

**First report on  
National Health  
Priority Areas  
1996**



# **First report on National Health Priority Areas 1996**

**Cardiovascular health  
Cancer control  
Injury prevention and control  
Mental health  
Diabetes mellitus**

**Australian Institute of Health and Welfare  
Commonwealth Department of Health and Family Services**

AIHW Cat. No. PHE 1

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# 1 Introduction

- **Background**
- **From National Health Goals and Targets to National Health Priority Areas**
- **The purpose of the report**



## Background

Australia's health status is generally improving, but there is potential for further gains in several areas. The National Health Priority Areas (NHPA) initiative seeks to focus public attention and health policy on those areas that contribute most to the burden of illness in the community, particularly if the burden can be significantly reduced. It is a process of collaborative activity involving the Commonwealth, State and Territory Governments, and builds on previous activity under the banner of 'National Health Goals and Targets'. The NHPA initiative provides a national approach to tackling the five identified priority areas: cardiovascular health, cancer control, injury prevention and control, mental health and diabetes mellitus.

In its fifth biennial report, *Australia's Health 1996*, the Australian Institute of Health and Welfare (AIHW) charted national achievements in health. The gains made in life expectancy over the past several decades summarise some of these achievements. Lower incidence of many previous major causes of death and illness is another important indicator of the nation's ability to implement effective prevention measures. The capacity of the Australian health system to respond to new, unpredictable health risks is also well demonstrated by steady decreases in the incidence of HIV/AIDS throughout the late 1980s and 1990s.

Some of these achievements have been made possible by reductions in risk. Significant declines in tobacco smoking and an increased proportion of adults undertaking physical exercise are two examples of these improvements. An increasing uptake of population-based screening programs, such as mammography and Pap smear testing, are further examples.

There is little doubt that, generally, health of Australians is among the best in the world and is continuing to improve. However, the diseases and conditions reflected as National Health Priority Areas represent areas where a concerted effort could achieve significant gains in the health status of the nation.

For example, while continually improving, the nation's death rate for injury is still relatively high in certain age groups (15–24 years and 75 years and over), and a high proportion of these deaths are preventable. Cancer remains one of the nation's biggest killers and, with continuing advances in screening, early intervention, management and continuing care, provides an opportunity for achieving significant health gains. While cardiovascular disease continues to decline, it still remains the leading cause of death in Australia, and significant numbers of Australians remain at risk. Mental illness affects many Australians, and there are increasing opportunities to reduce its impact through a range of specific interventions targeted at certain groups. Finally, the rising death rate for diabetes, particularly in the Indigenous population, is a major concern.

The NHPA initiative, endorsed jointly by the Commonwealth, State and Territory Governments, focuses on these important issues, and is an excellent opportunity to close the gap in health outcomes between population groups.

A changing focus of accountability in government, from inputs (for example, total expenditure) to outputs and outcomes, has led to an increasing emphasis on the measurement of activities and the impact that these activities have. In the health sector, this has seen a general shift in emphasis from a focus on service providers and inputs, to a system also incorporating a focus on outcomes and the consumer. The National Health Goals and Targets initiative (Commonwealth Department of Human Services

## Introduction

and Health 1994) reflected this shift in emphasis and, as such, enshrined a systematic process of monitoring health outcomes. It focused on identifying the information needs required to determine the extent to which strategic interventions result in, or contribute to, changed health status.

The NHPA process will build on this valuable platform and seek to take this one step further. This will be achieved through working in close collaboration with State and Territory Governments as well as health professionals and peak non-government bodies, and concentrating on improving information systems across the health continuum, incorporating information on health status, prevention, early intervention, treatment and the ongoing management of the chronic condition. The NHPA work program will also include the identification of appropriate action which may help in reaching the targets set.

The health outcomes approach of the NHPA initiative is informed by a nationally consistent framework, developed by a Working Party on Health Outcomes Activities and Priorities appointed by the National Health Information Management Group (NHIMG). The framework, detailed in Appendix 1, views health as a continuum of care with outcomes to be monitored at all levels of prevention, treatment and support.

At its October 1996 meeting, the Australian Health Ministers' Advisory Council (AHMAC) endorsed the recommendations of the National Health Information Management Group (NHIMG) to focus on improving health outcomes within this defined framework. AHMAC also has accepted a revised definition of a health outcome put forward by the NHIMG, in that 'a health outcome is a change in the health of an individual, a group of people or a population, which is wholly or partially attributable to an intervention or series of interventions'.

The NHPA work program focuses on considerations such as these, and is consistent with the latest developments in health taking place through greater collaboration between the Commonwealth and State and Territory Governments. The role of the Commonwealth in health administration is changing, with its focus not only on health service funding (with a diminishing role in service delivery) but also on promoting quality of health care and public health improvement.

## From National Health Goals and Targets to National Health Priority Areas

The NHPA process had its origins in late 1995 when the Better Health Outcomes Overseeing Committee (BHOOC), a high level Commonwealth-State forum, undertook a review of the National Health Goals and Targets process. From the report of this group, Health Ministers were advised about a number of problems with the way that National Health Goals and Targets had been implemented. These were:

- There was no national reporting requirement.
- There were too many indicators.
- There was a lack of emphasis on treatment and the ongoing management of disease.

Notwithstanding this, there is little doubt that the National Health Goals and Targets Program played an important role in facilitating a shift in thinking towards health outcomes. The next challenge was to develop a sound methodology for setting targets, and identifying and implementing some nationally coordinated strategies.

At their July 1996 meeting, Health Ministers agreed to the following reporting principles:

- Each priority area will be reported every two years.
- A limited number of priority indicators (maximum 15–20) will be reported in each area.
- Each State/Territory will develop its own targets in due course.
- It is expected that if a matter is reflected in State priorities, the State would adopt indicators consistent with the national priorities and report accordingly.

At this meeting, Ministers also agreed that:

- diabetes become the fifth National Health Priority Area;
- further work be done on developing a mechanism to identify future National Health Priority Areas; and
- focused action needs to supplement the data development activities.

Ministers requested that a consolidated report on progress in all of the priority areas be presented to them in late 1996. The report will also consider the future work program of National Health Priority Areas.

### The purpose of the report

The Australian health system is large and diverse, with responsibility for different aspects shared among the Commonwealth, State and Territory Governments. For substantial population health improvements to be achieved, collaboration between these levels of government is essential. This is the intention of the NHPA initiative.

This report provides detail of national collaborative action in dealing with the priority areas. The report does not prescribe an appropriate breadth of priority activity in all regions across the nation; rather it provides a framework for a national approach—a framework which could be adapted for local utility.

It provides a summary of the status of the nation's health in terms of the four initial priority areas, and outlines gaps and deficiencies in our understanding of the impact of the conditions on the community.

In July 1996, Health Ministers agreed to the inclusion of diabetes as the fifth priority area. This report summarises what is known about the impact of diabetes in Australia, and outlines a future work program which includes consideration of a national register of insulin-treated diabetes mellitus (ITDM), a diabetes prevalence survey and development of diabetes indicators.

The report also highlights a framework for monitoring health outcomes. It is important that the NHPA process reflects a 'whole-of-system' approach. Prevention, screening and early intervention, treatment and the ongoing management of chronic conditions will be monitored to facilitate a comprehensive approach to addressing priority health issues. The framework outlined in later chapters is designed to ensure an appropriate balance across the streams of the health system.

The report is organised into four major sections. This introductory section provides background to the NHPA initiative. The second section consists of five chapters, one each for the priority areas of cardiovascular health, cancer control, injury prevention and control, mental health and diabetes mellitus. A brief overview of the priority area is followed by a summary of progress towards targets for all priority areas except

## Introduction

diabetes mellitus. For each indicator, a brief description of its importance and relevance to public health is given, followed by national trend data (and where available the most recent State and Territory data) and progress towards the achievement of the stated target. The chapter on diabetes summarises the impact of this disease in Australia.

These chapters also include a selection of activity being undertaken by the Commonwealth, State and Territory Governments. This section is far from comprehensive; rather it outlines several examples of activity which are considered to have made significant impact on the priority areas or have considerable potential for doing so.

The final chapter provides an overview of the future work program of National Health Priority Areas. As requested by health ministers, this final chapter provides a summary of progress being made on identifying a mechanism to determine future priority areas. This mechanism needs to take into consideration issues such as the burden of a disease on the community, issues relating to equity, and the extent to which the disease lends itself to improved health outcomes. A more comprehensive and technical analysis of this issue has been developed by the Australian Institute of Health and Welfare.

In seeking to develop a mechanism to identify future National Health Priority Areas, it became apparent that, using almost any standard 'burden of disease' measure, the existing priority areas represent the conditions with the most significant impact on society. Against this background, the future work program outlined in the last chapter of this report focuses significantly on activity within each of the priority areas, rather than looking for options to expand the coverage of the program. Early work in this regard will need to focus on a stock-take of the status of knowledge for each condition—asking the question: Are there gaps in our understanding of what constitutes appropriate or best practice in the prevention and treatment of the disease; and if there are, what are the best mechanisms to fill this void?

The future work program of National Health Priority Areas must involve non-government stakeholders, including health professionals and key non-government organisations. The report outlines a mechanism for doing this.

This report also outlines a framework for future reporting. Progress on the five priority areas will be reported in subsequent reports—the first two of which are due late in 1997, covering injury prevention and control and cancer control. Reports in 1998 will cover diabetes mellitus, cardiovascular health and mental health.

The Australian Institute of Health and Welfare has been given the responsibility of monitoring and reporting progress in respect of the National Health Priority Areas. The Institute has also been requested to undertake data development activities for the priority areas as part of its charter to develop national health statistics. Attention in future reports will need to be focused on further refining the indicators and improving data coverage.\*

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Note: Targets shown in the report are based on those published in the *Better Health Outcomes for Australians* (DHS 1994) report.

## 2 Cardiovascular health

*Primary goal:*

**“ Improve cardiovascular health  
by reducing coronary heart  
disease and its impact on the  
population ”**

- Overview
- Highlights
- Priority indicators
- Priority indicators not reported due to incomplete information
- Strategies, initiatives and interventions



### Overview

Cardiovascular disease (CVD) has a major impact on Australia's health in terms of burden of illness and economic costs. Far too many Australians are at high risk of developing the disease due to the presence of risk factors such as cigarette smoking, high blood pressure, high cholesterol levels, overweight and limited exercise.

In 1994, CVD accounted for 54,888 deaths, or 43.3% of deaths from all causes among Australians. Coronary heart disease (ischaemic heart disease), or CHD, was the major cardiovascular cause of death, accounting for 24.1% of deaths from all causes. Stroke (cerebrovascular disease) accounted for an additional 10.1% of all deaths, accompanied by deaths from heart failure (2.3% of all deaths) and peripheral vascular disease (1.7% of all deaths).

In 1991–92, there were an estimated 289,500 discharges from hospitals following admission for a non-fatal CVD episode (Boyle & Dobson 1995). Of these, 36% were due to CHD, 13% due to stroke, and 11% due to heart failure.

An estimated 14,700 males and 4,900 females aged 25–69 years suffered heart attacks in 1991–92 (Boyle & Dobson 1995). The number of non-fatal heart attacks in 1991–92 was estimated at 8,500 for males and 2,800 for females aged 25–69 years. Approximately 76% of all heart attacks were first heart attacks.

Data from the 1989–90 Perth Community Stroke Study indicate that 37,000 strokes occur in Australia each year (Anderson et al. 1993). The annual event rate for all strokes in 1989–90 was 190 per 100,000 males and 109 per 100,000 females. For first-ever strokes, the incidence rates were 132 and 77 per 100,000 for males and females respectively.

The total health care cost of cardiovascular disease in 1989–90 is estimated at \$2.5 billion. This consists of \$1.1 billion for hospital in-patient costs, \$0.5 billion for nursing home costs, \$0.4 billion for medical services, \$0.4 billion for pharmaceuticals and \$35 million for allied health professional services.

### Trends and differentials

Australia has experienced a large decline in CVD mortality over recent decades. The downward trend in CHD death rates, which started in the late 1960s, is continuing with the current rate of decline estimated at 3.8% in males and 3.3% in females annually (Bennett et al. 1994). The death rate for heart attacks (acute myocardial infarction), the major contributor to coronary heart disease mortality, is declining slightly faster at an annual rate of 4.6% in men and 3.3% in women. Stroke death rates are also declining at an average of 4.6% per year among males and 4.7% among females.

The major modifiable risk factors associated with CVD are cigarette smoking, high blood cholesterol levels, high blood pressure, obesity and a sedentary lifestyle. Trend data indicate that rates of smoking, high blood pressure and physical inactivity are falling in Australia. However, the prevalence of obesity is increasing, and there was generally little change in the prevalence of high blood cholesterol levels during the 1980s.

Significant CVD health differentials exist in Australia. Males are more likely than females to die from CVD; this is true across most age groups, but the differentials between the sexes do decline with increasing age. Certain population groups, such as

## Cardiovascular health

Indigenous people, have significantly higher CVD death rates than others (Anderson et al. 1996). People of lower socioeconomic status are also more likely to die from CVD than those of higher socioeconomic status. People born in Australia similarly have higher CVD death rates than Australian residents who were born overseas.

Socioeconomic inequalities in CVD mortality widened in tandem with declining mortality during the 1970s. Recent analysis for Australian males suggests that this trend continued into the early 1980s, but has since stabilised (Bennett 1996). There are socioeconomic inequalities also associated with CVD risk factors, with prevalence rates generally higher among the socioeconomically disadvantaged.

### Highlights

- Coronary heart disease is a major contributor to CVD mortality in Australia. Over 30,000 men and women died from coronary heart disease in Australia in 1994. Death rates, however, have been declining since the late 1960s.
- In order to meet targets set for the year 2000, death rates for coronary heart disease will need to decline by an average of 5.8% per annum. On current trends, the target is likely to be achieved.
- Coronary heart disease is a leading cause of death for Aboriginal and Torres Strait Islander peoples, with death rates significantly higher than those for other Australians. No clear trend emerges from the analysis of recent mortality data, but targets for the year 2000 are unlikely to be met.
- In Australia, almost one in three men and one in four women smoke regularly. Although there have been recent declines in the proportion of men and women smoking, the target of 20% smokers in both sexes by the year 2000 is unlikely to be met.
- Between 1989–90 and 1994–95, there has been a slight reduction in the proportion of adults not participating in regular physical activity. The rate reduction will need to be much higher if the target of 25% of adults aged 18 years and over is to be reached by year 2000.
- In Australia, one-third of total energy available from food is obtained through fat consumption. This proportion has not altered in recent years, but will need to do so in order to meet the target year 2000 proportion of 32% of total energy intake from fat.
- In 1989, some 15% of men aged 20–69 years, and 15.4% of women aged 20–69 years had a blood cholesterol level equal to or greater than 6.5 mmol/L. The target for the year 2000 is to reduce these proportions to 12% for both men and women. No trend data are currently available.
- In 1994–95, almost one in two men and one in three women aged 18 years and over were overweight. A continuing increase in the proportion of overweight men and women makes it unlikely that target year 2000 proportions of 40% of men and 25% of women being overweight will be achieved.
- In 1989, 13% of men and 6% of women aged 20–69 years had high blood pressure. The target for the year 2000 is to reduce these proportions to 8% of men and 5% of women. No trend data currently exist for monitoring progress.
- Although declining death rates for coronary heart disease are encouraging, NHPA targets for the year 2000 for a majority of CVD priority indicators are unlikely to be met if the recent trends continue.

## Priority indicators

This section covers indicators for which adequate data are available for reporting progress:

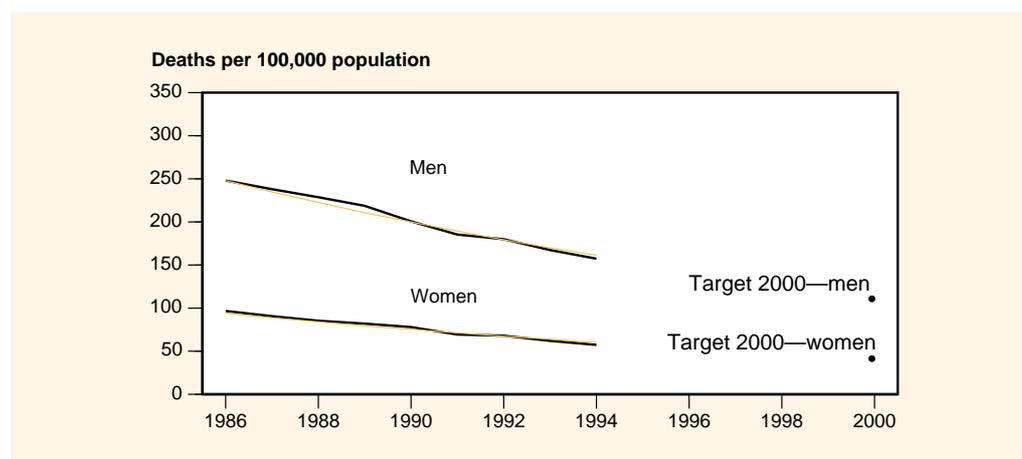
- 2.1.1** Death rate for coronary heart disease among adults aged 25–74 years
- 2.2.1** Death rate for coronary heart disease among Indigenous people
- 2.3.1** Prevalence of regular smoking among adults
- 2.3.2** Prevalence of smoking among 15-year-old secondary school students
- 2.5.1** The percentage of adults not engaged in physical activity in a two-week period
- 2.6.1** The average contribution of fat as a proportion of total energy intake in the food supply
- 2.6.3** The contribution of saturated fat as a proportion of total energy intake among 25–64 year olds
- 2.7.2** The proportion of adults aged 20–69 years with high blood cholesterol
- 2.8.2** The proportion of adults who are overweight
- 2.9.3** The proportion of adults aged 20–69 years with high blood pressure

## Cardiovascular health

### INDICATOR 2.1.1 Death rate for coronary heart disease among adults aged 25–74 years

*Goal: Improve cardiovascular health by reducing coronary heart disease and its impact on the population*

### National trends



Adults aged 25–74 years	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Men	248.0	237.8	228.9	218.8	200.5	185.1	179.9	167.6	157.3	110
Women	96.7	90.8	85.2	82.1	78.1	69.4	67.7	62.3	57.2	40

*Note:* Baseline figures in the Better Health Outcomes for Australians (BHO) report are given as 179.5 deaths per 100,000 men and 67.8 deaths per 100,000 women, aged 25–74 years.

*Source:* AIHW mortality database.

- Coronary heart disease is a major contributor to CVD mortality in Australia, with over 30,000 men and women dying from the disease in 1994.
- Since the late 1960s, mortality from coronary heart disease has been declining in Australia. Between 1986 and 1994, the death rate among men and women aged 25–74 years fell by an average of 5.7% and 6.2% per year respectively.
- Men are more likely to die prematurely, here defined as death before the age of 75, from coronary heart disease than women of the same age. Age-standardised, there were 256 premature male deaths for every 100 female deaths in 1986. This ratio is likely to increase to 275 for every 100 female deaths in the year 2000.
- In order to reach the targets set for the year 2000, death rates will need to decline by an average of 5.8% per annum for both men and women.

## Coronary heart disease (ICD-9 410-414)

### State comparisons

- Death rates for coronary heart disease do not show much variation among the States, but were significantly different from the national average for the two Territories. In 1992–94, the lowest and the highest death rates for the disease were recorded in the Australian Capital Territory and the Northern Territory respectively.
- The rate of change in death rates between the two periods (1986–88 and 1992–94) was similar for the States and the Australian Capital Territory compared with Australia as a whole, but was much lower in the Northern Territory.

### Deaths per 100,000 population aged 25–74 years

State/Territory	Males aged 25–74 years			Females aged 25–74 years		
	Average 1986–88	Average 1992–94	Per cent change	Average 1986–88	Average 1992–94	Per cent change
NSW	252.3	172.7	–31.5	98.7	66.4	–32.7
VIC	220.6	157.0	–28.8	79.8	55.5	–30.5
QLD	240.8	176.4	–26.7	93.4	68.1	–27.1
WA	245.0	175.7	–28.3	93.2	61.2	–34.3
SA	219.5	157.7	–28.2	82.6	55.0	–33.4
TAS	257.1	174.1	–32.3	100.8	69.0	–31.5
ACT	188.0	136.5	–27.4	74.6	46.6	–37.5
NT	219.8	201.6	–8.3	99.5	89.2	–10.4
<b>Australia</b>	<b>238.2</b>	<b>168.3</b>	<b>–29.3</b>	<b>90.9</b>	<b>62.4</b>	<b>–31.4</b>

Source: AIHW mortality database.

### Data issues

#### Definition

- Age-standardised number of deaths from coronary heart disease per 100,000 population aged 25–74 years

#### Data availability

- AIHW data based on information collected by State and Territory registrars of births, deaths and marriages

#### Data coverage

- Annual and national; State and Territories

#### Data reliability

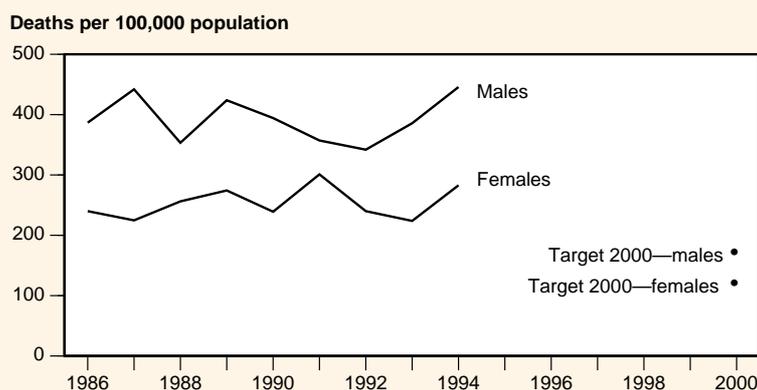
- Since 1993, the Queensland office of the Australian Bureau of Statistics (ABS) has been responsible for processing all cause of death data to ensure greater consistency in coding and improved data quality. Coding of death for coronary heart disease has been validated and found to be quite accurate (Boyle & Dobson 1995).

## Cardiovascular health

### INDICATOR 2.2.1 Death rate for coronary heart disease among Indigenous people

**Goal: Reduce the differences  
in cardiovascular health  
between identified priority  
populations and the wider  
Australian community**

#### National trends



All ages	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Males	387	442	353	424	394	357	342	386	446	171
Females	240	225	256	274	239	301	240	224	283	120

#### Notes

- 1986, 1987 and 1988 figures include Western Australia and the Northern Territory only.
- Baseline and target values were obtained using deaths data from South Australia, Western Australia and the Northern Territory.
- 1994 figures were adjusted for deaths not yet registered, and are provisional estimates.

Source: Anderson et al. (1996).

- Coronary heart disease is a leading cause of death among Indigenous Australians. Age-standardised death rates for the disease among Indigenous people are significantly higher than those among non-Indigenous people (Bhatia et al. 1995). However, the proportion of Aboriginal deaths attributed to the disease is much lower when compared to the non-Aboriginal population, due mainly to high mortality from other causes.
- No clear trend is apparent in deaths from coronary heart disease among Indigenous Australians. The death rate for the disease fluctuated around 400 per 100,000 males and around 250 per 100,000 females between 1989–91 and 1992–94 (Anderson et al. 1996).
- In comparison, the death rate for coronary heart disease declined rapidly in non-Indigenous Australians, particularly among males, during the same period. These diverging trends have widened the gap between Indigenous and non-Indigenous death rates.
- The male death rate for coronary heart disease was 2.4 times higher for Indigenous males and 2.8 times higher for Indigenous females in 1989–91 when compared to their non-Indigenous counterparts. The standardised mortality ratio rose to 2.9 for both sexes in 1992–94 (Anderson et al. 1996).

## Data issues

### Definitions

- Age-standardised number of deaths from coronary heart disease per 100,000 Indigenous population
- Baseline death rates given in the BHO report, 238 deaths per 100,000 for Indigenous males and 200 deaths per 100,000 for Indigenous females, were based on deaths data for New South Wales, Victoria, South Australia, Western Australia and the Northern Territory. In view of the incompleteness of Indigenous deaths data from New South Wales and Victoria, new baseline values were obtained using deaths data from South Australia, Western Australia and the Northern Territory only. The target values for the year 2000 were also modified to reflect the revised database.

### Data availability

- AIHW data based on information collected by State and Territory registrars of births, deaths and marriages

### Data coverage

- Annual and national; States and Territories. Identification of deaths of Indigenous people in Queensland was introduced at the beginning of 1996.

### Data reliability

- Only mortality data for Western Australia, South Australia, the Northern Territory and the Australian Capital Territory are considered to be of publishable standard by the Australian Bureau of Statistics and AIHW (Anderson et al. 1996).
- The analysis of trends in mortality is usually done by year of registration, rather than year of occurrence, in order to utilise data for the latest year of registration. For Australia as a whole this makes little difference because the proportion of deaths not registered in the year of occurrence is fairly constant from year to year. However, the proportion of Indigenous deaths not recorded in the year of occurrence varies by year and jurisdiction. Because an analysis of Indigenous mortality by year of registration could be misleading, the estimates used in this report are based on year of occurrence of death.

### Data deficiencies

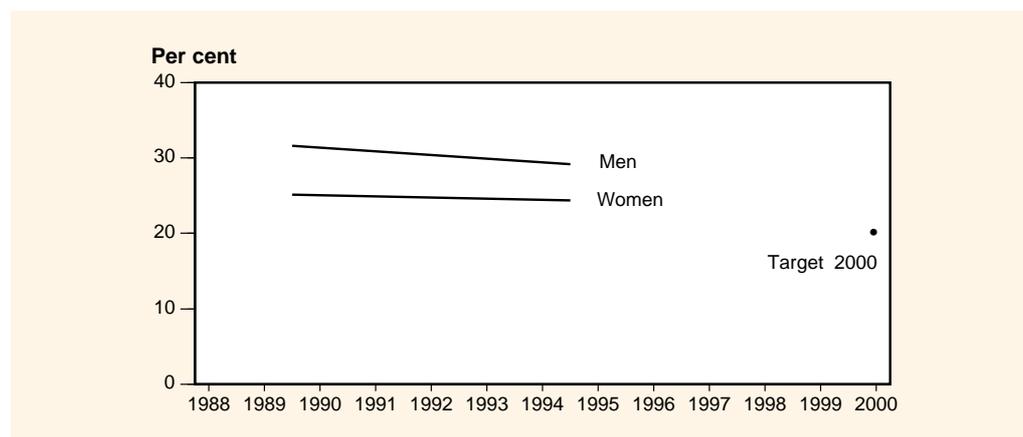
- Indigenous deaths data from New South Wales, Victoria and Tasmania are incomplete and of variable quality.

## Cardiovascular health

### INDICATOR 2.3.1 Prevalence of regular smoking among adults

**Goal: Reduce the prevalence  
of smoking among  
Australians**

#### National trends



Adults aged 18 years and over	Baseline 1989–90	1994–95	Target 2000
Men	31.6	29.2	20.0
Women	25.1	24.4	20.0

*Note:* Baseline values differ slightly from those in the BHO report, given as 31.4% for men and 25.0% for women.

*Sources:* 1989–90 estimates were derived from the Australian Bureau of Statistics (ABS) National Health Survey; the 1994–95 estimates were obtained from the ABS Population Survey Monitor conducted in May, August and November 1994, and February and May 1995.

- Tobacco smoking is a major health risk factor, responsible for significant mortality, morbidity and poor quality of life worldwide. It is known to contribute to numerous diseases, the most prominent of which are cardiovascular diseases and cancer. Smoking during pregnancy has also been linked to lower birthweight babies.
- Tobacco smoking is also a major contributor to health costs, a large proportion of which are due to tobacco-related CVD. In 1989–90, tobacco-related CVD contributed 46% to the total cost of healthcare for tobacco-related diseases (AIHW 1996b).
- It has been estimated that some 15% of all deaths in Australia can be attributed to tobacco smoking (English et al. 1995). Active smoking led to the deaths of 18,920 Australians in 1992 and caused 88,266 person-years of life lost before age 70, at an average of 4.7 years of life lost per death.
- In Australia, almost one in three men and one in four women smoke tobacco regularly. Further, a large proportion are ex-smokers, leaving only two out of five men and three out of five women who have never smoked (ABS 1992).
- The distribution of smokers in the population varies, with people on lower incomes, those with low levels of education and unemployed people reporting higher rates of smoking. The prevalence of smoking is significantly higher among Indigenous people than among non-Indigenous people.
- Between 1989 and 1995, the proportion of men and women smoking decreased, with the decline being greater for men (8%) than for women (3.5%). However, more than one in four adults still smoked cigarettes in 1994–95.
- Recent declines notwithstanding, the target of 20% smokers in both sexes in the year 2000 is unlikely to be reached on current trends.

### State comparisons

- There is not much difference between the States and Territories in the rates for tobacco smoking, except in the Northern Territory where the proportion of men who smoke regularly is higher.
- While the proportion of men smoking tobacco declined between 1989–90 and 1994–95 in all States and Territories except Western Australia, contrary trends were observed among women in South Australia and Tasmania.
- Decline in the proportion of smokers was the highest in the Australian Capital Territory, followed by the Northern Territory, both among men and women.
- Increases in the proportion of women smokers in South Australia and Tasmania have contributed to the relatively poor decline in the prevalence rates for women as a whole. The rate of decline for tobacco smoking among women in Victoria and Western Australia was also low between 1989–90 and 1994–95.

### Per cent proportion of adults who regularly smoke cigarettes

State/Territory	Men aged 18 years and over			Women aged 18 years and over		
	1989–90	1994–95	Per cent change	1989–90	1994–95	Per cent change
NSW	32.0	27.4	-14.4	25.8	24.0	-7.0
VIC	30.8	29.1	-5.5	24.5	24.1	-1.6
QLD	31.7	31.4	-0.9	24.8	23.1	-6.9
WA	30.3	31.7	4.6	25.0	24.7	-1.2
SA	32.6	29.4	-9.8	23.6	26.8	13.6
TAS	31.2	29.3	-6.1	26.9	28.8	7.1
ACT	34.8	22.7	-34.8	21.9	20.0	-8.7
NT	43.3	34.9	-19.4	29.9	25.6	-14.4
<b>Australia</b>	<b>31.6</b>	<b>29.2</b>	<b>-7.6</b>	<b>25.1</b>	<b>24.4</b>	<b>-2.8</b>

Sources: 1989–90 estimates were derived from the ABS National Health Survey; the 1994–95 estimates were obtained from the ABS Population Survey Monitor conducted in May, August and November 1994, and February and May 1995.

### Data issues

#### Definitions

- 1989–90 ABS National Health Survey: regular cigarette smoking was defined as smoking one or more cigarettes per day on average.

ABS Population Survey Monitor: current smokers

#### Data availability

- ABS Population Survey Monitor; ABS National Health Surveys; National Heart Foundation Risk Factor Prevalence Surveys; National Campaign Against Drug Abuse (NCADA) National Household Surveys; Anti-Cancer Council of Victoria Patterns of Tobacco Smoking

#### Data coverage

- Five-yearly for the ABS National Health Surveys; national as well as States and Territories

#### Data reliability

- Self-reported data may produce underestimates of smoking prevalence and cigarette consumption.

#### Data deficiencies

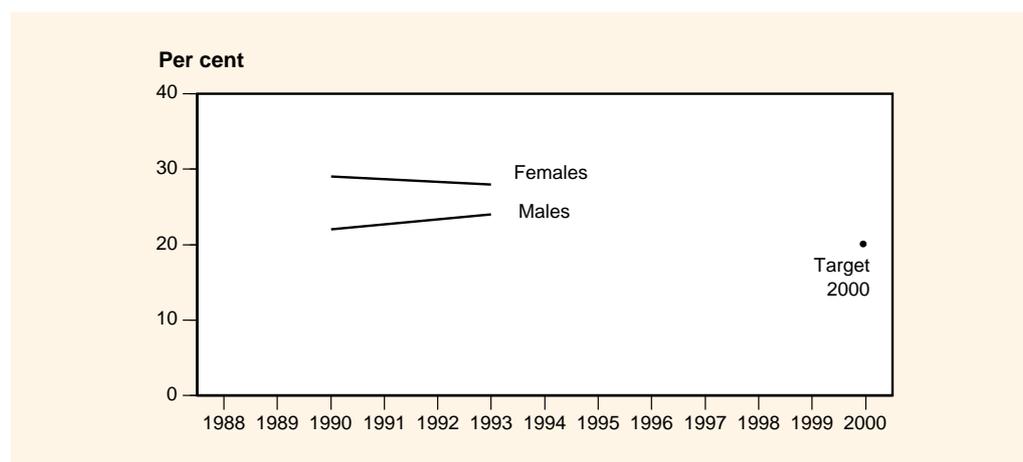
- There is a need to develop standard methods and definitions for monitoring smoking prevalence.

## Cardiovascular health

### INDICATOR 2.3.2 Prevalence of smoking among 15-year-old secondary school students

*Goal: Reduce the prevalence  
of smoking among  
Australians*

#### National trends



15-year-old secondary school students	Baseline 1990	1993	Target 2000
Males	22	24	20
Females	29	28	20

*Note:* Baseline values in the BHO report for Australians are given as 25% for both males and females.

*Sources:* Hill et al. (1993, 1995).

- Most smokers experiment with smoking before they reach their mid-teens, and take up regular smoking by the age of 20. The earlier a smoker takes up the habit, and the longer their exposure to tobacco, the more likely it is that they will succumb to one or more of the known smoking-caused diseases. Young people aged 12–17 years are therefore a priority population for efforts to reduce tobacco smoking.
- About 70,000 Australian teenagers start smoking each year. Surveys conducted by the Australian Cancer Society in 1990 and 1993 show that more than one-fourth of 15-year-old secondary school students were current smokers. Girls were more likely than boys to have smoked at least one cigarette in the week before the interview (Hill et al. 1993, 1995).
- The prevalence of current smoking reached a peak of 29% among 15-year-old female students in 1990.
- Between 1990 and 1993, the proportion of 15-year-old male students who smoked in the week before the interview increased slightly, while the proportion of girls smoking in the week before the interview decreased slightly.
- Among current smokers, boys were heavier smokers than girls. A decline in the average number of cigarettes smoked per week by current 15-year-old smokers was also noted between 1990 and 1993 (Hill et al. 1993, 1995).

### State comparisons

- Large variation exists in the proportion of current smokers among 15-year-old male students in various States and the Northern Territory than among female students.
- In parallel with the national trend, the proportion of 15-year-old male smokers increased in all States except Western Australia between 1990 and 1993. Particularly in Queensland, the proportion of 15-year-old smokers rose by 55.6% between 1990 and 1993.
- Wide variation was noted in the rate of change in the proportion of current smokers among female students in various States and the Northern Territory between 1990 and 1993. The proportion decreased almost 13 per cent points in the Northern Territory.

### Per cent proportion of 'current smokers' among 15-year-old secondary school students

State/Territory	Males			Females		
	1990	1993	Per cent change	1990	1993	Per cent change
NSW	21	24	14.3	27	29	7.4
VIC	21	22	4.8	34	29	-14.7
QLD	18	28	55.6	22	26	8.2
WA	36	19	-47.2	32	26	-18.8
SA	24	26	8.3	29	30	3.4
TAS	28	32	14.3	26	30	15.4
ACT	na	na	na	na	na	na
NT	22	21	-4.5	37	24	-35.1
<b>Australia</b>	<b>22</b>	<b>24</b>	<b>9.1</b>	<b>29</b>	<b>28</b>	<b>-3.4</b>

*Note:* Estimates for some of the States and the Northern Territory are based on small sample sizes; the information provided here should be interpreted cautiously.

*Sources:* Hill et al. (1993, 1995).

### Data issues

#### Definitions

- Age-specific smoking rate among 15-year-old secondary school students
- In both the 1990 and 1993 surveys, 'current smoking' was defined as having smoked at least one cigarette in the week preceding the survey.

#### Data availability

- Future data for monitoring will become available through surveys of smoking among school children by the Anti-Cancer Council of Victoria and the NCADA National Household Surveys (the 1993 Survey included persons aged 14 years and over).

#### Data coverage

- Frequency variable; national; States and Territories

#### Data reliability

- Self-reported data may produce underestimates of smoking prevalence and cigarette consumption.

#### Data deficiencies

- There is a need to develop standard methods and definitions for monitoring smoking prevalence for use in the population surveys.

## Cardiovascular health

### INDICATOR 2.5.1 The percentage of adults not engaged in physical activity in a two-week period

*Goal: Increase participation in regular physical activity*

#### National trends



Adults aged 18 years and over	Baseline 1989–90	1994–95	Target 2000
Men	35.6	34.8	25.0
Women	36.0	31.9	25.0

*Note:* The baseline figures are those given in the BHO report and are based on the 1989–90 ABS National Health Survey.  
*Sources:* 1989–90 ABS National Health Survey; estimates for 1994–95 were derived from the ABS Population Survey Monitor, conducted in May, August and November 1994, and February and May 1995.

- Increasing participation in physical activity is becoming a public health priority in the developed world. Physical activity is important in preventing and managing a number of medical conditions such as coronary heart disease, hypertension, non-insulin-dependent diabetes mellitus, osteoporosis, obesity, and a number of psychological conditions such as depression and self-esteem.
- There is evidence that regular exercise may mitigate a number of cardiovascular risk factors, such as increase the levels of high density lipoproteins (HDL), lower the ratio of low density lipoproteins (LDL) to HDL, reduce plasma triglyceride levels, increase insulin sensitivity and lessen the risk of abdominal obesity.
- Between 1989–90 and 1994–95, there has been a slight reduction in the number of adults not participating in physical activity for sport or recreation. The number of women who had not participated in any physical exercise decreased from 36.0% to 31.9% between 1989–90 and 1994–95. Men, in comparison, experienced a small decline in inactivity, from 35.6% to 34.8%, attributable largely to an increase in participation in physical activity among men aged 35–64 years.

## Physical inactivity

### State comparisons

- Limited variation is found in the proportion of people who do not participate in some form of regular physical activity among States and Territories, except in the Australian Capital Territory where comparatively more men and women participate in some form of physical activity. Other than in Victoria and the Australian Capital Territory, men are less likely to engage in some form of physical activity on a regular basis than women.
- In the Northern Territory, the proportion of men and women reporting lack of participation in any form of moderate physical activity increased between 1989–90 and 1994–95. In comparison, the proportion of such persons decreased between the two periods in Victoria, South Australia, Tasmania and the Australian Capital Territory. In most cases, the proportion of women engaging in physical activity increased substantially.
- Opposing signs of change with respect to this health indicator were seen in New South Wales, Queensland and Western Australia. In all cases, the proportion of women reporting some type of physical activity in the two-week period prior to the surveys increased, but the proportion among men declined.

### Per cent proportion of adults not engaged in physical activity in a two-week period

State/Territory	Men aged 18 years and over			Women aged 18 years and over		
	1989–90	1994–95	Per cent change	1989–90	1994–95	Per cent change
NSW	34.7	38.3	10.4	37.5	34.3	–8.5
VIC	35.7	32.0	–10.4	35.5	33.5	–5.6
QLD	37.1	37.5	1.1	36.7	33.3	–9.3
WA	33.2	34.8	4.8	32.4	29.6	–8.6
SA	38.9	35.1	–9.8	36.4	26.8	–26.4
TAS	36.4	35.4	–2.7	33.5	32.4	–3.3
ACT	29.8	22.9	–23.2	30.2	26.8	–11.3
NT	36.8	42.0	14.1	25.8	31.4	21.7
<b>Australia</b>	<b>35.5</b>	<b>34.8</b>	<b>–2.0</b>	<b>36.0</b>	<b>31.9</b>	<b>–11.4</b>

Sources: 1989–90 ABS National Health Survey; estimates for 1994–95 were derived from the ABS Population Survey Monitor, conducted in May, August and November 1994, and February and May 1995.

### Data issues

#### Definitions

- The proportion of adults who did not engage in vigorous exercise, moderate exercise or walking for recreation or exercise over a two-week period
- Physical activity is defined as exercise undertaken for recreation, sport or health/fitness purposes, and does not include activity undertaken in the course of work.

#### Data availability

- ABS Population Survey Monitor; ABS National Health Surveys; NHF Risk Factor Prevalence Surveys; Australian Health and Fitness Survey; Department of the Arts, Sport, the Environment, Tourism and Territories Physical Activity Survey

#### Data reliability

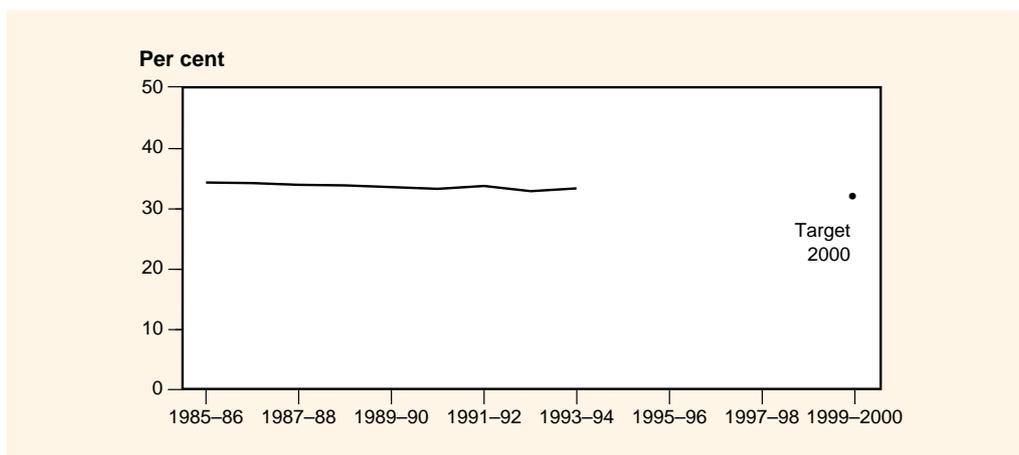
- Self-reported data reflects the respondent's perception of the activity undertaken, its intensity, his/her level of fitness, and so on.

## Cardiovascular health

### INDICATOR 2.6.1 The average contribution of fat as a proportion of total energy intake in the food supply

*Goal: Reduce early death, illness and disability from diet-related cardiovascular disease*

#### National trends



Fat consumption	1985-86	1986-87	1987-88	1988-89	1989-90	Baseline 1990-91	1991-92	1992-93	1993-94	Target 2000
Proportion of total energy intake	34.4	34.3	34.0	33.9	33.6	33.3	33.8	32.9	33.3	32.0

*Note:* The baseline figure in the BHO report is given as 34.1%.

*Source:* ABS (1996b).

- High intake of fat, particularly saturated fat, is a major health risk factor for cardiovascular disease. However, information on trends over time for the dietary intake of energy and fat is not available at the population level. Apparent consumption data, derived from food supply information, are therefore used as surrogate indicators of energy and fat consumption.
- In Australia, one-third of total energy available from the food supply is obtained through fat consumption. This contribution of fat to the total supply of energy has not altered significantly since 1985-86.

### Data issues

#### Definitions

- Apparent consumption of fat is interpreted here as a proportion of total energy supplied to the Australian market for human consumption.
- Energy (in kJ) contributed by fat as a percentage of total energy (in kJ) in the food supply:

$$E_f/E_t * 100,$$

where:  $E_f$  = energy in fat [fat (g) \* 37 kJ], and  
 $E_t$  = total energy.

#### Data availability

- ABS, *Apparent Consumption of Foodstuffs and Nutrients*

#### Data coverage

- Annual and national

#### Data reliability

- The apparent consumption of edible fats and oils, other than butter and margarine, is not measured but is assumed to be 10 kg per person per year. This is equivalent to approximately 1,000 kJ/day, or 8% of the total energy intake. The proportion represents approximately one-quarter of the contribution of fat to total energy intake.

#### Data deficiencies

- Apparent consumption data are used as surrogate measures of food consumption because actual food consumption data are not currently available at the national level.
- Due to limitations in the apparent consumption data, estimates of consumption by type of fat (i.e. saturated or unsaturated) cannot be easily made.

