



Appendixes

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Appendix 1: Methods, definitions and main data sources

Methods and definitions

Also see Glossary for definitions used in this report.

Prevalence

Prevalence refers to the number or proportion (of cases, instances, and so on) present in a population at a given time.

Prevalence rate in this report is calculated by dividing the number of people with the disease by the average population in the same reference period. The resulting number is expressed as a percentage, or as x cases per a given population base (for example, 1,000, 10,000 or 100,000).

Incidence

Incidence refers to the number of new cases (of a disease, condition or event) occurring during a given period.

Incidence rate is calculated by dividing the number of new cases in a given period by the population at risk in the same period, expressed as x cases per a given population base (for example, 10,000 or 100,000). Although the individuals who have already developed the condition under study should be excluded from the denominator, it is often not possible to determine the individuals with the disease in the general population. Therefore, the denominator population used in calculating incidence rates is the average population—often the mid-year population, in the reference period.

Crude rates

A crude rate is defined as the number of events over a specified period (for example, a year) divided by the total mid-year population (30 June of the reference year for mortality and 31 December for hospital separations).

Age-specific rates

An age-specific rate is defined as the number of events for a specified age group over a specified period (for example, a year) divided by the total population at risk of the event in that age group. Age-specific rates in this report were calculated by dividing, for example, the number of hospitalisations or deaths in each specified age group by the mid-year population in the same age group.

Age-standardised rates

Age-standardisation is a technique used to eliminate the effect of differences in population age structures when comparing rates for different periods of time, and/or different geographic areas and/or different population groups. Definitions are included in the *National health data dictionary* (HDSC 2006).

There are two methods of age-standardisation, direct and indirect. The direct method was used in all chapters except in Chapter 5 where the indirect method was used.

Direct age-standardisation

Direct age-standardisation applies the age-specific rates to a 'standard population' in order to determine the rate that would have occurred in the standard population. This allows direct comparison of different rates applied to the same standard population. The 2001 Australian population was used as the standard population in calculating age-standardised rates, as described below:

The method used for the calculation of age-standardised rates consists of three steps:

Step 1: Calculate the age-specific rate for each age group.

- Step 2: Calculate the expected number of cases in each age group by multiplying the age-specific proportion by the corresponding standard population to get the expected number of cases.
- Step 3: Sum the expected number of cases in each age group, divide by the total of the standard population and multiply by 100,000. This gives the age-standardised rate.

Indirect age-standardisation

The indirect method is recommended for use when calculating rates for small populations where fluctuations in age-specific rates can affect the reliability of rates calculated using the direct method (HDSC 2006).

Standardised mortality or hospitalisation ratios

Comparisons between mortality or hospitalisations rates for specific population groups were made with the other Australian population or another standard population using standardised mortality or hospitalisation ratios, which use indirect standardisation to account for any differences in the age structure between the two populations.

These rates were calculated using the following steps:

1. The 'observed' number (that is, the actual number) of events for the population of interest (that is, the Indigenous population) was derived by age and sex.
2. Calculate age-specific proportions for the standard population of choice.
4. Multiply the observed cases in each age and sex group by the corresponding age-specific proportions in the standard population to get expected numbers in each age and sex group.
5. The total expected number was calculated by summing the age-specific expected numbers for each sex (from Step 4).
7. The standardised mortality or hospitalisation ratio was then calculated by dividing the total observed deaths by the total expected deaths (from Step 5). A ratio of 1.0 indicates that there is no difference between the rate

of death or hospitalisations experienced by the study population and the standard population.

8. The confidence intervals were calculated using the method outlined below.

Significance testing

The observed value of a rate may vary due to chance even where there is no variation in the underlying value of the rate. Therefore, where indicators include a comparison between time periods, geographical locations, socioeconomic groups or Indigenous and non-Indigenous status, a 95% confidence interval has been calculated for administrative data (including data from the AIHW National Hospital Morbidity Database and the AIHW National Mortality Database).

The 95% confidence intervals for this report were calculated using a method for obtaining approximate confidence intervals for a weighted sum of Poisson parameters developed by Dobson et al. (1991). This method calculates approximate confidence intervals for a weighted sum of Poisson parameters.

The confidence intervals are used to provide an approximate indication of the differences between rates. Where the confidence intervals of two rates do not overlap, the corresponding rates are statistically significantly different from each other; that is, there is at least 95% confidence that the change in a rate is greater than that which could be explained by chance.

As with all statistical comparisons, care should be exercised in interpreting the results of the comparison. If two rates are statistically significantly different from each other, this means that the difference is unlikely to have arisen by chance. Judgement should, however, be exercised in deciding whether or not the difference is of any practical significance.

In this report, differences have been reported based on 95% confidence intervals. These confidence intervals are available on request.

For survey data, significance testing was undertaken where possible, using information about sampling variability.

Classifications

Cause of death and hospital diagnosis

Table A1.1: ICD-10-AM codes used to define diagnosis groups for diabetes hospitalisations

Diagnosis	ICD-10-AM
<i>Diabetes</i>	
Type 1 diabetes	E10
Type 2 diabetes	E11
Gestational diabetes	O24.4
Other/Unspecified diabetes	E12–E14
<i>Complications</i>	
CHD	I20–I25
Stroke	I60–I64
PVD	I70–I79
Kidney	
Kidney complications of diabetes	E102, E112, E122, E132, E142
Chronic kidney failure	N18
Eye complications of diabetes	E103, E113, E123, E133, E143
Nervous system complications of diabetes	E104, E114, E124, E134, E144
Oral complications of diabetes	E1063, E1163, E1263, E1363, E1463
Lower limb ulcers	L97

Table A1.2 ICD-10 codes used to define cause of death groups for diabetes mortality

Cause of Death	ICD-10
<i>Diabetes</i>	
Type 1 diabetes	E10
Type 2 diabetes	E11
Other/Unspecified diabetes	E12–E14
<i>Complications</i>	
CHD	I20–I25
Stroke	I60–I64
PVD	I70–I79
Kidney	
Kidney complications of diabetes	E102, E112, E122, E132, E142
Chronic kidney failure	N18
Eye complications of diabetes	E103, E113, E123, E133, E143
Nervous system complications of diabetes	E104, E114, E124, E134, E144
Lower limb ulcers	E105, E115, E125, E135, E145

Defining exercise levels

High exercise level is defined as more than 3,200 mins and 2 hours or more of vigorous exercise, over a two-week period.

Moderate exercise level is defined as 1,600–3,200 mins or more than 3,200 mins but less than 2 hours of vigorous exercise, over a two-week period.

Low exercise level is defined as 100 mins to less than 1,600 mins of exercise over a two-week period.

Sedentary exercise level is defined as less than 100 mins (includes no exercise) over a two-week period.

Defining lipid levels

High blood pressure is defined as systolic blood pressure of 140mmHg or more; or diastolic blood pressure of 90mmHg or more; or receiving medication for high blood pressure.

High total cholesterol is defined as total cholesterol greater than or equal to 5.5mmol/L.

High LDL-cholesterol is defined as LDL greater than or equal to 3.5mmol/L.

Low HDL-cholesterol is defined as HDL less than 1.0mmol/L.

High triglyceride is defined as greater than or equal to 2.0mmol/L.

Methods used in the analyses specific to population groups**Aboriginal and Torres Strait Islander peoples****Hospitalisations**

Analysis of hospitalisations for Aboriginal and Torres Strait Islander peoples was restricted to hospitals in Queensland, Western Australia, South Australia and public hospitals in the Northern Territory only, due to data quality issues related to Indigenous identification. Hospitalisations where Indigenous status was missing or unknown were amalgamated with those for non-Indigenous Australians as 'other' Australians (AIHW 2005c).

Deaths

Analysis of deaths among Aboriginal and Torres Strait Islander peoples was restricted to deaths registered in Queensland, Western Australia, South Australia and the Northern Territory. Death records with a missing/not stated Indigenous status were excluded (ABS 1997).

Care should be exercised when interpreting both hospitalisation and deaths statistics by Indigenous status, as these data may not be representative of other states and territories or for Australia as a whole.

Prevalence

Self-reported diabetes and risk factor prevalence data was sourced from the 2004–05 NATSIHS. This survey presented findings on the number of Aboriginal and Torres Strait Islander people in the community who reported having ever been told by a doctor or nurse that they had diabetes. The type of diabetes a person had was not asked. These data may underestimate the true prevalence of diabetes as those undetected cases of diabetes (that is, where the individual does not know they have diabetes) are not identified by the survey. The survey design similarly affects the self-reported prevalence of heart conditions and kidney disease as well as risk behaviours.

Socioeconomic status**Hospitalisations**

Analysis of diabetes hospitalisations by socioeconomic status are based on the Index of Disadvantage from the Socioeconomic Index for Areas (SEIFA 2001) (ABS 2001), and were grouped into quintiles: the first representing the most disadvantaged areas, with the fifth representing the least disadvantaged areas. Hospitalisations for which no SEIFA is available have not been included in the analysis.

Deaths

Analyses of diabetes deaths by socioeconomic status are based on the Index of Disadvantage from the Socio-economic Index for Areas (SEIFA 2001) (ABS 2001), and were grouped into quintiles: the first representing the most disadvantaged areas, with the fifth representing the least disadvantaged areas. Death records

for which no SEIFA is available have not been included in the analysis.

Due to small numbers of deaths from diabetes each year, data from the years 2002–2004 have been combined (2003 to 2005 for complications), and year of registration of death has been used for all years. Trend data is only available from 2001.

