Australian Bureau of Statistics

2008

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# CAUSES OF DEATH

AUSTRALIA

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## CONTENTS



## INQUIRIES

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

# NOTES

## IN THIS ISSUE

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

Three technical notes are presented in this publication:

- 2008 COD Collection - Process Improvements
- Causes of Death - Revisions Process
- 2007 Revisions

Users should read these technical notes in order to make themselves aware of changes in ABS processes which have had an impact on 2008 and 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 for all states and territories and Australia, for:

- 2007 (revised) underlying cause - standardised death rates and years of potential life lost
- 2007 (revised) selected causes by age at death, numbers and rates

Year of occurrence data will not be included in this publication. It will be released in mid 2010.

Two processing improvements have been introduced to the Causes of Death collection for the release of 2008 (preliminary) data. These improvements relate to the way the ABS codes coroner certified deaths and have had the effect of significantly improving the quality of cause of death codes assigned to coroner certified cases. All 2008 data in this publication have been positively impacted by these improvements. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

## CAUSES OF DEATH REVISIONS

All coroner certified deaths registered after 1 January 2007 are now subject to a revisions process. The revisions process enables the use of additional information relating to coroner certified deaths either 12 or 24 months after initial processing. This increases the specificity of the assigned ICD-10 codes over time. See Technical Note 2: Causes of Death - Revisions Process for further information.

See also Technical Note 3: 2007 Revisions for further information on the impact of the revisions process on 2007 data. 2007 (revised) data are contained in the data cubes associated with this publication.

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# CHAPTER 1 INTRODUCTION

## CAUSES OF DEATH STATISTICS

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

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 29-37 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 based on the National Health Priority Areas (NHPAs) of Australia. 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.

Chapter 3 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 Notes 40-42). Data presented by Leading Cause is useful when comparing causes of death in different populations and/or over time.

Chapter 4 of this publication presents underlying 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 5 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 6 on Suicides and Chapter 7 on Deaths of Aboriginal and Torres Strait Islander Australians present summary data on these specific areas of public interest.

*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 2008, there were 143,946 deaths registered in Australia, approximately 6,100 (4.4%) more than the number registered in 2007 (137,854). The standardised death rate (SDR) in 2008 (6.0 deaths per 1,000 standard population) was the same as in 2005, 2006 and 2007.

Males accounted for 73,548 (51%) deaths registered in 2008, a slightly lower proportion than the 67,227 (52%) male deaths registered in 1999. Females accounted for 70,398 (49%) of deaths registered in 2008, an increase over the past decade from 60,875 (48%) deaths in 1999.

Further details on numbers of deaths registered can be found in Deaths, Australia 2008 (3302.0).

*Leading Cause of Death*

In 2008, 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 2008. Ischaemic heart disease has been the leading cause of death in Australia since 1999.

*Underlying Cause of Death*

The following table presents summary causes of death data for each major chapter of the ICD-10. Further information on those causes at the 3-digit level where 10, 20, or 50 or more deaths were attributed to the cause in 2008 is presented in Chapter 4 of this publication titled Underlying Cause of Death by ICD-10.

## 1.1 DEATHS, by ICD10 CHAPTER LEVEL—2008(a)(b)

| Cause of Death and ICD Code | Number | Proportion of total deaths | Median Age | Standardised Death Rate |
|---|---|---|---|---|
| | no. | % | yrs. | rate |
| Certain infectious and parasitic diseases (A00-B99) | 1 935 | 1.3 | 80.2 | 8.2 |
| Neoplasms (C00-D48) | 42 418 | 29.5 | 75.4 | 182.1 |
| Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89) | 503 | 0.3 | 80.7 | 2.1 |
| Endocrine, nutritional and metabolic diseases (E00-E90) | 5 900 | 4.1 | 81.1 | 24.7 |
| Mental and behavioural disorders (F00-F99) | 6 406 | 4.5 | 87.1 | 25.5 |
| Diseases of the nervous system (G00-G99) | 5 961 | 4.1 | 82.3 | 24.8 |
| Diseases of the circulatory system (I00-I99) | 48 456 | 33.7 | 84.6 | 197.6 |
| Diseases of the respiratory system (J00-J99) | 11 260 | 7.8 | 82.5 | 46.8 |
| Diseases of the digestive system (K00-K93) | 4 939 | 3.4 | 80.3 | 20.7 |
| Diseases of the skin and subcutaneous tissue (L00-L99) | 401 | 0.3 | 85.5 | 1.6 |
| Diseases of the musculoskeletal system and connective tissue (M00-M99) | 1 179 | 0.8 | 84.3 | 4.8 |
| Diseases of the genitourinary system (N00-N99) | 3 319 | 2.3 | 85.6 | 13.5 |
| Certain conditions originating in the perinatal period (P00-P96) | 595 | 0.4 | 0.5 | 2.7 |
| Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99) | 609 | 0.4 | 1.0 | 2.8 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99) | 1 243 | 0.9 | 63.9 | 5.4 |
| External causes of morbidity and mortality (V01-Y98) | 8 804 | 6.1 | 52.3 | 39.2 |
| **All Causes**(c) | **143 946** | **100.0** | **80.9** | **602.5** |

(a) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(b) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(c) All causes include cause chapters presented here, plus Diseases of the eye and adnexia (H00-H59), Diseases of the ear and mastoid process (H60-H95) and Pregnancy, childbirth, and the puerperium (O00-O99).

*Multiple Cause of Death*

For the 143,946 deaths registered in Australia in 2008, there were 466,538 causes reported giving a mean of 3.2 causes per death. The mean number of causes reported per death varies with age, sex and underlying cause of death. In 18% of all deaths, only one cause was reported, while 39% of deaths were reported with three or more causes. For further detail on multiple cause, see the Multiple Cause of Death section of this publication (Chapter 5).

# CHAPTER 2 NATIONAL HEALTH PRIORITY AREAS (NHPAS) ....

## OVERVIEW

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.

Data for 2008 have been positively impacted by process improvements. See Technical Note 1: 2008 COD Collection - Process Improvements for further information. These data are also subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process for further information.

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 2008, deaths due to the eight National Health Priority Areas accounted for 78% of all underlying causes of death and were either associated with or the underlying cause of 91% of deaths.

## ARTHRITIS AND MUSCULOSKELETAL DISEASES (M00-M99)

Arthritis and musculoskeletal diseases (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 diseases were the underlying cause for 1,179 registered deaths in Australia in 2008. Arthritis and musculoskeletal diseases were identified as either an underlying cause or associated cause of death for 6,964 deaths registered in 2008.

The standardised death rate for Arthritis and musculoskeletal diseases was 4.8 per 100,000 population in 2008, the same as in 1999. The standardised death rate for males in 2008 was 4.2 per 100,000, and 5.2 per 100,000 for females.

Of all deaths due to Arthritis and musculoskeletal diseases in 2008, 776 or 66% were females, predominantly in the age group 75 to 94 years. Median age at death for deaths due to these diseases was 81.2 years for males, 85.4 years for females and 84.3 years overall. Potential life lost due to deaths from these diseases was 1,884 years for males and 2,452 years for females (see Explanatory Notes 43-45 for further information on Years of Potential Life Lost).

Arthritis (M00-M25) was the underlying cause of 426 deaths, which accounted for 36% of all deaths due to these diseases, with the most common age group for both males and females being 80-89 years.

## ASTHMA (J45-J46)

Asthma is a disease which causes narrowing of the airways into the lung causing breathing difficulties. In 2008, Asthma (J45-J46) was the underlying cause for 449 registered deaths, or 0.3% of all deaths. Asthma was identified as either an underlying cause or associated cause of death for 1,472 deaths registered in 2008.

ASTHMA (J45-J46) *continued*

The standardised death rate for Asthma was 1.9 per 100,000 population in 2008, a decrease from 2.3 per 100,000 population in 1999. The standardised death rate for males in 2008 was 1.7 per 100,000 and 2.0 per 100,000 for females.

Median age at death for deaths due to Asthma was 74.3 years for males, 82.4 years for females and 80.3 years overall. The potential life lost due to asthma deaths was 2,664 years for males and 2,180 years for females.

In 98% of cases where Asthma was the underlying cause of death, it was not specified whether this was attributed to allergic or non allergic asthma. Asthma was the underlying cause of death for almost twice as many females as males in 2008 with 59 male deaths for every 100 female deaths.

CANCER (C00-D48)

Cancer refers to a diverse group of diseases in which abnormal cells develop and divide uncontrollably and have the ability to infiltrate and destroy normal body tissue. Cancer can spread throughout the body causing further damage. In 2008, Cancer (C00-D48) was the underlying cause of death for 42,418 registered deaths in Australia. This accounted for 29% of all registered deaths. Cancer contributed to a total of 48,784 deaths as either an underlying or associated cause of death.

The standardised death rate for Cancer was 182.1 per 100,000 population in 2008, a decrease from 195.8 per 100,000 population in 1999. The standardised death rate for males in 2008 was 232.1 per 100,000, and 144.3 per 100,000 for females.

More males than females died of cancer with 129 male deaths per 100 female deaths for the 2008 reference year. The median age of persons dying from cancer in 2008 was 75.1 years for males, 75.9 years for females and 75.4 years for all cancer deaths. Potential life lost due to cancer deaths was 183,259 years for males and 150,460 years for females.

Prostate cancer (C61) was the underlying cause of 3,031 deaths registered in 2008, 4.1% of all male deaths registered. The median age at death for Prostate cancer was 81.0 years. This is close to the median age for all male deaths (77.9 years). Potential life lost from deaths due to Prostate cancer was 9,178 years. Breast cancer (C50) was the underlying cause of 2,774 female deaths registered in 2008, 3.9% of all female deaths registered. The median age at death for Breast cancer was 68.1 years for females, which is 15.8 years lower than the median age for all female deaths (83.9 years). Potential life lost from deaths due to Breast cancer was 33,928 years for females.

Seven of the top 20 leading underlying causes of death in 2008 were attributable to some form of malignant cancer. These seven causes accounted for 25,922 deaths or 18% of all registered deaths in 2008. See Chapter 3 Leading Causes of Death for further information.

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 48,456 deaths registered in Australia during 2008, which represented 34% of all deaths. These diseases contributed to a total of 83,085 deaths as either an underlying or associated cause of death.

## CARDIOVASCULAR DISEASE (I00-I99) *continued*

Five of the top 20 leading underlying causes of death in 2008 were attributable to some form of Cardiovascular disease. These five causes accounted for 42,369 deaths, or 29% of all registered deaths in 2008. See Chapter 3 Leading Causes of Death for further information.

The standardised death rate for Cardiovascular disease was 197.6 per 100,000 population in 2008, a decrease from 286.6 per 100,000 population in 1999. The standardised death rate for males in 2008 was 234.8 per 100,000, and 166.7 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 higher median age at death, 87.0 years compared with 81.3 years for males. The potential life lost due to Cardiovascular disease is much higher for males than females; 116,912 years for males compared with 49,320 for females.

## DIABETES (E10-E14)

Diabetes is a disorder caused by the inability of the body to control the amount of sugar in the blood. If left untreated, diabetes can severely damage organs in the body. Diabetes (E10-E14) was the underlying cause for 4,191 (2.9%) deaths registered in Australia in 2008. Diabetes contributed to 14,461 (10%) deaths as either an underlying or associated cause of death.

The standardised death rate for Diabetes was 17.6 per 100,000 population in 2008, an increase from 16.3 per 100,000 population in 1999. The standardised death rate for males in 2008 was 21.4 per 100,000, and 14.4 per 100,000 for females.

Median age at death due to Diabetes was 78.9 years for males, 83.5 years for females and 81.2 years overall. Potential life lost through death due to Diabetes was 11,736 years for males and 6,452 years for females.

Type II diabetes (E11, Non-insulin dependent diabetes) accounted for 1,853 deaths, or 44% of all diabetes deaths. This particular type of diabetes was predominant in the 70-94 years age group. Of all deaths due to Non-insulin dependent diabetes, 79% of males and 82% of females were aged 70-94 years.

## INJURIES (V01-Y98)

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

In 2008, Injuries accounted for 8,804 deaths, or 6.1% of all registered deaths. The standardised death rate for Injuries was 39.2 per 100,000 of population in 2008, a decrease from 44.6 per 100,000 population in 1999. The standardised death rate for males in 2008 was 56.1 per 100,000 and 23.3 per 100,000 for females.

Compared to women, more men at younger ages have died from External causes over time. Consistent with previous years, approximately two thirds of the total number of deaths resulting from External causes were males (5,819, 65%). Median age at death for deaths due to Injuries registered in 2008 was 46.8 years for males, 73.8 years for females and 52.3 years overall. The potential life lost through deaths due to Injuries was 172,693 years for males and 54,265 years for females.

INJURIES (V01-Y98) *continued*

Transport accidents (V01-V99, Y85) accounted for 1,402 deaths, 16% of all deaths due to Injuries. Of these, 1,036 (74%) were males and the remaining 366 (26%) were females. Transport accidents presented a younger profile in comparison to all deaths due to Injuries, with a median age at death of 36.3 years for males, 45.6 years for females and 38.0 years overall. Potential life lost from deaths due to Transport accidents was 40,615 years for males and 12,015 years for females.

There were 2,191 deaths due to Intentional self-harm [Suicide] (X60-X84, Y87.0) in 2008, which accounted for 25% of all deaths due to Injuries. Of these deaths, 1,710 (78%) were of males and 481 (22%) were of females. The median age at death for Suicide was 42.5 years for males, 43.5 years for females and 42.7 years overall. Potential life lost from deaths due to Suicide was 59,086 years for males and 16,665 years for females.

Care should be taken in interpreting numbers of Suicide deaths. For further information, see Explanatory Notes 72-75.

MENTAL HEALTH DISORDERS (F00-F99)

Deaths due to Mental health disorders relate to behaviours and conditions which interfere with social functioning and capacity to negotiate daily life. Deaths due to Mental health disorders (F00-F99) were identified as the underlying cause of 6,406 registered deaths, representing 4.5% of all registered deaths in Australia during 2008. In total, 22,158 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 2008, the standardised death rate for Mental health disorders was 25.5 per 100,000 of population, an increase from 15.7 per 100,000 population in 1999. The standardised death rates for males in 2008 was 25.3 per 100,000, and 24.8 per 100,000 for females.

In 2008, more than half the deaths due to Mental health disorders were females (4,035 or 63%). The median age at death was higher for females at 88.6 years, compared with 84.2 years for males. Consistent with this difference, the potential life lost as a result of deaths due to Mental health disorders was 8,209 years for males and 4,250 years for females.

Dementia (F01-F03) accounted for 89% of deaths due to Mental health disorders in 2008. There were 5,688 deaths registered in 2008 for which Dementia was the underlying cause. Of these, 1,916 were males, and 3,772 females, giving a sex ratio of 50.8 males per 100 female deaths. The median age at death due to Dementia was 85.5 years for males, 89.0 years for females, and 87.8 years overall. For further information regarding Dementia, see Explanatory Note 65.

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 182 deaths registered in 2008 where Obesity (E66) was identified as the underlying cause of death. In total, there were 942 deaths where Obesity was mentioned as either underlying cause, or an associated cause of death.

In 2008, the standardised death rate for obesity was 0.8 per 100,000 of population, an increase from 0.7 per 100,000 population in 1999. The standardised death rate for males in 2008 was 0.7 per 100,000 males and 0.9 per 100,000 for females.

OBESITY (E66)
*continued*

Of those deaths where Obesity was the underlying cause, 79 (43%) were male, and 103 (57%) were female. The median age at death due to Obesity for males was 56.5 years and 64.6 years for females. Median age at death was 62.3 years for all deaths due to Obesity. Potential life lost from deaths due to obesity was 1,566 years for males and 1,575 years for females.

# CHAPTER 3 LEADING CAUSES OF DEATH

## OVERVIEW

Ranking causes of death is a useful method of describing patterns of mortality in a population. It allows comparison over time and between populations. However, different methods of grouping causes of death can result in a vastly different list of leading causes for any given population. 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 40-42 for further information).

Data for 2008 have been positively impacted by process improvements. See Technical Note 1: 2008 COD Collection - Process Improvements for further information. These data are also subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process for further information.

In 2008, the leading underlying cause of death for all Australians was Ischaemic heart diseases (I20-I25), which includes angina, blocked arteries of the heart and heart attacks. Ischaemic heart diseases were identified as the underlying cause of 23,665 deaths, 16% of all deaths registered in 2008. While Ischaemic heart diseases have been the leading cause of death in Australia since 1999, the number of deaths due to this cause has decreased, from 27,609 in 1999 to 23,665 in 2008. Similarly, the proportion of deaths where Ischaemic heart disease was the underlying cause has declined from 22% of all deaths in 1999 to 16% in 2008.

Cerebrovascular disease [Strokes] (I60-I69) remained the second leading underlying cause of death in 2008. Strokes include haemorrhages, strokes, infarctions and blocked arteries of the brain. Compared to 10 years ago, deaths due to this cause decreased by 2.4%, from 12,266 deaths in 1999 to 11,973 deaths in 2008. The proportion of deaths attributed to Strokes has decreased over the last 10 years, from 9.6% of deaths in 1999 to 8.3% of deaths in 2008.

Dementia and Alzheimer's disease (F01-F03, G30) was the third leading cause of death in 2008. The number of deaths due to this cause has increased 138% from 3,427 in 1999 to 8,171 in 2008. This is largely due to an increase in deaths due to Dementia (F01-F03), which increased from 1,911 in 1999 to 5,688 in 2008.

Trachea and lung cancers (C33-C34) were the fourth leading cause of death in 2008. Compared to 10 years ago, deaths due to this cause have increased by 17%, from 6,803 in 1999 to 7,946 in 2008. The proportion of deaths attributed to this cause was also higher in 2008, 5.3% in 1999 and 5.5% in 2008.

The top 10 leading causes of death accounted for 53% of all deaths registered in 2008, and the top 20 leading causes accounted for 67%.

OVERVIEW *continued*

**3.1** LEADING CAUSES OF DEATH(a), Australia Selected years —1999, 2003, 2008(b)(c)

| | 1999 | | 2003 | | 2008 | |
|---|---|---|---|---|---|---|
| *Cause of death and ICD code* | no. | Rank | no. | Rank | no. | Rank |
| Ischaemic heart diseases (I20-I25) | 27 609 | 1 | 25 439 | 1 | 23 665 | 1 |
| Strokes (I60-I69) | 12 266 | 2 | 12 240 | 2 | 11 973 | 2 |
| Dementia and Alzheimer disease (F01-F03, G30) | 3 427 | 7 | 4 275 | 6 | 8 171 | 3 |
| Trachea and lung cancer (C33-C34) | 6 803 | 3 | 6 976 | 3 | 7 946 | 4 |
| Chronic lower respiratory diseases (J40-J47) | 6 096 | 4 | 5 985 | 4 | 6 255 | 5 |
| Diabetes (E10-E14) | 2 947 | 9 | 3 389 | 9 | 4 191 | 6 |
| Colon and rectum cancer (C18-C21) | 4 576 | 5 | 4 447 | 5 | 4 120 | 7 |
| Blood and lymph cancer (including leukaemia) (C81-C96) | 3 558 | 6 | 3 712 | 7 | 3 889 | 8 |
| Heart failure (I50-I51) | 3 222 | 8 | 2 988 | 10 | 3 360 | 9 |
| Diseases of the kidney and urinary system (N00-N39) | 2 698 | 10 | 2 922 | 11 | 3 224 | 10 |
| Prostate cancer (C61) | 2 499 | 12 | 2 842 | 12 | 3 031 | 11 |
| Breast cancer (C50) | 2 527 | 11 | 2 722 | 13 | 2 788 | 12 |
| Pancreatic cancer (C25) | 1 718 | 16 | 1 902 | 15 | 2 291 | 13 |
| Suicide (X60-X84)(d) | 2 492 | 13 | 2 213 | 14 | 2 190 | 14 |
| Skin cancers (C43-C44) | 1 371 | 18 | 1 527 | 17 | 1 857 | 15 |
| Hypertensive diseases (I10-I15) | 1 177 | 21 | 1 364 | 19 | 1 824 | 16 |
| Influenza and pneumonia (J10-J18) | 1 898 | 15 | 3 566 | 8 | 1 742 | 17 |
| Cardiac arrhythmias (I47-I49) | 946 | 24 | 1 102 | 24 | 1 547 | 18 |
| Cirrhosis and other diseases of liver (K70-K77) | 1 243 | 19 | 1 390 | 18 | 1 490 | 19 |
| Falls (W00-W19) | 520 | 41 | 709 | 36 | 1 348 | 20 |

(a) Causes listed are the leading causes of death for all deaths registered in 2008 applied to people born overseas, based on the WHO recommended tabulation of leading causes. See Explanatory Notes 40-42 for further information.

(b) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(c) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(d) Excludes Sequelae of suicide (Y87.0) as per the WHO recommended tabulation of leading causes. Care needs to be taken in interpreting figures relating to Suicide due to limitations of the data, see Explanatory Notes 72-75.

LEADING CAUSES OF DEATH BY GENDER

Ischaemic heart diseases (I20-I25) were the leading cause of death for both males and females in 2008, with 12,444 and 11,221 deaths respectively. This reflects a sex ratio of 111 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:

- Trachea and lung cancers (C33-34), for which there were 172 male deaths for every 100 female deaths
- Chronic lower respiratory diseases (J40-J47), for which there were 118 male deaths for every 100 female deaths
- Strokes (I60-I69), for which there were 65 male deaths for every 100 female deaths
- Dementia and Alzheimer's disease (F01-F03, G30), for which there were 51 male deaths for every 100 female deaths.

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

- Intentional self harm [Suicide] (X60-X84) - 78%
- Trachea and lung cancers (C33-C34) - 63%

LEADING CAUSES OF DEATH BY GENDER *continued*

- Blood and lymph cancers (including leukaemia) (C81-C96) - 57%
- Chronic lower respiratory diseases (J40-J47) - 54%
- Colon and rectum cancers (C18-C21) - 54%
- Ischaemic heart disease (I20-I25) - 53%.

## 3.2 LEADING CAUSES OF DEATH(a), Males—2008(b)(c)

| *Underlying Cause of Death* | *Rank* | *Males* | *Total* |
|---|---|---|---|
| Ischaemic heart diseases (I20-I25) | 1 | 12 444 | 23 665 |
| Trachea and lung cancer (C33-C34) | 2 | 5 025 | 7 946 |
| Strokes (I60-I69) | 3 | 4 727 | 11 973 |
| Chronic lower respiratory diseases (J40-J47) | 4 | 3 387 | 6 255 |
| Prostate cancer (C61) | 5 | 3 031 | 3 031 |
| Dementia and Alzheimer disease (F01-F03, G30) | 6 | 2 707 | 8 171 |
| Colon and rectum cancer (C18-C21) | 7 | 2 230 | 4 120 |
| Blood and lymph cancer (including leukaemia) (C81-C96) | 8 | 2 220 | 3 889 |
| Diabetes (E10-E14) | 9 | 2 141 | 4 191 |
| Suicide (X60-X84)(d) | 10 | 1 709 | 2 190 |

(a) Causes listed are the leading causes of death for all deaths registered in 2008 based on the WHO recommended tabulation of leading causes. See Explanatory Notes 40-42 for further information.

(b) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(d) Excludes Sequelae of suicide (Y87.0) as per the WHO recommended tabulation of leading causes. Care needs to be taken in interpreting figures relating to Suicide due to limitations of the data, see Explanatory Notes 72-75.

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

- Dementia and Alzheimer disease (F01-F03, G30)- 67%
- Strokes (I60-I69) - 61%
- Heart failure (I50-I51) - 61%
- Diseases of the kidney and urinary system (N00-N39) - 54%.

LEADING CAUSES OF DEATH BY GENDER *continued*

## 3.3 LEADING CAUSES OF DEATH(a), Females—2008(b)(c)

| *Underlying Cause of Death* | *Rank* | *Females* | *Total* |
|---|---|---|---|
| Ischaemic heart diseases (I20-I25) | 1 | 11 221 | 23 665 |
| Strokes (I60-I69) | 2 | 7 246 | 11 973 |
| Dementia and Alzheimer disease (F01-F03, G30) | 3 | 5 464 | 8 171 |
| Trachea and lung cancer (C33-C34) | 4 | 2 921 | 7 946 |
| Chronic lower respiratory diseases (J40-J47) | 5 | 2 868 | 6 255 |
| Breast cancer (C50) | 6 | 2 774 | 2 788 |
| Diabetes (E10-E14) | 7 | 2 050 | 4 191 |
| Heart failure (I50-I51) | 8 | 2 034 | 3 360 |
| Colon and rectum cancer (C18-C21) | 9 | 1 890 | 4 120 |
| Diseases of the kidney and urinary system (N00-N39) | 10 | 1 756 | 3 224 |

(a) Causes listed are the leading causes of death for all deaths registered in 2008 based on the WHO recommended tabulation of leading causes. See Explanatory Notes 40-42 for further information.

(b) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

# CHAPTER 4 UNDERLYING CAUSE OF DEATH BY ICD-10 CHAPTER

## OVERVIEW

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.

Data for 2008 have been positively impacted by process improvements. See Technical Note 1: 2008 COD Collection - Process Improvements for further information. These data are also subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process for further information.

### *Data cubes*

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

## INFECTIOUS DISEASES (A00-B99)

In 2008, Infectious diseases (A00–B99) were the underlying cause of 1,935 registered deaths or 1.3% of all deaths. More males died from Infectious diseases than females in 2008, with 997 deaths registered for males and 938 deaths registered for females.

The median age at death from Infectious diseases in 2008 was 80.2 years, slightly lower than the median age for total number of deaths which was 80.9 years. The median age at death from this cause has marginally increased over time, with the median age at death for females typically recorded as being older than that for males. This trend continued in 2008, with the median age at death 83.0 years for females and 77.2 years for males.

Of those deaths due to Infectious diseases, 1,190 (61%) recorded Septicaemia (A40-A41) as the underlying cause of death. In the 10 years since 1999, Septicaemia has increased from 54% of all Infectious diseases to 61% in 2008.

Human immunodeficiency virus [HIV] disease (B20–B24) accounted for 64 deaths in total in 2008. The number of deaths with HIV as the underlying cause has gradually decreased over the past ten years, dropping from 135 in 1999. In 2008, more males (57) than females (7) 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 1999. This has been driven by the reduction in the number of males with this underlying cause of death, which has fallen from 126 in 1999 to 57 in 2008. In comparison, the number of females has remained relatively consistent over this period (9 in 1999 to 7 in 2008). The median age at death due to HIV in 2008 was 50.0 years for total persons, 50.4 years for males and 42.8 years for females.

