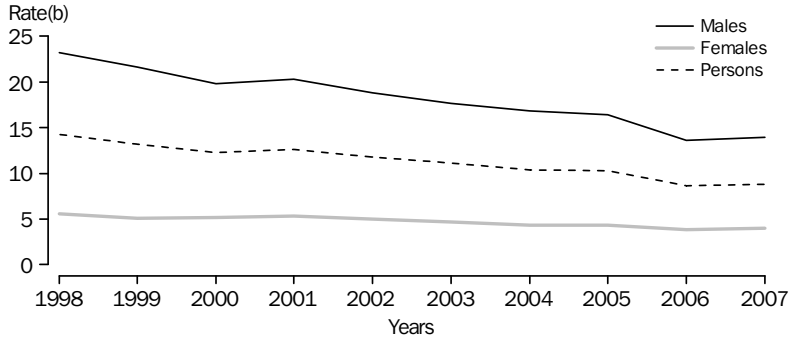
Age standardisation is used to compare death rates over time, as it accounts for any changes in the age-structure of a population over time. The age-standardised suicide rate (for persons) in 2007 was 8.9 per 100,000 standard population. This compares with 14.3 per 100,000 standard population in 1998.

The age-standardised suicide rate in 2007 for males was 13.9 per 100,000 standard population while the corresponding rate for females was 4.0 per 100,000 standard population. Throughout the period 1998 to 2007 the male age-standardised suicide death rate was approximately four times higher than the corresponding female rate, as can be seen in the following graph.

Age continued

AGE-STANDARDISED RATES *continued*

5.4 AGE-STANDARDISED DEATH RATES FOR SUICIDE(a)



(a) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.
(b) Deaths per 100,000 standard population. Standardised using direct method and the Australian estimated resident population (persons) at 30 June 2001 as standard population.

Method of Suicide

In 2007 the most frequent method of suicide was Hanging (X70), which was used in half (54%) of all suicide deaths. Poisoning by drugs was used in 12% and poisoning by other methods (including by motor vehicle exhaust) was also used in 12% of suicide deaths. Methods using firearms accounted for 8.9% of suicide deaths. The remaining suicide deaths included deaths from drowning, jumping from a high place, and other methods.

MECHANISM BY INTENT - SELECTED CAUSES

External causes of death are required to be examined by a Coroner, who investigates both the mechanism by which a person died, and the intention of the injury (whether accidental, intentional or assault). See Technical Note - ABS Coding of suicide deaths for information on how the ABS Codes deaths as suicide.

For deaths registered in 2007, 1,027 deaths were the subject of ongoing coronial investigations at the time ABS data was finalised, and had insufficient information recorded on NCIS in order to be able to determine any cause of death. These records will have been coded to R99 Other ill-defined and unspecified causes of mortality. Some of these deaths may be determined a suicide after further investigation.

Further, 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 required to complete the coding under ICD-10 coding rules. Coroners' practices to determine the intent of a death may vary across the states and territories. In general, coroners may be reluctant to determine suicidal intent (particularly in children and young people). In some cases, no statement of intent will be made by a coroner. The reasons may include legislative or regulatory barriers, sympathy with the feelings of the family, or sensitivity to the cultural practices and religious beliefs of the family. For some mechanisms of death where it may be very difficult to determine suicidal intent (e.g. single vehicle accidents, drowning), the burden of proof required for the coroner to establish that the death was suicide may make a finding of suicide less likely.

Method of Suicide continued

MECHANISM BY INTENT - SELECTED CAUSES *continued*

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.

5.5 SELECTED EXTERNAL CAUSES OF DEATH, Mechanism by intent —2007(a)

	Accidental death	*Intentional self-harm*	*Assault*	*Undetermined intent*	*Other intent*	*Total*
	no.	no.	no.	no.	no.	no.
Poisonings (X40–X49, X60–X69, X85–X90, Y10–Y19)	1 190	448	—	298	—	1 936
Hanging and other threats to breathing (W75–Y84,X70, X91, Y20)	8	1 010	10	165	—	1 193
Drowning and submersion (W65–W74,X71, X92, Y21)	4	37	1	38	—	80
Firearms (W32–W34, X72–X74, X93–X95,Y22–Y24)	183	167	25	29	—	404
Contact with sharp object (W25–W29, X78,X99,Y28)	220	40	74	19	—	353
Falls (W00–W19, X80, Y01, Y30)	575	75	—	17	—	667
Other	2 301	104	55	527	273	3 260
Total	4 481	1 881	165	1 093	273	7 893

— nil or rounded to zero (including null cells)

(a) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

[1.] *Butterworths Concise Australian Legal Dictionary, 1997, Butterworths Sydney.*

CHAPTER 6 DEATHS OF ABORIGINAL AND TORRES STRAIT ISLANDER AUSTRALIANS

DEATHS OF ABORIGINAL AND TORRES STRAIT ISLANDER AUSTRALIANS

There were 2,421 deaths registered across Australia in 2007 where the deceased person was identified as being of Aboriginal or Torres Strait Islander origin, or both (Indigenous).

Introduction

It is considered likely that most deaths of Indigenous Australians are registered. However, some of these deaths are not identified as Indigenous when they are registered. The extent to which this occurs is referred to as coverage of Indigenous deaths. For further information, see Explanatory Notes 58 - 65.

Deaths of Indigenous Australians are under-identified due to differential levels of recording of Indigenous status on death registrations across jurisdictions. The ABS continues to work with state and territory Registrars of Births, Deaths and Marriages and other stakeholders to improve the level of coverage of Indigenous deaths in each jurisdiction.

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

Datacubes

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

Diseases of the Heart and Blood Vessels (I00–I99)

Deaths caused by Diseases of the heart and blood vessels (I00–I99) accounted for 667 Indigenous deaths in 2007, 28% of all Indigenous deaths. The two most common types of circulatory system diseases that contributed to Indigenous deaths were Ischaemic heart diseases and Strokes.

Ischaemic heart diseases (I20–I25), which include angina, blocked arteries of the heart and heart attacks, were the underlying cause of death for 331 (14%) deaths of Indigenous people. Ischaemic heart diseases were the leading cause of death of non-Indigenous people in 2007, accounting for 17% of deaths throughout Australia. Median age at death for Indigenous people who died from Ischaemic heart diseases in 2007 was 62.0 years, compared with 83.8 years for non-Indigenous people. The sex ratio for Indigenous people who died from Ischaemic heart diseases in 2007 was 161 males per 100 females.

Strokes (I60–I69) accounted for 130 Indigenous deaths in 2007, 5.4% of all Indigenous deaths. Median age at death was 72.0 years, compared with 85.3 years for non-Indigenous people throughout Australia. The sex ratio for Indigenous people who died from Strokes in 2007 was 81 males per 100 females.

Cancer (C00-D48)

Cancer (C00–D48) was the underlying cause of 461 deaths (19%) of Indigenous people, of which 54% were male and 46% were female. Of total non-Indigenous deaths throughout Australia, 30% were attributed to Cancers. The median age of deaths with an underlying cause of cancer was 61.2 years for Indigenous people, and 75.1 years for non-Indigenous people.

Trachea and lung cancer (C33-C34) accounted for 122 deaths or 5.0% of all deaths of Indigenous people. Comparatively, this type of cancer was the underlying cause of death for 5.6% of all deaths of non-Indigenous people in 2007.

External Causes (V01–Y98)

There were 347 deaths of Indigenous people attributed to External Causes (V01–Y98) in 2007. This represented 14% of all Indigenous deaths, compared with 5.5% of non-Indigenous deaths attributed to External causes. Of those Indigenous deaths due to External causes, 71% were male and 29% were female. The median age at death for External causes was 33.7 years for Indigenous people and 52.3 years for non-Indigenous people.

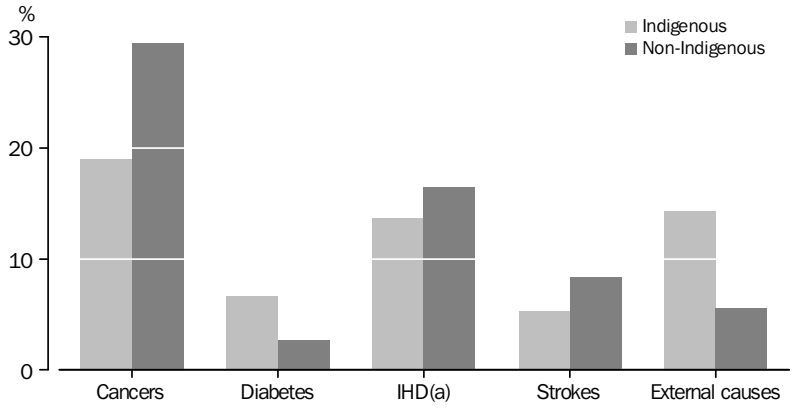
Land transport accidents (V01–V89) accounted for 25% (87) of all Indigenous deaths due to External Causes - 65 were males and 25 were females. Suicide (X60-X84, Y87.0) accounted for another 26% (89) of all Indigenous deaths due to External Causes - 72 were males and 17 were females.

2007 causes of death data is subject to revision. This will particularly impact on External causes. See Explanatory Notes 3 - 4 for further information.

Diabetes (E10-E14)

Diabetes (E10–E14) was the underlying cause of death for 161 Indigenous deaths, which represents 6.7% of all deaths of Indigenous people in 2007. This is compared with 2.7% of deaths of non-Indigenous people. The median age at death of Indigenous people who died from Diabetes in 2007 was 62.8 years, whereas for non-Indigenous people it was 81.2 years. The sex ratio for Indigenous deaths due to Diabetes was 83 male deaths per 100 female deaths.

6.1 SELECTED UNDERLYING CAUSES OF DEATH AS PROPORTION OF TOTAL DEATHS, By Indigenous status—2007



(a) Ischaemic Heart Disease

Infant Mortality

Infant mortality rates for Indigenous Australians are around twice the rates for all Australians. A high degree of caution should be exercised in regard to interpreting Indigenous infant deaths data, as in addition to the data quality issues that impact on Indigenous deaths data generally (see Explanatory Notes 58 - 65), data on infant mortality by Indigenous status is subject to the high variability caused by small numbers.

Of all Indigenous infant deaths (aged under twelve months) registered in 2007, over half (54%) were attributed to Conditions originating in the Perinatal Period (P00–P96). This was a similar proportion compared with non-Indigenous infant deaths (46%).

CHAPTER 7 DEATHS BY YEAR OF OCCURRENCE

YEAR OF OCCURRENCE

Introduction

Information contained in the preceding chapters of this publication refers to deaths registered during the 2007 calendar year. In this chapter, death statistics are based on year of occurrence, which is the year in which the death actually occurred, rather than the year it was registered.

