

## Appendix A: Age-adjustment

Age-adjustment was applied to death rates, incidence rates, prevalence rates, hospital separation and consultation rates in this report.

Using death rates as an example, the crude death rate, or the total number of people who die during any known time period, is strongly influenced by the age structure of the population during this period. By applying the technique of age-adjustment to age-specific death rates, the effect of variation in the population age structure is reduced. This report has used direct adjustment by applying the age-specific rates for a particular year to a standard population.

The standard population used in age-adjustment was the total estimated resident population of Australia at 30 June 1991. The usual convention of using age-specific rates for five-year age groups, as shown in the table below, has been followed for adjustment according to the following formula:

$$SR = \sum \{R_i \times P_i\} / \sum P_i$$

where      SR = the age-adjusted rate  
               $R_i$  = the age-specific rate for age group  $i$   
               $P_i$  = the standard population in age group  $i$

It should be noted that trends in age-adjusted rates calculated using this standard may differ from those calculated using other standard populations.

### ***Population, Australia, 1991***

Age group	Males	Females	Total
0-4	652,302	619,401	1,271,703
5-9	652,418	619,790	1,272,208
10-14	638,311	603,308	1,241,619
15-19	698,773	665,301	1,364,074
20-24	707,124	689,640	1,396,764
25-29	702,728	696,935	1,399,663
30-34	713,784	711,951	1,425,735
35-39	664,228	664,159	1,328,387
40-44	655,138	639,133	1,294,271
45-49	526,498	502,647	1,029,145
50-54	433,762	413,172	846,934
55-59	367,302	358,648	725,950
60-64	366,779	370,089	736,868
65-69	320,142	351,248	671,390
70-74	228,494	282,261	510,755
75-79	158,993	225,502	384,495
80-84	84,413	145,415	229,828
85+	44,220	110,027	154,247
<b>Total</b>	<b>8,615,409</b>	<b>8,668,627</b>	<b>17,284,036</b>

Source: Australian Bureau of Statistics

### Australian Institute of Health and Welfare publications

- Australian Institute of Health and Welfare (1994) *Australia's health 1994: the fourth biennial report of the Australian Institute of Health and Welfare*. Canberra: AGPS.
- Australian Institute of Health and Welfare *Health expenditure bulletin* No. 10.
- Australian Institute of Health and Welfare *Hospital utilisation and costs study series*.
- Dankiw W (1994) *Pap smear examinations under Medicare 1984–85 to 1992–93 DRAFT*. Canberra: AGPS.
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- Mathers CD (1995) *Expectation of disability and handicap in Australia*. Paper prepared for the 3rd National Rehabilitation Conference, Brisbane, May 1995.

### Australian Institute of Health and Welfare databases

- Australian Institute of Health and Welfare Dental Statistics Research Unit.
- Australian Institute of Health and Welfare Mortality database.
- Australian Institute of Health and Welfare National Cancer Statistics Clearing House.
- Australian Institute of Health and Welfare National Injury Surveillance Unit.
- Australian Institute of Health and Welfare National Perinatal Statistics Unit.

### Australian Bureau of Statistics publications

- Australian Bureau of Statistics (1994) *Experimental estimates of the Aboriginal and Torres Strait Islander population*. Catalogue No. 3230.0.
- Australian Bureau of Statistics *Australian demographic statistics series*. Catalogue No. 3101.0.
- Australian Bureau of Statistics *Births, Australia series*. Catalogue No. 3301.0.
- Australian Bureau of Statistics *Deaths, Australia series*. Catalogue No. 3302.0.
- Australian Bureau of Statistics *Perinatal deaths, Australia series*. Catalogue No. 3304.0.
- Australian Bureau of Statistics *Overseas arrivals and departures series*. Catalogue No. 3404.0.
- Australian Bureau of Statistics *Apparent consumption of foodstuffs and nutrients, Australia series*. Catalogue No. 4306.0.
- Australian Bureau of Statistics (1993) *Survey of disability, ageing and carers: Summary of findings*. Catalogue No. 4430.0.