## 4.1 SELECTED UNDERLYING CAUSES(a), Infectious diseases (A00–B99)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER I Certain infectious and parasitic diseases (A00-B99)** | 997 | 938 | 1 935 | 1.3 |
| ***Intestinal infectious diseases (A00-A09)*** | ***24*** | ***45*** | ***69*** | — |
| Other bacterial intestinal infections (A04) | 9 | 20 | 29 | — |
| ***Tuberculosis (A15-A19)*** | ***24*** | ***27*** | ***51*** | — |
| Respiratory tuberculosis, not confirmed bacteriologically or histologically (A16) | 18 | 19 | 37 | — |
| ***Other bacterial diseases (A30-A49)*** | ***603*** | ***660*** | ***1 263*** | ***0.9*** |
| Streptococcal septicaemia (A40) | 15 | 14 | 29 | — |
| Other septicaemia (A41) | 547 | 614 | 1 161 | 0.8 |
| Bacterial infection of unspecified site (A49) | 17 | 15 | 32 | — |
| ***Viral infections of the central nervous system (A80-A89)*** | ***24*** | ***19*** | ***43*** | — |
| Slow virus infections of central nervous system (A81) | 14 | 14 | 28 | — |
| ***Viral infections characterized by skin and mucous membrane lesions (B00-B09)*** | ***24*** | ***24*** | ***48*** | — |
| Zoster (herpes zoster) (B02) | 12 | 13 | 25 | — |
| ***Viral hepatitis (B15-B19)*** | ***33*** | ***14*** | ***47*** | — |
| Chronic viral hepatitis (B18) | 25 | 11 | 36 | — |
| ***Human immunodeficiency virus (HIV])disease (B20-B24)*** | ***57*** | ***7*** | ***64*** | — |
| ***Other viral diseases (B25-B34)*** | ***20*** | ***19*** | ***39*** | — |
| Viral infection of unspecified site (B34) | 14 | 11 | 25 | — |
| ***Sequelae of infectious and parasitic diseases (B90-B94)*** | ***133*** | ***95*** | ***228*** | ***0.2*** |
| Sequelae of other and unspecified infectious and parasitic diseases (B94) | 124 | 75 | 199 | 0.1 |
| ***Other infectious diseases (B99)*** | ***11*** | ***16*** | ***27*** | — |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements 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. Cells with a zero value have not been affected by confidentialisation.

(d) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

### CANCER (C00-D48)

In 2008, Cancer (C00–D48) was the underlying cause of 42,418 registered deaths in Australia. This accounted for 30% of all registered deaths. The ratio of male (23,908) to female (18,510) deaths in 2008 remained steady at 129 males per 100 females. The median age of persons dying from Malignant cancers (C00–C97) has continued to rise from 73.2 years in 1999 to 75.2 years in 2008. Deaths due to Malignant cancers accounted for 41,341 deaths or 97% of all cancers in 2008.

Cancers of the digestive organs (C15–C26) accounted for 11,654 deaths. Of these, Colon cancer (C18) constituted the largest number of deaths with 2,481. The median age at death for people dying of colon cancer was 74.6 years for males and 78.1 years for females, with the largest number of deaths occurring between 75 and 84 years of age for both males and females.

Pancreatic cancer (C25) was the second highest contributor to deaths from Cancers of the digestive organs, accounting for 2,291 deaths. There was a small difference between the number of males (1,192) and females (1,099) with Pancreatic cancer as the underlying cause of death, however, the median age of males dying of Pancreatic cancer (72.3) was lower than for females (77.8) dying of the same cause.

CANCER (C00-D48)
*continued*

There were 8,262 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 7,941 (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 216.7 male deaths per 100 females in 1999 to 171.9 male deaths per 100 females in 2008. However, since 1999 the number of female deaths from this cause has increased by 775 while the number of male deaths has increased by 370. Males whose underlying cause of death was Lung cancer, had a marginally lower median age at death (73.7 years) than females (73.8 years) with the same underlying cause.

Prostate cancer (C61) was the underlying cause of 4.1% of all male deaths registered in 2008. Male deaths with this underlying cause have increased gradually from 2,499 in 1999 to 3,031 in 2008. The median age at death for Prostate cancer was 81.0 years. This was close to the median age for all deaths (80.9 years) and continues to follow the steady upward trend from 78.8 years in 1999.

In females, deaths due to Breast cancer (C50) have risen from 2,505 in 1999 to 2,774 in 2008. The 2008 figure is the highest in the past decade, 55 more than in 2005, the second highest in the past decade, when 2,719 females deaths due to Breast cancer were recorded. The female median age at death due to Breast cancer was 68.1 years, 2.9 years lower than males (71.0 years) and 15.8 years lower than the median age for all female deaths (83.9 years).

## 4.2 SELECTED UNDERLYING CAUSES(a), Cancer (C00–D48)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER II Neoplasms (C00-D48)** | **23 908** | **18 510** | **42 418** | **29.5** |
| *Malignant neoplasms (C00-C97)* | *23 340* | *18 001* | *41 341* | *28.7* |
| ***Malignant neoplasms of lip, oral cavity and pharynx (C00-C14)*** | ***476*** | ***199*** | ***675*** | ***0.5*** |
| Malignant neoplasm of other and unspecified parts of tongue (C02) | 106 | 50 | 156 | 0.1 |
| Malignant neoplasm of other and unspecified parts of mouth (C06) | 33 | 23 | 56 | — |
| Malignant neoplasm of parotid gland (C07) | 55 | 18 | 73 | 0.1 |
| Malignant neoplasm of tonsil (C09) | 44 | 14 | 58 | — |
| Malignant neoplasm of oropharynx (C10) | 35 | 15 | 50 | — |
| Malignant neoplasm of nasopharynx (C11) | 41 | 18 | 59 | — |
| Malignant neoplasm of other and ill-defined sites in the lip, oral cavity and pharynx (C14) | 65 | 14 | 79 | 0.1 |
| ***Malignant neoplasms of digestive organs (C15-C26)*** | ***6 588*** | ***5 066*** | ***11 654*** | ***8.1*** |
| Malignant neoplasm of oesophagus (C15) | 841 | 368 | 1 209 | 0.8 |
| Malignant neoplasm of stomach (C16) | 717 | 428 | 1 145 | 0.8 |
| Malignant neoplasm of small intestine (C17) | 53 | 47 | 100 | 0.1 |
| Malignant neoplasm of colon (C18) | 1 270 | 1 211 | 2 481 | 1.7 |
| Malignant neoplasm of rectosigmoid junction (C19) | 462 | 354 | 816 | 0.6 |
| Malignant neoplasm of rectum (C20) ' | 469 | 291 | 760 | 0.5 |
| Malignant neoplasm of anus and anal canal (C21) | 29 | 34 | 63 | — |
| Malignant neoplasm of liver and intrahepatic bile ducts (C22) | 797 | 416 | 1 213 | 0.8 |
| Malignant neoplasm of gallbladder (C23) | 63 | 128 | 191 | 0.1 |
| Malignant neoplasm of other and unspecified parts of biliary tract (C24) | 43 | 45 | 88 | 0.1 |
| Malignant neoplasm of pancreas (C25) | 1 192 | 1 099 | 2 291 | 1.6 |
| Malignant neoplasm of other and ill-defined digestive organs (C26) | 652 | 645 | 1 297 | 0.9 |
| ***Malignant neoplasms of respiratory and intrathoracic organs (C30-C39)*** | ***5 275*** | ***2 987*** | ***8 262*** | ***5.7*** |
| Malignant neoplasm of larynx (C32) | 203 | 34 | 237 | 0.2 |
| Malignant neoplasm of bronchus and lung (C34) | 5 020 | 2 921 | 7 941 | 5.5 |
| ***Malignant neoplasms of bone and articular cartilage (C40-C41)*** | ***59*** | ***45*** | ***104*** | ***0.1*** |
| Malignant neoplasm of bone and articular cartilage of other and unspecified sites (C41) | 55 | 39 | 94 | 0.1 |
| ***Melanoma and other malignant neoplasms of skin (C43-C44)*** | ***1 244*** | ***613*** | ***1 857*** | ***1.3*** |
| Malignant melanoma of skin (C43) | 965 | 472 | 1 437 | 1.0 |
| Other malignant neoplasms of skin (C44) | 279 | 141 | 420 | 0.3 |
| ***Malignant neoplasms of mesothelial and soft tissue (C45-C49)*** | ***637*** | ***312*** | ***949*** | ***0.7*** |
| Mesothelioma (C45) | 504 | 124 | 628 | 0.4 |
| Malignant neoplasm of retroperitoneum and peritoneum (C48) | 16 | 77 | 93 | 0.1 |
| Malignant neoplasm of other connective and soft tissue (C49) | 109 | 108 | 217 | 0.2 |
| Malignant neoplasm of breast (C50) | 14 | 2 774 | 2 788 | 1.9 |
| ***Malignant neoplasms of female genital organs (C51-C58)*** | — | ***1 599*** | ***1 599*** | ***1.1*** |
| Malignant neoplasm of vulva (C51) | — | 72 | 72 | 0.1 |
| Malignant neoplasm of cervix uteri (C53) | — | 234 | 234 | 0.2 |
| Malignant neoplasm of corpus uteri (C54) | — | 219 | 219 | 0.2 |
| Malignant neoplasm of uterus, part unspecified (C55) | — | 130 | 130 | 0.1 |
| Malignant neoplasm of ovary (C56) | — | 899 | 899 | 0.6 |
| ***Malignant neoplasms of male genital organs (C60-C63)*** | ***3 053*** | — | ***3 053*** | ***2.1*** |
| Malignant neoplasm of prostate (C61) | 3 031 | — | 3 031 | 2.1 |
| ***Malignant neoplasms of urinary tract (C64-C68)*** | ***1 240*** | ***644*** | ***1 884*** | ***1.3*** |
| Malignant neoplasm of kidney, except renal pelvis (C64) | 528 | 320 | 848 | 0.6 |
| Malignant neoplasm of bladder (C67) | 662 | 288 | 950 | 0.7 |
| ***Malignant neoplasms of eye, brain and other parts of central nervous system (C69-C72)*** | ***729*** | ***504*** | ***1 233*** | ***0.9*** |
| Malignant neoplasm of brain (C71) | 710 | 484 | 1 194 | 0.8 |

## 4.2 SELECTED UNDERLYING CAUSES(a), Cancer (C00–D48)—2008(b)(c)(d) *continued*

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER II Neoplasms (C00-D48)** | **23 908** | **18 510** | **42 418** | **29.5** |
| ***Malignant neoplasms (C00-C97)*** | ***23 340*** | ***18 001*** | ***41 341*** | ***28.7*** |
| ***Malignant neoplasms of thyroid and other endocrine glands (C73-C75)*** | ***72*** | ***89*** | ***161*** | ***0.1*** |
| Malignant neoplasm of thyroid gland (C73) | 45 | 60 | 105 | 0.1 |
| ***Malignant neoplasms of ill-defined, secondary and unspecified sites (C76-C80)*** | ***1 307*** | ***1 251*** | ***2 558*** | ***1.8*** |
| Malignant neoplasm of other and ill-defined sites (C76) | 100 | 105 | 205 | 0.1 |
| Malignant neoplasm without specification of site (C81) | 1 207 | 1 146 | 2 353 | 1.6 |
| ***Malignant neoplasms of lymphoid, haematopoietic and related tissue (C81-C96)*** | ***2 220*** | ***1 669*** | ***3 889*** | ***2.7*** |
| Hodgkin's disease (C81) | 26 | 30 | 56 | — |
| Diffuse non-Hodgkin's lymphoma (C83) | 121 | 73 | 194 | 0.1 |
| Peripheral and cutaneous T-cell lymphomas (C84) | 66 | 31 | 97 | 0.1 |
| Other and unspecified types of non-Hodgkin's lymphoma (C85) | 583 | 509 | 1 092 | 0.8 |
| Multiple myeloma and malignant plasma cell neoplasms (C90) | 487 | 376 | 863 | 0.6 |
| Lymphoid leukaemia (C91) | 272 | 151 | 423 | 0.3 |
| Myeloid leukaemia (C92) | 543 | 390 | 933 | 0.6 |
| Leukaemia of unspecified cell type (C95) | 67 | 63 | 130 | 0.1 |
| Malignant neoplasms of independent (primary) multiple sites (C97) | 426 | 249 | 675 | 0.5 |
| ***Other Neoplasms (D00-D48)*** | ***568*** | ***509*** | ***1 077*** | ***0.7*** |
| ***Benign neoplasms (D10-D36)*** | ***52*** | ***73*** | ***125*** | ***0.1*** |
| Benign neoplasm of meninges (D32) | 30 | 47 | 77 | 0.1 |
| ***Neoplasms of uncertain or unknown behaviour (D37-D48)*** | ***516*** | ***435*** | ***951*** | ***0.7*** |
| Neoplasm of uncertain or unknown behaviour of oral cavity and digestive organs (D37) | 34 | 37 | 71 | — |
| Neoplasm of uncertain or unknown behaviour of brain and central nervous system (D43) | 74 | 82 | 156 | 0.1 |
| Myelodysplastic syndromes (D46) | 256 | 172 | 428 | 0.3 |
| Other neoplasms of uncertain or unknown behaviour of lymphoid, haematopoietic and related tissue (D47) | 96 | 71 | 167 | 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. 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 503 registered deaths in 2008. This represented 0.3% of all registered deaths in 2008 and has remained stable over the last 10 years. These deaths were most likely to occur amongst older people, with 72% of males and 83% 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 2008, with a median age at death for females of 83.5 years and 77.6 years for males.

Anaemias (D50–D64) accounted for 211 deaths, or 42% of deaths due to Blood and immunity disorders. The number of deaths due to Anaemias has remained stable over the last 10 years. The number of Anaemias as a proportion of all Blood and immunity disorders has been steadily falling over the last decade from 45% in 1999 to 42% in 2008. The number of females (123) dying from Anaemias in 2008 was higher than the number

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

of males (88) dying from the same cause. This pattern has been consistent over the 10 years since 1999.

**4.3** SELECTED UNDERLYING CAUSES(a), Diseases of the Blood and Immunity Disorders (D50–D89)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER III Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89)** | **244** | **259** | **503** | **0.3** |
| ***Aplastic and other anaemias (D60-D64)*** | ***73*** | ***95*** | ***168*** | ***0.1*** |
| Other aplastic anaemias (D61) | 37 | 46 | 83 | 0.1 |
| Other anaemias (D64) | 36 | 49 | 85 | 0.1 |
| ***Coagulation defects, purpura and other haemorrhagic conditions (D65-D69)*** | ***64*** | ***51*** | ***115*** | ***0.1*** |
| Other coagulation defects (D68) | 19 | 29 | 48 | — |
| Purpura and other haemorrhagic conditions (D69) | 36 | 15 | 51 | — |
| ***Other diseases of blood and blood-forming organs (D70-D77)*** | ***32*** | ***35*** | ***67*** | — |
| Agranulocytosis (D70) | 14 | 11 | 25 | — |
| ***Certain disorders involving the immune mechanism (D80-D89)*** | ***60*** | ***50*** | ***110*** | ***0.1*** |
| Other immunodeficiencies (D84) | 30 | 30 | 60 | — |
| Sarcoidosis (D86) | 18 | 10 | 28 | — |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. Cells with a zero value have not been affected by confidentialisation.

ENDOCRINE, NUTRIONAL AND METABOLIC DISEASES (E00-E90)

Endocrine, nutritional and metabolic diseases (E00–E90) in 2008 accounted for 5,900 registered deaths, representing 4.1% of all registered deaths. Total deaths due to these underlying causes have increased gradually over the last ten years, from 4,100 in 1999 to 5,900 in 2008. The proportion of all deaths due to these causes has also increased slightly over the same period ranging from 3.2% in 1999 to 4.1% in 2008. The median age at death from these causes was 81.1 years, which was comparable with the median age of 80.9 years for all deaths in 2008.

Diabetes (E10–E14) was the underlying cause of death for 4,191 people, or 2.9% of all deaths. 2008 had the highest number of deaths resulting from Diabetes over the past ten years, with the proportion of all deaths represented by this cause increasing (2.3% to 2.9%) over this period.

Obesity (E66) accounted for a total of 182 deaths in 2008. The overall median age at death due to Obesity as the underlying cause was 62.3 years, which was 18.6 years less than the median age for all deaths. At 56.5 years for males and 62.3 years for females, the median age at death resulting from Obesity for males was almost 6 years lower than it was for females.

## 4.4 SELECTED UNDERLYING CAUSES(a), Endocrine, Nutritional and Metabolic Diseases (E00–E90)—2008(b)(c)

| Cause of Death and ICD Code(d) | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER IV Endocrine, nutritional and metabolic diseases (E00-E90)** | **2 908** | **2 992** | **5 900** | **4.1** |
| ***Disorders of thyroid gland (E00-E07)*** | ***22*** | ***92*** | ***114*** | ***0.1*** |
| Other hypothyroidism (E03) | 17 | 57 | 74 | 0.1 |
| Thyrotoxicosis (hyperthyroidism) (E05) | 3 | 31 | 34 | — |
| ***Diabetes mellitus (E10-E14)*** | ***2 141*** | ***2 050*** | ***4 191*** | ***2.9*** |
| Insulin-dependent diabetes mellitus (E10) | 198 | 191 | 389 | 0.3 |
| Non-insulin-dependent diabetes mellitus (E11) | 918 | 935 | 1 853 | 1.3 |
| Unspecified diabetes mellitus (E14) | 1 025 | 924 | 1 949 | 1.4 |
| ***Malnutrition (E40-E46)*** | ***30*** | ***38*** | ***68*** | — |
| Unspecified protein-energy malnutrition (E46) | 23 | 30 | 53 | — |
| ***Obesity and other hyperalimentation (E65-E68)*** | ***79*** | ***103*** | ***182*** | ***0.1*** |
| Obesity (E66) | 79 | 103 | 182 | 0.1 |
| ***Metabolic disorders (E70-E90)*** | ***598*** | ***658*** | ***1 256*** | ***0.9*** |
| Disorders of sphingolipid metabolism and other lipid storage disorders (E75) | 10 | 10 | 20 | — |
| Disorders of lipoprotein metabolism and other lipidaemias (E78) | 343 | 361 | 704 | 0.5 |
| Disorders of mineral metabolism (E83) | 20 | 17 | 37 | — |
| Cystic fibrosis (E84) | 13 | 11 | 24 | — |
| Amyloidosis (E85) | 63 | 32 | 95 | 0.1 |
| Volume depletion (E86) | 61 | 134 | 195 | 0.1 |
| Other disorders of fluid, electrolyte and acid-base balance (E87) | 32 | 53 | 85 | 0.1 |
| Other metabolic disorders (E88) | 40 | 27 | 67 | — |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. Cells with a zero value have not been affected by confidentialisation.

### MENTAL AND BEHAVIOURAL DISORDERS (F00-F99)

In 2008, Mental and behavioural disorders (F00–F99) were identified as the underlying cause of 6,406 registered deaths, representing 4.5% of all registered deaths during 2008.

There were nearly twice as many female deaths (4,035 or 63%) due to Mental and behavioural disorders than male deaths (2,371 or 37%) registered in 2008. The median age at death was higher for females at 88.6 years, compared with 84.2 years for males.

Dementia (F01–F03) accounted for 89% of Mental and behavioural disorders in 2008, compared with 68% in 1999 (see Explanatory Note 65). The sex ratio of 51 males per 100 female deaths has remained relatively steady since 1999, with 1,916 males and 3,772 females dying of this disease in 2008. The median age at death for persons (87.8 years) dying of Dementia was higher than the median age for Mental and behavioural disorders (87.1 years) as a whole.

Mental and behavioural disorders due to the use of alcohol (F10) was the underlying cause of 297 (4.6%) deaths from Mental and behavioural disorders in 2008. More than three times more males than females died from this cause, with 231 male deaths compared with 66 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 60.9 years. This was twenty years lower than the median age of all causes of death (80.9 years). The median age at death of females was 60.0 years, compared with 61.1 years for

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

males. The trends for males and females differ also, with female deaths remaining steady since 1999 and male deaths fluctuating over time, ranging between 188 in 1999 and 231 in 2008.

**4.5** SELECTED UNDERLYING CAUSES(a), Mental and Behavioural Disorders (F00–F99)—2008(b)(c)(d)

| *Cause of Death and ICD Code* | *Males* no. | *Females* no. | *Persons* no. | *Proportion of all deaths* % |
|---|---|---|---|---|
| **CHAPTER V Mental and behavioural disorders (F00-F99)** | **2 371** | **4 035** | **6 406** | **4.5** |
| ***Organic, including symptomatic, mental disorders (F00-F09)*** | ***1 982*** | ***3 816*** | ***5 798*** | ***4.0*** |
| Vascular dementia (F01) (e) | 405 | 620 | 1 025 | 0.7 |
| Unspecified dementia (F03) (e) | 1 511 | 3 152 | 4 663 | 3.2 |
| Delirium, not induced by alcohol and other psychoactive substances (F05) | 50 | 27 | 77 | 0.1 |
| Personality and behavioural disorders due to brain disease, damage and dysfunction (F07) | 13 | 16 | 29 | — |
| ***Mental and behavioural disorders due to psychoactive substance use (F10-F19)*** | ***321*** | ***121*** | ***442*** | ***0.3*** |
| Mental and behavioural disorders due to use of alcohol (F10) | 231 | 66 | 297 | 0.2 |
| Mental and behavioural disorders due to use of tobacco (F17) | 62 | 41 | 103 | 0.1 |
| Mental and behavioural disorders due to multiple drug use and use of other psychoactive substances (F19) | 20 | 9 | 29 | — |
| ***Schizophrenia, schizotypal and delusional disorders (F20-F29)*** | ***27*** | ***32*** | ***59*** | — |
| Schizophrenia (F20) | 27 | 29 | 56 | — |
| ***Mood (affective) disorders (F30-F39)*** | ***23*** | ***42*** | ***65*** | — |
| Depressive episode (F32) | 20 | 32 | 52 | — |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. Cells with a zero value have not been affected by confidentialisation.

(e) See Explanatory Note 65 for further information on data relating to Dementia.

## DISEASES OF THE NERVOUS SYSTEM (G00-G99)

Diseases of the nervous system (G00–G99) accounted for 5,961 registered deaths in 2008, representing 4.1% of all registered deaths. This follows a gradual increase in deaths attributable to Diseases of the nervous system over time, from 3,890 in 1999. The number of deaths due to Diseases of the nervous system was higher for females (3,237) than for males (2,724). The median age at death was 80.0 for males, 84.4 for females.

Deaths from Alzheimer's disease (G30) constituted 42% (2,483) of all deaths due to Diseases of the nervous system and 1.7% of all registered deaths in 2008. Female deaths (1,692) due to Alzheimer's disease were much higher than male deaths (791), with a ratio of 47 male deaths per 100 female deaths. The median age at death due to Alzheimer's disease was 86.8 years.

Parkinson's disease (G20) accounted for 22% of all deaths due to Diseases of the nervous system and 0.9% of all deaths registered in 2008. There were 1,284 deaths due to this disease, with a median age at death of 83.2 years. The number of male deaths (752) due to this disease was higher than the number of female deaths (532). This was similar to the overall trend for the past 10 years.

## 4.6 SELECTED UNDERLYING CAUSES(a), Diseases of the Nervous System (G00–G99)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| **CHAPTER VI Diseases of the nervous system (G00-G99)** | **2 724** | **3 237** | **5 961** | **4.1** |
| ***Systemic atrophies primarily affecting the central nervous system (G10-G13)*** | ***392*** | ***331*** | ***723*** | ***0.5*** |
| Huntington's disease (G10) | 35 | 44 | 79 | 0.1 |
| Spinal muscular atrophy and related syndromes (G12) | 350 | 280 | 630 | 0.4 |
| ***Extrapyramidal and movement disorders (G20-G26)*** | ***773*** | ***555*** | ***1 328*** | ***0.9*** |
| Parkinson's disease (G20) | 752 | 532 | 1 284 | 0.9 |
| Other degenerative diseases of basal ganglia (G23) | 9 | 17 | 26 | — |
| ***Other degenerative diseases of the nervous system (G30-G32)*** | ***926*** | ***1 812*** | ***2 738*** | ***1.9*** |
| Alzheimer's disease (G30) | 791 | 1 692 | 2 483 | 1.7 |
| Other degenerative diseases of nervous system, not elsewhere classified (G31) | 135 | 120 | 255 | 0.2 |
| ***Demyelinating diseases of the central nervous system (G35-G37)*** | ***52*** | ***98*** | ***150*** | ***0.1*** |
| Multiple sclerosis (G35) | 51 | 91 | 142 | 0.1 |
| ***Episodic and paroxysmal disorders (G40-G47)*** | ***194*** | ***158*** | ***352*** | ***0.2*** |
| Epilepsy (G40) | 150 | 109 | 259 | 0.2 |
| Transient cerebral ischaemic attacks and related syndromes (G45) | 24 | 34 | 58 | — |
| Sleep disorders (G47) | 14 | 8 | 22 | — |
| ***Polyneuropathies and other disorders of the peripheral nervous system (G60-G64)*** | ***24*** | ***21*** | ***45*** | — |
| Other polyneuropathies (G62) | 13 | 15 | 28 | — |
| ***Diseases of myoneural junction and muscle (G70-G73)*** | ***83*** | ***57*** | ***140*** | ***0.1*** |
| Myasthenia gravis and other myoneural disorders (G70) | 18 | 18 | 36 | — |
| Primary disorders of muscles (G71) | 55 | 32 | 87 | 0.1 |
| ***Cerebral palsy and other paralytic syndromes (G80-G83)*** | ***90*** | ***67*** | ***157*** | ***0.1*** |
| Infantile cerebral palsy (G80) | 36 | 31 | 67 | — |
| Hemiplegia (G81) | 16 | 8 | 24 | — |
| Paraplegia and tetraplegia (G82) | 36 | 24 | 60 | — |
| ***Other disorders of the nervous system (G90-G99)*** | ***157*** | ***115*** | ***272*** | ***0.2*** |
| Disorders of autonomic nervous system (G90) | 31 | 27 | 58 | — |
| Hydrocephalus (G91) | 14 | 13 | 27 | — |
| Other disorders of brain (G93) | 97 | 62 | 159 | 0.1 |
| Other diseases of spinal cord (G95) | 10 | 10 | 20 | — |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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.

### DISEASES OF THE EYE AND EAR (H00-H95)

Due to the small number of deaths attributed to Diseases of the eye and ear (H00-H95), the following section refers to the period 1999-2008.

Since 1999, a total of 115 deaths have been attributed to Diseases of the eye and ear (H00-H95). Of these, 47 (41%) were male and 68 (59%) were female.

Diseases of the middle ear and mastoid (H65–H75) have accounted for a total of 54 deaths since 1999. Visual disturbances and blindness (H53–H54) have accounted for a total of 14 deaths in the last 10 years.