Although some deaths can be registered many years after their date of occurrence, the international standard for publishing on a year of occurrence basis is to include deaths registered within the relevant occurrence year and the year immediately following.

Accordingly, this practice has been adopted for the presentation of year of occurrence data in this publication to facilitate international comparisons. Analysis of deaths in Australia has shown that the number of deaths registered after the second year is not significant.

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 not a significant difference between the number of deaths derived on a registration basis and those on a year of occurrence basis.

For Australia, approximately 95% of deaths registered in a particular year occurred in that year. However, variations can occur in certain subsets of the population and for particular causes of death. For instance, while 95% of the total 133,739 deaths registered in 2006 occurred in the same year, only 88% of the 2,279 Indigenous deaths and 93% of deaths due to External causes registered in 2006 occurred in that year. More detailed data for specific causes or population groups are available from the ABS on request.

Datacubes

More detailed data by year of occurrence is included in the datacubes associated with this publication. This includes all causes at the 3-digit level of ICD-10.

Comparison of Year of Occurrence and Year of Registration data for 2006

The following table shows the number of deaths occurring in 2006 and registered in either 2006 or 2007. As seen in this table, 12% of deaths of Aboriginal and Torres Strait Islander people occurring in 2006 (and registered in either 2006 or 2007) were registered late, in 2007. This compared with 4.9% for the total population.

7.1 SELECTED CAUSES, 2006 Year of Occurrence

	REGISTRATION YEARS			
	2006(a)	*2007* (b)(c)	*Total as at 2007*(d)	*Late Registrations*
Cause of death and ICD code	no.	no.	no.	%
INDIGENOUS				
All Causes	**1 979**	**276**	**2 255**	**12.2**
TOTAL				
All Causes	**127 634**	**6 638**	**134 272**	**4.9**
Infectious diseases (A00-B99)	1 868	120	1 988	6.0
Cancer (C00-D48)	38 022	1 838	39 860	4.6
Blood and immunity disorders (D50-D89)	468	23	491	4.7
Endocrine, nutritional and metabolic diseases (E00-E90)	4 894	221	5 115	4.3
Mental and behavioural disorders (F00-F99)	4 916	196	5 112	3.8
Diseases of the nervous system (G00-G99)	4 682	217	4 899	4.4
Diseases of the eye and adnexa (H00-H59)	4	—	4	—
Diseases of the ear and mastoid process (H60-H95)	7	—	7	—
Diseases of the heart and blood vessels (I00-I99)	43 670	2 206	45 876	4.8
Diseases of the respiratory system (J00-J99)	10 451	579	11 030	5.2
Diseases of the digestive system (K00-K93)	4 290	246	4 536	5.4
Diseases of the skin and subcutaneous tissue (L00-L99)	312	11	323	3.4
Diseases of the muscles, bones, and tendons (M00-M99)	1 025	41	1 066	3.8
Diseases of the kidney, urinary system and genitals (N00-N99)	3 172	155	3 327	4.7
Pregnancy, childbirth and the puerperium (O00-O99)	9	1	10	10.0
Conditions originating in the perinatal period (P00-P96)	588	66	654	10.1
Congenital and chromosomal abnormalities (Q00-Q99)	511	46	557	8.3
Ill-defined causes (R00-R99)	1 430	146	1 576	9.3
External causes (V01-Y98)	7 315	526	7 841	6.7

— nil or rounded to zero (including null cells)

(a) Deaths occurring in 2006, registered in 2006.

(b) Deaths occurring in 2006, registered in 2007.

(c) Cause of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(d) Deaths occurring in 2006 and registered in 2006 or 2007

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 80-90% of deaths each year are certified by a doctor. The remainder are reported to a coroner. Although there is variation in what constitutes a death that is reportable to a coroner across jurisdictions, 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; or
- where the identity of the person who has died is unknown.

3 All coroner certified deaths registered after 1 January 2007 will be 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 was 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 codes were assigned as required by the ICD coding rules. The revision process will enable the use of additional information relating to coroner certified deaths as it becomes available over time. This will result in increased specificity of the assigned ICD-10 codes.

4 Causes of death data for 2007 coroner certified deaths will be updated as more information becomes available to the ABS. Revised data for 2007 will be published both on a year registration basis and a year of occurrence basis in the 2008 Causes of death publication, due to be released in March 2010, and again in the publication relating to the 2009 collection due for release in 2011. Revisions will only impact on coroner certified deaths, as further information becomes available to the ABS about the causes of these deaths.

5 In prior years, statistics on perinatal deaths have been included in this publication. However, for 2007 these data will be published in a separate publication, Perinatal Deaths, Australia (cat.no. 3304.0), which will be released in June 2009.

6 Statistics on suicide deaths for years prior to 2006 were published separately in *Suicides, Australia* (cat. no. 3309.0)

7 The data presented in this publication are also included in a series of spreadsheets that are available on the ABS website <http://www.abs.gov.au>. Any references to tables in the Explanatory Notes also refers to these spreadsheets.

8 A glossary is also provided detailing definitions of terminology used.

SCOPE AND COVERAGE

9 The statistics in this publication relate to the number of deaths registered, not those which actually occurred, in the years shown. The exception is the Year of Occurrence section (Chapter 7) which relates to deaths by year of occurrence.

Scope of the causes of death collection

10 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.

Scope of the causes of death collection continued

11 The scope of the collection 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";
- 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; and
- deaths that occurred in earlier reference periods that have not been previously registered (late registrations).

12 The scope of the collection excludes:

- still births/ foetal deaths
- repatriation of human remains of decedents whose death occurred overseas;
- deaths overseas of foreign diplomatic staff (where these are able to be identified); and
- deaths occurring on Norfolk Island.

13 From the 2007 reference year, the scope of the collection is:

- all deaths registered in Australia for the reference year and are received by the ABS by the end of the March quarter of the subsequent year; and
- deaths registered prior to the reference year but not previously received from the Registrar nor included in any statistics reported for an earlier period.

14 Up to and including the 2006 issue of *Causes of Death, Australia* (cat. no. 3303.0), the scope for each reference year of the Death Registrations collection included:

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

15 Under these rules, it was possible for a death registration to not be recorded in the collection if it had been registered more than two years before the record was received by the ABS. The scope was changed for the 2007 reference year to ensure all registrations were included in ABS collections.

Coverage of Causes of Death Statistics

16 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 and the subsequent delays in the provision of that information to the ABS, not all deaths are registered in the year that they occur. this ideal is unlikely to be met under the current legislation and registration business processes. Therefore, the occurrence event is approximated by 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 the 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, and
- the month in which the registered event is lodged with the ABS.

17 Approximately 4-6% of deaths occurring in one year are not registered until the following year or later. These are included with the count of registered deaths published for that year.

CLASSIFICATIONS

Socio-Demographic Classifications

18 A range of socio-demographic data is available from the causes of death collection. Standard classifications used in the presentation of causes of death statistics include age, sex, birthplace, marital status, multiple birth, occupation and Indigenous status. Statistical standards for social and demographic variables are those developed and published by the ABS.

Marital Status

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

20 For further information about Marital Status refer to *Family, Household and Income Unit Variables, 2005* (cat. no. 1286.0)

Indigenous Status

21 The term Indigenous is used to refer to Aboriginal and Torres Strait Islander Australians. Those who are identified as being of Aboriginal and/or Torres Strait Islander origin through the death registration process are classified as Indigenous persons.

22 For further information about Indigenous Status refer to *Standards for Statistics on Cultural and Language Diversity, 1999* (cat. no. 1289.0)

Occupation

23 The occupation classification used in ABS causes of death statistics is the *Australian and New Zealand Standard Classification of Occupations (ANZSCO) First Edition 2006*. The ABS however has not published causes of death data with an occupation variable since the 2002 reference year. The ABS considers the quality of the data able to be produced for this variable to be insufficient for reasonable analysis.

24 For further information on *ANZSCO First Edition, refer to ANZSCO: Australian and New Zealand Standard Classification of Occupation, First Edition* (cat. no. 1220.0).

Geographic Classifications

AUSTRALIAN STANDARD GEOGRAPHICAL CLASSIFICATION (ASGC)

25 The ASGC is a hierarchical classification system consisting of six interrelated classification structures. The ASGC provides a common framework of statistical geography and thereby enables the production of statistics which are comparable and can be spatially integrated. Cause of death statistics are coded to SLA and can be produced for aggregates of these, for example, Statistical Division, Statistical Sub-Division and State.

26 For further information about the ASGC refer to *Australian Standard Geographical Classification (ASGC), Jul 2006* (cat. no. 1216.0)

STANDARD AUSTRALIAN CLASSIFICATION OF COUNTRIES (SACC)

27 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.

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

29 For further information about the classification, refer to *Standard Australian Classification of Countries (SACC), 1998 (Revision 2.03)* (cat. no. 1269.0)

Health Classifications

INTERNATIONAL CLASSIFICATION OF DISEASES (ICD)

30 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

Health Classifications continued

31 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; and
- injuries.

32 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 or a congenital condition such as spina bifida is grouped with congenital conditions.

33 For further information about the ICD, including an online version of the classification, refer to the WHO website < www.who.int>.

DATA SOURCES

34 The registration of deaths is the responsibility of the individual state and territory Registrars of Births, Deaths and Marriages. As part of the registration process, information about the causes 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. This information is provided to the Australian Bureau of Statistics (ABS) by individual Registrars for coding and compilation into aggregate statistics shown in this publication. In addition, the ABS supplements this data with information from the National Coroners Information Service (NCIS). Further information regarding causes of death data sources is available in *Information Paper: ABS Causes of Death Statistics: Concepts, Sources, and Methods, 2008* (cat. no. 3317.0.55.002)

MORTALITY CODING

35 The tenth revision of the International Classification of Diseases (ICD-10) was adopted for Australian use for deaths registered from 1 January 1999. However, to identify changes between the ninth and tenth revisions, deaths for 1997 and 1998 were coded to both revisions. See Appendix: Comparability of statistics over time for concordances.

36 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.

37 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

38 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.