Prevalence

Self-reported diabetes and risk factor prevalence data was sourced from the 2004–05 NHS conducted by the ABS. This survey presented findings on the number of Australians in the most disadvantaged and the least disadvantaged socioeconomic quintiles who reported having ever been told by a doctor or nurse that they had diabetes. These data may underestimate the true prevalence of diabetes in the Australian community, as those undetected cases of diabetes (that is, where the individual does not know they have diabetes) are not identified in the survey.

Geographic region

Hospitalisations

Analysis of diabetes hospitalisations by geographical location was based on the Australian Standard Geographical Classification Remoteness Structure (ASGC), categorised as ‘Major Cities’, ‘Inner Regional’, ‘Outer Regional’, ‘Remote’ and ‘Very Remote’. Hospitalisations for which geographical area was not stated, classed as migratory or offshore, have not been included in the analyses.

Deaths

Analysis of diabetes deaths by geographical location was based on the Australian Standard Geographical Classification Remoteness Structure (ASGC), categorised as ‘Major Cities’, ‘Inner Regional’, ‘Outer Regional’, ‘Remote’ and ‘Very Remote’. Deaths for which region is not stated, migratory or offshore have not been included in the analyses. Due to small numbers of diabetes deaths each year, data for the years 2003–2005 have been combined, and year of registration of death used throughout.

Prevalence

Self-reported diabetes and risk factor prevalence data was sourced from the 2004–05 NHS

conducted by the ABS. This survey presented findings on the number of Australians in non-remote areas who reported having ever been told by a doctor or nurse that they had diabetes. These data may underestimate the true prevalence of diabetes in the Australian community, as those undetected cases of diabetes (that is, where the individual does not know they have diabetes) are not identified in the survey.

Overseas-born population

Hospitalisations

Analyses of diabetes hospitalisations by country of birth are based on the Standard Australian Classification of Countries (SACC) (ABS 1998), and were grouped by seven major regions: Australia, Oceania, North-West Europe, South-East Europe, Africa and the Middle East, Asia and The Americas. Due to small numbers, for some analyses only two groups are used: Australian-born and overseas-born. Hospitalisations for which country of birth is unknown have not been included in the analysis.

Deaths

Analysis of diabetes deaths by country of birth are based on the SACC (ABS 1998), and were grouped by seven major regions: Australia, Oceania, North-West Europe, South-East Europe, Africa and the Middle East, Asia and The Americas. Due to small numbers, for some analyses only two groups are used: Australian-born and overseas-born. Deaths for which country of birth is unknown have not been included in the analysis. Due to small numbers of deaths from diabetes each year, data from the years 2003–2005 have been combined, and year of registration of death has been used for all years.

Prevalence

Self-reported diabetes and risk factor prevalence data was sourced from the 2004–05 NHS conducted by the ABS. This survey presented findings on the number of Australians born Australia, Other Oceania, UK, Other North-West Europe, Southern and Eastern Europe, North Africa and the Middle East, South-East Asia, and All other Countries, who reported having ever been told by a doctor or nurse that they had diabetes. These data may underestimate the

true prevalence of diabetes in the Australian community, as those undetected cases of diabetes (that is, where the individual does not know they have diabetes) are not identified in the survey.

Main data sources

AIHW disease expenditure database is a comprehensive database that allows expenditure estimates to be produced by source of funds (that is, Commonwealth, state or private) for each area of expenditure. Utilisation measures such as bed days, separations, number of medical encounters and services and pharmaceutical scripts can also be estimated (AIHW 2005c). There are some key exclusions in the 2004–05 health expenditure data, compared with that presented in previous reports. High level residential aged care expenditure (which was \$5,807 million in 2004–05) has now been reclassified out of health expenditure to welfare expenditure. Also note that expenditure by disease for non-admitted hospital services, other health practitioner services (excluding optometry) and over-the-counter pharmaceuticals was unable to be allocated in 2004–05. This means that these data are not comparable with data reported in *Costs of Diabetes in Australia, 2000–01* and *Health system expenditure on disease and injury in Australia, 2000–01*.

This report provides direct health expenditure on diabetes under four categories:

Admitted patient hospital services covering the expenditure on services provided to an admitted patient including expenditure on medical services delivered to private admitted patients in hospitals

Prescription pharmaceuticals including prescriptions subsidised under government schemes (e.g. Pharmaceutical Benefits Scheme) and private prescriptions

Out of hospital medical services comprising medical services funded under the Medical Benefits Scheme, such as primary health visits, pathology and specialist services. Practice Incentive Payments are also included in this category

Research including health socioeconomic research funded by tertiary institutions, private non-profit organisations and government. Commercial research funded by private business is not included.

AIHW National Hospital Morbidity Database contains demographic, diagnostic, procedural and duration-of-stay information on episodes of care for patients admitted to hospital. The data collection is maintained by the AIHW using data supplied by state and territory health authorities. The database is episode-based and it is not possible to count patients individually. In this report, disease data relate to the principal diagnosis reported for hospitalisations unless otherwise specified. Data presented in this report are for the period July 2004 to June 2005, except in the case of trends. It is important to note that new coding standards introduced in 2000 changed the meaning of diabetes complication codes in hospital data from one of causality to the complication appearing with the diabetes. This change may have had an effect on trends (AIHW: Phillips 2003).

AIHW National Mortality Database contains information on the cause of death supplied by the medical practitioner certifying the death or by a coroner. Registration of deaths is the responsibility of the state and territory registrars of Births, Deaths and Marriages. Registrars provide the information to the ABS for coding of cause of death and then provided to AIHW. In this report, unless otherwise specified, death data relate only to the underlying cause of death. Data presented in this report are for the period January to December 2005, as year of death/year of registration.

Australia and New Zealand Dialysis and Transplant Registry (ANZDATA) collects information to monitor dialysis and transplant treatments from all renal units in Australia and New Zealand on all patients receiving kidney replacement therapy where the intention to treat is long term. Cases of acute kidney failure are excluded. The Registry is coordinated within the Queen Elizabeth Hospital in Adelaide.

The Australian Diabetes, Obesity and Lifestyle Study (AusDiab) (1999–2000) conducted by the International Diabetes Institute, was designed to provide national estimates of the prevalence of diagnosed and undiagnosed diabetes. It also provided national measurements of blood pressure, blood lipids, blood glucose, body fat, height and weight, and waist and hip circumference, as well as self-

reported information on cardiovascular disease, anti-hypertensive and lipid lowering medication use, diet, smoking, alcohol consumption, physical activity, and general health and wellbeing. The study collected information in urban and non-urban areas in all states and the Northern Territory for more than 11,000 people aged 25 years and over who underwent a physical examination. This represents a response rate of 37% (Dunstan et al. 2002b).

Analysis of this data by the AIHW included only those people for whom all relevant data were available.

In this report, measured prevalence data on high blood pressure, high blood cholesterol and overweight was obtained from this source.

Australian National Diabetes Information Audit and Benchmarking (ANDIAB), a collection by the National Association of Diabetes Centres (NADC) based on an audit of patients attending a selection of specialist diabetes centres and specialist endocrinologists in private practice. In 2004, ANDIAB reported on 3,108 persons with diabetes requiring specialist clinical management, in particular those who have had poor control of their diabetes. The ANDIAB surveys have been conducted over one month periods since 1998. A limitation of the sample is that it does not accurately reflect the conditions prevailing in the general diabetes population, as people attending diabetes centres are likely to be more severe cases.

Bettering the Evaluation and Care of Health (BEACH) Survey of General Practice—an ongoing national survey looking at aspects of general practice in Australia, is conducted by the General Practice Statistics and Classification Unit (an AIHW collaborating unit within the Family Medicine Research Centre, University of Sydney). BEACH began in April 1998 and involves a random sample of approximately 1,000 GPs per year, each of whom records details regarding 100 consecutive patient encounters.

Drug Utilisation Sub-Committee Database (DUSC)—held at the DoHA, monitors the community (that is, non-public hospital) use of prescription medicines in Australia. This database combines information on prescriptions subsidised by the PBS and the RPBS and an

estimate from the Pharmacy Guild Survey of those prescriptions that are not subsidised (that is, private prescriptions and PBS prescriptions priced under the general patient co-payment). The Pharmacy Guild Survey collects dispensing information each month from a random sample of about 150 pharmacies throughout Australia. Information on drugs prescribed in public hospitals and on highly specialised drugs available to outpatients through public hospital pharmacies under section 100 of the National Health Act 1953 is not included in the DUSC database.

National Aboriginal and Torres Strait Islander Health Survey 2004–05, collected information relating to Indigenous health—including health status, health action taken, and lifestyle factors—that may influence health. Information was collected from 10,439 Indigenous persons living in both remote and non-remote areas of Australia. 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 the chapter on population groups (Aboriginal and Torres Strait Islander peoples section).

National Diabetes Register (NDR) is a database that 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, administered by Diabetes Australia, and the APEG state-based registers. APEG registers collect information about children with diabetes aged less than 15 years.

National Drug Strategy Household Survey (2004) includes data on 29,445 Australians aged 12 years and older. This was the eighth survey in a series that began in 1985. The survey is conducted by the AIHW. Respondents were asked about their use of licit and illicit drugs, their attitudes towards drugs and drug taking and their perception of drugs and related behaviours. In this report, self-reported prevalence of tobacco smoking was obtained from this source.

National Health Survey 2004–05, a series of surveys conducted by the ABS, were designed to obtain national information on the health status of Australians, their use of health services and facilities, and health-related aspects of their lifestyle. The 2004–05 survey included 25,906 persons and the 2001 survey collected information from a sample of 26,900 people from February to November 2001. The 1995 survey was considerably larger and collected information from a sample of 57,600 people over a 12-month period from January 1995 to January 1996.

