

National Health Priority Areas Report

Diabetes mellitus

1998

Commonwealth Department of Health and Aged Care
Australian Institute of Health and Welfare

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Executive summary

This report on diabetes¹ is one of a series of biennial reports to Australian Health Ministers on each of the five National Health Priority Areas (NHPAs). It is part of a process that involves various levels of government and draws on advice from non-government sources, with the primary goal of reducing the incidence and impact of diabetes in Australia. This report should be read in the context of other activity in the area of diabetes:

- the *National Diabetes Strategy and Implementation Plan* report (Colagiuri et al 1998) produced for the Ministerial Advisory Committee on Diabetes; and
- the *National Diabetes Strategy*, based on the findings of the *National Diabetes Strategy and Implementation Plan* report and this NHPA report, which will be considered by Australian Health Ministers in July 1999.

Overview of diabetes in Australia

Diabetes is characterised by high blood levels of glucose, caused by deficient production of insulin (the hormone that helps metabolise glucose) and/or resistance to its action. Over the course of this chronic disease, a variety of complications can arise, including heart disease, stroke, blindness, kidney problems and lower limb amputations. Diabetes can also lead to pregnancy-related complications, both for the mother and the foetus or newborn baby. It is the seventh leading cause of death in Australia, and contributes significantly to morbidity, disability, poor quality of life and loss of potential years of life.

There are four main categories of diabetes:

- *Type 1 diabetes*, characterised by a complete deficiency of insulin, and estimated to be present in 10 to 15 per cent of people with diabetes in Australia.
- *Type 2 diabetes*, the predominant form of diabetes in Australia and worldwide. It is a common chronic disease among people 40 years and over, and is characterised by a relative insufficiency of insulin and resistance to its action.
- *Gestational diabetes*, which occurs during pregnancy in about 4 to 6 per cent of women not previously known to have diabetes, and greatly increases their risk of developing diabetes later in life.
- *Other types*, including diabetes secondary to other biological and metabolic events, in addition to known genetic abnormalities.

While diabetes is caused by both genetic and environmental factors, lifestyle-related risk factors such as obesity and physical inactivity play a significant role in the development and progression of Type 2 diabetes and gestational diabetes.

Both the incidence and prevalence of diabetes are rising worldwide, including Australia. While there are no national data on diabetes prevalence, it is estimated that 700,000 Australians had diabetes in 1995, about half of whom were not aware that they had the condition. This figure is projected to rise to 770,000 by the year 2000 and to 950,000 by 2010. Unless effective prevention strategies are put into place, the impact of diabetes will continue to rise.

¹ In this report, diabetes mellitus is referred to as diabetes.

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The burden of diabetes is even greater on certain population groups within Australia. Available data suggest that the overall prevalence of diabetes among Indigenous adults is at least two to four times that of non-Indigenous adults. The prevalence of diabetes is also higher among some population groups and among older Australians. Death rates for diabetes in the remote areas of Australia are two to three times higher than in metropolitan areas.

Diabetes and its complications are a sharply increasing component of health care costs, and this increase is likely to continue as the population continues to age. In 1993–94 alone, the direct costs of diabetes and its complications were estimated at \$681 million.

Measuring progress

Under the NHPA initiative, progress towards reducing the health problem is measured by time trends of risk factor prevalence, and morbidity and mortality. A major task in developing this first report on diabetes was to design a set of 20 priority indicators, each with a standard definition, to be used for monitoring and reporting. This report gives a picture of the current status of diabetes, generated using indicators for which data are available. Subsequent NHPA reports on diabetes will also report on progress towards national health targets, as trend data become available.

Summary statistics indicate that the prevalence of diabetes varies considerably among population groups in Australia, and that death rates from diabetes among males are rising. Obesity and physical inactivity, the two major risk factors for diabetes, are common in the general population and even more prevalent in people with diabetes.

Approaches to diabetes control

Diabetes services exist across the continuum of care, and are delivered by a range of organisations and providers with varying roles and responsibilities. Effective coordination is important at both organisational and service levels, to ensure that consumers receive consistent, high quality care.

