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# The Menzies Centre for Health Policy

## DIABETES

### Policy Issues Paper

#### What is diabetes?

Diabetes is a serious, complex and continuing illness which is characterised by high blood sugar (glucose) levels. There are three main types of diabetes:

- Type 1 diabetes is autoimmune in origin and most commonly occurs in children and young adults but may occur at any age. It is also known as insulin dependent diabetes because people with this condition are dependent on insulin injections for survival.
- Type 2 diabetes results from a combination of genetic predisposition and lifestyle factors. It usually occurs from mature adulthood onwards with the prevalence increasing with age. However, it is increasingly occurring in young adults and occasionally in children. People with type 2 diabetes can be treated with lifestyle modification but may need tablets of insulin to control their blood sugars. Hence it is sometimes called non-insulin dependent diabetes.
- Gestational diabetes (GDM) is simply defined as diabetes first diagnosed during pregnancy. While GDM usually 'reverses' soon after the delivery, it poses a long term risk of diabetes for both the mother and baby.

#### Prevalence

It is estimated that 246 million people worldwide have diabetes, representing roughly 6% of the adult population (20-79 age group). The number is expected to reach some 380 million by 2025, representing 7.1% of the adult population. The Western Pacific Region with 67 million and the European Region with 53 million have the highest number of people with diabetes in 2007.

In Australia diabetes is estimated to affect around 1.5 million people. A comprehensive nation-wide epidemiological study (AusDiab) found that 7.4% of Australians over 25 years have diabetes.

The prevalence of diabetes in Aboriginal and Torres Strait Island communities ranges from 6 to 20% with the overall prevalence reported at 12% in 2004-2005.

Certain migrant groups also have considerably higher rates of type 2 diabetes and GDM than the general Australian population.



## Risk factors

### *Type 1 diabetes*

Specific risk factors for type 1 diabetes are not well understood but it is well known that there is a genetic autoimmune component which is triggered by environmental factors such as certain viruses.

### *Type 2 diabetes*

Type 2 diabetes also has a genetic component but is triggered by lifestyle factors. Risk factors for type 2 diabetes are clearly defined and include:

- Increasing age
- Obesity Lack of physical activity
- Family history of diabetes
- High blood pressure
- Certain cultural and linguistic groups
  - Aboriginal or Torres Strait Islander people
  - Pacific Island, Indian sub-continent or Chinese people
- Impaired glucose tolerance (IGT) or impaired fasting glucose (IFG)
- Women who have had gestational diabetes

## Mortality

In Australia diabetes is listed as the eighth leading cause of death for men and the eleventh leading cause of death for women. However, when diabetes is accounted for as an associated or underlying cause of death it becomes the fifth leading cause for men and sixth leading cause for women.

## Disability

While the causes of type 1 and type 2 diabetes have differing underlying mechanisms, both can lead to devastating and costly long-term complications of diabetes such as:

- Diabetic nephropathy (kidney disease), which may result in kidney failure requiring dialysis or kidney transplant. Diabetes is the commonest cause of kidney failure in developed countries and is responsible for huge dialysis costs and globally 10% to 20% of people with diabetes die of renal failure. In Australia diabetes is the commonest cause of commencing renal dialysis or transplantation.
- Diabetic eye disease (retinopathy and macular oedema). Damage to the retina of the eye which can lead to vision loss. Diabetic retinopathy is the leading cause of vision loss in adults of working age (20 to 65 years) in industrialised countries – including Australia.
- Diabetic neuropathy (nerve disease), which can ultimately lead to ulceration and amputation of the feet and lower limbs. Diabetes is responsible for over one million amputations each year globally and in Australia it is the commonest cause of non-traumatic amputation.
- Cardiovascular disease, which affects the heart and blood vessels and may cause fatal complications such as coronary heart disease (leading to a heart attack) and stroke. Cardiovascular disease is the major cause of death in diabetes, accounting for some 60% of all diabetes fatalities, and much disability.

People with type 2 diabetes are over twice as likely to have a heart attack or stroke as people who do not have diabetes.

## Burden of disease

Diabetes is expected to cause 3.8 million deaths worldwide in 2007, roughly 6% of total world mortality, about the same as HIV/AIDS and malaria combined. Using World Health Organization (WHO) figures on years of life lost per person dying of diabetes, this translates into more than 25 million years of lost life annually. The International Diabetes Federation (IDF) estimates that the equivalent of an additional 23 million years of life are lost each year to the disability and reduced quality of life caused by diabetes complications.