Northwest Adelaide Health Study (NWAHS) conducted during 2000–2003 has been designed to segment a large representative population sample according to stage of disease in order to identify each segment's characteristics and determine how they change over time.

Appendix 2: Diabetes indicator data reference table

Indicator	Chapter	Reference
1. Prevalence of Type 2 modifiable diabetes risk factors over time.		
1.1 Prevalence of overweight and obesity over time	3. Risk factors for diabetes and its complications—Overweight.	How many Australians are overweight? Body Mass index—Prevalence/Trend: 1999–2000 AusDiab (Table 3.2); 1995, 2001, 2004–05 NHS (Fig 3.5). Waist circumference: 1999–2000 AusDiab (Fig 3.6).
1.1.1 Prevalence of overweight, but not obese		
1.1.2 Prevalence of overweight		
1.1.3 Prevalence of obesity.		
1.2 Proportion of people not following guidelines for physical activity over time.	3. Risk factors for diabetes and its complications—Physical inactivity	How many Australians are physically inactive? Prevalence/Trends: 1995, 2004–05 NHS (Fig 3.3).
1.3 Proportion of people not following Australian dietary recommendations over time.	3. Risk factors for diabetes and its complications—Unhealthy diet	Dietary risk factors for diabetes and its complications— Dietary fat intake (whole milk): 2004–05 NHS (Fig 3.4). Dietary fibre intake (fruit and vegetables): 2004–05 NHS (Fig 3.4).
7. The proportion of people with diabetes mellitus (Type 1, Type 2 and gestational) who have had an annual cycle of care).	6. Health service use	Pathology tests at diabetes clinics: 2004, 2006 ANDIAB (HbA1c; lipids-total cholesterol, HDL, LDL, triglycerides; eye examination; microalbumin).
9. The diabetes-related death rate (includes Type 1, Type 2 and gestational) among:	8. Mortality	Diabetes-related deaths: 1997 to 2005 NMD (Fig 8.4, trend).
The general population		
Aboriginal and Torres Strait Islander peoples	5. Population Groups	Aboriginal and Torres Strait Islander peoples—Diabetes mortality: 2003–2005 NMD (Fig 5.4).
People of different socioeconomic status		Socioeconomic disadvantage—Diabetes mortality: 2003–2005 NMD (Fig 5.7), 2001 to 2005 NMD (Fig 5.8, trend).
People from different geographic areas		Geographical location—Diabetes mortality: 2003–2005 NMD (Table 5.7, 5.8); 2000 to 2005 NMD (Fig 5.12, trend).
People of culturally and linguistically diverse backgrounds		Overseas-born—Diabetes mortality: 2003–2005 NMD (Fig 5.17, Table 5.11), 2000 to 2005 NMD (Fig 5.18, trend).

(continued)

Indicator	Chapter	Reference
11.3 Prevalence of cardiovascular disease among people with diabetes over time.	4: Complications of diabetes— Cardiovascular disease	How many Australians with diabetes also have cardiovascular disease? Coronary heart disease: 2004–05 NHS; 1999–2000 AusDiab Stroke: 2003 SDAC; 1999–2000 AusDiab Peripheral vascular disease: 2004 ANDIAB.
	5: Population groups	Aboriginal and Torres Strait Islander peoples—Complications, self-reported prevalence: 2004–05 NATSIHS (heart & circulatory problems or disease).
11.4 Incidence of cardiovascular disease among people with diabetes over time.		
11.5 Prevalence of visual loss among people with diabetes over time.	4: Complications of diabetes—Eye disease	How many Australians with diabetes also have eye disease? Diabetic retinopathy: 1999–2000 AusDiab; 2000, 2001, 2002 NDDP; 2004 ANDIAB. Cataracts and Glaucoma: 2004–05 NHS. Blindness: 2004–05 NHS; 2006 ANDIAB.
11.6 Incidence of visual loss among people with diabetes over time.		
11.7 Prevalence of end-stage renal disease among people with diabetes over time.		
11.8 Incidence of end-stage renal disease among people with diabetes over time.	4: Complications of diabetes—Kidney disease	How many Australians with diabetes also have kidney disease? ESRD: 2004 ANZDATA.
	5: Population groups	Aboriginal and Torres Strait Islander peoples—Complications, self-reported prevalence: 2004–05 NATSIHS (kidney disease).
11.9 Prevalence of non-traumatic amputation among people with diabetes over time.		
11.10 Incidence of non-traumatic amputation among people with diabetes over time.	4: Complications of diabetes—Foot complications	How many Australians with diabetes also have foot complications? Lower limb amputation: 2004 ANDIAB.

Glossary

additional diagnosis: A diagnosis established after study to be a contributing factor to or impacting on the patient's episode of care in hospital (or attendance at the health-care facility). Compare with *principal diagnosis*.

albuminuria: More than normal amounts of a protein called albumin in the urine.

angina: Temporary chest pain or discomfort when the heart's own blood supply is inadequate to meet extra needs, as in exercise.

associated cause(s) of death: Any conditions, diseases and injuries—other than the underlying cause of death—considered to contribute to the death. Compare with *underlying cause of death*. See also *cause of death*.

atherosclerosis: A process in which fatty and fibre-like deposits build up on the inner walls of the arteries, often forming plaques that can then cause blockages. It is the main underlying condition in heart attack, angina, stroke and peripheral vascular disease.

Australian Standard Geographical Classification (ASGC): the ASGC uses the Accessibility/Remoteness Index of Australia (ARIA), which is based on how distant a place is by road from urban centres of different sizes, and therefore provides a relative indication of how difficult it might be for residents to access certain services such as health care and education. Five categories are used in this publication: 'Major cities of Australia', 'Inner regional Australia', 'Outer regional Australia', 'Remote Australia' and 'Very remote Australia'.

blood cholesterol: Fatty substance produced by the liver and carried by the blood to supply the rest of the body. Its natural function is to supply material for cell walls and for steroid hormones, but if levels in the blood are too high it can lead to atherosclerosis and heart disease.

blood pressure: It is the force exerted by blood against the walls of the arteries. The force is created by the pumping action of the heart, at contraction (systolic) and at relaxation (diastolic).

body mass index (BMI): The most commonly used method of assessing whether a person is healthy weight, underweight, overweight or obese. It is calculated by dividing the person's weight (in kilograms) by their height (in metres) squared, that is, kg/m^2 . For both men and women, underweight is a BMI of less than 18.5, healthy weight is from 18.5 to less than 25, overweight is 25 or more (includes obese), and obese is 30 or more.

cardiovascular disease: Any disease of the heart or blood vessels, including heart attack, angina, stroke and peripheral vascular disease.

cataract: A cloudy or opaque area in the lens of the eye.

cause of death: The disease or factor contributing to the death. When used technically, this term is usually applied to the 'underlying cause' listed on the medical certificate issued at death according to rules and conventions of the 10th revision of the International classification of diseases. The underlying cause of death is defined as the main disease that initiated the train of events leading directly to death, distinct from associated causes of death which are conditions, diseases or injuries that contributed to the death, directly or indirectly. See also *underlying cause of death* and *associated cause(s) of death*.

cerebrovascular: Of or relating to blood vessels and the supply of blood to the brain. See also *stroke*.

chronic disease: A disease persisting for a long period (at least 3 to 6 months).

complications: Secondary conditions and illness resulting directly or indirectly from another disease or condition.

coronary heart disease (CHD): Heart attack and angina (chest pain). Also known as ischaemic heart disease.

creatinine: A chemical found in the blood and passed in the urine. A test of the amount of creatinine in blood or in blood and urine indicates functioning of the kidneys.

dental caries: Tooth decay.

diabetes (diabetes mellitus): A chronic condition in which the body cannot properly use its main energy source, the sugar glucose. This is due to either the pancreas not producing enough of the hormone insulin or the body being unable to effectively use the insulin produced. Insulin helps glucose enter the body's cells from the bloodstream and then be processed by them. Diabetes is marked by an abnormal build-up of glucose in the blood and it can have serious short-term and long-term effects on many of the body's systems, especially the blood vessels and nerves. For the different types of diabetes, see *Type 1 diabetes*, *Type 2 diabetes*, *gestational diabetes mellitus (GDM)* and *other types of diabetes*.

dialysis: A method of removing excess waste substances from the blood when the kidneys are unable to work effectively.

disability: When used technically, disability refers to the presence of one or more of a defined set of limitations, restrictions or impairments.

disability-adjusted life year (DALY): A summary statistic to describe years of healthy life lost through disability and/or premature mortality.

encounter (general practitioner): Any professional interchange between a patient and a general practitioner.

endocrinologist: A doctor who treats people who have problems with their endocrine glands. Diabetes is an endocrine disorder.

gestational diabetes mellitus (GDM): A form of diabetes that is defined as glucose intolerance in pregnant women not previously diagnosed with diabetes. GDM is a temporary form of diabetes that usually disappears after the baby is born. Women who have had GDM are at increased risk of developing Type 2 diabetes and GDM increases the risk of perinatal morbidity and mortality. Compare with *Type 1 diabetes*, *Type 2 diabetes* and *other types of diabetes*.

glaucoma: An eye disease associated with increased pressure within the eye.

glomeruli: The primary filtration units of the kidney.

glucose: The main sugar that the body uses for energy. Glucose is a simple sugar that comes from the breakdown of carbohydrates in the diet as well as from the breakdown of glycogen (the storage form of glucose) in the liver. The body requires the hormone insulin to use glucose properly.

