

2 Diabetes — an indicator-based profile

The NHPA initiative takes a ‘goals and targets’ approach to health monitoring, with time series used for predicting and measuring health outcomes. A set of priority indicators, each with a standard definition, is used for monitoring and reporting.

The previous chapter presented a general overview of diabetes in Australia, using data derived from a variety of surveys and studies. However, currently available data do not give a national picture of diabetes or provide a baseline for assessing progress towards the overall NHPA goal of reducing diabetes and its impact on the population. This chapter provides a profile of the current status of diabetes, using a set of defined indicators.

A major task in developing this first report on diabetes was to design a set of indicators for standardised monitoring and reporting. The process used for developing these indicators is described below. For detailed information on each indicator, see Appendix 1.

NHPA indicators differ from other types of health indicators in that they provide indirect information about future achievements based on historical trends, and can be linked to strategies for achieving set targets. These are developed and prioritised using a set of criteria, one of which is that the relevant data are being collected on a regular basis, or there is a commitment to put systems in place to collect that information, so that trends over time can be monitored. It is also considered desirable that the indicators reflect social goals. This requires taking an integrated approach to health monitoring by tying the NHPA indicators to outcomes for social justice and access issues.

The most important feature of NHPA indicators is their wide ownership. Developed with input from a range of stakeholders, these indicators are likely to be influential, valid and reliable measures for monitoring progress towards better health outcomes in Australia.

2.1 Goals for diabetes indicators

The goals that form the basis for diabetes indicators are as follows:

- to reduce diabetes incidence, particularly among populations at increased risk of developing the disease;
- to improve health-related quality of life, and reduce complications, disability and premature mortality attributable to diabetes;
- to achieve maternal and child outcomes for women with gestational diabetes or with pre-existing diabetes, equivalent to those of non-diabetic pregnancies; and
- to improve the capacity of the health system to deliver, manage and monitor services for the prevention of diabetes and the care of people with diabetes.

These goals are statements of intent and aspiration, outcomes that Australia might reasonably hope to achieve in the light of current knowledge of the disease and available technology and resources. The goals aim to achieve the primary objectives of good health and well being for people with diabetes through reducing the burden

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of diabetes-related illness, reducing inequality, increasing community participation and creating healthy environments. In general, the above-mentioned goals apply to the population as a whole, but priority populations are identified when different strategies are required for the priority group.

2.2 Indicator development

A health outcomes framework (see Table 2.1) was used to design indicators across the continuum of care for diabetes. The framework was developed by the National Health Information Management Group (NHIMG) Working Party on Health Outcomes Activities and Priorities, and endorsed by the Australian Health Ministers' Advisory Council (AHMAC).

The framework provides the basis for selecting an indicator, giving it meaning beyond the measure it may represent, and helps obtain an integrated view of the problem. It also facilitates systematic identification of indicators, helps set priorities for developing mechanisms for monitoring outcomes and progress towards targets, and enables comparisons across populations.

The NHIMG framework has a simple two-dimensional grid with three major columns covering health care outcomes through prevention, management and maintenance, and three major rows of indicators covering primary outcomes, risk factors and process/ quality. The grid as a whole refers to a specified health condition or problem, and is applied to a specified population or subgroup (AIHW & DHFS 1997).

Table 2.1: NHPA diabetes indicators mapped to NHIMG health outcomes framework

Indicator	Prevention			Management	Maintenance
	<i>Universal</i>	<i>Selective</i>	<i>Indicated</i>		
Primary outcomes	Disease incidence/prevalence: 1.1a; 1.2a	Disease incidence/prevalence: 1.1 (b,c); 1.2 (b,c); 1.3	Diabetes-related complications: 3.1; 3.2; 3.3; 3.4		
Risk	Risk factors: 2.1a; 2.2a	Risk factors: 2.1b; 2.2b	Risk factors: 2.3; 2.4; 2.5	Health status: 6.1 Screening and management: 7.2	
Process and quality		Screening and management: 7.2	Screening and management: 7.1	Diabetes-related complications: 3.1; 3.2; 3.3; 3.4 Hospital separations: 4.1; 4.2; 4.3; 4.4; 4.5 Screening and management: 7.1; 7.2	
System					

Notes: Some indicators map to more than one cell. Mortality indicators (5.1 and 5.2), on the other hand, do not fit within the NHIMG framework of disease prevention, management and maintenance.

See Table 2.2 for full titles of the indicators.

