



# Impact of diabetes

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diabetes  
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Australian Institute of Health and Welfare

## Social impact

Diabetes affects the daily lives of not only those who have the disease, but also their friends and family. It affects what people with the disease can eat and drink, their lifestyle and many other areas of their lives. They may need to ensure that either they have quick access to food or they carry food with them at all times. There may be difficulties in obtaining driver's licences as well as getting some jobs. There may also be psychological impacts from being diagnosed with diabetes and from changes to daily life. Friends and family need to adjust to the changes as well, which may affect their own lives and relationships.

There is also the impact and burden of the complications of diabetes. Losing partial or total sight or losing a limb due to amputation may affect a person's ability to participate in social activities and their independence in performing daily activities such as self-care, mobility and communication. Kidney failure means constant trips to the hospital for dialysis or access to a personal dialysis machine, which may consume large amounts of time. However, complications do not have only direct impacts. They can also have psychological impacts, and impacts on the social life and wellbeing of the person. As well, the struggle of learning to cope with the changes may cause stress. The complications may be severe enough to cause the loss of ability to work, which has its own consequences.

## Health perception

People with diabetes are less likely to rate their health as excellent, very good or good compared with people without diabetes. In 1999–2000, among people aged 25 years or over it was estimated that 65.7% of males with diabetes rated their health as excellent, very good or good, compared with 85.9% of males without diabetes. In the same age group, 68.4% of females with diabetes rated their health as excellent, very good or good compared with 87.0% of females without diabetes.

## Disability

Diabetes can result in disability for some people, particularly those who develop complications of the disease. For an individual, a disability may take the form of a functional impairment such as loss of vision, activity limitations such as walking, or participation restrictions such as community involvement. For society, it can have an impact on family, friends and the wider community.

In 1998, it was estimated that almost 64,000 Australians had a disability caused mainly by diabetes. Of these people, 85% were aged 45 or over. For many more people, diabetes may play a role in limiting core activities, although the disease may not be the principal cause. For instance, among those aged 65 or over, it was estimated that about 109,000 Australians with diabetes had limitations on activities such as self-care, mobility and communication. It was estimated that more than 113,000 people aged 65 or over who had diabetes needed assistance with self-care, mobility, communication, health care, housework, meal preparation, house maintenance or transport.

It is estimated that diabetes and its complications were responsible for more than 53,000 years of equivalent 'healthy' life lost to disability (YLD) (4.6% of all YLDs) in 1996 (AIHW: Mathers et al. 1999). The impact of diabetes in terms of chronic disability was higher among males than females—over 29,000 years of 'healthy' life lost to disability (5.1% of all YLDs) estimated for males compared with almost 24,000 years (4.1% of all YLDs) for females in 1996.

## Main data sources

1999–2000 Australian Diabetes, Obesity and Lifestyle Study (International Diabetes Institute & Commonwealth Department of Health and Aged Care).

1998 Disability, Ageing and Carers Survey (Australian Bureau of Statistics).

## References and further reading

ABS (Australian Bureau of Statistics) 2000. Disability, ageing and carers: disability and long term health conditions, Australia 1998. ABS Cat. No. 4433.0. Canberra: ABS.

AIHW (Australian Institute of Health and Welfare): Mathers C, Vos T & Stevenson C 1999. The burden of disease and injury in Australia. AIHW Cat. No. PHE 17. Canberra: AIHW.

## Mortality

Diabetes is the sixth leading underlying cause of death among Australians. However, often the condition directly responsible for the death, not diabetes, is regarded as the underlying cause of death, even when it is a complication of diabetes. Diabetes is twice as likely to be regarded as an associated cause of death, rather than the underlying cause, with diabetes being listed as an associated cause of 7,124 deaths.

### Diabetes as the underlying cause of death

In 2000, diabetes was listed as the underlying cause of 3,006 deaths (2.3% of all deaths). Of these deaths, 33.8% (1,015 deaths) were due to Type 2 diabetes, 11.5% (346 deaths) were due to Type 1 diabetes and the rest were due to an unknown or unspecified type of diabetes.

