



3.2 Leading causes of death

Leading causes of death is a useful measure of population health. It is of most value when making comparisons over time or between population groups. Changes in the pattern of causes of death can result from changes in behaviours, exposures to disease or injury, and social and environmental circumstances, as well as from data coding practices (Box 3.2.1).

Box 3.2.1: Deaths data

Causes of death are documented on death certificates by medical practitioners or coroners, and coded by the Australian Bureau of Statistics using the World Health Organization International Statistical Classification of Diseases and Related Health Problems (ICD).

The ICD allows diseases that cause death to be grouped in a way that is meaningful for monitoring population health. The AIHW uses the disease groups recommended by the World Health Organization (Becker et al. 2006), with minor modifications to suit the Australian context.

Leading causes of death presented in this snapshot are based on the 'underlying cause of death', which is the disease or injury that began the train of events leading to death.

Most deaths, however, result from more than one contributing disease or condition. Analyses using 'associated causes of death' may offer insight into the disease processes occurring at the end of life or, for injury causes of death, the nature of the injury.

What are the leading causes of death in Australia?

There were 158,500 deaths in Australia in 2016 (81,900 males; 76,600 females). The age-standardised death rate for males was 1.4 times as high as for females (637 per 100,000 males and 448 per 100,000 females).

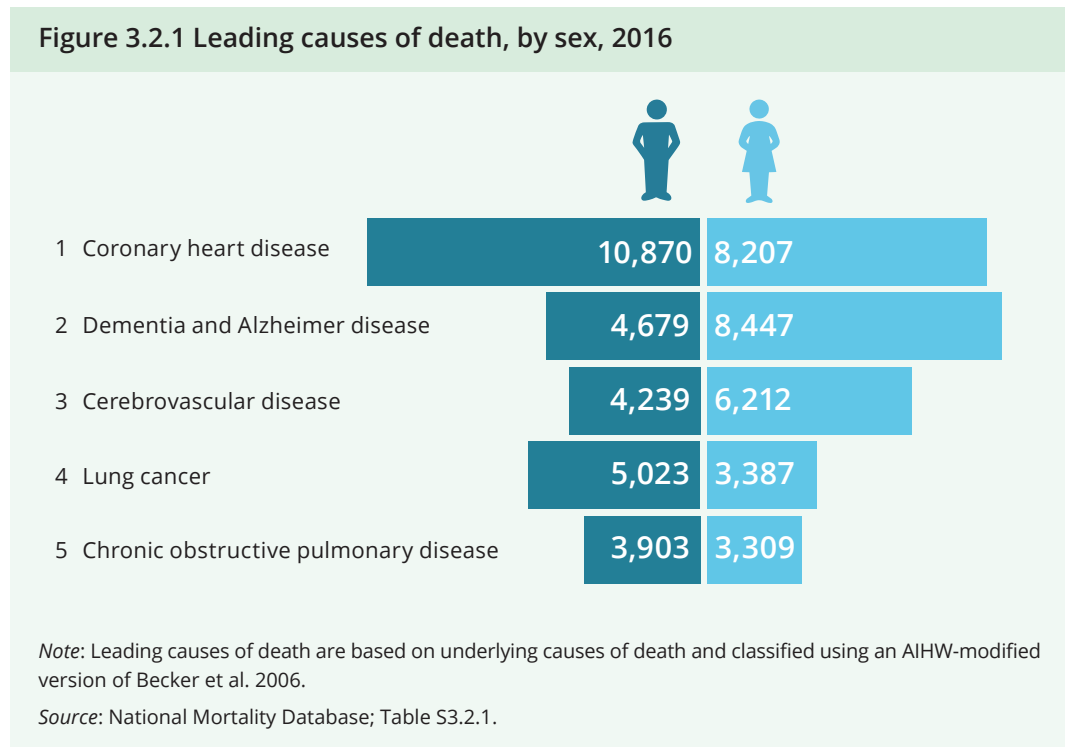
Death rates generally increase with increasing age. However, the death rates among males aged 15–29 are more than twice as high as for females of the same age; specifically, for men aged 20–24, the death rate is 2.6 times as high as for women of the same age.

The leading cause of death for males was coronary heart disease, accounting for 10,870 (13%) deaths. Dementia and Alzheimer disease was the leading cause of death for females, accounting for 8,447 (11%) deaths, closely followed by coronary heart disease (8,207; 11% of deaths). Cerebrovascular disease (which includes stroke), lung cancer and chronic obstructive pulmonary disease (COPD) make up the top 5 leading underlying causes of death in Australia in 2016 for males and females of all ages combined (Figure 3.2.1).



Males account for more deaths due to coronary heart disease, lung cancer and COPD. Females account for the majority of deaths due to cerebrovascular disease and dementia and Alzheimer disease.

Figure 3.2.1 Leading causes of death, by sex, 2016



Leading causes of death by age

As well as differences by sex, the leading causes of death also vary by age. Chronic conditions feature more prominently among people aged 45 and over, while the leading causes of death among people aged 1–44 are external causes, such as accidents and suicides (Figure 3.2.2).