## 4.7 SELECTED UNDERLYING CAUSES(a), Diseases of the eye and ear (H00–H95)—1999–2008(b)(c)(d)(e)

| Cause of Death and ICD Code | Males no. | Females no. | Persons no. |
|---|---|---|---|
| **CHAPTER VII Diseases of the eye and adnexa (H00-H59)** | **20** | **32** | **52** |
| ***Disorders of eyelid, lacrimal system and orbit (H00-H06)*** | ***6*** | ***6*** | ***12*** |
| Disorders of orbit (H05) | 5 | 5 | 10 |
| ***Visual disturbances and blindness (H53-H54)*** | ***6*** | ***8*** | ***14*** |
| Blindness and low vision (H54) | 6 | 8 | 14 |
| **CHAPTER VIII Diseases of the ear and mastoid process (H60-H95)** | **27** | **36** | **63** |
| ***Diseases of middle ear and mastoid (H65-H75)*** | ***22*** | ***32*** | ***54*** |
| Suppurative and unspecified otitis media (H66) | 12 | 23 | 35 |
| Mastoiditis and related conditions (H70) | 9 | 6 | 15 |

(a) Causes selected are those with 10 or more deaths at the 3 digit level of ICD-10.
(b) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.
(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.
(d) Causes of death data for 2007 have been revised and are subject to further revisions. See Technical Note 3: 2007 Revisions for further information.
(e) Data cells with small values have been randomly assigned to protect the confidentiality of individuals. As a result, some totals will not equal the sum of their components. Cells with a zero value have not been affected by confidentialisation.

### 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 48,456 registered deaths in 2008. This accounted for 34% of all registered deaths. The median age at death for Diseases of the heart and blood vessels was 84.6 years, higher than the median age for all deaths (80.9 years).

Female deaths represented 53% (25,699) of deaths due to these diseases. The pattern of more female than male deaths for these underlying causes was consistent over the last 10 years. Females (87.0 years) dying from these diseases had a higher median age at death than males (81.3 years) dying from the same cause.

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 23,665 deaths (49%) . Of deaths from Ischaemic heart disease, 12,444 (53%) were males, and 11,221 (47%) were females. Ischaemic heart disease accounted for almost twice the number of deaths than the next highest contributor to Diseases of the heart and blood vessels (Cerebrovascular disease [Stroke] (I60-I69), or 11,973).

Deaths from Stroke (I60–I69) numbered 11,973 in 2008 or 25% of all Diseases of the heart and blood vessels, comparable with Acute myocardial infarction (Heart attack, (I21). In contrast to Heart attack, however, there were considerably less males 4,727 (39%) with Stroke as the underlying cause of death than females 7,246 (61%). Females at 86.9 years, had a higher median age at death than males at 82.7 years.

Heart attack (I21) represented 11,122 deaths or 23% of all Diseases of the Heart and Blood Vessels, and a total of 7.7% of all causes. There was a small difference in the number of male and female deaths due to this cause with 5,539 and 5,583 deaths respectively. The median age at death for females from Heart attack as their underlying cause of death was 87.0 years while the male figure was lower at 81.0 years.

## 4.8 SELECTED UNDERLYING CAUSES(a), Diseases of the Heart and Blood Vessels (I00–I99)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER IX Diseases of the circulatory system (I00-I99)** | **22 757** | **25 699** | **48 456** | **33.7** |
| ***Chronic rheumatic heart diseases (I05-I09)*** | ***108*** | ***220*** | ***328*** | ***0.2*** |
| Rheumatic mitral valve diseases (I05) | 55 | 109 | 164 | 0.1 |
| Multiple valve diseases (I08) | 24 | 40 | 64 | — |
| ***Hypertensive diseases (I10-I15)*** | ***622*** | ***1 202*** | ***1 824*** | ***1.3*** |
| Essential (primary) hypertension (I10) | 154 | 338 | 492 | 0.3 |
| Hypertensive heart disease (I11) | 236 | 452 | 688 | 0.5 |
| Hypertensive renal disease (I12) | 198 | 336 | 534 | 0.4 |
| Hypertensive heart and renal disease (I13) | 34 | 76 | 110 | 0.1 |
| ***Ischaemic heart diseases (I20-I25)*** | ***12 444*** | ***11 221*** | ***23 665*** | ***16.4*** |
| Acute myocardial infarction (I21) | 5 539 | 5 583 | 11 122 | 7.7 |
| Other acute ischaemic heart diseases (I24) | 141 | 177 | 318 | 0.2 |
| Chronic ischaemic heart disease (I25) | 6 750 | 5 435 | 12 185 | 8.5 |
| ***Pulmonary heart disease and diseases of pulmonary circulation (I26-I28)*** | ***239*** | ***359*** | ***598*** | ***0.4*** |
| Pulmonary embolism (I26) | 142 | 202 | 344 | 0.2 |
| Other pulmonary heart diseases (I27) | 95 | 157 | 252 | 0.2 |
| ***Other forms of heart disease (I30-I52)*** | ***3 262*** | ***4 198*** | ***7 460*** | ***5.2*** |
| Other diseases of pericardium (I31) | 27 | 25 | 52 | — |
| Acute and subacute endocarditis (I33) | 44 | 22 | 66 | — |
| Nonrheumatic mitral valve disorders (I34) | 80 | 109 | 189 | 0.1 |
| Nonrheumatic aortic valve disorders (I35) | 441 | 482 | 923 | 0.6 |
| Endocarditis, valve unspecified (I38) | 77 | 118 | 195 | 0.1 |
| Cardiomyopathy (I42) | 573 | 323 | 896 | 0.6 |
| Cardiac arrest (I46) | 60 | 76 | 136 | 0.1 |
| Atrial fibrillation and flutter (I48) | 479 | 840 | 1 319 | 0.9 |
| Other cardiac arrhythmias (I49) | 97 | 110 | 207 | 0.1 |
| Heart failure (I50) | 1 026 | 1 732 | 2 758 | 1.9 |
| Complications and ill-defined descriptions of heart disease (I51) | 300 | 302 | 602 | 0.4 |
| ***Cerebrovascular diseases (I60-I69)*** | ***4 727*** | ***7 246*** | ***11 973*** | ***8.3*** |
| Subarachnoid haemorrhage (I60) | 193 | 318 | 511 | 0.4 |
| Intracerebral haemorrhage (I61) | 629 | 687 | 1 316 | 0.9 |
| Other nontraumatic intracranial haemorrhage (I62) | 235 | 227 | 462 | 0.3 |
| Cerebral infarction (I63) | 397 | 519 | 916 | 0.6 |
| Stroke, not specified as haemorrhage or infarction (I64) | 2 011 | 3 570 | 5 581 | 3.9 |
| Other cerebrovascular diseases (I67) | 202 | 285 | 487 | 0.3 |
| Sequelae of cerebrovascular disease (I69) | 1 060 | 1 640 | 2 700 | 1.9 |
| ***Diseases of arteries, arterioles and capillaries (I70-I79)*** | ***1 227*** | ***1 087*** | ***2 314*** | ***1.6*** |
| Atherosclerosis (I70) | 80 | 144 | 224 | 0.2 |
| Aortic aneurysm and dissection (I71) | 748 | 482 | 1 230 | 0.9 |
| Other peripheral vascular diseases (I73) | 314 | 376 | 690 | 0.5 |
| Other disorders of arteries and arterioles (I77) | 38 | 35 | 73 | 0.1 |
| ***Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified (I80-I89)*** | ***118*** | ***152*** | ***270*** | ***0.2*** |
| Phlebitis and thrombophlebitis (I80) | 93 | 118 | 211 | 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. 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 11,260 registered deaths in 2008, which was 7.8% of all registered deaths. In line with the pattern of previous years where more males than females died of this cause, there were 5,924 male deaths compared to 5,336 female deaths due to Diseases of the respiratory system. Over the past ten years, females tended to be older than males for this underlying cause. This trend continued in 2008 with the median age at death for males 81.3 years and females 84.1 years.

In 2008, Chronic lower respiratory diseases (J40–J47) were the underlying cause of 6,255 deaths or 4.3% of all registered deaths. Chronic lower respiratory diseases include diseases such as asthma, bronchitis and emphysema. More males than females died from this cause in 2008 (3,387 compared with 2,868). Males also tended to be slightly younger than females dying from this cause over time. In 2008, the median age at death caused by Chronic lower respiratory diseases was 80.4 years for males and 81.5 years for females.

In 2008, Pneumonia (J12-J18) accounted for 1,704 of the 1,742 registered deaths due to Influenza and pneumonia (J10-J18), or 1.2% of all registered deaths in Australia. As in previous years, more females died from Pneumonia than males, with 1,003 female deaths compared with 695 male deaths. The median age at death for males was also lower, 84.9 years compared with 90.3 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 113 deaths in 1999 to 1,123 in 2008. The increase in deaths due to this cause was mainly in the 60 years and over age group. In 1999, 157 people aged 60 or over died from Pneumonitis, whereas in 2008, 1,076 people aged 60 years or over died from this underlying cause.

## 4.9 SELECTED UNDERLYING CAUSES(a), Diseases of the Respiratory System (J00–J99)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER X Diseases of the respiratory system (J00-J99)** | **5 924** | **5 336** | **11 260** | **7.8** |
| ***Influenza and pneumonia (J10-J18)*** | ***711*** | ***1 031*** | ***1 742*** | ***1.2*** |
| Influenza, virus not identified (J11) | 7 | 18 | 25 | — |
| Bacterial pneumonia, not elsewhere classified (J15) | 40 | 38 | 78 | 0.1 |
| Pneumonia, organism unspecified (J18) | 639 | 947 | 1 586 | 1.1 |
| ***Other acute lower respiratory infections (J20-J22)*** | ***74*** | ***80*** | ***154*** | ***0.1*** |
| Acute bronchitis (J20) | 9 | 11 | 20 | — |
| Unspecified acute lower respiratory infection (J22) | 63 | 67 | 130 | 0.1 |
| ***Chronic lower respiratory diseases (J40-J47)*** | ***3 387*** | ***2 868*** | ***6 255*** | ***4.3*** |
| Bronchitis, not specified as acute or chronic (J40) | 13 | 22 | 35 | — |
| Unspecified chronic bronchitis (J42) | 16 | 13 | 29 | — |
| Emphysema (J43) | 467 | 265 | 732 | 0.5 |
| Other chronic obstructive pulmonary disease (J44) | 2 641 | 2 096 | 4 737 | 3.3 |
| Asthma (J45) | 161 | 277 | 438 | 0.3 |
| Bronchiectasis (J47) | 83 | 190 | 273 | 0.2 |
| ***Lung diseases due to external agents (J60-J70)*** | ***742*** | ***513*** | ***1 255*** | ***0.9*** |
| Pneumoconiosis due to asbestos and other mineral fibres (J61) | 105 | 2 | 109 | 0.1 |
| Pneumonitis due to solids and liquids (J69) | 616 | 507 | 1 123 | 0.8 |
| ***Other respiratory diseases principally affecting the interstitium (J80-J84)*** | ***589*** | ***391*** | ***980*** | ***0.7*** |
| Adult respiratory distress syndrome (J80) | 17 | 8 | 25 | — |
| Pulmonary oedema (J81) | 24 | 25 | 49 | — |
| Other interstitial pulmonary diseases (J84) | 545 | 356 | 901 | 0.6 |
| ***Suppurative and necrotic conditions of lower respiratory tract (J85-J86)*** | ***31*** | ***18*** | ***49*** | — |
| Abscess of lung and mediastinum (J85) | 11 | 11 | 22 | — |
| Pyothorax (J86) | 20 | 7 | 27 | — |
| ***Other diseases of pleura (J90-J94)*** | ***40*** | ***45*** | ***85*** | ***0.1*** |
| Pleural effusion, not elsewhere classified (J90) | 26 | 40 | 66 | — |
| ***Other diseases of the respiratory system (J95-J99)*** | ***325*** | ***367*** | ***692*** | ***0.5*** |
| Respiratory failure, not elsewhere classified (J96) | 23 | 30 | 53 | — |
| Other respiratory disorders (J98) | 302 | 337 | 639 | 0.4 |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. Cells with a zero value have not been affected by confidentialisation.

### DISEASES OF THE DIGESTIVE SYSTEM (K00-K99)

Diseases of the digestive system (K00–K99) accounted for 4,939 registered deaths in Australia in 2008 or 3.4% of all registered deaths. The number and proportion of all deaths due to diseases of the digestive system have remained consistent since 1999. Slightly more females (2,510) than males (2,429) died from diseases of the digestive system in 2008. The median age at death for males (74.2 years) dying from these diseases was 10 years lower than for females (84.2 years).

Alcoholic liver disease (K70) accounted for 751 deaths, 15% of all deaths due to diseases of the digestive system. More males than females died of alcoholic liver disease, with a ratio of 297.4 males per 100 females. The age at death ranged from the 25-34 to 85-94 year age groups. Median age at death for males was 58.3 years, while for females it was 56.3 years.

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

Diseases of the intestine (K50–K63) increased from 1,298 deaths in 1999 to 1,698 deaths in 2008. The majority of deaths (1,247) in 2008 occurred in the 75 to 94 year age group with a median age of 84.5 years.

Diseases of the oesophagus, stomach and duodenum (K20–K31) was the underlying cause of 532 deaths. The median age at death was 83.1 years, which was 2.2 years higher than the median age for all causes of death (80.9 years). The sex ratio for this underlying cause of death was 97 males per 100 females.

## 4.10 SELECTED UNDERLYING CAUSES(a), Diseases of the Digestive System (K00–K99)—2008(b)(c)(d)

| | Male | Female | Persons | Proportion of all deaths |
|---|---|---|---|---|
| **CHAPTER XI Diseases of the digestive system (K00-K93)** | **2 429** | **2 510** | **4 939** | **3.4** |
| ***Diseases of oesophagus, stomach and duodenum (K20-K31)*** | ***262*** | ***270*** | ***532*** | ***0.4*** |
| Gastro-oesophageal reflux disease (K21) | 25 | 30 | 55 | — |
| Other diseases of oesophagus (K22) | 53 | 66 | 119 | 0.1 |
| Gastric ulcer (K25 ) | 34 | 35 | 69 | — |
| Duodenal ulcer (K26) | 63 | 56 | 119 | 0.1 |
| Peptic ulcer, site unspecified (K27) | 41 | 48 | 89 | 0.1 |
| Gastritis and duodenitis (K29) | 15 | 10 | 25 | — |
| Other diseases of stomach and duodenum (K31) | 21 | 17 | 38 | — |
| ***Hernia (K40-K46)*** | ***63*** | ***92*** | ***155*** | ***0.1*** |
| Inguinal hernia (K40) | 26 | 12 | 38 | — |
| Diaphragmatic hernia (K44) | 10 | 26 | 36 | — |
| Unspecified abdominal hernia (K46) | 14 | 19 | 33 | — |
| ***Noninfective enteritis and colitis (K50-K52)*** | ***94*** | ***145*** | ***239*** | ***0.2*** |
| Crohn's disease (regional enteritis) (K50) | 11 | 13 | 24 | — |
| Ulcerative colitis (K51) | 11 | 15 | 26 | — |
| Other noninfective gastroenteritis and colitis (K52) | 72 | 117 | 189 | 0.1 |
| ***Other diseases of intestines (K55-K63)*** | ***564*** | ***895*** | ***1 459*** | ***1.0*** |
| Vascular disorders of intestine (K55) | 177 | 285 | 462 | 0.3 |
| Paralytic ileus and intestinal obstruction without hernia (K56) | 204 | 311 | 515 | 0.4 |
| Diverticular disease of intestine (K57) | 82 | 165 | 247 | 0.2 |
| Other functional intestinal disorders (K59) | 9 | 21 | 30 | — |
| Other diseases of anus and rectum (K62) | 23 | 26 | 49 | — |
| Other diseases of intestine (K63) | 66 | 83 | 149 | 0.1 |
| ***Diseases of peritoneum (K65-K67)*** | ***36*** | ***58*** | ***94*** | ***0.1*** |
| Peritonitis (K65) | 32 | 39 | 71 | — |
| Other disorders of peritoneum (K66) | 3 | 19 | 23 | — |
| ***Diseases of liver (K70-K77)*** | ***1 005*** | ***485*** | ***1 490*** | ***1.0*** |
| Alcoholic liver disease (K70) | 562 | 189 | 751 | 0.5 |
| Hepatic failure, not elsewhere classified (K72) | 119 | 75 | 194 | 0.1 |
| Fibrosis and cirrhosis of liver (K74) | 195 | 131 | 326 | 0.2 |
| Other inflammatory liver diseases (K75) | 20 | 27 | 47 | — |
| Other diseases of liver (K76) | 107 | 62 | 169 | 0.1 |
| ***Disorders of gallbladder, biliary tract and pancreas (K80-K87)*** | ***217*** | ***296*** | ***513*** | ***0.4*** |
| Cholelithiasis (K80) | 44 | 60 | 104 | 0.1 |
| Cholecystitis (K81) | 51 | 65 | 116 | 0.1 |
| Other diseases of biliary tract (K83) | 41 | 68 | 109 | 0.1 |
| Acute pancreatitis (K85) | 54 | 82 | 136 | 0.1 |
| Other diseases of pancreas (K86) | 18 | 14 | 32 | — |
| ***Other diseases of the digestive system (K90-K93)*** | ***166*** | ***252*** | ***418*** | ***0.3*** |
| Other diseases of digestive system (K92) | 163 | 245 | 408 | 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. 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-L99) accounted for 401 deaths in Australia in 2008. Of these, 219 (55%) were female, and 182 (45%) were male. There were 171 (43%) deaths due to diseases of the skin and subcutaneous tissue aged between 85 and 94 years, and a further 128 (32%) aged between 75 and 84 years. The

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

median age at death for all persons was 85.5 years, while the male and female median age at death were 83.7 years and 87.2 years respectively.

The key cause contributing to the increase over the last 10 years in the number of registered deaths from Diseases of the skin and subcutaneous tissue was Cellulitis (L03), which increased from 85 registered deaths in 1999 to 210 registered deaths in 2008. Of these, 56% were female and 44% were male. The female median age at death of 87.5 years, was 2.8 years higher than the male median age at death of 84.7 years. Persons aged 65 years and over contributed to 94% of deaths due to Cellulitis.

Skin ulcers (L89 and L97) were the underlying cause of 96 registered deaths in 2008, a decrease from 123 in 1999. Of these, 58% were female and 42% were male. The median age at death for males dying from Skin ulcers was 84.0 years, 4 years lower than the female median age at death of 88.0 years.

### 4.11 SELECTED UNDERLYING CAUSES(a), Diseases of the Skin and Subcutaneous Tissue (L00–L98)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER XII Diseases of the skin and subcutaneous tissue (L00-L99)** | **182** | **219** | **401** | **0.3** |
| ***Infections of the skin and subcutaneous tissue (L00-L08)*** | ***120*** | ***139*** | ***259*** | ***0.2*** |
| Cellulitis (L03) | 93 | 117 | 210 | 0.1 |
| Other local infections of skin and subcutaneous tissue (L08) | 17 | 14 | 31 | — |
| ***Other disorders of the skin and subcutaneous tissue (L80-L99)*** | ***49*** | ***71*** | ***120*** | ***0.1*** |
| Decubitus ulcer (L89) | 15 | 16 | 31 | — |
| Ulcer of lower limb, not elsewhere classified (L97) | 25 | 40 | 65 | — |
| Other disorders of skin and subcutaneous tissue, not elsewhere classified (L98) | 7 | 13 | 20 | — |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. 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) in 2008 accounted for 1,179 registered deaths, 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 862 in 1999 to 1,179 in 2008, representing an increase from 0.7% of all deaths in 1999 to 0.8% of all deaths in 2008. In 2008, the number of female deaths (776) was almost twice the number of male deaths (403) from this cause and continued the trend shown by data recorded previously.

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 76.8 in 1999 to 81.2 years in 2008. The female median age at death has risen from 82.1 years in 1999 to 85.4 years in 2008.

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

Osteoporosis (M80–M85) accounted for 273 registered deaths in Australia for 2008, with a median age at death of 88.6 years. More than four times more females (223) than males (50) died from Osteoporosis in 2008, 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 2008 with the median age at death for females at 89.2 years and for males at 86.0 years.

**4.12** SELECTED UNDERLYING CAUSES(a), Diseases of the Muscles, Bones, and Tendons (M00–M99)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER XIII Diseases of the musculoskeletal system and connective tissue (M00-M99)** | **403** | **776** | **1 179** | **0.8** |
| ***Arthropathies (M00-M25)*** | ***165*** | ***261*** | ***426*** | ***0.3*** |
| ***Infectious arthropathies (M00-M03)*** | ***44*** | ***32*** | ***76*** | ***0.1*** |
| Pyogenic arthritis (M00) | 44 | 32 | 76 | 0.1 |
| ***Inflammatory polyarthropathies (M05-M14)*** | ***80*** | ***158*** | ***238*** | ***0.2*** |
| Other rheumatoid arthritis (M06) | 48 | 132 | 180 | 0.1 |
| Gout (M10) | 15 | 5 | 20 | — |
| Other arthritis (M13) | 8 | 12 | 20 | — |
| ***Arthrosis (M15-M19)*** | ***25*** | ***57*** | ***82*** | ***0.1*** |
| Other arthrosis (M19) | 20 | 49 | 69 | — |
| ***Other joint disorders (M20-M25)*** | ***16*** | ***14*** | ***30*** | — |
| Other joint disorders, not elsewhere classified (M25) | 16 | 12 | 28 | — |
| ***Systemic connective tissue disorders (M30-M36)*** | ***79*** | ***165*** | ***244*** | ***0.2*** |
| Other necrotizing vasculopathies (M31) | 26 | 23 | 49 | — |
| Systemic lupus erythematosus (M32) | 14 | 29 | 43 | — |
| Systemic sclerosis (M34) | 18 | 71 | 89 | 0.1 |
| Other systemic involvement of connective tissue (M35) | 8 | 29 | 37 | — |
| ***Soft tissue disorders (M60-M79)*** | ***36*** | ***34*** | ***70*** | — |
| ***Disorders of muscles (M60-M63)*** | ***27*** | ***24*** | ***51*** | — |
| Other disorders of muscle (M62) | 19 | 16 | 35 | — |
| ***Osteopathies and chondropathies (M80-M94)*** | ***96*** | ***272*** | ***368*** | ***0.3*** |
| ***Disorders of bone density and structure (M80-M85)*** | ***50*** | ***223*** | ***273*** | ***0.2*** |
| Osteoporosis with pathological fracture (M80) | 19 | 102 | 121 | 0.1 |
| Osteoporosis without pathological fracture (M81) | 16 | 88 | 104 | 0.1 |
| Disorders of continuity of bone (M84) | 14 | 32 | 46 | — |
| ***Other osteopathies (M86-M90)*** | ***45*** | ***49*** | ***94*** | ***0.1*** |
| Osteomyelitis (M86) | 36 | 41 | 77 | 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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.

DISEASES OF THE KIDNEY AND GENITOURINARY SYSTEM (N00-N99)

Diseases of the kidney and urinary system (N00–N99) accounted for 3,319 registered deaths in Australia in 2008, which was 2.3% of all registered deaths. The median age at death was 85.6 years. More females (1,770) than males (1,549) died of these diseases.

DISEASES OF THE KIDNEY AND GENITOURINARY SYSTEM (N00-N99) *continued*

Of these causes, 2,594 (78%) were due to Kidney failure (N17–N19). More females died from this cause than males in 2008, although the difference was small (1,367 females compared with 1,227 males). The median age at death for Kidney failure was 85.5 years, 4.6 years higher than the median age for all deaths.

**4.13** SELECTED UNDERLYING CAUSES(a), Diseases of the Kidney and Genitourinary System (N00–N99)—2008(b)(c)(d)

| *Cause of Death and ICD Code* | *Males* no. | *Females* no. | *Persons* no. | *Proportion of all deaths* % |
|---|---|---|---|---|
| **CHAPTER XIV Diseases of the genitourinary system (N00-N99)** | **1 549** | **1 770** | **3 319** | **2.3** |
| ***Glomerular diseases (N00-N08)*** | ***49*** | ***37*** | ***86*** | ***0.1*** |
| Chronic nephritic syndrome (N03) | 15 | 18 | 33 | — |
| Unspecified nephritic syndrome (N05) | 18 | 7 | 25 | — |
| ***Renal tubulo-interstitial diseases (N10-N16)*** | ***40*** | ***78*** | ***118*** | ***0.1*** |
| Tubulo-interstitial nephritis, not specified as acute or chronic (N12) | 8 | 20 | 28 | — |
| Obstructive and reflux uropathy (N13) | 25 | 30 | 55 | — |
| Drug and heavy-metal-induced tubulo-interstitial and tubular conditions (N14) | 1 | 20 | 23 | — |
| ***Renal failure (N17-N19)*** | ***1 227*** | ***1 367*** | ***2 594*** | ***1.8*** |
| Acute renal failure (N17) | 206 | 255 | 461 | 0.3 |
| Chronic renal failure (N18) | 720 | 708 | 1 428 | 1.0 |
| Unspecified renal failure (N19) | 301 | 404 | 705 | 0.5 |
| ***Urolithiasis (N20-N23)*** | ***17*** | ***14*** | ***31*** | — |
| Calculus of kidney and ureter (N20) | 16 | 14 | 30 | — |
| ***Other disorders of kidney and ureter (N25-N29)*** | ***36*** | ***27*** | ***63*** | — |
| Other disorders of kidney and ureter, not elsewhere classified (N28) | 31 | 22 | 53 | — |
| ***Other diseases of urinary system (N30-N39)*** | ***99*** | ***233*** | ***332*** | ***0.2*** |
| Other disorders of bladder (N32) | 12 | 8 | 20 | — |
| Other disorders of urinary system (N39) | 80 | 218 | 298 | 0.2 |
| ***Diseases of male genital organs (N40-N51)*** | ***81*** | — | ***81*** | ***0.1*** |
| Hyperplasia of prostate (N40) | 63 | — | 63 | — |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. Cells with a zero value have not been affected by confidentialisation.

PREGNANCY AND CHILDBIRTH (O00-O99)

Due to the small number of deaths attributed to Pregnancy and childbirth (O00-O99), the following section refers to the period 1999-2008.

Pregnancy and childbirth (O00–O99), as an underlying cause of death, accounted for the deaths of 6 females in Australia in 2008.

Since 1999, this cause has accounted for a total of 100 registered deaths. From 1999 to 2008, 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.

## 4.14 SELECTED UNDERLYING CAUSES(a), Pregnancy and Childbirth (O00–O99)—1999–2008(b)(c)(d)(e)

| Cause of Death and ICD Code | Males | Females | Persons |
|---|---|---|---|
| | no. | no. | no. |
| **CHAPTER XV Pregnancy, childbirth and the puerperium (O00-O99)** | . . | **100** | **100** |
| *Complications of labour and delivery (O60-O75)* | . . | *27* | *27* |
| Postpartum haemorrhage (O72) | . . | 15 | 15 |
| *Complications predominantly related to the puerperium (O85-O92)* | . . | *35* | *35* |
| Obstetric embolism (O88) | . . | 19 | 19 |

. . not applicable

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

(b) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(d) Causes of death data for 2007 have been revised and are subject to further revisions. See Technical Note 3: 2007 Revisions for further information.

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

### CERTAIN CONDITIONS ORIGINATING IN THE PERINATAL PERIOD (P00-P96)

Certain conditions originating in the perinatal period (P00–P96) were identified as the underlying cause of 595 deaths registered in 2008. Of these, 337 (57%) were males, and 258 (43%) were females. The number of deaths due to these causes, as well as the proportion of males and females, has remained relatively stable over the past 10 years.