2.3 NHPA indicators for diabetes

The indicators given below have been developed following consultation with various stakeholders. More detailed information on each of the indicators is given in Appendix 1.

Table 2.2: Diabetes indicators for NHPA reporting

Indicator	1998 reporting
<i>1 Disease incidence and prevalence</i>	
1.1 Prevalence rates for Type 1 and Type 2 diabetes in: a) general population; b) Indigenous population; and c) among people from culturally and linguistically diverse background	✓
1.2 Incidence rates for Type 1 and Type 2 diabetes in: a) general population; b) Indigenous population; and c) among people from culturally and linguistically diverse background	X
1.3 Gestational diabetes among women aged 20–44 years, by parity	X
<i>2 Risk factors for diabetes and associated complications</i>	
2.1 Prevalence rates for obesity and being overweight (as measured by BMI) in: a) general population; and b) among persons with Type 2 diabetes	✓
2.2 Rates for non-participation in regular, sustained, moderate aerobic exercise in: a) general population; and b) among persons with Type 2 diabetes	✓
2.3 Prevalence rates for high blood pressure among persons with Type 2 diabetes: a) ≥ 140 mmHg systolic and/or 90 mmHg diastolic and aged < 60 years; b) ≥ 160 mmHg systolic and/or 90 mmHg diastolic and aged ≥ 60 years; and/or c) those on medication for high blood pressure	✓
2.4 Prevalence rates for high levels of lipoproteins among persons with Type 1 and Type 2 diabetes: a) total cholesterol above 5.5 mmol/L; and b) high density lipoproteins below 1.0 mmol/L	✓
2.5 Prevalence rates for fasting hypertriglyceridaemia among persons with Type 1 and Type 2 diabetes	✓
<i>3 Diabetes complications</i>	
3.1 Proportion of persons with end-stage renal disease with diabetic nephropathy as a causal factor	✓
3.2 Incidence rate for eye disease among clinically diagnosed persons with diabetes	✓
3.3 Prevalence rate for foot problems among persons with clinically diagnosed diabetes	✓
3.4 Incidence rates for coronary heart disease and stroke in: a) general population; and b) among clinically diagnosed persons with diabetes	✓

continued

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Table 2.2: Diabetes indicators for NHPA reporting (continued)

Indicator	1998 reporting
<i>4 Hospital separations for diabetes complications</i>	
4.1 Hospital separation rate for end-stage renal disease with diabetes as an additional diagnosis	✓
4.2 Hospital separation rates for coronary heart disease or stroke with diabetes as an additional diagnosis	✓
4.3 Hospital separation rates for conditions other than end-stage renal disease and coronary heart disease/stroke among: a) persons for whom diabetes was reported as the principal diagnosis or an additional diagnosis; and b) persons without diabetes as a reported diagnosis.	✓
<i>5 Mortality</i>	
5.1 Death rates for diabetes in: a) general population; b) Indigenous population; and c) among people from culturally and linguistically diverse backgrounds	✓
5.2 Death rates for coronary heart disease and stroke among persons with diabetes in: a) general population; b) Indigenous population; and c) among people from culturally and linguistically diverse background	✗
<i>6 Health status</i>	
6.1 Self-assessed health status of persons with and without diabetes	✓
<i>7 Screening and management</i>	
7.1 Proportion of persons with diabetes tested for glycosylated haemoglobin level at least every six months	✗
7.2 Proportion of pregnant women being tested for gestational diabetes	✗

2.4 Indicator-based summary statistics

This section provides a short summary of the impact of diabetes on the health of Australians and emerging trends using available data on NHPA indicators. The indicators summarised below cover six different aspects: prevalence of diabetes, its risk factors, associated complications, hospitalisation, mortality and health status.

The information included here is largely statistical in nature, put together to generate a profile of events and trends across the continuum of care.

Disease prevalence

Indicator 1.1: Diabetes prevalence

- Prevalence of diabetes varies considerably among population groups in Australia. The estimates, based on self reports, range from around 1,880 per 100,000 persons in the general population to over 8,700 per 100,000 persons in the Indigenous population.

Risk factors

Indicator 2.1: Overweight and/or obesity

- Obesity is common in the general population, with about 13 per cent of males and 14 per cent of females with BMI scores of more than 30. The relative proportions are much higher among persons with diabetes, with almost 32 per cent of males and 43 per cent of females with diabetes rated as obese.