In Australia in 2003, diabetes was among the five leading causes of disease burden and was responsible for 5.5% of the total disease burden.

In 2004-2005, National Health Survey respondents overall rated the health status as Excellent/very good – 56%, Good – 28% and Fair/poor – 16%. In the same survey people with diabetes rated themselves in reverse - Excellent/very good – 19%, Good – 33% and Fair/poor – 58%.

On average, people with type 2 diabetes will die 5-10 years before people without diabetes, mostly due to cardiovascular disease.

## Financial costs

A comprehensive Australia-wide study has conservatively estimated the cost of type 2 diabetes at over 3 billion dollars annually. A similar national study of type 1 diabetes is currently being completed.

It is estimated that people with diabetes take 10% more time off work than their non-diabetic counterparts. Diabetes also incurs a significant quality of life cost, cost to carers and cost to government benefit schemes.

## Management

There is strong and clear evidence from the international literature on how best to treat and manage diabetes in order to optimise metabolic control and prevent or delay long term complications. Australia has a comprehensive suite of NHMRC endorsed evidence-based guidelines synthesising this evidence. Despite this, local studies indicate that only around 20% of all people with diabetes receive the recommended cycle of care.

## What needs to be done

### *1. Prevention*

#### *Type 1 diabetes*

The prevention of type 1 diabetes is the subject of a worldwide research effort but there is currently no generally available intervention for preventing it.

#### *Type 2 diabetes*

The prevalence of type 2 diabetes is rising alarmingly worldwide due to increasing urbanisation, obesity, sedentary lifestyles and stress, among other factors. International clinical trials from several countries show a reduction in progression to diabetes of up to 60% in high risk individuals through lifestyle interventions. To a lesser extent, certain medications can also prevent or delay the onset of diabetes in people at identifiable risk. Consequently, there is a need for strategies to identify and enroll 'at risk' individuals in lifestyle modification programs.

Much of the increase in type 2 diabetes is attributable to secular societal changes that have led to alarmingly unhealthy food and physical activity environments and sedentary workplaces. To optimise the effectiveness of the individual 'high/risk' approach to diabetes prevention an overarching national policy and 'roadmap' is required that addresses mass transport, urban planning, food quality, pricing and distribution, workplace health programs and employer incentives to create health supporting environments. This would also assist addressing obesity, heart disease, and other 'lifestyle related' conditions .

## 2. *Early diagnosis*

Type 2 diabetes can be asymptomatic and can remain undiagnosed for many years and half of all people with diabetes in Australia are unaware they have diabetes and it is not uncommon for people to present at diagnosis with established diabetes complication.

Opportunistic diagnostic screening of people with identified risk factors should be encouraged. Risk factors for having undiagnosed type 2 diabetes are clearly defined and include:

- Increasing age (over 55 years)
- Over 45 years and:
  - family history of diabetes
  - overweight
  - high blood pressure
- Over 35 years
  - Aboriginal or Torres Strait Islander background
  - Pacific Island, Indian sub-continent or Chinese background
- Impaired glucose tolerance (IGT) or impaired fasting glucose (IFG)
- Heart disease or a previous heart attack
- Women who have
  - had gestational diabetes
  - polycystic ovary syndrome and overweight

## 3. *Improved quality and access to care*

There are well established, internationally recognised processes of treatment and care with proven effectiveness in preventing or delaying diabetes complications but only around 20% of Australians with diagnosed diabetes receive the recommended levels of care.

Existing mechanisms need to be expanded and new ones introduced to ensure the optimal access to recommended care for people with diabetes, giving special consideration to groups who may be socially and economically disadvantaged and/or have particular needs such a indigenous and culturally diverse groups, the elderly, and people who reside in rural/remote locations.

<http://www.aihw.gov.au/diabetes/index.cfm>

Given that approximately 60% of diabetes fatality is due to heart disease, management strategies addressing cardiovascular risks should be a strong focus of policies governing clinical care

### Main Information Sources

- Australian Bureau of Statistics  
<http://www.abs.gov.au/ausstats/abs@.nsf/mf/4820.0.55.001>
- Australian Institute of Health and Welfare  
<http://www.aihw.gov.au/diabetes/index.cfm>
- Diabetes Australia ( National Office Canberra)  
<http://www.diabetesaustralia.com.au/home/index.htm>
- International Diabetes Federation (Brussels)  
<http://www.idf.org/>
- World Health Organisation  
<http://www.who.int/diabetes/en/>

### Further information

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