Among infants, perinatal and congenital conditions caused most deaths (77% of deaths).

Land transport accidents were the most common cause of death among children aged 1–14 (12%). Suicide was the leading cause of death among people aged 15–24 (34%), followed by land transport accidents (21%). For people aged 25–44, it was also suicide (21%), followed by accidental poisoning (12%).

Coronary heart disease was the leading cause of death for people aged 45–64, followed by lung cancer. For people aged 65–74, it was also lung cancer followed by coronary heart disease. Dementia and Alzheimer disease was the second leading cause of death among people aged 75 and over, behind coronary heart disease.



Figure 3.2.2: Leading causes of death, by age group, 2014–2016

Age group	1st	2nd	3rd	4th	5th
Under 1	Perinatal and congenital conditions	Other ill-defined causes	SIDS	Spinal muscular atrophy	Accidental threats to breathing
1–14	Land transport accidents	Perinatal and congenital conditions	Accidental drowning and submersion	Brain cancer	Other ill-defined causes
15–24	Suicide	Land transport accidents	Accidental poisoning	Assault	Other ill-defined causes
25–44	Suicide	Accidental poisoning	Land transport accidents	Coronary heart disease	Other ill-defined causes
45–64	Coronary heart disease	Lung cancer	Suicide	Breast cancer	Colorectal cancer
65–74	Lung cancer	Coronary heart disease	COPD	Cerebrovascular disease	Colorectal cancer
75 and over	Coronary heart disease	Dementia and Alzheimer disease	Cerebrovascular disease	COPD	Lung cancer

SIDS = sudden infant death syndrome.

Note: 'Other ill-defined causes' include the following codes: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (ICD-10 codes R00–R99, excluding R95: SIDS; Cardiac arrest, unspecified (I46.9); Respiratory failure of newborn (P28.5); Other unspecified convulsions (R56.8). AIHW General Record of Incidence of Mortality (GRIM) books are available for selected leading causes of death.

Source: National Mortality Database; Table S3.2.2.

Have leading causes of death changed over time?

In Australia, mortality rates have continued to decline since at least the early 1900s. The age-standardised death rate fell by 69% between 1910 and 2015 for males, and by 73% for females. The leading causes of death in the early 1900s were diseases of the circulatory system.

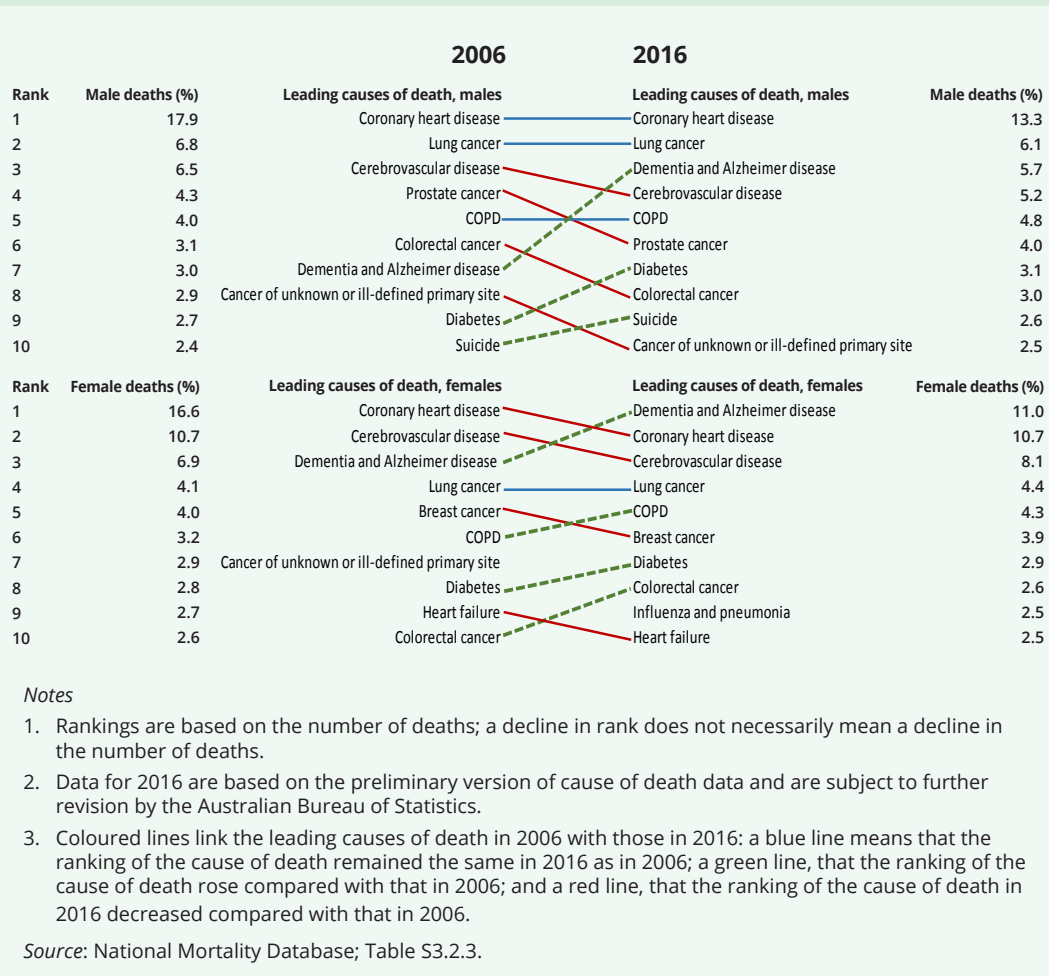
The 10 leading causes of death in 2016 were generally the same as in 2006, albeit with different rankings (Figure 3.2.3).

