National Report on Health Sector Performance Indicators 2003

A report to the Australian Health Ministers' Conference

National Health Performance Committee

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Executive summary

This 2003 *National Report on Health Sector Performance Indicators* is the second report prepared by the National Health Performance Committee (NHPC) based on the National Health Performance Framework. The first report based on this framework, the 2001 National Report, was published in April 2002.

This chapter selects a limited number of indicators to provide an overview of the performance of the Australian health system.

The outcomes discussed here can be affected by a whole range of changes in determinants and health system interventions. 'Determinants of health' is the term used for those factors that have either a positive or negative influence on health at the individual or population level. They can be classified into proximal causes (those, such as tobacco smoking, that act almost directly to cause disease,), and distal causes (those, such as socioeconomic status that are further back in the causal chain and act via a number of intermediary causes). Individuals have a degree of control over some determinants (such as physical inactivity) but other determinants (such as fluoridation of drinking water) act primarily or entirely at a population level.

Health outcomes also reflect the end result of efforts both within and outside the traditional areas of health service provision.

Such performance information helps policy makers and others identify trends and patterns, informs decision making and supports evaluations of progress towards addressing health challenges. Performance information can also be used to highlight areas for possible intersectoral action.

Health status and outcomes

Living longer

Australia has performed well over the last few decades, particularly in relation to life expectancy and mortality rates. In 1970 Australia's life expectancy was sixteenth among OECD countries. Now in 2001 it is third. The mortality rate has fallen 50% in the period 1970 to 1999, which is faster than for every other high income OECD country apart from Japan where the mortality rate fell 52%. This is a remarkable performance. However, as outlined below, Aboriginal and Torres Strait Islander peoples have not shared in this improvement and have a life expectancy 20 years lower than non-Indigenous Australians.

Overall, this rapid reduction in mortality rates is not slowing. The decline in mortality rates in the five years to 2001 was the greatest five-year decline since 1923. Much of the improvement in mortality has been due to a fall in heart disease mortality. This fall in mortality has reflected both a fall in the incidence of heart attacks (Indicator 1.01), and better survival after heart attacks (Indicator 3.08). In the period 1993–94 to 2000–01 the incidence of heart attacks for people aged 40 to 90 years fell 23%, and heart disease mortality fell 34%.

Overall death rates from heart disease, stroke and cancer, which contribute to 59% of all deaths for males and 58% for females, have decreased 46% from 1980 to 2001.

Mortality can be subdivided into those causes where premature deaths (deaths below 75 years) are potentially avoidable—whether it be by prevention or treatment—and those causes where premature death is mostly unavoidable. In Australia potentially avoidable mortality has been declining at a steady pace. It fell 55% for males in the period 1980 to 2001 and 48% for females. In contrast mostly unavoidable mortality rates fell 22% for males and 17% for females (Indicator 1.06).

Potentially avoidable mortality is subdivided into primary (which can be addressed by prevention), secondary (early intervention) and tertiary (medical treatment). The potentially avoidable mortality amenable to primary interventions fell 42%, that amenable to secondary interventions fell 53% and that amenable to tertiary interventions fell 57%. Thus the decline in mortality in Australia is due both to preventive and to treatment interventions.

Living healthier?

People are living longer—but are they healthier? As already outlined, there is a significantly lower occurrence of heart disease, stroke and injury as compared to a decade ago (Indicator 1.01 and AIHW: de Looper & Bhatia (2001)). Overall, cancer incidence rates rose from 1983 to 1994, but there has been a decline from 1994 to 1999 (Indicator 1.02). The incidence of cancer for males increased from 1983 to 1994, and then decreased, whereas the incidence for females has slowly increased from 1983 to 1999 (Indicator 1.02).

But diabetes, mental illness, psychological distress (Indicator 1.05) and childhood asthma[1] are more common. And musculoskeletal disorders continue to impose a significant burden on many people.

Between 1993 and 1998 there were changes in survey methods so it is unclear if the prevalence of severe and profound activity limitation that requires assistance increased or decreased (Indicator 1.03).

Determinants of health

This report considers determinants of health that are protective as well as hazardous—it presents information about the protective factors of water fluoridation, fruit and vegetable intake and physical activity. It highlights important unfavorable trends in levels of overweight and obesity, insufficient physical activity, and risky patterns of alcohol consumption.

- In 2001, 58% of adult males and 42% of adult females were overweight or obese (Indicator 2.09), and this was much higher than in 1995.
- In 2000, 54% of Australians were insufficiently active to achieve a health benefit (Indicator 2.08) and this was worse than in 1997.
- In 2001, 13% of males and 9% of females reported risky levels of drinking (Indicator 2.06).

These disturbing trends are accompanied by some more positive ones.

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1. Childhood asthma increased during the 1980s and into the early 1990s but since then the trend is unclear (Australian Centre for Asthma Monitoring 2003:16)

- The prevalence of high blood pressure has continued to drop. Over the period 1980 to 1999–2000, the prevalence of high blood pressure halved to 21% among adult males and to 16% among adult females (Indicator 2.11).
- Tobacco use continues to decline. Daily smoking dropped from 33% of males 14 years and over in 1985 to 21% in 2001, and female daily smoking dropped from 26% in 1985 to 18% in 2001. However, smoking is still responsible for more deaths and disability than any other health behaviour, and smoking rates vary dramatically according to socioeconomic status and between Aboriginal and Torres Strait Islander people and other Australians (Indicator 2.05).
- Around 780,000 Australian children aged 0–14 years are still exposed to environmental tobacco smoke at home, though the proportion of households with dependent children where someone smoked inside dropped from 31% in 1995 to 20% in 2001 (Indicator 2.01).

By presenting discrete information on individual indicators, the report provides only a limited picture of how determinants of health may act jointly to cause disease. For example, in worldwide terms 50% of cardiovascular disease among people aged 30 years and over can be attributed to high blood pressure, 31% to high blood cholesterol and 14% to tobacco, but the joint effect of these three risks amounts to about 65% of cardiovascular diseases (World Health Organization 2002b).

Although the determinants of health are increasingly well characterised and well reported, comparatively few resources are currently directed towards addressing them (AIHW 2002g). Expenditure on preventive and health promotional services, as a proportion of total health expenditure, has remained static over the last 30 years (Deeble 1999). The World Health Organization's *World Health Report 2002* focuses on the health gains—and reductions in health inequalities—that can be achieved by tackling the determinants of health.

Health system performance

Effectiveness

A number of the measures presented suggest improvements in the effectiveness of the health system over time:

- The proportion of injecting drug users who reported sharing a needle or syringe has decreased from a peak of 22% of injecting drug users in 1999 to 14% in 2001 (Indicator 3.01).
- Participation in breast cancer screening has increased from 52% of women aged 50 to 69 years in 1996-97 to 56% in 1999–2000 (Indicator 3.04).
- Childhood immunisation rates continue to improve steadily. 75% of children were fully immunised at 12 months in March 1997, and in September 2002 it was 92% (Indicator 3.05).
- Coronary heart disease case-fatality rates have declined from 36% in 1993–94 to 30% in 2000–01 (Indicator 3.08).
- Five year relative survival rates for several types of cancer have improved. For all cancers, the five year relative survival rate for males increased from 44% in 1982–1986 to 57% in 1992–1997. For females the increase was from 55% to 63% (Indicator 3.09).