- Australian Bureau of Statistics *Australian national accounts: National income, expenditure and product series*. Catalogue No. 5204.0.
- Australian Bureau of Statistics *The labour force, Australia series*. Catalogue No. 6203.0.

### National surveys

- Australian Bureau of Statistics 1989–90 National Health Survey.
- National Heart Foundation 1980, 1983, 1989 Risk Factor Prevalence Surveys.

### Other data collections

- Australian Bureau of Statistics, Health labour force data.
- Australian Bureau of Statistics, *Population survey monitor* data.
- Communicable Diseases Network—Australia New Zealand—National Notifiable Diseases Surveillance System.
- Department of Human Services and Health, Community care expenditure for the aged.
- Department of Human Services and Health, National breast cancer screening program.
- Health Insurance Commission, Medicare Claims data.
- National Mycobacterial Surveillance System.
- Western Australia Department of Health, Birth cohort data.

### Other published sources

- Department of Health, Housing and Community Services (1991) *Aged care reform strategy. Mid-term review 1990–91*. Canberra: AGPS.
- Department of Human Services and Health *Annual reports*.
- Department of Human Services and Health *Program performance statements*.
- Gee V (1994) *The 1991 Western Australian birth cohort: Statistical series /34*. Perth: Health Department of Western Australia.
- National Centre in HIV Epidemiology and Clinical Research (1994) *Australian HIV surveillance report*. Vol. 10. No. 2. Sydney: NCHECR.
- National Health & Medical Research Council (1994) *The core food groups: the scientific basis for developing nutrition education tools*. Canberra: NHMRC.
- Northern Territory Perinatal Collection, *Statistical report*. 1992.

**ABS**

Australian Bureau of Statistics

**AGPS**

Australian Government Publishing Service

**AIHW**

Australian Institute of Health and Welfare

**DHSH**

Commonwealth Department of Human Services and Health

**DSRU**

Dental Statistics Research Unit

**NCHECR**

National Centre on HIV Epidemiology and Clinical Research

**NHF**

National Heart Foundation

**NHMRC**

National Health and Medical Research Council

**NISU**

National Injury Surveillance Unit

**NPSU**

National Perinatal Statistics Unit

The States and Territories of Australia have been abbreviated as follows:

**NSW** New South Wales

**Vic** Victoria

**Qld** Queensland

**WA** Western Australia

**SA** South Australia

**Tas** Tasmania

**ACT** Australian Capital Territory

**NT** Northern Territory

### *Acute care hospitals*

Public, private and repatriation hospitals which provide services predominantly to inpatients with acute or temporary ailments; the average length of stay is relatively short.

### *Age-adjustment (or age-standardisation)*

If comparing two populations where the age structures differ dramatically, crude rates (such as the crude death rate) are unreliable indicators of difference. The statistical technique of age-adjustment (the application of age-specific rates to a standard population structure) is applied to reduce the effect of differing population age structures.

### *Apparent consumption*

In the absence of time trends of dietary intake data, apparent consumption data are used to indicate dietary intake. Apparent consumption refers to the quantity of food available for consumption. Food wastage and cooking losses are therefore not taken into account.

### *Average length of stay*

For acute care hospitals, a reasonable estimate is obtained by dividing total occupied bed-days by total hospital separations.

### *Decay free rate*

Proportion of a population with none of their teeth affected by decay, missing due to decay or filled due to decay.

### *Dependency ratio*

The proportion of the population of non-working age (< 15 years and 65 years or older) who are dependent on the population of working age (15–64 years).

### *Disability*

A person with a disability is defined as having one or more of a number of health-related conditions which has lasted or is likely to last for six months or more. The health-related conditions include: loss of sight or hearing, speech difficulties, learning difficulties, blackouts, incomplete use of arms, fingers, feet or legs, disfigurement, long-term treatment or medication, or the need for help or supervision because of a mental disability.

### *DMFT score*

Sum of the number of teeth affected by decay, either missing or filled.

### *Edentulism*

The loss of all natural teeth.

### *Handicap*

A handicap is the social disadvantage that results from a disability. A disabled person is defined as handicapped if they are limited in one or more of the following five areas: self-care, mobility, verbal communication, schooling, and/or employment.