Prevention of diabetes

The most effective strategy to reduce the impact of diabetes and its complications is to prevent people from developing the disease. Type 1 diabetes cannot be prevented at present, although studies are in progress to understand the causes of the disease. However, there is evidence that Type 2 diabetes can at least be delayed through modification of risk factors. High-risk groups for primary prevention include people with impaired glucose tolerance or gestational diabetes, and those with other risk factors for diabetes, such as obesity and physical inactivity.

Population approaches are expected to have a greater impact than high-risk approaches in reducing the burden of Type 2 diabetes, simply because of the size of their target group, but there are few reliable data to demonstrate the effectiveness of population-based interventions.

A combination of legislative, educational and economic approaches is required to promote physical activity, good nutrition, the reduction of overweight and obesity, and successful management of risk factors across the population. This will have benefits that go considerably beyond diabetes, because the behavioural and physiological risk factors for diabetes often also play a major role in the development of other common conditions such as cardiovascular disease and some cancers. While the health sector should take the lead in preventive actions, it will ensure more lasting effects if it forms long-term partnerships and alliances with other sectors.

Work is in progress at the Commonwealth, State and Territory, and regional levels, to establish such partnerships, improve the infrastructure for primary prevention and coordinate health promotion activity across major health issues.

Early detection of Type 2 diabetes

Early detection of Type 2 diabetes is important because diabetes can remain asymptomatic for many years and significant diabetes-related morbidity can be present before diagnosis. The earlier a person with diabetes is diagnosed, the sooner treatment can be given to control blood glucose levels and delay onset and progression of many diabetes-related complications.

Currently, there is no nationally organised approach to early detection of diabetes, and most cases are diagnosed through opportunistic screening by general practitioners (GPs) and other health professionals.

Management of Type 1 and Type 2 diabetes

Once diagnosed, effective management of Type 1 and Type 2 diabetes is critical to improving health-related quality of life, as it reduces the chance and magnitude of complications and premature mortality. Treatment of diabetes is directed towards achieving strict control of blood glucose levels. There is consensus that this level of control is feasible for the majority of people with diabetes, but only through a collaborative effort involving the person with diabetes, carers and health service providers.

Australia has a strong network of diabetes treatment services that provide routine care for people with diabetes, either through primary care physicians or through interdisciplinary, ambulatory care centres.

Secondary prevention of established complications is important. Since interventions generally achieve the best results if started in the early asymptomatic stages, and complications can progress to an advanced stage before symptoms develop, regular medical screening for diabetes-related complications is essential to identify those people who require treatment.

Special populations

The *National Diabetes Strategy and Implementation Plan* report (Colagiuri et al 1998) highlighted several population groups who require special consideration in diabetes prevention and care services, because of a greater prevalence of diabetes, or difficulties in access to services, or both. These population groups are:

- *Indigenous Australians*, who have limited availability and access to necessary and culturally appropriate health care, and for whom there are a number of additional inter-related factors which contribute to persistent poor health.
- *People from culturally and linguistically diverse backgrounds*, who may experience disadvantages in terms of access to the range of diabetes services available (because of language barriers), appropriate education and information for effective self management and continuing community support.
- *People living in rural and remote areas*, who face disadvantages in accessing adequate and appropriate health care.
- *Children and adolescents*, who have the longest course of the disease and the greatest risk of complications, and among whom optimising diabetes control may be more difficult than among adults.
- *Older Australians*, for whom issues such as multiple pathology, polypharmacy, social isolation and depressed cognitive function complicate the provision of effective preventive and management services.

Opportunities and future directions

Future directions in diabetes will be shaped by the development and implementation of the National Diabetes Strategy. It is important that existing activity at national, jurisdictional and regional levels is examined during the implementation of the National Diabetes Strategy, and that future action recognises past experience and successes and builds on current activity. This action will involve governments at all levels, the private sector, non-government and community organisations, and consumers and carers.

Governments have a number of broad levers at their disposal to foster better programs and practice and to discourage inappropriate practice. Some of these levers could be employed within the following priority areas for diabetes.