- A further improvement in effectiveness is shown by significant decreases in the proportion of young smokers who reported that they had personally purchased their most recent cigarette. From 1987 to 2001, the proportion of current teenage smokers personally purchasing their cigarettes has fallen by 60% for current smokers aged 12–15 years and by 25% for those aged 16–17 years (Indicator 3.02). However, while this indicator provides useful and encouraging data on legal compliance by retailers, it needs to be complemented by other indicators of smoking behaviour.

The rate of potentially preventable hospitalisations as measured by Ambulatory Care sensitive conditions (ACSC) provides a useful measure of the effectiveness of the primary care system in dealing with conditions that can be treated on ambulatory rather than an admitted patient basis. The increase in these rates with remoteness would suggest that this is an area where improvement should be possible (Indicator 3.07).

Appropriateness

The measures of appropriateness present a more mixed picture:

- The decreased prescribing rate for those oral antibiotics most commonly used to treat upper respiratory tract infections suggests that these infections are being managed more appropriately and efficiently by primary care providers (Indicator 3.10).
- On the other hand, the continuing increase in caesarean section rates is a matter of concern, as are the above average hysterectomy rates in regional Australia (Indicators 3.12 and 3.13). Of perhaps even greater concern is the continuing inability to specify desirable benchmarks for such indicators.

Accessibility and responsiveness

Some trends in measures of accessibility and responsiveness of health care services also present a mixed picture. These include the recent decrease in the percentage of non-referred (GP) services which are bulk billed (Indicator 3.17) and, over a five-year period, the marginal decrease in the number of full time equivalent primary care practitioners per 100,000 population (Indicator 3.18). The availability of primary care practitioners in rural and remote areas has improved, but there remain substantial differences between urban and rural areas.

Data on waiting times in emergency departments (Indicator 3.16) and on access to elective surgery (Indicator 3.19) are available, but it is hard to relate this data to need for, and accessibility to, hospital services.

Safety, continuity and capability

For 4% of hospital separations in 2001–02, adverse events were reported (Indicator 3.21). Some of these adverse events were due to hospital procedures and some due to services delivered elsewhere in the health system. Data are not yet adequate to indicate whether adverse events are decreasing or increasing.

The increase in the rate of practices using electronic prescribing software or data connectivity suggests an improvement in access to safe practice protocols (Indicator 3.20).

More GPs were adopting a multidisciplinary approach to health care by using the enhanced primary care (EPC) items. In the last quarter of 2000 23% of GPs used these items, increasing to 44% in the last two quarters of 2002 (Indicator 3.22).

Also GPs were starting to provide annual voluntary health assessments to eligible older people and Aboriginal and Torres Strait Islander people (Indicator 3.23).

Sustainability

The health workforce is getting older and, for doctors and nurses, graduates as a percentage of the total workforce has declined from 1993 to 2000. This raises concerns about the sustainability of the medical and nursing workforce (Indicator 3.25).

Health inequalities

There are still substantial health inequalities in Australia. For potentially avoidable mortality, for example, those living in the most disadvantaged areas have avoidable mortality rates 54% higher those living in the least disadvantaged areas (Indicator 1.06).

The starkest health inequalities in Australia are those between Aboriginal and Torres Strait Islander persons and other Australians. Aboriginal and Torres Strait Islander persons face life expectancies about 20 years lower than other Australians (Indicator 1.04). Infant mortality is more than twice as high (Indicator 1.07). For diseases such as circulatory system disease the chance of dying is twice as high. For Aboriginal and Torres Strait Islander males and females aged between 35 and 64 the rate of death from diabetes was 20 times and 33 times as high, respectively. For external causes such as accidents, suicide and assault, the risk of dying for Aboriginal and Torres Strait Islander people was about 3 times higher than other Australians (AIHW & ABS 2003).

There are mortality inequalities between those in rural and remote areas and those in cities. Much of this inequality is due to the Aboriginal and Torres Strait Islander health disadvantage, but other factors are at play as well (AIHW 2003e).

Summary

The overview that emerges is one of health status that is improving substantially. Mortality especially is reducing and the levels of certain illnesses and diseases have reduced.

Much of the improvement has been driven by the preventive and treatment activities of the health system, but health improvements are due to the combined impact of many different influences in our society, and it is not possible to exactly attribute the contribution of the health system alone.

Although this report demonstrates important improvements in performance, there remains considerable scope for further improvement. Australia has world class outcomes in many areas, but there are areas where we have not achieved world best practice.

- The Japanese live on average 1.4 years longer than Australians, suggesting that mortality can be reduced further.
- Through reduction in determinants of disease and injury such as obesity, smoking and unsafe roads (Tier 2) much disease and illness could be prevented (AIHW: Mathers et al. 1999).
- There is much scope for earlier and better interventions for many chronic conditions.

- Better treatment of cancer, heart disease, mental illness and other diseases could improve survival and reduce dependency.

All data in this report for Aboriginal and Torres Strait Islander persons is subject to considerable uncertainty mostly because of under identification of Indigenous people in a number of datasets. Notwithstanding this uncertainty, there are significant disparities in health status between Aboriginal and Torres Strait Islander peoples and other Australians, and between high and low socioeconomic groups. This reflects the impact that the broader determinants of health have on health outcomes. Joint strategies addressing the range of determinants of health are more likely to be successful in achieving health gains than are single strategies such as health system or environmental health interventions alone. In this context, effective health systems are an essential but not sufficient condition for achieving health outcomes (Bunker 1995; Lerer et al. 1998).

Role of the NHPC

Further work is needed on improving and developing performance measures, and on enhancing our understanding of the extent to which these measures indicate the potential for improvement.

During 2002–03, the NHPC directed resources to indicator development (primarily for the purposes of NHPC reporting) and benchmarking.

Selection of indicators for this 2003 report involved the identification of a set of indicators for inclusion in national reporting and for subsequent NHPC reports. The process commenced with an initial screen and review of evidence concerning possible indicators. The National Public Health Partnership Group provided formal input after completion of its consultation process. The NHPC contacted jurisdictions and relevant organisations regarding their views to ensure that scope/level of national reporting was appropriate for the groups, particularly in terms of which group/s has responsibility for taking action (whether this be by jurisdiction, peer group, international comparison etc).

With respect to its future direction, the Committee remains focused on developing initiatives for:

- national reporting
- indicator development for primary health and community care and access to services
- reporting on the evidence base for benchmarking practices
- receiving, compiling and discussing comments on the framework and incorporating any relevant changes into a review.

In light of the small changes that occur between annual reports and the resource constraints on the project, the NHPC will only produce National Reports every two years after production of this 2003 report. This will release resources for reports on topics of special interest in 2004. The next National Report is therefore due to be released in 2005 and will possibly be based on a revised version of the framework incorporating any changes agreed during the 2004 review.