### *Hospital separation (or discharge)*

The formal process by which a hospital records the completion of treatment and/or care. This occurs when an inpatient leaves hospital to return home, transfers to another institution, or dies.

### *Hostel*

Residential establishments for aged or disabled persons who cannot live independently but do not require nursing care.

### *Incidence*

The number of new cases of a disease that develop during a specified time period in a population at risk.

### *Infant mortality rate*

The ratio of deaths among infants under one year to the number of infants born alive in that year.

### *Life expectancy*

The average length of time that a person can expect to live if they continue to experience current mortality conditions. Thus, if mortality from all causes declines over time, estimates of life expectancy will increase.

### *Net immigration*

Number of permanent arrivals less number of permanent departures.

### *Nursing homes*

Institutions which are recognised by the Commonwealth government and provide long-term regular basic nursing care to chronically ill, frail or disabled persons. They cater mainly for the aged.

### *Potential years of life lost (PYLL)*

A measure of premature mortality which highlights the burden of disease among younger members of the population.

### *Prevalence*

The number of existing cases of a disease divided by the total population at any given time.

### *Total fertility rate*

The number of live births a woman would have if, throughout her reproductive years, she had children at the age-specific rates prevailing in the reference year.

### Health status

#### Mortality and survival

Australian Bureau of Statistics *Causes of death, Australia* series. Catalogue No. 3303.0. Canberra: ABS.

Australian Bureau of Statistics *Deaths, Australia* series. Catalogue No. 3302.0. Canberra: ABS.

Australian Institute of Health and Welfare (1994) *Australia's health 1994: the fourth biennial report of the Australian Institute of Health and Welfare*. Canberra: AGPS.

Australian Institute of Health and Welfare *Cancer* series.

Australian Institute of Health and Welfare *Mortality* series.

Australian Institute of Health and Welfare *Mortality surveillance* series.

Bhatia K & Anderson P (1995) *An overview of Aboriginal and Torres Strait Islander health: present status and future directions*. AIHW Information paper. Canberra: AGPS.

#### Disability and handicap

Australian Bureau of Statistics (1993) *Survey of disability, ageing and carers, Australia: Summary of findings*. Catalogue No. 4430.0. Canberra: ABS.

Mathers CD (1991) *Disability-free and handicap-free life expectancy in Australia 1981 and 1988*. AIHW Health differentials series No. 1. Canberra: AGPS.

Mathers CD (1995) *Expectation of disability and handicap in Australia*. Paper prepared for the 3rd National Rehabilitation Conference, Brisbane, May 1995.

#### Perinatal and infant health

Australian Bureau of Statistics *Causes of death, Australia* series. Catalogue No. 3303.0. Canberra: ABS.

Australian Bureau of Statistics *Deaths, Australia* series. Catalogue No. 3302.0. Canberra: ABS.

Australian Bureau of Statistics *Perinatal deaths, Australia* series. Catalogue No. 3304.0. Canberra: ABS.

Australian Institute of Health and Welfare National Perinatal Statistics Unit & Australian Perinatal Society *Perinatal newsletter*. Sydney: AIHW National Perinatal Statistics Unit.

Australian Institute of Health and Welfare National Perinatal Statistics Unit  
*Congenital malformations monitoring report*. Sydney: AIHW National Perinatal Statistics Unit.

Australian Institute of Health and Welfare National Perinatal Statistics Unit  
*Congenital malformations, Australia*. Sydney: AIHW National Perinatal Statistics Unit.

Brooks-Gunn J, McCarton CM, Casey PH, McCormick MC, Bauer CR, Bernbaum JC, Tyson J, Swanson M, Bennett FC, Scott DT, Tonascia J & Meinert CL (1994) Early intervention in low-birth-weight premature infants. *J Amer Med Assoc* 272(16): 1257–1262.

Klein J, Stein Z & Susser M (1989) *Conception to birth: Epidemiology of prenatal development*. New York: Oxford University Press.

Lancaster P, Huang J & Pedisich E (1994) *Australia's mothers and babies 1991*. Perinatal statistics series No. 1. Sydney: AIHW National Perinatal Statistics Unit.

