Australian Government
Australian Institute of Health and Welfare

Diabetes

What is diabetes?

Diabetes is a chronic condition marked by high levels of glucose in the blood. It is caused either by the inability to produce insulin (a hormone produced by the pancreas which regulates glucose uptake into cells), or by the body not being able to use insulin effectively, or both (AIHW 2014a). Hyperglycaemia (raised blood glucose) is common for people with diabetes that is not well managed and over time can seriously damage the body's systems, especially the nerves and blood vessels (WHO 2015). This may lead to heart disease, stroke, kidney disease, eye damage and blindness, and amputations.

There are several types of diabetes. Type 1 diabetes is an auto-immune condition, with unknown cause, with onset usually occurring during childhood. Type 2 diabetes is associated with insulin resistance and gradual loss of insulin production, and is largely preventable by addressing modifiable risk factors including overweight or obesity, unhealthy diet and physical inactivity. Gestational diabetes occurs during pregnancy and in most cases resolves after childbirth (AIHW 2014).

Type 2 diabetes is the most common form of diabetes, accounting for around 85% to 90% of all cases (AIHW 2014).

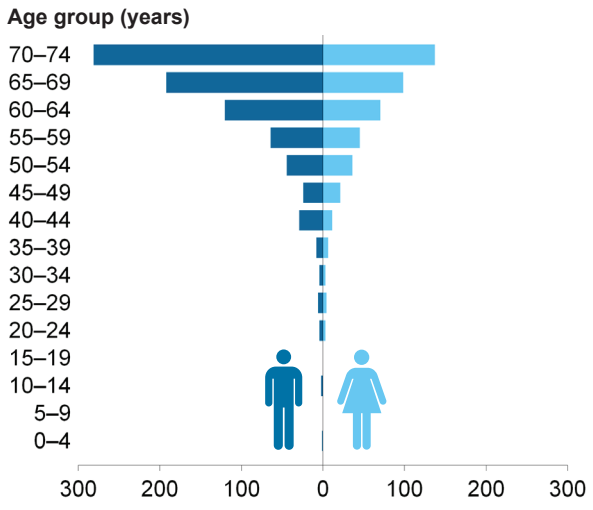

Figure 1: Premature deaths due to diabetes, by sex and age group, 2012

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

Quick facts

Diabetes was the **12th** leading cause of premature death in Australia in 2010–2012.

About **2 in 3** premature deaths due to diabetes in 2012 were among males (64%).

The premature death rate due to diabetes decreased by **16%** over the 3 decades from 1982 to 2012.

Who dies prematurely from diabetes?

Diabetes deaths in this fact sheet are those in which diabetes is coded as the underlying cause of death, or the cause directly leading to death, on the death certificate. Adopting this approach, which is consistent with the other fact sheets in this series, leads to serious underestimation of the contribution of diabetes to deaths. This is because most diabetes-related deaths are caused by a complication of diabetes and it is common that diabetes is not recorded as the underlying cause of death. Further, as occurs with other conditions, diabetes may sometimes be omitted from the death certificate.

For all premature diabetes-related deaths (where diabetes is either the underlying or an associated cause of death), diabetes was the identified underlying cause of death in 1,213 premature deaths (27%) and an associated cause of death in a further 3,279 premature deaths.

The most common underlying causes of death for people with diabetes are heart disease, cancer and stroke (AIHW 2014b).

Most premature deaths due to diabetes (as the underlying cause) were among males (64%) and in the oldest age group (70–74) for both sexes (281 male and 137 female deaths) (Figure 1). There were 41 deaths due to diabetes among people under 40.

What population-level approaches target premature deaths due to diabetes?

Premature death is not an inevitable consequence of diabetes (CDC 2011). Measures at both the population and individual level can help to prevent or delay the onset of diabetes complications and the development of type 2 diabetes.

Early detection and optimal management of diabetes are critical in preventing premature death.

Early detection is particularly important, given the evidence that 1 in 5 adults with type 2 diabetes remain undiagnosed and untreated (AIHW 2014c), contributing to early complications.

Optimal management includes control of glucose levels, lifestyle measures (weight, smoking status, diet and physical activity), blood glucose-lowering medicines, and regular screening to reduce the risk of onset and progression of diabetes complications. Education about monitoring glucose levels and managing blood pressure and lipids is also critical (WHO 2015).

Poor diabetes management and acute illness may lead to acute metabolic complications of diabetes and, in some cases, result in death.

Systematic approaches to assessing risk, including screening people with diabetes for complications, also support better targeting and intensification of therapy (Twigg & Wong 2015; RACGP 2015).

Reducing the onset of type 2 diabetes, for example through structured lifestyle/behaviour change programs for the high risk (pre-diabetes) population, is also essential in reducing premature death from diabetes. There is evidence from randomised control trials about the efficacy of such approaches for preventing type 2 diabetes (Pan et al. 1997; Tuomilehto J et al. 2011; Knowler et al. 2002; Ramachandran et al. 2006).

In 2015, the Australian Government committed to developing a new National Diabetes Strategy (Department of Health 2015).

Premature deaths due to diabetes are classified as 'potentially avoidable in the context of the present health system' according to nationally agreed definitions (AIHW 2015). 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 diabetes changed over time?

The age-standardised rate of premature deaths due to diabetes decreased by 16% in the three decades from 1982 to 2012, from 6.1 deaths per 100,000 population to 5.1 per 100,000 (Figure 2). Over this period, the age-standardised rate among females decreased by a greater margin (29%) compared with males (7%).

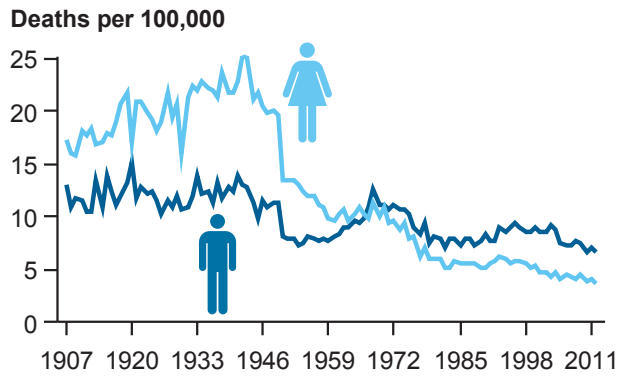

Figure 2: Age-standardised rate of premature deaths due to diabetes, by sex, 1907–2012

During this same period of time, the premature death rate where diabetes was the underlying or associated cause of death decreased from 23 deaths per 100,000 population to 19 deaths per 100,000—a 20% decrease.

What has influenced trends in premature deaths due to diabetes?

The decrease in premature deaths due to diabetes is consistent with global trends. A major contributor to this trend may be improvements in treatment of diabetes, particularly in relation to modifiable risk factors—including improved lipid levels, controlled blood pressure and blood glucose and reduced smoking rates.

Improved screening to detect diabetes and reduce the risk of progression of diabetes complications may have also contributed to improved outcomes.

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/diabetes/>.

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