### Sex and age

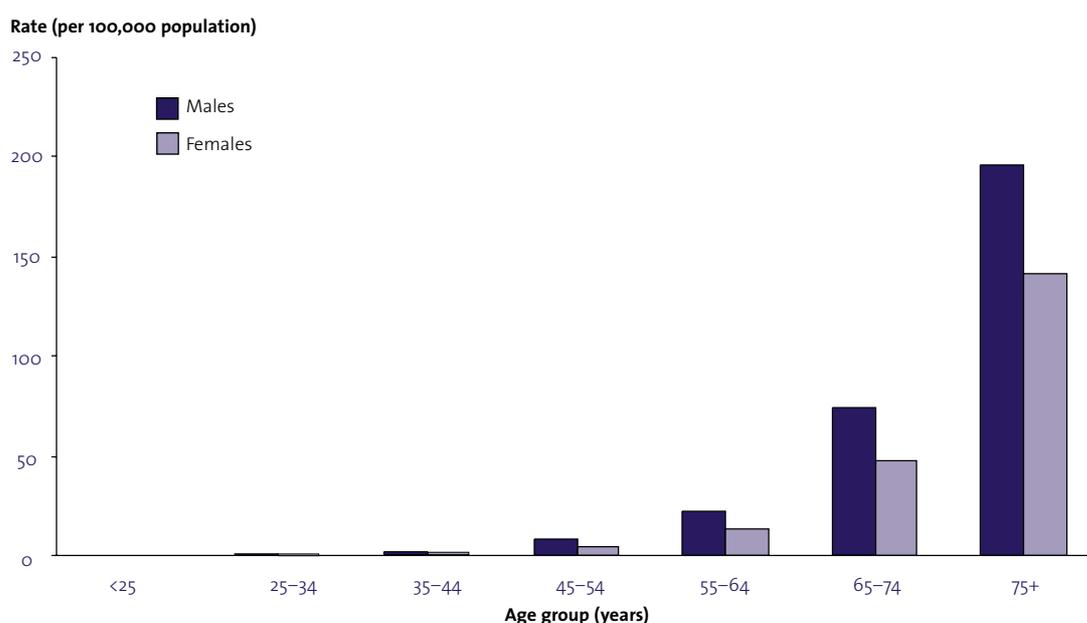
In 2000, Australian males were more than one-and-a-half times as likely to die from diabetes, as the underlying cause of death, as Australian females (Figure 6.1).

Diabetes mortality increases dramatically with age, with almost 90% of deaths where diabetes is the underlying cause occurring in those aged 60 years and over in 2000.

### Trends

The death rate for diabetes (as an underlying cause of death) has shown an increase for males, with an average annual increase of 1.2% between 1989 and 2000. For females there has been no consistent trend in the death rate for diabetes over this same period.

Figure 6.1: Death rates from diabetes as the underlying cause, 2000



Source: AIHW National Mortality Database.

## States and Territories

Death rates from diabetes as the underlying cause of death during 1998–00 were highest in the Northern Territory and lowest in the Australian Capital Territory and New South Wales. Among the remaining States and Territories there were no significant differences in death rates from diabetes.

## Urban, rural and remote areas

Death rates from diabetes as the underlying cause of death increase with increasing rurality. During 1998–00, death rates were highest in remote areas, followed by rural areas, with death rates lowest in urban areas for both males and females.