National Health Sector Performance Indicators 2003

No.	Indicator	Description
Tier 1 Health status and outcomes		
1.01	Incidence of heart attacks	Incidence of acute coronary heart disease events (‘heart attacks’)
1.02	Incidence of cancer	Incidence rates for cancer
1.03	Severe or profound core activity limitation	Severe or profound core activity limitation by age and sex
1.04	Life expectancy	Life expectancy at birth
1.05	Psychological distress	Level of psychological distress as measured by the Kessler 10
1.06	Potentially avoidable deaths	Number of potentially avoidable deaths
1.07	Infant mortality	Infant mortality rates
1.08	Mortality for National Health Priority Area diseases and conditions	Death rates for National Health Priority Area diseases and conditions
Tier 2 Determinants of health		
2.01	Children exposed to tobacco smoke in the home	The proportion of households with dependent children (0–14 years) where adults report smoking inside
2.02	Availability of fluoridated water	Proportion of the population served by a reticulated water supply that provides satisfactory fluoride levels whether artificially fluoridated or naturally occurring
2.03	Income inequality	Ratio of equivalised weekly incomes at the 80th percentile to the 20th percentile income
2.04	Informal care	Number engaged in informal care
2.05	Adult smoking	Proportion of adults who are daily smokers
2.06	Risky alcohol consumption	Proportion of the population aged 18 years and over at risk of long term harm from alcohol
2.07	Fruit and vegetable intake	Proportion of people eating sufficient daily serves of fruit or vegetables
2.08	Physical inactivity	Proportion of adults insufficiently physically active to obtain a health benefit
2.09	Overweight and obesity	Proportion of persons overweight or obese
2.10	Low birthweight babies	Proportion of babies who are low birthweight.
2.11	High blood pressure	Proportion of persons with high blood pressure
Tier 3 Health system performance		
3.01	Unsafe sharing of needles	Percentage of injecting drug users, participating in surveys carried out at needle and syringe programs, who report recent sharing of needles and syringes
3.02	Teenage purchase of cigarettes	Percentage of teenagers smokers who personally purchased their most recent cigarette
3.03	Cervical screening	Cervical screening rates for women within national target groups
3.04	Breast cancer screening	Breast cancer screening rates for women within the national target groups
3.05	Childhood immunisation	Number of children fully immunised at 12 months and at 24 months of age
3.06	Influenza vaccination	Percentage of adults over 64 years who received an influenza vaccination for the previous winter
3.07	Potentially preventable hospitalisations	Admissions to hospital that could have been prevented through the provision of appropriate non-hospital health services

(*continued*)

National Health Sector Performance Indicators 2003 (continued)

No.	Indicator	Description
Tier 3 Health system performance (continued)		
3.08	Survival following acute coronary heart disease event	Deaths occurring after acute coronary heart disease events ('heart attacks')
3.09	Cancer survival	Five-year relative survival proportions for persons diagnosed with cancer
3.10	Appropriate use of antibiotics	Number of prescriptions for oral antibiotics ordered by general practitioners (GPs) for the treatment of upper respiratory tract infections
3.11	Management of diabetes	Proportion of persons with diabetes mellitus who have received an annual cycle of care within general practice
3.12	Delivery by caesarean section	Caesarean sections as a proportion of all confinements by hospital status
3.13	Hysterectomy rate	Separation rates for hysterectomies
3.14	Hospital costs	Average cost per casemix-adjusted separation for public acute care hospitals
3.15	Length of stay in hospital	Relative stay index (RSI) by medical surgical and other DRGs
3.16	Waiting times in emergency departments	Percentage of patients who are treated within national benchmarks for waiting in public hospital emergency departments for each triage category
3.17	Bulk billing for non-referred (GP) attendances	Proportion of non-referred (GP) attendances that are bulk-billed (or direct billed) under the Medicare program
3.18	Availability of GP services	Availability of GP services on Full-time Workload Equivalent (FWE) basis
3.19	Access to elective surgery	Median waiting time for access to elective surgery –- from the date they were added to the waiting list to the date they were admitted
3.20	Electronic prescribing and clinical data in general practice	Percentage of general practices in the Practice Incentives Program (PIP) who transfer clinical data electronically or use electronic prescribing software
3.21	Adverse events treated in hospitals	Proportion of hospital separations where an adverse event was treated and/or occurred
3.22	Enhanced Primary Care services	Percentage of General Practitioners using Enhanced Primary Care (EPC) items
3.23	Health assessments by GPs	Percentage of eligible older people who have received an Enhanced Primary Care annual voluntary health assessment
3.24	Accreditation in general practice	Number of accredited practices participating in the Practice Incentives Program (PIP) and the proportion of general practice services provided by these practices
3.25	Health workforce	Graduates in pharmacy, medicine and nursing as a percentage of the total pharmacy, medical and nursing workforce; Percentage of health practitioners aged 55 years and over

1 Introduction

Preamble

This *National Report on Health Sector Performance Indicators 2003* is the second report prepared by the NHPC, based on the national health performance framework. The national health performance framework was published in August 2001 as the *National Health Performance Framework Report*. The first report based on the new framework, the 2001 national report, was published in April 2002.

Before the development of the framework, four national reports on health sector performance indicators were released in February 1996, June 1998 and June 1999 and July 2000. The first three were authored by the National Health Ministers' Benchmarking Working Group (the forerunner of the NHPC) and the latter, the *Fourth National Report on Health Sector Performance Indicators*, was authored by the NHPC.

The National Health Performance Committee

The Australian Health Ministers' Conference (AHMC) established the NHPC in August 1999. This committee is responsible for the development and maintenance of a national health performance framework, the support of benchmarking for health system improvement and the provision of information on national health system performance.

Membership of the committee includes representatives from each state and territory and the Australian Government. Membership is also drawn from national bodies such as the AIHW, the Australian Private Hospitals' Association, the Australian Health Insurance Association and the NPHPG. See Appendix 1 for further details.

Vision of the NHPC

The vision of the NHPC is for a health system that searches for, compares and learns from the best and improves performance through the adoption of benchmarking practices across all levels of the system.

Mission of the NHPC

The NHPC works to use benchmarking based on national performance measures and indicators to improve the quality of health services.

Goals of the NHPC

- To extend the national performance indicator framework for services other than acute inpatient services to: include not only indicators of the overall health system's performance, but also indicators for services such as community health, general practice and public health.

- To establish good links with, and take advantage of, the vast range of work being undertaken on performance indicator development across Australia.
- To improve the timeliness of reporting of performance information.