HDL cholesterol: Cholesterol packaged in high-density lipoprotein particles. The HDLs are good acceptors of membrane-free cholesterol and transport it back from tissues to the liver.

heart attack: Life threatening emergency that occurs when a vessel supplying blood to the heart muscle is suddenly blocked completely. The event may lead to the death of a part of the heart muscle. The medical term commonly used for a heart attack is myocardial infarction.

heart failure: When the heart cannot pump strongly enough to keep the blood circulating around the body at an adequate rate.

hospital separation: The formal process by which a hospital records the completion of treatment and/or care for an admitted patient. The episode of care may be completed by an admitted patient's discharge, death, transfer to another hospital, or change in the type of care.

hyperglycaemia: High blood glucose levels.

hypertensive: High blood pressure.

hypertriglyceridemia: High levels of triglycerides; a marker of lipid abnormalities.

hypoglycaemia: A low blood glucose level.

impaired glucose tolerance: Slower metabolism of glucose due to insulin deficiency or resistance. Classified as fasting plasma glucose less than 7.0 mmol/L and 2-hour plasma glucose 7.8–11.0 mmol/L after oral glucose tolerance testing (OGTT).

incidence: The number of new cases (of a disease, condition or event) occurring during a given period. Compare with *prevalence*.

insulin: A hormone produced in the pancreas that helps glucose to enter body cells for energy metabolism.

insulin resistance: A condition in which insulin works inefficiently and the body compensates by producing an excess supply.

insulin-treated diabetes: All types of diabetes treated with insulin, includes Type 1, Type 2, gestational and other types of diabetes. It is a term used to describe those on the NDR and is not a standard classification used in clinical practice.

International Classification of Diseases (ICD): The World Health Organization's internationally accepted statistical classification of disease and injury.

ischaemic heart disease: See *coronary heart disease*.

LDL cholesterol: Cholesterol packaged in low-density lipoprotein particles. LDLs carry cholesterol to the various tissues for use.

metabolic syndrome: Also called Syndrome X, is a symptom cluster associated with a high risk of coronary heart disease and stroke. Central to metabolic syndrome is insulin resistance. Other common signs include: impaired glucose tolerance, excessively high blood insulin levels, high blood pressure and abnormal blood cholesterol levels (specifically high levels of *triglycerides* and low levels of *HDL cholesterol*).

morbidity: Refers to ill health in an individual and to levels of ill health in a population or group.

myocardial infarction: See *heart attack*.

nephropathy: A disease of the kidneys.

neuropathy: A disease of the system that results in damage to nerves.

obesity: Increased adiposity or fat mass, associated with several chronic diseases and their risk factors. Technically defined as body mass index ≥ 30 , or waist circumference ≥ 102 cm for males or ≥ 88 cm for females.

ophthalmologist: A doctor who sees and treats people with eye problems or diseases.

other types of diabetes: Other types of diabetes include certain conditions or syndromes, such as:

- genetic defects of beta-cell function (formerly referred to as maturity-onset diabetes of the young (MODY))
- genetic defects in insulin action
- diseases of the exocrine pancreas (including cystic fibrosis and cancer of the pancreas)
- endocrinopathies (for example, acromegaly and Cushing's Syndrome)
- drug- or chemical-induced diabetes (for example, steroid-induced diabetes)
- infections (for example, congenital rubella)
- uncommon but specific forms of immune-mediated diabetes mellitus
- other genetic syndromes sometimes associated with diabetes (WHO 1999).

These types of diabetes are relatively uncommon. Only persons being treated with insulin for these types of diabetes are included on the National Diabetes Register. Compare with *Type 1 diabetes*, *Type 2 diabetes* and *gestational diabetes mellitus (GDM)*.

pancreas: An organ that is located behind the lower part of the stomach and produces digestive substances and hormones, including insulin.

periodontal: Refers to the supporting structures of the teeth; including the gums, connective tissue and bone.

peripheral vascular disease: Pain in the legs due to an inadequate blood supply to them.

prevalence: The number or proportion (of cases, instances, and so on) present in a population at a given time. Compare with incidence.

principal diagnosis: The diagnosis established after study to be chiefly responsible for occasioning the patient's episode of care in hospital (or attendance at the health-care facility).

retinopathy: A disease of the small blood vessels in the retina of the eye.



risk factor: Any factor that represents a greater risk of a health disorder or other unwanted condition or event. Some risk factors are regarded as causes of disease, others are not necessarily so. Along with their opposites, protective factors, risk factors are known as determinants.

saturated fats: Fats that are solid and are found in the diet mostly from animal sources. In excess, they tend to raise blood cholesterol.

separation: See hospital separation.

Socioeconomic Index for Areas (SEIFA):

An area-based measure of socioeconomic disadvantage derived from the social and economic characteristics of a statistical local area (SLA) including income, education and employment. In this report, quintiles of socioeconomic disadvantage are presented: the first quintile represents the most disadvantaged areas; the fifth quintile represents the least disadvantaged areas.

stroke: When an artery supplying blood to the brain suddenly becomes blocked or bleeds. Often causes paralysis of parts of the body normally controlled by that area of the brain, or speech problems and other symptoms.

triglycerides: The more common form in which fats exist in the body in which three lipid (fat) molecules are packaged with proteins and cholesterol and are found in both the blood plasma and adipose (fatty) tissue.

Type 1 diabetes: A form of diabetes marked by a complete lack of insulin and needing insulin replacement for survival. This form of diabetes mostly arises in childhood or in young adults, though it can occur at any age. Adults may develop a slowly progressive form of Type 1 diabetes called Latent Autoimmune Diabetes in Adults (LADA), which can be treated initially without insulin injections. See also *Type 2 diabetes*, *gestational diabetes mellitus (GDM)* and *other types of diabetes*.

Type 2 diabetes: The most common form of diabetes, which is marked by reduced or less effective insulin. Some cases may be managed with changes to diet along with increased exercise and weight loss. Many require drugs as well—namely oral glucose-lowering drugs that work on the pancreas. Many others require insulin in addition to other treatments. See also *Type 1 diabetes*, *gestational diabetes mellitus (GDM)* and *other types of diabetes*.

underlying cause of death: The condition, disease or injury initiating the sequence of events leading directly to death; that is, the primary, chief, main or principal cause. Compare with *associated cause(s) of death*. See also *cause of death*.

References

- ABS (Australian Bureau of Statistics) 1997. Occasional paper: Mortality of Aboriginal and Torres Strait Islander Australians. ABS cat. no. 3315.0. Canberra: ABS.
- ABS 1998. Standard Australian Classification of Countries (SACC) (Revision 2.03). ABS cat. no. 1269.0. Canberra: ABS.
- ABS 2001. Information paper: census of population and housing—socio-economic indexes for areas, Australia. ABS cat. no. 2039.0. Canberra: ABS.
- ABS 2006a. Diabetes in Australia: a snapshot, 2004–05. Viewed 16 April 2007, <<http://www.abs.gov.au/Ausstats/abs@.nsf/7d12b0f6763c78caca257061001cc588/28dba2bc450f59e0ca256e850075e8c2!OpenDocument>>.
- ABS 2006b. National Aboriginal and Torres Strait Islander Health Survey 2004–05. ABS cat. no. 4715.0 Canberra: ABS.
- ABS 2006c. National Health Survey: summary of results 2004–05. ABS cat. no. 4364.0 Canberra: ABS.
- ABS & AIHW (Australian Institute of Health and Welfare) 2005. The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples, 2005. ABS cat. no. 4704.0. AIHW cat. no. IHW 14. Canberra: ABS & AIHW.
- ACDS (Australian Centre for Diabetes Strategies) 2004. National evidence based guidelines for the management of Type 2 diabetes mellitus: prevention and detection of macrovascular disease. Canberra: NHMRC.
- ADA (American Diabetes Association) 2002. American Diabetes Association position statement: evidence-based nutrition principles and recommendations for the treatment and prevention of diabetes and related complications. *Journal of the American Diabetic Association* 102(1):109–118.
- ADA 2004. Nutrition principles and recommendations in diabetes. *Diabetes Care* 27(1 (Supplement)): S36–46.
- ADA 2007a. Foot complications. Viewed 4 May 2007, <<http://www.diabetes.org/type-2-diabetes/foot-complications.jsp>>.
- ADA 2007b. Type 1 diabetes complications. Viewed 3 May 2007, <<http://www.diabetes.org/type-1-diabetes/complications.jsp>>.
- ADA 2007c. Type 2 diabetes complications. Viewed 3 May 2007, <<http://www.diabetes.org/type-2-diabetes/complications.jsp>>.
- ADIPS (Australasian diabetes in pregnancy society) 2007. Viewed 13/02/08, <http://adips.org/index.php?option=com_content&task=view&id=35&Itemid=38#06>
- AIHW 2002. Australia's health 2002. Cat. no. AUS 25 Canberra: AIHW.
- AIHW 2003a. Indicators of health risk factors: the AIHW view. Cat. no. PHE 47. Canberra: AIHW.
- AIHW 2003b. Rural, regional and remote health: a study on mortality. Cat. no. PHE 45. Canberra: AIHW.
- AIHW 2005a. Chronic kidney disease in Australia, 2005. Cat. no. PHE 68. Canberra: AIHW.
- AIHW 2005b. Health system expenditure on disease and injury in Australia, 2000–01. Second edition. Cat. no. HWE 28 Canberra: AIHW (Health and Welfare Expenditure Series no. 21).
- AIHW 2005c. Improving the quality of Indigenous identification in hospital statistics. Health Services Series no. 25. Cat. no. HSE 101. Canberra: AIHW.
- AIHW 2005d. Mortality over the twentieth century in Australia: trends and patterns in major causes of deaths. Mortality surveillance series no. 4. Cat. no. PHE73. Canberra: AIHW.
- AIHW 2005e. 2004 National Drug Strategy Household Survey: detailed findings. Drug statistics series no. 16. Cat. no. PHE 66. Canberra: AIHW.
- AIHW 2006a. Australia's health 2006. Cat. no. AUS 73. Canberra: AIHW.
- AIHW 2006b. Towards national indicators for food and nutrition: an AIHW view. Reporting against the dietary guidelines for Australian adults. Cat. no. PHE 70. Canberra: AIHW.
- AIHW 2007. National indicators for monitoring diabetes: report of the Diabetes Indicators Review Subcommittee of the National Diabetes Data Working Group. Canberra: AIHW.
- AIHW: Begg S, Vos T, Barker B, Stevenson C, Stanley L & Lopez A 2007. The burden of disease and injury in Australia, 2003. Cat. no. PHE 82. Canberra: AIHW.
- AIHW: Catanzariti L, Faulks K & Waters A-M 2007. National Diabetes Register: statistical profile report 2005. Diabetes series no. 7. Cat. no. CVD 39. Canberra: AIHW.
- AIHW: Dixon T 2005. Costs of diabetes in Australia, 2000–01. Bulletin No. 26. Cat. no. AUS 59. Canberra: AIHW.
- AIHW: Dixon T & Webbie K 2005. Diabetes-related deaths 2001–2003. AIHW Bulletin No. 32. Cat. no. AUS 69. Canberra: AIHW.