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 2008, 93% of deaths due to Certain conditions originating in the perinatal period occurred in the neonatal period, while 6.6% of these deaths were in older age groups.

Further information on Perinatal deaths can be found in Perinatal Deaths, Australia, 2008 (cat. no. 3304.0).

## 4.15 SELECTED UNDERLYING CAUSES(a), Conditions Originating in the Perinatal Period (P00–P96)(b)—2008(c)(d)(e)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER XVI Certain conditions originating in the perinatal period (P00-P96)** | **337** | **258** | **595** | **0.4** |
| ***Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)*** | ***180*** | ***142*** | ***322*** | ***0.2*** |
| Fetus and newborn affected by maternal conditions that may be unrelated to present pregnancy (P00) | 20 | 14 | 34 | — |
| Fetus and newborn affected by maternal complications of pregnancy (P01) | 82 | 58 | 140 | 0.1 |
| Fetus and newborn affected by complications of placenta, cord and membranes (P02) | 50 | 52 | 102 | 0.1 |
| Fetus and newborn affected by other complications of labour and delivery (P03) | 26 | 18 | 44 | — |
| ***Disorders related to length of gestation and fetal growth (P05-P08)*** | ***47*** | ***34*** | ***81*** | ***0.1*** |
| Disorders related to short gestation and low birth weight, not elsewhere classified (P07) | 44 | 31 | 75 | 0.1 |
| ***Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)*** | ***23*** | ***17*** | ***40*** | — |
| Intracranial nontraumatic haemorrhage of fetus and newborn (P52) | 20 | 13 | 33 | — |
| ***Digestive system disorders of fetus and newborn (P75-P78)*** | ***13*** | ***8*** | ***21*** | — |
| Necrotizing enterocolitis of fetus and newborn (P77) | 13 | 8 | 21 | — |
| ***Other disorders originating in the perinatal period (P90-P96)*** | ***23*** | ***21*** | ***44*** | — |

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

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(d) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

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

### CONGENITAL AND CHROMOSOMAL ABNORMALITIES (Q00-Q99)

Congenital and chromosomal abnormalities such as Down's syndrome, Edward's syndrome, Cerebal Palsy and congenital heart malformations (Q00–Q99) accounted for 609 deaths in 2008, of which 336 (55%) were deaths of males and 273 (45%) were deaths of females.

Just over half of these deaths occurred within the first year of life (320 or 53%), however, the remainder were spread relatively evenly over other age groups. Median age at death due to Congenital and chromosomal abnormalities was 1.0 year. This was 79.9 years lower than the median age for all deaths (80.9 years).

Congenital malformations of the heart and blood vessels (Q20–Q28) accounted for 212 deaths or 35% of all deaths due to Congenital and chromosomal abnormalities. The median age for this cause was 3.0 years.

## 4.16 SELECTED UNDERLYING CAUSES(a), Congenital and Chromosomal Abnormalities (Q00–Q99)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER XVII Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)** | **336** | **273** | **609** | **0.4** |
| ***Congenital malformations of the nervous system (Q00-Q07)*** | ***58*** | ***35*** | ***93*** | ***0.1*** |
| Other congenital malformations of brain (Q04) | 20 | 11 | 31 | — |
| Spina bifida (Q05) | 16 | 7 | 23 | — |
| ***Congenital malformations of the circulatory system (Q20-Q28)*** | ***114*** | ***98*** | ***212*** | ***0.1*** |
| Congenital malformations of cardiac septa (Q21) | 21 | 21 | 42 | — |
| Congenital malformations of aortic and mitral valves (Q23) | 21 | 16 | 37 | — |
| Other congenital malformations of heart (Q24) | 37 | 33 | 70 | — |
| Congenital malformations of great arteries (Q25) | 14 | 8 | 22 | — |
| ***Congenital malformations of the urinary system (Q60-Q64)*** | ***26*** | ***26*** | ***52*** | — |
| Cystic kidney disease (Q61) | 19 | 17 | 36 | — |
| ***Congenital malformations and deformations of the musculoskeletal system (Q65-Q79)*** | ***22*** | ***16*** | ***38*** | — |
| Congenital malformations of the musculoskeletal system, not elsewhere classified (Q79) | 16 | 8 | 24 | — |
| ***Other congenital malformations (Q80-Q89)*** | ***45*** | ***31*** | ***76*** | ***0.1*** |
| Other specified congenital malformation syndromes affecting multiple systems (Q87) | 10 | 10 | 20 | — |
| Other congenital malformations, not elsewhere classified (Q89) | 27 | 14 | 41 | — |
| ***Chromosomal abnormalities, not elsewhere classified (Q90-Q99)*** | ***51*** | ***58*** | ***109*** | ***0.1*** |
| Down's syndrome (Q90) | 28 | 35 | 63 | — |
| Edwards' syndrome and Patau's syndrome (Q91) | 13 | 13 | 26 | — |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. Cells with a zero value have not been affected by confidentialisation.

### ILL DEFINED CAUSES (R00-R99)

Data for Ill defined causes for 2008 have been positively impacted by process improvements. See Explanatory Notes 67-68 and Technical Note 1: 2008 COD Collection - Process Improvements for further information. 2008 data are also subject to a revisions process which will further impact data for Ill defined causes. See Technical Note 2: Causes of Death - Revisions Process.

Ill defined causes (R00–R99) accounted for 1,243 deaths registered in Australia in 2008. This represented 0.9% of all registered deaths.

Deaths due to Other ill-defined and unspecified cause of mortality (R99) accounted for 874 deaths, or 70% of all deaths due to Ill-defined causes. The number of deaths coded to Ill-defined causes are affected by the number of open coronial cases remaining on the National Coroners 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).

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

In 2008, there were 59 deaths identified as being due to Sudden infant death syndrome (SIDS) (R95). In processing Causes of Death, the ABS will only code a death to SIDS if specifically mentioned on the death certificate. The number of open coronial cases could potentially include deaths which would be determined as SIDS deaths when closed. For further information, see Technical Note 2: Causes of Death - Revisions Process.

For the past 10 years, typically more males have died from SIDS than females. This trend continued in 2008, with 34 male deaths compared to 25 female deaths. The majority of these deaths occurred in the period between 28 days and 1 year of age, with 44 (75%) of infants with SIDS as the underlying cause of death in this age range in 2008.

### 4.17 SELECTED UNDERLYING CAUSES(a), Ill Defined Causes (R00–R99)(b)—2008(c)(d)(e)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER XVIII Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)** | **653** | **590** | **1 243** | **0.9** |
| ***Symptoms and signs involving the circulatory and respiratory systems (R00-R09)*** | ***12*** | ***37*** | ***49*** | — |
| Other symptoms and signs involving the circulatory and respiratory systems (R09) | 11 | 29 | 40 | — |
| ***General symptoms and signs (R50-R69)*** | ***58*** | ***175*** | ***233*** | ***0.2*** |
| Malaise and fatigue (R53) | 5 | 22 | 27 | — |
| Senility (R54) | 24 | 82 | 106 | 0.1 |
| Other general symptoms and signs (R68) | 24 | 44 | 68 | — |
| ***Ill-defined and unknown causes of mortality (R95-R99)*** | ***570*** | ***365*** | ***935*** | ***0.6*** |
| Sudden infant death syndrome (R95) | 34 | 25 | 59 | — |
| ***Other ill-defined and unspecified causes of mortality (R99)*** | ***535*** | ***339*** | ***874*** | ***0.6*** |

— 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) For further information relating to this data, see Explanatory Notes 67-68.

(c) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(d) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(e) 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.

## EXTERNAL CAUSES (V01-Y98)

Data for External causes of death for 2008 have been positively impacted by process improvements. See Technical Note 1: 2008 COD Collection - Process Improvements for further information. 2008 data are also subject to a revisions process which will further impact data for Ill defined causes. See Technical Note 2: Causes of Death - Revisions Process for further information.

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 Intentional self-harm [Suicide], transport accidents, falls, poisoning etc).

In 2008, External causes accounted for 8,804 deaths, or 6.1% of all registered deaths. The standardised death rate was 39.2 per 100,000 of population in 2008, a decrease from 44.6 per 100,000 population in 1999. Males were more likely to die from External causes than females in 2008. The standardised death rate for males was 56.1 per 100,000 compared with 23.3 females per 100,000.

EXTERNAL CAUSES (V01-Y98) *continued*

In 2008, the median age at death from these causes was 52.3 years. The median age at death for External causes was considerably less than the median age of 80.9 years for all registered deaths in 2008. The median age at death for males dying of External causes was 46.8 years, with the median age at death for females 73.8 years.

Consistent with previous years, just over two-thirds of the total number of deaths resulting from External causes were males (5,819). The difference between the number of male and female deaths was most apparent amongst the 20-44 year age group, with 2,341 male deaths compared to 635 female deaths.

## 4.18 SELECTED UNDERLYING CAUSES(a), External Causes (V01–Y98)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **CHAPTER XX External causes of morbidity and mortality (V01-Y98)** | **5 819** | **2 985** | **8 804** | **6.1** |
| ***Transport Accidents (V01-V99, Y85)***(e) | ***1 036*** | ***366*** | ***1 402*** | ***1.0*** |
| ***Other external causes of accidental injury (W00-X59)*** | ***1 925*** | ***1 544*** | ***3 469*** | ***2.4*** |
| Falls (W00-W19) | 645 | 703 | 1 348 | 0.9 |
| Exposure to inanimate mechanical forces (W20-W49) | 79 | 6 | 85 | 0.1 |
| Struck by thrown, projected or falling object (W20) | 24 | 2 | 26 | — |
| Accidental drowning and submersion (W65-W74) | 130 | 29 | 159 | 0.1 |
| Drowning and submersion while in swimming-pool (W67) | 15 | 6 | 21 | — |
| Drowning and submersion while in natural water (W69) | 42 | 1 | 44 | — |
| Drowning and submersion following fall into natural water (W70) | 28 | 4 | 31 | — |
| Unspecified drowning and submersion (W74) | 33 | 8 | 41 | — |
| Other accidental threats to breathing (W75-W84) | 127 | 81 | 208 | 0.1 |
| Inhalation of gastric contents (W78) | 15 | 10 | 25 | — |
| Inhalation and ingestion of food causing obstruction of respiratory tract (W79) | 34 | 24 | 58 | — |
| Inhalation and ingestion of other objects causing obstruction of respiratory tract (W80) | 64 | 44 | 108 | 0.1 |
| Exposure to smoke, fire and flames (X00-X09) | 50 | 22 | 72 | 0.1 |
| Exposure to uncontrolled fire in building or structure (X00) | 34 | 13 | 47 | — |
| Exposure to forces of nature (X30-X39) | 32 | 26 | 58 | — |
| Exposure to excessive natural cold (X31) | 19 | 17 | 36 | — |
| Accidental poisoning by and exposure to noxious substances (X40-X49) | 445 | 177 | 622 | 0.4 |
| Accidental exposure to other and unspecified factors (X58-X59) | 389 | 489 | 878 | 0.6 |
| Exposure to unspecified factor (X59) | 388 | 486 | 874 | 0.6 |
| ***Other external causes of mortality (X60-Y36)*** | ***2 670*** | ***890*** | ***3 560*** | ***2.5*** |
| Intentional Self Harm (X60-X84, Y87.0)(f) | 1 710 | 481 | 2 191 | 1.5 |
| Assault (X85-Y09, Y87.1)(g) | 126 | 79 | 205 | 0.1 |
| Undetermined Intent (Y10-Y34, Y87.2)(h) | 833 | 330 | 1 163 | 0.8 |
| ***Complications of medical and surgical care (Y40-Y84, Y88)*** | ***112*** | ***128*** | ***240*** | ***0.2*** |
| Drugs, medicaments and biological substances causing adverse effects in therapeutic use (Y40-Y59) | 21 | 27 | 48 | — |
| 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 | 92 | 169 | 0.1 |
| ***Sequelae of external causes of morbidity and mortality (Y85-Y89)*** | ***91*** | ***65*** | ***156*** | ***0.1*** |
| Sequelae of other accidents (Y86) | 69 | 57 | 126 | 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. Cells with a zero value have not been affected by confidentialisation.

(e) Includes Sequelae of transport accidents (Y85). Care needs to be taken in interpreting figures relating to Transport accidents for 2008. See Explanatory Note 69 for further information.

(f) 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 72-75.

(g) Includes Sequelae of assault (Y87.1). Care needs to be taken in interpreting figures relating to assault. See Explanatory Notes 70-71 for further details.

(h) Includes Sequelae of events of undetermined intent (Y87.2). For further information relating to this data, see Explanatory Note 76.

### TRANSPORT ACCIDENTS (V01-V99, Y85)

Transport accidents (V01–V99, Y85) accounted for 1,402 deaths registered in 2008. This represented 1.0% of all registered deaths in 2008, and 16% of all External causes of death. Of these, 183 deaths were of pedestrians (V01-V09), 226 deaths were of motorcycle riders (V20-V29) and 742 deaths were of occupants of a car (V40-V49).

## TRANSPORT ACCIDENTS (V01-V99, Y85) *continued*

As with most other External causes, more males than females died from Transport accidents in 2008 (1,036 compared with 366). For males, 1.4% of total male deaths registered in 2008 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 36.2 years for males compared with 45.2 years for females. Of all male deaths from External causes, 18% 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 Note 69.

### 4.19 SELECTED UNDERLYING CAUSES(a), Transport Accidents (V01–V99)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **Transport accidents (V01-V99, Y85)**(e) | **1 036** | **366** | **1 402** | **1.0** |
| ***Pedestrian injured in transport accident (V01-V09)*** | ***125*** | ***58*** | ***183*** | ***0.1*** |
| Pedestrian injured in collision with car, pick-up truck or van (V03) | 92 | 44 | 136 | 0.1 |
| Pedestrian injured in collision with heavy transport vehicle or bus (V04) | 17 | 7 | 24 | — |
| ***Motorcycle rider injured in transport accident (V20-V29)*** | ***207*** | ***19*** | ***226*** | ***0.2*** |
| Motorcycle rider injured in collision with car, pick-up truck or van (V23) | 68 | 6 | 74 | 0.1 |
| Motorcycle rider injured in collision with heavy transport vehicle or bus (V24) | 19 | 1 | 22 | — |
| Motorcycle rider injured in collision with fixed or stationary object (V27) | 68 | 5 | 73 | 0.1 |
| Motorcycle rider injured in noncollision transport accident (V28) | 34 | 1 | 36 | — |
| ***Car occupant injured in transport accident (V40-V49)*** | ***502*** | ***240*** | ***742*** | ***0.5*** |
| Car occupant injured in collision with car, pick-up truck or van (V43) | 120 | 74 | 194 | 0.1 |
| Car occupant injured in collision with heavy transport vehicle or bus (V44) | 56 | 28 | 84 | 0.1 |
| Car occupant injured in collision with fixed or stationary object (V47) | 219 | 93 | 312 | 0.2 |
| Car occupant injured in noncollision transport accident (V48) | 95 | 42 | 137 | 0.1 |
| ***Other land transport accidents (V80-V89)*** | ***41*** | ***13*** | ***54*** | — |
| Motor- or nonmotor-vehicle accident, type of vehicle unspecified (V89) | 15 | 8 | 23 | — |
| ***Air and space transport accidents (V95-V97)*** | ***35*** | ***9*** | ***44*** | — |
| Accident to powered aircraft causing injury to occupant (V95) | 33 | 9 | 42 | — |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. Cells with a zero value have not been affected by confidentialisation.

(e) Includes Sequelae of transport accidents (Y85). Care needs to be taken in interpreting figures relating to transport accidents for 2008. See Explanatory Note 69 for further information.

## FALLS (W00-W19)

Falls (W00–W19) accounted for 1,348 deaths registered in 2008. This represented 0.9% of all registered deaths in 2008, and 15% of all External causes of death. Falls have increased by 54% when compared to five years ago (873 in 2004).

Falls was one of the few categories within External causes in 2008 with more females than males (703 females, compared with 645 males). This trend can also be observed in preceding years. The median age at death for Falls was 85.5 years, which was considerably higher than the median age at death of 52.3 for all External causes. Of all deaths due to Falls, 87% were of people aged 70 years or more.

## 4.20 SELECTED UNDERLYING CAUSES(a), Falls (W00–W19)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **Falls (W00-W19)** | **645** | **703** | **1 348** | **0.9** |
| Fall on same level from slipping, tripping and stumbling (W01) | 151 | 165 | 316 | 0.2 |
| Fall involving bed (W06) | 11 | 18 | 29 | — |
| Fall involving chair (W07) | 11 | 10 | 21 | — |
| Fall on and from stairs and steps (W10) | 28 | 24 | 52 | — |
| Fall on and from ladder (W11) | 22 | 1 | 26 | — |
| Fall from, out of or through building or structure (W13) | 31 | 1 | 35 | — |
| Other fall on same level (W18) | 15 | 18 | 33 | — |
| Unspecified fall (W19) | 346 | 446 | 792 | 0.6 |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.
(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.
(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. Cells with a zero value have not been affected by confidentialisation.

### ACCIDENTAL POISONING (X40-X49)

Accidental poisoning (X40–X49) accounted for 622 deaths registered in 2008. This represented 0.4% of all registered death 2008, and 7.1% of all External causes of death.

More than twice as many males as females died from Accidental poisoning in 2008, with 445 male and 177 female deaths. The median age at death for Accidental poisoning was 39.7 years. Median age at death for males was 38.1 years, compared with 45.6 years for females.

## 4.21 SELECTED UNDERLYING CAUSES(a), Accidental Poisoning (X40–X49)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **Accidental poisoning by and exposure to noxious substances (X40-X49)** | **445** | **177** | **622** | **0.4** |
| Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified (X41) | 32 | 26 | 58 | — |
| Accidental poisoning by and exposure to narcotics and psychodysleptics (hallucinogens), not elsewhere classified (X42) | 140 | 33 | 173 | 0.1 |
| Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances (X44) | 206 | 96 | 302 | 0.2 |
| Accidental poisoning by and exposure to alcohol (X45) | 41 | 11 | 52 | — |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.
(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.
(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. Cells with a zero value have not been affected by confidentialisation.

## ASSAULT (X85-Y09,Y87.1)

Assault (X85–Y09, Y87.1) accounted for 205 deaths in 2008. The deaths from Assault represented 0.1% of all registered deaths and 2.3% of all External causes of death in 2008. Almost twice as many males as females died from Assault in 2008, continuing the trend of the 10 years since 1999. The median age at death for Assault was 40.1 years. Median age at death for males was 39.7 years, compared with 40.4 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 70-71 for further information.

**4.22** SELECTED UNDERLYING CAUSES(a), Assault (X85–Y09)—2008(b)(c)(d)

| Cause of Death and ICD Code | Males | Females | Persons | Proportion of all deaths |
|---|---|---|---|---|
| | no. | no. | no. | % |
| **Assault (X85-Y09, Y87.1)**(e) | **126** | **79** | **205** | **0.1** |
| Assault by sharp object (X99) | 42 | 28 | 70 | — |
| Assault by bodily force (Y04) | 28 | 7 | 35 | — |
| Assault by unspecified means (Y09) | 12 | 13 | 25 | — |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.
(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.
(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. Cells with a zero value have not been affected by confidentialisation.
(e) Includes Sequelae of assault (Y87.1). Care needs to be taken in interpreting figures relating to assault. See Explanatory Notes 70-71 for further details.

## INTENTIONAL SELF-HARM [SUICIDE] (X60-X84,Y87.0)

Care should be taken in using and interpreting Suicide data contained in this publication. For further information refer to Explanatory Notes 72-75.

The implementation of process improvements for 2008 preliminary data has resulted in improved quality in relation to assigning unspecified cause codes to coroner certified deaths. As a large number of coroner cases are due to External causes of death, these process improvements have had the effect of improving these data, including Suicide data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

There were 2,191 deaths coded to Suicide (X60–X84, Y87.0) in 2008. Deaths from Suicide represented 1.5% of all registered deaths and 25% of all External causes of death in 2008. More than three times as many males as females died from Suicide in 2008, continuing the trend of the 10 years since 1999. The median age at death for Suicide was 42.7 years. Median age at death for males was 42.5 years, compared with 43.5 years for females.

For further information on deaths due to Suicide, see Chapter 6 in this publication.

## 4.23 SELECTED UNDERLYING CAUSES(a), Intentional Self-Harm (Suicide) (X60–X84, X87.0)—2008(b)(c)(d)

| *Cause of Death and ICD Code* | *Males* | *Females* | *Persons* | *Proportion of all deaths* |
|---|---|---|---|---|
| | no. | no. | no. | % |
| Intentional self-harm (X60-X84, Y87.0)(e) | 1 710 | 481 | 2 191 | 1.5 |
| Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified (X61) | 34 | 23 | 57 | — |
| Intentional self-poisoning by and exposure to narcotics and psychodysleptics (hallucinogens), not elsewhere classified (X62) | 18 | 5 | 23 | — |
| Intentional self-poisoning by and exposure to other and unspecified drugs, medicaments and biological substances (X64) | 81 | 89 | 170 | 0.1 |
| Intentional self-poisoning by and exposure to other gases and vapours (X67) | 187 | 33 | 220 | 0.2 |
| Intentional self-harm by hanging, strangulation and suffocation (X70) | 947 | 204 | 1 151 | 0.8 |
| Intentional self-harm by drowning and submersion (X71) | 33 | 12 | 45 | — |
| Intentional self-harm by rifle, shotgun and larger firearm discharge (X73) | 100 | 1 | 104 | 0.1 |
| Intentional self-harm by other and unspecified firearm discharge (X74) | 46 | 5 | 51 | — |
| Intentional self-harm by sharp object (X78) | 31 | 12 | 43 | — |
| Intentional self-harm by jumping from a high place (X80) | 87 | 34 | 121 | 0.1 |
| Intentional self-harm by jumping or lying before moving object (X81) | 48 | 13 | 61 | — |
| Intentional self-harm by crashing of motor vehicle (X82) | 14 | 6 | 20 | — |
| Intentional self-harm by unspecified means (X84) | 22 | 13 | 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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.

(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 72-75.

# CHAPTER 5 MULTIPLE CAUSES OF DEATH

## OVERVIEW

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

Data for 2008 have been positively impacted by process improvements. See Technical Note 1: 2008 COD Collection - Process Improvements for further information. These data are also subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process for further information.

## DATA CUBES

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 143,946 deaths registered in Australia in 2008, there were 466,538 causes mentioned, giving a mean of 3.2 causes per death. In 18% of all deaths, only one cause was reported, while 39% 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 2008, Malignant cancers (C00-C97) contributed to 32.8% (47,179) of all deaths as either an underlying or multiple cause. There were mentions of 59,205 Malignant cancers reported in 2008.

Ischaemic heart diseases (I20-I25) which includes angina, heart attacks, and blocked arteries of the heart, were found to contribute to 27.6% 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 2008.

## 5.1 SELECTED MULTIPLE CAUSES OF DEATH (a)—2008(b)(c)(d)

| | UNDERLYING CAUSE | | MULTIPLE CAUSE | | |
|---|---|---|---|---|---|
| *Cause of death and ICD code* | *Underlying* | *Proportion of total deaths* | *Multiple* | *Proportion of total deaths* | *Mean causes per death* |
| | no. | % | no. | % | no. |
| **All Causes** | **143 946** | — | **143 946** | — | **3.2** |
| Malignant cancer (C00-C97) | 41 341 | 28.7 | 47 179 | 32.8 | 2.5 |
| Ischaemic heart diseases (I20-I25) | 23 665 | 16.4 | 39 785 | 27.6 | 3.6 |
| Strokes (I60-I69) | 11 973 | 8.3 | 21 658 | 15.0 | 3.1 |
| Dementia and Alzhiemer's disease (F01-F03, G30)(e) | 8 171 | 5.7 | 20 007 | 13.9 | 3.1 |
| Chronic lower respiratory diseases (J40-J47) | 6 255 | 4.3 | 15 352 | 10.7 | 3.7 |
| Diabetes (E10-E14) | 4 191 | 2.9 | 14 461 | 10.0 | 4.4 |
| Heart failure (I50, I51) | 3 360 | 2.3 | 21 035 | 14.6 | 3.2 |
| Diseases of the kidney and urinary system (N00-N39) | 3 224 | 2.2 | 19 663 | 13.7 | 3.7 |
| Influenza and pneumonia (J10-J18) | 1 742 | 1.2 | 19 075 | 13.3 | 2.0 |
| Hypertensive diseases (I10-I15) | 1 824 | 1.3 | 19 874 | 13.8 | 4.5 |
| Suicides (X60-X84, Y870)(f) | 2 191 | 1.5 | 2 198 | 1.5 | 2.7 |
| Land transport accidents (V01-V89, Y850)(g) | 1 325 | 0.9 | 1 384 | 1.0 | 2.7 |

— 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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. Cells with a zero value have not been affected by confidentialisation.

(e) See Explanatory Note 65 for further information on data relating to Dementia.

(f) 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 72-75.

(g) Includes Sequelae of transport accidents (Y85). Care needs to be taken in interpreting figures relating to transport accidents for 2008. See Explanatory Note 69 for further information.

### *Relationships between Multiple Causes*

Influenza and pneumonia (J10-J18) was identified as the underlying cause for 1,742 deaths in 2008. In 46.8% of cases, Influenza and pneumonia were reported alone and were typically the least likely of the selected causes to be reported with other associated causes.

In contrast, Diabetes (E10-E14) was reported alone as the underlying cause in only 1.0% of the 4,191 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 (50.8%) and Hypertensive diseases (I10-I15, 35%).

The following table illustrates relationships between the various causes of death in 2008.

## 5.2 SELECTED UNDERLYING CAUSES WITH ASSOCIATED CAUSE (a)—2008(b)(c)(d)

| | UNDERLYING CAUSE | REPORTED ALONE | REPORTED WITH SELECTED ASSOCIATED CAUSE | | | | |
|---|---|---|---|---|---|---|---|
| *Cause of Death and ICD code* | no. | % | *Cancers (C00-C97)* % | *Ischaemic heart disease (I20-I25)*(e) % | *Strokes (I60-I69)* % | *Dementia & Alzheimer's disease (F01-F03, G30)* % | *Chronic lower respiratory diseases (J40-J47)*(f) % |
| **All Causes** | **143 946** | **17.6** | **32.8** | **27.6** | **15.0** | **13.9** | **10.7** |
| Cancers (C00-C97) | 41 341 | 35.3 | 100.0 | 8.9 | 3.7 | 3.2 | 6.6 |
| Ischaemic heart diseases (I20-I25)(e) | 23 665 | 10.8 | 6.7 | 100.0 | 9.7 | 11.3 | 10.1 |
| Strokes (I60-I69) | 11 973 | 14.3 | 5.2 | 12.8 | 100.0 | 18.3 | 3.8 |
| Dementia & Alzheimer's disease (F01-F03, G30) | 8 171 | 10.9 | 4.6 | 11.3 | 10.8 | 100.0 | 3.3 |
| Chronic lower respiratory diseases (J40-J47)(f) | 6 255 | 6.0 | 8.1 | 21.2 | 5.1 | 7.7 | 100.0 |
| Diabetes (E10-E14) | 4 191 | 1.0 | 6.4 | 50.8 | 21.9 | 14.4 | 6.7 |
| Heart failure (I50-I51) | 3 360 | 12.5 | 4.3 | 1.4 | 8.2 | 11.2 | 10.1 |
| Diseases of the kidney & urinary system (N00-N39) | 3 224 | 6.7 | 5.9 | 24.6 | 7.2 | 10.8 | 5.6 |
| Influenza and pneumonia (J10-J18) | 1 742 | 46.8 | 1.4 | 6.4 | 1.4 | 2.7 | 1.9 |
| Hypertensive diseases (I10-I15) | 1 824 | 4.4 | 6.2 | 1.2 | 8.4 | 19.6 | 7.3 |

(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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. Cells with a zero value have not been affected by confidentialisation.