Increased commitment to prevention

The primary prevention messages relating to health and lifestyle across the major health issues are virtually the same. National action in these areas will be most effective if there is coordination across different program areas, consistent health messages and adequate funding.

The National Public Health Partnership and preliminary work on a National Primary Prevention Strategy should contribute much to this area. The implementation of the National Diabetes Strategy should forge further links with these strategies rather than duplicating their work with diabetes-specific messages. Currently, there is no funding infrastructure in place to address coordination issues. However, a number of innovative proposals could be further explored which could draw together processes and principles established under existing arrangements.

Increasing rates of early detection

As with prevention, increased awareness of diabetes in the population and among health professionals is necessary before rates of early detection can increase. By raising awareness of diabetes, the Community Awareness of Diabetes Strategy (CADS) currently being developed is expected to increase rates of diagnosis among people with diabetes who do not know they have the condition. This strategy requires both jurisdictional support and Government commitment. In order to convert increased awareness into greater rates of diagnosis, health professionals also need appropriate skills in case finding, testing and follow-up. The development and dissemination of national guidelines on these issues will enable health professionals to detect diabetes at earlier stages.

Improving the capacity of the health system to deliver, manage and monitor services

The infrastructure for diabetes services in Australia is complex. Mechanisms need to be in place to ensure that a coordinated approach to diabetes is undertaken in Australia. The establishment of a National Diabetes Advisory Committee to report to Australian Health Ministers through the Australian Health Ministers' Advisory Council (AHMAC) would facilitate the achievement of this goal. This approach would allow a streamlining of the existing advisory mechanisms, and a focus on a number of key areas. In particular, the promotion of better practice, quality of care and management of complications could be achieved through:

- the effective implementation of existing clinical practice guidelines and development and implementation of guidelines in other areas;
- a national program to encourage the provision of evidence-based, coordinated services to prevent the development or progression of complications;
- establishing efficient recall mechanisms to allow regular monitoring;
- provision of relevant, up-to-date and culturally appropriate information to facilitate self management among people with diabetes;
- ensuring adequate access to diabetes specialists and allied health professionals, especially for those in rural and remote areas;
- increasing health professionals' participation in diabetes care through sustainable continuing education;
- continued funding to increase the number of Aboriginal health workers; and
- specific activities to address diabetes in pregnancy and the continuing care and monitoring of women who develop gestational diabetes.

Improving data development and information systems

Currently, there is little understanding of the incidence and prevalence of diabetes and its complications in Australia and within population subgroups, hindering the development of health planning and resource allocation. This information is needed at regional, State and national levels.

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The main information requirements include the following.

- The development of standard definitions for each aspect of monitoring, to enable consistent information to be collected by the various diabetes health service providers, and outcomes to be evaluated in relation to health service utilisation. Inclusion of agreed diabetes fields into existing national minimum datasets is essential to obtain timely and accurate data. An existing data system for diabetes could be the basis for this.
- Surveys and other data collection techniques are needed to assess and monitor the incidence and prevalence of diabetes in the general population and in special populations with higher prevalence rates.
- A mechanism that promotes data linkage across service settings has the potential to increase efficiency and improve diabetes health outcomes and should be investigated in the short term. National coordination of record linkages is desirable as currently there is duplication of effort across jurisdictions.

Enhancing research into diabetes

Research has increased understanding of diabetes, its risk factors and effective treatments to control the disease and delay the onset of complications. Research needs to be continued to ensure progress is made towards a cure, as well as further improving prevention and management interventions.

Major research issues include reviewing allocation of research funding for diabetes and establishing research priorities within diabetes.

Summary — Important future directions in diabetes

- Coordinating primary prevention strategies across major health issues.
- Establishing processes and mechanisms for the early detection of diabetes.
- Coordinated management of diabetes, including diabetes-related complications.
- Disease management strategies that involve the patient and are culturally appropriate.
- Sustainable continuing education of health professionals, including Aboriginal health workers.
- Standardising recommendations of care for pregnant women with gestational diabetes or diabetes.
- Addressing issues of access to services and information for higher-risk groups.
- Systematic development of diabetes datasets and a national diabetes monitoring system.
- Gaining a better understanding of diabetes, its causes and interventions that may reduce its impact, through research.

