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Background

Diabetes is one of the leading chronic diseases in many countries, and is now reaching epidemic levels. If left unchecked, 1 in 14 adults or an estimated 380 million people worldwide are predicted to have diabetes by 2025 (IDF 2006). Diabetes is associated with a range of complications including coronary artery and peripheral vascular disease, stroke, diabetic neuropathy, amputations, renal failure and blindness, and can cause much disability, poor quality of life and premature death, especially if left undiagnosed or poorly controlled (IDF 2006).

Diabetes imposes a large burden on the health system and on some communities and in 2003, diabetes accounted for over 5% of the disease burden in Australia (AIHW: Begg et al. 2007). Diabetes also carries with it an increased risk of ischaemic heart disease and stroke and the associated burden has not been included in the above figures. When this risk was accounted for, the burden attributable to diabetes increased to 8.3% of total disease burden.

Purpose and structure of the report

Diabetes: Australian facts 2008 provides an overview of diabetes and its impact on the Australian community. The report presents the latest available statistics on diabetes, including information on risk factors, complications, health service use, and the impact of the disease (including mortality) on Australians. The report includes both summary and trend data related to diabetes in Australia and information useful for health professionals, policy makers, academics and other interested readers. However, the report is not designed to be a source of personal medical advice.

This is the second national report on diabetes compiled by the National Centre for Monitoring Diabetes, at the Australian Institute of Health and Welfare (AIHW). As part of the National Health Priority Area program, the Australian Government Department of Health and Ageing (DoHA) allocated funding for the establishment

of the National System for Monitoring Diabetes. Although Australia previously had national data sources relevant to the monitoring of diabetes, it lacked an integrated system to coordinate these resources and their analysis. The National Centre for Monitoring Diabetes, with advice from an expert advisory committee, fulfils this function by producing reports and other information on various aspects of diabetes.

The lack of good quality national data in many areas limits a full understanding of the true impact of diabetes on Australian society and has also influenced the structure and content of this report. For example, current information examining the psychosocial effect of the disease on people with diabetes and their carers are not available. Importantly, the most recent information on diabetes prevalence and risk factors from a national blood survey is now becoming quite dated, having been collected in 1999–2000.

More information on data gaps and deficiencies for monitoring diabetes can be found in the latest publication *National indicators for monitoring diabetes: Report of the Diabetes Indicators Review Subcommittee of the National Diabetes Data Working Group* (AIHW 2007).

What is diabetes?

Diabetes mellitus (diabetes) is a disease marked by high blood glucose levels resulting from defective insulin production, insulin action or both (WHO 1999). There are several types of diabetes, with different causes and clinical histories: Type 1, Type 2, gestational diabetes and other types (Box 1.1). Other types of diabetes are relatively uncommon therefore only the three main types of diabetes—Type 1, Type 2 and gestational diabetes—are discussed in this report.

Diabetes in the Australian population

Based on self-reported data from the most recent National Health Survey (NHS), an estimated 700,000 people (3.6% of Australians) had diagnosed diabetes in 2004–05. Of those people reporting long-term diabetes, 13% had Type 1

diabetes, 83% had Type 2 diabetes and 4% had an unknown type of diabetes. Type 2 diabetes occurs mainly among people aged 40 years or more (WHO 1999) but in recent times Type 2 diabetes has been increasingly seen in children and young people (Craig et al. 2007; McMahon et al. 2004).

There is evidence that the incidence of Type 1 diabetes is increasing among children (AIHW: 2007; Haynes et al. 2004; Taplin et al. 2005). Although only a small proportion of children are affected by diabetes, the impact of diabetes on their health is often severe, both during childhood and later in life.

Some population groups including Aboriginal and Torres Strait Islander, and people born in some other countries, are at an increased risk of Type 2 diabetes (AIHW: Dixon & Webb 2005; Craig et al. 2007), which is due to a combination of genetic, biological, behavioural and environmental risk factors (AIHW: Thow & Waters 2005; Zimmet et al. 2001). In 2004–05, the age standardised-rate of diabetes among Aboriginal and Torres Strait Islander peoples was over 3 times the rate in non-Indigenous people (ABS 2006b). During the same period, the age-standardised prevalence of diabetes among people born in Southern and Central Asia was 8.7%, North Africa and the Middle East 6.6%, South East Asia 5.7% and Southern and Eastern Europe 4.9%. In contrast, the prevalence rate of

diabetes among Australian-born people was 3.3% (ABS 2006a).

Untreated diabetes can lead to complications involving many parts of the body, particularly the heart, kidneys, eyes and feet. In Australia, diabetes is the most common reason for renal dialysis, and the most common cause of blindness in people under age 60 years, non-traumatic lower-limb amputation and cardiovascular disease (Barr et al. 2006).

The national strategy

In recognition of the impact that diabetes has on the Australian community, and the potential for improved health outcomes, Australian Health Ministers agreed in 1996 to make diabetes mellitus a National Health Priority Area. The aim of this initiative was to focus public attention on diseases that present a significant health burden, where there is a potential for health gain through prevention and treatment programs.

In 1999, the National Diabetes Strategy (NDS) was endorsed by all Australian Health Ministers. The NDS was developed to assist governments and service providers in identifying key areas for action aimed at improving the health of Australians with, or at risk of, diabetes. The NDS aims to achieve this by coordinating the wide range of activities undertaken across Australia

Box 1.1: Types of diabetes

Type 1 diabetes mostly arises in children or young adults, though it can occur at any age. It is marked by the inability to produce insulin. People with Type 1 diabetes need insulin replacement for survival. Type 1 diabetes accounts for approximately 10–15% of all diabetes cases.