- AIHW: Mathur S 2002. Epidemic of coronary heart disease and its treatment in Australia. Cardiovascular disease series no. 20. Cat. no. CVD 21. Canberra: AIHW.
- AIHW: Mathur S, Gajanyake I & Hodgson G 2000. Diabetes as a cause of death, Australia, 1997 and 1998. Diabetes series no. 1. Cat. no. CVD 12. Canberra: AIHW.
- AIHW: Phillips G 2003. Impact of ICD coding standard changes for diabetes hospital morbidity data. Cat. no. CVD 26. Canberra: AIHW.
- AIHW: Thow AM & Waters A-M 2005. Diabetes in culturally and linguistically diverse Australians: identification of communities at high risk. Cat. no. CVD 30. Canberra: AIHW.
- Ali YS & Maron DJ 2006. Screening for coronary disease in diabetes: When and how. *Clinical Diabetes* 24(4): 169–173.
- Anderson RJ, Freedland KE, Clouse RE & Lustman PJ 2001. The prevalence of comorbid depression in adults with diabetes: a meta-analysis. *Diabetes Care* 24:1069–75.
- Andrews G & Slade T 2001. Interpreting scores on the Kessler Psychological Distress Scale (K10). *Australian & New Zealand Journal of Public Health* 25(6):494–97.
- Argoff CE, Cole BE, Fishbain DA & Irving GA 2006. Diabetic peripheral neuropathic pain: clinical and quality-of-life issues. *Mayo Clinic Proceedings* 81(4 Supplement):S3–S11.
- Arroyo C, Hu FB, Ryan LM, Kawachi I, GA Colditz, Speizer FE et al. 2004. Depressive symptoms and risk of Type 2 diabetes in women. *Diabetes Care* 27(1):129–33.
- Atkinson MA & Eisenbarth GS 2001. Type 1 diabetes: new perspectives on disease pathogenesis and treatment. *The Lancet* 358:221–9.
- Aylward GW 2005. Progressive changes in diabetics and their management. *Eye* 19(10): 1115–1118.
- Barbour LA and Friedman JE 2003. Management of diabetes in pregnancy. In diabetes and carbohydrate metabolism, Goldfine IR and Rushakoff RJ (Eds). <<http://www.endotext.org/diabetes/>> Accessed on Thursday 4th October 2007.
- Barker DJP 1999. The fetal origins of Type 2 diabetes mellitus. *Annals of Internal Medicine* 130(4):322–4.
- Barr ELM, Magliano DJ, Zimmet P, Polkinghorne KR, Atkins RC, Dunstan DW et al. 2006. The Australian Diabetes, Obesity and Lifestyle Study (AusDiab) 2005. Tracking the accelerating Epidemic: it causes and outcomes. Melbourne: International Diabetes Institute.
- Bate KL & Jerums G 2003. Preventing complications of diabetes. *Medical Journal of Australia* 179:498–503.
- Bennett PH 1999. Type 2 Diabetes among the Pima Indians of Arizona: an epidemic attributable to environmental change? *Nutrition Reviews* 57(5): S51–S4.
- Boulton AJM, Vinik AI, Arezzo JC, Bril V, Feldman EL, Freeman R et al. 2005. Diabetic neuropathies: a statement by the American Diabetes Association. *Diabetes Care* 28(4): 956–962.
- Britt H, Knox S & Miller GC 2003. Changes in pathology ordering by GPs in Australia, 1998–2001. *General Practice Series No. 13. AIHW Cat. No. GEP 13.* Canberra: Australian Institute of Health and Welfare.
- Britt H, Miller GC, Charles J, Pan Y, Valenti L, Henderson J, Bayram C, O'Halloran J & Knox S 2007. General practice activity in Australia 2005–06. *General practice series no. 19. AIHW cat. no. GEP 19.* Canberra: AIHW.
- Britt H, Miller G, Knox S, Charles J, Valenti L, Pan Y et al. 2004. General practice activity in Australia 2003–04. *General practice series no. 16. Cat. no. GEP 16.* Canberra: AIHW.
- Brown JS, Wessells H, Chancellor MB, Howards SS, Stamm WE, Stapleton AE et al. 2005a. Urologic complications of diabetes. *Diabetes Care* 28(1):177–85.
- Brown LC, Majumdar SR, Newman SC & Johnson JA 2005b. History of depression increases risk of Type 2 diabetes in younger adults. *Diabetes Care* 28(5):1063–67.
- Bruce DG, Davis WA, Starkstein SE & Davis TME 2005. A prospective study of depression and mortality in patients with type 2 diabetes: the Fremantle Diabetes Study. *Diabetologia* 48:2532–39.
- Burke M, Chittleborough C, Phillips P, Taylor A, Cook G & Team NWAHS 2007. Health service use and diabetes risk factor concentration. Viewed 7 May 2007, <<http://www.health.sa.gov.au/pros/portals/0/pres-health-serv-diabetes04.pdf>>.
- Buse JB, Ginsberg HN, Bakris GL, Clark NG, Costa F, Eckel R, et al. 2007. Primary prevention of cardiovascular diseases in people with diabetes mellitus: a scientific statement from the American Heart Association and the American Diabetes Association. *Diabetes Care* 30(1): 162–172.
- Cameron FJ, Clarke C, Hesketh K, White EL, Boyce DF & Dalton VL et al. 2002. Regional and urban Victorian diabetic youth: clinical and quality-of-life outcomes. *Journal of Paediatrics and Child Health* 38:593–6.
- Campbell LV, Graham AR, Kidd RM, Molloy HF, O'Rourke SR & Colagiuri S 2000. The lower limb in people with diabetes. Position statement of the Australian Diabetes Society. *Medical Journal of Australia* 173:369–371.