## Cardiovascular health

### INDICATOR 2.6.3

The contribution of saturated fat as a proportion of total energy intake among 25–64 year olds

*Goal: Reduce early death, illness and disability from diet-related cardiovascular disease*

### National trends



Adults aged 25–64 years	Baseline 1983	Target 2000
Men	15.9	10.0
Women	16.3	10.0

Source: National Dietary Survey of Adults 1983 (DCSH 1987).

- Diets high in saturated fatty acids, particularly trans-fatty acids, tend to raise blood cholesterol levels, although not all saturated fatty acids are equally likely to cause hypercholesterolaemia. Certain mono- and poly-unsaturated fatty acids even have cholesterol-lowering properties.
- An association exists between trans-fatty acid intake and LDL cholesterol level. An inverse association with HDL cholesterol level has also been observed (Lester 1994).
- Diet can exert its effect not only through the types of food consumed, and the resultant energy intake, but also through different processes for its metabolism at different ages. The disease risk may also vary with sex.
- Baselines for the contribution of saturated fat as a proportion of total energy intake among 25–64 year olds (15.9% among men; 16.3% among women) were based on data from the 1983 National Dietary Survey of Adults commissioned by the (Commonwealth Department of Community Services and Health (DCSH) 1987). If the contribution of alcohol to the energy intake is excluded, then the baselines 17.0% and 16.8% in men and women respectively.
- Monitoring progress towards the year 2000 targets is not possible as information on trends over time for the dietary intake of saturated fat is not currently available. However, this information is likely to become available in 1997 from the analysis of the 1995 National Nutrition Survey, currently under way.

## Data issues

### Definition

- Energy (in kJ) contributed by saturated fat taken as a percentage of total energy (kJ) intake:

$$E_{sf}/E_t * 100,$$

where:  $E_{sf}$  = energy in saturated fat given as [saturated fat (g) \* 37 kJ], and

$E_t$  = total energy.

### Data availability

- 1995 National Nutrition Survey and future dietary surveys. The frequency of the National Nutrition Surveys is still to be determined.

### Data coverage

- Frequency variable; State and Territory capital cities

### Data reliability

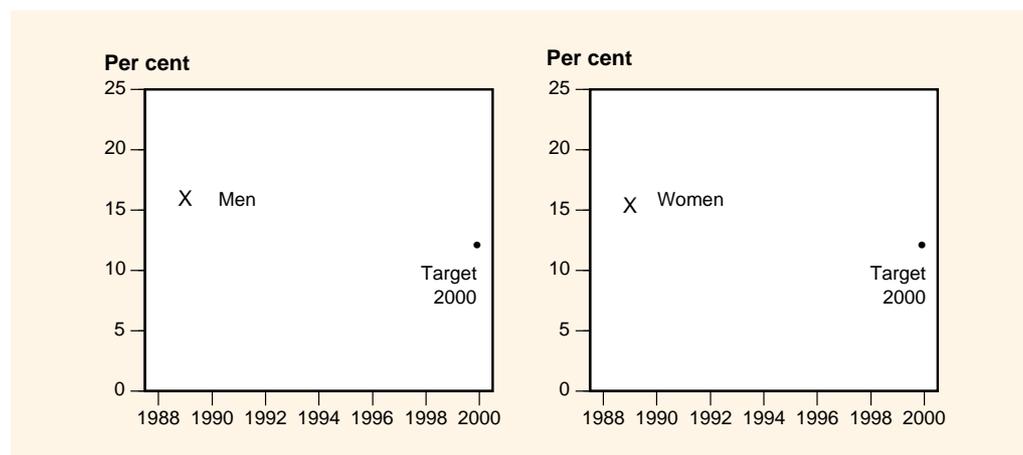
- Good

## Cardiovascular health

### INDICATOR 2.7.2 The proportion of adults aged 20–69 years with high blood cholesterol

**Goal: Reduce the prevalence of high blood cholesterol in adults**

#### National trends



Adults aged 20–69 years	Baseline 1989	Target 2000
Men	16.0	12
Women	15.4	12

*Note:* High blood cholesterol was defined as total blood cholesterol of 6.5 mmol/L or greater.  
*Source:* NHF & AIH (1990).

- There is overwhelming evidence from epidemiological, animal and clinical studies that high blood cholesterol levels are a major risk factor for CVD. The proportion of adults with plasma cholesterol levels equal to or greater than 6.5 mmol/L is a significant determinant of population risk for the disease.
- The prevalence of high blood cholesterol tends to increase with age, and is more common in men than women. Among Australia's immigrants, men and women from Italy have lower levels of total blood cholesterol than their Australian-born counterparts (Bennett 1993).
- To reduce the proportion of adults (20–69 years) with high blood cholesterol levels, a target of 12.0% for both men and women in the year 2000 was set. In the absence of any national data on the indicator since 1989, monitoring progress towards the targets is not currently possible.
- The 1989 Risk Factor Prevalence Survey, conducted by the National Heart Foundation, found that in State and Territory capital cities 16.0% of men (aged 20–69 years) and 15.4% of women (aged 20–69 years) had blood cholesterol levels of 6.5 mmol/L or more.
- National trends in blood cholesterol levels, determined from the Risk Factor Prevalence Surveys conducted in 1983, 1985 and 1989, have found that the proportion of men and women with high blood cholesterol did not change significantly during the 1980s (Bennett & Magnus 1994).

### Data issues

#### Definition

- High blood cholesterol is defined as a level equal to or greater than 6.5 mmol/L.

#### Data availability

- There is no national data collection strategy for regular population monitoring of blood cholesterol levels.
- The latest data were provided by the 1989 Risk Factor Prevalence Survey conducted by the National Heart Foundation.

#### Data coverage

- Undetermined; State and Territory capital cities

#### Data reliability

- Good

#### Data deficiencies

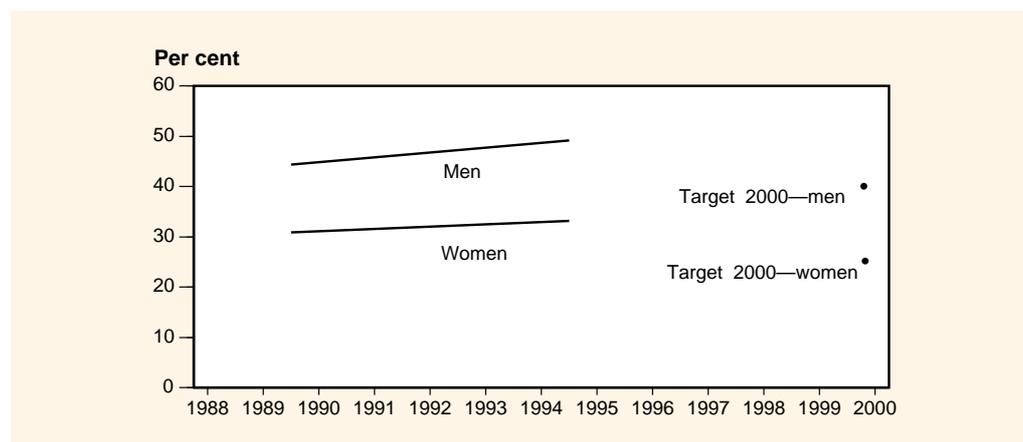
- Available data on adults aged 20–69 years living in the State or Territory capital cities only.

## Cardiovascular health

### INDICATOR 2.8.2 The proportion of adults who are overweight

*Goal: Reduce the prevalence of overweight among adults*

#### National trends



Adults aged 18 years and over	Baseline 1989-90	1994-95	Target 2000
Men	44.4	49.2	40.0
Women	30.9	33.1	25.0

*Note:* Baseline figures in the BHO report are given as 44.2% for men and 30.6% for women.

*Sources:* 1989-90: ABS National Health Survey; 1994-95: ABS Population Survey Monitor conducted in February, May, August and November 1994 and February and May 1995.

- Overweight and obesity are important determinants of cardiovascular health. Severe overweight increases the risk of coronary heart disease (CHD) in both men and women.
- A greater proportion of men than women are overweight, especially in the younger (18-24 years) and older (65+ years) age groups. In 1989-90, the proportion of men with body mass index (BMI) exceeding 25.0 was 44.4%, at least 13% higher than the proportion among women.
- Despite favourable changes to the national diet, and apparent decreases in the proportion of individuals who do not engage in regular physical activity, it is clear that prevalence of overweight and obesity is rising in Australia. A steady increase in the proportion of men and women who are overweight was noted all through the 1980s.
- This trend has continued into the 1990s. Between 1989-90 and 1994-95, the proportion of overweight adults rose 4.8% among men and 2.2% among women. One out of two men and one out of three women are now overweight.
- This continuing increase in the proportion of overweight adults runs counter to the stated NHPA goal of reducing the prevalence of this risk factor among adults. On current indications, it is unlikely that the targets set for the year 2000 will be achieved.

### State comparisons

- The proportion of overweight persons by sex does not vary significantly among States and Territories. Also, the proportion of overweight men is uniformly higher than women in all States and Territories.
- Between 1989–90 and 1994–95, an increase in the proportion of overweight men occurred in all States and Territories. However, the rate of change varied considerably, with large increases noted in Tasmania, the Australian Capital Territory and New South Wales.
- Varying changes were noted in the proportion of overweight women between 1989–90 and 1994–95.
- The proportion of overweight women increased substantially in the Australian Capital Territory between 1989–90 and 1994–95. Women in New South Wales, South Australia, Western Australia and Victoria also recorded notable increases between the two periods.

### Per cent proportion of overweight men and women by State and Territory

State/Territory	Men aged 18 years and over			Women aged 18 years and over		
	1989–90	1994–95	Per cent change	1989–90	1994–95	Per cent change
NSW	43.5	50.1	15.2	29.9	33.0	10.4
VIC	45.5	49.1	7.9	32.1	34.4	7.2
QLD	44.5	49.2	10.6	31.0	31.8	2.6
WA	43.0	44.9	4.4	30.4	33.4	9.9
SA	47.2	51.8	9.7	32.1	35.4	10.3
TAS	44.5	52.9	18.9	31.4	32.0	1.9
ACT	42.2	49.4	17.1	25.6	30.5	19.1
NT	44.8	46.7	4.2	28.8	25.8	-10.4
<b>Australia</b>	<b>44.4</b>	<b>49.2</b>	<b>10.8</b>	<b>30.9</b>	<b>33.1</b>	<b>7.1</b>

Sources: 1989–90: ABS National Health Survey; 1994–95: ABS Population Survey Monitor conducted in February, May, August and November 1994 and February and May 1995.

### Data issues

#### Definitions

- Overweight refers to persons with a body mass index (BMI) of 25.0, or higher.
- BMI is a person's weight in kilograms (kg) divided by the square of his or her height in metres (m).

#### Data availability

- ABS Population Survey Monitor; ABS National Health Surveys; ABS National Nutrition Survey
- Risk Factor Prevalence Surveys conducted by the National Heart Foundation in 1980,

1983 and 1989 provide the most recent estimates based on measured height and weight.

#### Data coverage

- National; States and Territories; capital cities; urban and rural

#### Data reliability

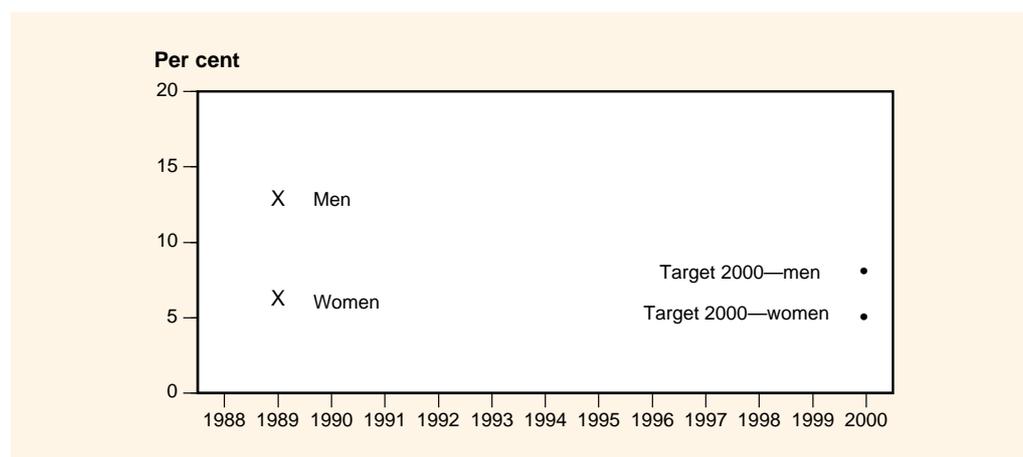
- Data from ABS surveys are based on self-reported estimates of height and weight, which underestimates the prevalence of overweight adults.

## Cardiovascular health

### INDICATOR 2.9.3 The proportion of adults aged 20–69 years with high blood pressure

*Goal: Reduce the prevalence  
of high blood pressure  
among adults*

#### National trends



Adults aged 20–69 years	Baseline 1989	Target 2000
Men	12.9	8.0
Women	6.3	5.0

Source: NHF & AIH (1990).

- High blood pressure is one of the most common medical conditions in Australia, and a major independent risk factor for stroke, coronary heart disease and other cardiovascular diseases. On average, the risk of CVD is two to four times greater among hypertensive people than among non-affected people of the same age.
- During the 1980s, average blood pressure levels declined significantly in men and women at all ages (Bennett & Magnus 1994). The proportion of adults with high blood pressure also declined considerably.
- High blood pressure is more common in men than in women aged 20–59 years; however, the pattern is reversed among the 60–69 years age group. Overall, among 20–69 year olds, almost twice as many men as women suffer from high blood pressure.
- No information is currently available for this particular indicator to report progress toward the year 2000 targets. However, analysis of the 1995 National Nutrition Survey will provide point estimates for this indicator in 1997.

### Data issues

#### Definition

- High blood pressure is defined as systolic blood pressure  $\geq 160$  mm Hg or diastolic blood pressure  $\geq 95$  mm Hg. Estimates of systolic and diastolic blood pressure are the average of two readings for each taken five minutes apart.
- Persons on treatment for high blood pressure are not included in this definition if their blood pressure is controlled.

#### Data availability

- 1995 National Nutrition Survey, as well as future surveys which include the measurement of blood pressure

- Risk Factor Prevalence Surveys conducted by the National Heart Foundation in 1980, 1983 and 1989 provide estimates for adults in capital cities.

#### Data coverage

- The frequency of the surveys is variable; State and Territory capital cities

#### Data reliability

- Blood pressure is especially liable to measurement error, dependent as it is upon observer skill in objective and accurate reading and recording. The effect of non-sampling errors can be minimised by training procedures and regular monitoring during data collection (Bennett 1994).

## Cardiovascular health

### Priority indicators not reported due to incomplete information

Priority indicators for which the availability of data and/or the target status are presently incomplete, but which will be reported in future reports, are listed below.

Priority indicator	Data availability	Target status
2.1.2 Incidence of coronary heart disease	1997–98	Not set
2.2.2 Death rate for coronary heart disease among socioeconomically disadvantaged Australians	1997–98	Possible
2.2.3 Death rate for coronary heart disease among rural and remote residents of Australia	1997–98	Possible
2.2.4 Death rate for coronary heart disease among certain immigrant groups	Now	Possible
2.10.2 The proportion of GPs who adhere to management guidelines for high blood cholesterol and high blood pressure	1997–98	Not set
2.11.1 The average delay between the onset of chest pain and presentation for emergency care	1997–98	Not set
2.11.2 The proportion of people in the community, particularly those in the priority populations, who are able to recognise chest pain which could have a cardiac basis	1997–98	Not set
2.11.4 The proportion of people in the community trained in CPR techniques	1997–98	Not set
2.11.6 The time from presentation at emergency departments to clinical and electrocardiogram (ECG) assessment and administration of appropriate therapy	Not available by 1997–98	Not set
2.12.2 Survival times of people who have undergone medical or surgical treatment for CHD	1997–98	Not set
2.13.3 The proportion of cardiac patients who enter and complete a rehabilitation program	1997–98	Not set
2.13.4 The proportion of cardiac patients who adopt and maintain satisfactory health behaviours	Not available by 1997–98	Not set
2.13.5 The proportion of people with CHD re-admitted to hospital with another cardiac event	1997–98	Not set

#### Notes

1. Data availability: '1997–98'—monitoring data are expected to become available by 1997–98; 'Not available by 1997–98'—monitoring data will not become available by 1997–98, but the indicator is considered to be of a sufficiently high priority for future reporting.
2. Target status: 'Not set'—no target has been set, due to lack of baselines or trends data; 'Possible'—no target set, but is possible given available monitoring data (or the likelihood of these data becoming available soon).

## Strategies, initiatives and interventions

The following section deals with a selection of the activities that are occurring at the Commonwealth, State and Territory levels with the broad aim of reducing the impact of cardiovascular disease on the community. The information below is far from comprehensive; rather, it gives a few examples of the activities that are considered to have contributed to, or to have the potential to contribute to, changed health status. It is provided to facilitate the exchange of information about activity which is deemed to be particularly useful, and which may have potential to be adapted for use by other States/Territories.

Prevention	Management	Maintenance	Research/Information
Active for Life Program and Physical Activity Strategy	Clinical guidelines on unstable angina	ACT HEART Program	National Cardiovascular Monitoring System
South Australian Food & Health Policy	Cardiac rehabilitation best practice	West Australian Emergency Services	
Queensland's Lighten Up Program	Improve emergency response to heart attack		
Territory Food Project			
Tasmanian Food and Nutrition Policy			

## Prevention

### Active for Life Program and Physical Activity Strategy

A large number of organisations are contributing to the Victorian effort to reduce the proportion of adult Australians who are sedentary to 25% by the year 2000. The Department of Human Services' principal contribution is through its Active for Life Program, initiated under the Cancer and Heart Offensive. It aims to encourage adults to include 30 minutes a day of moderate physical activity into their daily lives, in line with recent studies which indicate that 30 minutes of moderate-intensity aerobic exercise effectively prevents disease and promotes health and wellbeing.

The Department, the Victorian Health Promotion Foundation (VicHealth), the Heart Foundation and Vicfit are the major partners in Active for Life. The program has two main elements—a broad media campaign and a program of community-based and other activity, including sponsorships of high-profile events, a community grants scheme, local government grants, setting group activities, an Infoline and database of community physical activity opportunities. The main strategies involved in the program have been communication processes, community consultation and provision of activity opportunities. Over 140 small grants have been issued to community, sporting and local government organisations over the last two years to help specific population groups, particularly older people.

Victoria is in the very early stages of developing a Physical Activity Strategy to coordinate the many organisations and programs supporting physical activity in the State. Initially, the strategy will be a joint development of Sport and Recreation Victoria and the Department of Human Services. It will aim to support the National Health Priority Areas in reducing physical inactivity, with a focus on sustainable change through existing organisational structures.

## Cardiovascular health

### South Australian Food & Health Policy

It is well known that dietary factors, particularly saturated fat intake, play a role in cardiovascular disease. The South Australian Food and Health Policy has been developed by the Health Promotion Unit of the South Australian Health Commission's Public and Environmental Health Service. The goal of the policy is to reduce the incidence of diet-related illness, disability and early death among South Australians from diseases such as cardiovascular disease. In addition to providing a framework for coordinated intersectoral action to improve and monitor food, the policy will serve as a guide for the direct allocation of human and financial resources. The action areas of the policy, where it is perceived that health gains can be made in relation to cardiovascular disease are—Aboriginal people, infants, children, young people and their families and older people.

### Queensland's Lighten Up Program

The Lighten Up Program is a community-based weight management project that provides nutritional advice and structured exercise programs in order to reduce the risk of cardiovascular disease. Since commencing as a pilot in 1991, the program has expanded throughout the State. The program involves the coordination of weight management programs by community- and hospital-based nurses and relevant allied health staff. The program also produces, sells and distributes resources such as participants' handbooks and coordinators' packages.

### Territory Food Project

The Territory Food Project is a collaborative initiative by the Aboriginal community, other health organisations and government agencies, and the food production and supply industry. The aims are to: improve the quality, quantity and affordability of the food supply in remote Aboriginal communities; encourage the food industry to adopt nutrition policies consistent with national nutrition guidelines; increase access to nutrition education for consumers, educators, and health professionals and for training the nutrition workforce; and develop a food and nutrition information system to monitor changes in the food supply and nutritional status in these communities.

In remote Aboriginal communities, the project is building on innovative research projects to implement a community development model and resource kit for Aboriginal communities. The guidelines focus on developing store food policies that provide options for healthy food choices, as well as improving Aboriginal community knowledge about food retailing and general store management in order to give the community greater control over food supplies.

A project to describe the food transport system in the Northern Territory and investigate issues of inequity in the food supply has been completed. It found that distance or freight costs themselves are not necessarily the prime reason for poor supply, poor food quality or high prices. The main issues affecting the supply of food to remote communities can be grouped into five areas:

- the attitudes, knowledge and behaviours of remote consumers;
- the quality of store management;
- service delivery and professionalism of transport operators;
- quality assurance on the part of the supplier; and
- the role of government in the context of 'freeing up' restrictions on remote communities, transport operators and local suppliers.

## Tasmanian Food and Nutrition Policy

The Tasmanian Food and Nutrition Policy is an initiative that was endorsed by the Tasmanian State Government in May 1994. The policy aims to reduce the proportion of preventable early death, illness and disability that is diet-related. This includes cardiovascular disease, certain cancers and diabetes, as well as several other diet-related conditions.

The Tasmanian Food and Nutrition Policy recognises that food consumption patterns involve a complex mix of social, cultural, economic and physiological factors, including the available food supply and its costs. The policy uses a 'whole of population' approach, with intersectoral action being taken to bring about sustainable, structural changes in food supply. This is the first food and nutrition policy in Australia to specifically link all elements of the food system—from primary production and food manufacture through to the retail sector, the consumer and the export market, including aspects of nutrition, education and the environment.

The development of the policy was coordinated by the Department of Community and Health Services, and involved a long consultative process. Groups represented in this process included the Tasmanian Farmers and Graziers Association, the Confederation of Australian Food Technology Associations (Tasmania), the Tasmanian Confederation of Commerce and Industry, government agencies, the University of Tasmania, the Menzies Centre for Population Health Research, the Tasmanian Chamber of Retailers, the Public Health Association, and local food producers.

The Tasmanian Government has funded the Eat Well Tasmania campaign, as an initiative of the Tasmanian Food and Nutrition Policy, to:

- increase the demand for healthy foods;
- encourage ongoing intersectoral collaboration in nutrition promotion; and
- coordinate and raise the profile of projects, activities and campaigns consistent with the Nutrition Health Goals and Targets.

## Management

### Clinical Guidelines on Unstable Angina

The incidence of unstable angina appears to be increasing in Australia and, to date, its management has not been given the same attention as other areas of cardiology.

Guidelines have been adapted by the Commonwealth from the United States Association for Health Care Policy and Research Guidelines on Unstable Angina, and are expected to be finalised in December 1996. As well as providing systematically developed recommendations about each stage in the care of people with unstable angina, it is hoped that the implementation of the guidelines will improve coordination between the various stages of care and between the range of health care professionals.

The guidelines include:

- an overview, which includes definitions of terms and processes and background information about unstable angina;
- guidelines for the initial evaluation and treatment of unstable angina;
- guidelines for outpatient care;
- guidelines for intensive medical management and progression to non-intensive care;
- guidelines for non-invasive testing;
- guidelines for cardiac catheterisation and myocardial re-vascularisation; and
- guidelines for hospital discharge and post-discharge care.

In addition to the guidelines, a consumer guide for people with unstable angina and their families is being developed.

## Cardiovascular health

### Cardiac rehabilitation best practice

A major project has been implemented by the Victorian Department of Human Services, and managed by the Heart Research Centre, to develop best practice guidelines for phase two cardiac rehabilitation and secondary prevention. The project is reviewing evidence of practice around the world, in order to develop detailed advice on optimal program content and operational arrangements, including a comparative study of different programs being conducted in Melbourne hospitals.

Guidelines and resource materials resulting from the project will be used to support the integration of programs into regular health service delivery and to assist professional development activities. Other activities being undertaken to support cardiac rehabilitation include efforts to implement standard client data and evaluation reports and to link program data with hospital inpatient data, so as to ascertain participation rates and assess where there are gaps in access or referral.

### Improve emergency response to heart attack

NSW aims to establish the infrastructure for contributing to the definition of best practice and implementing best practice in the management of acute chest pain.

A quality review study (Cardiac Care Study) in relation to management of acute cardiac ischaemia in NSW is currently underway. This study will provide benchmarks for processes and outcome indicators, and inform the development of a clinical audit tool for ongoing local use.

The NSW Health Department is engaged in a joint initiative with the National Heart Foundation and Australian College of Emergency Medicine to disseminate and facilitate the implementation of guidelines for the emergency management of acute myocardial infarction (AMI). This initiative involves a series of regional workshops for relevant health personnel. The aim of the workshops is to provide the crucial educational component of the implementation of guidelines, and to promote the development of appropriate implementation strategies.

## Maintenance

### ACT HEART Program

The cardiology unit at the Canberra Hospital conducts a Heart Education And Rehabilitation Training (HEART) Program for patients during and after hospitalisation. A similar program is offered from Calvary Hospital. The unit is involved in several research projects.

The Canberra Hospital also provides health promotion services. A cardiothoracic unit will be established at the hospital during 1996–97. A specific health risk management service is available from the City Health Centre, and risk factor reduction activities are available from regional health centres.

The Alcohol and Drug Services and other agencies provide activities related to reducing risk. The ACT Division of General Practice has a program which provides GPs with resources related to cardiovascular disease and links GPs and their patients into hospital-based rehabilitation. Non-government organisations, including National Heart Support Australia, make a range of support activities available to people who are at risk of, or are affected by, cardiovascular disease.

The epidemiology unit in the ACT Department of Health and Community Care will shortly publish a report on the epidemiology of cardiovascular disease in the ACT.

### Western Australian emergency services

An emergency services review has been undertaken in Western Australia to look at issues such as strategic location of emergency services, access, the role of hospitals and ambulance transportation protocols. One of the clinical areas under consideration is emergency cardiovascular conditions such as acute myocardial infarction and the identification of any factors that could delay definitive treatment. A report is currently being finalised.

### Research/Information

#### National Cardiovascular Monitoring System

In recognition of the massive impact that cardiovascular disease has in Australia in terms of burden of illness and economic costs, and the need for national activity and monitoring, the Commonwealth has supported the establishment of a National Cardiovascular Monitoring System. The initial design of the system followed extensive consultation with representatives of government and non-government agencies, public health researchers and epidemiologists. Its infrastructure consists of a national centre, collaborating centres and an advisory committee.

The national centre, based at the Australian Institute of Health and Welfare, commenced operation in January 1996. The inclusion of collaborating centres recognises that, for the national monitoring system to be fully effective, it is important to integrate expertise that exists in key agencies and centres of excellence into the structure of the system. Its Advisory Committee includes representatives from Commonwealth, State and Territory Health Departments, the National Heart Foundation and medical colleges, and academics with expertise in the fields of cardiovascular disease, data collection and analysis.

The national system is actively engaged in: monitoring trends and differentials in the disease and its risk factors; monitoring progress towards national goals and targets; developing data sources for the evaluation of preventive, diagnostic and treatment interventions; providing data for use in planning and managing health services; contributing to the development and coordination of national data collections and databases; addressing gaps and deficiencies in data sources; supporting the development of monitoring methods; and promoting uniformity in statistical standards, methods and definitions.



# 3 Cancer control

*Primary goal:*

**“ Reduce the incidence of, mortality from, and impact of cancer on the Australian population ”**

- Overview
- Highlights
- Priority indicators
- Priority indicators not reported due to incomplete information
- Strategies, initiatives and interventions



## Overview

The National Health Priority Area of 'Cancer control' is represented by a cross-section of indicators reflecting the continuum of care, from illness prevention to treatment, support services and palliative care. Primary outcome indicators include cancer incidence, mortality, five-year survival rates and quality of life of cancer patients, their carers and families. Indicators reflecting intermediate outcomes include risk factor prevalence rates and patient satisfaction with cancer treatment. Process indicators include screening participation rates and establishment of hospital-based cancer registries.

Seven cancers have been targeted in the 'Cancer control' priority area—lung cancer, melanoma, non-melanocytic skin cancer (NMSC), colorectal cancer, prostate cancer in males and cancer of the cervix and breast in females (see the table below). NMSC is the most frequently occurring cancer in the population, but the least life threatening.

### Incidence of, and mortality from, NHPA targeted cancers, 1990

Targeted cancer	Number of new cases		Number of deaths	
	Males	Females	Males	Females
Lung cancer	4,896	1,826	4,447	1,593
Melanoma	3,127	2,654	512	317
Cervical cancer	—	1,067	—	339
Breast cancer	—	7,121	—	2,421
Colorectal cancer	4,719	4,007	2,189	1,943
Prostate cancer	5,753	—	2,078	—
<i>All cancers</i>	<i>31,741</i>	<i>27,173</i>	<i>17,010</i>	<i>13,033</i>
<b>Targeted cancers as a proportion of all cancers (excluding NMSC)</b>	<b>58.3%</b>	<b>46.6%</b>	<b>54.2%</b>	<b>50.7%</b>

*Note:* NMSC incidence data are not routinely collected by all State and Territory cancer registries.

*Source:* Jelfs et al. (1996).

Of the more life-threatening cancers, prostate cancer is the most common form of cancer among males (18.1% of all cancers excluding NMSC), followed by lung cancer (15.4%). Among females, breast cancer accounts for 26.2% of the targeted cancers. It is also the greatest cause of cancer-related mortality among women, particularly those aged 45–64 years.

Part of the increased incidence of breast and prostate cancer during this period may be attributed to increased awareness and detection of these diseases. Analysis of trends in the incidence rates suggests that the increases are likely to continue in the coming years.

On the whole, the States and Territories mirror national trends in incidence and mortality from cancer. Notable exceptions are the high incidence of cancer of the cervix in the Northern Territory (almost double the national average) and the high incidence of melanoma in Queensland, particularly among males.

Several different factors contribute to the initiation or promotion of cancer. Tobacco smoking has been identified as the primary cause of 15% of all cancers (in particular lung and oropharyngeal), and alcohol consumption the primary cause of 1% of all cancers (3% of breast cancers among females have been attributed to alcohol

## Cancer control

consumption) (Jelfs et al. 1996). Indicators for smoking among adults and adolescents are included in the section on 'Cardiovascular health' (pages 16–19).

Diet has also been associated with the onset of cancer, although the relationship is not fully understood. Fat consumption, for example, has been linked to higher incidence of colorectal cancer and breast cancer. Diet-related indicators are included in the section on 'Cardiovascular health' (pages 22–25).

Exposure to sunlight is strongly associated with the risk of contracting skin cancers; however, no indicators are included in this report as exposure measurement in the population is problematic.

Genetic mutations have been implicated in several of the cancers. For example, BRCA1 and BRCA2 genes are known to contribute to familial breast cancer. Several other oncogenes are also now being identified in the development of cancer. Genetic factors, however, are outweighed by environmental risk factors in many cases.

Early detection of cancer is generally associated with improved survival. Population-based screening programs have been established for breast cancer and cancer of the cervix. To reflect participation in these programs, two screening indicators are included in this section.

Five-year survival rates for South Australia provide an indication of the success of cancer treatment. The five-year survival rate for all cancers is about 50% (Bonett et al. 1992). Higher rates of survival were found in people diagnosed with melanoma than for people with lung cancer. Five-year survival rates for the targeted cancers were not available on a national basis at the time of publication, but are expected to become available in 1997–98. The development of the National Death Index coupled with incidence data from the National Cancer Statistics Clearing House at the Australian Institute of Health and Welfare (AIHW) will be used to develop national population-based survival rates.

The treatment of cancer frequently involves combinations of treatments. The treatments may often have side-effects which can be debilitating, cause considerable disruption to the life of the patient and their families, and invoke substantial anxiety over and above the initial diagnosis. An indicator of patient satisfaction with cancer treatment enables an assessment of the overall quality of treatment received—from the patient's rather than the practitioner's perspective. Indicators of patient satisfaction for treatment of cancer of the cervix, breast cancer and prostate cancer are expected to be developed by 1997–98.

The quality of life of patients, their carers and families has been specified as one of the goals of the 'Cancer control' priority area. Provision of support for patients and their carers is an integral part of good treatment. The notion of quality of life is an exceedingly difficult concept to measure, particularly over time—an indicator of this aspect of the continuum of care in 'Cancer control' is not expected to be developed for some years.

Monitoring the distribution and frequency of cancer in the population requires the availability of good quality cancer data. National cancer statistics are reliant upon the supply of data by State and Territory cancer registries. Regrettably, while data from many jurisdictions is timely, national data have been delayed by poor performance of one or two registries. AIHW is now targeting publication of national data three years after the end of the relevant period. The establishment of hospital-based cancer registries in selected hospitals by 1999 would enable ongoing quality appraisal of cancer treatment,

provide mechanisms for research into outcomes of care/intervention and permit better evaluation of treatment regimes. An indicator of the achievement of this goal has been included in the report.

### Highlights

- Between 1986 and 1994, the age-standardised death rates for all cancers have remained stable, but generally incidence rates have increased. Each year, approximately 190,000 new cancer cases are diagnosed in Australia. About 135,000 are non-melanocytic skin cancers (NMSC) which, if treated, are not life-threatening. Between 1983 and 1990, there were increases in the numbers diagnosed in all of the targeted cancers except male lung cancer and female cervical cancer, mostly due to population growth, ageing of the population, increased public awareness and improved disease detection.
- In 1990, prostate cancer was the most common form of cancer among males (18.1% of all cancers, excluding NMSC), followed by lung cancer (15.4%). No targets have been set; however, on current indications, the projected death rate for prostate cancer in the year 2000 would be approximately 43 deaths per 100,000 males.
- Among females, breast cancer occurred much more frequently than other cancers (26.2%). It is also the greatest cause of cancer-related death among women, particularly those aged 45–64 years. The number of newly diagnosed cases of breast cancer per 100,000 women aged 50–74 years rose by an average of 2.5% from 178.8 in 1983 to 213.6 in 1990. No targets have been set for the year 2000.
- Between 1983 and 1990, the average annual rate of decline in the incidence of lung cancers among males was 2.2%. Females, however, experienced an annual increase of 2.2% during this period. In 1990, there were 4,896 new cases of lung cancer among males and 1,826 new cases among females. No targets have been set for the year 2000.
- Australia has the highest incidence of both melanoma and NMSC in the world. Between 1983 and 1988, incidence rates increased appreciably for both males and females, but have dropped slightly since then. If this trend continues, the year 2000 target is unlikely to be reached for males. Female age-standardised death rates reached the target for 2000 in 1993. In contrast, male death rates will need to decline by an average of 2.7% per year to achieve the set target.
- NMSC is the most common cancer in Australia. Age-standardised incidence rates are 17 times higher than the next most common male cancer (prostate) and nine times higher than the next most common female cancer (breast). Between 1985 and 1990, the incidence rates increased among both males (25.7%) and females (17.7%). In order to reach the year 2000 target, male and female age-standardised death rates will need to decline annually by an average of 1.5% and 8.4%, respectively.
- Cervical cancer risk rises with age, with approximately 50% of new cases diagnosed after the age of 50. In 1990, the incidence rate for women aged 20–74 years was 2.3% below the year 2000 target. On the other hand, if the year 2000 target of 3.6 deaths per 100,000 women is to be reached, the annual rate will need to decline by 2.4%.
- Colorectal cancer is responsible for more than one in eight cancer deaths. In 1988, colorectal cancer accounted for 14.5% of newly diagnosed cancers and 14.1% of cancer deaths. For both males and females the incidence and death rates were relatively stable between 1983 and 1990.



## Priority indicators

This section covers indicators for which adequate data are available for reporting progress.

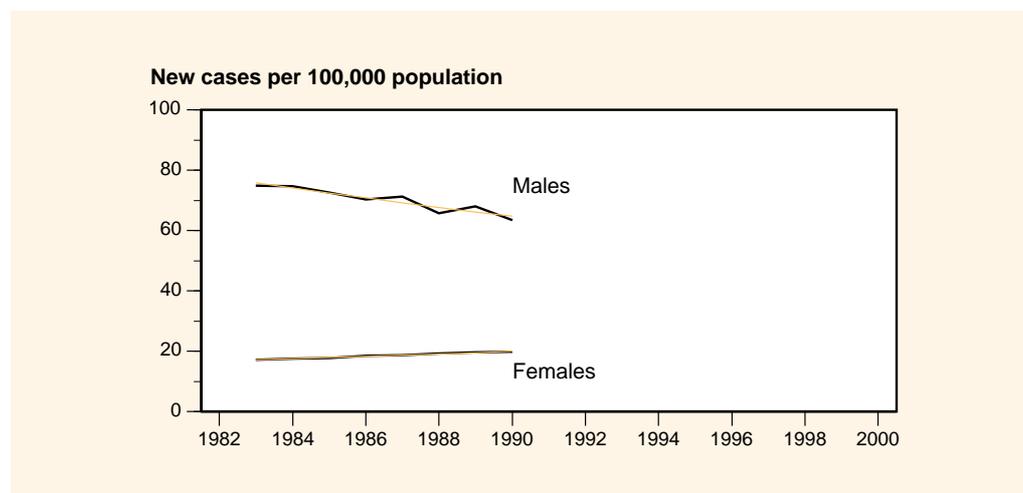
- 3.1.1 Incidence of cancer of the trachea, bronchus and lung**
- 3.1.2 Death rate for cancer of the trachea, bronchus and lung**
- 3.1.3 Incidence of melanoma of the skin**
- 3.1.4 Death rate for melanoma of the skin**
- 3.1.5 Incidence of (treated) non-melanocytic skin cancer**
- 3.1.6 Death rate for non-melanocytic skin cancer**
- 3.1.7 Incidence of cancer of the cervix among women aged 20–74 years**
- 3.1.8 Death rate for cancer of the cervix among women aged 20–74 years**
- 3.1.9 Incidence of breast cancer among women aged 50–74 years**
- 3.1.10 Death rate for breast cancer among women aged 50–74 years**
- 3.1.11 Incidence of colorectal cancer**
- 3.1.12 Death rate for colorectal cancer**
- 3.1.13 Incidence of prostate cancer**
- 3.1.14 Death rate for prostate cancer**
- 3.2.1 Proportion of women aged 50–69 years screened for breast cancer**
- 3.2.2 Proportion of women aged 20–69 years screened within specific intervals for cancer of the cervix**

## Cancer control

### INDICATOR 3.1.1 Incidence of cancer of the trachea, bronchus and lung

*Goal: Reduce the incidence  
of, and mortality from, cancer*

#### National trends



Sex	1983	1984	1985	1986	1987	1988	1989	1990	Target 2000
Males	74.8	74.7	72.7	70.2	71.3	65.8	68.1	63.4	Not set
Females	17.1	17.6	17.8	18.4	18.8	19.2	19.6	19.8	Not set

Sources: AIHW and the Australasian Association of Cancer Registries.

- Cigarette smoking is the single most important cause of lung cancer. Smoking-related cancers account for 20.9% of all cancers in males and 7.6% of all cancers in females (Jelfs et al. 1996).
- In 1983, males were 4.4 times more likely to develop cancer of the trachea, bronchus or lung than females. In 1990 there were 4,896 new cases of lung cancer among males, and 1,826 new cases among females, reflecting a drop in the male to female ratio to 3.2:1.0. The reduction in the differential reflects both a decline in incidence among males and an increase in incidence among females.
- Between 1983 and 1990, the average annual rate of decline in incidence among males was 2.2%. Females, however, experienced an annual increase of 2.2% during this period.

## Cancer of the trachea, bronchus and lung (ICD-9 162)

### State comparisons

- All States and Territories followed the national trend of declining incidence rates due to lung cancer among males. New South Wales and the Northern Territory observed the same change, a decline of about 14%, between 1983–85 and 1988–90.
- Age-standardised incidence rates for females increased for all States and Territories, except Queensland, which experienced a decline (17.9 per 100,000 females in 1983–85 compared with 15.3 in 1988–90), reaching an incidence rate lower than all other States and Territories.

### Incidence per 100,000 population

State/Territory	Males			Females		
	Average 1983–85	Average 1988–90	Per cent change	Average 1983–85	Average 1988–90	Per cent change
NSW	75.1	64.7	–13.8	16.3	19.5	19.4
VIC	73.5	65.9	–10.3	19.5	21.1	8.0
QLD	79.4	62.2	–21.7	17.9	15.3	–14.4
WA	71.6	66.0	–7.9	19.4	22.2	14.7
SA	66.6	66.4	–0.3	14.4	19.7	37.0
TAS	74.1	73.3	–1.0	18.5	24.1	30.5
ACT	58.9	57.7	–2.0	15.4	17.7	14.9
NT	56.8	49.2	–13.5	17.0	18.7	10.3
<b>Australia</b>	<b>74.1</b>	<b>65.8</b>	<b>–11.2</b>	<b>17.5</b>	<b>19.5</b>	<b>11.6</b>

Sources: AIHW and the Australasian Association of Cancer Registries.

### Data issues

#### Definition

- Age-standardised number of new cases of cancer of the trachea, bronchus and lung identified each year per 100,000 population

#### Data availability

- AIHW National Cancer Statistics Clearing House
- Data on incidence are collected by State and Territory cancer registries. These are forwarded to the National Cancer Statistics Clearing House at AIHW for collation at national level.

#### Data coverage

- Annual and national; States and Territories
- National data are currently available for the period 1983 to 1990. It is expected that

the data up to 1993 will be available by 1997.

- Data for States and Territories are currently available for:

New South Wales	up to 1993
Victoria	up to 1993
Queensland	up to 1990
Western Australia	up to 1994
South Australia	up to 1995
Tasmania	up to 1994
Australian Capital Territory	up to 1994
Northern Territory	up to 1993

#### Targets

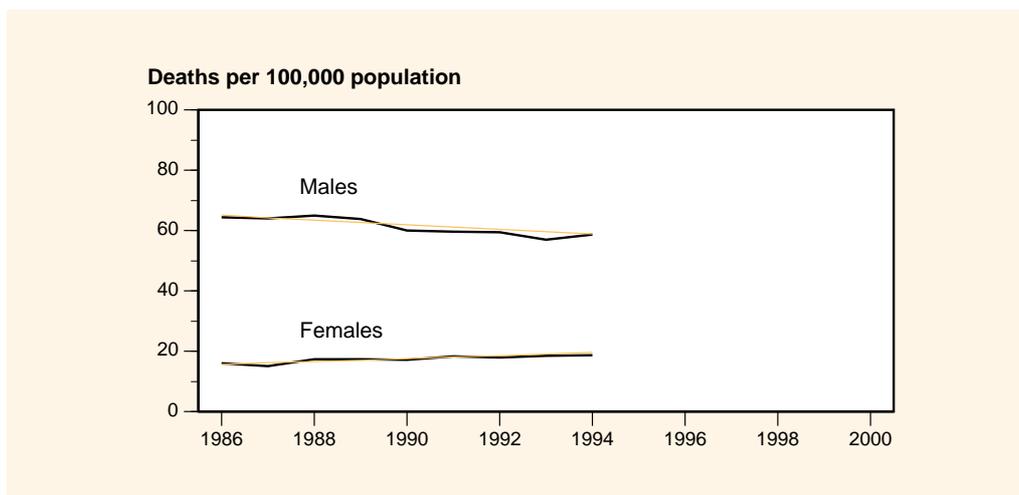
- No targets have been set.

## Cancer control

### INDICATOR 3.1.2 Death rate for cancer of the trachea, bronchus and lung

*Goal: Reduce the incidence  
of, and mortality from, cancer*

#### National trends



Sex	1986	1987	1988	1989	1990	1991	1992	1993	1994	Target 2000
Males	64.4	64.0	65.0	63.9	60.0	59.6	59.4	56.9	58.7	Not set
Females	16.1	15.0	17.4	17.4	17.2	18.3	17.9	18.5	18.7	Not set

Source: AIHW mortality database.