Type 2 diabetes is the most common form of diabetes, which occurs mostly in people aged 50 years or over. Although uncommon in childhood, it is becoming increasingly recognised in that group. People with Type 2 diabetes produce insulin but may not produce enough or cannot use it effectively. Type 2 diabetes may be managed with changes to diet and exercise, oral glucose-lowering drugs, insulin injections, or a combination of these.

Gestational diabetes is a form of diabetes that develops during pregnancy in some women. It involves high blood sugar levels appearing for the first time during pregnancy among women who have not previously been diagnosed with other forms of diabetes. It usually disappears after the baby is born; however, it can recur in later pregnancies. It is also a marker of increased risk of developing Type 2 diabetes later in life. Some cases of gestational diabetes are managed with changes to diet and exercise alone and some may require insulin treatment.

to improve the prevention, early detection and management of diabetes.

Key initiatives under the National Diabetes Strategy (NDS) include:

- National Service Improvement Framework for Diabetes
- National Integrated Diabetes Program
- National Diabetes Services Scheme (NDSS)
- Diabetes Prevention Pilot Initiative
- Evidence-based guidelines for the management of diabetes
- The Australian Diabetes, Obesity and Lifestyle Study
- support for diabetes research
- National Centre for Monitoring Diabetes
- National Diabetes Register (NDR)
- National Diabetes Improvement Projects
- Australian National Diabetes Information Audit and Benchmarking (ANDIAB) project.

Information on these initiatives can be found at the DoHA website <www.health.gov.au>.

Structure of the report

This report presents information in eight thematic chapters. This introductory chapter provides some background information, describes what diabetes is and its different types, and summarises its overall level and impact. Chapter 2 provides information on the number of people with diabetes and Chapter 3 presents information on risk factors for diabetes and its complications. The major complications of diabetes are discussed in Chapter 4. Diabetes prevalence, complications and risk factors of diabetes for specific population groups are discussed in Chapter 5, and Chapter 6 presents available data on the use of health services in diabetes management. Chapter 7 covers the impact of diabetes, including information on quality of life, disability, disease burden and economic costs. Mortality from diabetes is presented as a separate chapter (Chapter 8) in this edition of the report.

Appendix 1 describes the methods and main data sources used in this report. Appendix 2 refers the reader to where information related to national indicators for monitoring diabetes can be found.

Some epidemiological concepts used in the report are described in the glossary.

What is new in this edition?

This second edition of this report on diabetes in Australia updates information presented in the 2002 edition, wherever possible. More extensive data and analysis have been able to be included in many areas of the report.

Considerable new information on the number of people with diabetes has been incorporated, and this information on the incidence and prevalence of diabetes is contained in Chapter 2. This chapter also includes several years of data from the NDR, which was only very new at the time of the first edition of this report. Thus trends in incidence of Type 1 diabetes can now be examined at the national level.

Another major change in this edition is the inclusion of a separate chapter on diabetes in specific population groups. The first edition contains this information throughout the report, but in this edition separate sections on diabetes in Indigenous people, people living in regional areas, people born overseas and people from different socioeconomic groups are included in Chapter 5.

Main data sources used in the report

A brief summary of the data sources is provided below. Further details are provided in Appendix 1.

The 2004–05 NHS data are used extensively throughout the report and provide self-reported information on diabetes, including prevalence, risk factors and some complications.

The National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) 2004–05 collected information relating to Indigenous peoples, including health status, health action taken and lifestyle factors that may influence health. This survey covered information similar to the NHS including health status, health risk factors, long-term conditions, health service use, social and emotional wellbeing and basic demographic information. Information from

this survey is mainly presented in Chapter 5 (Aboriginal and Torres Strait Islander peoples section).

The 1999–2000 Australian Diabetes and Lifestyle Study (AusDiab) collected actual physical measurements (such as blood pressure) and blood specimens in people aged 25 years and over and thus provided more accurate estimates of diabetes prevalence, its risk factors and complications for this age group. Although the AusDiab study is older than the 2004–05 NHS, it is the most recent national source providing measured data on various aspects of diabetes in Australia.

The NDR collects information about people who use insulin as part of their treatment of diabetes. It includes data for persons who began to use insulin from 1 January 1999. Data for the register are obtained from two main sources: the National Diabetes Services Scheme, which is administered by Diabetes Australia Ltd, and the Australasian Paediatric Endocrine Group (APEG) state-based registers. APEG registers collect information about children with diabetes aged less than 15 years.

The 2004 National Drug Strategy Household Survey (NDSHS) includes data on the drug use,

perceptions and attitudes of almost 30,000 Australians aged 12 years and older. Data from the NDSHS are self-reported. In this report, the prevalence of tobacco smoking was obtained from this source.

The Australian National Diabetes Information Audit and Benchmarking (ANDIAB) data collection compiles information from audits of patients attending a selection of specialist diabetes centres and specialist endocrinologists in private practice. It reports data on over 5,000 persons with diabetes requiring specialist clinical management, in particular those who have had poor control of their diabetes.

The AIHW National Hospital Morbidity Database contains demographic, diagnostic, procedural and duration-of-stay information on episodes of care for patients admitted to hospital. In this report, disease data relate to the principal diagnosis unless otherwise specified.

The AIHW National Mortality Database contains information on the underlying and additional causes of death, along with demographic information about deceased persons based on information supplied by the medical practitioner certifying the death or by a coroner.