- Campus G, Salem A, Uzzau S, Baldoni E, Tonolo G 2005. Diabetes and periodontal disease: a case control study. *Journal of Periodontology* 76(3):418–25.
- Carlsson S, Midthjell K & Grill V 2004. Smoking is associated with an increased risk of type 2 diabetes but a decreased risk of autoimmune diabetes in adults: an 11-year follow-up of incidence of diabetes in the Nord-Trøndelag study. *Diabetologia* 47: 1953–6.
- Carnethon MR, Kinder LS, Fair JM, Stafford RS & Fortmann SP 2003. Symptoms of depression as a risk factor for incident diabetes: findings from the National Health and Nutrition Examination Epidemiological follow-up study, 1971–1992. *American Journal of Epidemiology* 158(5): 416–423.
- Carter S, Bonney M, Flack J, Burns J, Powell Davies PG & Harris MF 2000. National Divisions Diabetes Program Data Collation Project. Volume 5: Divisions of General Practice—Diabetes profiles. Quality of care and health outcomes—collated CARDIAB data. Sydney: Centre for General Practice Integration Studies, School of Community Medicine, UNSW.
- Castaneda C, Layne JE, Munoz-Orians L, Gordon PL, Walsmith J, Foldvari M, et al. 2002. A randomized controlled trial of resistance exercise training to improve glycemic control in older adults with Type 2 diabetes. *Diabetes Care* 25(12): 2335–41.
- Centers for Disease Control and Prevention 2005. National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2005. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.
- Chadban SJ, Briganti EM, Kerr PG, Dunstan DW, Welborn TA, Zimmet PZ and Atkins RC. 2003. Prevalence of Kidney Damage in Australian Adults: The AusDiab Kidney Study. *Journal of the American Society of Nephrology* 14:S131–S138.
- Chan JM, Stampfer MJ, Rimm EB, Willet WC & Colditz GA 1994. Obesity, fat distribution, and weight gain as risk factors for clinical diabetes in men. *Diabetes Care* 17:961–9.
- Chu NV & Edelman SV 2001. Diabetes and erectile dysfunction. *Clinical Diabetes* 19:45–7.
- Clarke PM, Simon J, Cull CA & Holman RR 2006. Assessing the impact of visual acuity on quality of life in individuals with Type 2 diabetes using the short form-36. *Diabetes Care* 29(7):1506–11.
- Cohen O, Norymberg K, Neumann E & Dekel H 1998. Complication-free duration and the risk of development of retinopathy in elderly diabetic patients. *Archives of International Medicine* 158:641–644.
- Colagiuri S, Borch-Johnsen K, Glumer C & Vistisen D 2005. There really is an epidemic of type 2 diabetes. *Diabetologia* 48(8):1459–63.
- Colagiuri S, Colagiuri R & Ward J 1998. National Diabetes Strategy and Implementation Plan. Canberra: Diabetes Australia.
- Colagiuri S, Colagiuri R, Conway B, Grainger D & Davey P 2003. Diabco\$t Australia: assessing the burden of Type 2 diabetes in Australia. Canberra: Diabetes Australia.
- Colditz GA, Willet WC, Rotnitzky A & Manson JE 1995. Weight gain as a risk factor for clinical diabetes mellitus in females. *Annals of Internal Medicine* 122:481–6.
- Cole TJ, Bellizzi MC, Flegal KM & Dietz WH 2000. Establishing a standard definition for child overweight and obesity worldwide: international survey. *British Medical Journal* 320(7244):1240–1243.
- Coory M 2003. Can a mortality excess in remote areas of Australia be explained by Indigenous status? A case study using neonatal mortality in Queensland. *Australian and New Zealand Journal of Public Health* 27(4):425–7.
- Craig ME, Femia G, Broyda V, Lloyd M & Howard NJ 2007. Type 2 diabetes in Indigenous and non-Indigenous children and adolescents in New South Wales. *Diabetes Medicine* 186:497–99.
- Daneman D 2006. Type 1 diabetes. *The Lancet* 367:847–58.
- Daniel M, Rowley KG, McDermott R, Mylvaganam A & O’Dea K 1999. Diabetes incidence in an Australian Aboriginal population: an 8-year follow-up study. *Diabetes Care* 22(12):1993–8.
- DCCT Research Group 1993. The Effect of Intensive Treatment of Diabetes on the Development and Progression of Long-Term Complications in Insulin-Dependent Diabetes Mellitus. *New England Journal of Medicine* 329(14):977–986.
- DECODA Study Group 2003b. Age- and sex-specific prevalence of diabetes and impaired glucose regulation in 11 Asian cohorts. *Diabetes Care* 26(6):1770–80.
- DECODE Study Group 2003a. Age- and sex-specific prevalences of diabetes and impaired glucose regulation in 13 European cohorts. *Diabetes Care* 26(1):61–9.
- Devendra D, Liu E & Eisenbarth GS 2004. Type 1 diabetes: recent developments. *British Medical Journal* 328(7442):750–4.
- DHAC (Commonwealth Department of Health and Aged Care) 1999. National physical activity guidelines for Australians. Canberra: DHAC.
- DHAC & AIHW 1999. National Health Priority Areas Report: diabetes mellitus 1998. AIHW Cat. no. PHW 10. Canberra: Health and AIHW.

- Diabetes Australia 2003. Impaired fasting glucose (glycaemia) and impaired glucose tolerance. Viewed 16 April 2007, <<http://www.dhhs.tas.gov.au/healthyliving/diabetes/documents/impairedglucosetolerance.pdf>>.
- Diabetes Australia 2006a. Alcohol and diabetes. Canberra: Diabetes Australia (National Publications Divisions).
- Diabetes Australia 2006b. Diabetes Facts. Viewed 16 April 2007, <http://www.diabetesaustralia.com.au/_lib/doc_pdf/Diabetesfactsheet.pdf>.
- Diabetes Australia 2007a. Annual Report 2005–06. Canberra: Diabetes Australia.
- Diabetes Australia 2007b. Diabetes management in general practice 2007/8, 13th edition. Canberra: Diabetes Australia.
- Diabetes Australia 2008. National Diabetes Services Scheme (NDSS). Viewed 30 January 2008, <http://www.diabetesaustralia.com.au/ndss/doc_pdf/NDSS-Fact-Sheet.pdf>
- Dobson AJ, Kuulasmaa K, Eberle E & Scherer J 1991. Confidence intervals for weighted sums of Poisson parameters. *Statistics in Medicine* 10:457–62.
- DoHA (Australian Government Department of Health and Ageing) 2004a. Active kids are healthy kids. Australia's physical activity recommendations for 12–18 year olds. Canberra: Commonwealth of Australia.
- DoHA 2004b. Get out and get active. Australia's physical activity recommendations for 12–18 year olds. Canberra: Commonwealth of Australia.
- DoHA 2005. Australian Statistics on Medicine 2003. Canberra: DoHA.
- DoHA 2007. Medicare benefits schedule book. Canberra: DoHA.
- Draper G, Turrell G & Oldenburg B 2004. Health inequalities in Australia: mortality. Health inequalities monitoring series No. 1. Cat. no. PHE 55. Brisbane and Canberra: Queensland University of Technology and the AIHW.
- Dunstan D, Zimmet P, Welborn T, Sicree R, Armstrong T, Atkins R et al. 2001. Diabetes and associated disorders in Australia-2000: the accelerating epidemic. The Australian Diabetes, Obesity and Lifestyle Study (AusDiab). Melbourne: International Diabetes Institute.
- Dunstan DW, Daly RM, Owen N, Jolley D, de Courten M, Shaw J, et al. 2002a. High-intensity resistance training improves glycemic control in older patients with Type 2 diabetes. *Diabetes Care* 25(10): 1729–36.
- Dunstan DW, Zimmet PZ, Welborn TA, Cameron AJ, Shaw J, de Courten M, Jolley D, McCarty DJ and AusDiab Steering Committee 2002b. The Australian Diabetes, Obesity and Lifestyle Study (AusDiab)-methods and response rates. *Diabetes Research and Clinical Practice* 57(2):119–29.
- Dunstan DW, Zimmet PZ, Welborn TA, De Courten MP, Cameron AJ et al. 2002c. The rising prevalence of diabetes and impaired glucose tolerance: the Australian Diabetes, Obesity and Lifestyle Study. *Diabetes Care* 25(5):829–34.
- Dunstan DW, Salmon J, Owen N, Armstrong T, Zimmet PZ, Welborn TA et al. 2004. Physical activity and television viewing in relation to risk of undiagnosed abnormal glucose metabolism in adults. *Diabetes Care* 27(11): 2603–9.
- Dutton T, Turrell G, Oldenburg B (2005). Measuring socioeconomic position in population health monitoring and health research. Health inequalities monitoring series No. 3. Brisbane: Queensland University of Technology.
- Eckel RH, Kahn R, Robertson RM & Rizz RA 2006. Preventing cardiovascular disease and diabetes: a call to action from the American Diabetes Association and the American Heart Association. *Diabetes Care* 29:1697–9.
- Egede LE 2004. Diabetes, major depression, and functional disability among U.S. adults. *Diabetes Care* 27(2):421–8.
- Egede LE, Zheng D & Simpson K 2002. Comorbid depression is associated with increased health care use and expenditures in individuals with diabetes. *Diabetes Care* 25(3):464–70.
- Eliasson B 2003. Cigarette smoking and diabetes. *Progress in Cardiovascular Diseases* 45(5): 405–13.
- Flack J & Colagiuri S 2005. Final report—ANDIAB 2004. Sydney: NADC-ANDIAB (National Association of Diabetes Centres-Australian National Diabetes Information Audit & Benchmarking).
- Flood V, Wigg K, Lazarus R & Pang G 2000. Use of self-report to monitor overweight and obesity in populations: some issues for consideration *Australian and New Zealand Journal of Public Health* 24(1):96–99.
- Fong DS, Aiello LP, Ferris FL & Klein R 2004. Diabetic retinopathy. *Diabetes Care* 27(10): 2540–53.
- Forsen T, Eriksson J, Tuomilehto j, Ruenanen A, Osmond C & Barker D 2000. The fetal and childhood growth of persons who develop Type 2 diabetes. *Annals of Internal Medicine* 133(3): 176–82.
- Foy CG, Bell RA, Farmer DF, Goff DC & Wagenknecht LE 2005. Smoking and incidence of diabetes among U.S. adults. *Diabetes Care* 28(10): 2501–7.
- Franz MJ, Bantle JP, Beebe CA, Brunzell JD, Chiasson J-L, Garg A et al. 2002. Evidence-based nutrition principles and recommendations for the treatment and prevention of diabetes and related complications. *Diabetes Care* 25:148–98.
- Georgiou A, Burns J, Wan Q, Flack J, Penn D, Powell Davies PG & Harris MF 2004. Divisions diabetes