- For males, coronary heart disease was the leading cause of death in both these years, accounting for 18% of deaths in 2006 and 13% in 2016. Though it was the leading cause of death in both years, the death rate from coronary heart disease fell substantially over the decade. The largest change in leading causes of death for males from 2006 to 2016 was the rise of dementia and Alzheimer disease, from seventh to third place. Diabetes and suicide also rose in rank over this period.



- For females, coronary heart disease, cerebrovascular disease, breast cancer and heart failure fell in rank from 2006 to 2016. On the other hand, there were notable increases—for dementia and Alzheimer disease (from third to first place) and for COPD (from sixth to fifth place). Cancer of unknown or ill-defined primary site moved out of the 10 leading causes of death for females in 2006 and was replaced by influenza and pneumonia in 2016.

Figure 3.2.3: Leading causes of death, by sex, 2006 and 2016



Do the leading causes of death vary among population groups?

Leading causes of death differ among population groups. This may be driven by variations in the population characteristics, causes of death at different ages, the prevalence of illness and risk factors, and access to health services. For example, mortality rates in *Remote* and *Very remote* areas are higher than in *Major cities*. These disparities can be amplified by higher rates of illness among Aboriginal and Torres Strait Islander people, who make up a greater proportion of the population in more remote areas.



Indigenous Australians

- In 2012–2016, the 5 leading causes of death for Indigenous Australians were coronary heart disease, diabetes, COPD, lung cancer and suicide.
- For Indigenous Australians, the age-standardised mortality rate for diabetes was almost 6 times as high as for non-Indigenous Australians (64 compared with 11 deaths per 100,000 population). For COPD, it was 3 times as high (52 compared with 17 deaths per 100,000).

Remoteness areas

- Coronary heart disease was the leading cause of death across all areas (cities, regional and remote areas) in 2011–2015; in *Very remote* areas, the age-standardised mortality rate was 1.7 times as high as in *Major cities*.
- Diabetes was the second leading cause of death in *Very remote* areas and the seventh in *Major cities*—the age-standardised mortality rate was almost 4 times as high in *Very remote* areas as in *Major cities*.

Socioeconomic areas

- The five leading causes of death (see Figure 3.2.1) were common in all five socioeconomic areas in 2011–2015.
- For people living in the lowest socioeconomic area, age-standardised mortality rates for diabetes, COPD, lung cancer and suicide were about twice as high as for people living in the highest socioeconomic area.

Mortality data for 2016 by remoteness area and socioeconomic area were not available at the time of writing.

What is missing from the picture?

- Socioeconomic factors such as highest level of education achieved and main occupation are known to be associated with mortality and particular causes of death. These individual measures are not collected in Australian deaths data. However, analysis of such factors is possible with linked health data.
- Deaths information is not the only measure of impact of disease in a population. Burden of disease analyses, for example, measure both the impact of living with disease and injury and dying prematurely (see Chapter 3.1 'Burden of disease across the life stages').





Where do I go for more information?

More information on deaths and leading causes of death in Australia—including the General Incidence of Mortality (GRIM) books and Mortality Over Regions and Time (MORT) books—is available on the AIHW website at <www.aihw.gov.au/reports-statistics/health-conditions-disability-deaths/life-expectancy-deaths/overview>.

The annual Australian Bureau of Statistics publications *Deaths, Australia, 2016* (ABS 2017b) and *Causes of death, Australia, 2016* (ABS 2017a) also provide the latest information on mortality in Australia.

Data visualisation on the burden of disease provides data on the years of life lost and number of deaths by diseases and is available at <www.aihw.gov.au/reports-statistics/health-conditions-disability-deaths/burden-of-disease/overview>.

References

ABS (Australian Bureau of Statistics) 2017a. *Causes of death, Australia, 2016*. ABS cat no. 3303.0. Canberra: ABS.

ABS 2017b. *Deaths, Australia, 2016*. ABS cat no. 3302.0. Canberra: ABS.

Becker R, Silvi J, Ma Fat D, L'Hours A & Laurenti R 2006. A method for deriving leading causes of death. *Bulletin of the World Health Organization* 84:297–304.