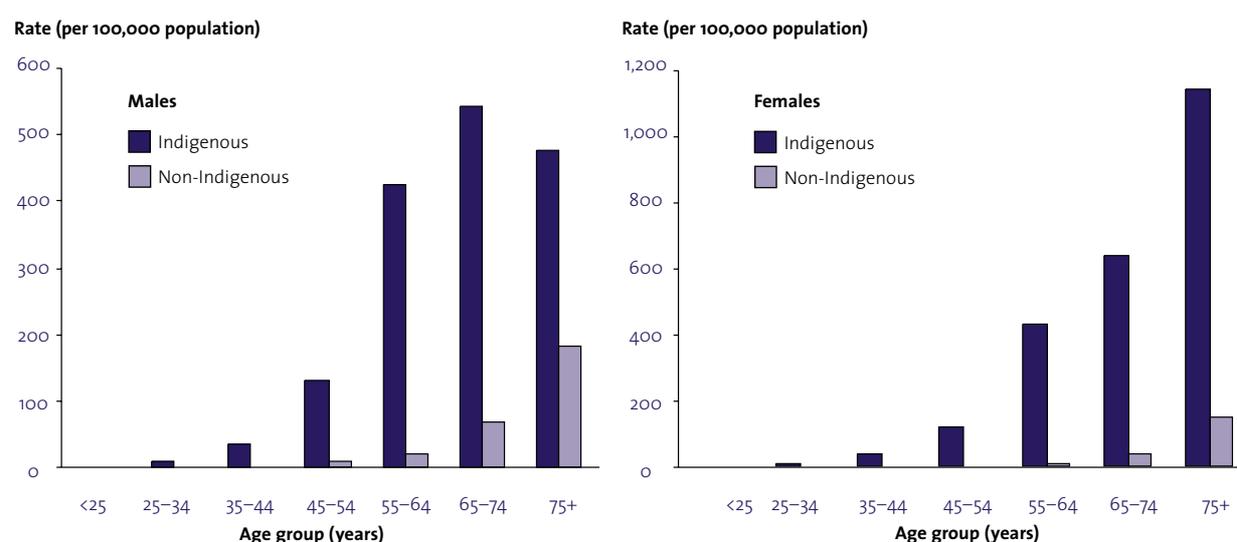
During 1998–00, male Aboriginal and Torres Strait Islander deaths from diabetes as the underlying cause of death accounted for 60% of deaths from diabetes in

remote areas in Queensland, Western Australia, South Australia and the Northern Territory. In comparison, only 3% of male deaths from diabetes in urban areas were Aboriginal and Torres Strait Islander. Similarly, among females, Indigenous deaths were 71% of deaths from diabetes in remote areas compared with 5% in urban areas.

## Aboriginal and Torres Strait Islander People

During 1998–00, Aboriginal and Torres Strait Islander males died from diabetes as the underlying cause of death at more than seven times the rate of non-Indigenous males in Queensland, Western Australia, South Australia and the Northern Territory. The difference in death rates is even larger for females where, during 1998–00, Indigenous females were more than 14 times as likely to die from diabetes as the underlying cause of death as non-Indigenous females (Figure 6.2).

**Figure 6.2:** Death rates from diabetes as an underlying cause, 1998–00



Note: Includes deaths only for Queensland, Western Australia, South Australia and the Northern Territory.

Source: AIHW National Mortality Database.

Diabetes mortality increases with age in both the Indigenous and non-Indigenous Australian populations. However, mortality from diabetes starts at an earlier age among Indigenous Australians. In 1998–00, more than 45% of deaths with diabetes as an underlying cause occurred in those aged less than 60 years in the Indigenous population, compared with 10% among the non-Indigenous population.

### Culturally and linguistically diverse background

During 2000, males from culturally and linguistically diverse backgrounds were almost 30% more likely to die from diabetes as the underlying cause of death than other males. The difference in death rates is larger for females where, during 2000, females from culturally and linguistically diverse backgrounds were 50% more likely to die from diabetes as the underlying cause of death than other females.