- & CVD quality improvement project. Analysis of division-based diabetes register data (2000–2002). Sydney: Centre for General Practice Integration Studies, School of Public Health and Community Medicine, UNSW.
- Golay A & Ybarra J 2005. Link between obesity and type 2 diabetes. *Best Practice & Research Clinical Endocrinology & Metabolism* 19:649–63.
- Golden SH, Williams JE, Ford DE, Yeh H, Sanford CP, Nieto FJ & Brancati FL 2004. Depressive symptoms and the risk of Type 2 diabetes. The atherosclerosis risk in communities study. *Diabetes Care* 27(2):429–35.
- Gonzalez-Quintero VH, Istwan NB, Rhea DJ, Rodriguez LI, Cotter A, Carter J, Mueller A, Stanziano GJ 2007. The Impact of Glycemic Control on Neonatal Outcome in Singleton Pregnancies Complicated by Gestational Diabetes. *Diabetes Care* 30(3):467–470.
- Grant J, Chittleborough C, Dal Grande E & Taylor A 2005. Baseline biomedical and self-report data. Adelaide: South Australian Department of Health.
- Greer RM, Rogers MA, Bowling FG, Buntain HM, Harris M, Leong GM & Cotterill AM. 2007. Australian children and adolescents with type 1 diabetes have low vitamin D levels. *Medical Journal of Australia* 187(1): 59–60.
- Gregg EW, Mangione CM, Cauley JA, Thompson TJ, Schwartz AV, Ensrud KE et al. 2002. Diabetes and incidence of functional disability in older women. *Diabetes Care* 25:61–7.
- Hales N & Barker D 2001. The thrifty phenotype hypothesis. *British Medical Bulletin* 60:5–20.
- Hanninen JA, Takala JK & Keinanen-Kiukaanniemi SM 1999. Depression in subjects with type 2 diabetes: predictive factors and relation to quality of life. *Diabetes Care* 22:997–8.
- Harris P, Mann L, Phillips P, Snowdon T & Webster C eds. 2006. *Diabetes management in general practice*, 12th ed. New South Wales: Diabetes Australia and the Royal Australian College of General Practitioners.
- Haynes A, Bower C, Bulsara MK, Jones TW & Davis EA 2004. Continued increase in the incidence of childhood Type 1 diabetes in a population-based Australian sample (1985–2002). *Diabetologia* 47:866–70.
- Higginson IJ & Carr AJ 2001. Measuring quality of life using quality of life measures in the clinical setting. *British Medical Journal* 322:1297–300.
- Hordacre, AL., Keane, M., Kalucy, E., Moretti, C. 2006. *Making the connections. Report of the 2004–2005 Annual Survey of Divisions of General Practice.* Viewed 23 March 2007, <http://www.phcris.org.au/phplib/filedownload.php?file=/elib/lib/downloaded_files/publications/pdfs/asd/2004–05/asd0405_report_full.pdf>
- Howard BV 1999. Dietary fat and diabetes: a consensus view. *The American Journal of Medicine* 113(9B):38S–40S.
- HPS (Heart Protection Study) Collaborative Group 2003. MRC/BHF Heart Protection Study of cholesterol-lowering with simvastatin in 5,963 people with diabetes: a randomised placebo-controlled trial. *The Lancet* 361:2005–16.
- Hu FB, Li TY, Colditz GA, Willett WC & Manson JAE 2003. Television watching and other sedentary behaviors in relation to risk of obesity and Type 2 diabetes mellitus in females. *Journal of the American Medical Association* 289(14): 1785–91.
- Hussein Z, Wentworth JM, Nankervis AJ, Proietto J & Colman PG 2004. Effectiveness and side effects of thiazolidinediones for type 2 diabetes: real-life experience from a tertiary hospital. *Medical Journal of Australia* 181(10):536–9.
- IDF (International Diabetes Federation) 2006. *Diabetes Atlas*, 3rd edition. Brussels: International Diabetes Federation.
- Kemp T, Barr E, Zimmet P, Cameron A, Wellborn T, Colagiuri S et al. 2005. Glucose, lipid, and blood pressure control in Australian adults with Type 2 diabetes: the 1999–2000 AusDiab. *Diabetes Care* 28(6):1490–2.
- Klein R & Klein B 1995. Vision disorders in diabetes. In: *National Diabetes Data Group. Diabetes in America*, 2nd Ed. Maryland, USA: National Diabetes Information Clearing House, National Institutes of Health, 293–338.
- Lalla E, Cheng B, Lal S, Tucker S, Greenberg E, Golland R et al. 2006. Periodontal changes in children and adolescents with diabetes. *Diabetes Care* 29(2):295–99.
- Lavery LA, Armstrong DG, Wunderlich RP, Mohler MJ, Wendel CS & Lipsky BA 2006. Risk factors for foot infections in individuals with diabetes. *Diabetes Care* 29:1288–93.
- Laws PJ, Grayson N & Sullivan EA 2006. *Australia's mothers and babies 2004. Perinatal statistics series no. 18. Cat. no. PER 34.* Sydney: AIHW National Perinatal Statistics Unit.

- Lee AJ, Hiscock RJ, Wein P, Walker SP, Permezel M 2007. Gestational Diabetes Mellitus: Clinical Predictors and Long-Term Risk of Developing Type 2 Diabetes. *Diabetes Care* 30(4):878–883.
- Lee SJ, McCarty CA, Taylor HR & Keefe JE 2001. Costs of mobile screening for diabetic retinopathy: a practical framework for rural populations. *Australian Journal of Rural Health* 9:186–192.
- Leguizamón GF, Zeff NP, Fernandez A. 2006. Hypertension and the pregnancy complicated by diabetes. *Current Diabetes Reports* 6(4):297–304.
- Littorin B, Blom P, Scholin A et al. 2006. Lower levels of plasma 25-hydroxyvitamin D among young adults at diagnosis of autoimmune type 1 diabetes compared with control subjects: results from the nationwide Diabetes Incidence Study in Sweden (DISS). *Diabetologia* 49: 2847–2852.
- Maddigan SL, Feeny DH, Majumdar SR, Farris KB & Johnson JA 2006. Understanding the determinants of health for people with Type 2 Diabetes. *American Journal of Public Health* 96(9):1649–55.
- Mann JI, De Leeuw I, Hermansen K, Karamanos B, Karlström B, Katsilambros N et al. 2004. Evidence-based nutritional approaches to the treatment and prevention of diabetes mellitus. *Nutrition, Metabolism and Cardiovascular Diseases* 14:373–394.
- McCulloch B, McDermott R, Miller G, Leonard D, Elwell M, Muller R. 2003. Self-reported diabetes and health behaviours in remote Indigenous communities in Northern Queensland, Australia. *Diabetes Care* 26(2):397–403.
- McDonald S, Chang S & Excell L 2006. New patients commencing treatment in 2005. In: McDonald SP & Excell L (eds). ANZDATA Registry Report 2005. Adelaide: Australia and New Zealand Dialysis and Transplant Registry. 34–43.
- McDonald SP, Chang S and Excell L 2007. ANZDATA Registry report 2007. Adelaide: Australia and New Zealand Dialysis and Transplant Registry.
- McMahon S, Aveni H, Nirubasini R, Grant M, Carne C, Jones T et al. 2004. Increase in Type 2 diabetes in children and adolescents in Western Australia. *Medical Journal of Australia* 180(9):459–61.
- Medicare Online Health Statistics (MBS). Viewed 14 June 2007. <http://www.medicareaustralia.gov.au/statistics/dyn_mbs/forms/mbs_tab4.shtml>
- Mehta Z, Cull C, Statton I, Yudkin J, Jenkinson C, Fletcher A et al. 1999. Quality of life in the type 2 diabetic patients is affected by complications but not by intensive policies to improve blood glucose or blood pressure control (UKPDS 37). *Diabetes Care* 22(7):1125–36.
- Meisinger C, Döring A, Thorand B and Löwel H 2006. Association of cigarette smoking and tar and nicotine intake with the development of type 2 diabetes mellitus in men and women in the general population: the Monica/KORA Augsburg Cohort Study. *Diabetologia* 49: 1770–6.
- Mensah E & Kohner EM 2002. Diagnosis and management of diabetic retinopathy. *Topical Endocrinology* 19:14–18.
- Milton B, Holland P & Whitehead M 2006. The social and economic consequences of childhood-onset Type 1 diabetes mellitus across the lifecourse: a systematic review. *Diabetic Medicine* 23(8):821–9.
- Nabuurs-Franssen MH, Huijberts MS, Nieuwenhuijzen Kruseman AC, Willems J & Schaper NC 2005. Health-related quality of life of diabetic foot ulcer patients and their caregivers. *Diabetologia* 48:1906–10.
- NADC (National Association of Diabetes Centers) 2005. ANDIAB 2004: Australian National Diabetes Information Audit and Benchmarking. Canberra: NADC.
- NADC 2007. ANDIAB 2006; Australian National Diabetes Information Audit and Benchmarking. Canberra: NADC.
- National Drug Strategy 2002. Environmental tobacco smoke in Australia. National Tobacco Strategy 1999 to 2002–03. Occasional paper. Canberra: DoHA.
- NHDC (National Health Data Committee) (now HDSC) 2003. National Health Data Dictionary Version 12. Canberra: HDSC.
- NHFA (National Heart Foundation of Australia) 1999. A review of the relationship between dietary fat and cardiovascular disease. *Australian Journal of Nutrition and Dietetics* 56(4 Suppl):S5–S22.
- NHFA & CSANZ (Cardiac Society of Australia and New Zealand) 2001. Lipid management guidelines. *Medical Journal of Australia* 175:S55–S90.
- NHMRC 1997. Management of Diabetic Retinopathy. Clinical Practice Guidelines. Canberra: AGPS.
- NHMRC (National Health and Medical Research Council) 2001. National evidence based guidelines for management of Type 2 diabetes mellitus. Part 3-Primary prevention of Type 2 diabetes. Viewed 3 February 2006, <http://www.nhmrc.gov.au/publications/synopses/_files/di8.pdf>
- NHMRC 2003a. Food for health: dietary guidelines for Australian adults. Canberra: Commonwealth of Australia.
- NHMRC 2003b. Clinical practice guidelines for the management of overweight and obesity in adults. Canberra: The Commonwealth of Australia.
- NHMRC 2003c. Clinical practice guidelines for the management of overweight and obesity in children and adolescents. Canberra: The Commonwealth of Australia.