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

(f) Includes asthma, bronchitis and emphysema.

## 5.2 SELECTED UNDERLYING CAUSES WITH ASSOCIATED CAUSE (a)—2008(b)(c)(d) *continued*

| | REPORTED WITH SELECTED ASSOCIATED CAUSE *continued* | | | | |
|---|---|---|---|---|---|
| *Cause of Death and ICD code* | *Diabetes (E10-E14)* % | *Heart failure (I50-I51)* % | *Diseases of the kidney & urinary system* % | *Influenza and pneumonia (J10-J18)* % | *Hypertensive diseases (I10-I15)* % |
| **All Causes** | **10.0** | **14.6** | **13.7** | **13.3** | **13.8** |
| Cancers (C00-C97) | 6.3 | 3.7 | 7.7 | 7.0 | 6.7 |
| Ischaemic heart diseases (I20-I25)(e) | 11.5 | 27.5 | 13.9 | 7.4 | 21.3 |
| Strokes (I60-I69) | 7.8 | 5.7 | 6.6 | 12.8 | 29.0 |
| Dementia & Alzheimer's disease (F01-F03, G30) | 7.3 | 7.4 | 11.6 | 35.1 | 11.2 |
| Chronic lower respiratory diseases (J40-J47)(f) | 7.0 | 17.6 | 10.3 | 34.4 | 10.1 |
| Diabetes (E10-E14) | 100.0 | 21.0 | 31.0 | 9.0 | 35.0 |
| Heart failure (I50-I51) | 7.3 | 100.0 | 22.6 | 23.0 | 7.0 |
| Diseases of the kidney & urinary system (N00-N39) | 7.8 | 23.5 | 100.0 | 15.2 | 3.6 |
| Influenza and pneumonia (J10-J18) | 1.8 | 4.9 | 4.1 | 100.0 | 1.8 |
| Hypertensive diseases (I10-I15) | 9.6 | 39.1 | 32.1 | 11.1 | 100.0 |

(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) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. Cells with a zero value have not been affected by confidentialisation.

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

(f) Includes asthma, bronchitis and emphysema.

### *External Causes*

In 2008, there were 14,684 deaths where External causes (V01-Y98) contributed to the death as a multiple cause. There was a mean of 3.5 causes coded for each of the 8,804 deaths with External causes as the underlying cause of death.

Transport accidents (V01-V99, Y85) accounted for 16% of all injuries with an External cause as the underlying cause of death, with 37% of these injuries being to the head or thorax (S00-S09, S20-S29). Suicide (X60-X84, Y87.0) accounted for 25% of total injuries with an External causes as the underlying cause of death, and of these, Asphyxiation (T71) was the most common injury (53%).

Care should be taken in interpreting numbers of Suicide deaths. For further information on 2008 Suicide data, see Explanatory Notes 72-75, Technical Note 1: 2008 COD Collection - Process Improvements and Chapter 6 of this publication.

# CHAPTER 6 SUICIDES

## OVERVIEW

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). For a death to be determined a Suicide, it must be established by coronial enquiry that the death resulted from a deliberate act of the deceased with the intention of ending his or her own life (Intentional self-harm).

Coronial processes to determine the intent of a death (whether intentional self harm, accidental, homicide, undetermined intent) are especially important for statistics on Suicide deaths because information on intent is necessary to complete the coding under ICD-10 coding rules (see Explanatory Note 75). Coroners' practices to determine the intent of a death may vary across the states and territories.

For deaths registered in 2008, 561 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 have been coded to Other ill-defined and unspecified causes of mortality (R99). Some of these deaths may be determined a Suicide after further investigation.

Suicide can be defined as the deliberate taking of one's life (*Butterworths Concise Australian Legal Dictionary*, 1997, Butterworths Sydney). To be classified as a Suicide, a death must be recognised as being due to other than natural causes. Detailed information (including flow charts) on how deaths are coded as Suicide by the ABS can be found in Explanatory Note 75.

Data for 2008 have been positively impacted by process improvements. As a result, there has been an increase in quality in relation to assigning unspecified cause codes to coroner certified deaths. As a large number of coroner certified deaths are due to External causes of death, these process improvements have had the effect of improving the quality of these data, including Suicide data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

In addition to process improvements, 2008 data will be subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process for further information. The revisions process, implemented for all coroner certified deaths registered from 1 January 2007, enables the use of additional information relating to coroner certified deaths 12 or 24 months after initial processing. This increases the specificity of the assigned ICD-10 codes over time. This process will also positively impact External causes of death data, including suicide data.

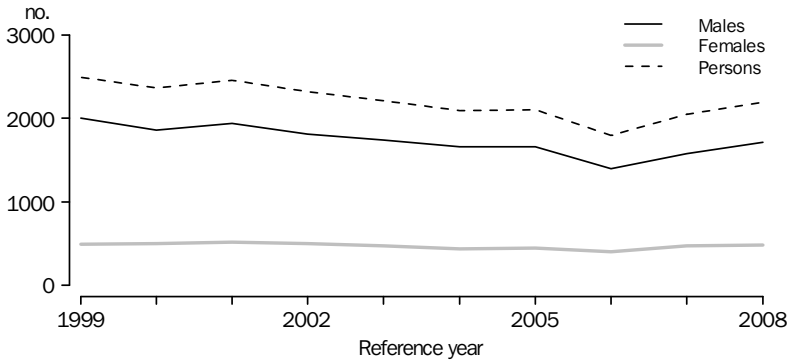
Due to the quality improvements and the revisions process, the increase in the number of deaths classified as Suicide between 2007 and 2008 may be overstated and users are advised to read the technical notes and use caution.

OVERVIEW *continued*

Further information on how the revisions process has impacted the 2007 data, (including suicide data) can be found in Technical Note 3: 2007 Revisions.

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

**6.1** SUICIDES, NUMBER OF DEATHS, 1999-2008 (a) (b) (c)(d)




(a) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.
(b) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process for further information.
(c) Causes of death data for 2007 have been revised and are subject to further revisions. See Technical Note 3: 2007 Revisions for further information.
(d) Comparisons between 2007 and 2008 may be overstated due to quality improvements.

KEY CHARACTERISTICS

There were 2,191 deaths from Suicide registered in 2008. Over three-quarters (78%) of Suicides were males.

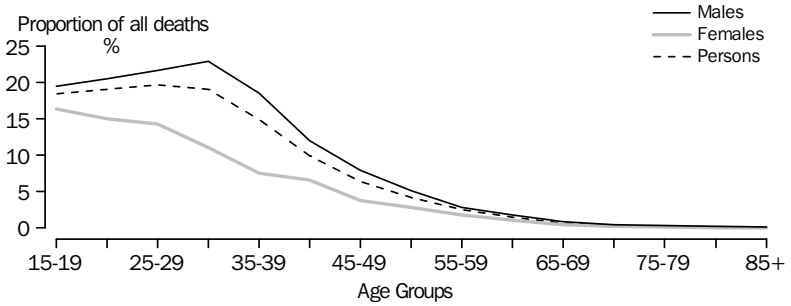
Intentional self-harm [Suicide] (X60–X84, Y87.0) was ranked as the 14th leading cause of all deaths registered in Australia in 2008. Males accounted for over three-quarters of all Suicide deaths in 2008, resulting in a ranking as the 10th leading cause of death for males. Although death by Suicide is a relatively uncommon event (occurring at a rate of about 10 per 100,000 population per year), the human and economic costs are substantial.

*Suicide as proportion of total deaths*

While Suicide accounts for only a relatively small proportion (1.5%) 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 2008, 24% of all male deaths aged 15-24 years were due to Suicide. Similarly for females, Suicide deaths comprise a much higher proportion of total deaths in younger age groups compared with older age groups.

*Suicide as proportion of total deaths continued*

**6.2** SUICIDES, BY SELECTED AGE GROUPS, 2008 (a) (b)




(a) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.
(b) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions process for more information.

*Age*

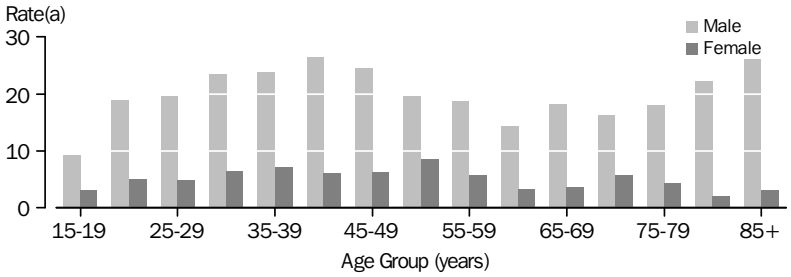
MEDIAN AGE

The median age at death for Suicide in 2008 was 42.4 years for males, 43.5 years for females and 42.7 years overall. In comparison, the median age for deaths from all causes in 2008 was 77.9 years for males, 83.9 years for females and 80.9 years overall.

AGE-SPECIFIC RATES

Age-specific death rates are the number of deaths during the reference year at a specified age per 100,000 of the estimated resident population of the same age (see Glossary for further information). The pattern of age-specific rates in 2008 for Suicide in males and females is shown in the following graph.

**6.3** AGE-SPECIFIC SUICIDES RATES (a), 2008 (b) (c)




(a) Deaths per 100,000 estimated resident population for each age group and sex. See Glossary for further information.
(b) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.
(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

The highest age-specific Suicide death rate for males in 2008 was observed in the 40-44 year age group (26.4 per 100,000 population). As a proportion of total male deaths in this age group, Suicide deaths represented 16%. The age-specific death rates for the 85+ years age group was 26.2 per 100,000 males, and 24.5 per 100,000 males in the 45-49 year age group. Suicide as a proportion of total male deaths for these age groups were 0.2% and 10% respectively. The age-specific Suicide rate for males was lowest in the 15-24 year

*Age continued*

AGE-SPECIFIC RATES *continued*

age group (9.4 per 100,000), however, this represented 20% of all deaths in this age group.

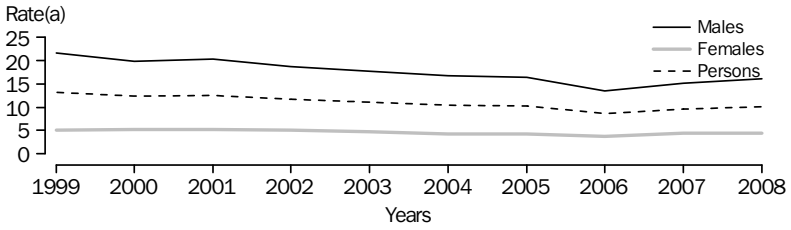
For females the highest age-specific Suicide death rate in 2008 was observed in the 50-54 year age group with 8.6 deaths per 100,000. The lowest age-specific death rate for female Suicide deaths was in the 80-84 year age groups (2.0 deaths per 100,000).

### AGE-STANDARDISED RATES

Age standardisation is used to compare death rates over time, as it accounts for any changes in the age-structure of a population over time. The age-standardised Suicide rate (for persons) in 2008 was 10.2 per 100,000. This compares with 13.2 per 100,000 in 1999.

The age-standardised Suicide rate in 2008 for males was 16.0 per 100,000 while the corresponding rate for females was 4.5 per 100,000. Throughout the period 1999 to 2008, 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.

**6.4** AGE-STANDARDISED DEATH RATES (a), for Suicide–1999-2008 (b)(c)(d)(e)




(a) See Glossary for further information.
(b) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.
(c) Causes of death data for 2007 have been revised and are subject to further revisions. See Technical Note 3: 2007 Revisions for further information.
(d) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.
(e) Comparisons between 2007 and 2008 may be overstated due to quality improvements.

## METHOD OF SUICIDE

In 2008, the most frequent method of Suicide was hanging (X70), a method used in half (53%) of all Suicide deaths. Poisoning by drugs was used in 12% of Suicide deaths, followed by poisoning by other methods including by alcohol and motor vehicle exhaust (11%). Methods using firearms accounted for 7.8% of Suicide deaths. The remaining Suicide deaths included deaths from drowning, jumping from a high place, and other methods.

## MECHANISM BY INTENT - SELECTED CAUSES

The following table 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 (see Explanatory Notes 72-76).

## 6.5 SELECTED EXTERNAL CAUSES OF DEATH, Mechanism by intent—2008(a)(b)(c)

| *Mechanism of death* | *Accidental death* no. | *Intentional self-harm*(d) no. | *Assault* no. | *Undetermined intent* no. | *Other intent*(e) no. | *Total* no. |
|---|---|---|---|---|---|---|
| Poisonings (X40-X90, X60-X69, X85-X90, Y10-Y19) | 622 | 506 | 5 | 393 | — | 1 526 |
| Hanging (W75-W84, X70, X91, Y20) | 208 | 1 151 | 15 | 94 | — | 1 468 |
| Drowning and submersion (W65-W74, X71, X92, Y21) | 159 | 45 | 1 | 57 | — | 263 |
| Firearms (W32-W34, X72-X74, X93-X95, Y22-Y24) | 5 | 170 | 19 | 31 | — | 225 |
| Contact with sharp object (W25-W29, X78, X99, Y28) | 5 | 43 | 70 | 28 | — | 146 |
| Falls (W00-W19, X80, Y01,Y30) | 1 348 | 121 | 4 | 31 | — | 1 502 |
| Other(f) | 2 650 | 155 | 92 | 529 | 248 | 3 674 |
| **Total** | **4 997** | **2 191** | **205** | **1 163** | **248** | **8 804** |

— nil or rounded to zero (including null cells)

(a) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(b) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(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. Cells with a zero value have not been affected by confidentialisation.

(d) Includes ICD-10 codes X60-X84 and Y87.0. Care needs to be taken in interpreting figures relating to Suicide due to limitations of the data, see Explanatory Notes 72-75.

(e) Includes Complications of medical and surgical care (Y40-Y84) and Legal intervention and operations of war (Y35-Y36)

(f) Includes sequelae, explosives, smoke/fire/flames, blunt object, jumping or lying before moving object, crashing of motor vehicle, other and unspecified means.

# CHAPTER 7 DEATHS OF ABORIGINAL AND TORRES STRAIT ISLANDER AUSTRALIANS

## OVERVIEW

There were 2,472 deaths registered across Australia in 2008 where the deceased person was identified as being of Aboriginal or Torres Strait Islander origin, or both.

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 53-62.

Data for 2008 have been positively impacted by process improvements. See Technical Note 1: 2008 COD Collection - Process Improvements for further information. These data are also subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process for further information.

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

## DATA CUBES

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.

## CANCER (C00-D48)

Cancer (C00–D48) was the underlying cause of 488 deaths (20%) of Indigenous people, of which 48% were male and 52% 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 63.1 years for Indigenous people, and 75.5 years for non-Indigenous people.

Trachea and lung cancers (C33-C34) accounted for 120 deaths or 4.9% of all deaths of Indigenous people. Comparatively, these types of Cancer were the underlying cause of death for 5.5% of all deaths of non-Indigenous people in 2008.

## DISEASES OF THE HEART AND BLOOD VESSELS (I00–I99)

Deaths caused by Diseases of the heart and blood vessels (I00–I99) accounted for 631 Indigenous deaths in 2008, 26% of all Indigenous deaths. The two most common types of circulatory system diseases that contributed to Indigenous deaths were Ischaemic heart diseases (I20-I25) and Cerebrovascular disease [Stroke] (I60-I69).

Ischaemic heart diseases (I20–I25), which include angina, blocked arteries of the heart and heart attacks, were the underlying cause of death for 331 (13%) deaths of Indigenous people. Ischaemic heart diseases were the leading cause of death of non-Indigenous people in 2008, accounting for 17% of deaths throughout Australia. Median age at death for Indigenous people who died from Ischaemic heart diseases in 2008 was 59.8 years, compared with 84.1 years for non-Indigenous people. The sex ratio

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

for Indigenous people who died from Ischaemic heart diseases in 2008 was 153 males per 100 females.

Strokes (I60–I69), which include haemorrhages, strokes, infarctions and blocked arteries of the brain, accounted for 114 Indigenous deaths in 2008, 4.6% of all Indigenous deaths. This compared with 8.4% of deaths of non-Indigenous people. Median age at death was 70.0 years, compared with 85.4 years for non-Indigenous people throughout Australia. There was no difference in the sex ratio for Indigenous people who died from Strokes in 2008.

DIABETES (E10-E14)

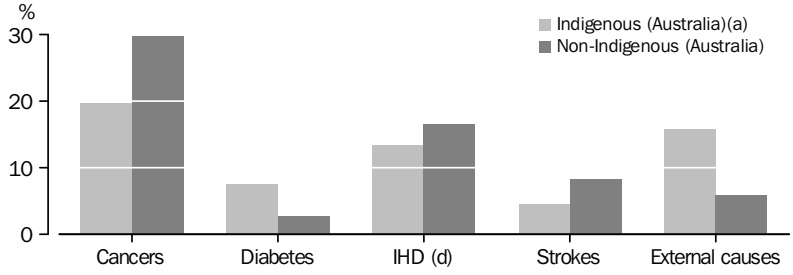
Diabetes (E10–E14) was the underlying cause of death for 189 Indigenous deaths, which represented 7.6% of all deaths of Indigenous people in 2008. This compared with 2.8% of deaths of non-Indigenous people. The median age at death of Indigenous people who died from Diabetes in 2008 was 63.6 years, whereas for non-Indigenous people, it was 81.6 years. The sex ratio for Indigenous deaths due to Diabetes was 82 male deaths per 100 female deaths.

EXTERNAL CAUSES (V01–Y98)

There were 390 deaths of Indigenous people attributed to External causes (V01–Y98) in 2008. This represented 16% of all Indigenous deaths, compared with 5.9% of non-Indigenous deaths attributed to External causes. Of those Indigenous deaths due to External causes, 66% were male and 34% were female. The median age at death for External causes was 32.6 years for Indigenous people and 53.9 years for non-Indigenous people.

Intentional self harm [Suicide] (X60-X84,Y87.0) and Land transport accidents (V01-V89, Y85.0) were the two leading External causes of death for Indigenous people in 2008. Suicide accounted for 4.2% (103) of all Indigenous deaths due to External causes; 74 were males and 29 were females. Land transport accidents accounted for 4.0% (99) of all Indigenous deaths due to External causes; 68 were males and 31 were females.

**7.1** SELECTED UNDERLYING CAUSES OF DEATH AS PROPORTION OF TOTAL DEATHS, By Indigenous status (a): **2008 (b) (c)**




(a) Includes deaths of persons identified as Aboriginal Torres Strait Islander or both.
(b) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.
(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.
(d) Ischaemic Heart Disease.

## INFANT MORTALITY

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 53-62), data on infant mortality by Indigenous status is subject to the high variability caused by small numbers.

Infant mortality rates for Indigenous Australians are around twice the rates for all Australians. Of all Indigenous infant deaths (aged under twelve months) registered in 2008, almost half (43%) were attributed to Conditions originating in the Perinatal Period (P00–P96). This was a similar proportion compared with non-Indigenous infant deaths (48%).

# EXPLANATORY NOTES

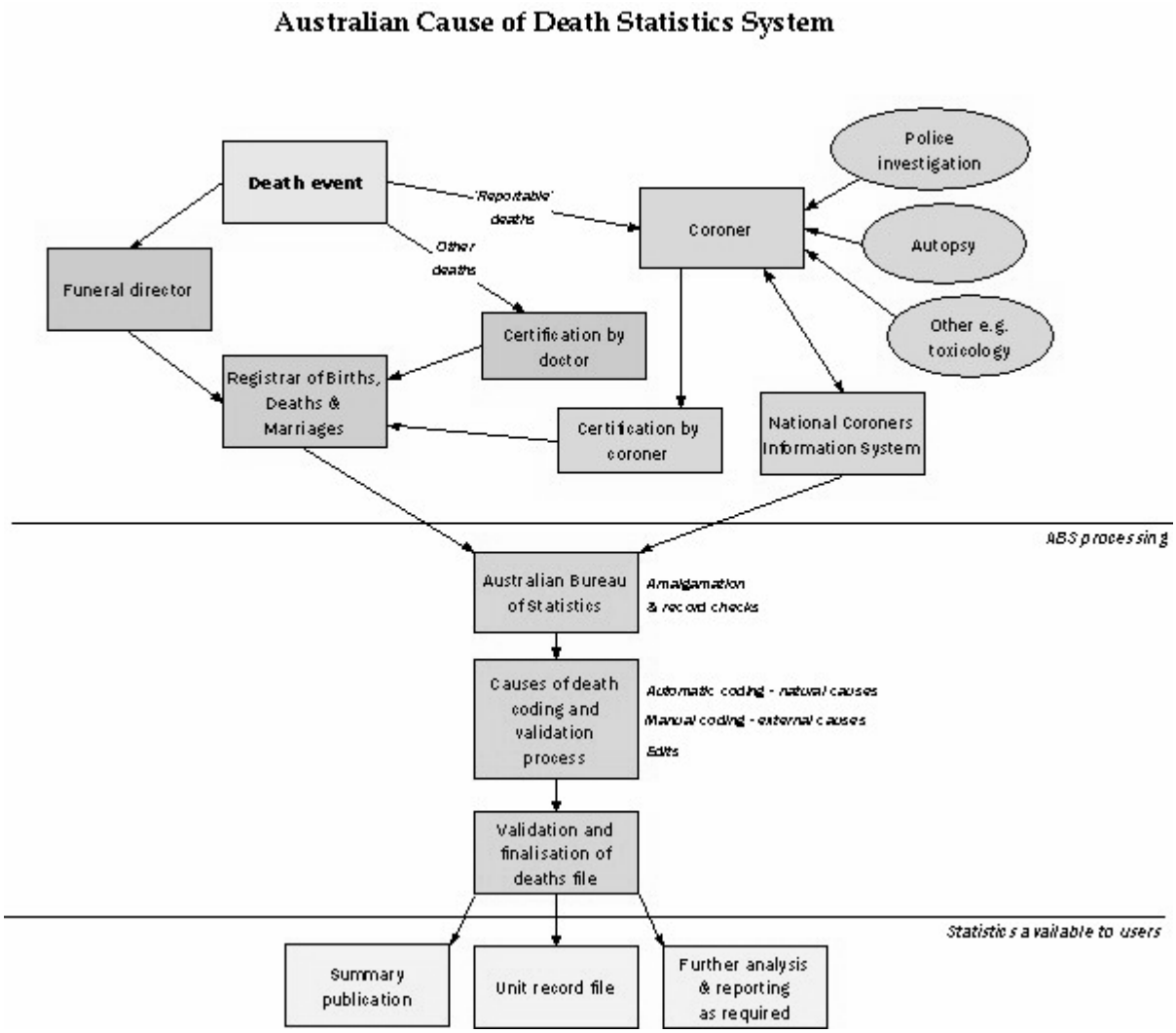
## INTRODUCTION

**1** This publication contains statistics on causes of death for Australia.

**2** In order to complete a death registration, the death must be certified by either a doctor using the Medical Certificate of Cause of Death, or by a coroner. Approximately 85-90% of deaths each year are certified by a doctor. The remainder are reported to a coroner. Although there is variation across jurisdictions in what constitutes a death that is reportable to a coroner, they are generally reported in circumstances such as:

- where the person died unexpectedly and the cause of death is unknown;
- where the person died in a violent or unnatural manner;
- where the person died during or as a result of an anaesthetic;
- where the person was 'held in care' or in custody immediately before they died; and
- where the identity of the person who has died is unknown.

**3** The registration of deaths is the responsibility of the eight individual state and territory Registrars of Births, Deaths and Marriages. As part of the registration process, information about the cause of death is supplied by the medical practitioner certifying the death or by a coroner. Other information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred. The information is provided to the Australian Bureau of Statistics (ABS) by individual Registrars for coding and compilation into aggregate statistics. In addition, the ABS supplements this data with information from the *National Coroners Information System (NCIS)*. The following diagram shows the process undertaken in producing cause of death statistics for Australia.




INTRODUCTION *continued*

**4** Note that prior to 2007, statistics on perinatal deaths were included in this publication. From 2007 onward, perinatal deaths data have been published separately in Perinatal Deaths, Australia (cat.no. 3304.0).

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

**6** The data presented in this publication are also included in a series of data cubes that are available on the ABS website.

**7** A Glossary is also provided which details definitions of terminology used.

**8** These Explanatory Notes provide salient details relevant to the Causes of Death collection.

2008 SCOPE AND COVERAGE

**9** The statistics in chapters 1-7 relate to the number of deaths registered, not those which actually occurred, in the years shown. Number of deaths by year of occurrence will be published separately in mid 2010.

*Scope of causes of death statistics*

**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.

**11** The current scope of the statistics includes:

- all deaths being registered for the first time;

*Scope of causes of death statistics continued*

- 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 statistics excludes:

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

**13** From the 2007 reference year, the scope (time period) of the collection is:

- all deaths registered in Australia in the reference year and 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.

  As an example, records received by the ABS during the March quarter of 2009 which were initially registered in 2008 or prior (but not forwarded to the ABS until 2009) are assigned to the 2008 reference year. Any registrations relating to 2008 which are received by the ABS after the end of the March quarter are assigned to the 2009 (or later) reference year.

**14** Note that up to and including the 2006 issue of Causes of Death, Australia (cat. no. 3303.0), the scope (time period) for each reference year 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.

  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 from the 2007 reference year to ensure all registrations are included in ABS collections.

*Coverage of Causes of Death Statistics*

**15** 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 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 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.

*Coverage of Causes of Death Statistics continued*

**16** Approximately 4% to 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.

## 2008 CLASSIFICATIONS

*Socio-Demographic Classifications*

**17** A range of socio-demographic data are 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 and Indigenous status. Statistical standards for social and demographic variables have been developed by the ABS. Where these are not published in the Causes of Death publication or data cubes, they can be sourced on request from the ABS.

### MARITAL STATUS

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

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

### INDIGENOUS STATUS

**20** 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.

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

### OCCUPATION

**22** The occupation classification used in ABS causes of death statistics is the Australian and New Zealand Standard Classification of Occupations (ANZSCO) First Edition 2006. However, the ABS 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.

