



# Cerebrovascular disease

## What is cerebrovascular disease?

Cerebrovascular diseases are any disorders of the blood vessels supplying the brain or its covering membranes. A notable and major form of cerebrovascular disease is stroke.

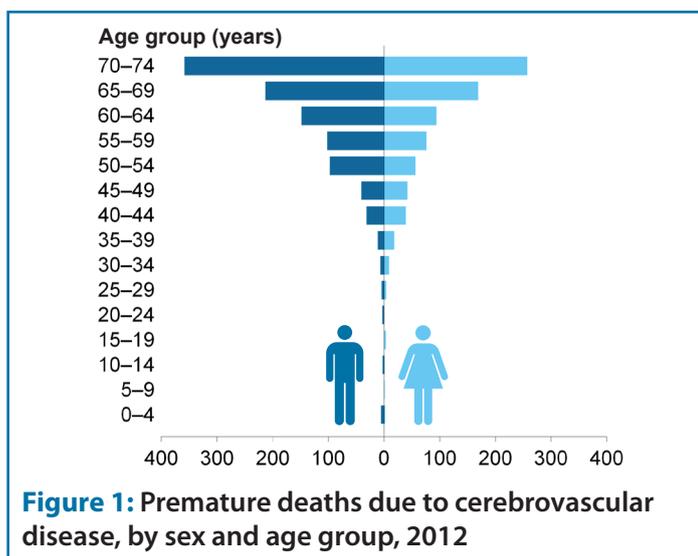
Stroke can either be a sudden blockage to an artery supplying blood to the brain (ischaemic stroke) or a ruptured artery which begins to bleed (haemorrhagic stroke). Stroke often causes paralysis to parts of the body normally controlled by that area of the brain, or speech problems and other symptoms such as difficulties with swallowing, vision and thinking. It can also lead to death (AIHW 2014).

**Premature mortality** refers to deaths that occur at a younger age than a selected cut-off. For this analysis, deaths among people under the age of 75 are considered premature.

## Who dies prematurely from cerebrovascular disease?

In 2012, there were 1,791 premature deaths from cerebrovascular disease in Australia. Overall, more males than females died from this disease (57%, or 1,020 compared with 771 deaths). However among the younger age groups affected by cerebrovascular disease (35–49 year olds), there were more deaths among females than males (99 and 82 deaths, respectively) (Figure 1).

Premature death became more common with increasing age for both sexes. About one-third (34%) of premature deaths from cerebrovascular disease were among 70–74 year olds.



## Quick facts

Cerebrovascular disease was the **5th** leading cause of premature death in Australia in 2010–2012.

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Males accounted for **over half** of the premature deaths due to cerebrovascular disease (57%).



The premature death rate due to cerebrovascular disease decreased by **80%** over the 3 decades from 1982 to 2012.

80%

## What population-level approaches target premature deaths due to cerebrovascular disease?

Cerebrovascular diseases are a form of cardiovascular disease (CVD) and many interventions for cerebrovascular disease target a broad range of risk factors that apply to all CVDs.

‘Modifiable’ risk factors—which health practitioners and individuals can take action to address—include smoking, physical inactivity, poor nutrition and exceeding lifetime alcohol risk guidelines. These behaviours contribute to biomedical risk factors such as high blood pressure (hypertension), overweight and obesity, and high blood cholesterol levels.

There is benefit in monitoring these risk factors (individually and collectively) as a means of identifying people in the patient and wider population who may benefit from preventive interventions (AIHW 2015a).

Mortality from cardiovascular diseases, including cerebrovascular disease, can be reduced by detection and management of high blood pressure and high blood cholesterol levels and their control through lifestyle changes, medication and long-term management (National Heart Foundation 2010). Education, screening and management programs also help to reduce risk factors (National Stroke Foundation 2010). Antiplatelet drugs which keep platelets from sticking together and forming abnormal clots, and anticoagulant drugs (for example, warfarin) which keep existing clots from growing larger, have also been effective at reducing the likelihood of stroke. Thrombolytic (clot-busting) therapy may be administered when it is appropriate, but not for all strokes.