- NHMRC 2004. National evidence based guidelines for management of Type 2 diabetes mellitus. Part 4-Blood pressure control. Viewed 3 February 2006, <http://www.nhmrc.gov.au/publications/synopses/_files/di8.pdf>
- NPS (National Prescribing Service Limited) 2004. Rosiglitazone (Avandia) for type 2 diabetes mellitus. Viewed 11 June 2007, <<http://www.npsradar.org.au/site.php?page=1&content=/npsradar/content/rosiglitazone.html>>
- Oyibo SO, Dang CN & Boulton AJM 2002. Diagnosis and management of diabetic neuropathy. *Topical Endocrinology* 19:10–13.
- Parsons J, Wilson D & Scardigno A 2000. The impact of diabetes in South Australia 2000: the summary. Adelaide: South Australian Department of Human Services.
- Patja K, Jousilahti P, Hu G, Valle T, Qiao Q & Tuomilehto J 2005. Effects of smoking, obesity and physical activity on the risk of type 2 diabetes in middle-aged Finnish men and women. *Journal of Internal Medicine* 258: 356–62.
- Pouwer F, Beekman ATF, Nijpels G, Dekker JM, Snoek FJ, Kostense PJ et al. 2003. Rates and risks for comorbid depression in patients with Type 2 diabetes mellitus: results from a community-based study. *Diabetologia* 46:892–8.
- Ramsey S, Summers KH, Leong SA, Birnbaum HG, Kemner JE & Greenberg P 2002. Productivity and medical costs of diabetes in a large employer population. *Diabetes Care* 25:23–9.
- Redekop WK, Koopmanschap MA, Stolk RP, Rutten GE, Wolffenbuttel BH & Niessen LW 2002. Health-related quality of life and treatment satisfaction in Dutch patients with Type 2 diabetes. *Diabetes Care* 25(3):458–63.
- Resnikoff S, Pascolini D, Etya'ale D, Kocur I, Pararajasegaram R, Pokharel G P & Mariotti SP 2004. Global data on visual impairment in the year 2002. *Bulletin of the World Health Organization* 82(11): 844–51.
- Rewers, M & Hamman RF 1995. Risk factors for insulin-dependent diabetes. In: National Diabetes Data Group. *Diabetes in America*, 2nd ed. Maryland, USA: National Diabetes Information Clearing House, National Institutes of Health, 165–78.
- Rossing K, Christensen PK, Hovind P, Tarnow L, Rossing P & Parving HH 2004. Progression of nephropathy in type 2 diabetic patients. *Kidney International* 66:1596–1605.
- Ryerson B, Tierney EF, Thompson TJ, Engelgau MM, Wang J, Gregg EW et al. 2003. Excess physical limitations among adults with diabetes in the U.S. population, 1997–1999. *Diabetes Care* 26:206–10.
- Sharma AM 2006. The obese patient with diabetes mellitus: from research targets to treatment options. *The American Journal of Medicine* 119(5A):17S–23S.
- Shaw JE & Chisholm DJ 2003. Epidemiology and prevention of type 2 diabetes and the metabolic syndrome. *Medical Journal of Australia* 179:379–383.
- Sheard NF, Clark NG, Brand-Miller JC, Franz MJ, Pi-Sunyer FX, Myer-Davis E et al. 2004. Dietary carbohydrate (amount and type) in the prevention and management of diabetes: a statement by the American Diabetes Association. *Diabetes Care* 27:2266–2271.
- Southerland JH, Taylor GW & Offenbacher S 2005. Diabetes and periodontal infection: making the connection. *Clinical Diabetes* 23(4):171–8.
- Srikanth VK, Anderson JFI, Donnan GA, Saling MM, Didus E, Alpitsis R et al. 2004. Progressive dementia after first-ever stroke. A community-based follow-up study. *Neurology* 63:785–92.
- Stratton IM, Adler AI, Neil HA, Matthews DR, Manley SE, Cull CA et al. 2000. Association of glycaemia with macrovascular and microvascular complications of type 2 diabetes (UKPDS 35): prospective observational study. *British Medical Journal* 321:405–412.
- Taplin CE, Craig ME, Lloyd M, Taylor C, Crock P, Silink M, Howard NJ 2005. The rising incidence of childhood Type 1 diabetes in New South Wales, 1990–2002. *Medical Journal of Australia* 183(5):243–6.
- Tapp RJ, Shaw JE, DeCourten MP, Dunstan DW, Wellborn TA et al. 2003. Foot complications in Type 2 diabetes: an Australian population-based study. *Diabetic Medicine* 20:105–13.
- Tapp RJ, Shaw JE, Harper AC, DeCourten MP, Balkau B, McCarty DJ et al. 2003. The prevalence of and factors associated with diabetic retinopathy in the Australian population. *Diabetes Care* 26(6):1731–7.
- Thomas DE, Elliot EJ & Naughton GA 2006. Exercise for type 2 diabetes mellitus. *Cochrane Database of Systematic Reviews* 2006, Issue 3. Art. No.: CD002968. DOI: 10.1002/14651858.CD002968.pub2.
- Thrift AG, Dewey HM, Macdonell RAL, McNeil JJ, Donnan GA 2000. Stroke incidence on the east coast of Australia. *Stroke* 31:2087–92.
- Tuomilehto J, Lindstrom J, Eriksson J, Valle T, Hamalainen H, Ilanne-Parikka P 2001. Prevention of type 2 diabetes mellitus by changes in lifestyle among subjects with impaired glucose tolerance. *The New England Journal of Medicine* 344(18):1343–50.

- Twigg SM, Kamp MC, Davis TM, Neylon EK, Flack JR 2007. Prediabetes: a position statement from the Australian Diabetes Society and Australian Diabetes Educators Association. *Medical Journal of Australia* 186(9):461–5.
- UKPDS (UK Prospective Diabetes Study Group) 1998. Tight blood pressure control and risk of macrovascular and microvascular complications in type 2 diabetes: UKPDS 38. *British Medical Journal* 317(7160):703–13.
- Unwin N, Shaw J, Zimmet P & Alberti KGMM 2002. Impaired glucose tolerance and impaired fasting glycaemia: the current status on definition and intervention. *Diabetic Medicine* 19(9):708–23.
- USDHHS (United States Department of Health and Human Services) 2006. The health consequences of involuntary exposure to tobacco smoke: A report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.
- Vaarala O 2005. Is type 1 diabetes a disease of the gut immune system triggered by cow's milk insulin? *Advances in Experimental Medicines and Biology* 569:151–6.
- Van Impe J 2005. Pregnancy and its effect on the progression of diabetic retinopathy. *MJM* 8(2):142–8.
- Vinik AI, Maser RE, Mitchell BD & Freeman R 2003. Diabetic autonomic neuropathy. *Diabetes Care* 26(5): 1553–79.
- Virjee S, Robinson S & Johnston DG 2001. Screening for diabetes in pregnancy. *Journal of the Royal Society of Medicine* 94:502–9.
- Wake M, Hesketh K & Cameron F 2000. The child health questionnaire in children with diabetes: cross-sectional survey of parent and adolescent-reported functional health status. *Diabetic Medicine* 17:700–7.
- Wannamethee SG, Shaper AG & Perry IJ 2001. Smoking as a modifiable risk factor for Type 2 diabetes in middle-aged men. *Diabetes Care* 24(9):1590–5.
- Weisfeldt ML & Ziemann SJ 2007. Advances in the prevention and treatment of cardiovascular disease. *Health affairs* 26(1): 25–37.
- Whittall D, Glatthaar C, Knuiman M & Welborn T 1990. Deaths from diabetes are underreported in national mortality statistics. *Medical Journal of Australia* 152(June 4):598–600.
- WHO (World Health Organization) 1999. Definition, diagnosis and classification of diabetes mellitus and its complications. Part 1: Diagnosis and classification of diabetes mellitus. Geneva: Department of Noncommunicable Disease Surveillance, WHO.
- WHO 2000. Obesity: preventing and managing the global epidemic. Report of a WHO Consultation. WHO Technical Report Series 894. Geneva: WHO.
- WHO 2002. World health report 2002: reducing risks, promoting healthy life. Geneva: WHO.
- WHO 2003. Diet, nutrition and the prevention of chronic diseases. Report of a joint WHO/FAO expert consultation. WHO Technical Report Series 916. Geneva: WHO.
- WHO 2006. Definition and diagnosis of diabetes mellitus and intermediate hyperglycaemia. WHO: Geneva.
- WHO–ISH (International Society of Hypertension) 1999. World Health Organisation–International Society of Hypertension guidelines for the management of hypertension. *CVD Prevention* 2:76–111.
- Wilkinson D & Blue I 2002. The new rural health. Melbourne: Oxford University Press.
- Williams G & Pickup J 1999. Handbook of diabetes. 2nd edition. Oxford: Blackwell Science.
- Williams R, Airey M, Baxter H, Forrester J, Kennedy-Martin T & Girach A 2004. Epidemiology of diabetic retinopathy and macular oedema: a systematic review. *Eye*. 18(10):963–83.
- Wu T, Brooks B & Yue D 1999. Macrovascular disease: the sword of Damocles in diabetes. In: Turtle JR, Kaneko T & Osato S (eds). *Diabetes in the new millennium*. Sydney: The Endocrinology and Diabetes Research Foundation of the University of Sydney, 403–14.
- Yoon J-W, Kim A & Jun H-S 1999. Role of viruses in Type 1 diabetes. In: Turtle J, Kaneko T & Osato S (eds). *Diabetes in the new millennium*. Sydney: Endocrinology and Diabetes Research Foundation, University of Sydney, 105–18.
- Zimmet P, Alberti K & Shaw J 2001. Global and societal implications of the diabetes epidemic. *Nature* 414:782–7.

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