McCormick MC, Brooks-Gunn J, Workman-Daniels K, Turner J & Peckham GJ (1992) The health and development status of very low-birth-weight children at school age. *J Amer Med Assoc* 267(16): 2204–2208.

### Child health

#### *Drowning*

Cass DT, Ross FI & Grattan-Smith TM (1991) Child drownings: a changing pattern. *Med J Aust* 154: 163–165.

Harrison JE & Cripps RA (eds) (1994) *Injury in Australia—An epidemiological review*. Canberra: AGPS.

Pitt WR & Balanda KP (1991) Childhood and near-drowning in Brisbane: the contribution of domestic pools. *Med J Aust* 154: 661–665.

Waugh JH, O'Callaghan MJ & Pitt WR (1994) Prognostic factors and long-term outcomes for children who have nearly drowned. *Med J Aust* 161: 594–599.



### *Immunisation*

National Health & Medical Research Council (1994) *The Australian immunisation procedures handbook*. 5th ed. Canberra: AGPS.

### *Oral health*

Australian Institute of Health and Welfare (1994) *Australia's health 1994: the fourth biennial report of the Australian Institute of Health and Welfare*. Canberra: AGPS.

### **Injury**

Harrison JE & Cripps RA (eds) (1994) *Injury in Australia—An epidemiological review*. Canberra: AGPS.

Harrison JE & Cripps RA (1994) Injury mortality—Australia 1992. *Australian injury prevention bulletin*. Issue 6. Adelaide: AIHW National Injury Surveillance Unit.

O'Connor PJ (1993) *Road injury in Australia*. Adelaide: AIHW National Injury Surveillance Unit.

### **Interpersonal violence**

Bennett S, Donovan J, Stevenson C & Wright P (1994) *Mortality surveillance, Australia 1981–1992*. AIHW Mortality surveillance series No. 2. Canberra: AGPS.

Harrison J & Moller J (1994) Injury mortality amongst Aboriginal Australians. *Australian injury prevention bulletin* Issue 7. Adelaide: AIHW National Injury Surveillance Unit.

### **Chronic diseases**

#### *Cardiovascular disease*

Australian Institute of Health and Welfare (1994) *Australia's health 1994: the fourth biennial report of the Australian Institute of Health and Welfare*. Canberra: AGPS.

d'Espaignet ET (1993) *Trends in Australian mortality—Diseases of the circulatory system 1950–1991*. AIHW Mortality series No. 2. Canberra: AGPS.

Waters A-M & Bennett S (1995) *Risk factors for cardiovascular diseases—A summary of Australian data*. AIHW Cardiovascular disease monitoring series No. 1. Canberra: AGPS.

### *Cancer*

Armstrong BK & Kricger A (1993) How much melanoma is caused by sun exposure? *Melanoma Research* 3: 395–401.

Australian Institute of Health and Welfare & Australasian Association of Cancer Registries (1994) *Cancer in Australia 1986–1988*. Canberra: AGPS.

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Taylor R, Smith D, Høyer A, Coates M & McCredie M (1994) *Breast cancer in New South Wales 1972–1991*. Sydney: New South Wales Cancer Council.

### *Asthma*

Bauman A, Mitchell C, Henry RL, Robertson CF, Abramson MJ, Comino EJ, Hensley MJ & Leeder SR (1992) Asthma morbidity in Australia: an epidemiological study. *Med J Aust* 156: 827–31.

National Health & Medical Research Council (1988) *Asthma in Australia: strategies for reducing morbidity and mortality*. Working party report. Canberra: AGPS.

### *Diabetes*

Guest CS & O’Dea K (1992) Diabetes in Aborigines and other Australian populations. *Aust J Public Health* 16: 340–349.

McCann VJ, Knuiman MW, Stanton KG & Winter MG (1994) Mortality and coronary heart disease in diabetes mellitus. *Aust J Public Health* 18(1): 92–95.

Nutbeam D, Thomas M & Wise M (1993) *National action plan: Diabetes to the year 2000 and beyond*. A report prepared for the Australian Diabetes Society. Canberra.