39 The cumulative list of ICD-10 updates can be found online at the WHO website <www.who.int>.

Automated coding

40 The ABS implemented a new version of the automated cause of death coding software (Medical Mortality Data System (MMDS)) for 2006 data. This version has also been used for coding of 2007 data. The MMDS coding software incorporates coding algorithms to ensure that updates to ICD-10 are implemented in the production of the statistics

Acquired Immune Deficiency Syndrome (AIDS)

41 As ICD-9 did not directly accommodate the coding of Acquired Immune Deficiency Syndrome (AIDS) and AIDS-related deaths, cases where AIDS was the underlying cause were coded to ICD-9 deficiency of cell-mediated immunity (279.1), from 1988 to 1995. In 1996, ABS adopted ICD-9 Clinically Modified (CM) for coding of AIDS and AIDS-related deaths. Hence, for 1996 to 1998, all AIDS-related deaths (i.e. deaths where AIDS was mentioned in any place on the death certificate) were coded to HIV infection (042-044). ICD-10, adopted from 1999, allows for the coding of AIDS and AIDS-related deaths (B20-B24).

External Causes of Death

42 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

43 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.

44 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, 257-336 . The determination of groupings in this list is primarily driven by data from individual countries representing different regions of the world. Other groupings were based on prevention strategies, or to maintain homogeneity within the groups of cause categories.

45 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 basis of 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)

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

47 Estimates of YPLL were 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 a standard population which is the 2001 census. This standard is revised every 10 years.

48 YPLL is derived from:

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

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 due to a particular cause of death.

49 YPLL is standardised for age using the following formula:

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

where the C_x is an age correction factor for age x .

YEARS OF POTENTIAL LIFE LOST (YPLL) *continued*

50 The age correction factor C_x is defined for age x as:

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

where:

N = estimated number of persons in the study population aged 1-78 years

N_x = estimated number of persons in the study population aged x years

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 30 June 2001 (standard population)

STATE AND TERRITORY DATA

51 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 are included in the state/territory in which their death was registered.

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

DATA QUALITY

53 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 Service (NCIS); and
- editing checks at the individual record and aggregate levels.

54 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. This is because the code assigned within the chapter may vary depending on the coroner's findings.

55 Care should be taken in interpreting results in recent years for several groups of causes within Chapter XX: External causes of morbidity and mortality. See *Causes of Death, Australia 2005* (cat. no. 3303.0) Explanatory Notes for further information. See also *Information Paper: Causes of Death Statistics, 2006* (cat. no. 3317.0.55.001)

56 Further detail on issues regarding deaths certified by a Coroner can be found in Technical Note: Coroner Certified Deaths.

57 One measure of causes of death statistics quality is the proportion of deaths coded to Chapter XVIII: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (ICD-10 codes R00-R99). Although deaths occur for which the underlying causes are impossible to determine, this proportion indicates the specific causes of death which are listed on the Medical Certificate of Causes of Death as completed by the certifier (i.e. Doctor or Coroner). The proportion of deaths coded to Chapter XVIII has increased steadily over the last 10 years from 0.5% (635 deaths) in 1998 to 1.4% (1,895 deaths) in 2007. A major reasons for the increase in the number of deaths coded to non-specific causes relate to a change in ABS processes for obtaining information regarding coroner certified deaths. Since 2006, the ABS relied totally on information available on the National Coronial Information System(NCIS) for information related to deaths certified by a Coroner. Prior to this, the ABS had sought additional information on coroner certified deaths were information was not available on

DATA QUALITY *continued*

NCIS by undertaking personal visits to Coroner offices to extract information from paper records.

Indigenous deaths

58 While it is considered likely that most deaths of Indigenous Australians are registered, a proportion of these deaths are not identified as Indigenous in the death registration process. That is, while data is provided to the ABS for the Indigenous status question for 99% of all deaths, this data may not be accurate in all cases.

59 In the death registration process, the Indigenous status of the deceased person is usually provided by relatives or friends of the deceased in interview with a funeral director or health worker. There are two main reasons why a person may be incorrectly identified as Indigenous or non-Indigenous in this process.

60 Firstly, in some cases, the Indigenous status question may not be asked by the person collecting information. This may be because of fear of offending grieving family members, or because a person's Indigenous status is assumed based on appearance or other factors.

61 The second reason for incorrect identification is whether the family member or friend correctly identifies a person as Indigenous. Propensity to identify as Indigenous is determined by a range of factors, including how the information is collected; who completes the form; the perception of how the information will be used; education programs about identifying as Indigenous; and cultural issues associated with identifying as Indigenous.

62 As a result of these issues, an Indigenous person may be incorrectly identified as either non-Indigenous or unknown Indigenous status. In 2007 there were 1,400 deaths registered in Australia for whom Indigenous status was not stated, representing 1.0% of all deaths registered. Despite these relatively low numbers, it is likely that some Indigenous deaths are included in the not stated category, contributing to the under-identification of Indigenous deaths.

63 From 2007, Indigenous status recorded for deaths registered in South Australia, Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory was sourced from both the Death Registration Form (DRF) and the Medical Certificate of Cause of Death (MCCD). Prior to 2007, Indigenous status was sourced only from the DRF. This new method resulted in an additional 18 deaths recorded as Indigenous in 2007, representing a 0.7% increase in the number of deaths recorded as Indigenous for Australia overall. In addition, a further 682 records were reclassified from 'not stated' Indigenous status to 'non-Indigenous'.

64 This publication and associated datacubes includes data on the number of registered Indigenous deaths and selected causes of death. However, because of the data quality issues outlined above, more detailed breakdowns of Indigenous deaths are not available for those states/territories with a relatively small Indigenous population. As such, the datacubes associated with this publication only include data for New South Wales, Queensland, South Australia, Western Australia and the Northern Territory.

65 Further information on issues associated with Indigenous status in deaths data can be found in *Deaths, Australia 2007* (cat. no. 3302.0).

SPECIFIC ISSUES FOR 2007 DATA

66 A number of issues should be taken into account by users when analysing the 2007 causes of death data. These are outlined below.

Dementia (F01-F03)

67 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 *Veterans' Entitlements Act 1986 and Military Rehabilitation and Compensation Act 2004*, and a subsequent promotional campaign

Dementia (F01-F03) continued

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. No changes to ABS coding or query practices were made with regard to 2006 or 2007 data which would impact on the number of deaths coded as Dementia.

Secondary Cancers (C78-C79)

68 The number of doctor certified deaths due to both Secondary malignant neoplasm of respiratory and digestive organs (C78) and Secondary malignant neoplasm of other sites (C79) have decreased substantially from 2006 to 2007. In 2007, an analysis of these codes was undertaken as secondary cancers should rarely be the underlying cause of death. Improved coding and editing practices were instigated for 2007 to ensure correct assignment of a more appropriate primary neoplasm code.

Chronic Obstructive Airways Disease (J44)

69 In 2007, Chronic Obstructive Airways disease (COAD, J44) increased for the first time since 2003. This increase is largely due to an improvement in coding practices. It was noted that in some jurisdictions the practice is to provide the term Chronic Airways Limitation instead of COAD. Investigations undertaken during coding supported this finding. All records with the term Chronic Airways Limitation have been correctly coded as COAD.

Unspecified Causes of Mortality (R99)

70 The introduction of a new version of the MMDS software in 2006 has corrected a previous coding error. Prior to 2006, deaths due to natural causes with no further information were coded to Unattended Death (R98). From 2006, these records are now coded to Other ill-defined and unspecified causes of mortality (R99).

71 Information regarding coroner certified deaths prior to 2006 was obtained by ABS staff visiting coronial offices and investigating case files in order to determine causes of death. In 2003, in order to make most effective and efficient use of ABS resources, the National Coronial Information System (NCIS) was progressively introduced as the main source of information on coroner certified deaths, however visits by ABS staff continued to be made in a number of jurisdictions. From 2006, the NCIS has been the only source of data used by the ABS for coroner certified deaths. This has resulted in an increase in the number of deaths assigned to Other ill-defined and unspecified causes of mortality (R99) due to the unavailability of information on the NCIS, particularly for New South Wales and Queensland. For further information see Technical Note: Coroner Certified Deaths. It is important to note that the number of deaths attributed to Other ill-defined and unspecified causes of mortality for 2007 is expected to decrease as data is revised. See Explanatory Notes 3 - 4.

Falls (W00-W19)

72 To reduce risk factors for falls in nursing homes in Victoria, all deaths where the medical certificate mentions falls are now referred to the coroner for verification, and the Coroner Clinical Liaison Service implemented a falls awareness campaign mid 2003. The number of deaths due to falls recorded in Victoria increased significantly in 2003 (up 50%), 2004 (over 100%), 2005 (14.1%) and 2006 (2.8%), whereas in previous years the deaths may have been attributed to other causes such as Hypostatic pneumonia (J18.2). In 2007, deaths due to Falls recorded in Victoria decreased for the first time since the introduction of this campaign, down 9.5%.

Transport Accidents (V01-V99, Y85)

73 In 2007, the coding process for open coroners cases was altered such that in the absence of a legal ruling of intent, deaths have been coded as "undetermined intent". For further information, Technical Note: Coroner Certified Deaths. This change has meant an decrease in the number of Transport Accidents (V00-V99) in 2007, down from 1,652 in 2006 to 1,340 in 2007, a decrease of 19%. Where a legal ruling of accident was not available at the time ABS processing ceased, a number of deaths have been coded to Crashing of a motor vehicle, undetermined intent (Y32). As further information becomes available, it is likely that these deaths will be revised as accidental. See Explanatory Notes 3 - 4

Transport Accidents (V01-V99, Y85) continued

74 The Australian Transport Safety Bureau has published data in *Road Deaths Australia 2007, Statistical Summary* for the number of deaths due to road traffic accidents in 2007 (1,616 deaths). According to 2007 Causes of death data, there were 1,200 deaths due to road traffic accidents (V00-V79). A further 110 deaths were coded as Crashing of a motor vehicle, undetermined intent (Y32). The remaining difference in the numbers (306 deaths) between the two collections are explained by the different scope and coverage rules for each collection. In addition, a number of road traffic-related deaths may be coded to Other ill-defined and unspecified causes of mortality (R99) due to the unavailability of information on the NCIS, particularly for New South Wales and Queensland. It is important to note that the number of deaths attributed to transport accidents for 2007 will change as data is revised. See Explanatory Notes 3 - 4.

Assault (X85-Y09, Y87.1)

75 The number of deaths recorded as assault (murder/manslaughter) have decreased significantly over the last 11 years, from 307 in 1998 to 162 in 2007. The number of deaths due to murder published in the Causes of Death publication vary from those previously published by the ABS in Recorded Crime - Victims, Australia, 2006 (cat. no. 4510.0). Whilst there are differences in the scope and coverage of the two collections, this is not sufficient to explain the differences in numbers. A reluctance by Coroners to make a final determination of Assault until legal proceedings have been finalised and the high number cases with a status of "open" on the NCIS may also impact on the causes of death statistics. It is important to note that the number of deaths attributed to assault for 2007 is expected to increase as data is revised. See Explanatory Notes 3 - 4.