NHPC Terms of reference

1. Develop and maintain a national health performance framework for the health system, primarily to support benchmarking for health system improvement and to provide information on national health system performance.
2. Establish and maintain appropriate national health performance indicators within the national health performance framework.
3. Receive and consider input to the national health performance framework and on existing and potential performance indicators.
4. Facilitate the use of data at the health service unit level for benchmarking purposes.
5. Encourage the health industry to work within the national health performance framework and use the agreed performance indicators in benchmarking to improve performance.
6. Encourage the development of expertise in the use of benchmarking for performance improvement.
7. Provide the AHMAC and other national authorities with a comparative analysis and information of national health system performance.
8. Develop and maintain linkages with other relevant national committees.
9. Report progress to the AHMAC and other national authorities on achieving its mission.

The primary objectives of the NHPC endorsed by AHMAC are:

- to produce national reports
- to facilitate benchmarking for health system improvement
- to establish and maintain national health performance indicators within the national health performance framework
- to develop and maintain a national health performance framework for the health system.

The committee completed a workplan for 2002–03 to fulfil these objectives. This included:

- compilation of this *National Report on Health Sector Performance Indicators 2003*;
- benchmarking workshops held in July and October 2003 with stakeholders, with recommendations to be implemented subject to available budget;
- a 'Review of performance indicators for the NHPC' workshop held with stakeholders, that was used as a basis of selection of indicators for this 2003 report; and
- a framework populated by indicators in 2003 report.

During 2002–03, the NHPC compiled this 2003 national report. It also directed resources to benchmarking and indicator development (primarily for the purposes of NHPC reporting).

A workshop was held in October 2002 to identify barriers to benchmarking for health system improvement and for participants to inform the NHPC's workplan in relation to benchmarking for the next few years. The output was a set of recommendations to Ministers and Chief Executive Officers (CEOs) that addressed barriers to benchmarking and developed plans to address these in a way that ensured a positive response.

Selection of indicators for this 2003 report involved the identification of a set of indicators for inclusion in national reporting and for subsequent NHPC reports. The process began with an initial screen and review of evidence concerning possible indicators. The NPHPG provided formal input after completion of its consultation process. The NHPC contacted jurisdictions and relevant organisations regarding their views to ensure that the scope and level of national reporting was appropriate for respective groups, particularly in terms of which group/s has responsibility for taking action (whether this be by jurisdiction, peer group, international comparison, etc.).

National health performance framework

Previous reports on performance have focused on health and health service indicators, with many of the indicators relating to institutional care and acute care settings. As part of its terms of reference, the NHPC agreed to develop a broad national health performance framework that could be used as the basis for its annual report to health Ministers. Results of this work were reflected in the publication in August 2001 of the *National Health Performance Framework Report*, which outlined the new framework.

The framework consists of three tiers: health status and outcomes, determinants of health and health system performance (Figure 1.1). The inclusion of the three tiers reflects the fact that health status and health outcomes are influenced by the impacts of health determinants and health system performance. In developing the framework, equity is considered to be integral to each of the three tiers.

The August 2001 framework report outlined selection criteria for indicators associated with the framework, including selection criteria specific to the NHPC. Some examples of indicators against the various components of the framework were also provided. Key extracts from the report showing selection criteria for indicators are reproduced below.

Selection criteria for health performance indicators

> *Generic indicators when used at a program level to whole of system level should have all or some of the following qualities. They should:*
>
> 1. Be worth measuring.
>
> *The indicators represent an important and salient aspect of the public's health or the performance of the health system.*
>
> 2. Be measurable for diverse populations.
>
> *The indicators are valid and reliable for the general population and diverse populations (i.e., Aboriginal and Torres Strait Islander populations, sex, rural/urban, socioeconomic etc.)*
>
> 3. Be understood by people who need to act.
>
> *People who need to act on their own behalf or that of others should be able to readily comprehend the indicators and what can be done to improve health.*
>
> 4. Galvanise action.
>
> *The indicators are of such a nature that action can be taken at the national, state, local or community level by individuals, organised groups and public and private agencies.*

5. Be relevant to policy and practice.

Actions that can lead to improvement are anticipated and feasible – they are plausible actions that can alter the course of an indicator when widely applied.

6. Reflect results of actions when measured over time.

If action is taken, tangible results will be seen indicating improvements in various aspects of the nation's health.

7. Be feasible to collect and report.

The information required for the indicator can be obtained at reasonable cost in relation to its value and can be collected, analysed and reported on in an appropriate time frame.

8. Comply with national processes of data definitions.

Source: NHPC (2002)

Additional selection criteria specific to NHPC reporting

In addition to the general criteria for health performance indicators outlined above, NHPC selection criteria should:

- *Facilitate the use of data at the health industry service unit level for benchmarking purposes.*
- *Be consistent and use established and existing indicators where possible.*

In considering the selection or development of relevant health system performance indicators it is important to keep in mind that indicators are just that: an indication of organisational achievement. They are not an exact measure and individual indicators should not be taken to provide a conclusive picture on an agency's or system's achievements. A suite of relevant indicators is usually required and then an interpretation of their results is needed to make sense of the indicators. Performance information does not exist in isolation and is not an end in itself, rather it provides a tool that allows opinions to be formed and decisions made.

Some indicators should be ratios of output/input, outcome/output and outcome/input. There should also be a focus on measures of outcomes where there is a link between health system actions and health outcomes.

Given that overall health outcome is a product of social, environmental and health system factors, there are difficulties in linking the efforts of the health sector with observable health outcomes. There is a continuum of outcomes from those that are directly influenced by the health system to those that are not and are affected by a range of external factors. A distinction can be made between 'intermediate' outcomes attributable to the actions of the health sector and higher level outcomes that cannot be attributed to the efforts of the health sector alone. The outcomes selected to measure performance of the health sector should be based on such intermediate outcomes, e.g. survival rates after transplant, functionality after hip replacement and absence of preventable disease in the community.

In the short term, as appropriate health system performance indicators are being refined and developed, it may be necessary to use process measures as an interim measure to represent the performance of the system. Once appropriate measures (and information sources) are developed over the long term, it will be possible to build up meaningful measures of the efficiency and effectiveness of health outputs and the impact on health outcomes.

Source: NHPC (2002).

Subsequent national reports include not only indicators relating to health sector performance but also to health status and health determinants. This ensures that while the traditional areas of effectiveness, efficiency and quality are included, areas such as the capability and sustainability of health sector performance are not overlooked.