**23** 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)

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

**25** For further information about the ASGC refer to Australian Standard Geographical Classification (ASGC), Jul 2009 (cat. no. 1216.0).

### STANDARD AUSTRALIAN CLASSIFICATION OF COUNTRIES (SACC)

**26** 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. Causes of death statistics are coded using the SACC, as the collection includes overseas residents whose death occurred while they were in Australia.

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

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

*Health Classifications*

INTERNATIONAL CLASSIFICATION OF DISEASES (ICD)

**29** 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.

**30** 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.

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

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

**33** The ICD 10th Revision is also available online.

2008 MORTALITY CODING

**34** 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.

**35** 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*

**36** 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.

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

*Automated coding*

**38** The ABS implemented a new version of the automated cause of death coding software (Medical Mortality Data System (MMDS)) for 2006 data onwards. The MMDS coding software incorporates coding algorithms to ensure that updates to ICD-10 are implemented in the production of the statistics.

*External Causes of Death*

**39** 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*

**40** 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

*Leading Causes of Death continued*

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.

**41** 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 are based on prevention strategies, or to maintain homogeneity within the groups of cause categories.

**42** 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)*

**43** 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.

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

**45** 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 $x$ due to a particular cause of death.

YPLL is standardised for age using the following formula:

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

where the age correction factor $C_X$ is defined for age $x$ as:

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

where:

$N$ = estimated number of persons resident in Australia aged 1-78 years at 30 June 2008

$N_X$ = estimated number of persons resident in Australia aged $x$ years at 30 June 2008

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

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

*State and Territory Data*

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

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

## 2008 DATA QUALITY

*Coroner Certified Deaths*

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

*Coroner Certified Deaths continued*

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

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

**50** Over time, there have been variances in the way that the ABS has approached the coding of coroner certified cases. These variances have served to improve the quality of causes of death data over this time, but have not been significant enough to cause a break-in-series to the collection. The processing changes which have occurred over time are (processing year):

- 2003: introduction of the use of NCIS as further information to code coroner certified deaths.
- 2007: cessation of personal visits to coroner offices to extract information from paper records; only information contained in NCIS is used to code coroner certified deaths.
- 2009: increased effort to analyse all information included on part 2 of the Medical Certificate of Cause of Death. Part 2 of the certificate details conditions that may have contributed to the death but were not part of the sequence of events that led to death. This information is utilised for all cases which are 'open' at the end of processing, and also for some cases which are 'closed' but could have a more specific causes of death code assigned.
- 2009: additional information on NCIS (police reports, toxicology reports, autopsy reports and coroners findings) is investigated to ensure the most specific code possible is assigned to all coroner certified cases. This information is utilised for both open and closed cases.
- 2009: introduction of a revisions process which allows for coroner certified cases to be recoded 12 months, and then 24 months later during processing of the subsequent years' coronial records.

  These have resulted in a significant increase in quality for 2008 data in cause of death codes which are assigned to open coroners cases. Due to these quality improvements, the ABS advises that caution should be used when comparing causes of death data over time.

**51** Further information on issues regarding changes to processing which has impacted the 2008 data can be found in Technical Note 1: 2008 COD Collection - Process Improvements.

**52** Further information on the causes of death revision process and how it has been undertaken can be found in Technical Note 2: Causes of Death - Revisions Process.

*Indigenous deaths*

**53** This publication includes the number of registered Indigenous deaths for 2008. However, because of the data quality issues outlined below, more detailed breakdowns of Indigenous deaths are provided only for New South Wales, Queensland, South Australia, Western Australia and the Northern Territory.

*Indigenous deaths continued*

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

**55** 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.

**56** While it is considered likely that most deaths of Indigenous Australians are registered, a proportion of these deaths are not identified as Indigenous by the family, health worker or funeral director during the death registration process. That is, whilst data is provided to the ABS for the Indigenous status question for 99% of all deaths, there are concerns regarding the accuracy of the data. For example, the Indigenous status question is not always asked of relatives and friends of the deceased by the funeral director.

**57** In addition to those deaths identified as Indigenous, a number of deaths occur each year where Indigenous status is not stated on the death registration form. In 2008 there were 1,807 deaths registered in Australia for which Indigenous status was not stated, representing 1.3% of all deaths registered. The Australian Capital Territory, Queensland and Victoria had the highest proportions of not stated responses in 2008.

**58** As a proportion of all deaths registered, deaths for which Indigenous status was not stated increased from 1.0% in 2007 to 1.3% in 2008. This was largely due to an increase in the number of deaths in New South Wales for which Indigenous status was not stated; from 212 in 2007 to 504 in 2008. Victoria also recorded an increase in deaths where Indigenous status was not stated, from 437 in 2007 to 553 in 2008.

**59** From 2007, Indigenous status recorded for deaths registered in South Australia, Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory has been 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 method of using both forms to determine Indigenous status resulted in an additional 44 deaths recorded as Indigenous in 2008, representing a 0.7% increase in the number of deaths recorded as Indigenous for Australia overall. In addition, a further 1,652 records were reclassified from 'not stated' Indigenous status to 'non-Indigenous'.

**60** Despite the relatively low number of deaths with Indigenous status not stated, it is likely that some Indigenous deaths are included in the not stated category, contributing to the under-coverage of Indigenous deaths.

**61** Quality studies conducted as part of the Census Data Enhancement project have investigated the levels and consistency of Indigenous identification between the 2006 Census and death registrations. See Information Paper: Census Data Enhancement - Indigenous Mortality Quality Study, 2006-07 (cat. no. 4723.0), released on 17 November 2008.

**62** An assessment of various methods for adjusting incomplete Indigenous death registration data for use in compiling Indigenous life tables and life expectancy estimates is presented in Discussion Paper: Assessment of Methods for Developing Life Tables for Aboriginal and Torres Strait Islander Australians, 2006 (cat. no. 3302.0.55.002), released on 17 November 2008.

## SPECIFIC ISSUES FOR 2008 DATA

**63** A number of issues should be taken into account by users when analysing the 2008 causes of death data, as outlined below.

*Infectious and parasitic diseases (A00-B99)*

**64** Deaths coded to Sequelae of other and unspecified infections and parasitic diseases (B94) increased by 51 from 148 in 2007 preliminary to 199 in 2008, while deaths coded to Chronic viral hepatitis (B18) decreased by 56 from 92 in 2007 preliminary to 36 in 2008. The ABS increased resources in investigating and reviewing all records for the categories Acute hepatitis B (B16), Other acute viral hepatitis (B17) and Chronic viral hepatitis (B18). Where the record indicated a duration of 1 year or more, or led to another chronic condition, these codes were changed to Sequelae of viral hepatitis (B942).

*Dementia (F01-F03)*

**65** 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 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.

*Diseases of the circulatory system (I00-I99)*

**66** Due to increased resources in investigating and reviewing records with a change of codes to Sequelae when the duration is over 12 months, the underlying cause of Sequelae of cerebrovascular disease (I69) increased by 302 (13%) from 2,398 in 2007 (prior to revisions process) to 2,700 in 2008.

*Unspecified Causes of Mortality*

**67** During processing of causes of death data for 2008, the ABS increased effort in coding and analysing Medical Certificate of Cause of Death and quality assurance. More time was taken to investigate part 2 of the certificate when a non-specific underlying cause was shown in part 1. Part 2 of the certificate details conditions that may have contributed to the death but were not part of the sequence of events that led to death. The ABS also increased resources and time spent investigating coroners reports to identify specific causes of death. This process involved making increased use of police reports, toxicology reports, autopsy reports and coroners findings to minimise the use of non-specific causes and intents.

**68** These changes have resulted in a decrease of 381 (33%) in the number of coroner certified deaths attributed to Other ill-defined and unspecified causes of mortality (R99) from 1,160 in 2007 preliminary to 779 in 2008 preliminary. Further information on the process changes and the impact they have had on 2008 data can be found in Technical Note 1: 2008 COD Collection - Process Improvements.

*Transport Accidents (V01-V99, Y85)*

**69** The Department of Infrastructure, Transport, Regional Development and Local Government has published data in Road Deaths Australia 2008, Statistical Summary on the number of deaths due to road traffic accidents in 2008 (1,464 deaths). 2008 causes of death data recorded 1,253 deaths due to road traffic accidents (V01-V79) and a further 145 deaths were coded as Crashing of a motor vehicle, undetermined intent (Y32). The remaining difference in the numbers (66 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. It is important to note that the number of deaths attributed to transport accidents for 2008 will change as data is subject to the revisions process. See Technical Note 2: Causes of Death - Revisions Process for further information.

*Assault (X85-Y09, Y87.1)*

**70** The number of deaths recorded as Assault (X85-Y09, Y87.1) ie murder and manslaughter and their sequelae, published in the Causes of Death publication vary from those published by the ABS in Recorded Crime - Victims, Australia, 2008 (cat. no. 4510.0). Differences in the scope and coverage of the two collections and pending finalisation of legal proceedings may account for the difference between the figures. It is important to note that the number of deaths attributed to assault for 2008 is expected to increase as data is subject to the revisions process. See Technical Note 2: Causes of Death Revisions Process for further information.

TABLE 1: COMPARISON OF DEATHS, caused by assault— by State of Registration —2008 (a)

| | *NSW* | *Vic.* | *QLD* | *SA* | *WA* | *Tas* | *NT* | *ACT* | *Aust* |
|---|---|---|---|---|---|---|---|---|---|
| Recorded Crime - Victims(b)(c)(d) | 87 | 62 | 58 | 28 | 32 | — | 17 | 4 | 290 |
| Causes of Death (X85-Y09, Y87.1)(e) | 62 | 29 | 24 | 23 | 43 | 4 | 16 | 4 | 205 |

— nil or rounded to zero (including null cells)

(a) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(b) Table cells containing small values have been randomly adjusted to avoid releasing confidential information. Due to this randomisation process, totals may vary slightly across tables.

(c) Recorded Crime - Victims, Australia, 2008 (cat. no. 4510.0)

(d) Recorded crime - Victims consist of Murder and Manslaughter

(e) 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 effected by confidentialisation.

**71** 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)

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

**72** The number of deaths recorded as Intentional self-harm (Suicide) has decreased over the last 10 years, from 2,492 in 1999 to 2,191 in 2008. This decrease can be partly attributed to the variances in the way the ABS has coded coroner certified deaths over time. See Explanatory notes 48-52. For 2008, the ABS has invested additional effort into coding coroner cases which remained open at the time of processing. This process involved making increased use of police reports, toxicology reports, autopsy reports and coroners findings to assign a more specific cause of death. This will have an influence on the number of deaths due to Suicide, as the majority of open coroner cases are deaths due to external causes. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

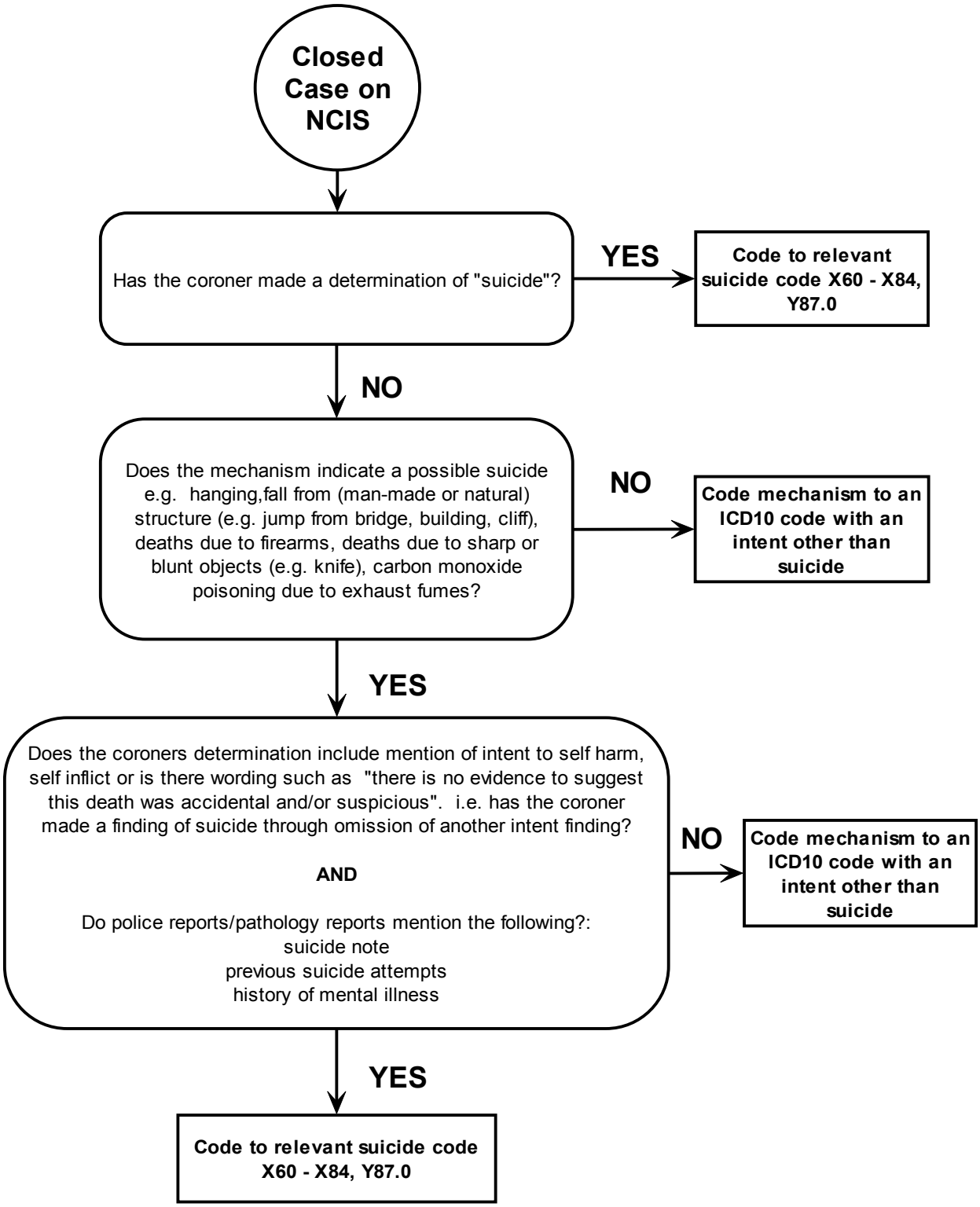
**73** In addition, the number of deaths attributed to Suicide for 2008 is expected to increase as data is subject to the revisions process.

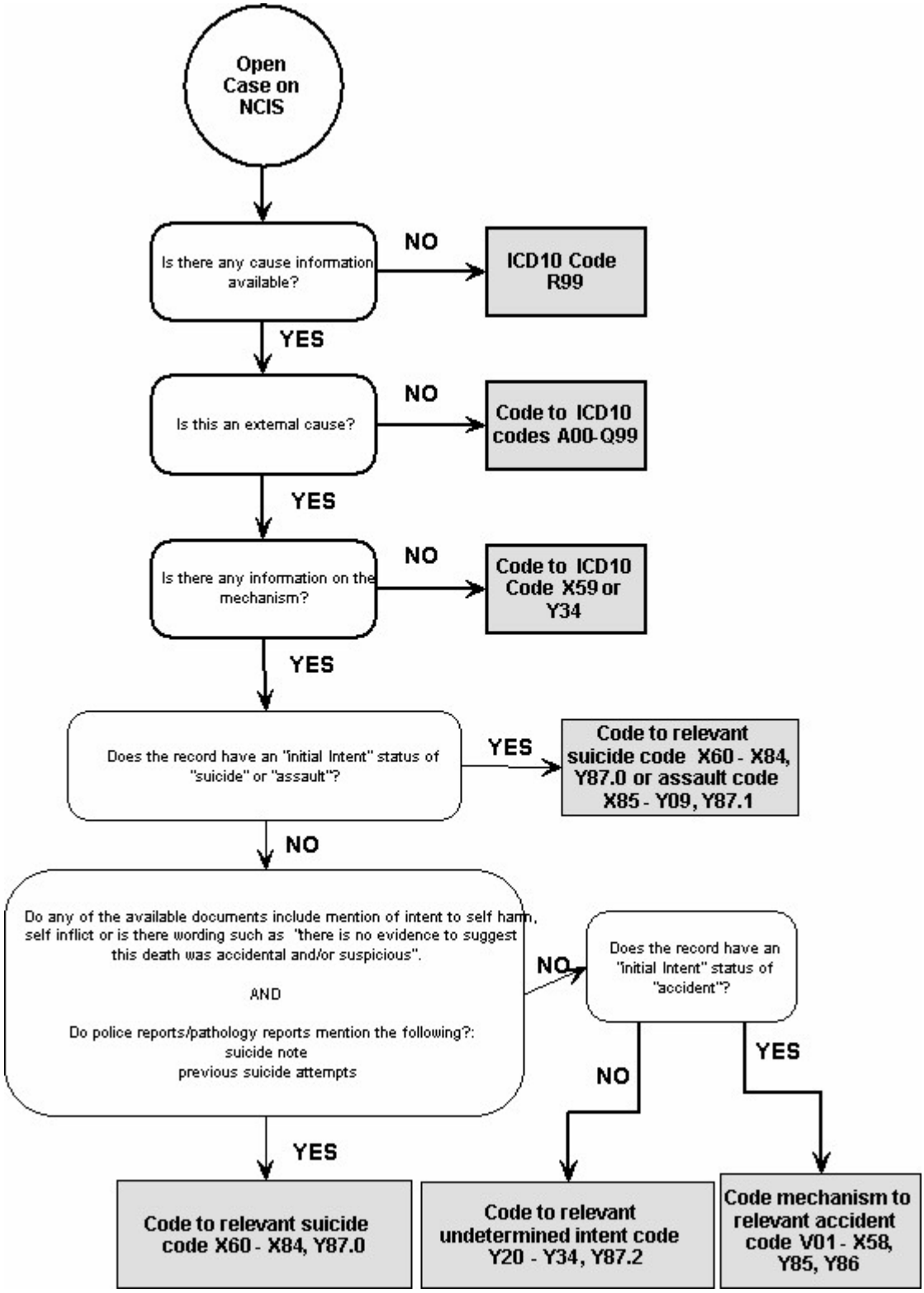
**74** Suicide deaths in children are an extremely sensitive issue for families and coroners. The number of child Suicides registered each year is low in relative terms and is likely to be underestimated. For that reason this publication does not include detailed information about Suicides for children aged under 15 years in the commentary or data cubes. There was an average of 10.1 Suicide deaths per year of children under 15 years

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

over the period 1999 to 2008. For boys, the average number of Suicides per year was 6.9, while for girls the average number was 3.2.

**75** 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 1: 2008 COD Collection - Process Improvements 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 the revisions process for all deaths registered from 1 January 2007, additional information received by the ABS may lead to a more specific cause of death code being assigned. Below is a summary of the suicide coding process used by the ABS.


Closed Case on NCIS
Has the coroner made a determination of "suicide"?
YES
Code to relevant suicide code X60 - X84, Y87.0
NO
Does the mechanism indicate a possible suicide e.g. hanging,fall from (man-made or natural) structure (e.g. jump from bridge, building, cliff), deaths due to firearms, deaths due to sharp or blunt objects (e.g. knife), carbon monoxide poisoning due to exhaust fumes?
NO
Code mechanism to an ICD10 code with an intent other than suicide
YES
Does the coroners determination include mention of intent to self harm, self inflict or is there wording such as "there is no evidence to suggest this death was accidental and/or suspicious". i.e. has the coroner made a finding of suicide through omission of another intent finding?
AND
Do police reports/pathology reports mention the following?:
suicide note
previous suicide attempts
history of mental illness
NO
Code mechanism to an ICD10 code with an intent other than suicide
YES
Code to relevant suicide code X60 - X84, Y87.0




*Undetermined Intent (Y10-Y34, Y87.2)*

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

*Undetermined Intent (Y10-Y34, Y87.2) continued*

2007 and 2008. However, it is important to note that the number of deaths attributed to 'Undetermined Intent' codes for both 2007 and 2008 will decrease. See Technical Note 2: Causes of Death - Revisions Process for further information.

CONFIDENTIALISATION OF DATA

**77** 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 effected by confidentialisation.

EFFECTS OF ROUNDING

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

ACKNOWLEDGEMENT

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

RELATED PRODUCTS

**80** Other ABS publications which may be of interest are outlined below. Please note, older publications may be available through the state and national 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, cat no. 3101.0
- Australian Social Trends, cat. no. 4102.0
- Births, Australia, cat. no. 3301.0
- Causes of Deaths, Australia: Summary Tables, cat. no. 3303.0.55.001
- Deaths, Australia, cat. no. 3302.0
- Deaths From External Causes, Australia - 1998 to 2002, cat. no. 3320.0
- Demography Working Paper 2004/3 - Calculating Experimental Life Tables for Use in Population Estimates and Projections of Aboriginal and Torres Strait Islander Australians, 1991 to 2001, cat. no. 3106.0.55.003
- Drug Induced Deaths, cat. no. 3321.0.55.001
- Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2009, cat. no. 3238.0
- Information Paper: External Causes of Death, Data Quality, 2005 (cat. no 3317.0.55.001)
- Information Paper: ABS Causes of Death Statistics: Concepts, Sources, and Methods, 2006 (cat. no. 3317.0.55.002)
- Information Paper: Cause of Death Certification, Australia, 2008 (cat. no. 1205.0.55.001)
- Mortality Atlas, Australia, 1997 to 2000, cat. no. 3318.0
- Multiple Cause of Death Analysis, 1997-2001, cat. no. 3319.0.55.001
- Population Projections, Australia, 2005 to 2101, cat. no. 3222.0
- Recent Developments in the Collection of Aboriginal and Torres Strait Islander Health and Welfare Statistics, 2005, cat. no. 4704.0.55.001
- Suicides: Recent Trends, Australia, 1993 to 2003, cat. no. 3309.0.55.001
- The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples, 2008, cat. no. 4704.0

**81** 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.

## ABBREVIATIONS

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

# 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 2008. These data have been used to calculate Standardised Death Rates, Age-specific death rates and Years of Potential Life Lost for 2008 data which has not as yet been subject to the revisions process.

**A1.1** ESTIMATED RESIDENT POPULATION, by age and sex—30 June 2008

| *Age groups* | *Males* | *Females* | *Persons* |
|---|---|---|---|
| Under 1 | 147 422 | 139 848 | 287 270 |
| 1–4 | 558 905 | 529 092 | 1 087 997 |
| 5–9 | 690 749 | 657 446 | 1 348 195 |
| 10–14 | 719 870 | 682 444 | 1 402 314 |
| 15–19 | 756 525 | 714 624 | 1 471 149 |
| 20–24 | 782 998 | 747 592 | 1 530 590 |
| 25–29 | 765 653 | 747 311 | 1 512 964 |
| 30–34 | 736 174 | 736 811 | 1 472 985 |
| 35–39 | 793 960 | 804 385 | 1 598 345 |
| 40–44 | 753 754 | 762 108 | 1 515 862 |
| 45–49 | 767 881 | 782 493 | 1 550 374 |
| 50–54 | 698 566 | 710 864 | 1 409 430 |
| 55–59 | 638 512 | 646 402 | 1 284 914 |
| 60–64 | 564 133 | 563 262 | 1 127 395 |
| 65–69 | 412 038 | 420 058 | 832 096 |
| 70–74 | 319 681 | 343 766 | 663 447 |
| 75–79 | 253 654 | 296 495 | 550 149 |
| 80–84 | 178 488 | 245 372 | 423 860 |
| 85–89 | 89 123 | 155 725 | 244 848 |
| 90–94 | 26 708 | 64 434 | 91 142 |
| 95 and over | 6 123 | 20 332 | 26 455 |
| **All ages** | **10 660 917** | **10 770 864** | **21 431 781** |

The second 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 for 2007 data subjected to the revisions process.

DATA INPUT *continued*

## A1.2 ESTIMATED RESIDENT POPULATION, by age and sex—30 June 2007

| *Age groups* | *Males* | *Females* | *Persons* |
|---|---|---|---|
| Under 1 | 142 137 | 134 332 | 276 469 |
| 1–4 | 544 932 | 516 621 | 1 061 553 |
| 5–9 | 688 481 | 655 049 | 1 343 530 |
| 10–14 | 719 701 | 682 335 | 1 402 036 |
| 15–19 | 744 803 | 702 714 | 1 447 517 |
| 20–24 | 770 721 | 737 705 | 1 508 426 |
| 25–29 | 735 015 | 720 776 | 1 455 791 |
| 30–34 | 735 416 | 739 976 | 1 475 392 |
| 35–39 | 779 478 | 790 388 | 1 569 866 |
| 40–44 | 755 897 | 766 341 | 1 522 238 |
| 45–49 | 754 136 | 769 819 | 1 523 955 |
| 50–54 | 688 466 | 698 700 | 1 387 166 |
| 55–59 | 632 707 | 636 847 | 1 269 554 |
| 60–64 | 533 180 | 531 517 | 1 064 697 |
| 65–69 | 399 786 | 407 954 | 807 740 |
| 70–74 | 311 487 | 335 160 | 646 647 |
| 75–79 | 254 123 | 298 830 | 552 953 |
| 80–84 | 172 309 | 242 781 | 415 090 |
| 85–89 | 81 898 | 147 194 | 229 092 |
| 90–94 | 25 585 | 63 477 | 89 062 |
| 95 and over | 5 269 | 18 409 | 23 678 |
| **All ages** | **10 475 527** | **10 596 925** | **21 072 452** |

The thid table presents the number of live births for Australia for selected years, 1999 to 2008. 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.

## A1.3 LIVE BIRTHS REGISTERED(a), Australia —1999–2008

| | *Males* | *Females* | *Persons* |
|---|---|---|---|
| 1999 | 127 357 | 121 513 | 248 870 |
| 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 |
| 2008 | 152 287 | 144 334 | 296 621 |

(a) Used to calculate infant death rates

# APPENDIX 2 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 (WHO) provides a number of standard tabulation lists for presentation of causes of death statistics, that assist international comparability. WHO also recommend that when there is not a need for international comparability then lists can be designed to meet local needs. These special lists can be developed for example to monitor progress of local health programmes. The following tabulation lists have been developed, based on those used by the United States National Center for Health 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 2008 COD COLLECTION - PROCESS IMPROVEMENTS

## INTRODUCTION

**1** This Technical Note contains information on two processing improvements which have been introduced to the causes of death collection for the release of 2008 preliminary data. These improvements relate to the way the ABS codes coroner certified deaths and have had the effect of significantly improving the quality of cause of death codes assigned to coroner certified cases.

**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. It is the role of the coroner to investigate the circumstances surrounding all reportable deaths and to establish wherever possible the circumstances surrounding the death, and the cause(s) of death. Generally most deaths due to external causes will be referred to a coroner for investigation; these include those deaths which are possible instances of Intentional self-harm [Suicide].

**3** 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 Coroners Information System (NCIS). The ABS uses the NCIS as the only source of data to code coroner certified deaths. Where a case remains open on the NCIS at the time the ABS ceases processing and insufficient information is available to code a cause of death, less specific ICD codes are assigned as required by the ICD coding rules.