COMPARISON OF DEATHS CAUSED BY ASSAULT —2007

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Australia
Recorded Crime–Victims	103	49	58	13	33	6	17	3	282
Causes of Death	60	26	21	12	20	7	12	3	162

76 The following codes may include cases which could potentially have been assaults but for which the intent was determined to be other than Assault. Such cases cannot be separately identified in the final 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)

Suicide(X60-X84, Y87.0)

77 The number of deaths recorded as intentional self harm (suicide) has decreased over the last 10 years, from 2683 in 1998 to 1,881 in 2007. A reluctance by Coroners to make a determination of "suicide" and the high number cases with a status of "open" on the NCIS have impacted on the 2007 suicide data. Where coroners' cases are not finalised and the findings are not available to the ABS in time for publication of causes of death statistics, deaths are coded to other accidental, ill-defined or unspecified causes rather than suicide. See Technical Note: ABS Coding of Suicide Deaths for further details. It is important to note that the number of deaths attributed to suicide for 2007 is expected to increase as data is revised. See Explanatory Notes 3 - 4.

Suicide(X60-X84, Y87.0) continued

78 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. There was an average of 10.1 suicide deaths per year of children under 15 years over the period 1998 to 2007; the highest number was registered in 1999 (17), the lowest in 2006 (7). For boys the average number of suicides per year was 6.9, while for girls the average number was 3.2. These correspond to rates of approximately 0.3 per 100,000 boys and 0.2 per 100,000 girls in this age group over this period.

Undetermined Intent (Y10-Y34, Y87.2)

79 Previous versions of ICD-10 clearly provided an indication for coders in the use of the undetermined intent categories via a Note at the beginning of the Y10-Y34 categories. The note indicates that these codes can only be assigned "*where available information is insufficient for the medical or legal authority to make a distinction between accident, self harm and assault* ". The 2007 version of ICD10 has altered the instructions for undetermined intent categories to : "*This section covers events where available information is insufficient to enable a medical or legal authority to make a distinction between accident, self-harm and assault. It includes self-inflicted injuries, but not poisoning, when not specified whether accidental or with intent to harm (X40-X49). Follow legal rulings when available.*"

80 A change in coding processes was implemented by the ABS for 2007 data affecting codes with an intent of "Undetermined Intent". Up to and including 2006, only where there had been an official coronial finding of "Undetermined Intent" were deaths allocated to these codes. Other deaths where either intent was "not known" or "blank" on the NCIS record, were coded with an intent of "accidental".

81 From 2007, where the NCIS intent field is "could not be determined", "unlikely to be known" or "blank", the death will be coded to an "Undetermined Intent" code. This change in coding practice has resulted in a significant increase in deaths allocated to these codes in 2007. It is important to note that the number of deaths attributed to "Undetermined Intent" codes for 2007 is expected to decrease as data is revised. See Explanatory Notes 3 - 4.

CONFIDENTIALISATION OF DATA

82 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.

EFFECTS OF ROUNDING

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

ACKNOWLEDGEMENT

84 The ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated: without it, the wide range of statistics published by the ABS would not be available.

RELATED PRODUCTS

85 Other ABS publications which may be of interest are outlined below. Please note, older publications may no longer be available through ABS bookshops but are available

RELATED PRODUCTS *continued*

through ABS libraries. All publications released from 1998 onwards are available on the ABS website <http://www.abs.gov.au>

ABS Directions in Aboriginal and Torres Strait Islander Statistics, Jun 2007, cat. no. 4700.0

Australian Demographic Statistics, June 2008, cat no. 3101.0

Australian Social Trends, 2008, cat. no. 4102.0

Births, Australia, 2007, cat. no. 3301.0

Causes of Deaths, Australia: Doctor Certified Deaths, Summary tables, 2007, cat. no. 3303.0.55.001

Deaths, Australia, 2007, cat. no. 3302.0

Information Paper: ABS Causes of Death Statistics: Concepts, Sources, and Methods, 2008, cat.no.3317.0.55.002

Information Paper: Cause of Death Certification, Australia, 2008, cat.no. 1205.0.55.001.

Information Paper: External Causes of Death, Data Quality, 2005, cat. no. 3317.0.55.001

Population Projections, Australia, 2006 to 2101, cat. no. 3222.0

Suicides, Australia, 2005, cat. no. 3309.0

The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples, 2008, cat. no. 4704.0

86 ABS products and publications are available free of charge from the ABS website <http://www.abs.gov.au>. Click on Statistics to gain access to the full range of ABS statistical and reference information. For details on products scheduled for release in the coming week, click on the Future Releases link on the ABS homepage.

ADDITIONAL STATISTICS AVAILABLE

87 As well as the statistics included in this and related products, additional information is available from the ABS web site at <http://www.abs.gov.au> by accessing the topics listed at Themes>People. The ABS may also have other relevant data available on request. Inquiries should be made to the National Information and Referral Service on 1300 135 070 or by sending an email to client.services@abs.gov.au.

APPENDIX 1 DATA USED IN CALCULATING DEATH RATES

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 2007. These data have been used to calculate Standardised Death Rates, Age-specific death rates and Years of Potential Life Lost.

A1.1 ESTIMATED RESIDENT POPULATION, by age and sex—30 June 2007

	Males	*Females*	*Persons*
Under 1	140 543	133 303	273 846
1–4	543 915	515 579	1 059 494
5–9	687 558	653 928	1 341 486
10–14	718 848	681 637	1 400 485
15–19	739 515	700 766	1 440 281
20–24	759 719	734 417	1 494 136
25–29	729 722	714 739	1 444 461
30–34	732 302	735 911	1 468 213
35–39	777 748	787 231	1 564 979
40–44	755 437	764 609	1 520 046
45–49	753 481	768 415	1 521 896
50–54	688 849	698 311	1 387 160
55–59	632 798	636 280	1 269 078
60–64	533 153	531 217	1 064 370
65–69	399 889	407 715	807 604
70–74	311 240	335 057	646 297
75–79	253 743	298 468	552 211
80–84	172 285	242 579	414 864
85–89	82 603	147 588	230 191
90–94	25 818	63 705	89 523
95 and over	5 456	18 965	24 421
All ages	**10 444 622**	**10 570 420**	**21 015 042**

Table A1.2 shows the number of live births for Australia for selected years, 1998 to 2007. 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 —1998–2007

	Males	*Females*	*Persons*
1998	128 016	121 600	249 616
2003	129 193	121 968	251 161
2004	130 600	123 646	254 246
2005	133 428	126 363	259 791
2006	136 692	129 257	265 949
2007	146 456	138 757	285 213

APPENDIX 2 COMPARABILITY OF STATISTICS OVER TIME

INTRODUCTION

Comparability of mortality statistics over time is affected by a number of factors. These include issues relating to the collection, classification and processing of the data. In the late 1990's, there were two major changes within Australia, namely, the introduction of the tenth revision of the International Classification of Diseases (ICD-10) for classifying deaths registered from 1 January 1999 and the introduction of the Automated Coding System (ACS) for processing deaths registered from 1 January 1997.

A2.1 INTRODUCTION OF AUTOMATED CODING AND ICD-10

Years	*Coding Method*	*ICD revision*	COMMENTS
1979–1996	Manual	ICD-9	Prior to 1979, manual coding under relevant ICD revisions.
1997–1998	Automated	ICD-9	Comparability factors between manual and automated ICD-9 coding were produced, based on a sample of dual coded 1997 data.
1997–1998	Automated	ICD-10	1997 and 1998 data coded to ICD-10 following its introduction.
1999-	Automated	ICD-10 only	Comparability factors between ICD-9 (manually coded) and ICD-10 (automatically coded) based on 1997 backcoded data.

TIME SERIES

As a consequence of the coding of deaths registered in 1997 and 1998 to ICD-10 as well as ICD-9, there is now a single break in time series outlined in table A2.2.

A2.2 TIME SERIES

Years	*Coding method*	*ICD revision*
1979–1996	Manual	ICD-9
1997-onwards	Automated	ICD-10

To support this single break in series table A2.3 provides concordances and comparability factors for all groupings in this publication. The concordance illustrates the conceptual differences between ICD-9 and ICD-10 classifications. The comparability factors are derived from the movements in the underlying causes of death coded in ICD-9 compared to ICD-10. Groupings with very small numbers have been annotated with an asterisk (*). Caution should be exercised when comparing the two versions of ICD for these groupings.

Additional concordance tables at the three and four digit level between records coded to ICD-9 and ICD-10 are available on request. Further information or clarification on the concordance between these revisions is available from the ABS on 1800 620 963.

COMPARISON OF NINTH AND TENTH REVISIONS OF ICD

The introduction of ICD-10 has resulted in changes to the interpretation and resultant coding of a number of causes, as outlined in the WHO publication International Statistical Classification of Diseases and Related Health Problems Tenth Revision, Volume 2. Causes most affected are Asthma, Mental and behavioural disorders and Diseases of the nervous system.

COMPARISON OF NINTH AND TENTH REVISIONS OF ICD *continued*

Under ICD-10, Asthma more clearly links with Chronic lower respiratory diseases, especially Bronchitis and Emphysema. Where these conditions are present, Chronic lower respiratory diseases takes precedence, resulting in a decrease in the reporting of asthma as the underlying cause.

The Chapters covering Mental and behavioural disorders and Diseases of the nervous system have undergone compensatory changes between ICD-9 and ICD-10 mainly due to Alzheimer's disease and certain dementias moving between these Chapters.