- Cancer of the trachea, bronchus and lung is the most common cause of cancer death in the Australian population. In 1994, the crude death rate for this type of cancer was 37.5 per 100,000 total population.
- Trends in mortality closely reflect changes in incidence (see 'Incidence of cancer of the trachea, bronchus and lung', page 46). Between 1986 and 1994, the age-standardised death rate among males fell by an average 1.4% per year; the decline in incidence between 1983 and 1990 was 2.2% per year. Among females the age-standardised death rate increased by an average 2.9% per year between 1986 and 1994; the increase in incidence between 1983 and 1990 was 2.2% per year.

## Cancer of the trachea, bronchus and lung (ICD-9 162)

### State comparisons

- Limited variation exists in the age-standardised death rates among States and Territories, with the Northern Territory showing the highest death rates for both sexes. The difference between the male and female death rates follows the national pattern in all jurisdictions, with the male death rate higher than the respective female death rate.
- Trends in mortality from cancer of the trachea, bronchus and lung are not uniform across all States and Territories. From 1986–88 to 1992–94, the gap between the age-standardised death rates widened for both males and females. Particularly among females, the difference between the highest and lowest death rates increased considerably.
- All States and the Australian Capital Territory followed the same downward trend in death rates as the national total for males, with the Australian Capital Territory showing the greatest change (–26.5%). In contrast, an increase in the death rate (19.9%) was recorded in the Northern Territory between the two periods, 1986–88 and 1992–94.
- Except for the Australian Capital Territory, which recorded a decline of 24.5%, females had substantially higher death rates due to lung cancer in 1992–94 than in 1986–88 in all States and Territories. The increase in Western Australia (5.4%) was well below the national average (13.9%), but in the Northern Territory, the death rate among females rose by 52.9%.

### Number of deaths per 100,000 population

State/Territory	Males			Females		
	Average 1986–88	Average 1992–94	Per cent change	Average 1986–88	Average 1992–94	Per cent change
NSW	63.3	58.6	–7.4	16.0	18.2	13.9
VIC	64.3	58.3	–9.3	16.3	19.5	19.8
QLD	64.3	58.5	–9.0	13.2	16.6	26.4
WA	65.4	57.1	–12.7	19.0	20.1	5.4
SA	57.8	57.6	–0.2	14.7	16.3	11.2
TAS	67.5	58.3	–13.7	18.0	19.7	9.0
ACT	67.4	49.5	–26.5	25.5	19.3	–24.5
NT	72.1	86.5	19.9	27.7	42.3	52.9
<b>Australia</b>	<b>64.4</b>	<b>58.3</b>	<b>–9.5</b>	<b>16.2</b>	<b>18.4</b>	<b>13.9</b>

Source: AIHW mortality database.

### Data issues

#### Definition

- Age-standardised number of deaths from cancer of the trachea, bronchus and lung per 100,000 population

#### Data availability

- AIHW National Cancer Statistics Clearing House

#### Data coverage

- Annual and national; States and Territories

#### Targets

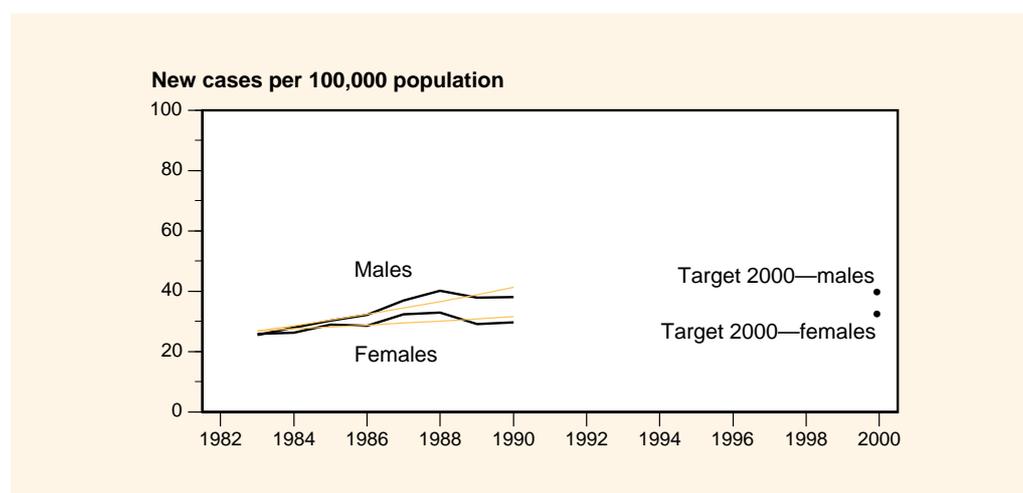
- No targets have been set.

## Cancer control

### INDICATOR 3.1.3 Incidence of melanoma of the skin

*Goal: Reduce the incidence of, and mortality from, cancer*

#### National trends



Sex	1983	1984	1985	1986	1987	Baseline 1988	1989	1990	Target 2000
Males	25.5	28.0	30.3	32.3	37.0	40.1	38.0	38.2	39.3
Females	25.9	26.2	28.9	28.5	32.3	32.9	29.1	29.7	32.2

*Note:* The baseline and target values differ from the rates published in the BHO report due to differing populations used for age-standardisation.

*Sources:* AIHW and the Australasian Association of Cancer Registries.

- Australia has the highest incidence of skin cancer in the world, and is rising. The incidence rate for melanoma, which contributes up to 80% to the mortality from skin cancer, increased appreciably for both sexes between 1983 and 1988. Since 1988, the rates have dropped slightly.
- In 1990, there were 3,127 new cases of melanoma among males compared with 2,654 new cases among females, reflecting age-standardised incidence rates of 38.2 per 100,000 and 29.7 per 100,000 among males and females, respectively. Both these rates are below the year 2000 targets of 39.3 per 100,000 for males and 32.2 per 100,000 for females.
- The incidence of melanoma is higher in people with fair, sun-sensitive skin, those with many pigmented naevi or moles on their skin, and those whose pattern of sun exposure has been intermittent as indicated by high recreational exposure or frequent sunburns. Exposure in childhood may be particularly important.
- Despite a decline in incidence between 1988 and 1990, the overall trend since 1983 was that of an increase in the rate in both sexes. If this trend were to continue, the year 2000 target is unlikely to be reached for males but may be achieved for females.

## Melanoma (ICD-9 172)

### State comparisons

- A large variation was noted in the incidence rate for melanoma among States and Territories, with Queensland showing the highest rate for both sexes. Except in Tasmania, a higher incidence of melanoma was noted in males than in females.
- All States and Territories recorded an increase in the age-standardised incidence rate for melanoma between 1983–85 and 1988–90. Tasmania showed a substantially higher increase in the incidence rate for both sexes in this period than any other State or Territory, excluding the Northern Territory where the data prior to 1988 are not complete.

### Incidence per 100,000 population

State/Territory	Males			Females		
	Average 1983–85	Average 1988–90	Per cent change	Average 1983–85	Average 1988–90	Per cent change
NSW	30.5	42.4	39.0	27.2	30.9	13.3
VIC	18.9	27.2	43.5	23.8	27.0	13.5
QLD	43.9	54.7	24.5	40.2	43.0	7.1
WA	27.8	38.8	39.9	27.5	29.4	6.7
SA	21.2	32.9	55.0	24.0	29.2	21.7
TAS	15.5	28.3	82.3	20.2	30.3	50.2
ACT	30.9	38.9	25.6	25.1	27.4	9.4
NT	2.9	30.8	>100	2.7	17.1	>100
<b>Australia</b>	<b>28.0</b>	<b>38.7</b>	<b>38.5</b>	<b>27.0</b>	<b>30.5</b>	<b>12.9</b>

Sources: AIHW and the Australasian Association of Cancer Registries.

### Data issues

#### Definition

- Age-standardised number of new cases of melanoma identified each year per 100,000 population

#### Data availability

- AIHW National Cancer Statistics Clearing House
- Data on incidence are collected by State and Territory cancer registries. These are forwarded to the National Cancer Statistics Clearing House at AIHW for collation at national level.

#### Data coverage

- Annual and national; States and Territories
- National data are currently available for the period 1983 to 1990. It is expected that the data up to 1993 will be available by 1997.
- Data for States and Territories are currently available for:
 

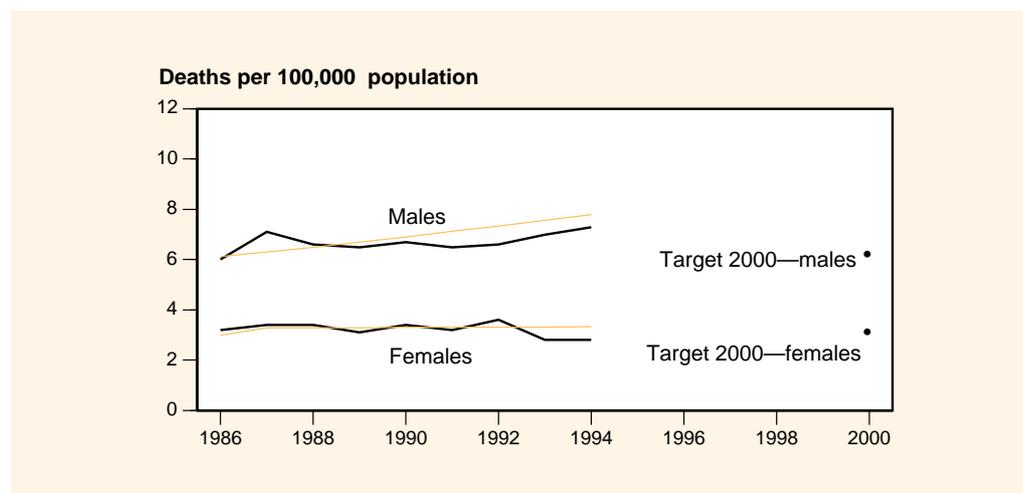
New South Wales	up to 1993
Victoria	up to 1993
Queensland	up to 1990
Western Australia	up to 1994
South Australia	up to 1995
Tasmania	up to 1994
Australian Capital Territory	up to 1994
Northern Territory	up to 1993

## Cancer control

### INDICATOR 3.1.4 Death rate for melanoma of the skin

*Goal: Reduce the incidence of, and mortality from, cancer*

#### National trends



Sex	1986	1987	1988	1989	1990	Baseline 1991	1992	1993	1994	Target 2000
Males	6.0	7.1	6.6	6.5	6.7	6.5	6.6	7.0	7.3	6.2
Females	3.2	3.4	3.4	3.1	3.4	3.2	3.6	2.8	2.8	3.1

*Note:* The baseline and target values differ from the rates published in the BHO report due to differing populations used for age-standardisation.

*Source:* AIHW mortality database.

- Mortality from melanoma has been rising continuously since the 1950s (when good quality data first became available), but the rate of increase has declined in recent years.
- The age-standardised death rate for melanoma among males increased between 1986 and 1994 from 6.0 to 7.3 per 100,000 males. In comparison, the death rate among females remained relatively stable between 1986 and 1992, but has since declined. In 1994, the age-standardised death rate for melanoma was 2.8 per 100,000 females.
- Between 1986 and 1994, the average annual increase in the death rate for melanoma among males was 1.1%, while the corresponding increase among females was 0.5%. Based on the trend among males, to reach the target by the year 2000, the death rate will need to decrease by an average 2.7% per year.
- Except in 1992, the death rate for melanoma among females has shown a downward trend since 1990. As a result, the year 2000 target was reached in 1993. In 1994, the death rate continued to be below the target value of 3.1 deaths per 100,000 females.

## Melanoma (ICD-9 172)

### State comparisons

- Between 1986–88 and 1992–94, most of the States and Territories followed the Australian trend of increasing male death rate and recently decreasing female death rate for melanoma. However, Tasmania showed a decrease in death rates for both males and females between the two periods.
- The male death rate in the Northern Territory showed a substantial increase (more than 100%) between 1986–88 and 1992–94. In comparison, the increase in the death rate for females in the Northern Territory was relatively small (17.3%), but nonetheless revealed a trend apart from other States (except Western Australia), the Australian Capital Territory and Australia as a whole. The female death rate for melanoma declined most in the Australian Capital Territory (66.5%) compared with a decline of 7.2% nationally.
- Death rates for the Northern Territory and the Australian Capital Territory are based on relatively small numbers. Therefore the estimates given below may have large variances, and should be interpreted cautiously.

### Number of deaths per 100,000 population

State/Territory	Males			Females		
	Average 1986–88	Average 1992–94	Per cent change	Average 1986–88	Average 1992–94	Per cent change
NSW	7.2	7.9	10.5	3.7	3.7	1.4
VIC	5.2	5.5	5.9	3.0	2.9	-5.4
QLD	7.8	8.7	10.6	3.5	3.3	-3.3
WA	7.1	7.1	-0.1	2.9	3.2	11.8
SA	5.1	4.8	-6.7	3.4	2.6	-22.5
TAS	6.2	4.4	-29.4	3.1	2.0	-36.6
ACT	5.9	6.2	4.7	6.9	2.3	-66.5
NT	1.8	10.7	>100	2.2	2.5	17.3
<b>Australia</b>	<b>6.6</b>	<b>7.0</b>	<b>6.6</b>	<b>3.3</b>	<b>3.1</b>	<b>-7.4</b>

Source: AIHW mortality database.

### Data issues

#### Definition

- Age-standardised number of deaths from melanoma per 100,000 population

#### Data availability

- AIHW National Cancer Statistics Clearing House

#### Data coverage

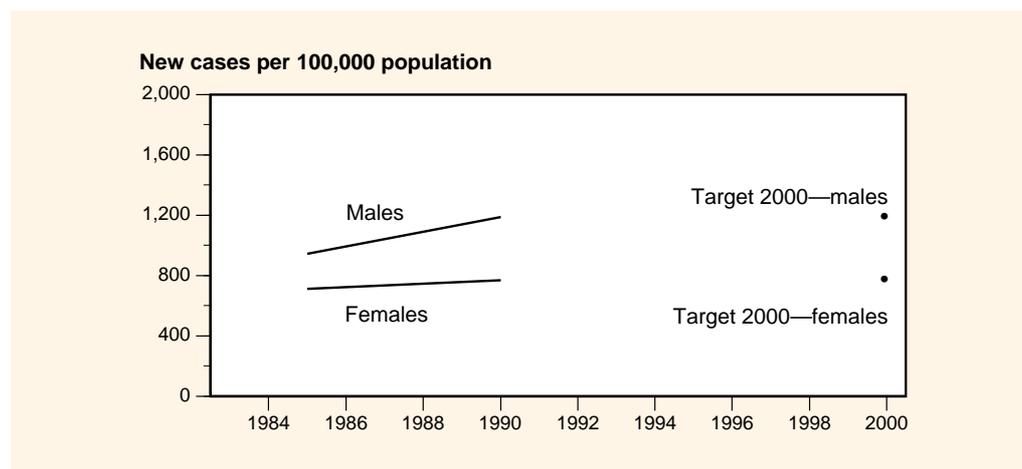
- Annual and national; States and Territories

## Cancer control

### INDICATOR 3.1.5 Incidence of (treated) non-melanocytic skin cancer

**Goal: Reduce the incidence  
of, and mortality from, cancer**

#### National trends



Sex	1985	Baseline 1990	Target 2000
Males	944	1,187	1,187
Females	714	769	769

#### Notes:

1. The baseline and target values differ from the rates published in the BHO report due to differing populations used for age-standardisation.
2. The incidence rates are age-standardised using the World Standard Population, and could not be standardised to the 1991 Australian population because of non-availability of age-specific rates.

Source: Marks et al. (1993).

- Non-melanocytic skin cancer (NMSC) is the most common cancer and a significant public health problem in Australia (Giles et al. 1988). Sun exposure is the main cause of NMSCs, and fair-skinned people who tan poorly are at high risk. As with melanoma, sun exposure in early life may be important in the development of these cancers.
- The incidence of NMSC is difficult to monitor because incidence data for this cancer are not collected on a routine basis by cancer registries as is the case for other cancers. Besides, many cases are treated in doctors' surgeries which do not lead to a hospital-based medical record (Marks et al. 1993). Surveys of treated cases currently provide the best possible estimate of the incidence rate in the population.
- Survey-based estimates show that the age-standardised incidence rates for treated NMSC were 1,187 cases per 100,000 males and 769 cases per 100,000 females in 1990 (Marks et al. 1993). These incidence rates are 17 times higher than the next most common male cancer (prostate) and nine times higher than the next most common female cancer (breast).
- Over the five-year period 1985–1990 the incidence of NMSC increased among both males and females. The rise was much higher among males (25.7%) than among females (17.7%).
- Targets for the year 2000 were set at the same level as those prevailing in 1990 to halt the rising incidence of NMSC. No information is currently available to confirm if this has occurred over the past five years (1991–95).

## Non-melanocytic skin cancer (ICD-9 173)

### Data issues

#### Definition

- Age-standardised number of new cases of non-melanocytic skin cancer identified each year per 100,000 population

#### Data coverage

- Five-yearly

#### Data availability

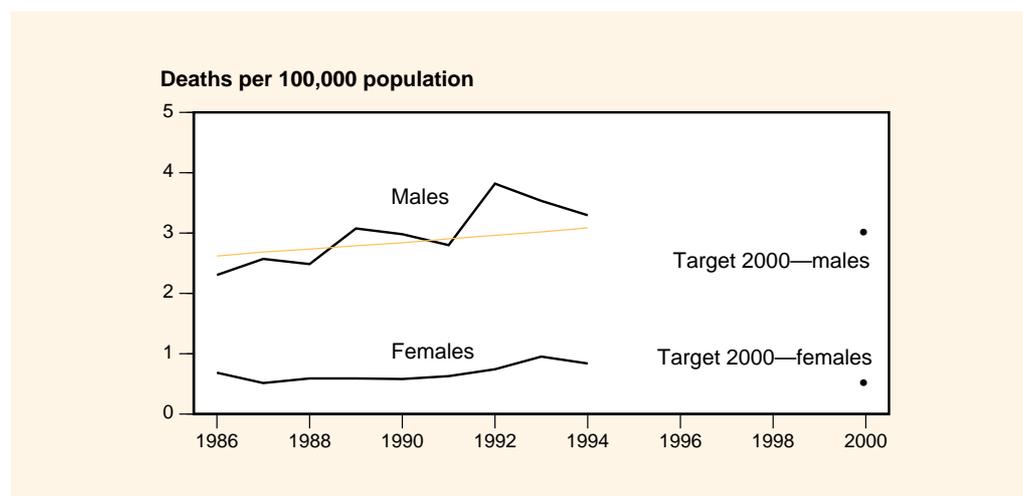
- Anti-Cancer Council of Victoria survey data (non-melanocytic skin cancer treated in Australia). Data for State comparisons are not available.

## Cancer control

### INDICATOR 3.1.6 Death rate for non-melanocytic skin cancer

*Goal: Reduce the incidence  
of, and mortality from, cancer*

#### National trends



Sex	1986	1987	1988	1989	1990	Baseline 1991	1992	1993	1994	Target 2000
Males	2.3	2.6	2.5	3.1	3.0	2.8	3.8	3.5	3.3	3.0
Females	0.7	0.5	0.6	0.6	0.6	0.6	0.7	1.0	0.8	0.5

*Note:* The baseline and target values differ from the rates published in the BHO report due to differing populations used for age-standardisation.

*Source:* AIHW mortality database.

- Provided NMSCs are treated early, they can usually be cured. Removal is simple and often done in doctors' surgeries. Despite this prognosis, NMSC mortality has increased recently. In 1994, NMSC killed 260 males and 97 females.
- Between 1986 and 1994, the age-standardised death rate for males increased considerably. In comparison, the death rate among females remained relatively stable with a slight rise in 1993 and 1994.
- The average annual rate of increase in the death rate for NMSC is currently 7.2% among males. However, the rate has shown a downward trend since 1992. If the target set for the year 2000 is to be reached, the annual rate of decline will need to be 1.5%.
- The NMSC death rate among females did not show any clear trend. An average annual increase of 2.0% was noted between 1986 and 1994. The death rate must decline at an annual rate of 8.4% if the target of 0.5 deaths per 100,000 females is to be reached by the year 2000.

## Non-melanocytic skin cancer (ICD-9 173)

### State comparisons

- For most States and Territories the age-standardised death rates for NMSC are based on a small number of deaths; changes in death rates are therefore difficult to interpret. Only New South Wales figures can be interpreted meaningfully, which showed a slight increase in death rates, similar to that for Australia as a whole.
- In the period 1986–88, there were 215 male deaths and 69 female deaths from NMSC in New South Wales. During 1992–94, the number of deaths had increased to 337 among males and to 114 deaths among females, with the majority of these deaths occurring in people aged 65 years and over.

### Number of deaths per 100,000 population

State/Territory	Males			Females		
	Average 1986–88	Average 1992–94	Per cent change	Average 1986–88	Average 1992–94	Per cent change
NSW	3.2	4.2	32.5	0.7	1.0	41.1
VIC	1.6	2.9	80.0	0.4	0.6	51.3
QLD	3.0	4.3	42.9	0.7	1.0	38.3
WA	2.9	2.7	-7.0	0.8	1.0	27.7
SA	1.3	2.1	56.4	0.5	0.7	31.3
TAS	1.8	4.2	>100	0.0	0.6	>100
ACT	1.4	3.5	>100	0.5	0.3	-36.3
NT	2.3	3.7	59.2	5.7	0.8	-86.0
<b>Australia</b>	<b>2.5</b>	<b>3.5</b>	<b>44.3</b>	<b>0.6</b>	<b>0.9</b>	<b>43.1</b>

Source: AIHW mortality database.

### Data issues

#### Definition

- Age-standardised number of deaths from non-melanocytic skin cancer per 100,000 population

#### Data availability

- AIHW National Cancer Statistics Clearing House

#### Data coverage

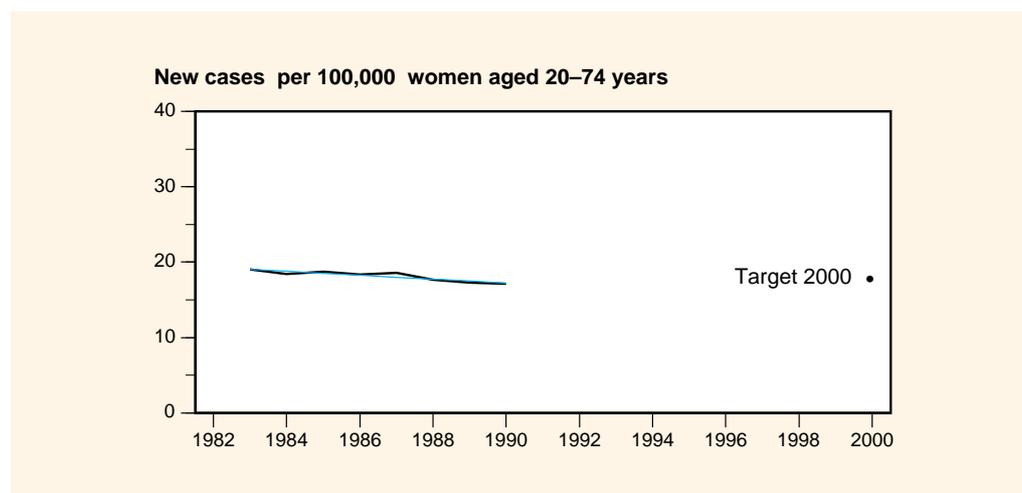
- Annual and national; States and Territories

## Cancer control

### INDICATOR 3.1.7 Incidence of cancer of the cervix among women aged 20–74 years

*Goal: Reduce the incidence of, and mortality from, cancer*

#### National trends



Population group	1983	1984	1985	1986	1987	Baseline 1988	1989	1990	Target 2000
Women aged 20–74 years	19.0	18.5	18.7	18.3	18.6	17.6	17.3	17.2	17.6

*Note:* The baseline and target values differ from the rates published in the BHO report due to differing populations used for age-standardisation.

*Sources:* AIHW and the Australasian Association of Cancer Registries.

- Cervical cancer is the seventh most common cancer in women (Jelfs et al. 1996). The causes of pre-cancerous and cancerous lesions of the cervix are multi-factorial but the major known risk factors are age, sexual behaviour and the related transmission of human papilloma virus, smoking, socioeconomic status and race.
- Cervical cancer is much more common among Indigenous women than non-Indigenous women. No reliable estimates of the incidence rate are currently available for Indigenous women.
- It is estimated that up to 90% of the most common cervical cancer cases are preventable with two-yearly screening, although up until 1991, only 50% of potential cases of cervical cancer were being prevented (Jelfs 1995).
- The incidence of cervical cancer is declining in Australia, with an average annual rate of decline of 1.4% between 1983 and 1990. However, an age-dependent variation has been noted in trends. Among women aged 50 years and over, the incidence of cancer of the cervix has fallen since 1983, while rates for those under the age of 50 years have increased slightly.
- The target for the rate of incidence for cervical cancer in the year 2000 has been set at the same level as that prevailing in 1988, the baseline year. However, the continuing decline in incidence has led to a better than expected result.
- In 1990, the rate of incidence for cervical cancer was 2.3% below the year 2000 target. Incidence rates have been predicted to fall by 1.2% per year between 1990 and 1995, and may continue further.

## Cancer of the cervix (ICD-9 180)

### State comparisons

- The incidence of cervical cancer varies substantially at the State and Territory level. Of the States, Queensland (18.2) and Western Australia (20.9) showed the highest rates, whereas South Australia (15.9) showed the lowest rate among women aged 20–74 years for the period 1988–90.
- Most States and Territories experienced a slight downward trend in incidence rates over the period 1983–1990, except the Australian Capital Territory where a slight upward trend was noted.
- Rates of incidence for cervical cancer have lately dropped in the Northern Territory; however, it still has the highest age-standardised incidence rate of all States and Territories. High incidence of cervical cancer among Aboriginal and Torres Strait Islander women is the single largest contributor to this high rate in the Northern Territory.

### Incidence per 100,000 women aged 20–74 years

State/Territory	Average 1983–85	Average 1988–90	Per cent change
NSW	17.5	16.6	–4.7
VIC	16.8	16.5	–1.8
QLD	22.7	18.2	–20.1
WA	22.3	20.9	–6.4
SA	18.3	15.9	–13.2
TAS	20.7	20.0	–3.6
ACT	18.0	18.4	2.0
NT	31.5	30.3	–3.8
<b>Australia</b>	<b>18.7</b>	<b>17.4</b>	<b>–7.3</b>

Sources: AIHW and the Australasian Association of Cancer Registries.

### Data issues

#### Definition

- Age-standardised number of new cases of cancer of the cervix identified each year per 100,000 women aged 20–74 years

#### Data availability

- AIHW National Cancer Statistics Clearing House
- Data on incidence are collected by State and Territory cancer registries. These are forwarded to the National Cancer Statistics Clearing House at AIHW for collation at national level.

#### Data coverage

- Annual and national; States and Territories
- National data are currently available for the period 1983 to 1990. It is expected that the data up to 1993 will be available by 1997.
- Data for States and Territories are currently available for:
 

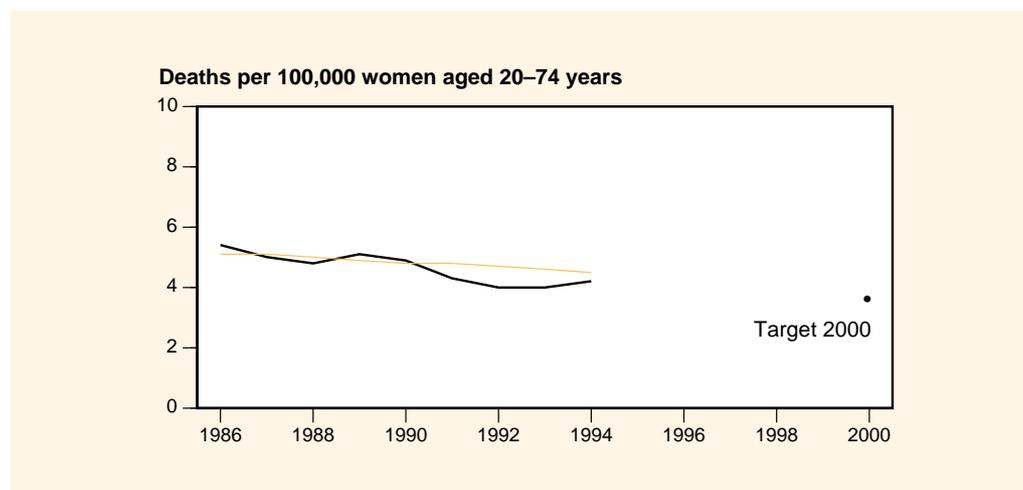
New South Wales	up to 1993
Victoria	up to 1993
Queensland	up to 1990
Western Australia	up to 1994
South Australia	up to 1995
Tasmania	up to 1994
Australian Capital Territory	up to 1994
Northern Territory	up to 1993

## Cancer control

### INDICATOR 3.1.8 Death rate for cancer of the cervix among women aged 20–74 years

*Goal: Reduce the incidence  
of, and mortality from, cancer*

#### National trends



Population group	1986	1987	1988	1989	1990	Baseline 1991	1992	1993	1994	Target 2000
Women aged 20–74 years	5.4	5.0	4.8	5.1	4.9	4.3	4.0	4.0	4.2	3.6

*Note:* The baseline and target values differ from the rates published in the BHO report due to differing populations used for age-standardisation.

*Source:* AIHW mortality database.

- Cervical cancer is the seventh most common cancer in women, but the eleventh ranked cause of cancer deaths. In 1994, there were 336 deaths from cervical cancer with an age-standardised death rate of 4.2 per 100,000 females.
- Mortality from cervical cancer is much more common among Indigenous than non-Indigenous women. A standardised mortality ratio (SMR) of 8.3 was noted in 1992–94 between the rates for the two groups (Anderson et al. 1996).
- Cervical cancer risk rises with age, with approximately 50% of new cases diagnosed after the age of 50. There has been a decrease in incidence over the age of 50 since 1982, but the rates for those under the age of 50 have shown a slight increase. These varying trends in the incidence are also reflected in mortality from cervical cancer.
- Despite varying trends among different age groups, overall mortality from the disease fell by 1.5% per year between 1986 and 1994. If the target of 3.6 deaths per 100,000 females is to be reached by the year 2000, the death rate will need to decline by 2.4% annually.
- In parallel with the trend noted in the total population, the age-standardised death rate for cervical cancer among Indigenous women also decreased slightly over the same period (Anderson et al. 1996).

## Cancer of the cervix (ICD-9 180)

### State comparisons

- The death rate for cervical cancer varies greatly among States and Territories. Both in 1986–88 and 1992–94, the Northern Territory had the highest death rate for cervical cancer among women aged 20–74 years. An average of 15.3 deaths per 100,000 women were noted in this age bracket during 1992–94, almost seven times the rate prevalent in the Australian Capital Territory.
- All States and Territories, except Tasmania and the Northern Territory, showed a decline in the age-standardised death rate for cervical cancer between 1986–88 and 1992–94. The death rate for women in Tasmania did not increase significantly but in the Northern Territory it increased by more than two-thirds between the two periods.
- In contrast, the death rate for cervical cancer declined to less than half between 1986–88 and 1992–94 in the Australian Capital Territory. Large declines in the death rate were also noted in South Australia and Victoria.
- Large changes in the number of deaths between 1986–88 and 1992–94 in the Australian Capital Territory and the Northern Territory may be an artefact of population numbers. Per cent changes in the death rate for cervical cancer in the two Territories between the two periods therefore should be interpreted cautiously.

### Number of deaths per 100,000 women aged 20–74 years

State/Territory	Average 1986–88	Average 1992–94	Per cent change
NSW	5.4	4.3	-19.4
VIC	4.5	3.6	-20.3
QLD	4.8	3.9	-18.5
WA	5.4	4.8	-10.2
SA	3.8	2.6	-33.0
TAS	6.4	6.6	3.7
ACT	4.6	2.2	-51.8
NT	9.0	15.3	69.7
<b>Australia</b>	<b>5.1</b>	<b>4.1</b>	<b>-19.9</b>

Source: AIHW mortality database.

### Data issues

#### Definition

- Age-standardised number of deaths from cancer of the cervix per 100,000 women aged 20–74 years

#### Data availability

- AIHW National Cancer Statistics Clearing House

#### Data coverage

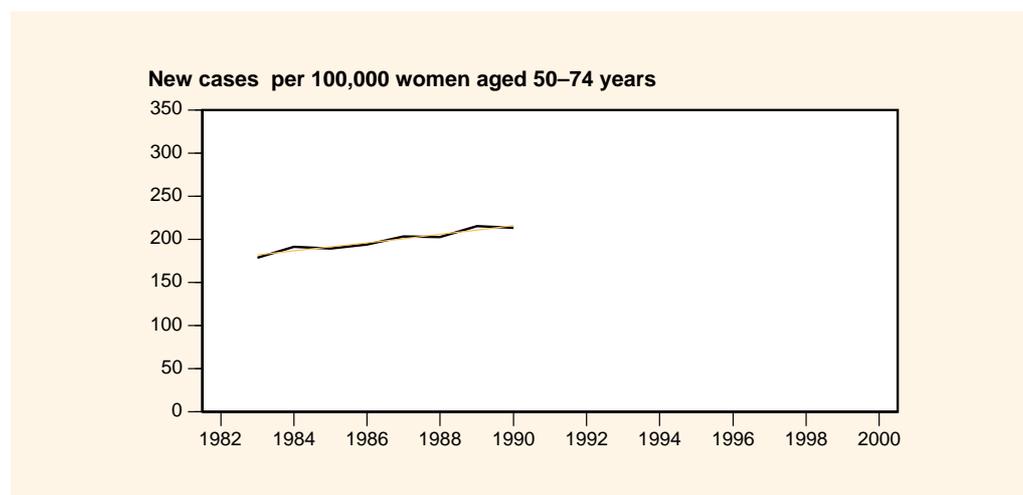
- Annual and national; States and Territories

## Cancer control

### INDICATOR 3.1.9 Incidence of breast cancer among women aged 50–74 years

*Goal: Reduce the incidence  
of, and mortality from, cancer*

#### National trends



Population group	1983	1984	1985	1986	1987	Baseline 1988	1989	1990	Target 2000
Women aged 50–74 years	178.8	191.4	189.1	194.3	203.7	202.4	215.4	213.6	Not set

*Note:* The baseline figure published in the BHO report refers to all females; the data have been revised to reflect the target age group.  
*Sources:* AIHW and the Australasian Association of Cancer Registries.

- Breast cancer is the second most common cancer in women (26.2% in 1990) after NMSC, and is the major cause of cancer death in women.
- The number of newly diagnosed cases of breast cancer rose by an average of 2.5% from 178.8 per 100,000 women aged 50–74 years in 1983 to 213.6 in 1990.
- A national breast cancer screening program began in 1991. Over the next several years, this will lead to an apparent increase in incidence as cases of breast cancer are diagnosed earlier than they would have been without the screening program. In the longer term, the earlier diagnosis of breast cancer should lead to a fall in mortality. Women aged 50–74 years have been targeted in this program (see ‘Proportion of women aged 50–69 years screened for breast cancer’, on page 74).
- There are numerous interrelated risk factors for breast cancer. Age is a significant, non-modifiable risk factor. The risk increases steadily with age, with breast cancer rare in women under 30 years. Other risk factors include: a previous history of breast cancer; a first degree relative diagnosed with breast cancer; the first full-term pregnancy at 35 years or older; evidence of specific genetic susceptibility; previous radiation to the breast; and biopsy confirmed benign proliferative disease with atypia. These and other known risk factors are estimated to account for up to 30% of breast cancers.
- No target has been set for the incidence of breast cancer in the year 2000 due to the unknown impact of the screening program in detecting new cases.

## Breast cancer (ICD-9 174)

### State comparisons

- Substantial increases in breast cancer incidence rates occurred among women (aged 50–74 years) in all the States during 1983–1990. However, in the Australian Capital Territory and the Northern Territory, with the highest and lowest incidence rates of all States and Territories in 1983–85 respectively, relatively small increases were noted in the rates through to 1988–90.
- Large increases in the incidence rate noted for some of the States, between 1983–85 and 1988–90, result mostly from improved detection programs.

### Incidence per 100,000 women aged 50–74 years

State/Territory	Average 1983–85	Average 1988–90	Per cent change
NSW	178.7	207.6	16.2
VIC	196.8	211.8	7.6
QLD	189.6	212.9	12.3
WA	186.1	228.6	22.8
SA	187.9	210.4	12.0
TAS	162.9	175.1	7.5
ACT	230.0	230.2	0.1
NT	121.8	123.5	1.3
<b>Australia</b>	<b>186.5</b>	<b>210.5</b>	<b>12.9</b>

Sources: AIHW and the Australasian Association of Cancer Registries.

### Data issues

#### Definition

- Age-standardised number of new cases of breast cancer identified each year per 100,000 women aged 50–74 years

#### Data availability

- AIHW National Cancer Statistics Clearing House
- Data on incidence are collected by State and Territory cancer registries. These are forwarded to the National Cancer Statistics Clearing House at AIHW for collation at national level.

#### Data coverage

- Annual and national; States and Territories
- National data are currently available for the period 1983 to 1990. It is expected that

the data up to 1993 will be available by 1997.

- Data for States and Territories are currently available for:

New South Wales	up to 1993
Victoria	up to 1993
Queensland	up to 1990
Western Australia	up to 1994
South Australia	up to 1995
Tasmania	up to 1994
Australian Capital Territory	up to 1994
Northern Territory	up to 1993

#### Target

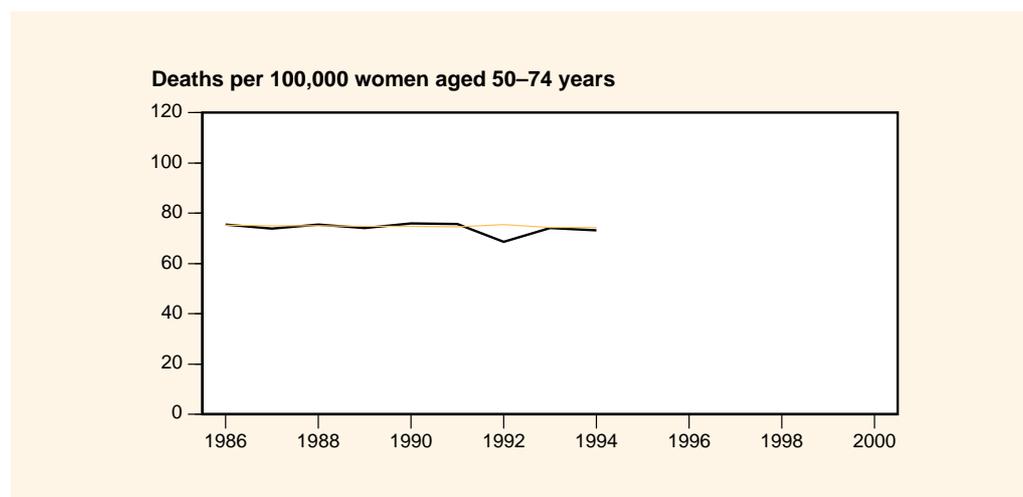
- No target has been set.

## Cancer control

### INDICATOR 3.1.10 Death rate for breast cancer among women aged 50–74 years

*Goal: Reduce the incidence of, and mortality from, cancer*

#### National trends



Population group	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Women aged 50–74 years	75.4	73.8	75.4	74.0	75.9	75.6	68.7	74.1	73.2	Not set

*Note:* The baseline figure published in the BHO report refers to all females rather than to women in the age-bracket 50–74 years; the estimate has been revised to reflect the target age group. A different population was also used for age-standardisation.

*Source:* AIHW mortality database.

- Breast cancer is the most common cause of cancer death in women. In 1994, it accounted for 19% of all female cancer deaths and nearly 5% of all female deaths.
- Among women aged between 50 and 74 years the age-standardised death rate for breast cancer remained fairly constant between 1986 and 1994 with a slight dip in 1992. This trend runs counter to the trend in breast cancer incidence which has lately shown a consistent increase in numbers.
- A national breast cancer screening program began in 1991. Over the next several years, this will lead to an earlier diagnosis of breast cancer which, through timely intervention, should lead to a fall in the death rate.
- Between 1986–88 and 1992–94, age-standardised death rate fell by 1.9% for women in all ages, compared with a fall of 3.8% for women aged 50–74 years of age. The latter change is strongly influenced by the much smaller number of deaths from breast cancer in 1992, and therefore should be interpreted cautiously.

## Breast cancer (ICD-9 174)

### State comparisons

- Death rates for breast cancer in most States and Territories do not deviate much from the national average among women aged 50–74 years. The gap between the highest and the lowest rates was in the order of 28% in 1986–88, although it increased to 60% in 1992–94.
- A decline of 3.8% in the breast cancer death rate was noted between 1986–88 and 1992–94, due mainly to a large dip in numbers in 1992. All States and Territories except the Australian Capital Territory showed this decline.
- The much larger decline in the death rate for breast cancer in the Northern Territory, a change of 42.4% between the two triennia (1986–88 and 1992–94), was possibly on account of small numbers.

### Number of deaths per 100,000 women aged 50–74 years

State/Territory	Average 1986–88	Average 1992–94	Per cent change
NSW	74.6	70.4	-5.7
VIC	78.3	77.5	-1.1
QLD	69.4	65.2	-6.1
WA	72.8	70.3	-3.5
SA	77.1	79.1	2.6
TAS	70.3	65.1	-7.4
ACT	80.1	82.0	2.4
NT	88.8	51.2	-42.4
<b>Australia</b>	<b>74.8</b>	<b>72.0</b>	<b>-3.8</b>

Source: AIHW mortality database.

### Data issues

#### Definition

- Age-standardised number of deaths from breast cancer per 100,000 women aged 50–74 years

#### Data availability

- AIHW National Cancer Statistics Clearing House

#### Data coverage

- Annual and national; States and Territories

#### Target

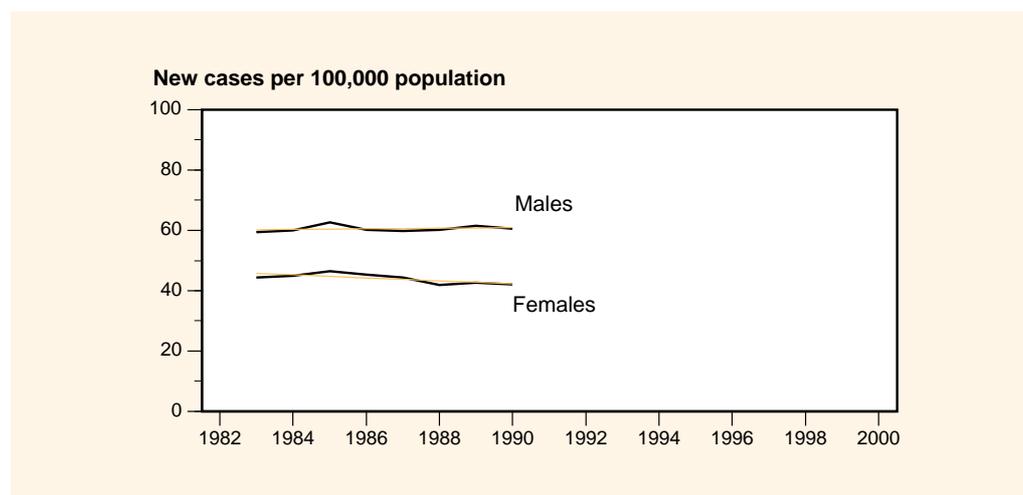
- No target has been set.

## Cancer control

### INDICATOR 3.1.11 Incidence of colorectal cancer

*Goal: Reduce the incidence of, and mortality from, cancer*

#### National trends



Sex	1983	1984	1985	1986	1987	Baseline 1988	1989	1990	Target 2000
Males	59.4	60.0	62.7	60.3	59.9	60.2	61.5	60.6	Not set
Females	44.3	45.0	46.5	45.3	44.3	42.0	42.7	42.2	Not set

*Note:* The baseline figures differ from the rates published in the BHO report due to differing populations used for age-standardisation.