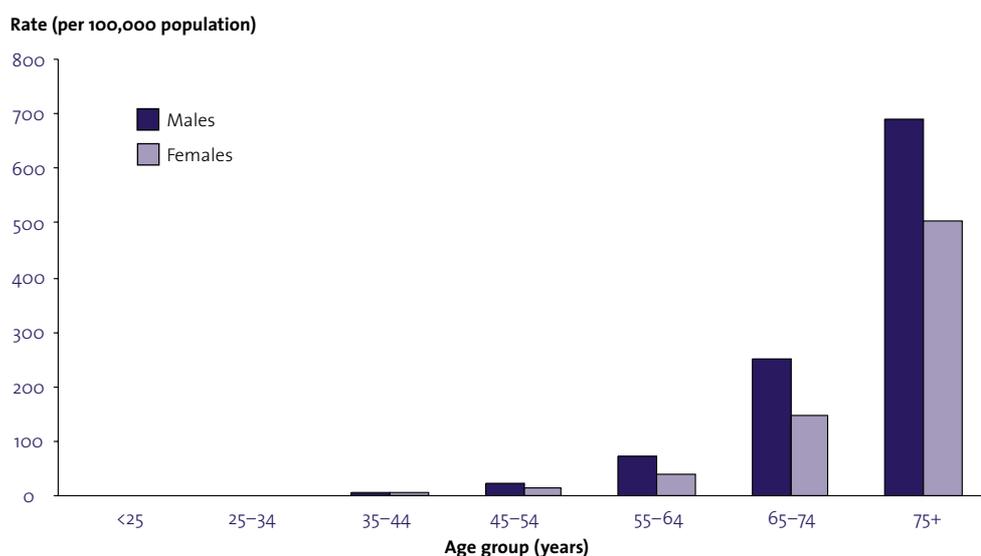
### Socioeconomic groups

People from lower socioeconomic groups are more likely to die from diabetes as the underlying cause of death than those from higher socioeconomic groups. In 1997, males from the most disadvantaged group were almost 50% more likely to die from diabetes as the underlying cause of death than those from the least disadvantaged group. Among females this difference is even greater, with females from the most disadvantaged group more than twice as likely to die from diabetes as those from the least disadvantaged group.

### Diabetes as the underlying or an associated cause of death

The underlying cause of death is the disease or injury initiating the sequence of events leading to death. However, more than one cause of death can be listed on the death certificate. This means that for each

Figure 6.3: Death rates from diabetes as the underlying cause or an associated cause, 2000



Source: AIHW National Mortality Database.

death, both underlying and associated causes of death can be listed and are available for analysis after 1996. For diabetes this is particularly important, as it may not be diabetes but one of its many complications which directly leads to death. A more complete picture of the mortality burden of diabetes can be obtained by examining both diabetes as the underlying cause and diabetes as an associated cause of death.

In 2000, diabetes was twice as likely to be regarded as an associated cause of death rather than as the underlying cause. A total of 10,130 deaths, 7.9% of all deaths, were due to diabetes as either the underlying cause of death or as an associated cause. Mortality due to diabetes as either the underlying or an associated cause of death increases dramatically with age, with 91% of deaths in 2000 occurring in those aged 60 years and over (Figure 6.3).

### Causes of death commonly listed with diabetes

Diabetes is rarely listed as the only cause of death on death certificates. Diabetes was listed as the only cause in less than 1.5% of deaths where diabetes was given as the underlying cause of death in 2000. Where diabetes was listed as the underlying cause of death, conditions listed as associated causes of death included coronary heart disease (in 51.0% of the cases), kidney-related diseases (22.6%), stroke (21.4%) and heart failure (18.6%).

Of the deaths in 2000 where diabetes was listed as an associated cause of death, coronary heart disease was recorded as the underlying cause of death in 35.2% of cases. Other prominent underlying causes of death with which diabetes was associated included cancer (20.0%) and stroke (11.3%).

### Years of life lost

In terms of premature deaths, diabetes was estimated to be responsible for almost 70,000 years of life lost (YLL) in 1996—almost 5.3% of the estimated YLL in Australia that year for all causes (AIHW: Mathers et al.

1999). The impact of diabetes on premature deaths was similar in both sexes, with around 37,000 years of life lost (4.9% of all YLLs) for males and more than 32,000 years of life lost (5.4% of all YLLs) for females.

### Main data source

National Mortality Database (Australian Institute of Health and Welfare).

### References and further reading

ABS (Australian Bureau of Statistics) 2001. Causes of death, Australia, 2000. Cat. No. 3303.0. Canberra: ABS.

AIHW (Australian Institute of Health and Welfare): Mathers C, Vos T & Stevenson C 1999. The burden of disease and injury in Australia. AIHW Cat. No. PHE 17. Canberra: AIHW.