A2.3 CONCORDANCE AND COMPARABILITY FACTORS, ICD–9 to ICD–10

Cause of Death	*ICD-10 Code*	*ICD-9 Code*	*Comparability factor*
All causes	***A00-Y98***	**001-999**	**1.00**
Chapter I Certain infectious and parasitic diseases	***A00-B99***	**001-139**	**1.25**
Septicaemia	A40, A41	038	1.28
Human immunodeficiency virus (HIV) disease	B20-B24	042-044	1.03
Chapter II Neoplasms	***C00-D48***	**140-239**	**1.00**
Malignant neoplasms	C00-C97	140-208	1.00
Digestive organs	C15-C26	150-157,159	0.99
Oesophagus	C15	150	1.00
Stomach	C16	151	0.99
Colon	C18	153	0.98
Rectosigmoid junction, rectum, anus and anal canal	C19-C21	154	0.98
Liver and intrahepatic bile ducts	C22	155	1.07
Pancreas	C25	157	0.99
Respiratory and intrathoracic organs	C30-C39	160-165	0.94
Trachea, bronchus and lung	C33, C34	162	0.97
Melanoma of skin	C43	172	0.98
Breast	C50	174,175	0.98
Female genital organs	C51-C58	179-184	0.99
Ovary	C56	1 830	0.98
Male genital organs	C60-C63	185-187	0.99
Prostate	C61	185	0.98
Urinary tract	C64-C68	188, 189	0.96
Kidney, except renal pelvis	C64	1 890	0.96
Bladder	C67	188	0.95
Eye, brain and other parts of central nervous system	C69-C72	190-192	0.97
Brain	C71	191	0.97
Lymphoid, haematopoietic and related tissue	C81-C96	200-208	0.97
Leukaemia	C91-C95	204-208	0.94
In situ and benign neoplasms and neoplasms of uncertain or unknown behaviour	D00-D48	210-239	1.18
Chapter III Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	***D50-D89***	**279,280-289**	**1.07**
Chapter IV Endocrine, nutritional and metabolic diseases	***E00-E90***	**240-278**	**1.01**
Diabetes mellitus	E10-E14	250	0.99
Chapter V Mental and behavioural disorders	***F00-F99***	**290-319**	**0.78**
Psychoactive substance use	F10-F19	291,292, 303,304,305	1.09
Organic, including symptomatic, mental disorders	F00-F09	290	0.69
Chapter VI Diseases of the nervous system	***G00-G99***	**320-359**	**1.20**
Extrapyramidal and movement disorders	G20-G26	332-333	0.95
Alzheimer's disease	G30	3 310	1.48

A2.3 CONCORDANCE AND COMPARABILITY FACTORS, ICD–9 to ICD–10 *continued*

Cause of Death	*ICD-10 Code*	*ICD-9 Code*	*Comparability factor*
Chapter VII Diseases of the eye and adnexa	***H00-H59***	**360-379**	*
Chapter VIII Diseases of the ear and mastoid process	***H60-H95***	**380-389**	*
Chapter IX Disease of the circulatory system	***I00-I99***	**390-459**	**1.00**
All heart disease	I05-I09,I11, I13,I20-I25, I26,I27, I30-I52	393-398,402, 404,410-414, 415,416, 420-429	1.01
Acute rheumatic fever and chronic rheumatic heart diseases	I00-I09	390-398	0.69
Hypertensive diseases	I10-I15	401-405	1.00
Ischaemic heart diseases	I20-I25	410-414	1.01
Acute myocardial infarction	I21	410	0.96
Pulmonary heart disease and diseases of pulmonary circulation and other forms of heart disease	I26-I52	415-429	1.06
Cerebrovascular diseases	I60-I69	430-438	0.97
Diseases of arteries, arterioles and capillaries	I70-I79	440-448	0.97
Atherosclerosis	I70	440	0.98
Aortic aneurysm	I71	441	0.97
Chapter X Diseases of the respiratory system	***J00-J99***	**460-519**	**0.91**
Influenza and pneumonia	J10-J18	480-487	0.87
Chronic lower respiratory diseases	J40-J47	490-496	0.91
Emphysema	J43	492	0.86
Asthma and status asthmaticus	J45, J46	493	0.75
Chapter XI Diseases of the digestive system	***K00-K93***	**520-579**	**1.05**
Diseases of oesophagus, stomach and duodenum	K20-K31	530-537	1.04
Gastric and duodenal ulcer	K25-K27	531-533	0.99
Diseases of liver	K70-K77	570-573	1.02
Chapter XII Diseases of the skin and subcutaneous tissue	***L00-L99***	**680-709**	**1.06**
Chapter XIII Diseases of the musculoskeletal system and connective tissue	***M00-M99***	**710-739**	**1.15**
Arthropathies and systemic connective tissue disorders	M00-M36	710-719	1.19
Chapter XIV Diseases of the genitourinary system	***N00-N99***	**580-629**	**1.14**
Renal failure	N17-N19	584-586	1.05
Chapter XV Pregnancy, childbirth and the puerperium	***O00-O99***	**630-676**	*
Chapter XVI Certain conditions originating in the perinatal period	***P00-P96***	**760-779**	**0.96**
Disorders related to short gestation and low birthweight, not elsewhere classified	P07	765	*
Infections specific to the perinatal period	P35-P39	771	*
Haemorrhagic and haematological disorders of fetus and newborn	P50-P61	772-774,776	*
Chapter XVII Congenital malformations, deformations and chromosomal abnormalities	***Q00-Q99***	**740-759**	**1.03**
Congenital malformations of the nervous system	Q00-Q07	740-742	1.00
Congenital malformations of the circulatory system	Q20-Q28	745-747	1.12
Congenital malformations of the respiratory system	Q30-Q34	748	0.90

A2.3 CONCORDANCE AND COMPARABILITY FACTORS, ICD–9 to ICD–10 *continued*

Cause of Death	*ICD-10 Code*	*ICD-9 Code*	*Comparability factor*
Chapter XVIII Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	***R00-R99***	**780-799**	**0.76**
Sudden infant death syndrome	R95	7 980	0.94
Chapter XX External causes of morbidity and mortality	***V01-Y98***	**E800-E999**	**1.06**
Accidents	V01-X59	E800-E949	1.05
Transport accidents	V01-V99	E800-E848	1.03
Falls	W00-W19	E880-E886,E888	1.10
Accidental drowning and submersion	W65-W74	E910	1.03
Intentional self-harm	X60-X84	E950-E959	0.97
Hanging, strangulation and suffocation	X70	E953	0.97
Assault	X85-Y09	E960-E969	1.02

APPENDIX 3 TABULATION OF SELECTED CAUSES OF DEATH ...

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 provides a number of standard tabulation lists for presentation of causes of death statistics, that assist international comparability. WHO also recommend that where there is no 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 Statistics[1], 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 opoids causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
F11.7-F11.9,Use of opoid 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, Kochankek, KD. Deaths: Final Data for 2004. National vital statistics reports; vol 55 no 19. Hyattsville, MD: National Center for Health Statistics. 2007.

TECHNICAL NOTE 1 CORONER CERTIFIED DEATHS

INTRODUCTION

1 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. For information regarding the types of deaths certified by a Coroner, please refer to Explanatory Note 2.

2 When coronial investigations are complete, causes of death information is passed to the Registrar of Births, Deaths and Marriages, as well as to the National Coronial Information System (NCIS). The ABS commenced using the NCIS to code coroner certified deaths for the 2003 reference year. Since 2006, the ABS has relied totally on information available on the National Coronial Information System (NCIS) to code deaths certified by a Coroner. Prior to 2006, the ABS had sought additional information on coroner certified deaths where information was not available on NCIS by undertaking personal visits to Coroner offices to extract information from paper records. From 2006 onwards, where a case remains open on the NCIS at the time the ABS ceases processing, only information available on NCIS is used by the ABS to code the cause of death. Where insufficient information is 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.

3 Up to and including deaths registered in 2006, ABS Causes of death processing was finalised at a point in time. This meant that not all deaths registered in the reference year which were referred to the coroner, had been investigated, the case closed and relevant information loaded to the NCIS. The coronial process can take several years if an inquest is being held or complex investigations are being undertaken. However, any general increase in the length of coronial investigations (or in the workload of coroners) or, the timeliness of input of coronial findings to the NCIS, has the potential to affect data quality in terms of specificity given that the need for timely information limits the amount of time available to wait for the findings of the longer cases. The fact that a case is still open limits the amount of information available to the ABS in order to be able to code causes of death, and may result in a less specific code being allocated consistent with ICD-10 coding rules

4 All coroner certified deaths registered after 1 January 2007 will be 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 was finalised approximately 13 months after the end of the reference period. The revision process will enable the use of additional information relating to coroner certified deaths as it becomes available over time, resulting in increased specificity of the assigned ICD-10 codes.

5 Causes of death data for 2007 coroner certified deaths will be updated as more information becomes available to the ABS. Revised data for 2007 will be published both on a year registration basis and a year of occurrence basis in the 2008 Causes of death publication, due to be released in March 2010 and again in the publication relating to the 2009 collection due for release in 2011. Revisions will only impact on coroner certified deaths, as further information becomes available to the ABS about the causes of these deaths.

INTRODUCTION *continued*

6 All information in this paper which refers to the cessation of ABS processing of 2007 data, should be considered with regard to paragraphs 3 and 4 of this technical note i.e. all open coroner cases on NCIS will be revised when the case is finalised, therefore the information in this paper only refers to the point in time (30 January 2009) when initial 2007 processing was finalised.

7 Further information on coroner certified deaths and ABS processing can be obtained in *Information Paper: ABS Causes of Death Collection: Concepts, Sources and Methods* (cat. no. 3317.0.55.002).

8 Further information on ABS processes for coding suicide deaths can be obtained in Technical Note: ABS Coding of Suicide Deaths

Deaths by Type of Certifier

9 For deaths registered in 2007, 12% were certified by a Coroner. There are variations between jurisdictions, ranging from 11% of deaths certified by a coroner in New South Wales, to 32% of deaths certified by a coroner in the Northern Territory. The proportion of deaths certified by a Coroner in 2007 is comparable to previous years.