*Sources:* AIHW and the Australasian Association of Cancer Registries.

- Together, cancers of the colon and rectum are the most commonly occurring cancers, accounting for 14.5% of newly diagnosed cancers and 14.1% of cancer deaths in 1988. They affect around 4,500 males and nearly 4,000 females each year. Approximately 85% of new cases occur in people aged over 55 years.
- The incidence rate for colorectal cancer has been relatively stable recently with similar levels observed in 1983 and 1990, 59.4 and 60.6 per 100,000 males, respectively, compared with 44.3 and 42.2 per 100,000 females.
- Males experienced an average annual increase of 0.2% in incidence over the period 1983 to 1990, while women showed a 1.1% decrease.
- The risk of colorectal cancer and precursor colorectal adenomas is increased by a family history of the disease, a diet high in fat and low in vegetables, and physical inactivity. Alcohol in the form of beer drinking may also have a causative role in colorectal cancer. Specific genetic mutations have also been linked to familial adenomatous polyposis (FAP) which can develop into colon cancer.

## Colorectal cancer (ICD-9 153–154)

### State comparisons

- The incidence of colorectal cancer varies slightly from year to year at the national level; this trend is also evident at the State and Territory level.
- Age-standardised rates for males have risen in New South Wales, South Australia and the Northern Territory, but declined elsewhere, between 1983–85 and 1988–90.
- Age-standardised rates for females decreased in New South Wales, Victoria, Queensland, Western Australia, Tasmania and the Australian Capital Territory in concordance with the national trend for female incidence, but rose in South Australia and the Northern Territory.

### Incidence per 100,000 population

State/Territory	Males			Females		
	Average 1983–85	Average 1988–90	Per cent change	Average 1983–85	Average 1988–90	Per cent change
NSW	60.6	61.6	1.6	44.2	40.2	-9.0
VIC	64.9	63.8	-1.7	47.4	45.2	-4.7
QLD	59.5	59.4	-0.1	48.9	41.5	-15.1
WA	56.0	55.1	-1.6	41.6	41.5	-0.2
SA	56.3	59.9	6.5	41.0	45.3	10.5
TAS	59.3	57.7	-2.6	47.5	43.7	-7.9
ACT	65.4	54.4	-16.7	44.8	43.2	-3.4
NT	24.5	44.5	81.7	12.5	36.6	>100
<b>Australia</b>	<b>60.7</b>	<b>60.7</b>	<b>0.1</b>	<b>45.3</b>	<b>42.3</b>	<b>-6.6</b>

Sources: AIHW and the Australasian Association of Cancer Registries.

### Data issues

#### Definition

- Age-standardised number of new cases of colorectal cancer identified each year per 100,000 population

#### Data availability

- AIHW National Cancer Statistics Clearing House
- Data on incidence are collected by State and Territory cancer registries. These are forwarded to the National Cancer Statistics Clearing House at AIHW for collation at national level.

#### Data coverage

- Annual and national; States and Territories
- National data are currently available for the period 1983 to 1990. It is expected that

the data up to 1993 will be available by 1997.

- Data for States and Territories are currently available for:

New South Wales	up to 1993
Victoria	up to 1993
Queensland	up to 1990
Western Australia	up to 1994
South Australia	up to 1995
Tasmania	up to 1994
Australian Capital Territory	up to 1994
Northern Territory	up to 1993

#### Targets

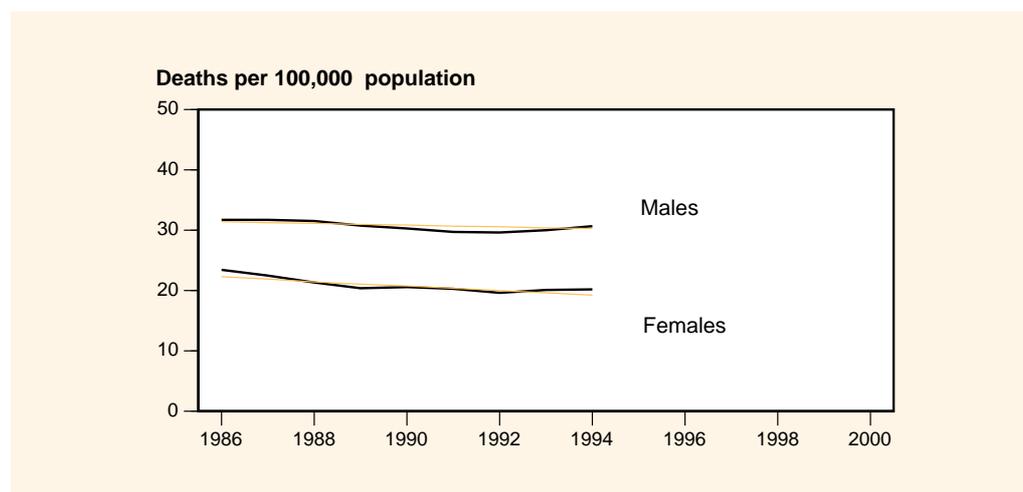
- No targets have been set.

## Cancer control

### INDICATOR 3.1.12 Death rate for colorectal cancer

*Goal: Reduce the incidence of, and mortality from, cancer*

#### National trends



Sex	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Males	31.8	31.8	31.6	30.8	30.3	29.8	29.7	30.0	30.7	Not set
Females	23.5	22.5	21.4	20.4	20.6	20.3	19.7	20.1	20.2	Not set

*Note:* The baseline figures differ from the rates published in the BHO report due to differing populations used for age-standardisation.  
*Source:* AIHW mortality database.

- Colorectal cancer is responsible for more than one in eight cancer deaths in Australia, most of which result from cancer of the colon. The death rate is much higher among males—almost one and a half times that among females.
- Between 1986 and 1994, the death rate for colorectal cancer declined among both males and females. For males the age-standardised death rate fell by an average 1.2% per year. For females the age-standardised death rate fell by an average 3.5% per year during the same time period.
- No targets were set for the year 2000 for colorectal cancer deaths. However, on the basis of existing trends, it is projected that by 2000 the age-standardised death rate for this cancer will be 27.0 and 14.0 per 100,000 for males and females respectively.

## Colorectal cancer (ICD-9 153–154)

### State comparisons

- Limited variation exists in the death rate for colorectal cancer among the States and Territories. The difference between the male and female death rates is also similar in proportion in all jurisdictions except the Northern Territory.
- No consistent pattern emerges in the trends for colorectal cancer deaths when considered at the State and Territory level. In males, the change in death rates between 1986–88 and 1992–94 varied in range from –9.8% to 10.4%. In comparison, the death rate for colorectal cancer among females declined in all the States and the Australian Capital Territory.
- The death rate for colorectal cancer among females in the Northern Territory increased by 146% between 1986–88 and 1992–94. The change noted among males in the Territory was much smaller. Large changes in the death rate for colorectal cancer also occurred, among both males and females, in the Australian Capital Territory.
- Wide fluctuations in numbers may occur due to a small population base in the Northern Territory, but are unlikely to explain the large increase in death rate for colorectal cancer among females between 1986–88 and 1992–94. The number of deaths from colorectal cancer in the Northern Territory almost doubled between the two periods; a relatively larger proportion of deaths also occurred in the higher age groups during 1992–94.

### Number of deaths per 100,000 population

State/Territory	Males			Females		
	Average 1986–88	Average 1992–94	Per cent change	Average 1986–88	Average 1992–94	Per cent change
NSW	29.7	29.5	–0.6	21.0	18.6	–11.4
VIC	34.4	31.5	–8.5	23.9	22.7	–4.9
QLD	30.2	28.9	–4.5	21.6	18.8	–13.0
WA	32.1	29.0	–9.8	21.6	19.9	–7.7
SA	33.8	29.9	2.7	20.0	18.4	–7.9
TAS	34.9	34.3	1.4	28.3	23.7	–16.3
ACT	35.7	38.5	10.4	30.5	22.2	–27.3
NT	26.0	27.1	4.6	11.8	29.1	>100
<b>Australia</b>	<b>31.7</b>	<b>30.1</b>	<b>–5.0</b>	<b>22.4</b>	<b>20.0</b>	<b>–10.9</b>

Source: AIHW mortality database.

### Data issues

#### Definition

- Age-standardised number of deaths from colorectal cancer per 100,000 population

#### Data availability

- AIHW National Cancer Statistics Clearing House

#### Data coverage

- Annual and national; States and Territories

#### Targets

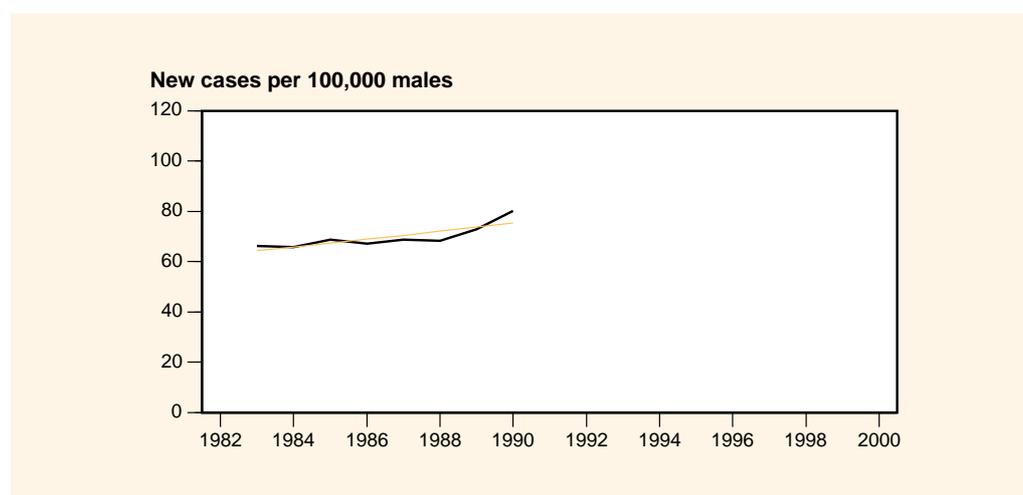
- No targets have been set.

## Cancer control

### INDICATOR 3.1.13 Incidence of prostate cancer

*Goal: Reduce the incidence of, and mortality from, cancer*

#### National trends



Sex	1983	1984	1985	1986	1987	Baseline 1988	1989	1990	Target 2000
Males	66.3	65.9	68.8	67.2	68.9	68.4	73.0	80.2	Not set

*Note:* The baseline differs from the rate published in the BHO report due to differing populations used for age-standardisation.

*Sources:* AIHW and the Australasian Association of Cancer Registries.

- Cancer of the prostate was the second most common cancer diagnosed among males until 1990. However, with over 5,000 new cases in 1989 and over 5,500 cases in 1990, it has become the most common cancer (excluding NMSC) in Australian males.
- The risk of cancer of the prostate increases with age; 95% of the cases are detected in men who are 60 years of age or older. Less than 1% of the cases are seen in males aged under 50.
- For many males, cancer of the prostate is an incidental finding and unlikely to lead to significant morbidity or death. Autopsy studies suggest that up to 30% of men over 50 and 80% of men over 80 have histological evidence of prostate cancer which was of no significance during their lifetime (Pienta & Esper 1993).
- The age-standardised incidence rate for prostate cancer increased by an average 2.3% annually between 1983 and 1990. The increase was much higher during 1989 and 1990, when a more than 5% increase was noted in the annual incidence rate.
- Evidence from cancer registries with incidence data to 1995 indicate that the large increase in prostate cancer incidence rates has continued.
- The increase in the number of new cases being diagnosed is due largely to greater public awareness and improved disease detection through the wider use of prostate-specific antigen tests and ultrasonography (Jelfs et al. 1996).

## Prostate cancer (ICD-9 185)

### State comparisons

- Limited variation occurs in the incidence rate for prostate cancer between the States, with Victoria and New South Wales slightly below the national rate and South Australia, Western Australia and Queensland slightly higher. The lowest age-standardised incidence rates reported for the period 1988–1990 were for the Northern Territory and the Australian Capital Territory.
- The incidence of prostate cancer increased in all the States between 1983–85 and 1988–90, but revealed large variation. The rate for the Australian Capital Territory changed by only 0.1%. In comparison, the incidence of prostate cancer increased by 64.6% in the Northern Territory between 1983–85 and 1988–90.

### Incidence rate per 100,000 males

State/Territory	Average 1983–85	Average 1988–90	Per cent change
NSW	63.5	75.2	18.4
VIC	66.8	69.1	3.3
QLD	76.4	77.7	1.7
WA	60.2	76.4	26.9
SA	72.7	78.8	8.4
TAS	62.7	71.2	13.7
ACT	56.5	56.6	0.1
NT	28.6	47.0	64.6
<b>Australia</b>	<b>67.0</b>	<b>74.0</b>	<b>10.4</b>

Source: AIHW and the Australasian Association of Cancer Registries.

### Data issues

#### Definition

- Age-standardised number of new cases of prostate cancer identified each year per 100,000 males

#### Data availability

- AIHW National Cancer Statistics Clearing House
- Data on incidence are collected by State and Territory cancer registries. These are forwarded to the National Cancer Statistics Clearing House at AIHW for collation at national level.

#### Data coverage

- Annual and national; States and Territories
- National data are currently available for the period 1983 to 1990. It is expected that

the data up to 1993 will be available by 1997.

- Data for States and Territories are currently available for:

New South Wales	up to 1993
Victoria	up to 1993
Queensland	up to 1990
Western Australia	up to 1994
South Australia	up to 1995
Tasmania	up to 1994
Australian Capital Territory	up to 1994
Northern Territory	up to 1993

#### Target

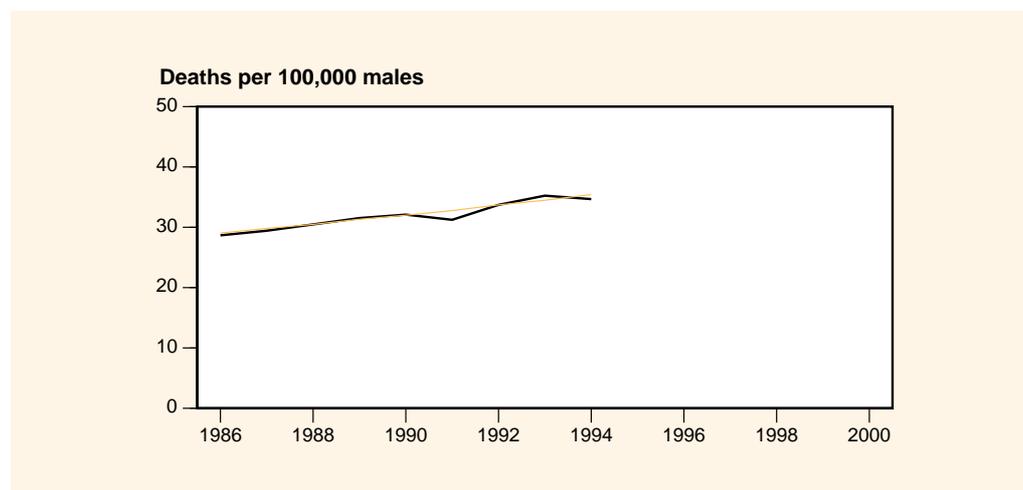
- No target has been set.

## Cancer control

### INDICATOR 3.1.14 Death rate for prostate cancer

*Goal: Reduce the incidence of, and mortality from, cancer*

#### National trends



Sex	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Males	28.7	29.4	30.5	31.5	32.1	31.2	33.7	35.2	34.7	Not set

*Note:* The baseline differs from the rate published in the BHO report due to differing populations used for age-standardisation.

*Source:* AIHW mortality database.

- In 1988, there were 1,883 deaths from prostate cancer in Australia accounting for 4,818 years of life lost before the age of 75 (Jelfs et al. 1994). The numbers have increased substantially since then, with over 2,000 deaths annually since 1990.
- Between 1986 and 1994, the age-standardised death rate for prostate cancer increased by 20.9%, from 28.7 to 34.7 per 100,000 males. This represents an average annual rate of increase of 3.0%.
- As 95% of cancers of the prostate are detected in men who are 60 years of age or older, the death rate for this disease is substantially higher among older men. In 1994, the age-standardised death rate was 218.2 per 100,000 males aged 60 years and over compared with the rate of 34.7 per 100,000 among all males.
- No target has been set for this particular indicator of mortality. On current indications, the projected death rate for prostate cancer in the year 2000 would be around 43 deaths per 100,000 males.
- The age-standardised death rate for prostate cancer is relatively low among Aboriginal men. A standardised mortality ratio of 0.2 was observed in 1992–94 between the Indigenous and non-Indigenous death rates (Anderson et al. 1996).

## Prostate cancer (ICD-9 185)

### State comparisons

- Much variation exists in the death rate for prostate cancer among States and Territories. The Australian Capital Territory showed the highest death rate during the two triennia, 1986–88 and 1992–94. In comparison, death rate for this particular cancer among males in the Northern Territory was the lowest of all jurisdictions during the two periods.
- In all States and Territories, the age-standardised death rates for prostate cancer increased between 1986–88 and 1992–94. The biggest increase was observed in the Australian Capital Territory, caused by an increase of 13 deaths, from 16 to 29 between 1986–88 and 1992–94. A large increase in death rate for prostate cancer was also noted in the Northern Territory between the two time periods.

### Number of deaths per 100,000 males

State/Territory	Average 1986–88	Average 1992–94	Per cent change
NSW	29.7	33.7	13.7
VIC	29.0	34.8	20.0
QLD	29.5	35.1	19.0
WA	27.8	31.6	13.6
SA	29.0	35.8	23.6
TAS	32.6	37.7	15.4
ACT	32.6	46.2	41.8
NT	23.3	31.3	34.2
<b>Australia</b>	<b>29.6</b>	<b>34.5</b>	<b>16.9</b>

Source: AIHW mortality database.

### Data issues

#### Definition

- Age-standardised number of deaths from prostate cancer per 100,000 males

#### Data availability

- AIHW National Cancer Statistics Clearing House

#### Data coverage

- Annual and national; States and Territories

#### Target

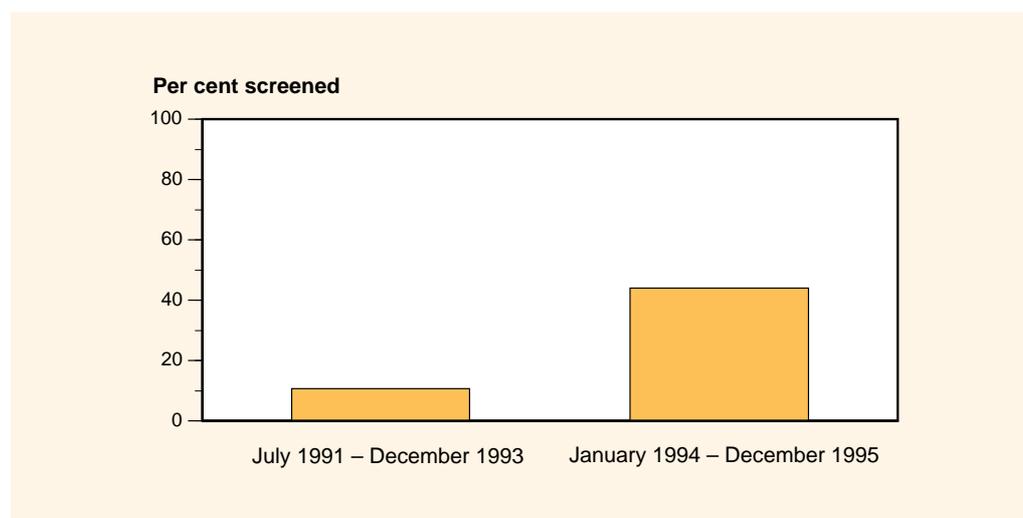
- No target has been set.

## Cancer control

### INDICATOR 3.2.1 Proportion of women aged 50–69 years screened for breast cancer

*Goal: Ensure high levels of screening for early detection of cancers where there is a scientifically demonstrated benefit at acceptable cost*

#### National trends



Population group	July 1991 – December 1993	January 1994 – December 1995
Women aged 50–69 years	10.8	44.0

*Sources:* Data for July 1991–December 1993 were obtained from the National Program for the Early Detection of Breast Cancer, December 1994, Commonwealth Department of Human Services and Health (DHSH); data for January 1994–December 1995 were provided by BreastScreen Australia, 1996.

- The National Program for the Early Detection of Breast Cancer began in 1991. The program, now known as BreastScreen Australia, aims to reduce mortality from breast cancer by the early detection of tumours. Two methods are being employed to encourage early detection: screening mammography and breast examination (either self-examination or examination by a clinician).
- Women aged 40 years or over are eligible for screening mammography offered under the program, but women in the 50–69 year age group have been actively targeted for screening.
- Between July 1991–December 1993 and January 1994–December 1995, the proportion of women in the target age group participating in the national breast cancer screening program increased from 11% to 44%.
- Participation rates are lower among women from a non-English-speaking background, among women who are separated/divorced/widowed compared with those in married/de facto relationships and among Aboriginal and Torres Strait Islander women (National Program for the Early Detection of Breast Cancer Monitoring and Evaluation Reference Group 1994).

## Data issues

### Definition

- Proportion of women aged 50–69 years screened within specified intervals (two years)

### Data availability

- Commonwealth Department of Health and Family Services (DHFS): BreastScreen Australia

### Data coverage

- Annual and national; States and Territories
- The overall participation of women aged 50–69 years may be underestimated, as some women may have had screening mammograms outside the program.
- Accessibility of services (location, hours of operation, costs, language and cultural

barriers) has been identified as a major factor in recruiting women to the screening program.

### Data reliability

- The participation rate for women aged 50–69 years is estimated from the number of women aged 50–69 years screened in a 12-month period and doubling this rate to obtain an estimate of the two-year participation rate (BreastScreen Australia, DHFS 1996).

### Baseline figures

- No baseline figures are available.

## Cancer control

### INDICATOR 3.2.2 Proportion of women aged 20–69 years screened within specified intervals for cancer of the cervix

*Goal: Ensure high levels of screening for early detection of cancers where there is a scientifically demonstrated benefit at acceptable cost*

## National trends

### Pap smear participation rate among women aged 20–69 years, by age group, 1992–1994

Age group	Participation rate (%)
20–29 years	55
30–39 years	69
40–49 years	70
50–59 years	63
60–69 years	39

#### Notes

1. The participation rates were calculated from the number of women making at least one Pap smear claim under Medicare in a three-year period divided by the target population in the middle year.
2. The estimates were adjusted for the proportion of women in each age group considered to have had a hysterectomy as reported in the 1989–90 ABS National Health Survey.

Source: Commonwealth Department of Health and Family Services (DHFS).

- The risk of cervical cancer increases with age. Women who are, or have been, sexually active and who have not had a hysterectomy are regarded as those at higher risk of developing the cancer. It is estimated that 90% of new cases of squamous cervical cancer (comprising 80–85% of all cases) could be prevented if women in the target group were to have a Pap smear once every two years.
- Annual data from the Medicare system indicate that the Pap smear rates for women aged 15–69 years showed an upward trend between 1984–85 and 1992–93, although there has been a slight decline in the last two years. The proportion of Pap smears being performed in private (Medicare-funded) versus public laboratories may have influenced this rise.
- As most deaths from cervical cancer occur in women who are unscreened or under-screened (Medley 1995), the National Cervical Screening Program is concentrating recruitment efforts on these women.
- Although overall screening rates appear to have increased, it has been estimated that only half the potential cases are currently being prevented. The reason for this is that much of the screening is occurring among younger women who are at lower risk. Screening rates are lower among older women, women of non-English-speaking background, and women of lower socioeconomic status.
- Indigenous women have a very high risk of cervical cancer. In Western Australia, the incidence rate for Indigenous women was nearly five times, and the death rate was over eight times, the rate for the entire State. It has been suggested that poor screening among Indigenous women contributes to their increased death rates from this type of cancer (Gillies et al. 1995).

### Data issues

#### Definition

- Proportion of women aged 20–69 years screened within specified intervals (two years)

#### Data availability

- Commonwealth Department of Health and Family Services: Organised Approach to the Prevention of Cancer of the Cervix (data are or will be available from State and Territory cytology registers)
- Health Insurance Commission: Medicare claims data
- Cervical cytology registries, now established in most States and Territories, will enable much more accurate estimation of national screening rates. Currently, only Queensland does not have an operational cytology registry.

#### Data coverage

- Annual and national; States and Territories
- National participation rates in cervical screening may be estimated from Medicare data on Pap smear claims obtained from the Health Insurance Commission. However, Medicare claims data will significantly underestimate screening rates because they do not include the approximate 28% of Pap smears reported in public laboratories.
- Surveys by the Department of Health and Family Services in 1991, 1992 and 1993 indicate that Medicare claims account for only 72% of Pap smear tests. The Medicare share may have increased in more recent years, possibly due to changes in public hospital funding.

#### Baseline and target

- No baseline or target has been set.

## Cancer control

### Priority indicators not reported due to incomplete information

Priority indicators for which the availability of data and/or the targets are presently incomplete, but which will be addressed in future reports, are listed below.

Priority indicator	Data availability	Target status
3.3.2 Five-year survival rate for melanoma of the skin	1997–98	Not set
3.3.3 Five-year survival rate for cancer of the cervix	1997–98	Not set
3.3.4 Five-year survival rate for breast cancer	1997–98	Not set
3.3.5 Five-year survival rate for colorectal cancer	1997–98	Not set
3.3.6 Five-year survival rate for prostate cancer	1997–98	Not set
3.3.15 Patient satisfaction for treatment for cancer of the cervix	Not available by 1997–98	Not set
3.3.16 Patient satisfaction for treatment for breast cancer	Not available by 1997–98	Not set
3.3.18 Patient satisfaction for treatment for prostate cancer	Not available by 1997–98	Not set
3.4.1 Improved access to quality support services for all cancer patients, their families and carers	Not available by 1997–98	Not set
3.8.1 The establishment of hospital-based cancer registries	Not available by 1997–98	Not set

#### Notes

1. Data availability: '1997–98'—monitoring data are expected to become available by 1997–98; 'Not available by 1997–98'—monitoring data will not become available by 1997–98, but the indicator is considered to be of a sufficiently high priority for future reporting.
2. Target status: 'Not set'—no target has been set due to lack of baselines or trends data; 'Possible'—no target set, but is possible given available monitoring data (or the likelihood of these data becoming available soon).

## Strategies, initiatives and interventions

The following section deals with particular examples of best practice activities that are occurring at the Commonwealth, State and Territory levels, with the broad aim of reducing the impact of cancer on the community. The information below is far from comprehensive; rather, it gives a few examples of the activities, considered to have contributed to, or that have the potential to contribute to, improved health status. It is provided to facilitate the exchange of information about activity which is deemed to be particularly useful, and which may have potential to be adapted for use by other States/Territories.

Prevention	Management	Maintenance	Research/Information
BreastScreen Australia	ACT cancer management initiative		
<i>ACT Smoke Free Areas (Enclosed Public Places) Act 1994</i>	Optimising cancer management in New South Wales		Establishment of hospital-based cancer registries in South Australia
Katherine District Remote Communities Cervical Cancer Prevention Program			Linked Database Project (also covers Mental Health and Diabetes)
Protocol for melanoma screening trial and pilot			Victorian Breast Cancer Research Consortium
Colorectal genetics pilot and colorectal cancer screening development			

## Prevention

### BreastScreen Australia

BreastScreen Australia is a national mammography screening program, providing free screening mammograms at two-year intervals mainly to women aged 50–69 years. It is a Commonwealth and State/Territory Program that aims to achieve significant reductions in the mortality and morbidity attributable to breast cancer. BreastScreen Australia operates 35 dedicated screening and assessment services at 121 locations throughout Australia. Key features of the program include its focus on multidisciplinary teamwork, quality management and consumer needs, as well as Commonwealth/State coordination and liaison through program managers' meetings and a national advisory group.

### *ACT Smoke Free Areas (Enclosed Public Places) Act 1994*

Until two years ago, smoking was a common occurrence in ACT shops, shopping malls, restaurants, cafes, taxis, lobbies, waiting areas, and other places where people go to conduct business or engage in leisure activities. Although some businesses had introduced their own policies to restrict or prohibit smoking, customers and patrons had no guaranteed or systematic protection from exposure to environmental tobacco smoke. Since the 1970s, evidence has been mounting about the detrimental effects of environmental tobacco smoke exposure on the health of non-smoking infants, children and adults. By the mid-1980s, groups including the World Health Organization and the

## Cancer control

National Health and Medical Research Council (NHMRC) had called for non-smokers to be protected from environmental tobacco smoke in public places and workplaces. Responding to this evidence, the ACT Government took the view that its public health responsibilities included reducing or eliminating people's exposure to environmental tobacco smoke in enclosed public places.

Legislation was considered an appropriate option for a number of reasons, including the failure of earlier attempts at hospitality industry self-regulation and the perceived need to create a 'level playing field'. The passage of the legislation, even in amended form, has resulted in smoking being prohibited in most enclosed public places in the ACT, with restaurants given a 12-month phase-in period and licensed premises given 30 months. There can be little doubt that the legislation has resulted in the reduction or elimination of a health risk for thousands of people. For particularly vulnerable groups, such as pregnant women, infants and young children, and for people who suffer from allergies, respiratory diseases and heart disease, smoke-free environments have meant an improvement in their quality of life. Although the main thrust of the legislation has been to help ensure that non-smokers are not exposed to other people's smoke, research has indicated that restricting people's opportunities to smoke also encourages smokers to quit or reduce their tobacco consumption.

### Katherine District Remote Communities Cervical Cancer Prevention Program

The Cervical Cancer Prevention Program is conducted in remote communities in the Katherine District of the Northern Territory by female Aboriginal Health Workers and Community Health Nurses supported by a specialist Women's Health Nurse. In 1991, a computerised Pap smear register and reminder system was developed for remote communities throughout the district. The register is located in the district administrative centre maintained by the Women's Health Nurse, and operates through the Community Health Centres in each of 18 remote communities, where personal invitations to women are more appropriate than mailed reminders as used in other programs.

The register is based on community health centre records of all eligible women in each community. Combined with an education program, also conducted through local Community Health Centres, and operating as part of the integrated Well Women's Checkups Program, this program was able to increase the proportion of eligible women who had had a Pap smear in the previous three years to over 80% by 1995.

As part of the national cervical cancer program, the Northern Territory Cervical Cytology Register has also been established to provide a reminder system to women throughout the Territory, and Northern Territory BreastScreen is providing mammography and other programs to increase the early detection and treatment of breast cancer.

### Protocol for melanoma screening trial and pilot

Whether screening would lower mortality from melanoma is arguably the single most important unresolved question in cancer control for Australia. A consortium involving Queensland Health, the University of Queensland and the Queensland Cancer Fund has designed a protocol for an initial pilot and a full trial of screening for melanoma. The Queensland Cancer Fund has agreed to fund a large-scale pilot of what would be the world's first randomised trial on this important neoplasm.

## Colorectal genetics pilot and colorectal cancer screening development

Commenced in late 1996, this service will be piloted over a period of three years, and will be carefully monitored and evaluated by the management group comprised of the Victorian Council of Genetic Services, the Anti-Cancer Council of Victoria and the Royal Melbourne Hospital. Clinical services for familial adenomatous polyposis (FAP) and hereditary non-polyposis colorectal cancer (HNPCC) will be increased at Royal Melbourne Hospital and jointly staffed by the Victorian Council of Genetic Services. A genetic resource laboratory will operate from the Victorian Council of Genetic Services, a register will be at the Anti-Cancer Council of Victoria for FAP and a database will be at Royal Melbourne Hospital for HNPCC.

The service provides a model for the development and implementation of services for other genetic diseases, because of particular characteristics of the disease and current levels of knowledge regarding detection and treatment. These include the well recognised clinical features for FAP, the availability of reliable genetic tests, a register of FAP- and HNPCC-affected families, and the existence of management and treatment protocols that reduce morbidity and mortality. The evaluation results of this three-year pilot will inform the development and implementation of other genetic services.

A number of steps are being taken in Victoria to prepare for the possible introduction of widespread screening for colorectal cancer. A series of projects examining the feasibility of population-based screening were initiated under the State's Cancer and Heart Offensive. These projects, which are nearing completion, have involved four major hospitals, general practitioners and over 1,000 screenees. They will provide valuable information about potential service models, patient recruitment and compliance factors, and GPs' attitudes, knowledge and skills.

The next step is now being taken by the Department of Human Services, working with the Anti-Cancer Council of Victoria, to assess the latest evidence in the context of the forthcoming NHMRC report, and to develop models for delivery that can form the basis of larger-scale pilots.

## Management

### ACT cancer management initiative

A public health participatory model that brought together the experience of those engaged in cancer care and control within the ACT was used to develop a draft Regional Strategic Plan for Cancer Services.

Five working parties under a reference group have identified cancer needs along the care continuum—health promotion/prevention, diagnosis and early intervention, treatment, rehabilitation and extended care, and palliative care. Extensive reference to the literature informed the process. The reference group comprised 12 consumer representatives, 21 clinicians (medical and nurse practitioners, both specialist and general, and social workers), five community support agency representatives, and 10 professional support representatives (epidemiologists, data managers and health administrators).

Emphasis is on improving the management of patient care, as primary preventive health measures in tumour control are still limited. Clinical issues have been identified with, and direct links made across, the primary, secondary and tertiary sectors, to

## Cancer control

enable both treatment and management issues to be addressed within a five-year strategic framework. Research and data needs have been outlined to signpost scientific and evidence-based activities and inform debate around resource planning priorities and allocation.

The wide consultation at all points along the continuum was the unique contribution to both identifying health needs and the development of a plan and discussion of issues in achieving health care reform at the regional level.

### Optimising cancer management in New South Wales

This initiative arose from the consultative process through which goals and targets for cancer control were developed in NSW. It aims to optimise cancer management through developing and implementing a model for the integration of cancer services and programs incorporating evidence based practice.

The initiative consolidates and builds on work being done in several related areas of cancer care in the NSW health system. Initially a model is being developed centrally, guided by a panel of experts and representatives from Area Health Services. The model includes principles for cancer care; mapping and integrating cancer services based on current best practice models; and incorporating quality of care and outcomes monitoring systems and evidence based clinical guidelines.

The initial phase of the project will report on the principles for cancer care in NSW; report on current cancer care practice including the location of services, infrastructure and models of care in NSW; develop a minimum data set for monitoring the outcomes of care from radiotherapy treatment in NSW; review existing mechanisms for developing and implementing clinical guidelines for cancer management in NSW and identify opportunities for future development of evidence-based guidelines; report on the feasibility and cost of establishing a cancer clinical guidelines repository; report on a statewide framework for monitoring the quality and outcomes of cancer care including a generic data model and a register of existing cancer clinical data systems; report on quality of life indicators of cancer care; and report on strategies for joint decision-making in cancer management.

## Research/Information

### Establishment of hospital-based cancer registries in South Australia

South Australia has established and operated hospital-based cancer registries at all four major teaching hospitals in Adelaide since 1987. Hospital-based registries of this type have been developed and used for decades in the USA to monitor standards of care and evaluate best practice treatment protocols based on tumour characteristics, and provide a means of case audit and quality assurance. Indeed, the US Commission on Cancer will not accredit hospitals for cancer care if they do not have such a registry. In addition, hospital-based registries have important research applications.

A prerequisite for hospital-based cancer registries in the South Australian model is a State population-based cancer registry that can provide the hospital-based registries with up-to-date case data, including survival data, and that has sufficient technical resources to support the development and ongoing functioning of hospital-based registries.

### **Linked Database Project (also covers Mental Health and Diabetes)**

The West Australian Linked Database Project is a collaborative effort by the University of Western Australia's Centre for Health Services Research and the Health Department of Western Australia to link together health records over the entire State for the period from 1980 onwards. Midwives and birth information as well as hospital morbidity, mortality, cancer and mental health records are being linked so that health records for individuals can be tracked through the system. Other data will be linked in as the project progresses, and the project is already providing a major tool for health services research throughout Australia as well as in Western Australia. Projects already using the linked database include a needs analysis for patients with long-term renal disease, an evaluation of the quality and outcomes of common surgical procedures, and an analysis of hospital usage in the last years of life among people aged over 65. A study of co-morbidity in psychiatric patients has recently received funding. Health care data for rural areas will be added in the near future, enabling effective studies of the health of, among others, rural Indigenous people for whom diseases such as diabetes are a major problem.

### **Victorian Breast Cancer Research Consortium**

The Victorian Government has committed \$3 million a year for a minimum of 10 years for the development of a Breast Cancer Research Consortium managed by the Anti-Cancer Council of Victoria. The consortium will foster and support three collaborative research teams whose work will focus on recent advances in our understanding of the biology of breast cancer as it affects prevention, diagnosis and treatment.

The treatment service and the mammography screening program are making important advances in the fight against breast cancer. Further advances in survival and quality of life are dependent on the appropriate research, linked to clinical trials of preventive and therapeutic interventions. Under the proposal, this will be achieved by making use of the excellent medical researchers and research facilities in Victoria to provide answers on such subjects as the genetics of breast cancer, cell changes which may be markers of the development of cancer, better understanding of early forms of cancer, and opportunities for earlier detection and targeted treatment.

Key Victorian research institutes working in collaboration with the Anti-Cancer Council of Victoria to constitute the consortium include the Ludwig Institute of Cancer Research, the Peter MacCallum Cancer Institute, the Walter and Eliza Hall Institute of Medical Research, the Baker Institute, the Austin Research Institute and St Vincent's Institute for Medical Research. An interim scientific committee has been formed to advise the consortium and to define and prioritise the major research areas. The key areas of research will be genetics, cellular and molecular biology and molecular pathology.

The three research group leaders and staff are currently being appointed, and this is likely to involve some relocations from overseas. Once constituted, each of the three research teams will undertake strategically driven research with a specific focus on one or more of the key research areas. The expected outcome of the work is a significant, measurable reduction in mortality from breast cancer by the year 2015.



# 4 Injury prevention and control

*Primary goal:*

**“ Reduce the incidence, and impact on health, of injury in the Australian population ”**

- Overview
- Highlights
- Priority indicators
- Priority indicators not reported due to incomplete information
- Strategies, initiatives and interventions



### Overview

Injury is a leading cause of premature mortality in Australia. It is also the cause of much morbidity and often is preventable. In terms of health impact, injury encompasses severe and often life-threatening conditions (such as multiple trauma due to a road crash), which sometimes lead to death, and sometimes to survival with severe persisting conditions (such as spinal cord injury, or brain damage). Injury also includes many more cases which do not pose great threat to life, but result in significant dysfunction, pain, cost, and other consequences. Poisoning is also classified with injury.

Many injuries heal, leaving little or no residual dysfunction. In a significant proportion of cases, however, recovery is incomplete, and injury results in a greater or lesser degree of ongoing dysfunction, or the onset of secondary conditions (such as osteoarthritis in previously injured joints). The importance of these less dramatic consequences of injury is reflected in the finding of the 1993 Disability, Ageing and Carers Survey that 15.2% of people with a disability reported injury or accident as the underlying cause of their main disabling condition (ABS 1996a).

Injury is the predominant threat to life for children and young adults. While injury accounted for 5.7% of all deaths in Australia in 1994, it accounted for 62% of deaths at ages 1–24 years (males 72%; females 48%) (ABS 1995). The prominence of injury as a cause of mortality in early life is reflected in indicators of premature mortality such as Years of Potential Life Lost. In 1994, for example, deaths attributed to accidental injury accounted for 14.7% of all years of potential life lost at ages 1–75 years, and suicide accounted for another 8.6%.

A total of 7,187 injury deaths were registered in 1994. Two major causes of death were suicides (31%) and motor vehicle traffic accidents (27%) (ABS 1995). Only a small minority of injuries are fatal. About 40 hospital admissions due to injury occur for every death, about seven emergency department attendances occur for every admitted case, and about the same number of people visit a general practitioner as visit an emergency department.

### Prevention

Primary prevention is the best means of injury control. Causal mechanisms and risk factors for many types of injury are understood well enough to enable effective preventive measures to be designed. The most striking example of the success of this approach in Australia is road injury mortality. Petrol rationing ended in the late 1940s and, until 1970, road injury death rates and case numbers rose steadily. Systematic analysis of the problem in terms of risk factors, causal sequences and specific opportunities for intervention began during the 1960s. Major interventions included legislative requirements concerning use of seat belts and motorcycle helmets, a system of vehicle design rules and (later) programs to reduce drink driving and speeding. Road injury death rates have now dropped to about one-third of the peak rates, despite increasing road travel. Similar public health approaches can be used for many other types of injury.

'Injury' encompasses diverse conditions and circumstances of occurrence. A characteristic shared by them all is that a physical or chemical object or substance, external to the body of the person concerned, is a direct cause of the condition.

## Injury prevention and control

From the point of view of primary prevention, classes of injury which arise in similar circumstances are of interest because they may be amenable to the same preventive intervention. Examples of such classes are toddlers drowning in swimming pools, injuries resulting from housefires, poisoning by pharmaceuticals, and neck injuries in rugby. Successful prevention generally depends on intersectoral collaboration, involving sectors which have responsibility for, or special interest in, the setting in which a particular type of injury occurs.

### Trends and differentials

As stated above, injury is diverse. This diversity is reflected in complex patterns of injury differentials, and in different time trends. Only a few of these can be mentioned here.

Long-term trend data are only available for injury mortality. Ignoring brief fluctuations, age-adjusted injury mortality remained fairly constant for the 50 years to 1970, and has declined since then by about one-half. However, major categories of injury have shown varied patterns. As noted above, the twentieth-century epidemic of road deaths increased until 1970, and then declined. In contrast, overall suicide rates have shown greater stability through the century, and rates for the remaining group of 'all other' injuries have declined for many decades.

For nearly all types of injury, rates are higher for males than females (Bordeaux & Harrison 1996). In general, injury rates are highest for adolescent and young adult males, and for both genders in old age. Injury rates tend to be higher in rural and remote areas (Moller 1994), in areas having lower indicators of socioeconomic status (Mathers 1994), and among Indigenous people (Harrison & Moller 1994; Bordeaux & Harrison 1996). Some of these factors are interrelated.

Different injuries predominate at different ages. For example, drowning is prominent in early childhood, transport injury in late childhood and adolescence, suicide through much of adult life, and falls in old age (Bordeaux & Harrison 1996).

Explanations for injury differentials vary, and not all are well understood. Differential exposure to hazards is an important factor. For example, people who live in remote areas tend to be more exposed to the hazards associated with long-distance, high-speed motor travel, and travel on unsurfaced roads. However, this factor is likely to be complicated by remoteness from services which might result in a worse outcome following injury than in a comparable crash in an urban setting because of slower retrieval and later initiation of treatment.

As more comprehensive and reliable injury morbidity data become available, attention is shifting to characterising and preventing non-fatal injury, as well as continuing efforts to reduce injury mortality.

### Highlights

- Injury and poisoning are the fourth leading cause of death in Australia. In 1994, there were 7,187 deaths due to injury with an age-standardised death rate of 39.4 per 100,000 persons.
- Between 1986 and 1994, the age-standardised death rate for all injuries declined by an average of 3.4% per year. Given this trend, the year 2000 target for reducing the injury death rate to 33.6 per 100,000 will be possible to achieve.