Introduction

Background

This report on diabetes² is one of a series of biennial reports to Health Ministers on each of the five National Health Priority Areas (NHPAs) — cancer control, injury prevention and control, diabetes mellitus, cardiovascular health and mental health. This report is being released concurrently with the reports on cardiovascular health and mental health. Reports on cancer control and injury prevention and control were released in mid 1998 (DHFS & AIHW 1998a; 1998b).

Although each report targets a group of discrete diseases or conditions and the recommended strategies for action are often specific in nature, the NHPA initiative recognises the role played by broader population health initiatives in realising improvements in the health status of Australians. Public health strategies and programs that target major risk factors such as smoking may benefit several priority areas, for example diabetes mellitus, cardiovascular health and cancer control.

This report is part of an encompassing NHPA process that involves various levels of government and draws on expert advice from non-government organisations, with the primary goal being to reduce the impact of diabetes on the Australian population.

The National Health Priority Areas initiative

Based on current international comparisons, the health of Australians is among the best in the world and should continue to improve with continued concerted efforts across the nation. The NHPA initiative emphasises collaborative action between Commonwealth and State and Territory Governments, the National Health and Medical Research Council (NHMRC), the Australian Institute of Health and Welfare (AIHW), non-government organisations, appropriate experts, clinicians and consumers. It recognises that specific strategies for reducing the burden of illness should be holistic, encompassing the continuum of care from prevention through treatment and management to rehabilitation, and should be underpinned by evidence based on appropriate research.

By targeting specific areas that impose high social and financial costs on Australian society, collaborative action can achieve significant and cost-effective improvements in the health of Australians. The diseases and conditions targeted through the NHPA process were chosen because they are areas where significant gains in the health of Australians can be achieved.

From National Health Goals and Targets to National Health Priority Areas

The World Health Organization (WHO) published the *Global Strategy for Health for All by the Year 2000* in 1981 (WHO 1981). In response to this charter, the *Health for All Australians* report was developed and represented Australia's 'first national attempt to compile goals and targets for improving health and reducing inequalities in health status among population groups' (Health Targets and Implementation Committee 1988). The 20 goals and 65 targets focused on population groups, major causes of sickness and death, and risk factors.

² In this report, diabetes mellitus is referred to as diabetes.

Introduction

A revised set of targets was published in the *Goals and Targets for Australia's Health in the Year 2000 and Beyond* report (Nutbeam et al 1993). Goals and targets were established in four main areas — reductions in mortality and morbidity, reductions in health risk factors, improvements in health literacy, and the creation of health-supportive environments. However, this framework was not implemented widely.

The *Better Health Outcomes for Australians* (DHS 1994) refined the National Health Goals and Targets program. The focus of goals and targets was shifted to four major areas for action — cancer control, injury prevention and control, cardiovascular health and mental health. As a corollary to this, Australian Health Ministers also adopted a national health policy which committed the Commonwealth and State and Territory Governments to developing health goals and targets in the priority health areas and re-orienting the process towards population health.

In 1995, it was recognised that there were a number of fundamental shortcomings in the National Health Goals and Targets process, principally that there were too many indicators (over 140 across the four health priority areas), there was a lack of emphasis on treatment and ongoing management of the disease/condition, and there was no national reporting requirement. In implementing a goals and targets approach, emphasis was placed on measures of health status and reduction of risk factors. However, no nationally agreed strategies were developed to promote the change required to reach the targets set.

This led to the establishment of the current NHPA initiative. Health Ministers agreed at their meeting in July 1996 that a national report on each priority area be prepared every two years, to give an overview of the impact on the health of Australians in these areas, allowing time for major changes in health indicator status to become apparent. These reports would include a statistical analysis of surveillance data and trends for a set of agreed national indicators. It was also agreed that diabetes mellitus should become the fifth NHPA.

The *First Report on National Health Priority Areas 1996* (AIHW & DHFS 1997), a consolidated report on progress in all the priority areas, was presented to Health Ministers in August 1997.