T1.1 DEATHS BY CERIFIER TYPE—state/territory of registration, 2006–2007(a)

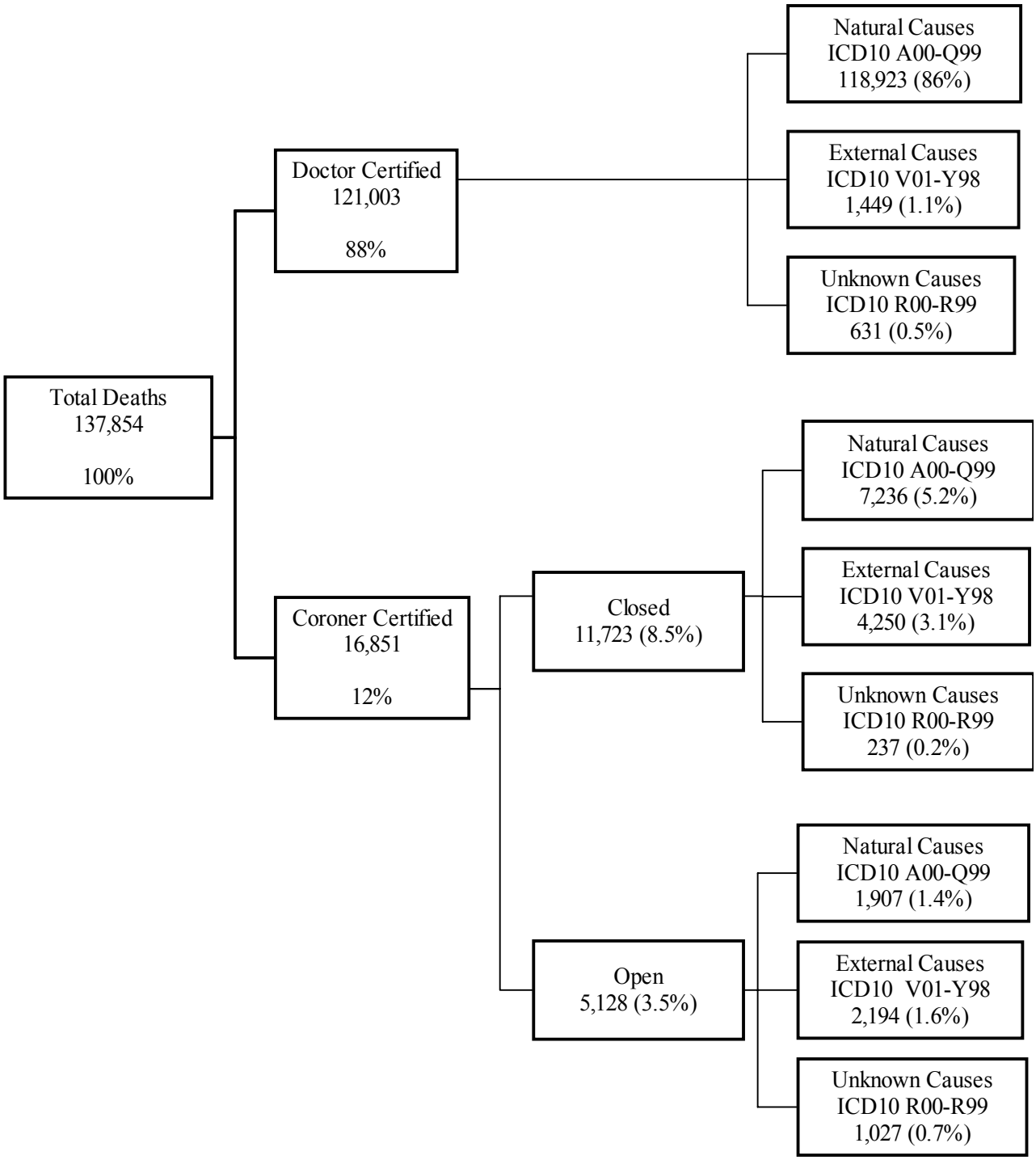
	2006					2007				
	Doctor		*Coroner*		*Total*	*Doctor*		*Coroner*		*Total*
	no.	%	no.	%	no.	no.	%	no.	%	no.
NSW	40 510	88.7	5 160	11.3	45 670	41 352	89.2	5 015	10.8	46 367
Vic.	28 813	86.5	4 513	13.5	33 326	29 752	87.7	4 171	12.3	33 923
Qld	21 729	88.2	2 915	11.8	24 644	23 040	88.6	2 975	11.4	26 015
SA	10 068	84.3	1 878	15.7	11 946	10 521	84.9	1 867	15.1	12 388
WA	10 139	86.9	1 523	13.1	11 662	10 570	85.9	1 734	14.1	12 304
Tas.	3 454	88.2	460	11.8	3 914	3 654	89.1	447	10.9	4 101
NT	624	67.8	297	32.2	921	662	67.9	313	32.1	975
ACT	1 347	81.3	309	18.7	1 656	1 452	81.5	329	18.5	1 781
Australia	116 684	87.2	17 055	12.8	133 739	121 003	87.8	16 851	12.2	137 854

(a) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

10 All causes of death can be grouped to describe the type of death whether it be from a disease or condition, or is from an injury or whether the cause is unknown. These are generally described as:

- Natural Causes - deaths due to diseases (for example diabetes, cancer, heart, disease etc)
- External Causes- deaths due to causes external to the body (for example suicide, transport accidents, falls, poisoning etc).
- Unknown Causes - deaths where it is unable to be determined whether the cause was natural or external

11 The following diagram describes registered deaths in 2007 with regard to the type of certifier, the "type" of death and whether information was available on the NCIS at the end of the ABS 2007 Causes of Death processing period.



OPEN AND CLOSED CASES ON NCIS

12 Of those deaths which were certified by a Coroner, 70% had a status of "closed" on NCIS and had full information available to the ABS in order to undertake cause of death coding. The proportion of cases which have a status of "open" on the NCIS varies significantly between jurisdictions. At an Australian level 30% of cases had a status of open at the time this publication was compiled, with a low of 11% in the ACT to a high of 72% in Queensland.

OPEN AND CLOSED CASES ON NCIS *continued*

T1.2 AVAILABLE CASE STATUS FOR ABS USE ON NATIONAL CORONIAL INFORMATION SYSTEM

	2006 CASES AS AT 30 JANUARY 2007					2007 CASES AS AT 30 JANUARY 2008(a)				
	Closed		*Open*		*Total*	*Closed*		*Open*		*Total*
	no.	%	no.	%		no.	%	no.	%	
NSW	3 541	68.6	1 619	31.4	5 160	3 595	71.7	1 420	28.3	5 015
Vic.	4 061	90.0	452	10.0	4 513	3 388	81.2	783	18.8	4 171
Qld	1 014	34.8	1 901	65.2	2 915	825	27.7	2 150	72.3	2 975
SA	1 661	88.6	215	11.5	1 876	1 593	85.3	274	14.7	1 867
WA	1 200	78.8	323	21.2	1 523	1 416	81.7	318	18.3	1 734
Tas.	407	88.5	53	11.5	460	384	85.9	63	14.1	447
NT	253	85.2	44	14.8	297	228	72.8	85	27.2	313
ACT	269	87.1	40	12.9	309	294	89.4	35	10.6	329
Australia	12 406	72.7	4 647	27.3	17 053	11 723	69.6	5 128	30.4	16 851

(a) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

13 Open cases accounted for 3.5% of all deaths registered in 2007. The cases with a status of "open" on the NCIS, were investigated with regard to whether the cases were of an unknown cause, natural cause or external cause. Over half of all unknown causes (54%) and 28% of all external causes remained open on the NCIS at the close of processing. A small proportion of all natural cause deaths (1.5%) also remained open.

T1.3 CASES ON NCIS WITH STATUS OF OPEN, by type of cause—2007(a)(b)

	EXTERNAL CAUSE		NATURAL CAUSE		UNKNOWN CAUSE		TOTAL
State or territory	no.	%	no.	%	no.	%	no.
NSW	515	36.3	677	47.7	228	16.1	1 420
Vic.	450	57.5	310	39.6	23	2.9	783
Qld	790	36.7	675	31.4	685	31.9	2 150
SA	130	47.4	106	38.7	38	13.9	274
WA	202	63.5	76	23.9	40	12.6	318
Tas.	35	55.6	24	38.1	4	6.3	63
NT	62	72.9	18	21.2	5	5.9	85
ACT	10	28.6	21	60.0	4	11.4	35
Australia	2 194	42.8	1 907	37.2	1 027	20.0	5 128

(a) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(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. It is important to note that cells with a zero value have not been affected by confidentialisation.

14 In 2007, 1,027 open cases (20% of all open cases) had insufficient information recorded on NCIS in order to be able to determine any cause of death. These records have been coded to R99 Other ill-defined and unspecified causes of mortality.

15 A further 1,907 open cases (37%) had enough information to determine that the cause of death was a natural cause i.e. would be coded to Chapters I to XVII. Of these, 1233 (65%) related to Chapter IX Circulatory Diseases. The remaining 674 (35%) cases were related to a range of other chapters.

OPEN AND CLOSED CASES ON NCIS *continued*

T1.4 DEATHS, Open Cases on NCIS which relate to Natural Causes—2007(a)(b)

ICD10 Chapters	*No.*
Infectious diseases (A00-B99)	25
Cancer (C00-D48)	119
Blood and immunity disorders (D50-D89)	7
Endocrine, nutritional and metabolic diseases (E00-E90)	48
Mental and behavioural disorders (F00-F99)	53
Diseases of the nervous system (G00-G99)	63
Diseases of the Eye and Ear (H00-H95)	2
Diseases of the heart and blood vessels (I00-I99)	1 233
Diseases of the respiratory system (J00-J99)	141
Diseases of the digestive system (K00-K93)	125
Diseases of the skin and subcutaneous tissue (L00-L99)	—
Diseases of the muscles, bones and tendons (M00-M99)	13
Diseases of the kidney and urinary system (N00-N99)	22
Pregnancy and Childbirth (O00- O99)	3
Conditions originating in the perinatal period (P00-P96)	27
Congenital and chromosomal abnormalities (Q00-Q99)	26
TOTAL	**1 907**

— nil or rounded to zero (including null cells)

(a) 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. It is important to note that cells with a zero value have not been affected by confidentialisation.

(b) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

16 Nearly half of all open cases (2,194, 43%) related to external causes. Of the 7,893 deaths attributed to external causes in 2007, 28% were open cases on the NCIS.

17 Further analysis has been completed of open cases on NCIS to consider mechanism of injury for those cases that were coded to external causes, as shown in T1.5.

T1.5 DEATHS, Open Cases on NCIS which relate to External causes by mechanism—2007(a)(b)

	Hanging	*Falls*	*Poisoning*	*Drowning*	*Trasnport Accidents*	*Firearms*	*Sharp Objects*	*Other*	*Unspecified*	*Total*
NSW	84	27	92	41	54	22	3	129	63	515
VIC	57	40	74	11	66	14	15	168	5	450
QLD	175	19	88	31	142	47	22	237	29	790
SA	18	10	26	4	29	9	5	22	7	130
WA	23	8	29	7	94	3	5	28	5	202
TAS	1	3	8	—	9	2	1	10	1	35
NT	7	4	4	1	29	3	3	10	1	62
ACT	—	1	1	1	1	—	1	3	2	10
Australia	**365**	**112**	**322**	**96**	**424**	**100**	**55**	**607**	**113**	**2 194**

— nil or rounded to zero (including null cells)

(a) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

(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. It is important to note that cells with a zero value have not been affected by confidentialisation.

18 Cases related to Transport Accidents accounted for 19% of all open external cause cases, with Poisonings and Hangings accounting for 15% and 17% respectively at a national level. Unspecified external causes accounted for 5% of cases. The types of cases still open on NCIS at the cessation of ABS processing vary in proportion across the states and territories, with no discernible pattern.

OPEN AND CLOSED CASES ON NCIS *continued*

19 Further analysis has also been completed of open cases on NCIS to consider the intent of the injury for those cases that were coded to external causes, as shown in T1.6.