## Injury prevention and control

- Death rates for injuries are much higher in the Indigenous than in the non-Indigenous population. The standardised mortality ratio (SMR) for all injuries between Indigenous and non-Indigenous males in 1992–94 was 3.6; the ratio for Indigenous females was higher, at 4.4.
- Between 1989–91 and 1992–94, no reduction in the SMR was noted between Indigenous and non-Indigenous males. However, a 5% reduction in SMR was noted for females in the period.
- The gap between male and female injury death rates did not reduce between 1986 and 1994. On current projections, the target rate ratio of 2.1:1 may not be achieved by the year 2000.
- Road transport-related accidents continue to be a large contributor to injury deaths, particularly among 15–24 year old males, but have declined considerably since 1988. Based on current trends, the targets of 10.7 deaths per 100,000 in the total population and 23.6 deaths per 100,000 persons aged 15–24 years are expected to be reached—several years before 2000.
- The age-standardised death rate for falls among people aged 65 years and over declined by 3.5% annually between 1986 and 1994. It fell substantially below the year 2000 target in 1993, but rose again in 1994.
- Recent declines in homicide rates among those aged 20–39 years suggest that the year 2000 target for women (2.4 deaths per 100,000) is likely to be met. However, no clear trend has emerged for the male homicide rate.
- There has been a slight upward trend in the homicide rate (1.5% annually between 1986 and 1994) for children aged 0–9 years, often as a result of child battering or maltreatment, that must be reversed if the year 2000 target of 0.5 deaths per 100,000 is to be reached.
- A steady reduction in the rate of death from fire, burns and scalds has taken place among those aged 55 years and over (3.6% per year between 1986 and 1994). If this rate of decline continues, the year 2000 target of 1.2 deaths per 100,000 is likely to be met.
- The rate for drowning among children aged 0–4 years declined at an average of 4.7% annually between 1986 and 1994. On current indications, the target for the year 2000 to reduce the rate for drowning among 0–4 year-olds is likely to be achieved.
- Reliable data are currently unavailable for a number of priority injury indicators. Baseline information for several of these indicators is likely to become available in 1997–98. However, further data development and target setting are required for a number of priority indicators.



## Priority indicators

This section covers indicators for which adequate data are available for reporting progress

- 4.1.1 Death rate for injury and poisoning in the total population
- 4.1.2 Hospital separation rate for injury and poisoning in the total population
- 4.2.1 Death rate ratio comparing the injury status of Indigenous and non-Indigenous populations
- 4.2.2 Death rate ratio comparing the injury status of males and females
- 4.3.1 Death rate for road transport-related injury in the total population<sup>1</sup>
- 4.3.2 Death rate for road transport-related injury among males aged 15–24 years<sup>1</sup>
- 4.3.3 Hospital separation rate for road transport-related injury in the total population<sup>2</sup>
- 4.3.4 Hospital separation rate for road transport-related injury among males aged 15–24 years<sup>2</sup>
- 4.5.1 Death rate due to falls among people aged 65 years and over
- 4.5.2 Hospital separation rate due to falls among people aged 65 years and over
- 4.5.5 Hospital separation rate due to falls among children aged 0–4 and 5–9 years
- 4.7.1 Death rate for homicide among people aged 20–39 years
- 4.7.2 Death rate for homicide among children aged 0–9 years
- 4.9.1 Death rate for injury resulting from fire, burns and scalds among people aged 55 years and over
- 4.9.2 Hospital separation rate for injury resulting from fire, burns and scalds among children aged 0–4 years
- 4.10.1 Hospital separation rate due to poisoning among children aged 0–4 years
- 4.11.1 Death rate for drowning in the total population and among children aged 0–4 years
- 4.11.2 Hospital separation rate for near-drowning among children aged 0–4 years

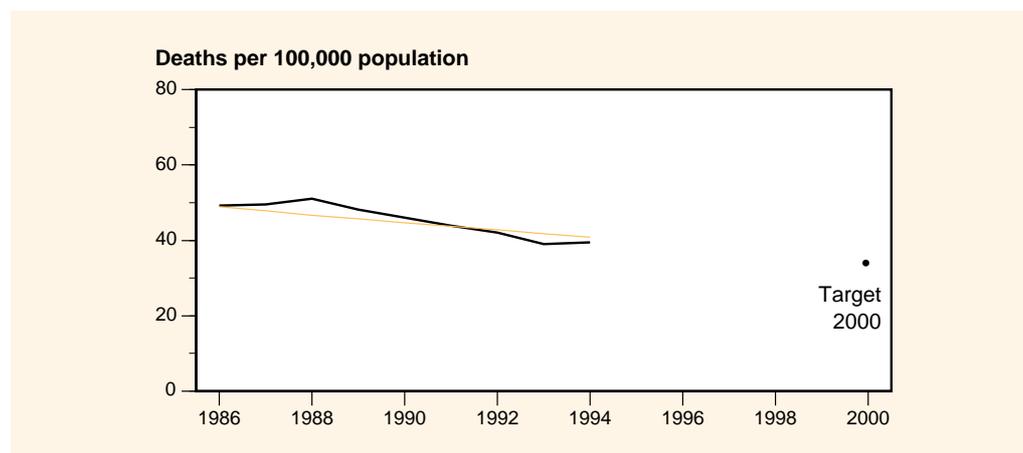
Note: <sup>1, 2</sup> Information presented jointly.

## Injury prevention and control

### INDICATOR 4.1.1 Death rate for injury and poisoning in the total population

*Primary goal: Reduce the incidence, and impact on health, of injury in the Australian population*

#### National trends



Population group	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Total population	49.2	49.5	51.0	48.2	46.1	43.9	42.0	39.1	39.4	33.6

Note: The target reflects a 20% reduction in the baseline, as indicated in the BHO report.

Source: AIHW mortality database.

- Injury and poisoning are the fourth leading cause of death in Australia. In 1994, there were 7,187 deaths due to injury with an age-standardised death rate of 39.4 per 100,000 persons.
- Injury death rates vary dramatically with age and sex, reflecting differences in activities, behaviours and injury threshold. The age-specific death rate is lowest between the ages of 5 and 14 years and highest at ages 75 years and over. Those between the ages of 15 and 24 years of age are also at high risk of dying from an injury.
- Males are at greater risk of dying from an injury than females. In 1994, there were 5,089 male and 2,100 female deaths due to injury with a death rate ratio between males and females of 2.8.
- Injury death rates have declined substantially over the past two decades. Between 1986 and 1994, the age-standardised death rate for all injuries in the total population declined by an average 3.4% per year. Much of the decline, however, took place between 1988 and 1994.
- Given the current trend, the year 2000 target for reducing the 1992 injury death rate by 20% is achievable.

## All injuries (ICD-9 E800–869, E880–929, E950–999)

### State comparisons

- A large variation, more than two-fold, occurs in the death rate for injury and poisoning among States and Territories. The Australian Capital Territory and the Northern Territory, respectively, had the lowest and the highest injury death rates, in both periods (1986–88 and 1992–94).
- Between the two periods, mortality from injuries declined in all States and Territories. Greater rates of decline in death rate were recorded for the Australian Capital Territory (36.2%), Victoria (28.6%) and the Northern Territory (26.2%). Rates of decline substantially lower than the national average occurred for Tasmania (5.0%), Western Australia (6.7%) and South Australia (9.6%).
- Despite the high rate of decline in the Northern Territory, the average age-standardised death rate recorded for all injury deaths in 1992–94 (87.0 deaths per 100,000) was more than double the national average (40.1 deaths per 100,000).
- In comparison, the largest decline in death rate for all injuries was noted in the Australian Capital Territory, with the lowest death rate in 1986–88, which resulted in a rate of 27.7 deaths per 100,000

### Number of deaths per 100,000 population

State/Territory	Average 1986–88	Average 1992–94	Per cent change
NSW	48.7	39.0	-19.9
VIC	48.4	34.6	-28.6
QLD	56.3	45.6	-19.1
WA	45.7	42.6	-6.7
SA	46.1	41.7	-9.6
TAS	53.2	50.6	-5.0
ACT	43.4	27.7	-36.2
NT	117.8	87.0	-26.2
<b>Australia</b>	<b>49.9</b>	<b>40.1</b>	<b>-19.6</b>

Source: AIHW mortality database.

### Data issues

#### Definitions

- Deaths data are based on year of registration rather than year of death.
- Number of deaths per 100,000 persons, age standardised to the 1991 total Australian population

#### Data availability

- Deaths data for injury and poisoning are sourced from the Registrars of Births, Deaths and Marriages in each State and Territory, and are usually based on the records of coroners.

#### Data reliability

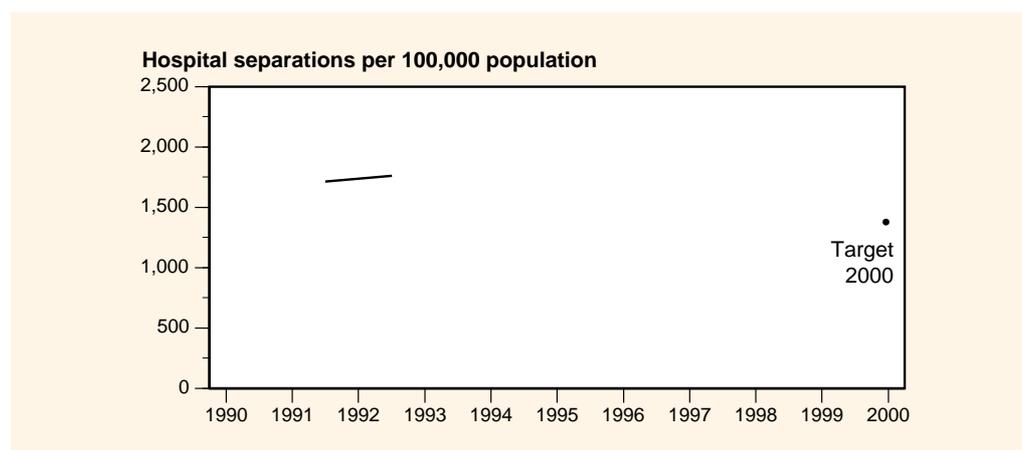
- The reliability of deaths data depends principally on the information available in coroners' records and on the reliability of the application of ICD-9 E-codes, generally based on that information. There is considerable potential for factors to do with information recording or coding to affect data quality. Beginning with 1993 registrations, data coding has been centralised at the Brisbane office of the Australian Bureau of Statistics. This arrangement should improve comparability of the information.

## Injury prevention and control

### INDICATOR 4.1.2 Hospital separation rate for injury and poisoning in the total population

*Primary goal: Reduce the incidence, and impact on health, of injury in the Australian population*

#### National trends



Population group	Baseline 1991-92	1992-93	Target 2000
Total population	1,714	1,760	1,371

*Note:* The baseline figure of 1,826 hospital separations per 100,000 in 1991-92, given in the BHO report, was based on New South Wales hospital separation data, and has been revised to reflect the national rate. The Target 2000, set at 20% below the 1991-92 baseline, has also been revised accordingly.

*Source:* AIHW National Injury Surveillance Unit.

- About 40 hospital separations occur for every death due to injury; however, significant variation occurs for the type of injury sustained.
- The age-standardised hospital separation rate for all injuries among males is higher than the female rate. In 1992-93, approximately three males were treated for an injury in Australian hospitals for every two females.
- Not all persons are at equal risk of being injured; the severity of injury requiring hospitalisation also varies with age and location.
- Between 1991-92 and 1992-93, the age-standardised hospital separation rate for all injuries in the total population increased by 2.7%. This increase will need to be checked if the year 2000 target of 1,371 hospital separations per 100,000 is to be met.
- Only two data points are currently available to monitor progress towards the target. Further data are, however, required to determine the trend clearly.
- Hospital separations are a reasonable indicator of acute injuries, but are not a precise measure of injury incidence. About seven emergency department attendances occur for every admitted case, and about the same number of people visit a general practitioner as an emergency department for all injuries.

## All injuries (ICD-9 E800–869, E880–929, E950–999)

### Data issues

#### Definitions

- A hospital separation occurs when a patient leaves the care of an acute hospital. This includes discharge, transfer or death.
- The direct method of age standardisation was used to estimate hospital separation rates.

#### Data coverage

- State and Territory rates for hospital admission due to injury and poisoning are subject to large variability in coverage.

- Updated State and Territory estimates of hospital separations are not yet available.

#### Data reliability

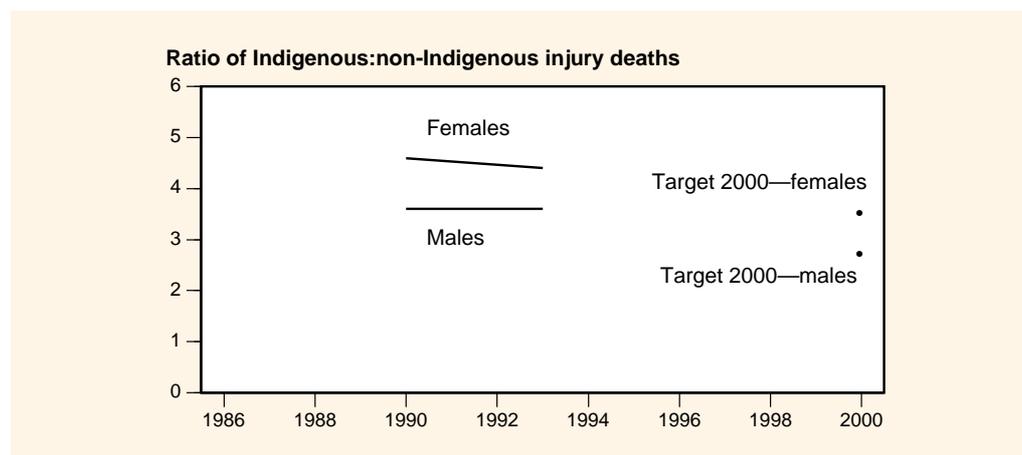
- Hospital separation rates are not a precise measure of severe injury incidence. Variation in hospital separation rates may be caused by changing admission procedures, information capturing and processing methods, extent of coverage of public and private hospitals and the relative utilisation of hospitals.

## Injury prevention and control

### INDICATOR 4.2.1 Death rate ratio comparing the injury status of Indigenous and non-Indigenous populations

**Goal: Reduce injury-related health inequalities among priority populations and the whole community**

#### National trends



Death rate ratio	Baseline 1989-91	1992-94	Target 2000
Males	3.6	3.6	2.7
Females	4.6	4.4	3.5

#### Notes

1. Data from Western Australia, South Australia and the Northern Territory only.
  2. The baseline given in the BHO report (2.9:1 in 1990-92, both sexes combined) was based on deaths data from all States and Territories except Queensland. In light of incompleteness of Indigenous identification in deaths data in some jurisdictions, the baselines and targets have been revised. Accordingly, the Target 2000 reflect a 25% reduction from the baseline, as indicated in the BHO report.
- Source: Anderson et al. (1996).

- Injuries are one of the leading causes of death among Indigenous people, with an age-standardised death rate of 223 per 100,000 males and 101 deaths per 100,000 females in 1992-94 (Anderson et al. 1996).
- The death rates for injuries are much higher among the Indigenous population than in the non-Indigenous population. The death rate ratio, or standardised mortality ratio (SMR), for all injuries between Indigenous and non-Indigenous males in 1992-94 was 3.6; the ratio for Indigenous females was 4.4.
- The injury death rate for Indigenous people compared with non-Indigenous people is greatest for transport-related causes in middle age, drowning in adulthood, poisoning with non-pharmaceutical substances (particularly petroleum products and solvents), effects of fire in late adulthood, suicide in early adulthood and particularly interpersonal violence throughout adulthood (Harrison & Cripps 1994).
- A mean annual reduction of 2.3% occurred in the death rate for injuries among Indigenous males during 1985-94. The decline in the death rate over the same period was much smaller among Indigenous females (Anderson et al. 1996).
- Between 1989-91 and 1992-94, no reduction in the SMR was noted between Indigenous and non-Indigenous males. However, a 5% reduction in SMR was noted for females between the two periods.
- The BHO target of reducing the death rate ratio was stated in terms of reducing the Indigenous rate towards the non-

## All injuries (ICD-9 E800–869, E880–929, E950–999)

### Data issues

#### Definitions

- An indirect method of age standardisation was used to estimate the death rate ratio, or standardised mortality ratio (SMR).
- Estimates of SMR are based on data from Western Australia, South Australia and the Northern Territory only. Indigenous deaths data for New South Wales and South Australia were of variable quality for this analysis.
- The baseline ratios given in the BHO report were based on deaths data for New South Wales, Victoria, South Australia, Western Australia and the Northern Territory. In view of the incompleteness of Indigenous deaths data from New South Wales and Victoria, new baseline values were obtained using deaths data from South Australia, Western Australia and the Northern Territory only. Target 2000 was modified accordingly to reflect the revised baseline.

#### Data availability

- AIHW data based on information collected by State and Territory Registrars of Births, Deaths and Marriages

#### Data coverage

- Annual and national; States and Territories. Identification of Indigenous deaths in Queensland was introduced beginning 1996.

#### Data reliability

- Only mortality data for Western Australia, South Australia, the Northern Territory and the Australian Capital Territory are considered to be of publishable standard by the Australian Bureau of Statistics and the Australian Institute of Health and Welfare (Anderson et al. 1996).
- The analysis of trends in mortality is usually done by year of registration, rather than year of occurrence, in order to utilise data for the latest year of registration. For Australia as a whole this makes little difference because the proportion of deaths not registered in the year of occurrence is fairly constant from year to year. However, the proportion of Indigenous deaths not recorded in the year of occurrence varies by year and jurisdiction. An analysis of Indigenous mortality by year of registration could be misleading; the estimates used in this report are therefore based on year of occurrence of death.

#### Data deficiencies

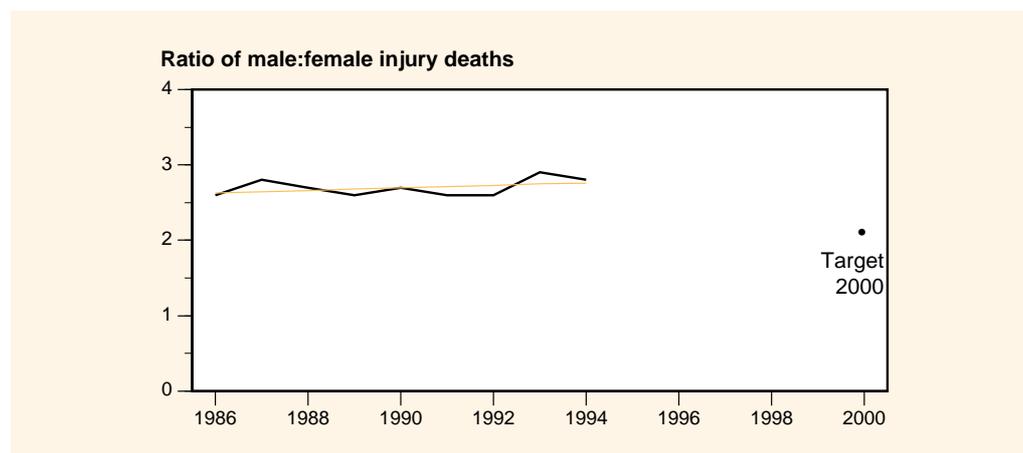
- Indigenous deaths data from New South Wales, Victoria and Tasmania are incomplete and of indeterminate quality.

## Injury prevention and control

### INDICATOR 4.2.2 Death rate ratio comparing the injury status of males and females

*Goal: Reduce injury-related health inequalities between priority populations and the whole community*

#### National trends



Death rate ratio	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Male:female	2.6	2.8	2.7	2.6	2.7	2.6	2.6	2.9	2.8	2.1

*Note:* Target 2000 reflects a 20% reduction in the baseline, as indicated in the BHO report.  
*Source:* AIHW mortality database.

- Death rates for injury have been historically much higher among males than females. In 1994, there were 5,087 male deaths and 2,100 female deaths, with an age standardised death rate ratio of 2.8.
- There has been a steady decline in injury mortality over the past several decades, due mainly to a reduction in the death rate among females. As a result, a widening of the gap in the male:female injury death rates occurred during the 1960s and 1970s.
- The decline in injury death rates has continued over the past decade (see 'Death rate for injury and poisoning in the total population', on page 88), but the decline has not been accompanied by reductions in the male:female death rate ratio.
- Differences in male:female suicide rates are a large contributor to this high death rate ratio. Significant differences also exist in the rate ratios for transport-related injuries and homicides.
- Differences in injury mortality between males and females are greatest in the age group 15–29 years, with males experiencing more than four times the injury mortality of young females.
- If current trends continue, it appears unlikely that the Target 2000 death rate ratio of 2.1:1.0 between males and females will be achieved.
- The BHO target of reducing the death rate ratio was stated in terms of reducing the male rate towards the female rate.

## All injuries (ICD-9 E800–869, E880–929, E950–999)

### Data issues

#### Definitions

- The direct method of age standardisation was used to estimate the death rates. The death rate ratios were obtained using these age-standardised rates.

#### Data availability

- Deaths data for injury and poisoning are sourced from the Registrars of Births, Deaths and Marriages in each State and Territory, and are usually based on the records of coroners.

#### Data reliability

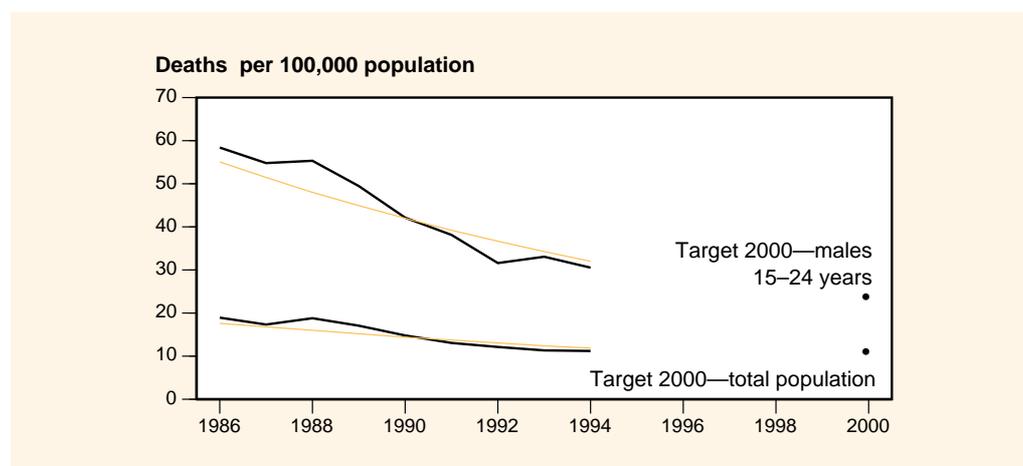
- The reliability of deaths data depends principally on the information available in coroners' records and on the reliability of the application of ICD-9 E-codes, generally based on that information. There is considerable potential for factors to do with information recording or coding to affect data quality.

## Injury prevention and control

### INDICATORS 4.3.1 and 4.3.2 Death rate for road transport-related injury in the total population, and among males aged 15–24 years

**Goal: Reduce transport-related mortality**

#### National trends



Population group	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Total population	18.9	17.3	18.8	17.0	14.8	13.0	12.0	11.2	11.1	10.7
Males aged 15–24 years	58.3	54.8	55.3	49.4	42.1	38.1	31.5	33.0	30.5	23.6

#### Notes

1. The baseline values differ slightly from the rates published in the BHO report due to differing populations used for age standardisation.

2. Target 2000 for males aged 15–24 years reflects a 25% reduction from the 1992 baseline, as indicated in the BHO report.

Source: AIHW mortality database.

- Road transport-related accidents are a major cause of injury deaths. The death rates are particularly high among 15–24 year old males. In 1994, as many as 1,979 people (1,379 males and 600 females) died as a result of an accident on Australian roads.
- The decline in road deaths, particularly since 1988, has contributed substantially to the overall decline in injury mortality. The age-standardised death rate for road transport-related injury among males aged 15–24 years has also fallen substantially. However, road vehicle accidents remain a leading cause of injury deaths in Australia, equalled only by suicide.
- According to the Federal Office of Road Safety (1996), between July 1994 and June 1995, 42% of fatalities were drivers of vehicles, 25.9% were passengers in vehicles, 19.2% were pedestrians and 10.0% were motorcyclists (including pillion riders).
- Based on current trends, the targets of 10.7 deaths per 100,000 total population and 23.6 deaths per 100,000 population aged 15–24 years are expected to be reached—several years before 2000. However, road safety agency data for the period to mid-1996 show a levelling off in road fatality numbers, and a small increase after mid-

## Transport injury (ICD-9 E810–819, E826–829)

### State comparisons

- The age-standardised death rate for road vehicle accidents declined between 1986–88 and 1992–94 in all States and Territories. The decline was almost 60% in the Australian Capital Territory, followed by the Northern Territory, Victoria and New South Wales with declines ranging from 40% to 48%. The rate of decline was much lower in other States.
- The death rate in the Australian Capital Territory was the lowest among all States and Territories, both in 1986–88 and 1992–94. In comparison, the death rate in the Northern Territory (27.8 per 100,000), over the period 1992–94, was much higher than the national average (11.5 per 100,000), despite a 47.3 reduction between 1986–88 and 1992–94.
- The age-standardised death rate for road vehicle accidents among males aged 15–24 years also declined in all States and Territories between the two periods. A more than 60% reduction in the death rate from road transport accidents was noted in the Northern Territory in this age group.
- Recent declines notwithstanding, the death rate in the Northern Territory over the period 1992–1994 (61.5 per 100,000) among males in the age group 15–24 years was twice the national average (31.7 per 100,000). The death rates among 15–24-year-old males were also considerably higher in Western Australia (41.3 per 100,000) and Tasmania (42.6 per 100,000). In comparison, in the Australian Capital Territory, the transport injury-related death rate among young males (15–24 years) in

### Number of deaths per 100,000 population

State/Territory	Total population			Males aged 15–24 years		
	Average 1986–88	Average 1992–94	Per cent change	Average 1986–88	Average 1992–94	Per cent change
NSW	17.9	10.7	–40.5	54.8	27.4	–50.0
VIC	18.2	9.6	–47.3	57.1	27.1	–52.5
QLD	19.0	13.6	–28.2	52.8	37.0	–30.0
WA	16.1	13.0	–19.2	53.8	41.3	–23.3
SA	18.6	12.5	–32.7	63.4	36.7	–42.1
TAS	18.6	13.5	–27.5	51.9	42.6	–18.0
ACT	16.0	6.5	–59.4	46.0	15.3	–66.8
NT	52.8	27.8	–47.3	115.4	61.5	–46.8
<b>Australia</b>	<b>18.3</b>	<b>11.5</b>	<b>–37.4</b>	<b>56.1</b>	<b>31.7</b>	<b>–43.6</b>

Source: AIHW mortality database.

### Data issues

#### Definitions

- Mortality data are based on year of registration, rather than year of death.
- The direct method of age standardisation was used.

#### Data availability

- State mortality data are provided by the Registrars of Births, Deaths and Marriages in each State and Territory, and for injuries are usually based on the records of coroners.

#### Data reliability

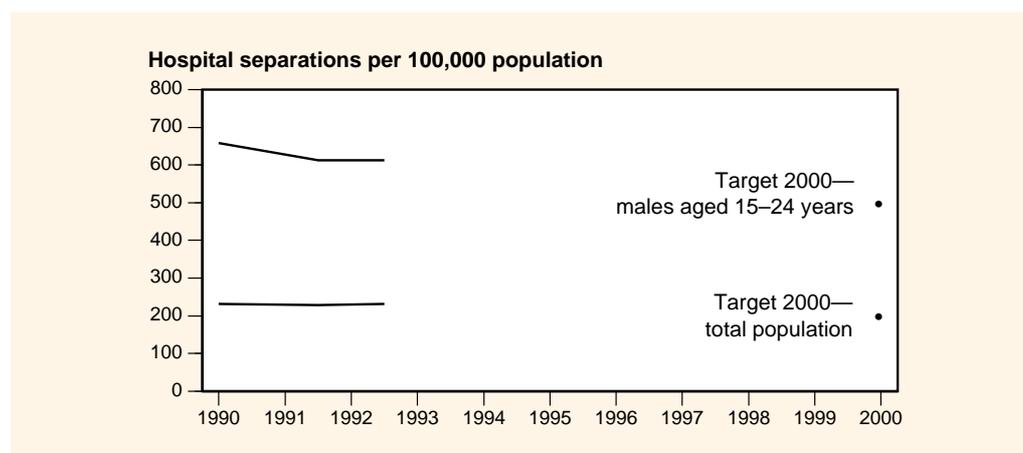
- The reliability of deaths data depends principally on the information available in coroners' records, and on the reliability of the application of ICD-9 E-codes, generally based on that information. There is considerable potential for factors to do with information recording or coding to affect data in different ways for different States and Territories. Hence, apparent differences between jurisdictions should be interpreted with caution.

## Injury prevention and control

### INDICATORS 4.3.3 and 4.3.4 Hospital separation rate for road transport-related injury in the total population, and among males aged 15–24 years

*Goal: Reduce transport-  
related morbidity*

#### National trends



Population group	Baseline 1990	1991–92	1992–93	Target 2000
Total population	232	228	231	194
Males aged 15–24 years	658	612	612	494

#### Notes

1. The baseline values given in the BHO report are for the calendar year 1990, and are not age standardised. ICD-9 codes E827–829 were also not included; these codes represent approximately 11% of total cases and 6% of cases for males aged 15–24 years.
2. Targets for the year 2000 reflect a 25% reduction in the baselines, as indicated in the BHO report.

Source: AIHW National Injury Surveillance Unit.

- In 1992–93, there were over 40,000 hospital separations due to road transport-related injuries (approximately 25,000 male and 15,000 female separations), with an age-standardised rate of 231 per 100,000 persons.
- Males aged between 15 and 24 years experience nearly three times the rate of road injury-related hospitalisation than occurs in the total population. This differential is similar to the road transport death rates comparing young males with the total population (see 'Death rate for road transport-related injury in the total population, and among males aged 15–24 years', on page 100).
- The baseline rates for this particular indicator require revision. The 1990 baselines were based on calendar year data, and were not age standardised. Besides, the rates were underestimated because of the non-inclusion of E-codes 827–829. Therefore, the 1991–92 rates should be used as baselines, with targets set at 20% to 25% below these rates.

## Transport injury (ICD-9 E810–819, E826–829)

### Data issues

#### Definition

- Hospital separations per 100,000 population

#### Data coverage

- State and Territory rates for hospital admission due to road transport-related injury are subject to large variability in coverage.
- Updated State and Territory estimates of hospital separations are not yet available.

#### Data reliability

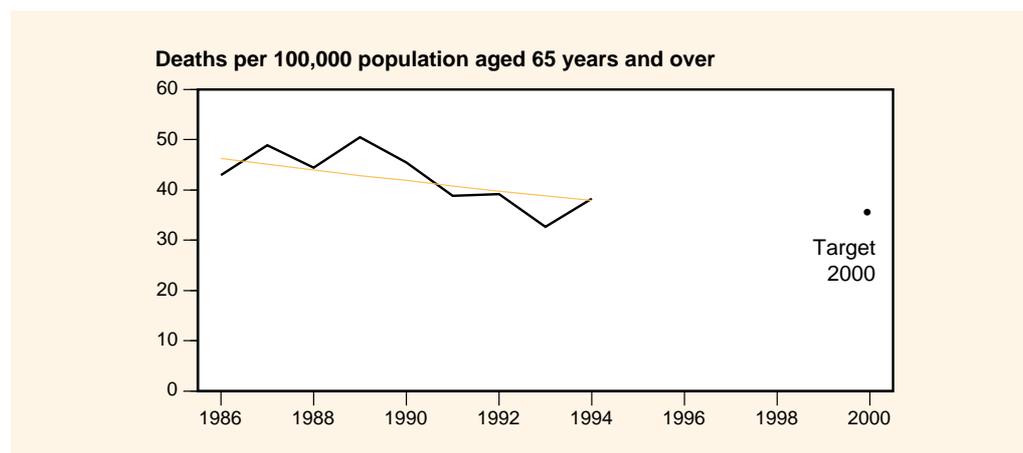
- Hospital separations constitute a reasonable indicator of acute injuries, but are not a precise measure of injury incidence. Year-by-year variations may be caused by changes in admission procedures, information capture and processing, and inclusion of a particular hospital in the database.

## Injury prevention and control

### INDICATOR 4.5.1 Death rate due to falls among people aged 65 years and over

**Goal: Reduce mortality  
associated with falls among  
older people**

#### National trends



Population group	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Aged 65 years and over	43.0	48.9	44.5	50.5	45.4	38.9	39.3	32.7	38.3	35.4

#### Notes

1. The baseline value differs slightly from the rate published in the BHO report due to differing populations used for age standardisation.
2. Target 2000 reflects a 10% reduction in the baseline, as indicated in the BHO report.

Source: AIHW mortality database.

- A large proportion of deaths from external causes in old age result from falls, primarily due to complications developed after the fall. The proportion rises with age, from about 15% of deaths from all external causes among people aged 65–69 years, to about 75% at age 85 years and above.
- Fractures are the most common serious injury resulting from falls, with hip fractures the most significant in terms of mortality and serious functional impairment (Fildes 1994). About half of the older people who sustain a fractured hip never regain their pre-fall level of functioning (Cummings et al. 1985).
- More women than men die as a result of a fall, osteoporosis in post-menopausal women greatly increasing the risk of fracture and complications. In 1994, 510 women and 333 men, aged 65 years and over, died of this cause. Of the 510 female fatalities, more than half were aged 85 years and over.
- The age-standardised death rate for falls among people aged 65 years and over declined by 10.9% between 1986 and 1994, falling substantially below the year 2000 target in 1993 but rising back again in 1994.

## Accidental falls (ICD-9 E880–888)

### State comparisons

- Large variability is noted in the death rates from falls in persons aged 65 years and over among States and Territories, due probably to small numbers in some jurisdictions. While the death rate in New South Wales reflected the national average both in 1986–88 and 1992–94, the rates were below the national rate in Western Australia and South Australia.
- The decline in the age-standardised death rate for falls among people aged 65 years and over between 1986–88 and 1992–94 was observed in all States and Territories, except the Northern Territory and Tasmania.
- The greatest decline in death rates was noted in the Australian Capital Territory but the drop was from a higher than average base. In 1992–94, the death rate in the Australian Capital Territory was below the national rate.

### Number of deaths per 100,000 population, aged 65 years and over, due to falls

State/Territory	Average 1986–88	Average 1992–94	Per cent change
NSW	43.6	36.6	-16.0
VIC	53.1	37.1	-30.2
QLD	52.8	42.6	-19.3
WA	36.9	29.7	-19.4
SA	29.6	29.1	-1.6
TAS	39.0	45.0	15.4
ACT	61.8	28.2	-54.4
NT	41.9	50.2	19.9
<b>Australia</b>	<b>45.5</b>	<b>36.7</b>	<b>-19.2</b>

Source: AIHW mortality database.

### Data issues

#### Definitions

- Mortality data are based on year of registration rather than year of death.
- The direct method of age standardisation was used to determine death rates.

#### Data availability

- State mortality data are provided by the Registrars of Births, Deaths and Marriages in each State and Territory.

#### Data reliability

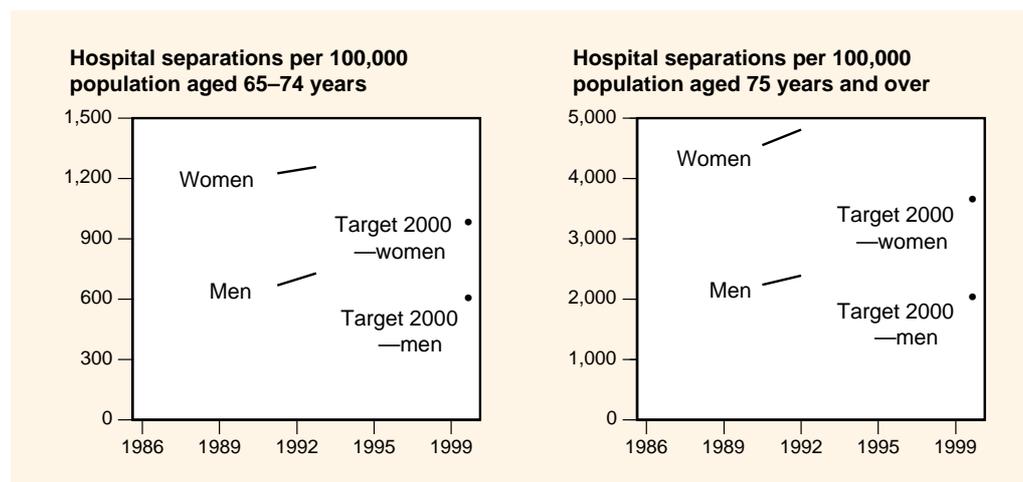
- Unlike most other types of injury, a high proportion of deaths attributed to a fall are registered by a medical practitioner rather than a coroner. This practice may influence the comparability of deaths data.

## Injury prevention and control

### INDICATOR 4.5.2 Hospital separation rate due to falls among people aged 65 years and over

**Goal: Reduce morbidity associated with falls among older people**

#### National trends



Age group	Sex	Baseline 1991-92	1992-93	Target 2000
65-74 years	Men	668	730	601
	Women	1,225	1,256	980
75 years and over	Men	2,242	2,391	2,018
	Women	4,554	4,814	3,643

#### Notes

1. The baselines given in the BHO report were based on Victorian data for 1986-91. The 1991-92 baselines have been revised and are national rates. The targets have also been adjusted accordingly.

2. The targets reflect a 10% reduction in the baseline for men and a 20% reduction in the baseline for women.

Source: AIHW National Injury Surveillance Unit.

- Fall injuries contribute substantially to hospitalisation for all external causes, among those aged 65 years and over. Older women are more at risk than older men for hospitalisation after the fall.
- Risk of hospitalisation from a fall also increases substantially with age. In 1992-93, men and women aged 75 years and over were respectively hospitalised at 3.3 and 3.8 times the rate for their counterparts aged 65-74 years.
- The age-standardised hospital separation rate for fall injury among older men and women increased between 1991-92 and 1992-93. The increase was noted in both age groups, 65-74 years and those aged 75 years and over. It is not clear whether these increases were due to changes in incidence, reduction in the fatality rate, admission practice or counting. Several more years of data will be required to build a useful time series.
- The rate of hospitalisation for fall injury among older people will need to decline substantially if the year 2000 targets are to be reached.

## Accidental falls (ICD-9 E880–888)

### Data issues

#### Definition

- Hospital separations per 100,000 population, aged 65–74 years, and those aged 75 years and over

#### Data coverage

- State and Territory rates for hospital admission due to falls are subject to large variability in coverage.
- Updated State and Territory estimates of hospital separations are not yet available.

#### Data reliability

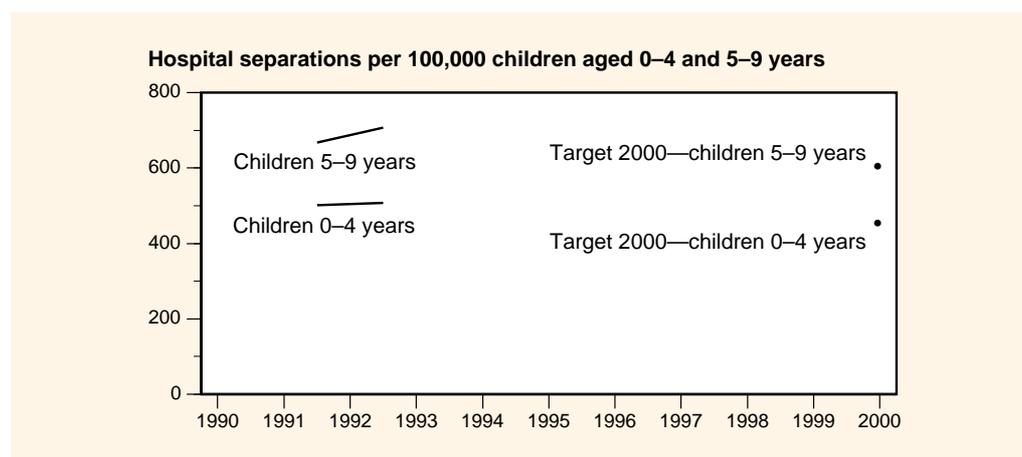
- Hospital separations constitute a reasonable indicator of acute injuries, but are not a precise measure of injury incidence. Year-by-year variations may be caused by changes in admission procedures, information capture and processing, and inclusion of a particular hospital in the database.

## Injury prevention and control

### INDICATOR 4.5.5 Hospital separation rate due to falls among children aged 0–4 and 5–9 years

*Goal: Reduce mortality and morbidity associated with falls among children*

#### National trends



Age group	Baseline 1991–92	1992–93	Target 2000
0–4 years	550	502	452
5–9 years	634	668	601

#### Notes

- The baseline figures for hospital admission rates among 0–4 year olds (550 per 100,000) and among 5–9 year olds (634 per 100,000) given in the BHO report were based on New South Wales only and have been revised to reflect national rates.
- The targets reflect a 10% reduction in the baselines, as indicated in the BHO report.

Source: AIHW hospital morbidity database.

- Falls are the leading cause of admissions to hospital for children. Among 0–4 year olds, falls frequently occur in the home, whereas among 5–9 year olds they are more common in playgrounds.
- Falls are more common among boys, particularly among 5–9 year olds, although there is gender difference even at younger ages.
- Between 1991–92 and 1992–93, the hospital separation rate for falls among 0–4 year olds and among 5–9 year olds increased.
- Although a time trend cannot be accurately determined from only two data points, the apparent increase in the rate of hospitalisation for fall injury among children between 1991–92 and 1992–93 will need to be reversed if the year 2000 targets are to be reached.
- Fall injury reduction can be achieved by a combination of measures, such as reducing the likelihood of falling, incorporating safety features in the design of the environment (e.g. slip-resistant surfaces on floors), and increasing the use of protective

## Accidental falls (ICD-9 E880–888)

### Data issues

#### Definition

- Hospital separations per 100,000 population, aged 0–4 years and 5–9 years

#### Data coverage

- State and Territory estimates for hospital separation for falls are subject to large variability in coverage.
- Updated State and Territory estimates of hospital separations are not yet available.

#### Data reliability

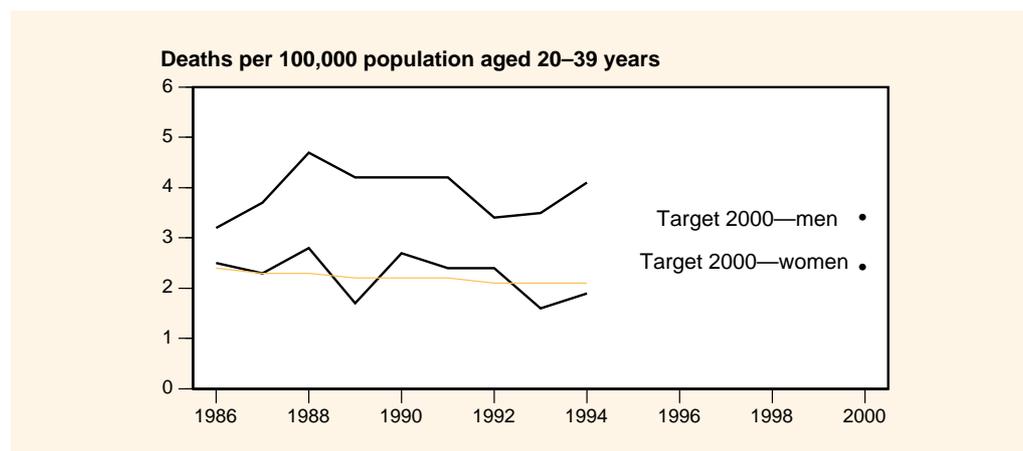
- Hospital separations are a reasonable indicator of acute injuries, but are not a precise measure of injury incidence. Year-by-year variations may be caused by changes in admission procedures, information capture and processing, and inclusion of a particular hospital in the database.

## Injury prevention and control

### INDICATOR 4.7.1 Death rate for homicide among people aged 20–39 years

*Goal: Reduce mortality due  
to interpersonal violence*

#### National trends



Population group (20–39 years)	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Men	3.2	3.7	4.7	4.2	4.2	4.2	3.4	3.5	4.1	3.4
Women	2.5	2.3	2.8	1.7	2.7	2.4	2.4	1.6	1.9	2.4

*Note:* The data for men did not support the fitting of a trend.

*Source:* AIHW mortality database.