A range of government strategies are in place which target some of the risk factors relating to cerebrovascular disease. These include the *Western Australian Health Promotion Strategic Framework 2012–16: Working together to promote health and prevent chronic disease and injury in our communities* and the *New South Wales Healthy Eating and Active Living Strategy: Preventing overweight and obesity 2013–2018* (Department of Health, Western Australia 2012; New South Wales Ministry of Health 2013).

Many initiatives targeting treatment of cerebrovascular disease in Australia focus on awareness of the short time frame (3–4 hours) for an individual suffering a stroke to have treatment. The risk of stroke-related brain damage increases the longer a stroke remains untreated (for details see National Stroke Foundation 2015).

Premature deaths due to cerebrovascular disease are classified as ‘potentially avoidable in the context of the present health system’ according to nationally agreed definitions (AIHW 2015b). The definition includes deaths from conditions that are potentially preventable through individualised care and/or treatable through existing primary or hospital care.

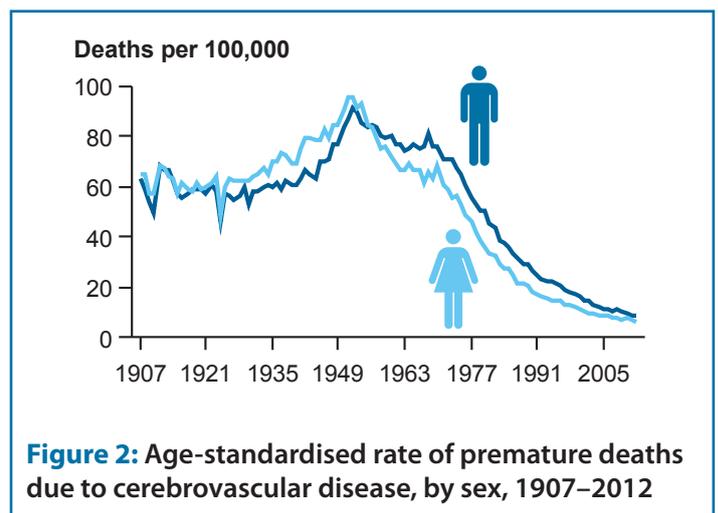
## How have premature death rates due to cerebrovascular disease changed over time?

Premature mortality due to cerebrovascular disease peaked in 1952 at 94 deaths per 100,000 population. Between 1970 and 1990 there was a 69% decrease in the age-standardised death rate for cerebrovascular disease—from 72 deaths per 100,000 population to 22 per 100,000.

More recently, declines in mortality have continued, falling from 12 deaths per 100,000 population in 2003 to 7.6 deaths per 100,000 population ten years later in 2012—a 34% decrease (Figure 2).

Females had a greater premature death rate from cerebrovascular disease for most of the first half of the 20th Century; however this reversed and the rate was consistently higher among males from 1956 to 2012.

The rate difference between the sexes narrowed to 2.3 in 2012—8.8 deaths per 100,000 males compared with 6.5 deaths per 100,000 females. Two decades earlier, in 1993, the rate difference was 6.9 (22 deaths per 100,000 males and 16 deaths per 100,000 females).



**Figure 2: Age-standardised rate of premature deaths due to cerebrovascular disease, by sex, 1907–2012**

## What has influenced trends in premature deaths due to cerebrovascular disease?

Decreased premature mortality due to cerebrovascular disease has largely been driven by improvements in risk factors. In particular, efforts relating to control of hypertension are a major factor for the fall in death rates. Improved control of hypertension by medical practitioners was an important mortality-preventing change—particularly the introduction of antihypertensive drug therapy in the 1970s (Lackland et al. 2014).

Other improvements from targeting risk factors, such as tobacco smoking and treatment to prevent blood clots, access to stroke units in hospitals and other advances in medical care, have also contributed to improved mortality rates (AIHW 2013; OECD 2013).

## Where can I find out more?

**Premature mortality in Australia (including references):**  
<<http://www.aihw.gov.au/deaths/premature-mortality/>>.

**AIHW GRIM books:**  
<<http://www.aihw.gov.au/deaths/grim-books/>>.

**AIHW web pages and publications:**  
<<http://www.aihw.gov.au/cardiovascular-disease/>>.

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