TABLE T1.6 DEATHS, Open Cases on NCIS which relate to External causes, by intent—2007(a)(b)

	Accident	*Suicide*	*Assault*	*Undetermined*	*Other*	*Total*
NSW	195	55	8	252	5	515
VIC	126	85	24	203	12	450
QLD	226	161	19	377	7	790
SA	61	39	13	15	2	130
WA	136	29	15	20	2	202
TAS	23	5	3	3	1	35
NT	42	10	6	4	—	62
ACT	7	—	2	1	—	10
Australia	**816**	**384**	**90**	**875**	**29**	**2 194**

— nil or rounded to zero (including null cells)

(a) Causes of death data for 2007 is subject to revision. See Explanatory Notes 3-4 for further information.

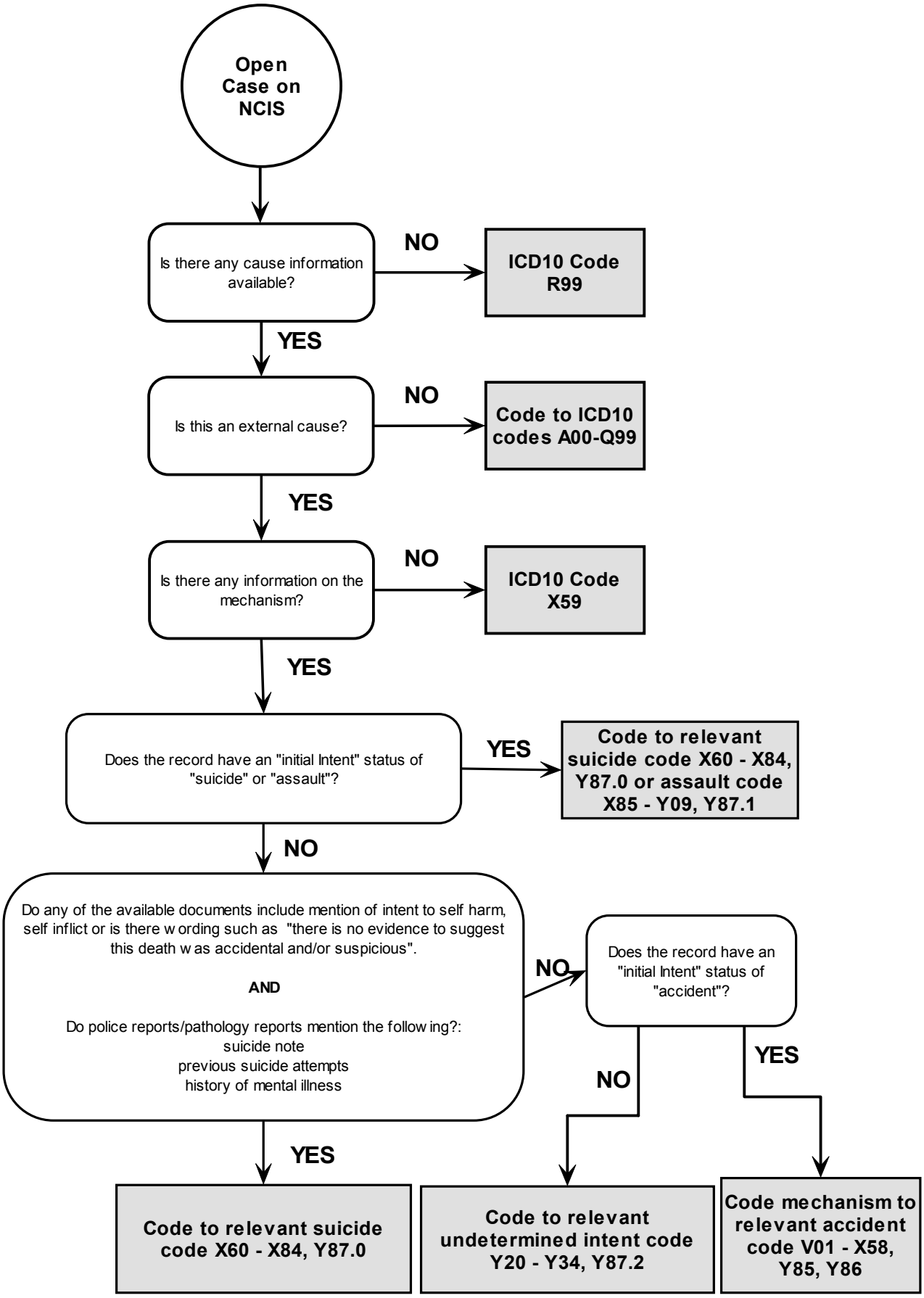
(b) Data cells with small values have been randomly assigned to protect the confidentiality of individuals. As a result, some totals will not equal the sum of their components. It is important to note that cells with a zero value have not been affected by confidentialisation.

20 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.

21 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).

22 The determination of "intent" for each death (whether intentional self harm, accidental, homicide or undetermined intent) is essential for determining the appropriate ICD-10 code to use for a death. However, coroners' practices to determine the intent of a death may vary across the states and territories. In general, coroners may be reluctant to determine suicidal intent (particularly in children and young people). In some cases, no statement of intent will be made by a coroner. The reasons may include legislative or regulatory barriers, sympathy with the feelings of the family, or sensitivity to the cultural practices and religious beliefs of the 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 death was suicide may make a finding of suicide less likely. There also may be a reluctance by Coroners to make a final determination of Assault until legal proceedings have been finalised.

23 The coding process for open coroners cases has been altered with respect to 2007 data. Up to and including 2006 data, if there was no information in the "intent" status field on the NCIS, ABS coders would follow a strict interpretation of the ICD-10 coding rules and use the default intent of "accidental". A change to the 2007 version of ICD-10 regarding coding rules for "undetermined intent" have resulted in coders being able to allocate deaths to "undetermined intent" in the absence of a legal ruling.


Open Case on NCIS
Is there any cause information available?
NO
ICD10 Code R99
YES
Is this an external cause?
NO
Code to ICD10 codes A00-Q99
YES
Is there any information on the mechanism?
NO
ICD10 Code X59
YES
Does the record have an "initial Intent" status of "suicide" or "assault"?
YES
Code to relevant suicide code X60 - X84, Y87.0 or assault code X85 - Y09, Y87.1
NO
Do any of the available documents include mention of intent to self harm, self inflict or is there w ording such as "there is no evidence to suggest this death w as accidental and/or suspicious".
AND
Do police reports/pathology reports mention the follow ing?:
suicide note
previous suicide attempts
history of mental illness
NO
Does the record have an "initial Intent" status of "accident"?
YES
NO
YES
Code to relevant suicide code X60 - X84, Y87.0
Code to relevant undetermined intent code Y20 - Y34, Y87.2
Code mechanism to relevant accident code V01 - X58, Y85, Y86

OPEN AND CLOSED CASES ON NCIS *continued*

24 All deaths registered after 1 January 2007 which have an NCIS status of "open" , will be recoded by the ABS once the case status has changed to "closed". Revised data will be published both on a year of registration basis and a year of occurrence basis in the 2008 Causes of death publication, due for release in March 2010, and again in the publication relating to the 2009 collection, due for release in 2011.

TECHNICAL NOTE 2 ABS CODING OF SUICIDE DEATHS

BACKGROUND

1 Users of suicide data have raised concerns regarding the number of deaths identified as suicides in ABS causes of death data for a number of years. As a response to these concerns, the ABS has undertaken a number of investigations and made a number of changes to both coding, quality assurance and dissemination practices. A summary of the changes introduced are listed below:

- publication of Information Paper: External Cause of Death Data Quality *(cat. no. 3317.0.55.001)* in April 2007 in order to assist users in interpreting ABS external causes data.
- publication of Information Paper: ABS Causes of Death Statistics: Concepts, Sources and Methods *(cat. no. 3317.0.55.002)* in March 2008
- all coroner certified deaths registered after 1 January 2007 will be 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 was 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 codes were assigned as required by the ICD coding rules. The revision process will enable the use of additional information relating to coroner certified deaths as it becomes available over time resulting in increased specificity of the assigned ICD-10 codes.
- improved quality assurance processes particularly aimed at assessing and improving the quality of suicide coding
- revised coding instructions for ABS coders in coding suicides to ensure greater consistency in coding outcomes between individual coders

ICD 10 CODING RULES FOR INTENTIONAL SELF HARM

2 International coding rules are used to assign codes from the International Classification of Diseases and Health Related Problems, 10th Revision *(ICD-10)*. The coronial determination of intent is especially important for statistics on suicide deaths because information on intent is necessary to complete the coding under ICD-10 coding rules.

3 The coding rules for ICD-10 give no additional notes or definitions at the beginning of the Intentional self-harm categories (X60-X84) that provide the coder with an indication of when an intentional self-harm code should be assigned. The only guidance is an inclusion note for suicide. Additionally, no reference is made in Volume 2 of ICD-10 of the assignment of intentional self-harm codes. The coding index defaults external causes to "accidental" unless qualified with further description.

4 Previous versions of ICD-10 clearly provided an indication for coders in the use of the undetermined intent categories via a Note at the beginning of the Y10-Y34 categories. The note indicates that these codes can only be assigned "*where available information is insufficient for the medical or legal authority to make a distinction between accident, self harm and assault* ". The 2007 version of ICD-10 has altered the instructions for undetermined intent categories to : "*This section covers events where available information is insufficient to enable a medical or legal authority to make a distinction between accident, self-harm and assault. It includes self-inflicted injuries, but not poisoning, when not specified whether accidental or with intent to harm (X40-X49). Follow legal rulings when available*."

HISTORICAL ABS PRACTICE

5 In order to classify a death as suicide (intentional self-harm) the ICD-10 interpretation used by the ABS requires that specific documentation from a medical or legal authority be available regarding both the self-inflicted nature and suicidal intent of the incident. If this information is not available then the death must be classified as accidental. The interpretation of what constituted a "medical or legal authority" has been inconsistently applied by the ABS over a number of years.