- Fatal outcomes from intentional injuries, or homicides, provide a practical indicator of the nature and extent of interpersonal violence in the population. However, homicides are not distributed evenly throughout the population and take much greater toll among men, the young and Indigenous people, particularly those living in rural and remote areas.
- In 1994, 117 men and 54 women aged 20–39 years died as a result of interpersonal violence, with a death rate ratio of 2.2:1.0. The indirectly standardised homicide ratios for Indigenous men and women in 1992–94 were 15.4 and 17.1 respectively, when compared to their non-Indigenous counterparts (Anderson et al. 1996).
- Until 1992, the year on which the year 2000 targets for homicide among men and women aged 20–39 were based, the homicide rates were on the rise. The targets set at that point were therefore aimed at stabilising the homicide rates.
- Among men aged 20–39 years, no clear trend is discernible in the time series 1986–94, but a comparison of death rates between 1986–88 and 1992–94 revealed a small decline (5.3%). It is difficult to make a prediction about the year 2000 target for men (3.4 per 100,000) in the absence of a clear trend.
- Recent declines in the homicide rate for women suggest that, barring a late change in the trend, the year 2000 target for women (2.4 per 100,000) is likely to be met.

## Homicide (ICD-9 E960–978; 990–999)

### State comparisons

- State and Territory comparisons reveal some differences in homicide rates. In particular, the 1992–94 homicide rates in the Northern Territory for both men and women, aged 20–39 years, were seven to eight times the national average.
- Small numbers do not allow in-depth interpretation of changes in the rate between 1986–88 and 1992–94. In Western Australia, however, the increase in the rate was substantial, more than 100% between the two periods.
- The age-standardised death rate among women for interpersonal violence declined in all States and Territories between 1986–88 and 1992–94, except in South Australia which showed an increase of over 25%.

### Number of homicide deaths per 100,000 persons aged 20–39 years

State/Territory	Men			Women		
	Average 1986–88	Average 1992–94	Per cent change	Average 1986–88	Average 1992–94	Per cent change
NSW	3.6	3.1	–13.0	2.3	2.1	–8.7
VIC	4.2	3.2	–23.7	2.3	1.3	–44.0
QLD	4.5	4.3	–3.7	2.9	2.1	–28.1
WA	1.8	3.7	>100	2.5	2.3	–4.7
SA	3.4	3.6	6.7	1.6	2.1	25.5
TAS	3.4	1.8	–45.5	1.0	0.4	–53.8
ACT	2.0	1.7	–15.2	4.1	0.0	–100.0
NT	20.4	26.4	29.9	16.7	16.4	–1.4
<b>Australia</b>	<b>3.9</b>	<b>3.7</b>	<b>–5.3</b>	<b>2.5</b>	<b>2.0</b>	<b>–21.6</b>

Source: AIHW mortality database.

### Data issues

#### Definition

- Number of deaths per 100,000 persons aged 20–39 years.

#### Data availability

- State and Territory mortality data are provided by the Registrars of Births, Deaths and Marriages in each State and Territory, and are usually based on the records of coroners.
- Homicide data are based on year of registration rather than year of death.

#### Data reliability

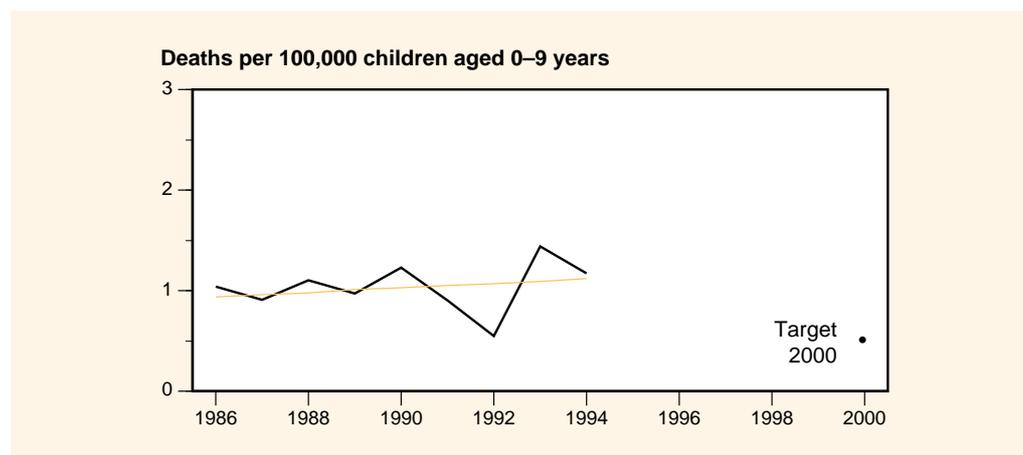
- Intentional injury resulting from interpersonal violence encompasses a range of injury types including homicide, sexual assault and assault, and domestic violence. Better data are available for fatal outcomes of interpersonal violence than non-fatal injuries; it is therefore likely that the death rate from these causes represents only a small proportion of the injury problems resulting from interpersonal violence.

## Injury prevention and control

### INDICATOR 4.7.2 Death rate for homicide among children aged 0–9 years

*Goal: Reduce mortality due  
to interpersonal violence*

#### National trends



Children	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Aged 0–9 years	1.0	0.9	1.1	1.0	1.2	0.9	0.6	1.4	1.2	0.5

*Note:* The target reflects a 25% reduction in the baseline, as indicated in the BHO report.  
*Source:* AIHW mortality database.

- A number of structural, cultural and psychosocial factors contribute to child battering and maltreatment. Injury deaths inflicted by others on children have been specifically targeted under the NHPA initiative.
- Babies and toddlers are at greater risk from death due to abuse and violence than older children. Children aged 0–4 years accounted for 6% of all homicide deaths in the period 1992–1994; children aged 5–9 years constituted an additional 2% of all homicides.
- There has been a slight upward trend in the homicide rate for this age group (1.5% annually between 1986 and 1994) which must be reversed if the year 2000 target of 0.5 deaths per 100,000 is to be reached.

## Homicide (ICD-9 E960–978; 990–999)

### Data issues

#### State comparisons

- The numbers are too small for useful comparisons.

#### Definition

- Number of deaths per 100,000 children aged 0–9 years.

#### Data availability

- State and Territory mortality data are provided by the Registrars of Births, Deaths and Marriages in each State and Territory,

and are usually based on the records of coroners.

- Homicide data are based on year of registration rather than year of death.

#### Data reliability

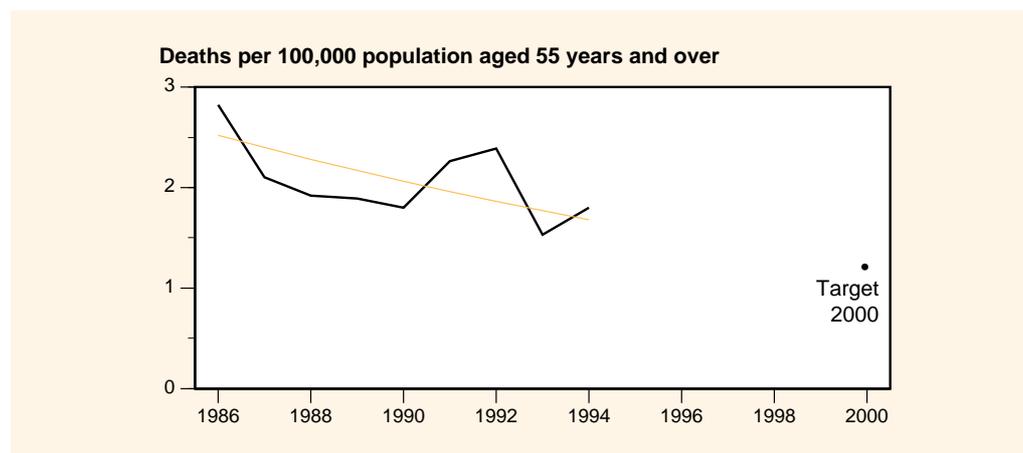
- Child battering and maltreatment results in a variety of injuries, some with fatal consequences. Better data are available for fatal outcomes than non-fatal injuries. It is therefore likely that the death rate from these causes represents only a small

## Injury prevention and control

### INDICATOR 4.9.1 Death rate for injury resulting from fire, burns and scalds among people aged 55 years and over

*Goal: Reduce mortality and morbidity associated with burns and scalds*

#### National trends



Population group	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Aged 55 years and over	2.8	2.1	1.9	1.9	1.8	2.3	2.4	1.5	1.8	1.2

*Note:* The target reflects a 50% reduction in the baseline, as indicated in the BHO report.

*Source:* AIHW mortality database.

- Accidents due to fire, burns and scalds account for a relatively small proportion of injury incidents. However, the economic and long-term physical and psychosocial implications of serious burn and scald injuries are enormous and highlight the need for more extensive preventive action.
- Older people and children aged 0–4 years are particularly at risk of serious injury and death due to fire, burns and scalds (see 'Hospital separation rate for injury resulting from fire, burns and scalds among children aged 0–4 years', on page 116). Overall, about 2% of external causes of death are attributed to this form of injury. Among 0–4 year olds the proportion is about 8%, and among people aged 55 years and over the proportion is approximately 3%.
- There has been a steady decrease in the age-standardised death rate for fire, burns and scalds among men and women aged 55 years and over. The trend indicates an annual rate of decline of 3.6% per year among persons aged 55 years and over. At this rate of decline, the year 2000 target of 1.2 deaths per 100,000 is likely to be met.

## Burns and scalds injury (ICD-9 E890–899, E924.0)

### State comparisons

- There are considerable differences among the States in the death rate for fire, burns and scalds among those aged 55 years and over. Except in South Australia, declines in death rates were noted between 1986–88 and 1992–94 in all States.
- The death rates in the two Territories are based on small numbers and have been excluded from comparisons.

### Number of deaths per 100,000 population aged 55 and over

State/Territory	Average 1986–88	Average 1992–94	Per cent change
NSW	2.4	1.7	-26.8
VIC	3.1	2.1	-31.1
QLD	1.4	1.3	-8.4
WA	1.4	1.5	5.6
SA	1.5	3.0	>100
TAS	3.0	2.9	-4.0
ACT	3.4	0.7	>-100
NT	0.0	6.1	>100
<b>Australia</b>	<b>2.3</b>	<b>1.9</b>	<b>-16.4</b>

Source: AIHW mortality database.

### Data issues

#### Definitions

- Number of deaths per 100,000 persons aged 55 and over
- Age standardised to the 1991 Australian population

#### Data availability

- State mortality data are obtained from the Registrars of Births, Deaths and Marriages in each State and Territory, and are usually based on the records of coroners.

#### Data reliability

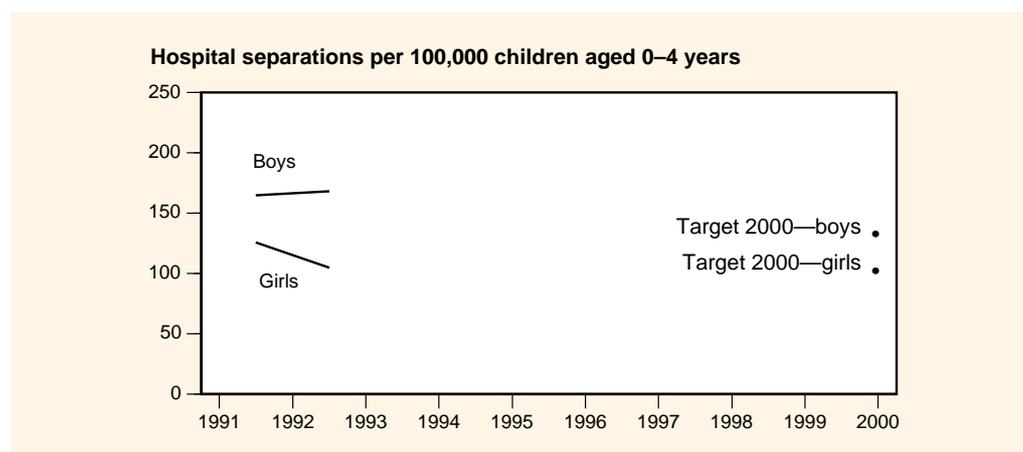
- The reliability of mortality data depends principally on the information available in coroners' records and on the reliability of the application of ICD-9 E-codes, generally based on that information. There is considerable potential for factors to do with information recording or coding to affect data in different ways for different States and Territories. Hence, apparent differences between jurisdictions should be interpreted with caution.

## Injury prevention and control

### INDICATOR 4.9.2 Hospital separation rate for injury resulting from fire, burns and scalds among children aged 0–4 years

*Goal: Reduce the mortality  
and morbidity associated  
with burns and scalds*

#### National trends



Children aged 0–4 years	Baseline 1991–92	1992–93	Target 2000
Boys	167	169	132
Girls	127	106	101

#### Notes

1. The baseline values given in the BHO report were based on New South Wales data only; the values given above were updated to reflect national rates.

2. The targets reflect a 20% reduction in the baselines, as indicated in the BHO report.

Source: AIHW National Injury Surveillance Unit.

- It has been estimated that by the age of five years, one in every 200 children will have been scalded severely enough to require admission to hospital.
- In 1992–93, 1,757 children aged 0–4 years were admitted to a hospital for injuries resulting from fire, burns or scalds, with boys outnumbering girls by 1.7:1.0.
- Although the hospital separation rate increased for boys and decreased for girls between 1991–92 and 1992–93, there are insufficient data to determine a trend.

## Burns and scalds injury (ICD-9 E890–899, E924.0)

### Data issues

#### Definition

- Hospital separations per 100,000 population, aged 0–4 years

#### Data coverage

- State and Territory estimates for hospital separation for injury resulting from fire, burns and scalds are subject to large variability in coverage.
- Updated State and Territory estimates of hospital separations are not yet available.

#### Data reliability

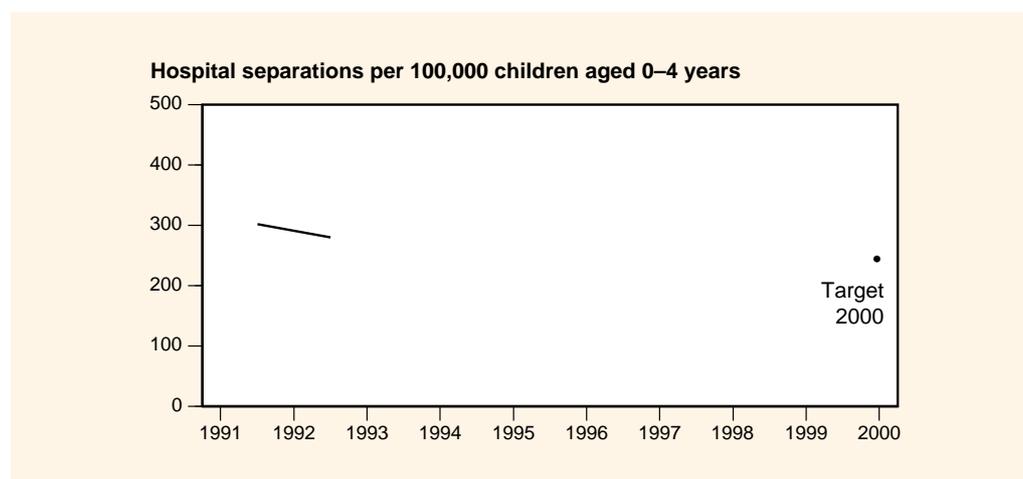
- Hospital separations are a reasonable indicator of acute injuries, but are not a precise measure of injury incidence. Year-by-year variations may be caused by changes in admission procedures, information capture and processing, and inclusion of a particular hospital in the database.

## Injury prevention and control

### INDICATOR 4.10.1 Hospital separation rate due to poisoning among children aged 0–4 years

*Goal: Reduce the morbidity in children due to poisoning*

#### National trends



Children	Baseline 1991–92	1992–93	Target 2000
Aged 0–4 years	302	280	242

#### Notes

1. The baseline value given in the BHO report was based on New South Wales data; the baseline given above was updated to reflect national rates.

2. The target reflects a 20% reduction in the baseline, as indicated in the BHO report.

Source: AIHW National Injury Surveillance Unit.

- The number of deaths from accidental poisoning by drugs (overdose) is rising overall, but childhood poisoning deaths are comparatively rare.
- Poisoning remains a significant cause of hospital admission for young children. Most of the poisoning cases are caused by the ingestion of drugs and medications (60%), followed closely by domestic chemicals (Victorian Injury Surveillance 1989).
- In 1992–93, 3,575 episodes of poisoning-related hospitalisation (2,023 boys and 1,552 girls) occurred. This is almost twice the number of hospitalisations for burns and scalds (see 'Hospital separation rate for injury resulting from fire, burns and scalds among children aged 0–4 years', on page 112).
- Although the hospital separation rate due to poisoning among children aged 0–4 years decreased between 1991–92 and 1992–93, there are insufficient data to

## Accidental poisoning in children (ICD-9 E850–858, E860–869)

### Data issues

#### Definition

- Hospital separations per 100,000 children, aged 0–4 years

#### Data coverage

- Estimates for hospital separation due to accidental poisoning are subject to variability in coverage.
- Updated State and Territory estimates of hospital separations are not yet available.

#### Data reliability

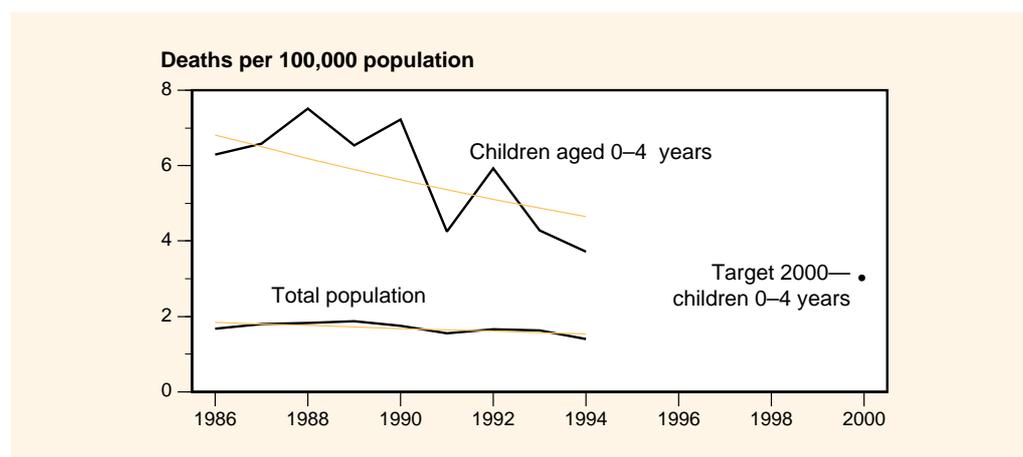
- Hospital separations are a reasonable indicator of acute injuries, but are not a precise measure of injury incidence. Year-by-year variations may be caused by changes in admission procedures, information capture and processing, and inclusion of a particular hospital in the database.

## Injury prevention and control

### INDICATOR 4.11.1 Death rate for drowning in the total population and among children aged 0–4 years

*Goal: Reduce the rate of drowning*

#### National trends



Population group	1986	1987	1988	1989	1990	1991	Baseline 1992	1993	1994	Target 2000
Total population	1.7	1.8	1.8	1.9	1.8	1.6	1.7	1.6	1.4	No target set
Children aged 0–4 years	6.3	6.6	7.5	6.5	7.2	4.3	5.9	4.3	3.7	3.0

*Note:* The target for children aged 0–4 years reflects a 50% reduction in the baseline, as indicated in the BHO report.  
*Source:* AIHW mortality database.

- Drowning is the most common cause of death among 0–4 year olds in Australia. It accounted for 42% (n=35) of all injury deaths to children in that age group. Of these, 25 drowned in a swimming pool in 1994.
- The death rate for drowning among babies and toddlers is higher than at any other age. In 1994, there were 250 deaths by drowning for all ages; 48 of these were children aged 0–4 years.
- Even at this early age, boys are at greater risk of drowning than girls. In 1994, the differential among 0–4 year olds was 3:1.
- The death rate for drowning among children aged 0–4 years declined at a rate of 4.7% per year between 1986 and 1994. In comparison, during that period, the age-standardised death rate due to accidental drowning in the total population declined by 2.2% per year.
- On current indications, the target for the year 2000 to reduce the death rate for drowning among 0–4 year olds is likely to be achieved.

## Accidental drowning (ICD-9 E910)

### State comparisons

- The Northern Territory experienced a substantially higher rate of drowning among 0–4 year olds in both 1986–88 (18.9 per 100,000) and 1992–94 (19.7 per 100,000) than any other State or Territory. These very high rates were also noted for the Territorians in other age groups.
- All States and Territories recorded a decline in the age-standardised death rate for drowning in the total population between 1986–88 and 1992–94. However, the change in drowning rates among 0–4 year olds was not uniform across the various jurisdictions. Tasmania, the Northern Territory and the Australian Capital Territory experienced an increase, although it is difficult to infer a trend based on the small numbers of deaths. Decreases ranging between 17.7% and 50.5% were recorded between the two periods in other

### Number of deaths per 100,000 population

State/Territory	Total population			Children aged 0–4 years		
	Average 1986–88	Average 1992–94	Per cent change	Average 1986–88	Average 1992–94	Per cent change
NSW	1.8	1.7	–3.6	5.6	3.6	–35.9
VIC	1.1	1.1	–4.4	5.1	4.2	–17.7
QLD	2.5	1.9	–23.0	11.7	5.8	–50.5
WA	1.9	1.8	–7.9	7.9	4.8	–39.5
SA	1.9	1.5	–21.1	6.4	4.7	–26.6
TAS	2.0	1.7	–14.8	1.9	5.7	>100
ACT	0.9	0.4	–50.8	3.1	5.9	88.3
NT	5.9	4.8	–19.2	18.9	19.7	4.0
<b>Australia</b>	<b>1.8</b>	<b>1.6</b>	<b>–11.5</b>	<b>6.8</b>	<b>4.6</b>	<b>–31.7</b>

Source: AIHW mortality database.

### Data issues

#### Definitions

- Number of deaths from drowning per 100,000 children aged 0–4 years
- The direct method of age standardisation has been used to determine age-standardised death rates.

#### Data availability

- State mortality data are provided by the Registrars of Births, Deaths and Marriages

in each State and Territory, and are usually based on the records of coroners.

#### Data reliability

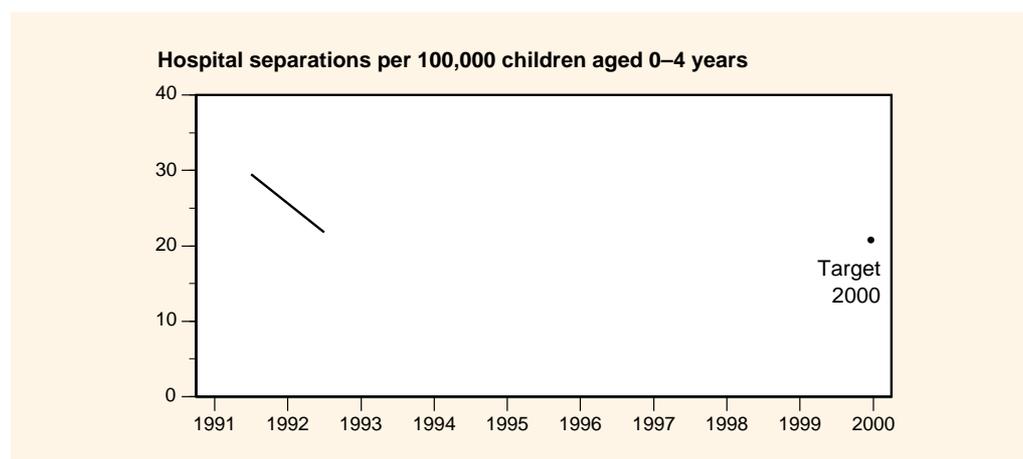
- ICD-9 E-codes for drowning do not identify major categories of interest in Australia, most notably drowning in swimming pools. A more informative classification has been used for drowning deaths registered from 1992 onwards.

## Injury prevention and control

### INDICATOR 4.11.2 Hospital separation rate for near-drowning among children aged 0–4 years

*Goal: Reduce the rate of  
near-drowning and  
associated morbidity*

#### National trends



Children	Baseline 1991–92	1992–93	Target 2000
Aged 0–4 years	29.5	21.8	20.7

#### Notes

1. A baseline of 12 separations per 100,000 population is given in the BHO report, a figure based on research by Nolan & Penny (1992). The baseline given above has been updated using information extracted from the National Hospital Morbidity Database.

2. The target reflects a 30% reduction in the baseline, as indicated in the BHO report.

Source: AIHW National Injury Surveillance Unit.

- For every death from drowning among 0–4 year olds (see 'Death rate for drowning in the total population and among children aged 0–4 years', on page 120) there are 4 to 5 babies and toddlers hospitalised for near-drowning.
- Most young children surviving a near-drowning are unaffected by the experience. However, the experience can cause severe disability (such as quadriplegia) in a minority of cases (Waugh et al. 1994).
- Between 1991–92 and 1992–93, the hospital separation rate for near-drowning declined substantially, although there is insufficient information to determine a trend from these data.
- Over the past several years, much has been achieved through the introduction of legislation to require pool fencing which isolates the child from the pool. However, there is a need to increase the proportion of existing pools with adequate fencing to make further headway in drowning.

## Accidental drowning (ICD-9 E910)

### Data issues

#### Definition

- Hospital separations per 100,000 children, aged 0–4 years

#### Data coverage

- Updated State and Territory estimates of hospital separations are not yet available. No State and Territory comparisons for injury hospitalisation are therefore provided in this report.

#### Data reliability

- Hospital separations are a reasonable indicator of acute injuries, but are not a

precise measure of injury incidence. Year-by-year variations may be caused by changes in admission procedures, information capture and processing, and inclusion of a particular hospital in the database.

- ICD-9 E-codes for drowning do not identify major categories of interest in Australia, most notably drowning in swimming pools.

## Injury prevention and control

### Priority indicators not reported due to incomplete information

Priority indicators for which the availability of data and/or the target status are presently incomplete, but which will be reported in future reports, are listed below.

Indicator	Data availability	Target status
4.2.3 Death rate ratio comparing the injury status among men aged 25–54 years from low socioeconomic groups with men from high socioeconomic groups	1997–98	Requires revision
4.2.4 Death rate ratio comparing the injury status among people living in rural and remote areas and the general population	Now	Possible
4.2.5 Hospital separation rate ratio comparing the injury status among the Indigenous and non-Indigenous populations	Now	Requires revision
4.2.6 Hospital separation rate ratio comparing the injury status among men aged 25–54 years from low socioeconomic groups with men from high socioeconomic groups	1997–98	Requires revision
4.4 Work-related injury	Not available by 1997–98	Not set
4.6.1 Hospital separation rate for sport- and recreation-related injuries	1997–98	Requires revision
4.6.2 Non-hospital admitted sport- and recreation-related injuries	Not available by 1997–98	Not set
4.8.2 Emergency department attendances resulting from product-related injury	1997–98	Not set
4.9.3 The proportion of houses equipped with smoke detectors and earth leakage breakers	Not available by 1997–98	Not set
4.11.3 Number of States and Territories requiring separation of domestic pools from houses	1997–98	Not set
4.11.4 The proportion of domestic pools with approved child-resistant fences, gates and barriers	Not available by 1997–98	Not set
4.11.5 The proportion of children and young people aged 10–16 years who have successfully completed a water safety and lifesaving course	Not available by 1997–98	Not set
4.12.1 Access of injured patients to optimal trauma care	Not available by 1997–98	Not set
4.13.1 Access of people with trauma injuries to comprehensive rehabilitation programs and appropriate long-term care and community support	Not available by 1997–98	Not set
4.14 Spinal cord injury	1997–98	Not set
4.15 Brain injury	Now	Not set

#### Notes

1. Data availability: 'Now'—monitoring data are currently available, and in many cases are up-to-date; '1997–98'—monitoring data are expected to become available by 1997–98; 'Not available by 1997–98'—monitoring data will not become available by 1997–98, but the indicator is considered to be of a sufficiently high priority for future reporting.
2. Target status: 'Not set'—no target has been set due to lack of baselines or trends data; 'Possible'—no target set, but is possible given available monitoring data (or the likelihood of these data becoming available soon); 'Requires revision'—target has been set but is based on poor quality, insufficient or non-existent monitoring data.
3. The indicator 'Morbidity due to interpersonal violence' has been excluded from the priority list due to lack of a clear definition.

## Strategies, initiatives and interventions

The following section deals with a selection of the activities that are occurring at the Commonwealth, State and Territory levels, with the broad aim of reducing the impact of injury on the community. The information below is far from comprehensive; rather, it gives a few examples of the activities that are considered to have contributed to, or to have the potential to contribute to, changed health status. It is provided to facilitate the exchange of information about activity which is deemed to be particularly useful, and which may have potential to be adapted for use by other States/Territories.

Prevention	Management	Maintenance	Research/Information
NSW burns and scalds prevention and management	Trauma Service Accreditation Standards	ACT Injury Task Force	Queensland Injury Surveillance System
Injury prevention for older persons—South Australian Make it Safe Program			
West Australian Injury Prevention Resource Package			
The Northern Territory Living With Alcohol Program			
Victorian SAFE Program for child injury prevention			
Queensland scalds prevention campaign			

## Prevention

### NSW burns and scalds prevention and management

This is a local multi-sectoral program with specific targets set by the Area Health Service and subject to evaluation through the Area's Performance Agreement with the Department. These include commitments to:

- implement best practice for burns and scalds prevention at the local level;
- reduce injuries from fires;
- increase the number of homes with smoke alarms;
- reduce injuries from scalds in infants (0–4 years);
- decrease the number of homes with bathroom hot water at a greater temperature than 50°C;
- provide optimal management for burns and scalds based on evidence-based guidelines; and
- implement best practice guidelines for patients with burns, to collect agreed indicators.

## **Injury prevention and control**

### **Injury prevention for older persons—South Australian Make it Safe Program**

This program is aimed at assisting elderly people in their homes, with the objective of reducing hazards that cause falls. The program reaches individuals through presentations about falls prevention made to organisations to which they belong, e.g. elderly citizens clubs and church fellowships. Individuals are recruited to the program through these presentations. The program has served over 5,000 people in South Australia to date. Home safety advisers are carefully selected and trained to provide expert assistance to the elderly participants in their homes. They offer free home safety audits, night lights, smoke detectors and information pamphlets, and arrange for home modifications if required. Modifications include floor treatments and handrails.

A thorough evaluation of this initiative has been undertaken which concludes that this program provides the most cost-efficient way of reducing hazards that cause falls. The risk of fall injury in the home has been halved at a cost of around \$60 to \$70 per household, including all overhead costs.

### **West Australian Injury Prevention Resource Package**

A comprehensive manual for the education and support of injury prevention officers was published by the Injury Control Program in September 1996. The resource package contains information on strategies for preventing a wide range of common injuries, and a guide to resources available and groups working in the area. There is a simple guide to the development of community-based injury prevention committees and how to harness local resources. The package is available free to people attending training courses, and otherwise is available for purchase.

### **The Northern Territory Living With Alcohol Program**

The Living With Alcohol Program is based on the principles that the community values alcohol when it is used in a responsible manner, and that total abstinence is appropriate for some individuals. The program involves a multi-faceted approach to preventing, and reducing harm done by, alcohol abuse, through integrated action in the areas of health services, legislation, community development and education, the liquor and hospitality industries, sport and leisure, domestic violence, the law enforcement and criminal justice systems, research and evaluation, and professional education and training.

Improvements since the program commenced include a 17% reduction in per capita pure alcohol consumption, an increase in light beer sales from 1% to 28% of the beer market, a 28% reduction in alcohol-related road accidents and fatalities, a 35% reduction in arrests for driving under the influence of alcohol, and particularly changes in community attitudes, such as the community-initiated weekly 'alcohol-free day' in Tennant Creek, the People's Alcohol Action Group in Alice Springs and increased local action in Aboriginal communities.

### Victorian SAFE Program for child injury prevention

Child injury prevention targets are prioritised in the statewide injury prevention strategy, *Taking Injury Prevention Forward*. The Safe Accident Free Environment (SAFE) Program aims to reduce injuries to children in low-income and non-English-speaking communities in inner Melbourne. It is currently funded by the Department of Human Services, is managed by the Safety Centre at the Royal Children's Hospital, and is operating in the cities of Moreland and Yarra.

The SAFE Program has two major focuses:

- a peer education program that trains community representatives to present safety information in their own language to existing community groups; and
- a program focusing on changing local government policy and practice to reflect current injury prevention philosophies.

Achievements so far include a reduction of hazards and injuries among children in the municipalities targeted, compared with the statewide injury rates among children, commitment to the maintenance of the SAFE Program in municipal public health plans, changes to open spaces maintenance contracts and inclusion of safety policies in children's services specifications.

### Queensland scalds prevention campaign

In 1996, Queensland Health commenced a scalds prevention campaign to reduce the incidence of hot water scalds to young children. The campaign encourages parents and carers to install hot water temperature control devices and to adopt safety practices that can greatly reduce the chance of a child being seriously burnt. The campaign to date has included the following measures:

- collaboration with manufacturers, distributors and plumbing merchants to increase the accessibility of hot water temperature control devices;
- extensive media education campaigns;
- provision of resource kits and parent information resources distributed statewide; and
- negotiation of support from electricity authorities.

## Management

### Trauma Service Accreditation Standard

The Australian Council of Healthcare Standards (ACHS) is soon to finalise Trauma Service Accreditation Standards. The ACHS received support from the Australian Health Ministers' Advisory Council and the Commonwealth Department of Health and Family Services. The standards are designed to be incorporated into the ACHS Charter for Change accreditation process, and are designed to encourage best practice in the provision of trauma services. The standards cover information management, access to services, human resource management and care procedures. The development of these guidelines is a national initiative.

## Injury prevention and control

### Maintenance

#### ACT Injury Task Force

In September 1995, the ACT Health Outcomes Reference Group recommended that injury be taken up as a priority area, due to its multi-sectoral nature and the fact that there is no existing program structure to address injury issues.

An Injury Prevention Symposium was held in March 1996 to coincide with the release of the publication *The Epidemiology of Injury in the ACT* (Gilbert & Gordon 1996). Participants recommended the establishment of an Injury Task Force to oversee the implementation of goals and targets in this area, and to encourage intersectoral links. The task force will have its inaugural meeting in December 1996.

### Research/information

#### Queensland Injury Surveillance System

Queensland Health is supporting the extension of the Injury Surveillance System to cover selected rural areas, and is also introducing trauma registries in teaching hospitals.

# 5 Mental health

*Primary goal:*

**“ Reduce the loss of health, well-being and social functioning associated with mental health problems and mental disorders ”**

- Overview
- Highlights
- Priority indicator
- Priority indicators not reported due to incomplete information
- Strategies, initiatives and interventions



## Overview

The designation of mental health as one of the five National Health Priority Areas is recognition of its enormous social and public health importance. In addition to the pain and disability suffered by individuals, mental illness also burdens their families enormously (Human Rights and Equal Opportunity Commission 1993). The economic, social and personal cost of these problems and disorders is large and has been extensively documented.

The prevalence of mental illness in Australia has not been established, although it is estimated that between one in four and one in five individuals will be affected by a mental health problem or mental disorder at some point in their lives. The 1989–90 National Health Survey estimated that some 3.5% of the population, or 599,000 people, suffer from one or more mental disorders (Australian Bureau of Statistics 1991). Almost one-half of these had the problem (excluding retardation and specific delays in development) as a long-term condition.

Depression and related disorders (post-partum depression, bipolar disorder, etc.) have a life-time prevalence of 6.3%, and a one-year prevalence of 3.7%, in Australia (Tippet et al. 1994). With a median age of onset at 25 years and an average duration of 6.4 years for depressive morbidity, it is a large contributor to the burden of mental ill-health. The mortality associated with depression, based on the estimate that some 60% of those who commit suicide have a significant psychiatric disorder, contributes to the years of life lost (Stoudemire et al. 1987). Depression is a debilitating illness often affecting work performance, leading to withdrawal from social and family activities, and sometimes causing the individuals to become isolated. The impact of depression and related disorders on the quality of life yet needs to be established.

Other mental disorders such as alcoholism, schizophrenia and drug abuse also have a strong negative impact. In 1992, alcoholism is estimated to have caused the loss of 3,660 lives and 55,450 person-years of life before age 70 (English et al. 1995). There were 71,539 episodes and 731,169 hospital bed-days caused by high level of alcohol consumption in that year. Some 28% of male and 12% of female current drinkers, aged 14 years and over, consume alcohol at levels defined as hazardous or harmful by the National Health and Medical Research Council (National Health and Medical Research Council 1992; Commonwealth Department of Health and Family Services 1996a).

There is no reliable source of information that specifically focuses on schizophrenia prevalence, but it is accepted that its rate of prevalence in Australia is similar to that seen in other Western nations (Tippet et al. 1994). With a lifetime prevalence of 1.5% and a median age of onset at 19 years (Rey 1992), schizophrenics have a higher risk of death (a standardised mortality ratio (SMR) of 2.53; cf. Tippet et al. 1994).

Illicit drugs caused 488 deaths in Australia in 1992, which resulted in the loss of 17,899 person-years of life lost before age 70. A total of 5,390 hospital episodes and 40,522 hospital bed-days in 1992 are also ascribed to illicit drug use (Australian Institute of Health and Welfare 1996a).

Suicide ranks highly among deaths attributed to mental ill-health. In addition to clinically significant depression, which contributes to a large proportion of suicides, a high toll is taken by other psychiatric disorders such as alcoholism, personality disorders, schizophrenia and drug abuse. Australia has a high rate of suicide within the industrialised world, particularly among young males (Abraham et al. 1996).

## Mental health

Direct costs of mental health and related services have been estimated to be about \$2 billion in 1989–90 (Australian Institute of Health and Welfare 1996a). This includes \$1.14 billion on hospitalisation (including public psychiatric facilities), \$0.42 billion on nursing homes, \$0.23 billion on medical costs, \$0.17 billion on pharmaceuticals and \$0.08 billion on allied professionals.

### Trends and differentials

Limited information is available to establish trends and differentials for mental health in Australia. Bennett et al. (1994) have recently reported on trends in mortality from 1980 to 1992 which reveals that mortality from all mental disorders is increasing annually at 4.0% in men and 4.6% in women. The highest rates of change in death rate are noticed for drug dependence in men (7.4%) and senile and presenile organic psychotic conditions in women (5.8%).

Suicide and deaths from self-inflicted injury declined in women between 1980 and 1992 with an annual rate of change of 0.8% (Bennett et al. 1994). However, the male suicide rate gradually increased from 17.9 deaths per 100,000 in 1981 to 20.9 deaths per 100,000 in 1992 (with an annual rate of change of 1.9%).

The mortality from mental disorders is much higher among Indigenous than non-Indigenous people, with an SMR of 5.5 in 1992–94 (Anderson et al. 1996). The age-standardised death rate for mental disorders declined significantly among Indigenous males between 1985 and 1994. Consequently, the gap between Indigenous and non-Indigenous males for mortality from mental disorders has declined significantly, with the SMR falling from 11.4 in 1989–91 to 5.5 in 1992–94 but it is still unacceptably high. No significant decline in death rate was noted among Indigenous females (Anderson et al. 1996).

Suicide by Indigenous people received much prominence in relation to the work of the Royal Commission into Aboriginal Deaths in Custody. Incarceration is strongly linked to suicides among both Indigenous and non-Indigenous people, but the high rate of detention and imprisonment among Indigenous males contributes heavily to their higher suicide rates overall. Suicide rates among Indigenous women are not significantly different from those noted among non-Indigenous women (Anderson et al. 1996).

At present, it is not possible to establish trends in the prevalence of various mental disorders in Australia at a national level. However, with the availability of results of the 1995 National Health Survey, it may be possible to discern some trends. The Australian Bureau of Statistics National Survey of Mental Health and Wellbeing, planned for 1997, will provide important population-based information on a range of mental health issues.

### National mental health information needs

Information required to monitor progress towards targets is poor or lacking for various aspects of National Health Priority Areas. Baselines and targets have not been set for several indicators due to the poor quality of available information. In the priority area of mental health, the available information is often not sufficient to support the design and validation of suitable indicators. Currently, only the 1989–90 National Health Survey data on self-reported prevalence of mental health is available, albeit soon to be updated following the release of 1995 National Health Survey results, but a general survey cannot be expected to yield information on specific illnesses. There are no data

on the incidence of mental disorders, nor on the welfare of mentally ill people in the community. Data on the use of mental health services are also sparse (Australian Institute of Health and Welfare 1994).

In December 1995, the AHMAC National Working Group on Mental Health Policy endorsed a broad information strategy for data development in mental health (Commonwealth Department of Health and Family Services 1996b). Under this strategy, data from three surveys of mental health services have been released to monitor service-related indicators and set achievable targets. Minimum data sets for institutional and community mental health care are also under development by the Australian Institute of Health and Welfare.

### The National Mental Health Strategy

The National Mental Health Strategy is a commitment by State, Territory and Commonwealth Governments to improve the lives of people with a mental illness. The aims of the strategy are:

- promote the mental health of the Australian community;
- where possible, prevent the development of mental health problems and mental disorders;
- reduce the impact of mental disorders on individuals, families and the community; and
- assure the rights of people with mental disorders.

The National Mental Health Strategy outlines objectives and strategies promoting a community-based system of treatment and support within a national framework of mental health reform. It addresses key issues such as: consumer rights; the provision of integrated mental health services; mainstreaming mental health services within general health service delivery arrangements; intersectoral links; legislation; workforce reforms; and monitoring and accountability procedures. It also addresses the requirements of special needs groups such as people from a non-English-speaking background and Indigenous people.

The reforms being pursued through the strategy will assist people with a mental illness to have access to improved services and support in years ahead. The strategy will also assist in meeting the goals for mental health envisioned in the report *Better Health Outcomes for Australians* (Commonwealth Department of Human Services and Health 1994), which are:

- reduce the loss of health, wellbeing and social functioning with mental health problems and mental disorders; and
- reduce the rate of suicide among people with mental disorders.

### Highlights

- Between 1986 and 1994, suicide rates declined at an annual rate of 0.8%. In order to reach the target set for the total population for the year 2000, the suicide rate will need to decline by 2.5% annually.
- Suicide rates are higher for males aged 15 to 34 years, and for older men aged 65 years and over. No targets have been set for the year 2000 for these age groups.



## Priority indicator

This section covers only one indicator for which adequate data are currently available and Target 2000 has been set.

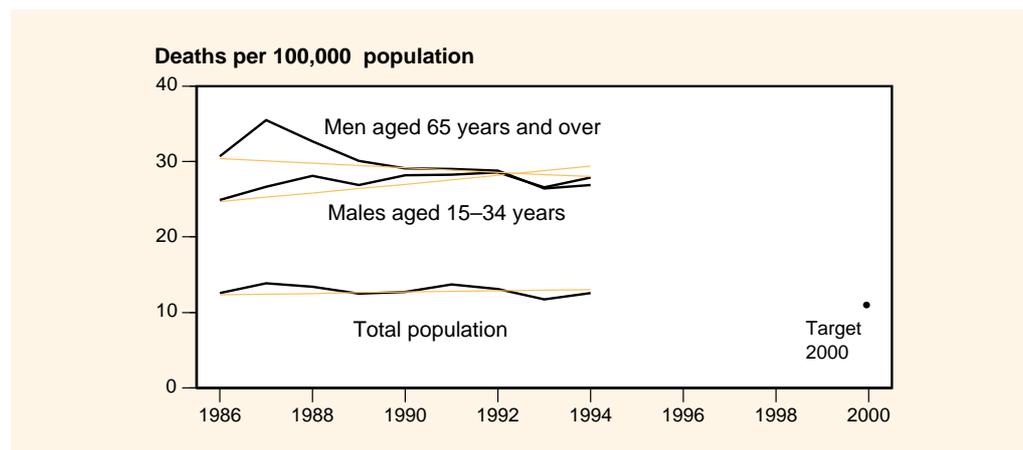
### 5.3.1 Death rate for suicide

## Mental health

### INDICATOR 5.3.1 Death rate for suicide

**Goal: Reduce the rate of suicide among people with mental disorders**

#### National trends



Population group	1986	1987	1988	1989	Baseline 1990	1991	1992	1993	1994	Target 2000
Total population	12.6	13.9	13.4	12.5	12.7	13.7	13.1	11.7	12.6	10.8
Males aged 15-34 years	24.9	26.7	28.1	26.9	28.2	28.3	28.6	26.6	27.9	Not set
Men aged 65 years and over	30.7	35.5	32.7	30.1	29.1	29.0	28.8	26.4	26.9	Not set

Source: AIHW mortality database.