## Economic impact

The monetary cost of diabetes impacts on people who have diabetes, their friends and family, non-government organisations and the government. A person with diabetes may have to pay out-of-pocket costs for medications, pathology tests, supplies and equipment. The government pays subsidies on medications and pathology tests. There are also hospital costs, general practitioner and specialist costs, the cost of public awareness campaigns and more. These costs are due not only to the diagnosis, control and care of diabetes but also, quite significantly, to the diagnosis, treatment and care of its complications.

### Direct costs of diabetes

The Australian Institute of Health and Welfare in 1999 examined the direct health system costs of diabetes in 1993–94; these were estimated to be \$372 million. Type 1 diabetes was estimated to account for 42% of this amount even though only 10–15% of people with diabetes have Type 1. When the complications of diabetes were taken into account, the total direct health system costs were estimated to be around \$681 million in 1993–94.

McCarty et al. (1996) estimated the costs of diabetes for 1995, producing a similar estimate of the direct costs. In producing their estimate of \$561 million, the authors indicated that this was likely to be an underestimate of the true direct costs of diabetes. Despite the limitations of these costing studies, a major issue to be considered is the impact that the rising prevalence of diabetes will have on health system costs in Australia.

### Hospital costs

The average total expenditure per hospital separation with a principal diagnosis of diabetes was \$3,820 in 1999–00. This figure includes overhead and administrative costs, which account for 31% of the average total expenditure per separation.

For separations with diabetes as the principal or an additional diagnosis, the average total expenditure per separation was \$3,864. The overhead and administrative costs included in this cost account for 29% of the average total expenditure per separation.

### Drug costs

In 1998, the cost of drugs, to patients and the government, to treat diabetes was \$119 million; that is, 4% of government and patient costs for all prescription drugs listed in the Pharmaceutical Benefits Scheme. The following table shows the cost of prescription drugs, insulins and analogues as well as oral blood glucose lowering drugs, used to treat diabetes in the community in Australia during 1998.

### Main data sources

Department of Health and Aged Care 1999. Australian statistics on medicines 1998. Canberra: AGPS.

National Hospital Morbidity Database (Australian Institute of Health and Welfare).

### References and further reading

AIHW (Australian Institute of Health and Welfare): Mathers C & Penm R 1999. Health system costs of cardiovascular diseases and diabetes in Australia 1993–94. Health and Welfare Expenditure Series No. 5. AIHW Cat. No. HWE 11. Canberra: AIHW.

McCarty D, Zimmet P, Dalton A, Segal L & Welborn T 1996. The rise and rise of diabetes in Australia, 1996: a review of statistics, trends and costs. Canberra: International Diabetes Institute & Diabetes Australia.

**Table 6.1:** Antidiabetic drugs used in the community, 1998

Drug	No. scripts ('000) <sup>(a)</sup>	Cost (\$m) <sup>(b)</sup>
<b>Insulins and analogues</b>		
Insulins and analogues, fast-acting	122.3	22.1
Insulins and analogues, intermediate-acting	151.3	23.6
Insulins and analogues, intermediate-acting combined with fast-acting	133.7	24.0
Insulins and analogues, long-acting	11.1	1.4
<i>Total insulins and analogues</i>	<i>418.3</i>	<i>71.2</i>
<b>Oral blood glucose lowering drugs</b>		
Biguanides		
Metformin HCl	1,638.2	24.8
Sulphonylurea drugs		
Chlorpropamide	3.2	0.01
Glibenclamide	519.9	5.1
Gliclazide	788.3	12.2
Glipizide	216.4	3.2
Tolbutamide	55.6	0.8
<i>Total sulphonylurea drugs</i>	<i>1,583.4</i>	<i>21.2</i>
Alpha glucosidase inhibitors		
Acarbose	48.6	1.6
<i>Total oral blood glucose lowering drugs</i>	<i>3,270.3</i>	<i>47.6</i>
<b>Total antidiabetic drugs</b>	<b>3,688.6</b>	<b>118.7</b>

## Notes

(a) Includes drugs subsidised under the Pharmaceutical Benefits and Repatriation Pharmaceutical Benefits Schemes and non-subsidised drugs.

(b) Includes government and patient costs for drugs listed in the Pharmaceutical Benefits Scheme only.

Source: Department of Health and Aged Care 1999.