Table 1.1: National health performance framework

<table>
<tr><td colspan="60">Health status and outcomes (Tier 1)
How healthy are Australians? Is it the same for everyone? Where is the most opportunity for improvement?</td></tr>
<tr><td colspan="15"><i>Health conditions</i></td><td colspan="15"><i>Human function</i></td><td colspan="15"><i>Life expectancy and wellbeing</i></td><td colspan="15"><i>Deaths</i></td></tr>
<tr><td colspan="15">Prevalence of disease, disorder, injury or trauma or other health-related states</td><td colspan="15">Alterations to body structure or function (impairment), activities (activity limitation) and participation (restrictions in participation)</td><td colspan="15">Broad measures of physical, mental and social wellbeing of individuals and other derived indicators such as disability adjusted life expectancy (DALE)</td><td colspan="15">Age and/or condition specific mortality rates</td></tr>
<tr><td colspan="60">Determinants of health (Tier 2)
Are the factors determining health changing for the better? Is it the same for everyone? Where and for whom are they changing?</td></tr>
<tr><td colspan="12"><i>Environmental factors</i></td><td colspan="12"><i>Socioeconomic factors</i></td><td colspan="12"><i>Community capacity</i></td><td colspan="12"><i>Health behaviours</i></td><td colspan="12"><i>Person-related factors</i></td></tr>
<tr><td colspan="12">Physical, chemical and biological factors such as air, water, food and soil quality resulting from chemical pollution and waste disposal</td><td colspan="12">Socioeconomic factors such as education, employment, per capita expenditure on health and average weekly earnings</td><td colspan="12">Characteristics of communities and families such as population density, age distribution, health literacy, housing, community support services and transport</td><td colspan="12">Attitudes, beliefs, knowledge and behaviours, e.g. patterns of eating, physical activity, excess alcohol consumption and smoking</td><td colspan="12">Genetic-related susceptibility to disease and other factors such as blood pressure, cholesterol levels and body weight</td></tr>
<tr><td colspan="60">Health system performance (Tier 3)
How well is the health system performing in delivering quality health actions to improve the health of all Australians? Is it the same for everyone?</td></tr>
<tr><td colspan="20"><i>Effective</i></td><td colspan="20"><i>Appropriate</i></td><td colspan="20"><i>Efficient</i></td></tr>
<tr><td colspan="20">Care, intervention or action achieves desired outcome</td><td colspan="20">Care, intervention or action provided is relevant to the client’s needs and based on established standards</td><td colspan="20">Achieves desired results with most cost-effective use of resources</td></tr>
<tr><td colspan="20"><i>Responsive</i></td><td colspan="20"><i>Accessible</i></td><td colspan="20"><i>Safe</i></td></tr>
<tr><td colspan="20">Service provides respect for persons and is client orientated, including respect for dignity, confidentiality, participation in choices, promptness, quality of amenities, access to social support networks and choice of provider</td><td colspan="20">Ability of people to obtain health care at the right place and right time irrespective of income, physical location and cultural background</td><td colspan="20">The avoidance or reduction to acceptable limits of actual or potential harm from health care management or the environment in which health care is delivered</td></tr>
<tr><td colspan="20"><i>Continuous</i></td><td colspan="20"><i>Capable</i></td><td colspan="20"><i>Sustainable</i></td></tr>
<tr><td colspan="20">Ability to provide uninterrupted, coordinated care or service across programs, practitioners, organisations and levels over time</td><td colspan="20">An individual’s or service’s capacity to provide a health service based on skills and knowledge</td><td colspan="20">System’s or organisation’s capacity to provide infrastructure such as workforce, facilities and equipment, and to be innovative and respond to emerging needs (research, monitoring)</td></tr>
</table>

Source: NHPC (2001).

Future directions

As noted in the 2001 national report, the success of the NHPC hinges on its ability to encourage the various jurisdictions and sectors of the health industry to work within the parameters of the framework. In this regard, the NHPC has noted that the framework is being used by a number of jurisdictions in their own performance reporting. It can be used as a catalyst to generate discussion about outcomes and about what constitutes an appropriate performance indicator. The framework can also be used to support benchmarking for health system improvement and to facilitate use of data at the health service unit level for benchmarking purposes.

The committee has developed a workplan for 2003–04. This includes:

- to produce special interest reports;
- to develop indicators for primary health and community care and access to services;
- to report on the evidence base for benchmarking practices;
- to receive, compile and discuss comments on the framework, and to incorporate any relevant changes into a review.

The NHPC is moving towards biennial rather than annual reporting of national performance indicators. The committee believes that, in the light of the small changes that occur between annual reports and the resource constraints on the project, these general reports should be produced every two years, thus releasing resources for reports on special interest topics. In 2003–04 it is anticipated that the committee will produce a series of special interest reports.

Work on special interest areas could be done in various ways. It could be:

- incorporated into national reports;
- undertaken by the NHPC as a stand-alone piece of work, possibly in the form of an occasional paper; or
- undertaken by the NHPC in conjunction with other groups.

This would encourage a style of reporting across groups consistent with the national health performance framework and reduce duplication of work between the NHPC and other groups. The national health performance framework, developed by the NHPC and published as the *National Health Performance Framework Report* in 2001, provides a rational structure not only for NHPC national reports but also for similar reporting by other bodies.

There are a number of bodies involved in indicator development that are concerned with specific project areas, e.g. the NPHPG, the National Public Health Partnership Group, the Australian Council for Safety and Quality in Health Care and the Australian Council on Healthcare Standards.

As other groups take up use of the framework, the NHPC will be able to re-direct resources to special interest areas not undertaken by other groups. Specifically this will involve development, specification and creation of performance indicators, including primary health and community care indicators, in conjunction with other groups. The NHPC can also recommend indicators considered appropriate for national reporting where further research and development is required.

Benchmarking

The unique roles that the NHPC can play in benchmarking is firstly to ensure that efforts to undertake benchmarking are coordinated and that areas are not missed, and secondly to promote benchmarking to improve performance in line with the NHPC’s terms of reference. The NHPC also has a role in expanding benchmarking activities beyond hospital based clinical activities to improve primary health and community care.

There are a number of groups involved in the field of benchmarking activities. These include organisations such as the Australian Council for Safety and Quality in Health Care, the Australian Council on Healthcare Standards (ACHS), Quality Improvement Council Limited, Australian General Practice Accreditation Limited (AGPAL), National Association of Testing Authorities (NATA) and the Institute for Healthy Communities Australia Inc.

The advantage of having an organisation such as the NHPC is that it can provide a broad frame of reference, whereas benchmarking activities conducted by other organisations may only apply to a particular area of the health sector. For instance, the Australian Council for Safety and Quality in Health Care has a clinical focus.

Historically, benchmarking activities have focused on acute in-patient services. The committee hopes to extend the scope of benchmarking activities to also include other services such as community health, general practice and public health.

The NHPC coordinates and supports relevant groups in the use of the NHPC framework to foster consistency and comprehensive coverage. NHPC membership itself composed of representatives of jurisdictions, the AIHW and the NPHPG. The NHPC is represented on the Statistical Information Committee (SIC) and the Steering Committee for Commonwealth State Service Provision. Other groups, e.g. general practitioner (GP) groups link to NHPC members with a particular interest in that area.

Review of the framework

As noted earlier, the national health performance framework was published in August 2001 as the *National Health Performance Framework Report*. The framework is due for review in 2004. The NHPC is also involved in discussions aimed at developing a health performance framework that can be used for international comparison purposes.

In the light of these developments, the NHPC would appreciate any comments on:

- measures that could be used in annual reports to health Ministers, both current and future measures; and
- the framework, e.g. its usefulness and application.

Please direct these comments to the Executive Officer, National Health Performance Committee (contact details are shown on page ii).