- Suicide rate is one of the few currently measurable national indicators of mental health. Suicides are often expressions of breakdown in social integration and cohesion. However, as more people attempt than complete suicide, deaths data reveal only the tip of the problem.
- Suicide rates are greater for males than females across all age groups (Bordeaux & Harrison 1996). High risk groups include young men aged 15-34 years (Krupinski et al. 1994; Tulloch et al. 1994) and older men aged 65 years and over (NSW Health 1993). While both male and female rates are high for persons aged 80 or more, these account for only a small proportion of all suicide deaths.
- Between 1986 and 1994, the suicide rates declined slightly at an annual rate of 0.8%. However, no difference was noted between the 1990 baseline and the 1994 suicide rate. The rate of change will need to decline to 2.5% annually if the year 2000 target is to be met.
- Suicide rates continue to rise for young males aged 15-34 years, increasing at a rate of 0.9% annually since 1986. However, a downward trend was noted (2.8% annually) in the suicide rate for men aged 65 years and over between 1986 and 1994.

## Suicide (ICD E950–959)

### State comparisons

- Small numbers in some jurisdictions preclude the conclusion that there are significant differences in suicide rates between States and Territories, but nevertheless there are distinct variations in the data.
- Tasmania had the highest suicide rate for the total population both in 1986–88 and 1992–94. These high rates were also observed in Tasmanian males aged 15–34 years.
- Increases in suicide rates were observed between 1986–88 and 1992–94 in Tasmania, New South Wales and the Northern Territory. These increases are contrary to the overall national trend. The highest rate of increase between the two periods was noted in Tasmania.
- Trends in suicide among younger males did not reflect the trend in the total population. Increases of around 24% between 1986–88 and 1992–94 were noted for Tasmania and Western Australia.
- In contrast to the trend for younger males, declines in suicide rates were noted in all States and Territories, except in the Australian Capital Territory, among older men. The recent increase notwithstanding, the 1992–94 suicide rate in the Australian Capital Territory was below the national

### Deaths per 100,000 population

State/Territory	Total population			Males aged 15–34 years			Men aged 65 years and over		
	Average 1986–88	Average 1992–94	Per cent change	Average 1986–88	Average 1992–94	Per cent change	Average 1986–88	Average 1992–94	Per cent change
NSW	11.9	12.3	3.8	24.0	26.8	11.6	30.3	28.9	–4.5
VIC	13.5	11.5	–15.1	26.0	24.5	–5.5	34.8	24.2	–30.7
QLD	15.9	13.4	–15.7	31.3	28.8	–7.9	34.7	33.3	–3.9
WA	13.2	12.9	–1.9	25.8	32.2	24.6	30.5	21.4	–29.8
SA	13.2	12.4	–5.6	26.6	27.9	4.9	34.4	21.1	–38.5
TAS	16.1	17.7	9.8	35.3	43.7	23.9	49.4	37.2	–24.7
ACT	12.8	9.7	–24.3	27.8	26.4	–5.2	18.1	25.7	42.1
NT	14.2	15.6	10.1	33.3	30.8	–7.6	47.4	45.1	–4.8
<b>Australia</b>	<b>13.3</b>	<b>12.5</b>	<b>–6.5</b>	<b>26.6</b>	<b>27.7</b>	<b>4.1</b>	<b>33.0</b>	<b>27.4</b>	<b>–17.0</b>

Source: AIHW mortality database.

### Data issues

#### Definitions

- Mortality data are based on year of registration rather than year of death.
- Age-standardised number of suicides per 100,000 population

#### Data availability

- State mortality data are obtained from the Registrars of Births, Deaths and Marriages

in each State and Territory, and are usually based on the records of coroners.

#### Data reliability

- Some deaths attributed to suicide may be registered as being of 'undetermined intent'; the estimates for suicide rates given above therefore may have been underestimated.

## Mental health

### Priority indicators not reported due to incomplete information

Priority indicators for which the availability of data and/or the target status are presently incomplete, but which will be reported in future reports, are listed below.

Indicator	Data availability	Target status
5.1.1 Prevalence of depression and related disorders in the general population	1997–98	Requires revision
5.1.2 Prevalence of treated depression and related disorders	1997–98	Not set
5.2.1 Quality of life of those affected by schizophrenia and other psychoses	Not available by 1997–98	Not set
5.2.5 Access to and utilisation of treatment, rehabilitation and support programs for schizophrenia and other psychoses	Not available by 1997–98	Not set
5.3.2 Death rate for suicide among people suffering from schizophrenia and other psychoses	Not available by 1997–98	Not set

#### Notes

1. Data availability: '1997–98'—monitoring data are expected to become available by 1997–98; 'Not available by 1997–98'—monitoring data will not become available by 1997–98, but the indicator is considered to be of a sufficiently high priority for future reporting.
2. Target status: 'Not set'—no target has been set due to lack of baselines or trends data; 'Requires revision'—target has been set but is based on poor quality, insufficient or nonexistent monitoring data.

## Strategies, initiatives and interventions

The following section deals with a selection of the activities that are occurring at the Commonwealth, State and Territory levels, with the broad aim of reducing the impact of mental illness and associated disability on the community. The information below is far from comprehensive; rather, it gives a few examples of the activities that are considered to have contributed to, or to have the potential to contribute to, changed health status. It is provided to facilitate the exchange of information about activity which is deemed to be particularly useful, and which may have potential to be adapted for use by other States/Territories.

Prevention	Management	Maintenance	Research/Information
Victorian statewide youth suicide prevention initiatives	Commonwealth early intervention projects		Institute for Suicide Research and Prevention at Griffith University
NSW initiatives in child and adolescent mental health	Rockingham Kwinana Health Service	General practitioners in youth suicide prevention project	
		The Aboriginal Mental Health Policy and Aboriginal Mental Health Workers	
		Tasmanian Consumer Task Force and consultant training	

### Prevention

#### Victorian statewide youth suicide prevention initiatives

A statewide, interdepartmental Youth Suicide Prevention Committee has overseen the development of a package of initiatives. As part of an \$8 million upgrading of child and adolescent mental health services, each region will appoint a Mental Health Promotion Officer to support and coordinate workers in local communities working with young people. Benefits will include information and education for workers on depression, enhanced identification of young people at risk and improved protocols for service access.

This initiative is being complemented by establishing a youth suicide prevention clearing house, developing guidelines for management of suicidal young people by emergency departments, and a series of grants designed to help local agencies develop innovative approaches to assisting traumatised, depressed and suicidal young people across the State.

### Management

#### Commonwealth early intervention projects

Under the National Mental Health Strategy, the Commonwealth is funding three projects for early intervention in the treatment of mental health disorders, specifically for children and young people. Early intervention reduces the long-term effects of disability, because the disorder is treated before it becomes entrenched, and social networks, employment, education etc. are maintained.

## Mental health

Two programs that have had documented success with specific disorder groups (psychosis, and anxiety and depression) are being enhanced and promoted nationally. The third project is a national network to be funded until 30 June, 1999. Its goals include training, promoting and disseminating effective early intervention strategies, further developmental work with specific disorder groups, and re-orientating national mental health service delivery to an early intervention focus.

### Rockingham Kwinana Health Service

The Rockingham Kwinana Health Service is an innovative project underway in Western Australia. It provides early intervention services, and is targeted at individuals in the first two years after initial presentation with a psychosis. Early intervention is linked with reduction in the seriousness of subsequent psychotic episodes, in the level of disability and secondary morbidity (e.g. depression and suicide), and in the length and frequency of inpatient treatment. The service is community-based and provides a multi-disciplinary approach. It is based on a partnership between a range of providers, including general practitioners, psychiatrists (working in private and public practice), a community mental health team and a non-government organisation. The partnership enables choice for consumers and ensures that services are provided in a holistic way. The range of interventions provided includes medical treatment and follow-up, psychosocial support, patient education, and family and individual therapy.

## Maintenance

### NSW initiatives in child and adolescent mental health

In October 1996, the NSW Premier announced that \$5.8 million would be made available to promote the mental health of young people, as a further State commitment to youth suicide prevention. Three million dollars will be allocated for service provision for specialised mental health services for young people. One million dollars will be allocated for adolescent depression intervention programs, \$1 million to establish early psychosis programs for young people, and \$500,000 will be allocated to other suicide prevention initiatives including the policy development of the State strategy.

The Children and Young People Mental Health Task Force has been established to progress the development of children and young people's mental health service delivery in New South Wales. The Task Force is currently working to develop mental health service delivery models for children and young people that promote mental health, prevent mental health problems and disorders, intervene early where mental health problems and disorders exist, and provide treatment and continuing care for young people with significant mental health problems and disorders. Improved training programs will increase understanding of the particular needs of young people who experience mental health problems, and promote attitudinal change in the workforce. These issues are also being addressed through a Working Group and the Child and Adolescent Mental Health Task Force. The Child and Adolescent Mental Health Task Force is due to report in 1997.

Developing early psychosis services in New South Wales is a priority. As part of the National Early Psychosis Project, a NSW State Coordinator for the project has been appointed for 18 months, from August 1996, to the Centre for Mental Health. This is a jointly funded Victorian Early Psychosis Prevention and Intervention Centre (EPPIC)

and NSW Health initiative. The project aims to identify best practice in early psychosis service delivery, progress policy regarding early psychosis, assist and encourage the development of best practice early psychosis services in New South Wales, and foster a network for early psychosis initiatives throughout the State.

Depression has been recognised as a major public health issue. The National Health and Medical Research Council (NHMRC) is finalising guidelines on the clinical management of depression in adolescents. Four guides are being developed to assist with implementation—a guide for general practitioners, a guide for mental health professionals, a comic book and a booklet for adolescents. A New South Wales project for the implementation of the NHMRC guidelines has been initiated by the Centre for Mental Health and NSW Health, and a project officer has been appointed to identify mechanisms for the implementation of these guidelines in New South Wales. The aim is to ensure that the early recognition and treatment of depression in young people, in accordance with the guidelines, is implemented across the State.

### General practitioners in youth suicide prevention project

The Southern Child and Adolescent Mental Health Service in South Australia conducts a national education project for general practitioners on youth suicide prevention, funded by a Commonwealth grant under the Here for Life program. The broad purpose of the project is to educate and develop general practitioners' clinical skills in the recognition, assessment and management of youth suicidal behaviours in five States and Territories (South Australia, New South Wales, Queensland, the Australian Capital Territory and the Northern Territory). The project makes use of audiotapes, videotapes and printed material, with follow-up workshops for general practitioners and other health professionals. It is expected that approximately 3,600 GPs and other professionals will receive training directly through this project.

### The Aboriginal Mental Health Policy and Aboriginal Mental Health Workers

A comprehensive and innovative Aboriginal Mental Health Policy has been under development for some time, with extensive consultation with Aboriginal people and others, including mental health professionals and consumer representatives. The policy is expected to be finalised in early 1997. Early initiatives have been the creation of specialist Aboriginal Mental Health Workers, and the introduction of a tertiary professional education program in Aboriginal mental health at Batchelor College of Aboriginal Education in the Northern Territory.

### Tasmanian Consumer Task Force and consultant training

The project involves an innovative application of consumer consultants in acute psychiatric care. Nationally funded, the program has provided training for self-selected consumers and a work program within an acute psychiatric ward. Participants have dramatically improved their own self-esteem, and are contributing in a measurable way to the operation of the ward. Of particular interest is the fact that the training program itself was developed and run by two consumers, who are the project manager and leader of the support body, the Consumer Task Force, in Southern Tasmania.

## Mental health

### Research/Information

#### Institute for Suicide Research and Prevention at Griffith University

This project is funded to undertake research and activities to contribute to the mental health policies and programs of Queensland Health. Queensland Health has committed funding of \$100,000 per annum for five years commencing in 1995–96. The main functions of the Institute are to:

- develop appropriate methodologies, strategies and priorities in suicide research and prevention;
- establish and maintain a suicide mortality database and develop a framework for access to data;
- develop frameworks for the establishment of surveillance mechanisms of suicidal behaviour;
- identify groups at risk of suicidal behaviour in Queensland;
- advise and, where appropriate, participate in training and evaluation of suicide intervention strategy supporters; and
- develop ethical guidelines for the collection of data and conduct of research in suicidology.

The program also provides for the education of both health workers and non-health human service workers.

# 6 Diabetes mellitus

- **Overview**
- **Interim indicators**
- **Strategies, initiatives and interventions**



## Overview

In recognition of the impact that diabetes has on the Australian community, and in order to give it a higher profile in the health system, Health Ministers in July 1996 agreed to make it the fifth National Health Priority Area. The rationale for this decision by Health Ministers is that diabetes affects a significantly large number of Australians, and is disproportionately prevalent in particular population groups, especially Indigenous people. Subsequently, the Commonwealth Government has acted to implement a National Diabetes Strategy, with advice from an expert Ministerial Advisory Committee on Diabetes (MACOD).

The impact of diabetes in Australia has been recently summarised in the report, *The Rise and Rise of Diabetes* (McCarty et al. 1996). Major findings of this report include:

- In 1990, approximately 350,000 Australians had 'diagnosed' diabetes; in addition, an estimated 300,000 Australians are considered to have 'undiagnosed' diabetes, together representing 3.8% of the total population.
- The incidence of diabetes is on the rise in Australia, and is likely to remain a major threat to public health in Australia. Diabetes will possibly affect 900,000 Australians by the year 2000 and 1.15 million by the year 2010.
- Insulin-dependent diabetes mellitus (IDDM) ranks as one of the most common serious childhood diseases, and is likely to have a higher incidence than cancer, cystic fibrosis, multiple sclerosis, juvenile rheumatoid arthritis and muscular dystrophy. Australia has very high rates of IDDM compared with most countries in the world.
- More than 85% of adults with diabetes (those who develop the condition at age 25 or later) suffer from non-insulin-dependent diabetes mellitus (NIDDM). The prevalence of NIDDM is particularly high in the Indigenous population and some of the populations with non-English-speaking background.
- Indigenous Australians have one of the highest prevalence rates of NIDDM in the world. Indigenous Australians also suffer exceptionally high rates of diabetic nerve damage, blindness, kidney disease and infection.
- Risk factors for NIDDM, such as obesity and physical inactivity, are increasing in Australia. The incidence of gestational diabetes is also on the rise, particularly in some groups of non-English-speaking background.
- People with diabetes experience a reduced life-span and higher rates of eye, heart and kidney disease and stroke compared with non-diabetics. The total cost of diabetes aggregates to around \$1 billion annually (about \$2,774 per diagnosed case) in Australia.
- Cost-effective strategies to prevent NIDDM and reduce diabetic complications have been developed, but are not fully in place in Australia. Currently, there are no accepted forms of IDDM prevention.

The significant impact of diabetes on the Australian community notwithstanding, the precise nature or extent of this impact cannot be fully assessed at present due to a lack of reliable population data. Health Ministers, in identifying diabetes as the fifth National Health Priority Area, have ensured that a collaborative effort from all levels of

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government will result in the development of better national data for monitoring prevalence, incidence, risk factors and treatment/management activities.

At present, the prevalence of diabetes in Australia can only be derived from localised studies. However, McCarty et al. (1996) have developed the following age-specific profile of the prevalence of diabetes in Australia.

### Estimated prevalence of diabetes (IDDM and NIDDM) in Australia, 1990

Age group (years)	Total population (1990) <sup>(a)</sup>	Disease prevalence <sup>(b)</sup>					
		Males		Females		Total	
		%	n	%	n	%	n
0–14	3,732,586	0.06	1,151	0.05	907	0.06	2,058
15–24	2,767,464	0.17	2,403	0.16	2,166	0.17	4,569
25–34	2,820,070	1.00	14,238	2.62	36,582	1.80	50,820
35–44	2,583,514	2.28	29,737	2.86	36,587	2.57	66,324
45–54	1,808,478	5.82	53,982	4.76	41,934	5.30	95,916
55–64	1,458,999	11.00	80,665	8.52	61,828	9.77	142,493
65–74	1,152,360	15.50	82,349	13.00	80,739	14.15	163,088
75 and over	752,910	17.50	48,982	15.00	70,952	15.93	119,934
All ages	17,076,381	3.67	313,507	3.88	331,696	3.78	645,203
25 and over	10,576,331	5.96	309,953	6.11	328,623	6.04	638,576

(a) Australian Bureau of Statistics population estimates.

(b) Prevalence estimates for ages 0–14 and 15–24 were obtained using 1984 Tasmanian Diabetes Registry data (King et al. 1988). All other prevalence rates were calculated using 1989–90 National Health Survey data for self-reported diabetes (Welborn et al. 1995). To adjust for individuals with 'undiagnosed' or 'unknown' diabetes, the rates obtained from the National Health Survey data were revised upward by 100%.

Source: Reproduced with permission from McCarty et al. (1996).

To ensure the development of a focused national strategy for diabetes, the availability of sound data designed to improve our understanding of the disease is necessary.

MACOD has recommended the development of a national diabetes register, covering IDDM and NIDDM treated with insulin. MACOD has also endorsed the development plans for a national survey to determine the prevalence of diabetes. Planning will include the investigation of risk factors for other NHPAs that can be estimated during such a survey. A key component of this may be augmenting the National Diabetic Services Scheme database to facilitate its use for drawing sample information for surveys and cohort studies. The database is administered by Diabetes Australia and funded through the Commonwealth Department of Health and Family Services. The use of the National Diabetic Services Scheme to date has been to avail people with diabetes of subsidised supplies for managing their condition (for example, provision of syringes and testing strips). It is estimated that the database contains information on over 90% of known insulin-treated and approximately 50% of non-insulin treated people with diabetes.

## Interim indicators

The Australian Institute of Health and Welfare has developed an interim set of diabetes indicators, informed by the NHIMG health outcomes framework (see Appendix 1), for consultation with various stakeholders. A total of 23 indicators covering prevention, management and maintenance, with each aspect represented by a suitable mix of primary outcome, risk, process/quality and health status indicators, was selected. The indicators are currently under consideration by the Ministerial Advisory Committee on Diabetes (MACOD), and will form the basis for continuing discussion with States and Territories as well as the non-government sector before a definitive list is agreed to, and developmental activity begins.

## Strategies, initiatives and interventions

The following section deals with a selection of the activities that are occurring at the Commonwealth, State and Territory levels, with the broad aim of reducing the impact of diabetes on the community. The information below is far from comprehensive; rather, it gives a few examples of the activities that are considered to have contributed to, or to have the potential to contribute to, changed health status. It is provided to facilitate the exchange of information about activity which is deemed to be particularly useful, and which may have potential to be adapted for use by other States/Territories.

Prevention	Management	Maintenance	Research/Information
Queensland Health Aboriginal and Torres Strait Islander Food and Nutrition Strategy		Commonwealth Diabetes Education and Management Project	
		ACT Diabetes Project	South Australian Diabetes Study
NSW health outcomes approach to diabetes prevention and care		WA Pilbara Diabetes Program 1996	Victorian Allocative Efficiency Models

## Prevention

### Queensland Health Aboriginal and Torres Strait Islander Food and Nutrition Strategy

Queensland Health is addressing the problem of diabetes in Indigenous communities by supporting the Aboriginal and Torres Strait Islander Food and Nutrition Strategy. This plan involves six interrelated projects:

- the establishment of a high-level intersectoral steering committee, a project coordinator position and statewide coordination mechanisms;
- fast-tracking the training of Indigenous people in nutrition through a TAFE-accredited training program and scholarships for a Masters of Community Nutrition;
- provision of training for Indigenous health care workers in diabetes prevention and management;
- a project to identify strategies to improve access to nutritious food supply in rural and remote areas of North Queensland;

## Diabetes mellitus

- implementation of a program similar to the Strong Women, Strong Babies, Strong Culture program; and
- the development of systems for the collection, monitoring, evaluation and dissemination of nutrition-related data in Indigenous communities.

### NSW health outcomes approach to diabetes prevention and care

Recognising not only the seriousness of the problem but the potential for substantial improvement in health outcomes, the NSW Health Department began applying a health outcomes approach to the improvement of diabetes prevention and care services in October 1994.

The health outcomes-based approach for health improvement in NSW emphasises the importance of the assessment of evidence for the effectiveness of all interventions, and the central role of monitoring and surveillance in the provision of effective health services. The aim is to develop quality systems of care locally that are supported at State and national level by appropriate policy, training, development of referral networks, and dissemination of knowledge about effectiveness.

The essential features of the implementation strategy include:

- definition of basic aims and objectives;
- agreement on measurable outcomes and process indicators of quality and the appropriateness of prevention and care;
- establishment of evidence-based criteria for best practice in prevention and treatment, including development and evaluation of guidelines, minimum standards and models of care based on this evidence; and
- monitoring the impact of change and progress toward achieving desired goals.

Early in the course of the health outcomes project, it was agreed that the program should aim to improve the health of people with diabetes by ensuring that everyone with diabetes has access to:

- education for self-care and monitoring;
- ongoing routine clinical care to promote good metabolic control; and
- regular monitoring for signs of complications, and appropriate treatment of complications.

In collaboration with experts and consumers, principles of care and guidelines for diabetes care have been developed to encourage effective clinical practice in relation to education, metabolic control and screening and the treatment of complications.

To promote integration of diabetes services and programs, a number of integrated care pilot projects have been jointly funded by the NSW and Commonwealth Health Departments.

The next stage is to:

- develop a Diabetes Health Priorities and Strategies Plan, to consolidate activity so far and indicate future directions;
- finalise a plan for, and commence dissemination and implementation of, the principles of care and guidelines for diabetes; and
- complete and report on developments in relation to the integrated care pilot projects including effectiveness, cost and evaluation of the guidelines and information system.

## Maintenance

### Commonwealth Diabetes Education and Management Project

The aims of this project (IDDM and NIDDM) are to:

- improve patients' self-care and diabetes control by improving access to diabetes education;
- improve general practitioners' management of diabetes;
- develop a computerised patient register and recall system; and
- enhance integration of care providers, including GPs, specialists and allied health professionals.

GPs participating in the program register their patients with the Register/Recall System. At each subsequent visit, a patient-held record is used to record clinical data, and a copy is sent to the register. If no information is received on a patient for six months, the GP is sent a recall notice. Data in the register are audited at regular intervals, and participating GPs are provided with feedback on their process of care; for example, the percentage of patients that have had lipids tested in the last 12 months.

GPs participating in the project are able to refer their patients for diabetes education assessment. This is normally carried out at the GP's surgery, thus facilitating communication between the GP and allied health professional. Following assessment, the patient may be referred to a group education program conducted in collaboration with the Area Health Service and Diabetes Australia.

The processing of auditing register data allows for the evaluation of performance in terms of the care GPs provide and evaluation of the results of care, that is, patient health outcomes. Audit results are sent back to the participating GPs and used to initiate changes in practice. The project was commenced at the beginning of 1995. Forty-four GPs are currently participating in the project, with 370 patient registrations received so far. Evaluation at the end of two years will reveal whether or not there has been an improvement in patient health.

### ACT Diabetes Project

A diabetes project (IDDM and NIDDM) that commenced in 1995 is being undertaken by the ACT Division of General Practice, with funding from the Commonwealth Department of Health and Family Services. The project aims to: strengthen the role of GPs in the care of people with diabetes using a primary health care approach; identify diabetes knowledge and risk factors in the local area to develop a broader network of support by improving coordination among the range of services; and develop best practice protocols for health gains across the public health continuum. A central database of diabetics will be established to assist in developing a more accurate profile of diabetes incidence and treatment in the ACT.

In July 1996, the Epidemiology Unit of the Department released the report entitled *The Epidemiology of Diabetes Mellitus in the ACT* (Gilbert & Gordon 1996). The ACT Health Outcomes Reference Group is considering the establishment of a diabetes task force.

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### Pilbara Diabetes Program 1996

The Pilbara Diabetes Program proposal was initiated by health service providers in the Pilbara in 1995, and is coordinated by the Pilbara Public Health Unit. It is an attempt to facilitate communication between the community and health service providers, to produce clear and effective clinical guidelines for the community, and to provide education and resources for all staff involved in diabetes management.

A steering committee of regional representatives was set up, and met in August 1995 to draft proposals for diabetes management. Community consultation took place in August and September through a process of interviews and surveys. The recommendations from this consultation process were discussed by the steering committee and became the basis for a proposal.

In January, the proposal was distributed widely throughout the Pilbara for comment and expressions of interest. The overall response was very positive, and most felt that there was a great need to provide equitable and easily accessible services to diabetics as well as a coordinated approach to diabetes management by health service providers.

A coordinator for the program was appointed in January 1996 by the Pilbara Public Health Unit, and the Diabetes Steering Committee membership was formulated in accordance with the guidelines of the proposal and with the aim of achieving wide community and regional representation.

### Research/Information

#### South Australian Diabetes Study

The South Australian Diabetes Study was undertaken, with funding from NHMRC, to determine the risk factors, complications and service utilisation of people with NIDDM. Nearly 200 diabetics, randomly selected from the South Australian population through a population survey, were interviewed on a range of issues. The interview assessed the patient's knowledge of diabetes, its complications and control, the patient's knowledge and treatment for associated risk factors and their perceived importance, the patient's usage of health services, and their self-care and their perception of the care provided by their GP. Their quality of life as determined by the SF-36 were assessed. The patients also underwent a series of medical tests and the patient's doctor was interviewed to determine the level and appropriateness of care the patient received. The patient's case notes were also audited.

Data from this study are now being analysed, but initial results indicate a high rate of complications, with many diabetics having more than one complication. The percentage of diabetics with risk factors was also high, especially the factor of being overweight or obese.

#### Allocative efficiency models

The Public Health Branch of the Victorian Department of Human Services is coordinating a six-stage research program in relation to diabetes, to identify ways to efficiently allocate health resources. The six areas cover: primary prevention; the cost-effectiveness of screening for NIDDM and for diabetic retinopathy; service delivery—evaluation of a shared care management approach; and treatment and preventive options for neuropathy (diabetic nerve damage). A summary document will identify

## Diabetes mellitus

the range of possible health interventions and ascertain which interventions are most likely to produce desirable health outcomes.

The project outcomes will provide a more efficient base for improving health outcomes in relation to diabetes, and will illustrate the way health outcomes in other areas can be improved.

One particular focus of this project is a computer model to examine the costs and benefits of screening and treatment for diabetic retinopathy. It is expected that application of the model will demonstrate that screening will deliver significant cost benefits, and this will be important in advancing widespread screening of the diabetic population.



# 7 Future directions

- **NHPA work program**
- **Mechanism to identify future National Health Priority Areas**
- **Identifying acceptable practice**
- **Identifying appropriate points of interventions**
- **Designing suitable indicators**
- **A structure for the management of the NHPA initiative**



## Future directions

In developing this report, extensive consultation with States and Territories was carried out. During this process, a number of problems with the scope of the NHPA process were identified. In order to finalise this report in a timely fashion and to ensure that data and information were current at the time of printing, these issues have not been addressed in this report but will be taken into account for the future development of the NHPA process and addressed in future reports.

As outlined in the introductory chapter of this report, the National Health Priority Areas (NHPA) initiative is guided by the experience of the earlier National Health Goals and Targets program. By identifying and improving the valuable components of this earlier process, while learning from the shortcomings, a strategically oriented work program a strategically oriented work program is being developed for the NHPA initiative, through the tasking of expert groups to provide advice in each of the priority areas.

A problem with the way in which earlier goals and targets activities were implemented was that activity occurred in two parallel, but not interrelated, streams:

- data development, to monitor trends in health status for the priority conditions; and
- identification of strategies designed to realise change.

Under the National Health Goals and Targets program, the extent to which the data influenced the development of national strategies, and the extent to which the strategies influenced data development were minimal. While this report details only a few examples of activity occurring across the nation in relation to the priority areas, future reports will aim to link cost-effective activity to measurable outcomes. This will not only allow determination of the level of uptake of proven beneficial activity, but will also help measure its impact upon the health of Australians. There is also the need to integrally link the development of agreed national strategies with data development and analysis activities—the two must work together, rather than as separate components of the same broad process.

Highlighted in this report are areas where it is not likely that the targets set will be reached by the year 2000, or where targets have not been set and the health status is declining. Some of these include:

- the continuing rise of suicide among young males;
- increasing levels of obesity in the population; and
- inequities in death rates due to coronary heart disease and injuries between the Indigenous population and the general population.

These and other issues are currently being addressed at all levels of the government and non-government sectors. However, in the context of the NHPA initiative, reconsideration of structures and processes is required to monitor our progress and the identification of strategies designed to create change. As part of this process, targets will be set where there are none and, where targets have already been met, consideration will be given to revising them. In due course, targets for years beyond 2000 will need to be considered.

## Future directions

### NHPA work program

The future NHPA work program, outlined below, is in line with this new strategy and will include:

- development of a mechanism to identify future priority health areas;
- identification of gaps in our understanding of good practice in the prevention, treatment and management of the priority conditions, and identification of appropriate activities to fill these gaps;
- identification of appropriate points of intervention for each priority area, and identification of inappropriate activity that is significant; and
- designing, validation and refinement of indicators for reporting outcomes.

### Mechanism to identify future National Health Priority Areas

At their meeting on 4 July 1996, Health Ministers requested that a mechanism be developed to identify future National Health Priority Areas. To this end, a paper was prepared by the Australian Institute of Health and Welfare for consideration by the National Health Priority Committee (NHPC). The paper noted that current priority areas are defined in terms of a disease and identified that criteria for choosing a disease, which lend themselves to an evidence-based approach may include:

- the overall burden of the disease in terms of mortality, morbidity and disability;
- the potential for health gain from prevention of the disease or ameliorating its impact;
- the existence of cost-effective interventions; and
- equity issues, especially the impact on priority populations.

The use of such evidence would not substitute for professional or political judgement in the decision making process for setting health priorities, rather it would assist in informing and supporting the decision making process in a way which provided a systematic and transparent framework for the use of evidence, along with other factors such as community values and political imperatives. The quality of the evidence is another factor which the decision making process should take into account.

Looking first at burden of disease, various estimation methodologies are available. One example is the Disability Adjusted Life Year (DALY), developed for the World Bank's 1993 World Development Report. DALY calculations require comprehensive estimation of incidence and duration for major diseases and injury and use weights reflecting the social preference for devoting resources to the prevention or treatment of conditions in order to value the loss of healthy life for non-fatal conditions. An Australian burden of disease analysis would require investment of resources and a review of methodological issues relating to the assumptions underpinning DALYs. Simplified methods based on the use of data from population health surveys, such as the Handicap Adjusted Life Year developed by Mathers (1996), may provide a practicable alternative. Empirical evidence covering DALYs for established market economies and HALYs for Australia is presented in the AIHW working paper. These indicators provide generally consistent results in their ranking of the disease groups that make up Australia's current five National Health Priority Areas.

However, adoption of burden of disease indicators alone to select National Health Priority Areas would imply that health resources and action should be allocated on the

## Future directions

size of the problem alone. This would overlook the opportunity for achieving additional health gain and the cost of achieving such gain. Compilation of comprehensive empirical assessments of the potential for health gain and the cost-effectiveness of potential interventions may raise resource questions that are potentially as great as for sophisticated indicators of disease impact, even though much evidence exists in particular areas.

Whether it is more productive to seek further National Health Priority Areas, or to concentrate attention on development of strategies to pursue health gain within the existing five priority areas, is not a question that can easily be answered with available empirical evidence. However, the action orientation the program is seeking may be more satisfactorily advanced by focusing attention on strategies within existing NHPAs. A parallel exercise should be exploring the determinants of health status and common themes across the priority areas.

As outlined above, utilising standard burden of disease measures, it is clear that the existing five priority areas impact significantly on society. Against this background, the initial work program of National Health Priority Areas will focus on the existing priority conditions, rather than seeking to expand the coverage of the program.

However, the NHPC has decided that further investigation is needed before it is able to respond to the Health Ministers' request for a mechanism to identify new priority areas. Firstly, it is planning a seminar on the usefulness of DALY and related methodologies for use in setting health priorities. Secondly, the NHPC is conscious that national frameworks adopted in other countries have been more comprehensive than the disease framework for health priorities adopted in Australia's NHPA initiative. Other national frameworks have taken account of environments, risk factors and health competencies or literacy, as well as diseases. Consequently the NHPC will establish a consultancy to review Australian and international experience with goal setting and health priorities and to report on options for a framework which incorporates a focus on disease, health determinants, risk behaviour and population groups. Both of these activities will be undertaken before the end of 1997.

## Identifying acceptable practice

An early component of the NHPA process will be the analysis of what is known to constitute acceptable practice for each of the priority conditions. Acceptable practice should be evidence-based, or have some demonstrated positive impact. It may include evidence-based guidelines, acceptable practice information for general practitioners, or documented intervention activities with a proven benefit. The process of gathering the necessary evidence and ensuring that acceptable practice is implemented in each priority area will take some time, and may involve pilot testing intervention programs, biomedical research, or commissioning evidence-based guidelines.

## Identifying appropriate points of intervention

An area of particular concern in the Australian health system is the identification of cost-effective, equitable points of intervention for conditions across the spectrum of primary prevention, secondary prevention/early intervention, management, and ongoing maintenance. With its condition-specific focus, the NHPA process lends itself to testing options for determining the relative cost-effectiveness of various interventions. However, it is important that such a measure takes into consideration

## Future directions

equity issues, to ensure that the intervention has the best potential for realising change in particular priority populations.

Just as identifying appropriate activity is important, so too is identifying inappropriate activity relating to the priority areas, and considering mechanisms to discourage its utilisation. This is the philosophy behind the French document, *1995 Guide Des Références Médicales Opposables* (1995 Guide to Medical Recommendations Able to be Used as Evidence). This document outlines when particular procedures are not necessary to be carried out. For example, it states:

There is no reason, in uncomplicated mild hypertension as defined above, when control of the hypertension is satisfactory, to repeat an ECG systematically more than once a year, except where there is new symptomology.

While the development of a similar set of guidelines is not necessarily recommended at this stage, the underpinning rationale for such an approach is worthy of further consideration. As a starting point, identification of inappropriate activity for the five priority areas will be carried out and reported in future reports.

## Designing suitable indicators

Further development of the indicators for reporting will be a fundamental aspect of the work program for National Health Priority Areas. Of immediate interest is the development of a suite of indicators for diabetes—an issue discussed at Chapter 6 of this report. It is important that the indicators cover an appropriate mix of health status measures, and that indicators relating to the prevention, management and maintenance of conditions are included. It is also important that the indicators reflect an understanding of activity with proven benefit or a demonstrated lack of benefit.

The National Health Information Management Group (NHIMG) has developed a Health Outcomes Framework that will help inform the development of indicators. The framework provides a mechanism to ensure that appropriate consideration is given across health streams, including prevention, management and maintenance, and that various indicator types, including process, outcome and health status measures, are considered. Further details on this framework are provided in Appendix 1.

## A structure for the management of the NHPA initiative

The outcomes of the activities detailed above will not lead to the development of prescriptive work programs for each State and Territory. Rather, they will allow for each State and Territory to access information about activity that has a proven, cost-effective, positive outcome, and which may be able to be adapted for their local conditions. For this to occur, it is essential that the work program outlined above be developed in collaboration with all levels of government.

A Commonwealth/State committee has been established to coordinate the aforementioned work program. The National Health Priority Committee (NHPC) is a high-level committee with representation from the Commonwealth, State and Territory Departments of Health, the Australian Institute of Health and Welfare and the National Health and Medical Research Council. Reflecting the change in emphasis for National Health Priority Areas outlined in the introduction to this report, this group replaces the previous Better Health Outcomes Overseeing Committee.

## Future directions

The latest developments, in terms of Commonwealth, State and Territory government collaboration and the development of a National Public Health Partnership (NPHP), will require close linkages to avoid duplication of effort. Given the 'whole-of-system' focus of the NHPA process, it is essential that activities relating to particular streams of health care are in line with the broader considerations of the National Health Priority Committee (NHPC).

A key consideration of the proposed management processes is the involvement of the non-government sector including experts and consumers. The role of the non-government sector should not be underestimated, and will play a major role in ensuring that the policy directions of health departments have optimum capacity to result in changed practitioner behaviour, and ultimately to result in improved health status.

The processes for involving the non-government sector are to be further developed, and will take place in consultation with relevant peak organisations. Expert forums such as the National Cancer Control Initiative (NCCI) and the Ministerial Advisory Committee on Diabetes (MACOD) have agreed to provide advice to the National Health Priority Committee (NHPC) on the priority areas of cancer and diabetes respectively. Specialist groups in other priority areas are also being requested for expert advice.



# Appendix 1

## Report of the National Health Information Management Group Working Party on Health Outcomes Activities and Priorities, September 1996

### Introduction

#### Background

The objectives of the National Health Information Development Plan (NHIDP) include the development of:

- clinically specific measures of health outcomes in relation to major health problems, for incorporation in clinical information systems;
- generic measures of health outcomes; and
- indicators of the performance of the health system in achieving health gain.

At its October 1995 meeting, the Australian Health Ministers' Advisory Council (AHMAC) noted that much work was being done in Australia towards these objectives, and asked the National Health Information Management Group (NHIMG) to 'coordinate an assessment of current activities relating to health outcomes and bring back a consolidated report, including budget implications, to the February 1996 AHMAC meeting'.

In response to this, the NHIMG engaged the consultant Halcyon Solutions to:

- review and report on current work in Australia on the development of generic and clinically specific measures and indicators of health outcomes;
- identify areas of priority, if any, for the development of information relating to health outcomes where there is, at present, little or no activity; and
- advise on how the highest priority areas should be addressed over the next three years.

Halcyon Solutions subsequently carried out a national survey of health outcomes activities, with the support of the Australian Health Outcomes Clearing House. The survey showed that numerous developmental projects on health-related measures were being labelled as 'health outcomes' projects, but in many instances the measures being developed were process or output measures rather than outcome measures (Harvey 1996). From the survey report, the NHIMG concluded that confusion in health outcomes nomenclature was a major barrier to progress in fulfilling the objectives of the NHIDP. The NHIMG thus recommended to the February 1996 AHMAC meeting that there was '... an urgent need to develop an agreed framework, classification and terminology for the range of health outcomes activities currently being undertaken'.

The Working Party on Health Outcomes Activities and Priorities was therefore set up to use the findings of the Halcyon Solutions' report to make recommendations on a consistent national approach to the classification of health outcomes information.

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A parallel issue was the need for AHMAC to decide whether or not to support the Australian Health Outcomes Clearing House, which had been established at the Australian Institute of Health and Welfare. In the context of its deliberations on a consistent national approach to the classification of health outcomes information, the Working Party was also asked to recommend whether or not there was a need for the Clearing House, and if there was, what its role should be.

### Terms of reference

The Working Party addressed the following terms of reference:

- to develop a framework for reporting on current work, and work done to date, on the development and standardisation of health outcome indicators. This framework should be applicable to generic and clinically specific measures and indicators of health outcomes, including outcomes pertaining to the national goals and targets;
- based on this framework, to identify priority areas for the development and/or standardisation of information on health outcomes;
- to prepare standard definitions of the terms relating to health outcomes, measures and indicators of health outcomes, and related concepts, and to recommend the uniform adoption of this terminology; and
- to provide advice on the need for and, if necessary, the role of, the Australian Health Outcomes Clearing House.

The Working Party was asked to report to the NHIMG by July 1996. Members anticipated that the party would dissolve when it had reported to the NHIMG, unless the NHIMG requested otherwise.

### Membership

The final membership of the Working Party was as follows:

Dr Michael Frommer (chair), NSW Health Department

Dr Michael Ackland, Victorian Department of Human Services

Dr John Donovan, Australian Institute of Health & Welfare

Ms Lesley Paton, Commonwealth Department of Health & Family Services

Dr Ian Ring, Queensland Department of Health (NHIMG member)

Mr Peter Williams, NSW Health Department (NHIMG member)

The Australian Institute of Health & Welfare provided the secretariat (successively through Ms Tanya Wordsworth and Mr Ian Lester).

Members of the Working Party gratefully acknowledge input from the following people, who attended some of the Working Party's meetings:

Ms Jenny Booth, Commonwealth Department of Health & Family Services (representing Ms Paton)

Mr Greg Curry, NSW Health Department (representing Mr Williams)

Mr Richard Eccles, Commonwealth Department of Health & Family Services

Mr Tony Greville, Australian Institute of Health & Welfare

Mr Roy Harvey, Halcyon Solutions

Dr Richard Madden, Australian Institute of Health & Welfare

Ms Jan Sansoni, Australian Institute of Health & Welfare (who gave a presentation on the Australian Health Outcomes Clearing House)

Mr Geoff Sims, Australian Institute of Health & Welfare.

## A framework for health outcome indicators

### Objectives

The Working Party agreed that a nationally consistent framework for health outcome indicators should fulfil three purposes or objectives. It should:

- facilitate systematic identification of indicators (including information on the level of development of existing indicators, and areas where indicators are lacking);
- help set priorities for developing mechanisms of monitoring outcomes and progress towards targets (i.e. priorities for information development); and
- facilitate comparisons of indicator data (by promoting standardisation of indicators and analyses).

### Specifications

Members also agreed on desirable characteristics of a framework. In addition to meeting the objectives listed above, the framework should:

- be easy to understand, implement and use;
- be compatible with existing health information models and frameworks, especially the National Health Information Model;
- have the capacity to contribute to the development of existing models and frameworks;
- accommodate indicators reflecting different perspectives on the health system (e.g. indicators of the outcomes of medical interventions for individual patients versus the outcomes of population-based health promotion programs); and
- accommodate a variety of ‘indicator taxonomies’.

In relation to the last point, members listed indicator taxonomies. Indicators can be classified according to the:

- type of outcome (e.g. risk level, morbidity, mortality, or quality of life);
- type of intervention (prevention, treatment, maintenance etc., or clinical intervention with an outcome for an individual vs population-based intervention with an outcome for a community);
- stage of indicator development (with a spectrum from concept through validation to standardisation);
- types of data source (routine data collection, special purpose data collection, repeated surveys, or ad hoc surveys);
- availability of data (data available now, soon, later, or data unavailable pending research);
- types of measures (generic vs clinically specific);
- manner in which the indicator is used or reported on; and
- statistical characteristics of outcome information (measures vs indicators, or observation vs estimation).

### Scope

This report concentrates on the development of a framework for information on health outcome indicators. Consideration of other types of indicators, such as performance indicators and indicators of quality, was beyond the scope of the Working Party’s terms of reference.

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Moreover, members agreed that no single framework could cover information on outcome indicators for all types of health-related phenomena. The Working Party therefore focused on indicators of the outcomes of interventions for specific health conditions, acknowledging that a separate approach would be needed for institutional or system-wide indicators.

### Options

With the objectives and specifications of the NHIDP in mind, the Working Party reviewed a selection of existing approaches to the classification of health outcome indicators. These included the framework described in the technical appendix to the Halcyon Solutions report (Harvey 1996); a framework for classifying outcomes relating to Australia's National Health Goals and Targets outlined in the January 1996 NHIMG paper, 'Data requirements for National Health Goals and Targets'; and the National Health Information Model itself.

Members agreed that the framework proposed by the NHIMG for measuring goals and targets had major strengths. It clearly had the potential to fulfil the required objectives, had a simple structure and was easy to understand, could accommodate a variety of perspectives on health outcomes, was indicator-focused rather than attempting to cover all aspects of health outcomes, and could be applied to a variety of types of interventions and outcomes. A further strength of this framework was its applicability to particular health problems, especially specific diseases.