## Communicable diseases

### *HIV and AIDS*

National Centre in HIV Epidemiology and Clinical Research *Australian HIV surveillance report*. Sydney: NCHECR.

### *Sexually transmitted diseases*

Communicable Diseases Network—Australia. *Communicable Diseases Intelligence bulletins*. Canberra: DSHS.

Wyn J (1994) Young women and sexually transmitted diseases. *Aust J Public Health* 18(1): 32–39.

### *Tuberculosis*

Communicable Diseases Network—Australia (1994) *Communicable Diseases Intelligence*. Vol. 18. No. 14. Canberra: DSHS.

MacIntyre CR, Dwyer B & Streeton JA (1993) The epidemiology of tuberculosis in Victoria. *Med J Aust* 159: 672–76.

National Health & Medical Research Council (1990) *Tuberculosis in Australia and New Zealand into the 1990s*. Canberra: AGPS.

## Mental health

Bennett S, Donovan J, Stevenson C & Wright P (1994) *Mortality surveillance, Australia 1981–1992*. AIHW: Mortality surveillance series No. 2. Canberra: AGPS.

Davis A (1992) Suicidal behaviour among adolescents: its nature and prevention. In Kosky R, Eshkevvari HS & Kneebone G (eds). *Breaking out: challenges in adolescent mental health in Australia*. Canberra: AGPS.

Harrison J, Moller J & Dolinis J (1994) Suicide in Australia: past trends and current patterns. *Australian injury prevention bulletin* Issue 5. Adelaide: AIHW National Injury Surveillance Unit.

Raphael B (1992) *Prevention in the mental health field*. NHMRC Canberra: AGPS.

Ware JE, Snow KK, Kosinski & Gandek B (1993) *SF-36 health survey: manual and interpretation guide*. Boston, Massachusetts: The Health Institute, New England Medical Center.

## Dental health

Australian Institute of Health and Welfare Dental Statistics Research Unit (1993) *Dental care for adults in Australia*. Adelaide: AIHW Dental Statistics Research Unit.

### Aboriginal health

Australian Bureau of Statistics *Deaths, Australia* series. Catalogue No. 3302.0. Canberra: ABS.

Australian Bureau of Statistics *Causes of death, Australia* series. Catalogue No. 3303.0. Canberra: ABS.

Australian Bureau of Statistics (1994) *Australia's Aboriginal and Torres Strait Islander population*. Catalogue No. 2740.0. Canberra: ABS.

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Australian Institute of Health and Welfare *Aboriginal and Torres Strait Islander health information bulletins*.

Bhatia K & Anderson P (1995) *An overview of Aboriginal and Torres Strait Islander health: present status and future directions*. AIHW Information paper. Canberra: AGPS.

Kelly P (1993) *Western Australia's Aboriginal people*. Catalogue No. 4107.5. Perth: ABS.

### Health determinants and risk factors

#### Population trends

Australian Bureau of Statistics *Births, Australia*. Catalogue No. 3301.0. Canberra: ABS.

Australian Bureau of Statistics *Australian demographic statistics*. Catalogue No. 3101.0. Canberra: ABS.

Australian Bureau of Statistics *Overseas arrivals and departures*. Catalogue No. 3404.0. Canberra: ABS.

Australian Bureau of Statistics (1994) *Projections of the population of Australia, States and Territories*. Catalogue No. 3222.0. Canberra: ABS.

#### Fertility

Adelson PI, Frommer MS, Pym MA & Rubin GL (1992) Teenage pregnancy and fertility in New South Wales: an examination of fertility trends, abortion and birth outcomes. *Aust J Public Health* 16(3): 238–244.

Condon J (1992) Pregnancy, abortion, adoption and parenting. In Kosky R, Eshkevari HS & Kneebone G (eds). *Breaking out: challenges in adolescent mental health in Australia*. Canberra: AGPS.

Lancaster P, Huang J & Pedisich E (1994) *Australia's mothers and babies 1991*. AIHW Perinatal statistics series No. 1. Sydney: National Perinatal Statistics Unit.

Roberts CL, Algert CS & March LM (1994) Delayed childbearing—are there any risks? *Med J Aust* 160: 539–544.