**4** 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'.

**5** 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 by another person (assault).

**6** In order to classify a death as Suicide 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. ABS uses instructions for coders to ensure consistency in the coding of suicide deaths.

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

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

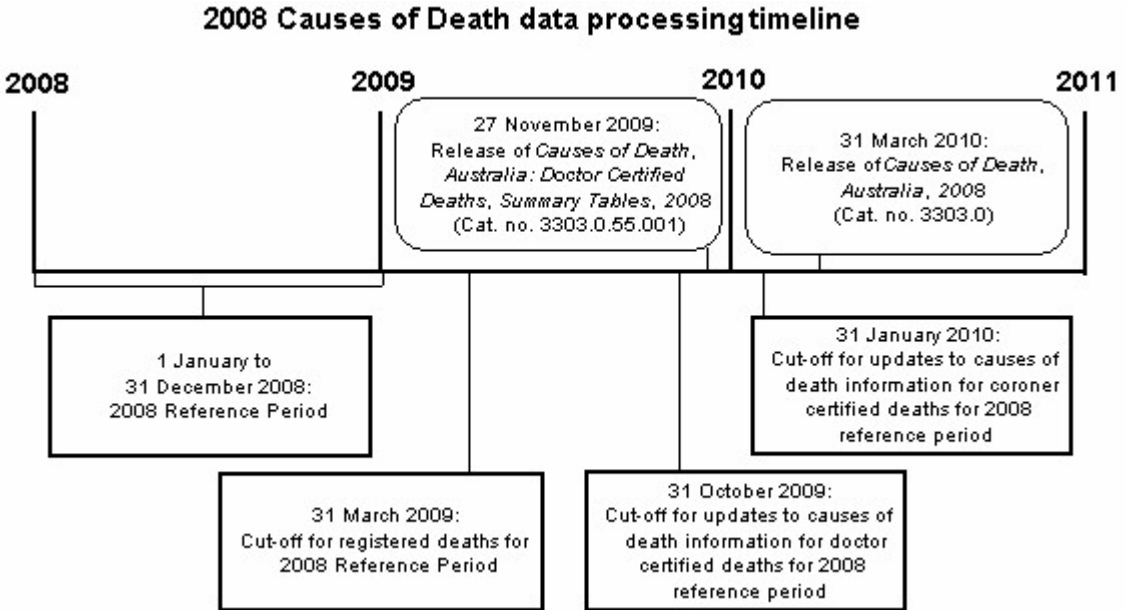
INTRODUCTION *continued*

**9** The introduction of these processes have resulted in improved data quality in relation to assigning unspecified cause codes to coroner certified deaths. There has been a decrease of 381 (33%) in the number of coroner certified deaths attributed to Other ill-defined and unspecified causes of mortality (R99) from 1,160 in 2007 (preliminary) to 779 in 2008 (preliminary).

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

**11** Prior to 2008, these processes were not routinely undertaken for coroner certified cases. The impact of these new processes on the 2008 data are discussed further in this Technical Note.

**12** The timeline below presents the processing cycle for the 2008 data thus far. It shows the different processing dates for doctor certified and coroner certified deaths.




**13** The 2008 data provided in this publication has not yet been subjected to the revisions process, which will further improve the quality of the data. Therefore, the information on 2008 causes of death is considered preliminary - i.e. refers to the point in time (31 January 2010) when initial 2008 processing was finalised. The 2008 data will go through the revisions process twice, and will be released in the Causes of Death publications in 2011 (2008 revised) and 2012 (2008 final). Information on the revisions process and how it is applied to causes of death data can be found in Technical Note 2: Causes of Death - Revisions Process.

DEATHS BY TYPE OF CERTIFIER

**14** For deaths registered in 2008, 13% were certified by a coroner. There are variations between jurisdictions in relation to deaths certified by a coroner, ranging from 10-11% of deaths certified by a coroner in New South Wales, Queensland and Tasmania to 32% of deaths certified by a coroner in the Northern Territory. The proportion of deaths certified by a coroner in 2008 is comparable to previous years.

DEATHS BY TYPE OF CERTIFIER *continued*

TABLE 1: DEATHS BY TYPE OF CERTIFIER AND STATE/TERRITORY OF REGISTRATION—2007 and 2008(a)(b)(c)

| | *Doctor (2007)* | | *Coroner (2007)* | | *Total (2007)* | *Doctor (2008)* | | *Coroner (2008)* | | *Total (2008)* |
|---|---|---|---|---|---|---|---|---|---|---|
| | no. | % | no. | % | no. | no. | % | no. | % | no. |
| NSW | 41 352 | 89 | 5 015 | 11 | 46 367 | 42 983 | 89 | 5 342 | 11 | 48 325 |
| Vic. | 29 752 | 88 | 4 171 | 12 | 33 923 | 30 097 | 85 | 5 417 | 15 | 35 514 |
| Qld | 23 040 | 89 | 2 975 | 11 | 26 015 | 24 415 | 89 | 3 139 | 11 | 27 554 |
| SA | 10 521 | 85 | 1 867 | 15 | 12 388 | 10 810 | 86 | 1 832 | 14 | 12 642 |
| WA | 10 570 | 86 | 1 734 | 14 | 12 304 | 10 936 | 86 | 1 813 | 14 | 12 749 |
| Tas. | 3 654 | 89 | 447 | 11 | 4 101 | 3 751 | 90 | 439 | 10 | 4 190 |
| NT | 662 | 68 | 313 | 32 | 975 | 703 | 68 | 338 | 32 | 1 041 |
| ACT | 1 452 | 82 | 329 | 19 | 1 781 | 1 583 | 82 | 348 | 18 | 1 931 |
| **Australia** | **121 003** | **88** | **16 851** | **12** | **137 854** | **125 278** | **87** | **18 668** | **13** | **143 946** |

(a) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

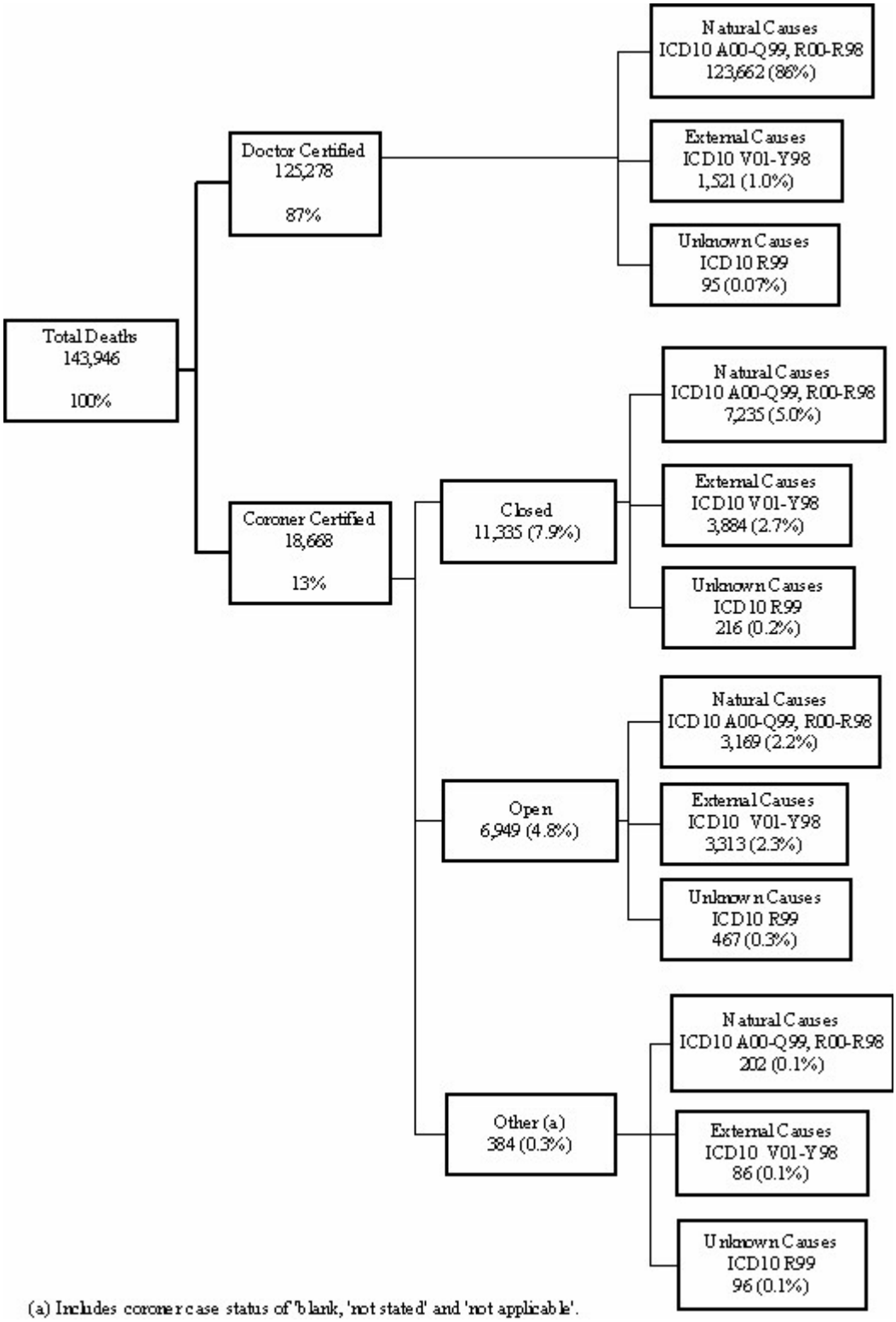
(b) 2007 data are revised and subject to a further revisions process. See Technical Note 3: 2007 Revisions for further information.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

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

- Natural Causes - deaths due to diseases (for example diabetes, cancer, heart disease etc) (A00-Q99, R00-R98)
- External Causes- deaths due to causes external to the body (for example Suicide, transport accidents, falls, poisoning etc) (V01-Y98)
- Unknown Causes - deaths where it is unable to be determined whether the cause was natural or external (R99)

**16** The following diagram describes registered deaths in 2008 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 2008 Causes of Death processing period.




(a) Includes coroner case status of 'blank, 'not stated' and 'not applicable'.

OPEN AND CLOSED CASES ON NCIS

**17** There were 18,668 deaths (or 13% of all deaths) certified by a coroner in 2008. Of those, 11,335 (61%) had a status of closed on NCIS and ABS had full information available in order to undertake cause of death coding. There were 6,949 (37%) cases with a status of open on NCIS in 2008 which may not have had information available at the time of processing. However, all open cases were subject to the new processing improvements and use was made of any additional information found in part 2 of the Medical Certificate of Cause of Death, or in any available police reports, toxicology reports, autopsy reports or coroners findings.

OPEN AND CLOSED CASES ON NCIS *continued*

**18** On a jurisdictional level, the proportion of cases which have a status of open on the NCIS varies significantly. This means that the impact of the new process improvements has varied across states and territories. The largest impact was to Queensland coroner certified cases, where 66% of cases were open at the cessation of ABS processing compared with the Australia-wide average of 37%.

TABLE 2: CORONER CERTIFIED DEATHS, BY CASE STATUS, State and territory of registration—2008(a)(b)(c)

| | 2008 CASES AS AT JANUARY 2010 | | | | | |
|---|---|---|---|---|---|---|
| | *Closed* | | *Open* | | *Other*(d) | *Total* |
| | no. | % | no. | % | no. | |
| NSW | 3 098 | 58 | 2 145 | 40 | 99 | 5 342 |
| Vic. | 3 650 | 67 | 1 694 | 31 | 73 | 5 417 |
| Qld | 899 | 29 | 2 067 | 66 | 173 | 3 139 |
| SA | 1 536 | 84 | 290 | 16 | 6 | 1 832 |
| WA | 1 290 | 71 | 503 | 28 | 20 | 1 813 |
| Tas. | 356 | 81 | 77 | 18 | 6 | 439 |
| NT | 227 | 67 | 104 | 31 | 7 | 338 |
| ACT | 279 | 80 | 69 | 20 | — | 348 |
| Australia | 11 335 | 61 | 6 949 | 37 | 384 | 18 668 |

— nil or rounded to zero (including null cells)

(a) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements 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. Cells with a zero value have not been affected by confidentialisation.

(c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(d) Includes coroner case status of 'blank', 'not stated' and 'not applicable'.

**19** 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 deaths in 2008 due to unknown causes (53%), and 38% of all deaths due to external causes, were coroner certified deaths which remained open on the NCIS at the close of processing. A small proportion of all deaths due to natural causes (2.4%) were also coroner certified deaths which remained open.

**20** In 2008, 467 open cases (6.7% of all open cases) had insufficient information recorded on NCIS to enable any cause of death to be determined. These records have been coded to Other ill-defined and unspecified causes of mortality (R99). This compared to 977 open cases (19% of all open cases) coded to Other ill-defined and unspecified causes of mortality (R99) for preliminary 2007 cause of death data. The table below indicates the impact of 2008 processing improvements on the number of open coroner cases assigned to external or natural causes rather than 'unknown'.

OPEN AND CLOSED CASES ON NCIS *continued*

TABLE 3 OPEN CORONER CASES BY TYPE OF CAUSE, 2007 Preliminary and 2008 Preliminary(a)(b)(c)(d)—State and territory of registration(e)

| | *NSW* | *Vic* | *QLD* | *SA* | *WA* | *TAS* | *NT* | *ACT* | *AUST* |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | PRELIMINARY 2007 | | | | |
| External Cause(f) | 515 | 450 | 790 | 130 | 202 | 35 | 62 | 10 | 2 194 |
| % of total | 36.3 | 57.5 | 36.7 | 47.4 | 63.5 | 55.6 | 72.9 | 28.6 | 42.8 |
| Natural Cause(g) | 699 | 319 | 690 | 107 | 76 | 27 | 18 | 21 | 1 957 |
| % of total | 49.2 | 40.7 | 32.1 | 39.1 | 23.9 | 42.9 | 21.2 | 60.0 | 38.2 |
| Unknown Cause(h) | 206 | 14 | 670 | 37 | 40 | 3 | 5 | 2 | 977 |
| % of total | 14.5 | 1.8 | 31.2 | 13.5 | 12.6 | 1.6 | 5.9 | 11.4 | 19.1 |
| **Total** | **1 420** | **783** | **2 150** | **274** | **318** | **63** | **85** | **35** | **5 128** |
| | | | | | PRELIMINARY 2008 | | | | |
| External Cause | 892 | 840 | 904 | 159 | 373 | 46 | 70 | 29 | 3 313 |
| % of total | 41.6 | 49.6 | 43.7 | 54.8 | 74.2 | 59.7 | 67.3 | 42.0 | 47.7 |
| Natural Cause | 1 137 | 825 | 876 | 121 | 114 | 30 | 29 | 37 | 3 169 |
| % of total | 53.0 | 48.7 | 42.4 | 41.7 | 22.7 | 39.0 | 27.9 | 53.6 | 45.6 |
| Unknown Cause | 116 | 29 | 287 | 10 | 16 | 1 | 5 | 1 | 467 |
| % of total | 5.4 | 1.7 | 13.9 | 3.4 | 3.2 | 1.3 | 4.8 | 1.4 | 6.7 |
| **Total** | **2 145** | **1 694** | **2 067** | **290** | **503** | **77** | **104** | **69** | **6 949** |

(a) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.
(b) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.
(c) 2007 data presented here are preliminary and have not been subjected to the revisions process. See Technical Note 3: 2007 Revisions for further information.
(d) For 2007 preliminary data, some data have moved between originally published cause categories due to a more specific allocation to 'Natural' and 'Unknown' cause categories during the processing of 2008 data.
(e) Data cells with small values have been randomly assigned to protect the confidentiality of individuals. As a result, some totals will not equal the sum of their components. Cells with a zero value have not been affected by confidentialisation.
(f) External Causes- deaths due to causes external to the body (for example suicide, transport accidents, falls, poisoning etc). External causes are certified by coroners. (V01-V99)
(g) Natural Causes - deaths due to diseases (for example diabetes, cancer, heart disease etc). Natural causes are predominantly certified by doctors. (A00-Q99, R00-R98)
(h) Unknown Causes - deaths where it is unable to be determined whether the cause was natural or external. Predominantly these deaths are certified by coroners. (R99)

IMPACT ON EXTERNAL CAUSE BY INTENT DATA

**21** 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 the table below. This analysis highlights the improvements in data quality due to the changes in processing coroner certified cases which were introduced in 2008.

**22** For 2008, there were 3,313 open coroner cases assigned an external cause of death. Of these cases, 38% (1,267) were coded to accidental intent, 26% (856) were coded to an intent of Suicide, 4% (126) were coded to assault and 31% (1,064) were found to have either an undetermined or other intent. This contrasted with the intent of external cause deaths in 2007 preliminary data, where 37% (816) of open cases due to external causes were coded to accidental intent, 18% (384) were coded to an intent of Suicide, 4% (90) were coded to assault and 41% (904) were found to have either an undetermined or other intent. The increase of open case external cause deaths coded to an intent of Suicide, and the corresponding decrease in those deaths assigned an undetermined or other intent, reflects the improved processes outlined above.

IMPACT ON EXTERNAL CAUSE BY INTENT DATA *continued*

TABLE 4: OPEN CORONER CASES, External causes by intent—State and territory of registration —2007-2008(a)(b)(c)(d)(e)

| | *Accidental (V01-X59, Y85, Y86)* | *Intentional self harm (X60-X84, Y87.0)*(f) | *Assault (X85-Y09, Y87.1)* | *Undetermined intent (Y10-Y34, Y87.2)* | *Other* | *Total* |
|---|---|---|---|---|---|---|
| | | | 2007 | | | |
| NSW | 195 | 55 | 8 | 252 | 5 | 515 |
| % | 37.9 | 10.7 | 1.6 | 48.9 | 0.9 | 100 |
| VIC | 130 | 85 | 24 | 205 | 6 | 450 |
| % | 28.9 | 18.9 | 5.3 | 45.6 | 1.3 | 100 |
| QLD | 227 | 161 | 19 | 377 | 6 | 790 |
| % | 28.7 | 20.4 | 2.4 | 47.7 | 0.8 | 100 |
| SA | 61 | 39 | 13 | 16 | 3 | 130 |
| % | 46.9 | 30.0 | 10.0 | 12.3 | 2.3 | 100 |
| WA | 136 | 29 | 16 | 20 | 3 | 202 |
| % | 67.3 | 14.4 | 7.9 | 9.9 | 1.5 | 100 |
| TAS | 23 | 5 | 2 | 4 | 2 | 35 |
| % | 65.7 | 14.3 | 5.7 | 11.4 | 5.7 | 100 |
| NT | 42 | 10 | 6 | 2 | — | 62 |
| % | 67.7 | 16.1 | 9.7 | 3.2 | — | 100 |
| ACT | 7 | — | 3 | 4 | — | 10 |
| % | 70.0 | — | 30.0 | 40.0 | — | 100 |
| **AUS** | **821** | **384** | **91** | **878** | **20** | **2 194** |
| **%** | **37.4** | **17.5** | **4.1** | **40.0** | **0.9** | **100** |
| | | | 2008 | | | |
| NSW | 218 | 173 | 19 | 478 | 4 | 892 |
| % | 24.4 | 19.4 | 2.1 | 53.6 | 0.5 | 100 |
| VIC | 320 | 187 | 24 | 297 | 12 | 840 |
| % | 38.1 | 22.2 | 2.9 | 35.4 | 1.4 | 100 |
| QLD | 365 | 335 | 21 | 178 | 5 | 904 |
| % | 40.4 | 37.1 | 2.3 | 19.7 | 0.5 | 100 |
| SA | 74 | 34 | 18 | 27 | 6 | 159 |
| % | 46.5 | 21.4 | 11.3 | 17.0 | 3.8 | 100 |
| WA | 203 | 87 | 32 | 48 | 3 | 373 |
| % | 54.4 | 23.3 | 8.6 | 12.9 | 0.8 | 100 |
| TAS | 19 | 21 | 3 | 3 | — | 46 |
| % | 41.3 | 45.7 | 6.5 | 6.5 | — | 100 |
| NT | 49 | 14 | 6 | 2 | — | 70 |
| % | 70.0 | 20.0 | 8.6 | 2.9 | — | 100 |
| ACT | 19 | 5 | 3 | — | 2 | 29 |
| % | 65.5 | 17.2 | 10.3 | — | 6.9 | 100 |
| **AUS** | **1 267** | **856** | **126** | **1 033** | **31** | **3 313** |
| **%** | **38.2** | **25.8** | **3.8** | **31.2** | **0.9** | **100** |

— nil or rounded to zero (including null cells)

(a) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements for further information.

(b) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process.

(c) 2007 data presented here are preliminary and have not been subjected to the revisions process. See Technical Note 3: 2007 Revisions for further information.

(d) For 2007 preliminary data, some data have moved between originally published intent categories due to a more specific code allocation in the processing of 2008 data.

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

(f) Care needs to be taken in interpreting figures relating to Suicide due to limitations of data, see Explanatory Notes 72-75.

# TECHNICAL NOTE 2 CAUSES OF DEATH - REVISIONS PROCESS

## INTRODUCTION

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

- First, by increasing the length of time from the end of the reference period to publication of data from 11 to 15 months to allow for a longer time period to receive information on coroner certified deaths; and
- Second by introducing a process of revisions to COD data. This technical note will discuss in detail the revisions process which will be applied to COD data.

**2** Up to and including deaths registered in 2006, ABS Causes of death processing was finalised at a point in time. At this point not all deaths registered in the reference year which were referred to the coroner, had been investigated, the case closed and relevant information loaded to the National Coroners Information System (NCIS). The coronial process can take several years if an inquest is being held or complex investigations are being undertaken. In these instances, the cases remain open on the NCIS. Impacts on data quality for coroner certified deaths in terms of specificity of ICD code are:

- general increases in the length of coronial investigations
- increases in the workload of coroners
- the timeliness of input of coronial findings to the NCIS.

**3** To address these data quality issues, all coroner certified deaths registered after 1 January 2007 are now subject to a revisions process. The revisions process enables the use of additional information relating to coroner certified deaths either 12 or 24 months after initial processing. This increases the specificity of the assigned ICD-10 codes over time. As 12 or 24 months of time has passed since initial processing, further information may have become available to the ABS about the causes of these deaths.

**4** 2007 (revised) data which has been subjected to the revisions process has been published in this release. In 2011, after a second application of the revisions process, 2007 (final) data will be released in the 2009 (preliminary) Causes of Death publication. See Technical Note 3: 2007 Revisions for further information on the impact of the first application of the revisions process to 2007 data.

## REVISIONS PROCESS

**5** All coroner certified deaths registered after 1 January 2007 are now subject to a revisions process after 12 and 24 months. The COD revisions process allows the ABS to code any further information loaded to the NCIS after the preliminary coding took place. In many cases, the coronial cases will be closed, with the coroner having determined the underlying cause of death and allowing the ABS to code a more specific cause of death. If the case remains open on the NCIS, ABS will investigate and use additional information from police reports, toxicology reports, autopsy reports and coroners findings to assign a more specific cause of death to these open cases. It is expected that all open cases will be investigated in this manner from 2008 onwards.

REVISIONS PROCESS *continued*

**6** ABS will undertake two rounds of revisions only for each year's data. It is anticipated that the quality of the data will be higher after two revision processes. In each round of revisions, those cases which were open at the time of publication the year before will be reassessed by ABS coders to take into account any new information available on the NCIS. This will affect both cases which have been subsequently closed, and those which remain open.

**7** As 2007 reference year data is the first series of data to undergo the revisions process, a review of those 2007 cases which remain open on the NCIS at the end of the second round of revisions (January 2011) will be undertaken. The results of this review will be used to determine whether the ABS will undertake further revisions to the 2007 data. It is anticipated that the quality of the 2007 data will be very high after being subjected to two rounds of revisions. If this is the case, the ABS will not undertake any further revisions for that reference year. COD data for each year will therefore be released three times, as preliminary, revised and final. The release schedule is demonstrated in the table below.

TABLE 1, CAUSES OF DEATH RELEASE SCHEDULE

| *Data Reference Year* | *Anticipated Release Schedule* |
|---|---|
| 2007 Preliminary | March 2009 |
| 2007 Revised | March 2010 |
| 2007 Final | March 2011 |
| 2008 Preliminary | March 2010 |
| 2008 Revised | March 2011 |
| 2008 Final | March 2012 |

**8** For all deaths registered from 1 January 2008, all coroner certified deaths with a case status of open or closed will be reviewed during the processing of the current reference year's data. Table 2 below is a summary of the business rules used by the ABS in the application of the revisions process to coroner certified deaths. During subsequent revisions (2007 onwards), all coroner certified deaths that are open at the end of processing for the previous two reference years will be reviewed.

**9** These business rules will be applied for all open and closed coroner cases for all releases from now on.

TABLE 2, BUSINESS RULES FOR 2008 AND BEYOND FOR REVISION OF CORONER CERTIFIED DEATHS

| *Data Type* | *Coroners Cases Affected* | *Process* |
|---|---|---|
| Preliminary, Revised and Final | All - open and closed | Code all open and closed coroners cases for the reference year based on ICD-10 coding rules, including the use of additional information: police, toxicology and autopsy reports. |

# TECHNICAL NOTE 3 2007 REVISIONS

## INTRODUCTION

**1** All coroner certified deaths registered after 1 January 2007 are now subject to the Causes of Death (COD) revisions process. See Technical Note 2: Causes of Death - Revisions Process. Revisions were first applied to the 2007 reference year. Prior to the implementation of the revisions process, cause of death statistics were not revised after publication. This was the case even if a coronial enquiry was later finalised.

**2** The 2007 revisions process was limited to all cases which moved from open to closed during the 12 months following preliminary coding. Processing for preliminary and revised data for the future will investigate all cases, open and closed Technical Note 1: 2008 COD Collection - Process Improvements.

**3** The 2007 revisions process only impacted on coroner certified deaths. 2007 (revised) data has been published in this release on a reference year basis. In 2011, after a second application of the COD revisions process, 2007 (final) data will be released in the 2009 Causes of Death publication.

## RESULTS OF THE 2007 REVISIONS PROCESS

**4** During the 2007 revisions period, 1,614 coronial cases moved from open to closed, and 1,172 coroner certified records were recoded to a potentially more specific underlying cause of death.

**5** Table 1 shows the impact of the revisions on the 2007 coroner certified data at ICD-10 chapter level. Overall, the 2007 revisions process resulted in 476 records changing from Ill-defined causes (R00-R99). This was a 38% reduction in causes of death recorded in the Ill-defined causes (R00-R99) category.

**6** Of the records that moved from Ill-defined (R00-R99) to more specific codes, 192 moved to Diseases of the circulatory system (I00-I99), 43 to Intentional self-harm [Suicide] (X60-X84, Y87.0) and 76 to Other external causes of accidental injury (W00-X59). Of the 273 records which moved from Undetermined intent (Y10-Y34, Y87.2), 123 moved to Suicide (X60-X84, X87.0) and 85 to Transport accidents (V01-V99, Y85).