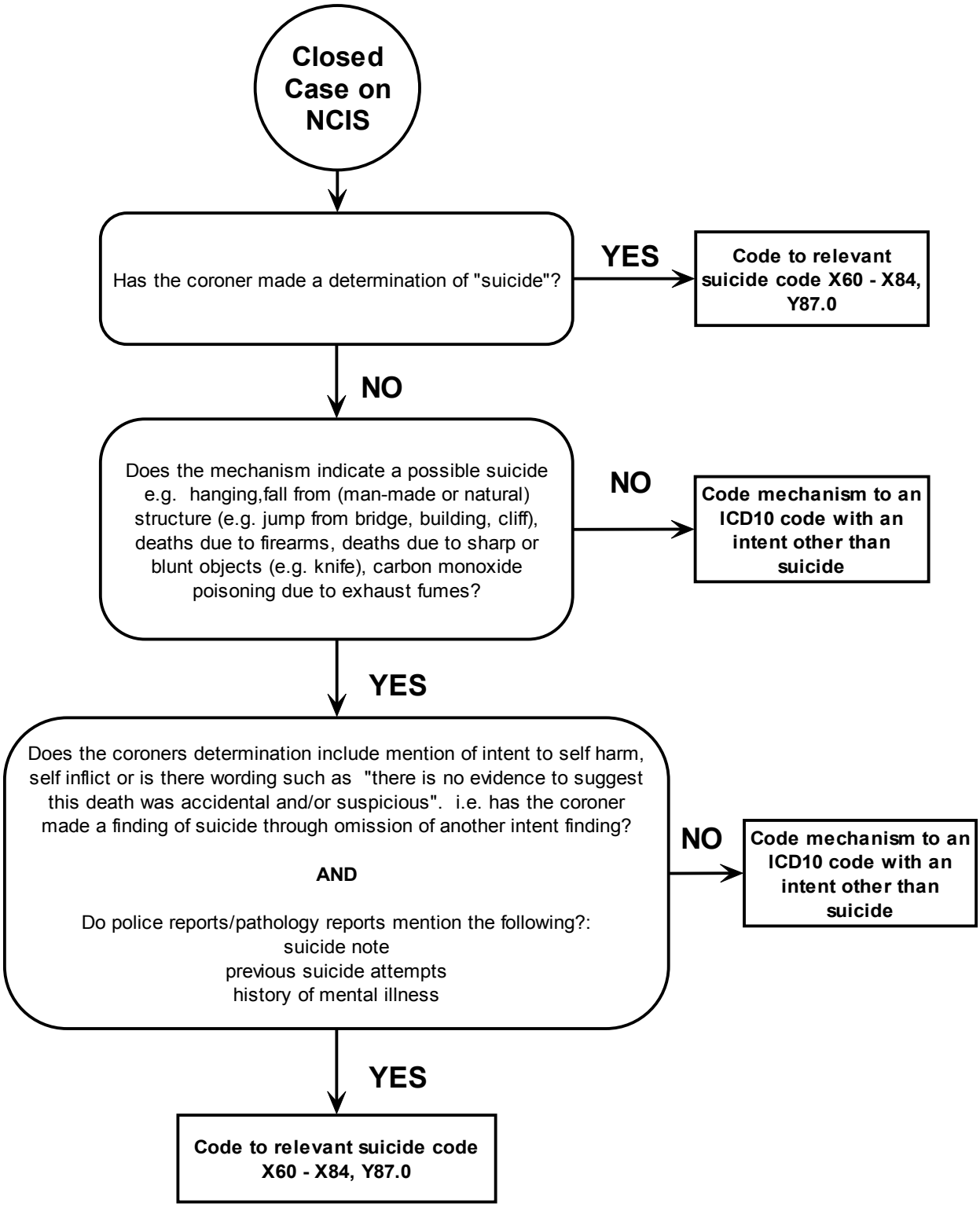
6 The first interpretation used by ABS coders was that only a coronial determination of "suicide" met the criteria for coding of a particular death as suicide. This interpretation then meant that a case needed to be closed by the coroner and that the coroner had made a formal determination of suicide in order to code a suicide as such. However, the interpretation used by the ABS resulted in some suicide deaths being "missed" due to the fact that coroners may be reluctant to determine suicidal intent (particularly in children and young people). In some cases, no statement of intent will be made by a coroner. The reasons may include legislative or regulatory barriers, sympathy with the feelings of the family, or sensitivity to the cultural practices and religious beliefs of the 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 death was suicide may make a finding of suicide less likely. In addition, if the coronial case had not been finalised by definition there is no coronial determination. In this case ABS coders would determine what information was available on the National Coronial Information System (i.e. police, autopsy or toxicology reports) and would determine an intent from the available information.

7 The second interpretation used by ABS coders was that a "medical or legal authority" included not only a coroners determination but also police, autopsy and pathology reports. This resulted in the coder using a wider range of information in which to code the death record. This interpretation resulted in less deaths being "missed" as suicide deaths, however as there was no further guidance given to coders, this resulted in inconsistent coding due to differing interpretations of what is acceptable evidence of a suicide in police, autopsy and pathology reports..

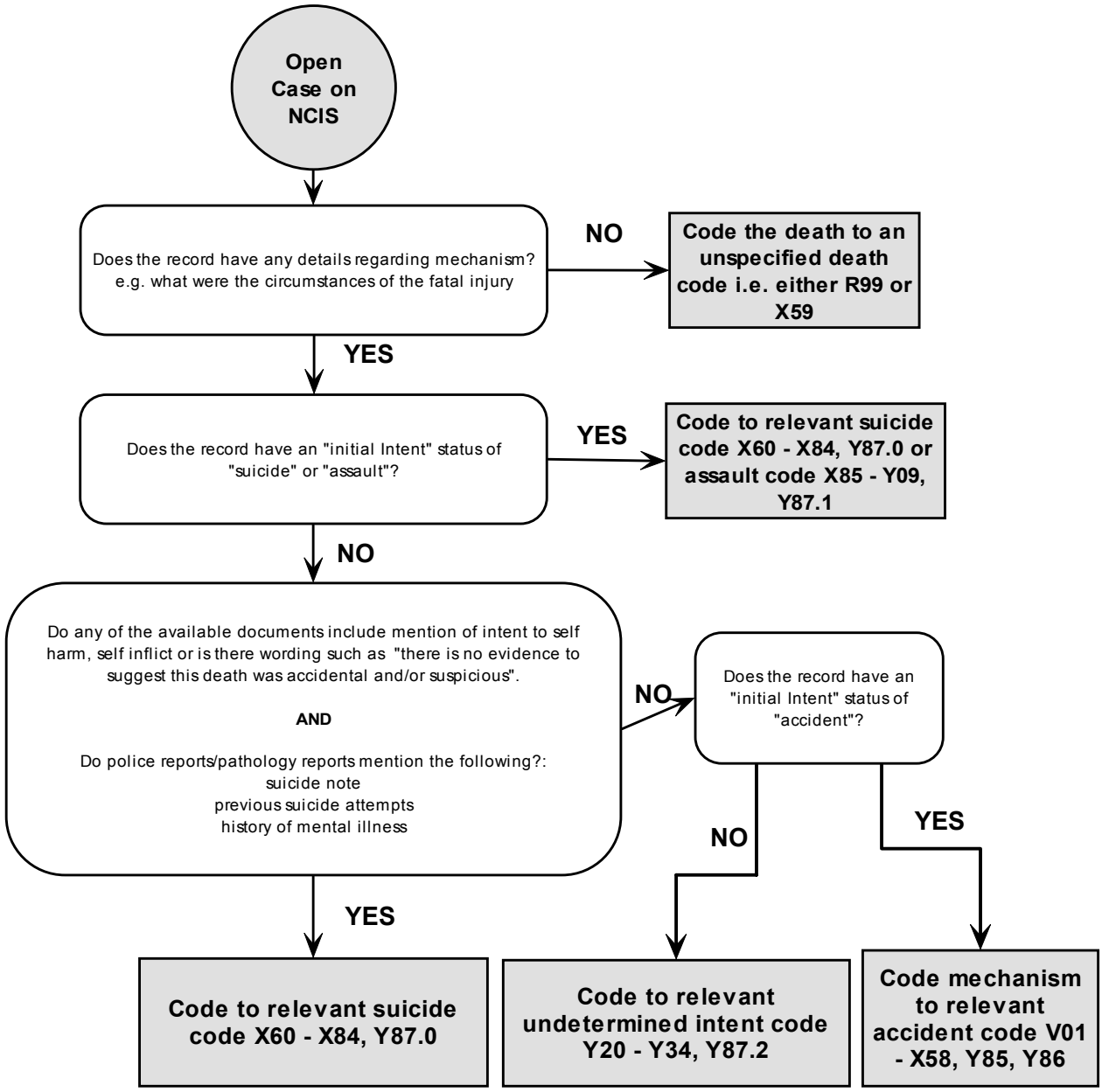
ABS SUICIDE CODING PRACTICE FOR 2007

8 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" (See Technical Note: Coroner Certified Deaths, for further information on coroner certified deaths). The NCIS case status impacts on how deaths are coded with regard to suicides.With the introduction of a revisions process for all deaths registered from 1 January 2007, records with a case status of "open" will be recoded when the coronial process is finalised and the status changes to "closed". Below is a summary of the suicide coding process used by the ABS.

SUICIDE CODING OF CLOSED CASES ON NCIS



SUICIDE CODING OF OPEN CASES ON NCIS



GLOSSARY

Age-specific death rate — Age-specific death rates (ASDRs) are the number of deaths (occurred or registered) during the calendar 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.

Associated causes — All causes listed on a death certificate other than the underlying cause.

Certifier type — Deaths may be certified by either a medical practitioner 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.

Coroner certified deaths — Deaths which are certified by a coroner.

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 calendar year per 100,000 estimated resident population at 30 June. For years prior to 1992, the crude death rate was based on the mean estimated resident population for the calendar year.

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 to a coroner.

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).

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. See Explanatory Notes, paragraphs 18-21 for more information on ICD. Further information also is available from the WHO website www.who.int

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).

Main English-speaking countries This refers to the main countries from which Australia receives, or has received, significant numbers of overseas settlers who are likely to speak English. These countries comprise the United Kingdom, the Republic of Ireland, New Zealand, Canada, South Africa, and the United States of America. All other countries are classified as Non Main English-speaking countries.

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, the nature of injury as well as any other conditions reported on the death certificate.

Natural cause of death Deaths due to diseases (for example diabetes, cancer, heart disease etc), which are not external or unknown.

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.

Sex ratio The sex ratio relates to 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) 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:

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.

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.

Wherever used, the definition adopted is indicated.

State or territory of registration — State or territory of registration refers to the state or territory in which the death was registered.

State or territory of usual residence — State or territory of usual residence refers to the state or territory of usual residence of the deceased.

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 where it is unable to be determined whether the cause was natural or external.

Usual residence — Usual residence within Australia refers to that address at which the person has lived or intends to live for a total of six months or more in a given reference year.

Year of occurrence — Data presented on 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.

Year of registration — Data presented on year of registration basis relate to the date the death was registered with the relevant state or territory Registrar of Births, Deaths and Marriages.

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 Technical Note for an explanation of the calculation of YPLL.

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