In view of the strengths of the framework proposed by the NHIMG for measuring goals and targets, the Working Party resolved to recommend that the national framework should be based on it. The suggested framework, described in the following text, is an extension of the NHIMG framework, incorporating modifications based on an existing mental health outcome classification (Mrazek & Haggert 1994). In particular, it was seen as desirable to divide preventive interventions into three components—universal, selective, and indicated preventive interventions.

### Description of the framework

#### Framework structure and its relationship to the National Health Information Model

The proposed framework consists of a simple two-dimensional grid with three major columns and three major rows (Table A1.1). The grid as a whole refers to a specified health condition or problem and is applied to a specified population or subgroup; a separate grid must be drawn up for each combination of health problem and population or subgroup.

For example, a grid would be drawn up for outcome indicators referring to ischaemic heart disease in the general population; a separate grid would refer to diabetes in Aboriginal and Torres Strait Islander peoples.

Thus in National Health Information Model terminology:

- The grid refers to a state of wellbeing (the specified health problem) in a party or party group (the specified population or subgroup).
- The columns refer to types of interventions (or, in National Health Information Model terms, to health and welfare service events).
- The rows refer to types of indicators.

Table A1.1: Proposed outcome indicator framework

<b>'STATE OF WELLBEING' FOR 'PARTY (IN A ROLE)'</b>					
<b>Indicators</b>	<b>Prevention</b>			<b>Management</b>	<b>Maintenance</b>
	<i>Universal</i>	<i>Selective</i>	<i>Indicated</i>		
Primary outcomes					
Risk					
Process and quality					
System					

**Columns**

The three major columns are headed:

- Prevention
- Management
- Maintenance.

*Column 1: Prevention*

The term 'prevention' is reserved for interventions that occur before the diagnosis of an event is made.

Prevention aims to reduce the occurrence of new cases, decrease risk and/or increase protective factors that can be documented, delay the onset of illness, reduce the length of time that early symptoms continue, and/or halt a progression of severity. The scope of prevention may include, for example, interventions designed to alleviate symptoms of mental distress which do not constitute a diagnosable mental illness, and interventions designed to control abnormal glucose tolerance in pregnancy, which is of insufficient severity to constitute a diagnosis of gestational diabetes. There are three types of preventive interventions:

1. **Universal**—interventions targeted at the general public or a whole population group that has not been identified on the basis of individual risk for the specified health problem. The intervention is desirable for everyone in that group. Examples are:
  - antenatal care aimed at all pregnant women;
  - mass media programs on protection from sunlight;
  - immunisation;
  - screening of all neonates to detect phenylketonuria and cretinism; and
  - a program designed to prevent distress and divorce in couples who are planning a spouse relationship and who are not experiencing difficulties in their current relationship.

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2. **Selective**—interventions targeted at individuals or a subgroup of the population whose risk of developing the health problem is significantly higher than average. The risk may be imminent or it may be a lifetime risk. Risk groups may be identified on the basis of biological, psychological or social risk factors that are known to be associated with specific health problems. Examples are:
  - specific components of antenatal care for women who have previously had a high birthweight baby;
  - special care programs for low-birthweight infants;
  - support groups for elderly widows; and
  - cardiovascular disease risk-factor reduction programs for people with a family history of heart attacks.
3. **Indicated**—interventions targeted at high-risk individuals who are identified as having minimal but detectable signs or symptoms foreshadowing the specified health condition, or biological markers indicating predisposition to it, but who do not currently fulfil diagnostic criteria. These interventions can be applied to asymptomatic individuals with markers as well as to symptomatic individuals whose symptoms are insufficiently severe to warrant a diagnosis of a disorder. Examples are:
  - specific antenatal care programs for women with abnormal glucose tolerance in pregnancy;
  - a parent-child interaction training program delivering an intervention for children who have been identified by their parents as having behavioural problems;
  - administration of prophylactic antibiotics to people with valvular heart disease who undergo invasive dental procedures;
  - prescription of anti-hypertensive medications to people with elevated blood pressure who do not have diagnosed cardiovascular disease;
  - HIV testing of people who consider that they may have been exposed to HIV (note that the prevention outcomes may not apply to the person tested, but to his/her potential contacts); and
  - regular haematology testing of people taking immunosuppressive medication for inflammatory bowel disease, to detect early manifestations of bone marrow depression.

### *Column 2: Management*

Management (treatment) interventions are therapeutic in nature, and are provided for individuals who meet diagnostic criteria (e.g. for mental illness, individuals who meet or are close to meeting diagnostic levels specified in the *Diagnostic and Statistical Manual of Mental Disorders* [American Psychiatric Association 1994]). Management involves case identification and standard treatment for the known disorder, which includes interventions to reduce the likelihood of future associated disorders.

**Management** aims to reduce the length of time the disorder exists, halt a progression of severity, prevent the recurrence of the original disorder, and prevent co-morbidity. Its coverage includes the patient's compliance with long-term treatment to reduce relapse and recurrence. Examples are:

- timely administration of thrombolytic agents to people diagnosed with acute myocardial infarction;

- breast-conserving surgery and radiotherapy and/or adjuvant chemotherapy for people diagnosed with breast cancer;
- programs to promote compliance with long-term medication regimens for the control of heart failure; and
- the use of asthma management plans for people with asthma.

### *Column 3: Maintenance*

Maintenance interventions are supportive, educational, and/or pharmacological in nature, and are provided on a long-term basis to individuals with continuing impairment.

**Maintenance** interventions involve the provision of support and after-care services to the patient, including rehabilitation. Examples are:

- cardiac rehabilitation programs for people recovering from acute myocardial infarction; and
- programs to encourage appropriate physical activity for people who have prosthetic joints.

### **Rows**

The three major rows are headed:

- Primary outcome indicators
- Risk indicators
- Process and quality indicators.

In addition, there is a fourth row headed System indicators.

#### *Row 1: Primary outcome indicators*

These cover disease incidence, prevalence and sequelae, ranging from mortality to quality of life. Examples are:

- the incidence of coronary heart disease among males aged 50–59 years in Western Australia;
- perinatal mortality rates in South Australia;
- the prevalence of non-insulin-dependent diabetes in the Aboriginal and Torres Strait Islander population of the Far West Area of NSW;
- the case fatality rate for acute myocardial infarction among patients admitted to hospitals in Victoria; and
- changes in quality of life scores before and after hip replacement surgery.

#### *Row 2: Risk indicators*

Risk indicators provide information about characteristics, variables or hazards which, if present for a given individual, make it more (or less) likely that this individual, rather than someone else selected from the general population, will develop a health problem. For example, a risk indicator for coronary heart disease (CHD) is age- and sex-specific smoking rates.

- In the context of prevention of CHD in the general population, this indicator could be placed in the universal prevention column.
- For the prevention of CHD in a high-risk population subgroup (e.g. people with a strong family history of CHD), it could be placed in the selective prevention column.

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- For the prevention of CHD in a subgroup of people who had previously had heart attacks, it could be placed in the indicated prevention column. If the population subgroup is unspecified, the indicator could straddle all three prevention columns.

A risk indicator for adverse sequelae of head injury comprises physiological measurements of blood oxygenation in the injured individual in the acute phase. This could be placed in the management column.

### *Row 3: Process and quality indicators*

These refer to indicators of the provision of appropriate, high-quality interventions. It must be understood that process and quality indicators refer to the performance of interventions (as distinct from the effects of interventions on health or risk). Examples are:

- an indicator of adequate vaccine storage and cold-chain temperature control—where the vaccines are to be used for population-wide immunisation services, this indicator could be placed in the universal prevention column; where the vaccines are to be used in a population subgroup experiencing an epidemic of the vaccine-preventable disease, the indicator could be placed in the indicated prevention column.
- the proportion of Pap smears that yield adequate material for cervical cytology. This could straddle all three prevention columns.
- the proportion of acute myocardial infarction patients who receive thrombolytic therapy within a set time period, among those for whom it is indicated. This could be placed in the management column.
- the proportion of post-infarct patients who enter a cardiac rehabilitation program, among those for whom such a program is indicated. This could be placed in the maintenance column.

### *Row 4: System indicators*

This category includes indicators that reflect system-wide action separate from the person- or population-focused action covered in the other three categories.

The system indicators row may straddle all or some of the columns. For example, the establishment of a national cardiovascular disease monitoring system covers, and contributes to, prevention, management and maintenance.

### **Limitations of the framework**

The proposed framework concentrates on specific health problems and their prevention, including the enhancement of protective factors to reduce risk.

It does not capture the elements of health promotion that are driven by a focus on the enhancement of wellbeing (rather than an emphasis on illness). These health promotion interventions are provided for individuals, groups or large populations to enhance competence, self-esteem, and a sense of wellbeing.

Furthermore, the framework forces indicators of preventive interventions to be classified in relation to specific conditions. For example, smoking rates appear repeatedly and separately in relation to coronary heart disease prevention obstructive pulmonary disease prevention, and lung cancer prevention. The framework does not allow for a summation of the impact of preventive activity on morbidity from multiple causes, e.g. the impact of smoking cessation on numerous conditions in which smoking is a causative factor.

As noted previously, the Working Party found it impossible to design a single framework that covered all outcome contingencies. A separate framework could be developed to accommodate outcomes of health enhancement initiatives.

**Relationship with the terms ‘primary’, ‘secondary’ and ‘tertiary’ prevention**

In the evolution of the proposed framework, members of the Working Party discussed parallels between the column headings ‘prevention’, ‘management’, and ‘maintenance’ on the one hand, and the terms ‘primary’, ‘secondary’, and ‘tertiary prevention’ on the other. There was a suggestion that these terms might be preferable to those proposed, because of their widespread established usage.

After some discussion, members agreed that the column headings ‘prevention’ (subdivided into ‘universal’, ‘selective’, and ‘indicated’), ‘management’ and ‘maintenance’ provided an indicator classification that reflected health service activity more explicitly and more comprehensively than the terms ‘primary’, ‘secondary’, and ‘tertiary prevention’. The key characteristic of the schema proposed for adoption is that management and maintenance interventions are applied exclusively to conditions which fulfil diagnostic criteria, while the prevention rubrics allow for the classification of indicators that reflect interventions for important health problems that do not fulfil specific diagnostic criteria.

**Table A1.2: Relationships between proposed framework and primary, secondary and tertiary prevention**

	Primary prevention			Secondary prevention	Tertiary prevention
	Prevention				
Indicators	<i>Universal</i>	<i>Selective</i>	<i>Indicated</i>	Management	Maintenance
Primary outcomes					
Risk					
Process and quality					
System					

Table A1.2 shows the relationship between the two classifications. ‘Primary prevention’ clearly corresponds to ‘universal prevention’, and may also cover ‘selective’ and ‘indicated prevention’ for some conditions. ‘Secondary prevention’ corresponds to ‘management’, but ‘selective’ and ‘indicated prevention’ may constitute ‘secondary prevention’ in some circumstances, and ‘maintenance interventions’ represent ‘secondary prevention’ in other circumstances. ‘Tertiary prevention’ clearly

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corresponds to ‘maintenance’, but there may be circumstances in which ‘tertiary prevention’ encompasses ‘management’ and even ‘indicated prevention’.

### Worked examples

Table A1.3 shows how the framework can be applied to foot disorders associated with diabetes. Further examples covering indicators relating to coronary heart disease, developmental delay in children and bipolar (manic-depressive) disorder are being developed and will be provided separately to the NHIMG.

**Table A1.3: Foot problems in people with diabetes (PWD) in Australia**

Indicators	Prevention			Management	Maintenance
	Universal (Pop=PWD)	Selective (e.g. Pop=Aboriginal PWD)	Indicated (e.g. Pop=PWD with high risk foot/feet)		
Primary outcomes	<ul style="list-style-type: none"> <li>% of PWD with active foot problems</li> <li>% of PWD requiring amputations</li> </ul>	<ul style="list-style-type: none"> <li>% of <i>Aboriginal PWD with active foot problems</i></li> <li>% of <i>Aboriginal PWD requiring amputations</i></li> </ul>	<ul style="list-style-type: none"> <li>% of PWD with active foot problems</li> <li>% of PWD requiring amputations due to diabetes</li> <li><i>Health-related QOL of PWD with foot problems</i></li> </ul>		<ul style="list-style-type: none"> <li><i>Health-related QOL<sup>(a)</sup> of PWD after amputation</i></li> <li><i>2-year survival rates of PWD after amputation</i></li> </ul>
Risk	<ul style="list-style-type: none"> <li>% of PWD who currently smoke</li> <li>% of PWD having an HbA<sub>1c</sub> within 1%, 2%, or 3% of normal range</li> </ul>	<ul style="list-style-type: none"> <li>% of <i>Aboriginal PWD who currently smoke</i></li> <li>% of <i>Aboriginal PWD having an HbA<sub>1c</sub> within 1%, 2%, or 3% of normal range</i></li> </ul>	<ul style="list-style-type: none"> <li>% of PWD with <i>high risk foot/feet who currently smoke</i></li> <li>% of PWD with <i>high risk foot/feet having an HbA<sub>1c</sub> within 1%, 2%, or 3% of normal range</i></li> </ul>		
Process and quality	<ul style="list-style-type: none"> <li>% of PWD having an HbA<sub>1c</sub> measured every 6/12 months</li> <li>% of PWD having foot examinations every 6 months</li> <li>% of PWD appropriately referred to a podiatrist for foot care &amp; treatment</li> <li>% of PWD who receive foot education</li> <li>% PWD who are satisfied with treatment</li> </ul>	<ul style="list-style-type: none"> <li>% of <i>Aboriginal PWD having an HbA<sub>1c</sub> measured every 6/12 months</i></li> <li>% of <i>Aboriginal PWD having foot examinations every 6 months</i></li> <li>% of <i>Aboriginal PWD appropriately referred to a podiatrist for foot care &amp; treatment</i></li> <li>% of <i>Aboriginal PWD who receive foot education</i></li> <li>% <i>Aboriginal PWD who are satisfied with treatment</i></li> </ul>	<ul style="list-style-type: none"> <li>% of PWD with <i>high risk foot/feet having an HbA<sub>1c</sub> measured every 6/12 months</i></li> <li>% of PWD with <i>high risk foot/feet having foot examinations every 6 months</i></li> <li>% of PWD with <i>high risk foot/feet appropriately referred to a podiatrist for foot care &amp; treatment</i></li> <li>% of PWD with <i>high risk foot/feet who receive foot education</i></li> <li>% PWD with <i>high risk foot/feet who are satisfied with treatment</i></li> </ul>	<ul style="list-style-type: none"> <li>% of PWD with foot problems appropriately referred for foot care &amp; treatment</li> <li>% of PWD with <i>active foot problems who are satisfied with treatment</i></li> </ul>	<ul style="list-style-type: none"> <li>% of PWD who <i>receive rehabilitation after amputation</i></li> </ul>
System	<ul style="list-style-type: none"> <li>Guidelines developed and implemented for the clinical management of diabetes in NSW (blood glucose control, diabetic foot problems)</li> <li>Guidelines developed and implemented for the management of foot/leg ulcers (currently under development)</li> </ul>				

(a) QOL: Quality of life

*Note:* Indicators in italics have been identified in the process of completing this framework. There is currently no consensus about whether they should be collected. They should, however, be considered where interventions aimed at preventing foot problems in Aboriginal and Torres Strait Islander people or people with high-risk feet are being assessed.

## Priority areas for development and/or standardisation of information on health outcomes

In the medium term, priority areas for the development and/or standardisation of information on health outcomes will emerge when the framework described previously is applied to existing information and current Australian health outcomes initiatives.

However, for the short term, the Working Party identified some obvious priorities which warrant immediate attention.

Accordingly, the following action steps were recommended.

- Standard definitions should be developed for all the existing indicators (recently endorsed by the Australian Health Ministers) listed in the 1996 NHIMG report to the Better Health Outcomes Overseeing Committee, *Priority Indicators for Reporting Progress Towards National Health Goals and Targets*. These definitions should be included in the *National Health Data Dictionary* (National Health Data Committee 1995).
- An expanded range of indicators of the outcomes of mental health services and related process, quality and system issues should be developed.
- Definitions of indicators relating particularly to treatment and maintenance outcomes in the other existing national priority areas of cardiovascular disease, cancer, and injury should be developed, standardised, and included in the *National Health Data Dictionary*.
- Because diabetes has recently been nominated as the fifth national priority area by the Australian health ministers, attention should be given to the development of definitions of indicators relating to outcomes of the prevention and treatment of diabetes and the complications of diabetes, and the maintenance of people with diabetes. Agreed standard definitions should be included in the *National Health Data Dictionary*.
- In view of national concern about the prevalence and management of asthma, definitions of asthma outcome indicators should be developed, standardised, and included in the *National Health Data Dictionary*.
- Standard definitions should be developed for terms describing, and indicators of, inequalities in health. These definitions should be included in the *National Health Data Dictionary*. They should encompass the following variables relevant to information on health inequalities—socioeconomic status, location (rural, remote, urban etc.), ethnicity, Indigenous status, and sex.

The Working Party further recommended that the NHIMG appoint a group to ensure that the aforementioned priorities are addressed promptly.

## Standard definitions of terms relating to health outcomes

### Principles

The Working Party agreed on the following principles for definitions relating to health outcomes indicators and concepts.

- Definitions should help people to understand the meaning of concepts and the situations in which specific indicators can be applied.
- Definitions should correspond to the general usage of the terms to which they refer. It is confusing for a term to have one meaning in general usage, and a different meaning in technical contexts of health outcomes measurement.

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- Furthermore, where a standard epidemiological definition of a health outcomes term exists, that definition should be retained.
- Definitions should be compatible with the National Health Information Model.
- Agreed standard definitions of health outcomes concepts and terms should be written into the *National Health Data Dictionary*.

### Scope of definitions and consultation

Because of the limited time available, the Working Party concentrated on a relatively small number of health outcomes terms of universal importance. Specific recommendations for definitions of these terms are provided in the following text.

### Dissemination of definitions and consultation process

The Working Party recommended that the NHIMG determine a process for the dissemination and endorsement of these definitions, and other standard definitions that might be put forward in the future. Definitions should be introduced in short published discussion papers distributed via the Australian Health Outcomes Clearing House mailing list. These discussion papers could invite feedback within a limited time period. Such consultation is important in gaining a wider acceptance of definitions.

### Terms for definition

#### Health outcome

The definition of 'health outcome' used by AHMAC in 1993 is:

A change in the health of an individual, or a group of people or a population, which is attributable to an intervention or a series of interventions.

This definition emphasises that:

- an outcome is a change in a health state, rather than a final health state;
- the term 'health outcome' applies to an individual, groups or populations, so it can be used in a clinical setting, a community setting or a population setting; and
- the change in health is attributable to one or more intervention(s).

Members of the Working Party were unhappy with this definition because it seemed to imply that health outcomes were entirely attributable to health system intervention(s), and did not appear to recognise the multiplicity of determinants of health.

They therefore recommended that 'health outcome' be re-defined as:

A change in the health of an individual, or a group of people or a population, which is **wholly or partially** attributable to an intervention or a series of interventions.

The Working Party also recommended that the NHIMG should review the National Health Information Model definition of an 'outcome'. The present definition is as follows:

A recorded change in the wellbeing of a party which is expected or presumed to be, or to have been, caused by a health and welfare service event ...

And the supporting text emphasises a somewhat implausible one-to-one relationship:

Each outcome must be ... produced by one and only one health and welfare service event.

The Working Party recommended that a re-definition of ‘outcome’ in the National Health Information Model should take account of the concept of total or partial attributability incorporated in the proposed new definition of ‘health outcome’.

### Health outcome indicator

The Working Party proposed the following definition of a ‘health outcome indicator’, based on the definition of an outcome-related (performance) indicator in the health and welfare field proposed by Armstrong (1994):

A health outcome indicator is a statistic or other unit of information which reflects, directly or indirectly, the effect of an intervention, facility, service or system on the health of its target population, or the health of an individual.

This definition emphasises that a health outcome indicator:

- reflects the effect of actions, systems etc. on health;
- can apply to the outcomes of discrete interventions as well as elements of health service organisation; and
- can be applied to individuals, groups or populations, so it can be used in a clinical setting, a community setting or a population setting; and can reflect an outcome either directly or indirectly.

In relation to the last point, Harvey (1996) makes the distinction between the term ‘measure’ and a specific usage of the term ‘indicator’:

- a measure provides direct measurement of a variable or a change in it, while
- an indicator provides indirect information about some phenomenon.

Harvey (1996) points out that the same measurement may be a measure of one phenomenon and an indicator of a different phenomenon. For example, an age-standardised death rate may be a measure of mortality as well as an indicator of population health.

Working Party members agreed that in general usage the term ‘indicator’ has both meanings. The proposed definition of ‘health outcome indicator’ (which can reflect an outcome either directly or indirectly), together with the context, obviates the need for separate definitions of measure and indicator.

### Generic and condition-specific indicators

The Working Party recommended retaining Harvey’s distinction between generic measures and clinically specific measures (Harvey 1996), but suggested that they be renamed ‘generic indicators’ and ‘condition-specific indicators’. The term ‘condition-specific’ covers a wider range of situations than the term ‘clinically specific’.

- A generic indicator provides information on health, perceived health or a specific dimension of health using measurement methods that can be applied to people in any health condition. Examples are functional status profiles and multi-dimensional profiles of health-related quality of life.
- A condition-specific indicator provides information on specific clinical conditions or health problems, or aspects of physiological function pertaining to specific conditions or problems. Examples are the incidence of invasive carcinoma of the cervix and the prevalence of diastolic blood pressure >100 mmHg.

### Association and attribution

In view of the question of attributability built into the AHMAC definition of health outcome, the Working Party felt the need to reiterate standard epidemiological

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definitions of association and attribution, and recommended their inclusion in the *National Health Data Dictionary*:

- An association exists between two phenomena (such as an intervention and a health outcome) if the occurrence or quantitative characteristics of one of the phenomena varies with the occurrence or quantitative characteristics of the other.
- One phenomenon is attributable to another if there is a causal link between the phenomena. Attribution depends upon the weight of evidence for causality.

Association is necessary (but not sufficient) for attribution—associations may be fortuitous or causal. The term ‘relationship’ is synonymous with association.

### **Definitions of terms in the proposed framework for health outcome indicators**

The following terms are defined in previous text:

Interventions:

- universal prevention
- selective prevention
- indicated prevention
- management
- maintenance.

Indicators:

- primary outcome indicator
- risk indicator
- process and quality indicator
- system indicator.

## NHPA priority indicators mapped to the NHIMG health outcomes framework

To facilitate systematic identification of indicators, help set priorities for developing mechanisms of monitoring outcomes and progress towards targets, and to facilitate comparisons of indicator data, the priority indicators for four of the National Health Priority Areas are mapped to the NHIMG framework.

### Cardiovascular health

Indicators	Prevention			Management	Maintenance
	<i>Universal</i>	<i>Selective</i>	<i>Indicated</i>		
Primary outcomes	2.1.2 (new cases)			2.1.2 (recurrent cases) 2.12.2 2.13.5	2.12.2
Risk factors	2.6.1	2.3.1 2.3.2 2.5.1 2.6.3 2.7.2 2.8.2 2.9.3			
Process and quality	2.10.2 2.11.2 (community) 2.11.4	2.11.2 (priority population)	2.11.1	2.11.6	2.13.3 2.13.4
System					

*Note:* Priority indicators that could not be mapped to the framework are: 2.1.1, 2.2.1, 2.2.2, 2.2.3, 2.2.4. Those in italics denote that either assignment is feasible.

### Cancer control

Indicators	Prevention			Management	Maintenance
	<i>Universal</i>	<i>Selective</i>	<i>Indicated</i>		
Primary outcomes	3.1.1, 3.1.3, 3.1.5, 3.1.9, 3.1.11, 3.1.13, 3.3.2, 3.3.3, 3.3.4, 3.3.5, 3.3.6	3.1.7 3.2.1 3.2.2		3.3.15, 3.3.16, 3.3.18	
Risk factors		2.3.1, 2.3.2 (see CVD chapter)			
Process and quality					3.4.1
System	3.8.1				

*Note:* Priority indicators that could not be mapped to the framework are: 3.1.2, 3.1.4, 3.1.6, 3.1.8, 3.1.10, 3.1.12 and 3.1.14.

## Appendix 1

### Injury prevention and control

Indicators	Prevention			Management	Maintenance
	<i>Universal</i>	<i>Selective</i>	<i>Indicated</i>		
Primary outcomes	4.6.2, 4.8.2, 4.14, 4.15			4.1.2, 4.3.3, 4.3.4, 4.5.2, 4.5.5, 4.6.1, 4.9.2, 4.10.1, 4.11.2, 4.12.1	4.13.1
Risk	4.9.3	4.11.4			
Process and quality	4.11.5	4.11.3			
System					

Note: Priority indicators that could not be mapped to the framework are: 4.1.1, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6, 4.3.1, 4.3.2, 4.4, 4.5.1, 4.7.1, 4.7.2, 4.9.1, 4.11.1.

### Mental health

Indicators	Prevention			Management	Maintenance
	<i>Universal</i>	<i>Selective</i>	<i>Indicated</i>		
Primary outcomes	5.1.1 (new cases)			5.1.1 (recurrent cases) 5.1.2	
Risk					
Process and quality	5.2.1				5.2.5
System					

Note: Priority indicators that could not be mapped to the framework are: 5.3.1, 5.3.2.

# Appendix 2

## Prioritisation of indicators for health outcomes reporting in the National Health Priority Areas

### Background

The Better Health Outcomes Overseeing Committee (BHOOC), at its meeting in January 1996, requested the National Health Information Management Group (NHIMG) to provide it with a concise list of priority indicators for reporting progress on the National Health Goals and Targets (NHGT). A maximum of 15 to 20 indicators were envisaged for each of the four focus areas, namely cardiovascular health, cancer control, injury prevention and control and mental health.

The request was made in view of a large number of indicators required for reporting progress in the four focus areas—a total of 132 indicators excluding those relating to health inequalities—a number too large for efficient and objective reporting. The indicators were designed and developed by the NHGT implementation working groups, established by a joint Australian Health Ministers' Advisory Council (AHMAC)/National Health and Medical Research Council (NHMRC) Working Group in 1993. The report *Better Health Outcomes for Australians*, referred to as the BHO report, catalogues these indicators and the year 2000 targets, and documents the rationale for designing the indicators and setting targets (Commonwealth Department of Human Services and Health 1994).

The NHIMG asked the Australian Institute of Health and Welfare (AIHW) to provide it with a select list in each focus area. The number of indicators recommended by the Institute for reporting on cardiovascular health (19) falls within the 15–20 specified by BHOOC; however, a slightly larger number of indicators were selected to adequately monitor cancer control (26) and injury prevention and control (26). Only six indicators could be identified for reporting on mental health from the BHO list, reflecting the current paucity of data covering this focus area. In addition, several sub-indicators were also selected for priority reporting. However, for the purpose of this report all these have been considered as separate indicators.

Two indicators were also identified for healthy lifestyles. These indicators, which relate to alcohol consumption, have relevance to more than one focus area.

### The framework

The prioritisation of indicators was guided by a health outcomes oriented NHGT framework, developed to inform the indicator selection process. The framework provided a means of achieving a balance among indicators for monitoring and reporting, while avoiding reliance on data availability. The elements of this particular framework included three different types of outcomes—namely overall, intermediate and process outcomes—in a population health context (National Health Information Management Group 1996).

Assumptions that form the basis of an indicator's relationship to health goals need to be clearly spelled out; where possible, the causal mechanism to identified actions/interventions also needs to be stated. It is also important to put in a proper perspective the strategies used to reach the target, as well as the assumptions underpinning these strategies. Besides, absence of current activities should not influence the choice of an

## Appendix 2

indicator. The NHGT framework helped put all these issues in proper perspective in prioritising indicators.

This framework has since been superseded by the NHIMG Health Outcomes Framework set out in Appendix 1.

### Prioritisation of indicators

In developing the priority set, a balance was sought among indicators in the context of the NHGT framework. Indicators relating to all three types of outcomes—namely overall, intermediate and process outcomes—and reflecting as far as possible the current and planned health strategies, were selected. Since mortality, morbidity or quality of life indicators do not fully reflect the impact of strategies and interventions in short term, a well-balanced representation of intermediate and process outcome indicators, along with some overall outcome indicators, was attempted.

The relative proportion in which different types of outcome indicators were selected was specific to a focus area. Mortality and morbidity currently dominate the list of indicators for cancer control and injury prevention and control, and therefore have a higher relative representation than is the case for cardiovascular health. Indicators to monitor the impact of various screening and prevention strategies are generally lacking in all the focus areas. To monitor progress towards the national goals, intermediate and process outcome indicators need to be further developed in all priority areas.

The Institute was guided by the following criteria in selecting indicators.

### Data constraints

Current availability of data was not the principal determinant for prioritising an indicator, although it was important that the selected indicator does not require the collection of a whole new set of data. In the event, data constraint did not prove to be a strong consideration, because national data are currently not available for a large number of priority indicators (Table A2.1). Quasi-national information is obtainable for some of the indicators from States and Territories, and should be a useful source of information until such time as the national data are developed.

**Table A2.1: Summary of data availability for the priority list of NHGT indicators**

Focus area	Data available now	Data available in 1997–98	Data not available in 1997–98	Total
Cardiovascular health	7	8	4	19
Cancer control	15	10	1	26
Injury prevention and control	13	7	6	26
Mental health	1	2	3	6
<b>Total</b>	<b>36</b>	<b>27</b>	<b>14</b>	<b>77</b>

### Design considerations

It is important that priority indicators are well-designed, clear and comprehensible to policy makers and service providers, with assumptions underlying their use clearly spelled out. The simplest indicators do not necessarily constitute the best measures.

### Statistical sufficiency

Statistical sufficiency was an important consideration in selecting an indicator. Indicators providing summary statistics often do not fully utilise available information. It was therefore considered important that the selected indicator extracts the best possible information from the available datasets.

### Overlap

Indicators included in the set should show limited overlap with each other. However, the elements of a goals and targets monitoring framework, though indicator-centred, cannot be viewed in isolation from each other. The predication of an indicator upon another in the set sometimes limits its usefulness, but a continuity of processes and interventions was retained in the priority list in view of the chronological dependence of health outcomes.

### Priority groups

The majority of indicators selected address issues of greatest priority within a focus area as applicable to the total population. However, if the issue in question was limited to a particular age bracket or a population group, an indicator reflecting that priority was included in the set. Generic indicators, their statistical sufficiency notwithstanding, sometimes do not permit a clear insight into the core of an issue.

### Thematic areas

Several different thematic areas exist under each focus area, particularly cancer control and injury prevention and control. For example, 22 goals under 12 thematic areas, with each thematic area represented by zero to five indicators, were proposed for reporting progress on injury prevention and control. No attempt was made to prioritise the thematic areas. However, the selection of NHPA indicators with respect to each thematic area was based on the following considerations:

- whether any current or potential interventions were likely to influence the indicator in the foreseeable future;
- whether an alternative indicator provided a more meaningful grasp on the issues related to a particular thematic area;
- whether the current or planned data systems would be able to monitor the impact of interventions through the indicators, and whether the indicators would be sufficiently sensitive to change; and
- whether the exclusion of one or more thematic areas may undermine the existing or developing inter-sectoral collaborative efforts.



# Appendix 3

## Data and statistical issues

Data issues concerning individual indicators have been discussed in relevant sections of the report. However, there are several issues involved in the monitoring of goals and targets that are common to one or more of the priority areas. These include not only the demographic and statistical techniques used for determining trends, but also those that pertain to age-standardisation, and establishment of baselines. Comparability of data sources, data availability and use of common terminology are other relevant issues. This Appendix provides information to assist in the interpretation of data and statistical techniques used in the report.

## Sources of national data

Major databases accessed for preparing this report were:

### Mortality database

Registration of deaths in Australia is the responsibility of the State and Territory Registrars of Births, Deaths and Marriages. Information on the cause of death is supplied by the medical practitioner certifying the death or by a coroner. Other information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official institution where the death occurred. Registration of death is a legal requirement in Australia, and compliance is virtually complete.

Information on deaths is provided by the Registrars to the Australian Bureau of Statistics (ABS) for coding of information and compilation into national statistics. AIHW maintains these data without unique identifiers in a national database.

### Hospital morbidity database

Hospitals collect information about the patients they treat—both administrative and clinical data, including sociodemographic, diagnostic and duration of stay data—and the procedures performed.

This information is aggregated, on an inpatient basis, by the various State and Territory health authorities, and by the Department of Veterans' Affairs. The AIHW receives the collections from various agencies, and maintains these without unique identifiers in a national hospital morbidity database.

Hospital separations relating to injury do not currently include data from the Northern Territory, as appropriate ICD-9-CM E-code data to four digits were not available at the time the information was collated. The coverage of public and private hospitals also varies. Information on separations from private hospitals in Victoria, Western Australia, the Australian Capital Territory and the Northern Territory is not included in the national collection.

## Appendix 3

### National Cancer Statistics Clearing House database

The registration of cancer is required by law in each of the States and Territories, where the data are collected by cancer registries. The registries collect clinical and demographic information about people with newly diagnosed cancer. This information is collected from hospitals, pathologists, radiation oncologists, cancer treatment centres and nursing homes. Information related to deaths is collected by Registrars of Births, Deaths and Marriages.

By combining information from these sources, the National Cancer Statistics Clearing House at the Australian Institute of Health and Welfare, in conjunction with the State and Territory cancer registries, produces statistics on cancer incidence and mortality.

### National Health Survey

This series of five-yearly surveys, conducted by the Australian Bureau of Statistics (ABS), provides national benchmark information on a range of health issues. The surveys collect information about illness and injury experience, episodes of hospitalisation, medical consultations, risk factors (including immunisation levels) and a variety of women's health issues.

Data from the 1989–90 National Health Survey have been used in this report. The results of the 1995 National Health Survey are still being processed and were not available for inclusion in this report.

### Population Survey Monitor

The Population Survey Monitor (PSM) is a household survey conducted every three months by the Australian Bureau of Statistics (ABS). The PSM collects information from more than 3,000 households throughout Australia, and is a timely and effective means of obtaining data specific to emerging issues.

Baseline and monitoring information for some of the risk factor indicators included in this report was obtained through PSM. Further use of PSM in monitoring the NHPA goals and targets is planned.

### Risk Factor Prevalence Survey

This population-based series of sample surveys, conducted by the National Heart Foundation, is an important source of information on health-related risk factors. Three surveys have been conducted—in 1980, 1983 and 1989—which provide measurements on blood pressure, blood lipids, height and weight, and information provided by respondents on smoking, alcohol consumption, exercise, dietary behaviour and use of oral contraceptives.

### Other published surveys

Information on several indicators was derived from other published sources, appropriate references for which have been provided. Prominent among these sources are the ABS Apparent Consumption of Foodstuffs and Nutrients series and the Department of Community Services and Health's National Dietary Survey of Adults, 1983.

## Data deficiencies

In the course of the preparation of this report, several deficiencies in the available data were noted. These range from incomplete coverage to poor quality, out-of-date information. Lack of sufficient data points was a major problem in determining trends for several indicators. Some of the problems encountered in the development and monitoring of priority indicators are described below. For a general discussion of gaps and deficiencies in Australian health statistics, see *Australia's Health 1996* (AIHW 1996a).

Mortality data remain the most comprehensively collected national data pertaining to health. However, problems relating to coding of all conditions listed on death certificates, inadequate coding of factors relating to fatal injury (such as type of injury, place of injury) and poor identification of priority populations remain. Proposed changes to death registration, and the introduction of automatic coding, will allow study of all conditions on death certificates. Inadequate coding of factors relating to fatal injury will be addressed with the introduction of ICD-10 coding in 1998.

A major difficulty encountered in using the mortality datasets was the poor identification of Indigenous people in New South Wales and Victoria, and no information on Indigenous people in Queensland. Trends analysis for indicators of Indigenous mortality were therefore limited to the Northern Territory, Western Australia and South Australia following Anderson et al. (1996).

Hospital separations data are limited in that they do not identify multiple admissions for the same illness episode. This problem is being addressed through the introduction of unique patient identifiers and record linkage.

There are also differences in procedures which affect the classification of cases and the way in which external causes codes (E codes) are assigned. Aggregations produced from different States therefore are not necessarily comparable. One particular area where there are significant differences involves the coding practices for intentional and accidental poisoning. This appears to be due to varying interpretations of the notion of 'intent', particularly in Queensland and Western Australia.

**Table A3.1: Coverage of injury hospital separation data, all States and Territories (excluding Northern Territory)**

State/Territory	Coverage
NSW	Public hospitals only
VIC	Public hospitals only
QLD	Public and private hospitals
WA	Public and private hospitals
SA	Public and private hospitals
TAS	Public and private hospitals
ACT	Public and most private hospitals.

There are currently no national data on the incidence, prevalence and consequences of mental illness and outcomes of care. The proposed National Survey of Mental Health and Wellbeing will provide baseline figures on incidence and prevalence of mental illness. However, the survey is not longitudinal and will provide little information on outcomes of care.

## Appendix 3

National cancer incidence data are currently available for the period 1983–1990 only. It is expected that national data to 1993 will become available by 1997. Data are currently available for Queensland to 1990; New South Wales, Victoria and the Northern Territory to 1993; Western Australia, Tasmania and the Australian Capital Territory to 1994; and South Australia to 1995.

Although information on NHPA indicators for risk factors is available from several sources, ongoing national collections do not cover all the relevant risk factors. Moreover, few collections are representative of the whole population, include sufficient numbers of people from priority populations, use nationally agreed data-collection instruments, include routine validation of subjects' self reports, or include biological measurements where these are the most accurate and cost-effective measures (AIHW 1996a). For example, blood pressure and blood cholesterol levels are not measured in the National Health Surveys. Similarly, it is impracticable to obtain information on nutrient intake; hence the reliance upon apparent consumption data for monitoring some of the NHPA indicators.

### Revised baselines and targets

For a number of priority indicators, baselines and targets have been revised from those originally published in the Better Health Outcomes for Australians (DHS 1994) report. These revisions were necessitated by several factors, the most prominent of which is the use of 1991 population data for age-standardisation. National data have also become available for many other indicators, the baselines and targets for which were previously based on semi-national information.

### Statistical methods

#### Modelling of trends

A major aim of this report was to determine any underlying trends. This was done using a Poisson regression model, with a Poisson error distribution, a log link function and the natural log of population count treated as an 'offset' (Breslow & Day 1987, Brillinger 1986, Valkonen 1989).

For a particular disease or cause of death, the model may be expressed as:

$$\log_e(D_t) = \log_e(N_t) + \text{constant} + \alpha t$$

where  $t$  is the year of registration of death or incidence,  $D_t$  is the expected number of new cases or deaths registered in year  $t$ ,  $N_t$  is the mid-year population in year  $t$ , and  $\alpha$  is the estimated annual rate of increase or decrease. An annual rate of change based on  $\alpha$  was derived as follows:

$$\text{Per cent change} = [e^\alpha - 1] \times 100$$

This model uses the assumption that the annual rate of change is the same across all of the years used in this estimation. More complex models could be applied, but were not justified due to the small number of data points available for estimating the model.

The model was used to estimate trends in age-standardised death rates, using mortality data for the period 1986–1994, and trends in age-standardised incidence rates, using incidence data for the period 1983–1990.

Fitted trend lines are represented on the graphs by an ochre line. These lines, however, have not been extrapolated beyond the latest available data point.

### State and Territory data

Unlike the national data, the data presented for each State and Territory are averaged annual rates over three-year periods. By presenting data in this manner, natural statistical variation due to small numbers of cases within each State and Territory are averaged across the period, providing a more stable representation of the annual rates. Mortality data were averaged for the years 1986–88 and 1992–94, whereas the cancer incidence rates are based on data for the years 1983–85 and 1988–90.

Where average age-adjusted rates for two time periods were available for State and Territory data, the per cent change between these two points was calculated. The following formula was used:

$$\text{Per cent change} = (R_1 - R_2) / R_1 * 100$$

where  $R_1$  = the average age-adjusted rate for the first time period, and

$R_2$  = the average age-adjusted rate for the second time period.

Per cent changes for the States and Territories (in the absence of trends analysis) provide an indication of change over the time period in question. No attempt was made to determine the significance of this change, nor was the statistical significance of differences in rates and proportions between the States and Territories tested.

### Age-standardisation

To control for any effects of differing age structures, direct age-standardisation was applied to death rates, incidence rates, prevalence rates and hospital separation rates. The standard population used in age-adjustment was the total estimated resident population of Australia at 30 June 1991 (Table A3.2).

**Table A3.2: Age composition of the Australian population by sex, 30 June 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 and over	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.

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The usual convention of using age-specific rates for five-year age groups, as shown in Table A3.2, was followed using the following formula:

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

where SR = the age-standardised rate

$R_i$  = the age-specific rate for age group  $i$ , and

$P_i$  = the standard population in age group  $i$ .

It should be noted that trends in age-standardised rates estimated using this standard population may differ from those obtained using another standard population.

Indirect age-standardisation was used for computing the standardised mortality ratios (SMR) between Indigenous and non-Indigenous populations. For further details, see Anderson et al. (1996).

# Abbreviations

<b>ABS</b>	Australian Bureau of Statistics
<b>ACCV</b>	Anti-Cancer Council of Victoria
<b>ACHS</b>	Australian Council of Healthcare Standards
<b>AGPS</b>	Australian Government Publishing Service
<b>AHMAC</b>	Australian Health Ministers' Advisory Council
<b>AIH</b>	Australian Institute of Health
<b>AIHW</b>	Australian Institute of Health and Welfare
<b>BHO</b>	Better Health Outcomes for Australians
<b>BHOOC</b>	Better Health Outcomes Overseeing Committee
<b>BMI</b>	Body mass index
<b>CHD</b>	Coronary heart disease
<b>CVD</b>	Cardiovascular disease
<b>DALY</b>	Disability adjusted life years
<b>DCSH</b>	Department of Community Services and Health (Commonwealth)
<b>DHFS</b>	Department of Health and Family Services (Commonwealth)
<b>DHSH</b>	Department of Human Services and Health (Commonwealth)
<b>FAP</b>	Familial adenomatous polyposis
<b>GP</b>	General practitioner
<b>HIV/AIDS</b>	Human immunodeficiency virus/Acquired immune deficiency syndrome
<b>HNPPC</b>	Hereditary non-polyposis colorectal cancer
<b>ICD-9</b>	International Classification of Diseases, 9th revision
<b>IDDM</b>	Insulin-dependent diabetes mellitus
<b>ITDM</b>	Insulin-treated diabetes mellitus
<b>MACOD</b>	Ministerial Advisory Committee on Diabetes
<b>NCADA</b>	National Campaign Against Drug Abuse
<b>NCCI</b>	National Cancer Control Initiative
<b>NHF</b>	National Heart Foundation of Australia
<b>NHGT</b>	National Health Goals and Targets
<b>NHIMG</b>	National Health Information Management Group
<b>NHMRC</b>	National Health and Medical Research Council
<b>NHIDP</b>	National Health Information Development Plan
<b>NHPA</b>	National Health Priority Area
<b>NHPC</b>	National Health Priority Committee
<b>NIDDM</b>	Non-insulin-dependent diabetes mellitus
<b>NISU</b>	National Injury Surveillance Unit
<b>NMSC</b>	Non-melanocytic skin cancer
<b>NPEDBC</b>	National Program for the Early Detection of Breast Cancer
<b>NPHP</b>	National Public Health Partnership
<b>Pap</b>	Papanicolaou

## Abbreviations

<b>PSM</b>	Population Survey Monitor
<b>RFPS</b>	Risk Factor Prevalence Survey
<b>SAFE</b>	The Safe Accident Free Environment Program
<b>SMR</b>	Standardised mortality ratio
<b>SLA</b>	Statistical local area

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

<b>NSW</b>	New South Wales
<b>Vic</b>	Victoria
<b>SA</b>	South Australia
<b>WA</b>	Western Australia
<b>Qld</b>	Queensland
<b>Tas</b>	Tasmania
<b>NT</b>	Northern Territory
<b>ACT</b>	Australian Capital Territory

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