### **Economic environment**

Kerr C & Taylor R (1992) Grim prospects for the unemployed. *Aust J Public Health* 16(4): 338–9.

Mathers C (1994) *Health differentials among adult Australians aged 25–64 years*. AIHW Health monitoring series No. 1. Canberra: AGPS.

### **Anthropometric measures**

Waters A-M & Bennett S (1995) *Risk factors for cardiovascular diseases—A summary of Australian data*. AIHW Cardiovascular disease monitoring series No. 1. Canberra: AGPS.

### **Physiological measures**

Waters A-M & Bennett S (1995) *Risk factors for cardiovascular diseases—A summary of Australian data*. AIHW Cardiovascular disease monitoring series No. 1. Canberra: AGPS.

### **Food and nutrition**

Lester IH (1994) *Australia's food & nutrition*. Canberra: AGPS.

National Health & Medical Research Council (1992) *Dietary guidelines for Australians*. Canberra: AGPS.

National Health & Medical Research Council (1994) *The core food groups: the scientific basis for developing nutrition education tools*. Canberra: NHMRC.

### **Physical activity**

Waters A-M & Bennett S (1995) *Risk factors for cardiovascular diseases—A summary of Australian data*. AIHW Cardiovascular disease monitoring series No. 1. Canberra: AGPS.

### Drug use

Australian Institute of Health and Welfare *Australian health indicators* Nos. 1, 2 and 3.

Mathers C (1994) *Health differentials among adult Australians aged 25–64 years*. AIHW Health monitoring series No. 1. Canberra: AGPS.

### Health resources

#### Health expenditure

Australian Institute of Health and Welfare (1994) *Australia's health 1994: the fourth biennial report of the Australian Institute of Health and Welfare*. Canberra: AGPS.

Australian Institute of Health and Welfare (1994) *Health expenditure bulletin*. No. 10. Canberra: AIHW.

Cook M & Sardana B (1994) *Hospital utilisation and costs study 1991–92*. Vol. 2. Canberra: AGPS.

#### Health labour force

Australian Institute of Health and Welfare *Health labour force bulletins*.

### Hospitals

Australian Institute of Health and Welfare (1994) *Australia's health 1994: the fourth biennial report of the Australian Institute of Health and Welfare*. Canberra: AGPS.

Australian Institute of Health and Welfare *Hospital utilisation and costs study series*.

Gibberd RW, Sibbritt D, Ryan S & Hardes G (1991) *The changing demand for acute hospital facilities in Australia: access and financing*. Department of Health, Housing and Community Services. Canberra: AGPS.

#### Health service use

##### Medical services

Australian Institute of Health and Welfare (1994) *Australia's health 1994: the fourth biennial report of the Australian Institute of Health and Welfare*. Canberra: AGPS.

### Dental services

Australian Institute of Health and Welfare Dental Statistics Research Unit (1993) *Dental care for adults in Australia*. Adelaide: AIHW Dental Statistics Research Unit.

Mathers C (1994) *Health differentials among older Australians*. AIHW Health monitoring series No. 2. Canberra: AGPS.

### Hospital use

Australian Institute of Health and Welfare (1994) *Australia's health 1994: the fourth biennial report of the Australian Institute of Health and Welfare*. Canberra: AGPS.

Australian Institute of Health and Welfare *Hospital utilisation and costs study* series.

### Secondary prevention

Australian Institute of Health and Welfare (1992) *Australia's health 1992: the third biennial report of the Australian Institute of Health and Welfare*. Canberra: AGPS.

Dankiw W (1994) *Pap smear examinations under Medicare 1984–85 to 1992–93 DRAFT*. Canberra: AGPS.

Jelfs PL (1995) *Cervical cancer in Australia*. AIHW Cancer series No. 3. Canberra: AGPS.

**Aged care**

Australian Institute of Health and Welfare (1993) *Australia's welfare 1993: Services and assistance*. Canberra: AGPS.

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*Australian Health Trends 1995* brings together up-to-date information on the health status of Australians, determinants of health, health service use and health resources available in Australia. Eighty health indicators are included in the report together with an analysis of trends for each indicator.