**7** All chapters with the exception of Diseases of the eye and adnexa (H00-H59) and Diseases of the ear and mastoid process (H60-H95), (and Ill defined causes (R00-R99)) increased in number as a result of COD Revisions.

TABLE 1 - CORONER CERTIFIED DEATHS, by ICD-10 chapter —2007 Preliminary and revised(a)(b): **Number and Percentage change**

| *Cause of death and ICD Code* | *Preliminary (Before revision)* no | *Revised (After revision)* no | *Change (Preliminary to Revised)* no | *Change (Preliminary to Revised)* % |
|---|---|---|---|---|
| Infectious Diseases (A00-B99) | 99 | 103 | 4 | 4.0 |
| Cancer (C00-D48) | 635 | 653 | 18 | 2.8 |
| Blood and Immunity Disorders (D50-D89) | 28 | 30 | 2 | 7.1 |
| Endocrine, nutritional and metabolic diseases (E00-E90) | 307 | 319 | 12 | 3.9 |
| Mental and behavioural disorders (F00-F99) | 236 | 237 | 1 | 0.4 |
| Diseases of the nervous system (G00-G99) | 281 | 288 | 7 | 2.5 |
| Diseases of the eye and adnexa and Diseases of the ear and mastoid process (H00-H95) | 4 | 2 | –2 | –50.0 |
| Diseases of the heart and blood vessels (I00-I99) | 6 053 | 6 248 | 195 | 3.2 |
| Diseases of the respiratory system (J00-J99) | 637 | 656 | 19 | 3.0 |
| Diseases of the digestive system (K00-K93) | 589 | 619 | 30 | 5.1 |
| Diseases of the skin and subcutaneous tissue (L00-L99) | 13 | 14 | 1 | 7.7 |
| Diseases of the muscles, bones and tendons (M00-M99) | 58 | 59 | 1 | 1.7 |
| Diseases of the kidney, urinary system and genitals (N00-N99) | 89 | 92 | 3 | 3.4 |
| Pregnancy, childbirth and the puerperium (O00-O99) | 5 | 6 | 1 | 20.0 |
| Conditions originating in the perinatal period (P00-P96) | 37 | 39 | 2 | 5.4 |
| Congenital and chromosomal abnormalities (Q00-Q99) | 73 | 81 | 8 | 11.0 |
| Ill defined causes (R00-R99) | 1 264 | 788 | –476 | –37.7 |
| External causes (V01-Y98) | 6 444 | 6 617 | 173 | 2.7 |
| **All Causes** | **16 851** | **16 851** | — | — |

— nil or rounded to zero (including null cells)

(a) 2007 data are revised and subject to a further revisions process. See Technical Note 3: 2007 Revisions 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 to the sum of their components.

RESULTS OF THE 2007 REVISIONS PROCESS *continued*

**8** Table 2 shows the impact of the COD revisions process on the 2007 data for selected causes. The largest movements were:

- the number of records coded to Suicides (X60-X84, Y87.0) increased by 173
- the number of records coded to Transport accidents (V01-V99, Y85) increased by 116
- the number of records coded to Accidental poisonings (X40-X49) increased by 70
- the number of records coded to Falls (W00-W19) increased by 33
- the number of records coded to Assaults (X85-Y09, Y87.1) increased by 30.

**9** The greatest movement among External cause codes due to the revisions process was the increase in the number of deaths coded to Suicide from 1,881 (2007 preliminary) to 2,054 (2007 revised), an increase of 173 deaths (9.2%).

RESULTS OF THE 2007 REVISIONS PROCESS *continued*

TABLE 2: CORONDER CERTIFIED DEATHS, Selected causes—2007 Preliminary and revised(a)(b): **Number and Percentage change**

| *Cause of death and ICD Code* | *Preliminary (Before revision)* no | *Revised (After revision)* no | *Change (Preliminary to Revised)* no | *Change (Preliminary to Revised)* % |
|---|---|---|---|---|
| Sudden infant death syndrome (R95) | 71 | 83 | 12 | 16.9 |
| Other ill-defined and unspecified causes of mortality (R99) | 1 160 | 675 | –485 | –41.8 |
| Transport accidents (V01-V99, Y85) | 1 342 | 1 458 | 116 | 8.6 |
| Falls (W00-W19) | 695 | 728 | 33 | 4.7 |
| Accidental drowning and submersion (W65-W74) | 183 | 186 | 3 | 1.6 |
| Exposure to smoke, fire and flames (X00-X09) | 57 | 63 | 6 | 10.5 |
| Accidental poisoning by and exposure to noxious substances (X40-X49) | 534 | 604 | 70 | 13.1 |
| Intentional self-harm (X60-X84, Y87.0)(b) | 1 881 | 2 054 | 173 | 9.2 |
| Assault (X85-Y09, Y87.1) | 164 | 194 | 30 | 18.3 |
| Event of Undetermined intent (Y10-Y34, Y87.2) | 1 092 | 830 | –262 | –24.0 |
| Other external causes of mortality (X60-Y36) | 3 136 | 3 079 | –57 | –1.8 |
| **All Causes** | **16 851** | **16 851** | — | — |

— nil or rounded to zero (including null cells)

(a) 2007 data are revised and subject to a further revisions process. See Technical Note 3: 2007 Revisions for further information.

(b) Care needs to be taken in interpreting figures relating to suicide due to limitations of data, see Explanatory Notes 72-75.

**10** Table 3 shows the movement between selected causes from 2007 (preliminary) underlying cause of death to 2007 (revised) underlying cause of death. The largest movements were between Other ill-defined and unspecified causes of mortality (R99), Diseases of the circulatory system (I00-I99); and Undetermined intent (Y10-Y34, Y87.2) and Suicide (X60-X84, Y87.0). Table 3 also highlights the movements in codes within chapters for these selected causes.

TABLE 3: CORONER CASES, Preliminary and revised underlying cause of death—Selected causes—2007 (a)(b)

| | PRELIMINARY 2007 ICD-10 CODE(c) | | | | | | |
|---|---|---|---|---|---|---|---|
| *Revised 2007 ICD-10 code* | *Other ill-defined and unspecified causes of mortality (R99)* | *Transport accidents (V01-V99, Y85)* | *Other external causes of accidental injury (W00-X59)* | *Suicide (X60-X84,Y87.0)* | *Assault (X85-Y09,Y87.1)* | *Undetermined intent (Y10-Y34, Y87.2)* | *Total* |
| Diseases of the circulatory sytem (I00-I99) | 192 | 2 | 4 | — | — | — | 272 |
| Ill defined causes (R00-R98, excludes R99) | 12 | — | — | — | — | — | 13 |
| Transport accidents (V01-V99, Y85) | 19 | 70 | 18 | — | — | 85 | 202 |
| Other external causes of accidental injury (W00-X59) | 76 | 3 | 42 | — | — | 49 | 192 |
| Suicide (X60-X84, Y87.0)(d) | 43 | 1 | 5 | 75 | — | 123 | 248 |
| Assault (X85-Y09, Y87.1) | 4 | 11 | 2 | — | 10 | 13 | 39 |
| Undetermined intent (Y10-Y34, Y87.2) | 7 | 3 | 4 | — | — | 7 | 18 |
| **Total**(c) | **480** | **87** | **74** | **75** | **10** | **280** | **1 172** |

— nil or rounded to zero (including null cells)

(a) 2007 data are revised and subject to a further revisions process. See Technical Note 3: 2007 Revisions 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 to the sum of their components. Cells with a zero value have not been affected by confidentialisation.

(c) Includes all causes of death.

(d) Care needs to be taken in interpreting figures relating to suicide due to limitations of data, see Explanatory Notes 72-75.

## IMPACT OF THE REVISIONS PROCESS ON EXTERNAL CAUSES OF DEATH DATA

**11** The revisions process applied to 2007 (preliminary) data has increased the number of deaths coded to Suicide by 173. See tables 2, 3 and 5 in this Technical Note for further information relating to the impact of the revisions process on Suicide deaths.

**12** Table 4 presents data on 2007 open coroner cases (preliminary and revised) with an external cause of death by mechanism of death. This is presented to provide information on the impact of the revisions process on these data.

TABLE 4 - OPEN CORONER CASES, External causes of death by mechanism—2007 Preliminary and Revised, (a)(b): **State and territory of registration**(c)

| | *Hanging* | *Falls* | *Poisoning* | *Drowning* | *Transport Accidents* | *Firearms* | *Sharp Objects* | *Other and Unspecified* | *Total* |
|---|---|---|---|---|---|---|---|---|---|
| PRELIMINARY 2007 | | | | | | | | | |
| NSW | 88 | 27 | 92 | 41 | 54 | 22 | 6 | 185 | 515 |
| Vic | 60 | 40 | 74 | 11 | 68 | 14 | 15 | 168 | 450 |
| Qld | 179 | 19 | 88 | 31 | 143 | 47 | 21 | 262 | 790 |
| SA | 21 | 10 | 26 | 4 | 29 | 9 | 5 | 26 | 130 |
| WA | 25 | 8 | 29 | 7 | 94 | 3 | 5 | 31 | 202 |
| Tas | 3 | 3 | 8 | — | 9 | 2 | 1 | 9 | 35 |
| NT | 7 | 4 | 4 | 1 | 29 | 3 | 3 | 11 | 62 |
| ACT | 1 | 1 | 1 | 1 | 1 | — | 1 | 4 | 10 |
| **Aust** | **384** | **112** | **322** | **96** | **427** | **100** | **57** | **696** | **2 194** |
| REVISED 2007 | | | | | | | | | |
| NSW | 100 | 30 | 100 | 40 | 73 | 25 | 5 | 184 | 557 |
| Vic | 52 | 35 | 65 | 7 | 64 | 13 | 15 | 147 | 398 |
| Qld | 40 | 10 | 32 | 9 | 65 | 21 | 3 | 44 | 224 |
| SA | 10 | 5 | 16 | 2 | 15 | 5 | 1 | 19 | 73 |
| WA | 21 | 3 | 18 | 4 | 46 | 3 | 5 | 28 | 128 |
| Tas | 2 | — | 7 | — | 7 | 3 | 2 | 4 | 25 |
| NT | 3 | 2 | 1 | 4 | 18 | 2 | 1 | 6 | 37 |
| ACT | 1 | 4 | 1 | 3 | — | — | 3 | 2 | 10 |
| **Aust** | **228** | **87** | **244** | **64** | **288** | **71** | **34** | **436** | **1 452** |

— nil or rounded to zero (including null cells)

(a) 2007 data are revised and subject to a further revisions process. See Technical Note 3: 2007 Revisions for further information

(b) For 2007 preliminary data, some data have moved between originally published mechanism categories due to a more specific code allocation in the processing of 2008 data.

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

## IMPACT OF THE REVISIONS PROCESS ON EXTERNAL CAUSES OF DEATH DATA

*continued*

**13** Table 5 presents open coroner cases (preliminary and revised) with an external cause of death by intent ie. accidental, intentional self-harm (Suicide), assault (homicide) or undetermined.

IMPACT OF THE REVISIONS PROCESS ON EXTERNAL CAUSES OF DEATH DATA *continued*

TABLE 5 - OPEN CORONER DEATHS, External causes by intent(a)(b)—2007 Preliminary and Revised, State and territory of registration (c)

| | *Accident* | *Suicide*(d) | *Assault* | *Undetermined* | *Other* | *Total* |
|---|---|---|---|---|---|---|
| | | | PRELIMINARY 2007 | | | |
| NSW | 195 | 55 | 8 | 252 | 5 | 515 |
| Vic | 130 | 85 | 24 | 205 | 6 | 450 |
| Qld | 227 | 161 | 19 | 377 | 6 | 790 |
| SA | 61 | 39 | 13 | 16 | 3 | 130 |
| WA | 136 | 29 | 16 | 20 | 3 | 202 |
| Tas | 23 | 5 | 2 | 4 | 2 | 35 |
| NT | 42 | 10 | 6 | 2 | — | 62 |
| ACT | 7 | — | 3 | 4 | — | 10 |
| Aust | 821 | 384 | 91 | 878 | 20 | 2 194 |
| | | | REVISED 2007 | | | |
| NSW | 223 | 73 | 9 | 246 | 6 | 557 |
| Vic | 116 | 76 | 23 | 179 | 4 | 398 |
| Qld | 93 | 77 | 9 | 44 | 1 | 224 |
| SA | 31 | 20 | 11 | 10 | 1 | 73 |
| WA | 75 | 20 | 16 | 16 | 1 | 128 |
| Tas | 16 | 4 | 3 | 3 | 1 | 25 |
| NT | 30 | 6 | 2 | — | 1 | 37 |
| ACT | 7 | — | 3 | 4 | 4 | 10 |
| Aust | 591 | 276 | 73 | 498 | 14 | 1 452 |

— nil or rounded to zero (including null cells)

(a) 2007 data are revised and subject to a further revisions process. See Technical Note 3: 2007 Revisions for further information.

(b) For 2007 preliminary data, some data have moved between originally published intent categories due to a more specific code allocation in the processing of 2008 data.

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

(d) Care needs to be taken in interpreting figures relating to Suicide due to limitations of data, see Explanatory Notes 72-75.

OPEN AND CLOSED CASES

**14** Table 6 shows the number of 2007 open and closed coroner certified records on the ABS processing system before and after the application of the 2007 revisions process. The number of open coronial cases reduced from 5,128 to 3,017 over the 12 month period. This means a total of 1,614 cases moved from open to closed between January 2009 and January 2010. This is larger than the overall number of cases which were revised through the ABS revision process (1,172), due to the underlying cause of death not being changed by coroners for some open cases which moved to a status of closed.

**15** The number of closed cases for the New South Wales jurisdiction has decreased. This is due to a difference in the methodology used for generating these figures. For 2007 preliminary data, the numbers were obtained from NCIS directly as the ABS did not record case status on the Mortality system at that stage. The figures for 2007 revised data were derived from ABS Mortality system. Although these numbers should match, the difference can be explained by:

- the wrong coroner case originally being attributed to a record
- not being able to match to NCIS due to errors in spelling of names or date of birth or death
- incorrect calculation of closed vs open cases in 2007 preliminary due to different methodology.

OPEN AND CLOSED CASES

*continued*

TABLE 6: CORONER CASE STATUS, 2007 Preliminary and revised(a)—State and territory of registration(b)

| | 2007 PRELIMINARY (BEFORE REVISION) | | | | 2007 REVISED (AFTER REVISION) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | *Open* | *Closed* | *Total* | *Closed cases as % of total* | *Open* | *Closed* | *Other*(c) | *Total* | *Closed cases as % of total* |
| | no. | no. | no. | % | no. | no. | no. | no. | % |
| NSW | 1 420 | 3 595 | 5 015 | 72 | 1 410 | 3 555 | 50 | 5 015 | 71 |
| VIC | 783 | 3 388 | 4 171 | 81 | 666 | 3 487 | 18 | 4 171 | 84 |
| QLD | 2 150 | 825 | 2 975 | 28 | 502 | 2 068 | 405 | 2 975 | 70 |
| SA | 274 | 1 593 | 1 867 | 85 | 159 | 1 703 | 5 | 1 867 | 91 |
| WA | 318 | 1 416 | 1 734 | 82 | 183 | 1 548 | 4 | 1 734 | 89 |
| TAS | 63 | 384 | 447 | 86 | 30 | 404 | 13 | 447 | 90 |
| NT | 85 | 228 | 313 | 73 | 47 | 265 | 1 | 313 | 85 |
| ACT | 35 | 294 | 329 | 89 | 20 | 307 | 2 | 329 | 93 |
| Australia | 5 128 | 11 723 | 16 851 | 70 | 3 017 | 13 337 | 497 | 16 851 | 79 |

(a) 2007 data are revised and subject to a further revisions process. See Technical Note 3: 2007 Revisions 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 to the sum of their components. Cells with a zero value have not been affected by confidentialisation.

(c) 'Other' includes cases with status of 'blank', 'not stated' and 'not applicable'

**16** Table 7 shows the remaining number of open coroner certified cases for 2007 by type of cause, after the application of the revision process. These remaining 3,017 open cases will be subject to a second round of COD revisions as part of the 2009 causes of death processing.

OPEN AND CLOSED CASES

*continued*

TABLE 7: REMAINING OPEN CASES, Type of cause—State and territory of registration: **2007 Revised**(a)(b)

| | *Natural Causes*(c) | *External Causes*(d) | *Unknown Causes*(e) | *Total* |
|---|---|---|---|---|
| NSW | 694 | 557 | 159 | 1 410 |
| VIC | 264 | 398 | 4 | 666 |
| QLD | 189 | 224 | 89 | 502 |
| SA | 57 | 73 | 29 | 159 |
| WA | 39 | 128 | 16 | 183 |
| TAS | 5 | 25 | — | 30 |
| NT | 7 | 37 | 3 | 47 |
| ACT | 8 | 10 | 2 | 20 |
| **Australia** | **1 263** | **1 452** | **302** | **3 017** |

— nil or rounded to zero (including null cells)

(a) 2007 data are revised and subject to a further revisions process. See Technical Note 3: 2007 Revisions 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 to the sum of their components. Cells with a zero value have not been affected by confidentialisation.

(c) Natural Causes - deaths due to diseases (for example diabetes, cancer, heart disease etc). Natural causes are predominantly certified by doctors. (A00-Q99, R00-98)

(d) External causes - deaths due to causes external to the body (for example suicide, transport accidents, falls, poisoning etc). External causes are certified by coroners. (V01-V99).

(e) Unknown Causes - deaths where it is unable to be determined whether the cause was natural or external. Predominantly these deaths are certified by coroners. (R99)

# GLOSSARY

**Age-specific death rate** — Age-specific death rates (ASDRs) are the number of deaths (occurred or registered) during the reference year at a specified age per 100,000 of the estimated resident population of the same age at the mid-point of the year (30 June). Pro rata adjustment is made in respect of deaths for which the age of the deceased is not given. ASDR for deaths under 1 year of age are calculated based on 1,000 live births for that year.

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

**Australian Standard Geographical Classification (ASGC)** — The ASGC provides a common framework of statistical geography and thereby enables the production of statistics which are comparable and can be spatially integrated. See Explanatory Notes 24-25 for more information.

**Cause of death** — The causes of death to be entered on the Medical Certificate of Cause of Death are all those diseases, morbid conditions or injuries which either resulted in or contributed to death and the circumstances of the accident or violence which produced any such injuries.

**Certifier type** — Deaths may be certified by either a medical practitioner, using the Medical Certificate of Cause of Death, or a coroner. Natural causes are predominantly certified by doctors, whereas External and Unknown causes are usually certified by a coroner. However, some deaths for natural causes are referred to coroners for investigation, for example unaccompanied deaths.

**Confidentialised** — From 2007 data cells with small values have been randomly assigned to protect confidentiality. As a result some totals will not equal the sum of their components. It is important to note that cells with 0 values have not been affected by confidentialisation.

**Coroner certified deaths** — Deaths which were certified by a coroner. Approximately 10-15% of deaths each year are certified by a coroner. Coroner cases remain 'open' while cause of death investigations are undertaken, and are closed when coronial investigations are complete. Following completion, causes of death information is passed to the Registrar of Births, Deaths and Marriages, as well as to the National Coroners Information System (NCIS). All coroner certified deaths registered after 1 January 2007 are subject to a revisions process. For more information see Technical Note 2: Causes of Death - Revisions Process and Technical Note 3: 2007 Revisions.

**Country of birth** — The classification of countries used is the Standard Australian Classification of Countries (SACC). For more detailed information refer to the Standard Australian Classification of Countries (SACC) (cat. no. 1269.0).

**Crude death rate** — The crude death rate (CDR) is the number of deaths registered during the reference year per 100,000 estimated resident population at 30 June.

**Data cubes** — Are a series of spreadsheets which present Causes of Death data. Causes of Death data cubes can be found on the web page under the Downloads tab. See iNote for Data cubes for more information on Causes of Death data cubes.

**Death** — Death is the permanent disappearance of all evidence of life after birth has taken place. The definition excludes all deaths prior to live birth. For the purposes of the Deaths and Causes of Death collections of the Australian Bureau of Statistics (ABS), a death refers to any death which occurs in, or en route to, Australia and is registered with a state or territory Registry of Births, Deaths and Marriages.

**Doctor certified deaths** Deaths which were certified by a doctor or medical practitioner, which were not required to be referred on to a coroner. Approximately 85-90% of deaths each year are certified by a doctor. Doctor certified deaths are not subject to the revisions process.

**Estimated resident population (ERP)** The official measure of the population of Australia is based on the concept of residence. It refers to all people, regardless of nationality or citizenship, who usually live in Australia, with the exception of foreign diplomatic personnel and their families. It includes usual residents who are overseas for less than 12 months. It excludes overseas visitors who are in Australia for less than 12 months.

**External causes of death** Deaths due to causes external to the body (for example Suicide, transport accidents, falls, poisoning etc). ICD-10 codes V01-Y98.

**External territories** Australian external territories include Australian Antarctic Territory, Coral Sea Islands Territory, Norfolk Island, Territory of Ashmore and Cartier Islands, and Territory of Heard and McDonald Islands.

**ICD** International Statistical Classification of Diseases and Related Health Problems. The purpose of the ICD is to permit the systematic recording, analysis, interpretation and comparison of mortality and morbidity data collected in different countries or areas and at different times. The ICD, which is endorsed by the World Health Organisation (WHO), is primarily designed for the classification of diseases and injuries with a formal diagnosis. The ICD-10 is the current classification system, which is structured using an alphanumeric coding scheme. Each disease or health problem is assigned a 3-digit identification code, which is assigned to the deceased by a doctor or coroner. Cause of death statistics can be produced for aggregates of these, for example, chapter level (letter), 2-digit code (first two numbers of the assigned code), and 3-digit code (three numbers of the assigned code). See Explanatory Notes 29-33 for more information on ICD. Further information also is available from the WHO website .

**Indigenous** Persons who identify themselves as being of Aboriginal and/or Torres Strait Islander origin.

**Indigenous death** The death of a person who is identified as being of Aboriginal and/or Torres Strait Islander (Indigenous) origin on the Death Registration Form (DRF). From 2007, Indigenous origin for deaths registered in South Australia, Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory is also derived from the Medical Certificate of Cause of Death (MCCD).

**Indirect standardised death rate (ISDR)** See Standardised death rate (SDR).

**Infant death** An infant death is the death of a live born child who dies before reaching his/her first birthday.

**Intent** The manner or 'intent' of an injury which leads to death, is determined by whether the injury was inflicted purposefully or not (in some cases, intent cannot be determined). The determination of 'intent' for each death is essential for determining the appropriate ICD-10 code to use for a death and is particularly pertinent to the coding of external causes.

**Leading causes of death** Ranking causes of death is a useful method of describing patterns of mortality in a population and allows comparison over time and between populations. The ranking of leading causes of death in this publication are based on research presented in the Bulletin of the World Health Organisation, Volume 84, Number 4, April 2006, 257-336 (see Explanatory Notes 40-42 for further information).

**Mechanism of death** Mechanism of external cause of death by which a person may die include: poisoning; hanging and other threats to breathing; drowning and submersion; firearms; contact with sharp object; and falls.

**Median age at death** This refers to the age at death at the 50th percentile for the relevant demographic group.

| | |
|---|---|
| **Morbid train of events** | The events and diseases which lead to death. |
| **Mortality** | The condition of being mortal or subject to 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. |
| **National Coroners Information System (NCIS)** | The NCIS is a national data storage system which contains information about all deaths referred to a coroner since July 2000 (January 2001 for Queensland). |
| **National Health Priority Area (NHPA)** | 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. For more information see Chapter 2 National Health Priority Area (NHPAs). |
| **Natural cause of death** | Deaths due to diseases (for example diabetes, cancer, heart disease etc) which are not external or unknown. |
| **Neonatal period** | The neonatal period commences at birth and ends 28 completed days after birth. |
| **Other Territories** | Other Territories include Jervis Bay Territory, previously included with the Australian Capital Territory, as well as Christmas Island and the Cocos (Keeling) Islands. |
| **Perinatal death** | A perinatal death that is either a fetal death (i.e. a death prior to the complete expulsion or extraction from its mother as a product of conception of 20 completed weeks of gestation or with a birth weight of at least 400 grams), or a neonatal death (i.e. death of a live born baby within 28 completed days of birth). |
| **Rate ratio** | Rate ratio is calculated by dividing the standardised death rate for one group (such as all persons with a usual residence of Queensland) by the standardised death rate for the total relevant population (such as all persons with a usual residence of Australia). |
| **Reference year** | The year that presented data refers to. For example, this publication presents data for the 2008 reference year, as well as some historical data for the 1999 to 2007 reference years. From 2007, data for a particular reference year includes all deaths registered in Australia for the reference year that are received by the ABS by the end of the March quarter of the subsequent year. For example, data for the 2008 reference year includes all deaths registered in Australia for 2008 that were received by the ABS by the end of March 2009. See Explanatory Notes 9-16 for more information about scope and coverage. |
| **Registration year** | See 'Year of registration'. |
| **Registry of Births, Deaths and Marriages** | Each state and territory has a Registry of Births, Deaths and Marriages. It is a legal requirement that all deaths are recorded by the relevant Registry for the state in which the death occurred. |
| **Reportable deaths** | Deaths which are reported to a coroner. See Explanatory Note 2 for further information on what constitutes a reportable death. |
| **Revisions process** | When additional information about an 'open' coroner certified death is received by the ABS, either 12 or 24 months after initial processing, a more specific ICD-10 code may be applied. This results in a 'revision' to the cause of death. See Technical Note 2: Causes of Death - Revisions Process and Technical Note 3: 2007 Revisions for further information on the revisions process and the impact on 2007 revised data. |

**Sex ratio**

The number of males per 100 females. The sex ratio is defined for total population, at birth, at death and among age groups by appropriately selecting the numerator and denominator of the ratio.

**Standardised death rate (SDR)**

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.

SDRs throughout this publication have been calculated using the direct method, except for SDRs presented for leading causes of death in the Migrant datacube, which were calculated using the indirect method.

**State or territory of registration**

State or territory of registration refers to the state or territory in which the death was registered. It is the state in which the death occurred, but is not necessarily the deceased's state or territory of usual residence.

**State or territory of usual residence**

State or territory of usual residence refers to the state or territory in which the person has lived or intended to live for a total of six months or more in a given reference year.

**Underlying cause of death**

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

**Unknown cause of death**

Deaths 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 intended 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. See Explanatory Notes 15-16 for more information.

**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. In most cases the year of registration and year of occurrence for a particular death will be the same, but in some cases there may be a delay between occurrence and registration of death.

**Years of potential life lost (YPLL)**

YPLL measures the extent of 'premature' mortality, where 'premature' mortality is assumed to be any death at ages of 1-78 years inclusive. By estimating YPLL for deaths of people aged 1-78 years it is possible to assess the significance of specific diseases or trauma as a cause of premature death. See Explanatory Notes 43-45 for an explanation of the calculation of YPLL.

## FOR MORE INFORMATION . . .

*INTERNET* **www.abs.gov.au** the ABS website is the best place for data from our publications and information about the ABS.

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