Structure of the report

One of the challenges of providing Ministers with a report based on this newly developed framework is the need to select a limited number of indicators that provide an overall picture of health sector performance. In order to address this challenge, this report presents indicators relevant to the three tiers of the framework. Each section on the indicators is prefaced by a brief overview of how the Australian health system is performing in relation to that component of the framework. Thus, the indicators illustrate outcomes for a range of changes in determinants, and reflect the end result of efforts both within and outside the traditional areas of health service provision.

The overall structure of the report is as follows:

- Brief overview of the Australian health system giving a contextual background for the discussion of indicators.

- Indicators relating to Tier 1 of the framework (health status and outcomes).
- Indicators relating to Tier 2 of the framework (determinants of health).
- Indicators relating to Tier 3 of the framework (health system performance).
- A discussion on international developments in health performance measurement.
- A brief discussion on benchmarking activities for health system improvement.
- Information on future directions of the NHPC.

Presentation of this report

In some cases more than one indicator was selected to cover a particular dimension. Indicators were selected where data was available. However, data availability and enhancement is an ongoing challenge for the committee. As a result the timeliness of information presented in this report varies, since consistency is currently difficult to achieve due to variation in data availability.

The NHPC has adopted a two-page presentation for Tiers 1–3, in the interests of standardising the format to achieve a cleaner look, allow greater flexibility and include more information to suit a wider audience.

The following sections are shown: data definition; rationale or description of the indicator and how this relates to health system performance and an evidence statement (where available). Data definitions have been included to show the numerator, denominator and presentation, and to translate the intent of the indicator into data specifications. The indicator definition usually relates to the primary indicator shown on the two-page presentation. General caveats apply to all data for Aboriginal and Torres Strait Islander peoples: differences in identification of Aboriginal and Torres Strait Islander peoples in different data sets means that the accuracy of this data is variable, especially for rates and trends.

The section entitled ‘What the data show’ record what is in accompanying graphs and indicate what changes mean and highlight trends in rates. Generally two graphs have been included, one showing a time series and the other relevant comparative dimensions, e.g. Aboriginal and Torres Strait Islander status, socioeconomic status (where data are available).

Data supporting the graphs and technical notes are shown in Appendices 2 and 3, respectively. Technical notes contain information relating to codes and methods used that were too lengthy to include in tables and graphs.

Appendices 2 and 3 and detailed tabular information are available on the following websites, not in the paper publication itself. The full document is available on the CD-ROM version of the publication.

Please refer to the websites below for any further updates or revisions.

http://www.health.nsw.gov.au/pubs/index.html

http://www.aihw.gov.au

2 The Australian health system

The Australian health system is a complex system characterised by differing roles and responsibilities of different levels of government, along with a mixture of service providers and types of services, and with a unique balance between public and private sector involvement. The public sector plays a greater role than that of the United States by ensuring universal access to most health services under Medicare, with the private sector playing a greater role than that of the United Kingdom, allowing greater responsiveness to individual choice of services and providers.

The Australian Government and the state and territory governments play important roles in the provision and funding of health care in Australia. In some jurisdictions, local governments also play a role. All of these levels of government are collectively called the public sector.

The private and non-government sector provides about 60% of health services and is also a major funder of these services through private health insurance, workers' compensation, compulsory motor vehicle third-party insurance and individual out-of-pocket payments.

The delivery of health care occurs in a diverse range of settings. These include hospitals (public and private), aged care homes (public, private for profit and private not for profit), hospices and rehabilitation centres. Delivery can also occur in community health centres, health clinics, ambulatory care services, private consulting rooms of doctors and other health professionals, and patients' homes or workplaces.

Most health care in Australia is delivered by private or non-government providers. These include private medical and dental practitioners, other health professionals (such as physiotherapists, optometrists and podiatrists), private hospitals, non-government aged care homes and pharmaceutical retailers.

Public, occupational and environmental health interventions may be delivered in several ways: through health promotion and education; through preventive screening and immunisation programs; and through health protection programs.

Funding arrangements for the different components of the health system are complex (see Figure 2.1). The Australian Government allocates funding to the States and Territories, private and non-government service providers and private health insurers in the form of:

- grants to the States and Territories, including health care funding grants to support the provision of public hospital services free of charge, under the Australian Health Care Agreements and other specific purpose payments;
- subsidies for the delivery of medical services under the Medicare Benefits Schedule (MBS);
- subsidies for pharmaceuticals under the Pharmaceutical Benefits Scheme (PBS);
- direct grants to non-government organisations for the provision of health care;