Indicator 2.2: Lack of physical activity

- A large proportion of the general population and persons with diabetes undertake low levels of exercise, or are sedentary. According to the 1995 NHS (ABS 1997a), more than 66 per cent of the adult population and almost 75 per cent of people with diabetes do not participate in regular, sustained, moderate exercise.

Indicator 2.3: High blood pressure

- Based on the NADC survey, the prevalence rates for high blood pressure are estimated as 266 per 1,000 males and 347 per 1,000 females with Type 2 diabetes and under the age of 60 years. Given a slightly higher cut-off point, the prevalence rates for high blood pressure among persons with diabetes and over the age of 60 years are similar to those noted for persons under the age of 60 years.
- The average blood pressure levels in Australia have shown a downward trend for several years, and the trend is continuing. This has positive implications for reduction in the prevalence of diabetes and diabetes-related outcomes in Australia.

Indicator 2.4: High levels of lipoproteins

- According to the NADC survey of patients attending specialist diabetes services, almost 25 per cent of people with Type 1 diabetes, and more than one-third of people with Type 2 diabetes, have high levels of cholesterol. Population-based studies indicate that the proportion may be much higher than that observed under controlled, clinic conditions.

Indicator 2.5: Fasting hypertriglyceridaemia

- According to the 1998 NADC survey of patients attending specialist diabetes services, less than 2 per cent of people with Type 1 diabetes but more than 8 per cent of those with Type 2 diabetes have high levels of triglycerides. No population-based information is available to provide a comparative picture of hypertriglyceridaemia outside the clinic setting.

Diabetes-related complications

Indicator 3.1: End-stage renal disease

- The proportional contribution of diabetic nephropathy to the incidence of end-stage renal disease is on the rise. Not only did the number of new diabetic end-stage renal disease registrants with the Australia and New Zealand Dialysis and Transplantation Registry (ANZDATA) more than double between 1991 and 1996, but the relative contribution of diabetic nephropathy to overall end-stage renal disease also increased by more than 70 per cent during this period.

Indicator 3.2: Eye diseases

- No information on the national incidence of diabetic retinopathy, or the blindness it causes, is available. The NADC data suggest an annual incidence rate of 8 per 1,000 persons for blindness among those attending specialist diabetes services.

Indicator 3.3: Foot problems

- According to the 1998 NADC survey, the prevalence rate for foot ulcers is 25 per 1,000 persons. More than twice as many are reported to have had foot ulcers previously. The incidence of amputations has been estimated as 10 per 1,000 persons with diabetes attending diabetes clinics.

Indicator 3.4: Coronary heart disease and stroke

- According to the 1998 NADC survey, the rate of incidence for heart attack, used as a proxy for coronary heart disease, is 46 per 1,000 persons attending diabetes clinics. This rate is more than 19 times higher than that noted in the general population. The incidence rate for stroke among persons attending the diabetes clinics has been estimated at 24 per 1,000 persons.

Hospitalisation associated with diabetes

Indicator 4.1: Hospitalisation for end-stage renal disease

- In 1996–97, there were a total of 20,344 hospital separations where both renal failure and diabetes were listed as co-diagnoses. The separation rate is estimated to be 1.0 per 1,000 persons, accounting for approximately 8 per cent of all separations with renal failure as a listed diagnosis.

Indicator 4.2: Hospitalisation for coronary heart disease and stroke

- There has been a marked rise in the proportion of separations with diabetes as a co-diagnosis with coronary heart disease or stroke. This may be partly because of an increasing propensity to list diabetes as an additional diagnosis or comorbidity. No such increase has been noted for coronary heart disease or stroke separations as a whole.

Indicator 4.3: Hospitalisation for other conditions

- Diabetes is a co-diagnosis for about 6 per cent of hospital separations where coronary heart disease, stroke and renal disease are not the listed diagnoses. The proportion may be an underestimate since diabetes is not coded consistently.

Mortality

Indicator 5.1: Death rates

- Death rates for diabetes are on the rise in Australia. Between 1991 and 1996, the rate increased 2.9 per cent per annum among males, although no change was noted among females. Some of this increase may be ascribed to changing propensity to identify diabetes as the underlying cause of death.

Health status

Indicator 6.1: Self-assessed health status

- Slightly more than 60 per cent of persons with diabetes responding to the 1995 NHS rated their health as good to very good, to excellent. This contrasts with self assessment of health status by respondents in the general population, with almost 84 per cent reporting their health as good through to excellent.

These indicators give an assessment of the health of persons with diabetes in Australia. The information is based on wide-ranging sources, but limited time series, so no clear picture of diabetes trends emerges.