Development of the report

In developing this report, the National Health Priority Committee (NHPC) appointed a consultant author to work with a Diabetes Overseeing Group to provide expert advice on diabetes prevention and care, and the AIHW to provide statistical analysis of data on diabetes.

This report results from collaboration with over 150 professionals from the fields of prevention and diabetes management and from specialists working with specific populations at risk, notably Indigenous people. These professionals provided valuable input on current progress towards addressing the diabetes problem and in identifying a small number of levers for achieving better health.

The AIHW provided expert services in data provision and analysis. This included the development of national indicators for diabetes, as well as routine monitoring of previously agreed indicators.

Purpose and structure of the report

The *First Report on National Health Priority Areas 1996* (AIHW & DHFS 1997) provided an overview of the impact of diabetes on the Australian community and discussed work in progress on the development of a set of national indicators.

This report builds on the work of the *First Report*, and must also be read in the context of other activity in the area of diabetes. After diabetes mellitus became the fifth NHPA, the Commonwealth Government announced funding of \$7.7 million over three years for activities that would improve awareness and management of diabetes in Australia. Significant projects funded include the Community Awareness of Diabetes Strategy (CADS), the establishment of a National Diabetes Register and a consultancy that led to the production of the *National Diabetes Strategy and Implementation Plan* report (Colagiuri et al 1998) for the Ministerial Advisory Committee on Diabetes.

The *National Diabetes Strategy and Implementation Plan* report provides a comprehensive review of evidence-based practice in diabetes prevention and care and proposes three 'change imperatives' for maximising outcomes — best practice, information and coordination. It has been used as a key source document for this report.

A National Diabetes Strategy, based on the findings of the *National Diabetes Strategy and Implementation Plan* report and this NHPA report, will be considered by Australian Health Ministers in July 1999. This strategy will provide direction and priorities for the provision of research, prevention and care services for people with or at risk of diabetes.

This report provides an overview of the incidence, prevalence and cost of diabetes, and gives baseline data and information on underlying trends in prevention and treatment. It also adds to the information in the previous reports on action in diabetes prevention and care across Australia. The States and Territories provided input focused on six areas — guidelines, service collaboration, client focus, provider focus, information systems, and research and development. The results were collated and used to identify current activity in relation to prevention, early detection and improved management of diabetes.

This report also identifies perceived opportunities for implementation of evidence-based practice across the nation, and proposes a number of levers to progress change. The report does not provide a comprehensive analysis of all diabetes services currently being delivered in States and Territories, but highlights a small number of innovative, evidence-based interventions that are considered to have the potential to achieve significant health gains.

Within the report, approaches to address the disproportionate incidence and impact of diabetes on selected populations, most notably Indigenous Australians, are an important consideration.

Chapter 1 provides an overview of diabetes in Australia, including the current extent and cost of the problem, major risk factors, diabetes-related complications, health service use, long-term trends over time and comparisons of the rate of diabetes in Australia with those of other countries.

Chapter 2 presents the newly developed indicators on diabetes and reports on those for which there were data available in 1998.

Introduction

Chapter 3 provides an overview of the current status of prevention, early detection and management of diabetes in Australia. For each of these areas, information is provided on the size of the problem, best practice, and the cost-effectiveness of intervening.

Chapter 4 presents an overview of diabetes services and infrastructure in Australia, including the roles and inter-relationships of organisations and service providers. It also gives a summary of national and State and Territory activity in prevention, early detection and management of diabetes, focused on the six areas outlined above.

Chapter 5 describes the current status of prevention and management of diabetes among specific population groups — pregnant women who have gestational diabetes or pre-existing diabetes; children and adolescents with Type 1 diabetes; Indigenous Australians; rural and remote residents; people from culturally and linguistically diverse backgrounds; and older Australians. It also outlines additional national and jurisdictional activity to address the needs of the special groups.

The report concludes with a consideration of possible strategies for reducing the impact of diabetes in the Australian context, and a proposal for action which builds on Australia's record in the areas of prevention and management (Chapter 6).