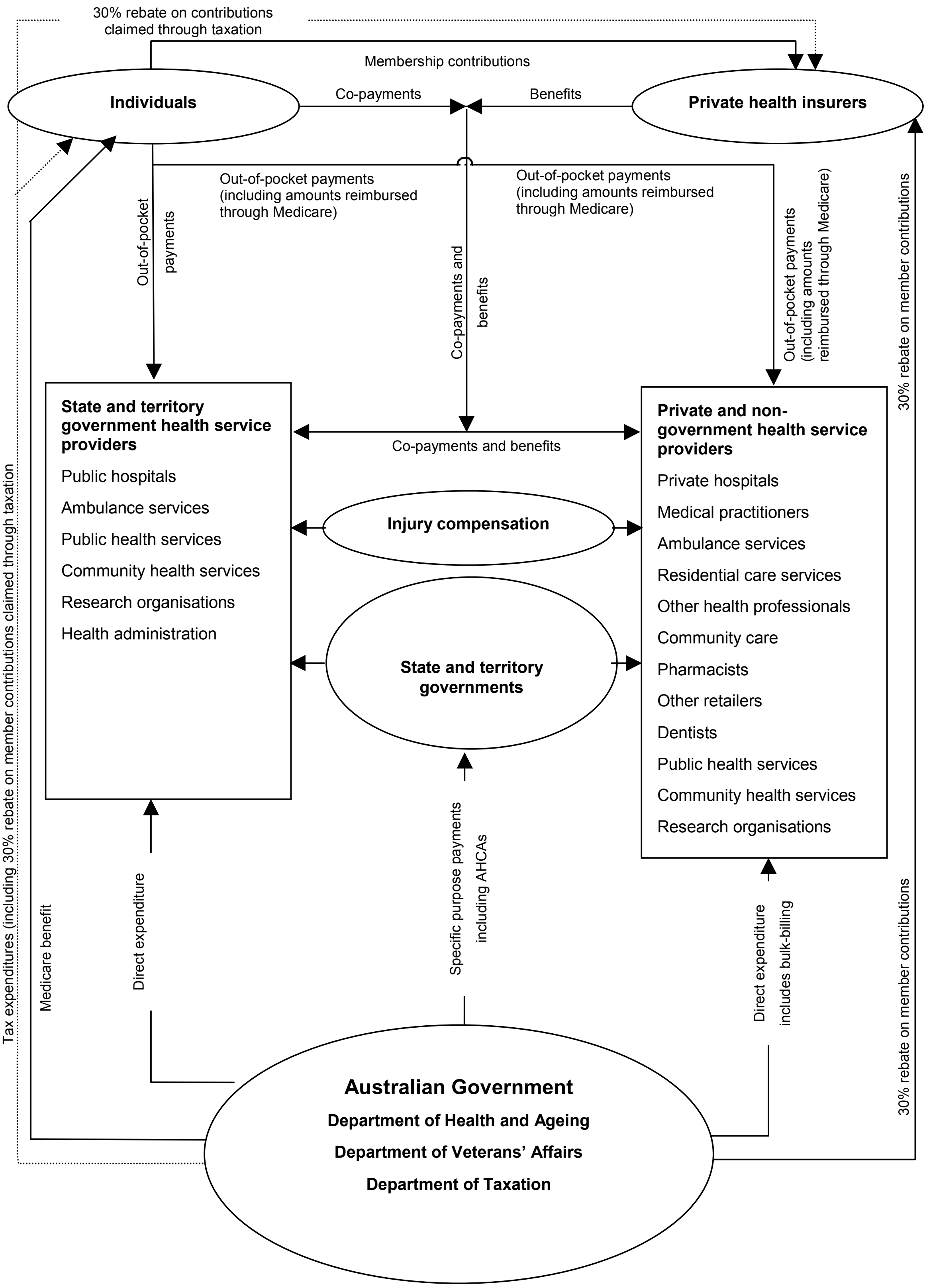


Figure 2.1: The structure of the Australian health care system and its flow of funds

Note: The Commonwealth undertakes research itself through organisations like the CSIRO, and the universities (not shown on this diagram) are major providers of health research and teaching services.

Source: Derived from Australian Institute of Health and Welfare (2003d).

- Public Health Outcome Funding Agreements to States and Territories to undertake particular public health activities; and
- rebates to help offset the cost of purchasing private health insurance.

The States and Territories have primary responsibility for the delivery and management of public hospital services and a wide range of community and public health services (including school, dental, maternal and child and environmental health programs). The States and Territories fund these services through income raised from taxes, their share of the goods and services tax (GST), grants from the Australian Government, and charges applied to users of services. The States and Territories largely determine the following:

- budgets for individual hospitals and the arrangements under which they are paid (e.g. casemix), including specialist medical services (e.g. salaried, sessional and/or fee-for-service payment models);
- number and location of hospitals and community health services;
- nature and extent of services available at each hospital; and
- public health priorities according to their respective perspectives.

The States and Territories are also primarily responsible for the regulation of medical practitioners and other health care professionals, and private hospitals.

In 2001–02 total expenditure (recurrent and capital) for health care services in Australia was $66.6 billion. Real growth in per person health expenditure averaged 4.6% per year between 1991–92 and 2001–02 (see Table 2.1). At the beginning of the 1990s, health expenditure accounted for 7.9% of the gross domestic product (GDP) (Table 2.2). The 2000–01 figure of 9.1% is close to the median of expenditures/GDP ratios of OECD countries (OECD 2003a).

Table 2.1: Total health expenditure, per capita, 1991–92, 1996–97 and 2001–02

	1991–92	1996–97	2001–02	Per cent change* 1991–92 to 2001–02
Current prices	1,904	2,458	3,397	6.0
Constant prices (2000–01)	2,357	2,733	3,292	3.4

Source: AIHW (2003c).

**Note:* Annual average percentage change.

Table 2.2: Ratio of health expenditure to gross domestic product (GDP) (%), 1990–91 to 2001–02

Year	Per cent of GDP	Year	Per cent of GDP
1990–91	7.9	1996–97	8.5
1991–92	8.1	1997–98	8.6
1992–93	8.2	1998–99	8.7
1993–94	8.3	1999–00	8.9
1994–95	8.3	2000–01	9.1
1995–96	8.4	2001–02	9.3

Source: AIHW (2002f); AIHW (2003c).

Within the overall increase in health expenditures, there have been changes in the sources of funding. By 2001–02, the Australian Government's funding of health services was estimated at $30.7 billion (46.1%) of total expenditure on health services from all funding sources

(Table 2.3). State or Territory and local government sources provided $14.8 billion (22.3%) of all health services funding. The remaining $21.0 billion (31.6%) was provided by non-government funding sources (e.g. individual out-of-pocket expenditure, private health insurance funds, workers' compensation and compulsory motor vehicle third party insurance funds). Of the non-government funding sources for 2001–02, individuals accounted for 58.6%, private health insurance funds provided 24.1% (down from 34.7% in 1990) and the remaining 17.2% came mainly from motor vehicle third party and workers' compensation insurance (AIHW 2003d).

Table 2.3: Health expenditure by broad source of funds, 1991–92, 1996–97 and 2001–02

	1991–92	1996–97	2001–02
	%	%	%
Australian Government	42.8	43.7	46.1
States, territories and local government	23.4	22.9	22.3
Non-government	32.7	33.3	31.6
Total	**100.0**	**100.0**	**100.0**

Source: AIHW (2003c).

Australian Government and state and territory government policies affect the levels and distribution of funding for health services. For example, the Australian Government's subsidy to private health insurance members contributed to a reduction in the proportion of total funding that came from members of private health insurance funds after 1996–97. Total expenditure on this rebate in 2001–02 was $2.0 billion, or 2.9% of total health expenditure (AIHW (2003c)).

Between 1991–92 and 2001–02, expenditure on health services by governments in Australia grew at a higher average annual real rate (5.4%) than did total expenditure on health by all sources, which averaged 4.6% per year. As a consequence, the contribution of governments to the funding of total expenditure on health services increased from 67.3% in 1991–92 to 68.4% in 2001–02.

Out-of pocket expenses increased somewhat from 17.7% of recurrent expenditure in 1991–92 to 19.7% in 2001–02. About 30% of out-of-pocket payments were for private dental and allied health professional services, 32% was for pharmaceuticals (mostly complementary medicines) and 11% was for medical services.

Over the last decade there have been some changes to the distribution of funding across the major categories of expenditure (Table 2.4). Between 1991–92 and 2001–02, there was a reduction in the proportion of expenditure on hospitals from 40% to 35% and an increase in the proportion of expenditure on pharmaceuticals, from 9.9% to 12.0%.

Almost all reported recurrent expenditure on medical services in Australia relates to services that are provided by practitioners on a 'fee-for service' basis. This is reflected in the distribution of funding for medical services. Of the $10.3 billion spent on medical services in 2000–01, some 81.8% was funded by the Australian Government. This was made up of medical benefits paid under Medicare, payments by the Department of Veterans' Affairs and payments to practices under programs like the Practice Incentives Program (PIP).

Table 2.4: Health expenditure by area of expenditure, Australia, 1991–92, 1996–97 and 2000–01

Area of expenditure	1991–92	1996–97	2000–01
	%	%	%
Hospitals (public & private)	39.7	37.5	35.0
High level residential aged care[(a)]	8.4	7.5	6.8
Medical services[(b)]	19.0	19.2	18.0
Pharmaceuticals[(c)]	9.9	12.0	14.2
Other[(d)]	23.0	23.8	26.0
Total	**100.0**	**100.0**	**100.0**

Source: AIHW (2003c).

Notes

(a) Only the expenditure on care for the more dependent residents of aged care homes is included here (Residential Classification Scale (RCS) categories 1 to 4).

(b) Includes private medical services (in and out of hospital) funded under Medicare and by worker's compensation and third party insurance. The cost of medical services provided in public hospitals by state and territory governments is included under 'Hospital' expenditure.

(c) Includes over-the-counter medicines, vitamins and minerals and herbal supplements as well as prescription pharmaceuticals.

(d) Includes dental services, other private allied health professionals, aids and appliances, patient transport services, research and administration.

Over the period from 1990–91 to 2000–01, recurrent expenditure on medical services increased, in real terms, at an average of 3.7% per annum. (Most of the expenditure in this category is for private medical services delivered out of hospital, but private medical services delivered in hospitals are also included. state and territory government funded medical services delivered in public hospitals are not included here, but are part of hospital expenditure). While growth in medical services expenditure partly reflects an increase in the number services delivered, from 147 million services (8.5 services per person) in 1990–91 to 221 million services (11.2 services per person) in 2001–02, there were also other factors that contributed to the increase, including: population growth; rearrangement of medical service responsibilities between the States and Territories and the Australian Government; changes to the structure of the Medicare Benefits Schedule (MBS) and the inclusion of new items in the MBS; and changes to funding arrangements. In 2001–02, GP consultations accounted for nearly half (45%), and diagnostic imaging and pathology just over a third (37%), of the number of Medicare services provided (Table 2.5). In terms of benefits paid, pathology was a lower proportion at 16% and GP consultations were 35% of the total. Diagnostic imaging was a higher proportion of benefits paid (16%) than of number of services (6%).

Table 2.5: Medicare services and benefits paid, by broad type of service, 2001–02

	Number of services provided	Benefits paid
	%	%
GP consultations	45.3	35.0
Specialist consultations	9.0	13.3
Pathology	30.8	16.0
Diagnostic imaging	5.8	15.5
Other	9.2	20.2

Source: Commonwealth Department of Health and Ageing (2002b).

Note: GP consultations include unreferred attendances and enhanced primary care (EPC) items. Pathology includes pathology patient episode initiation items as well as pathology tests. 'Other' includes obstetrics, anaesthetics, optometry and other medical services.

Expenditure on pharmaceuticals—whether on prescription pharmaceuticals, over-the-counter medicines or alternative medicines—grew strongly between 1991–92 and 2001–02 at an average of 9.4% per year in real terms.

Government funding of pharmaceuticals through the PBS and RPBS was 53% of the total expenditure of $9.0 billion in 1991–92. Government funding grew at 11.8% per year in real terms.

In 2001–02, there were 724 public acute hospitals and 22 public psychiatric hospitals in Australia (AIHW 2003b). Public hospitals accounted for 28.6% of recurrent expenditure on health goods and services in Australia in 1999–00. From 1997–98 to 2000–01, the rate of separations from public hospitals decreased slightly, while separation rates for private hospitals increased (Table 2.6). Separation rates then slightly increased in 2001–02. Rates of patient days per 1,000 population and average length of stay fell for public hospitals, reflecting the increase in the proportion of hospital services delivered on a same day basis and improvements in health care treatments and technology.

3 Health status and outcomes

Indicator 1.01 Incidence of heart attacks

Indicator 1.02 Incidence of cancer

Indicator 1.03 Severe or profound core activity limitation

Indicator 1.04 Life expectancy

Indicator 1.05 Psychological distress

Indicator 1.06 Potentially avoidable deaths

Indicator 1.07 Infant mortality rates

Indicator 1.08 Mortality for National Health Priority Area diseases and conditions

Introduction

The state of health of a population is the object of ultimate interest when evaluating health performance. A view of health status serves as a starting point for observations and also, with attributable changes over time, becomes a measure of success or failure of efforts to improve the population's health. Thus, in a performance framework, health status is examined along with identified health determinants and individual and population level health system interventions. Health outcomes, the changes that are wholly or partially attributable to a health service intervention, are measured by observing health status over the relevant period, which may be lagged from the intervention. Thus identical statistical constructs may be described sometimes as health status indicators and sometimes as indicators of health outcome. This explains the dual label 'health status and outcomes' for this first tier of the health performance framework.

Tier 1 of the framework (Table 3.1) selects four component views that bring together the traditional study of mortality and morbidity with a more recently developed focus on functioning and disability and summary measures of population health.

- Health conditions are measured through incidence and prevalence of disease.
- Human function focuses on disability evident in impairment of body function or structure, in activity restriction and participation limitation (taking account of environmental factors).
- Life expectancy and wellbeing encapsulate elements of mortality and disability in summary statistics, including life expectancy and other measures that incorporate disease and injury-related disability during life.
- Deaths by age and by causes of death provide the longest-standing indicators of health status. Death rates have shown significant improvement over the long term and provide important indicators of health inequality and of opportunity to reduce premature death.

Table 3.1: Tier 1 health system performance dimensions and selected indicators

Health status and outcomes (Tier 1) How healthy are Australians? Is it the same for everyone? Where is the most opportunity for improvement?			
Health conditions	**Human function**	**Life expectancy and wellbeing**	**Deaths**
1.01 Incidence of heart attacks 1.02 Incidence of cancer	1.03 Severe or profound core activity limitation	1.04 Life expectancy 1.05 Psychological distress	1.06 Potentially avoidable deaths 1.07 Infant mortality 1.08 Mortality for National Health Priority Area diseases and conditions

Investigation of health system performance extends beyond population averages, which can mask differences within a population. A focus on equity and distribution of health at all levels of the framework is encapsulated in the recurring question: 'is it the same for everyone?' This is intended to emphasise that performance appraisal must examine the impact of the health system on health inequality. For this tier, the question must be asked not only in respect of health status at a single point in time, but also in respect of changes over time.

The goal for the health system in this area is not equal health status, e.g. everyone dying at exactly the same age. There will be substantial variation in health outcomes for individuals due to chance, even if everyone faces the same chance of getting sick and dying (Gakidou et al. 2000).

Living longer

In 1970 Australia's life expectancy was 16th highest among OECD countries: now in 2001 it is third highest (Indicator 1.04).

The age-standardised mortality rate has fallen 50% in the period 1970 to 1999 which is faster than every other high income OECD country apart from Japan where the mortality rate fell 52% (OECD 2003b).

This rapid reduction in mortality rates is not slowing. The decline in mortality rates in the 5 years to 2001 was the greatest 5-year decline since 1923.

Much of the improvement in mortality has been due to a fall in heart disease mortality. This fall in mortality has been due to both a fall in the incidence of heart attacks, and better survival after heart attacks. In the period 1993–94 to 2000–01 the incidence of heart attacks for people aged 40 to 90 years fell 23%, and heart disease mortality fell 34% (Indicator 1.01).

Cancer is also a major killer, and here the results are more mixed. The incidence of cancer for males increased from 1983 to 1994, and then decreased, whereas the incidence rate for females has slowly increased from 1983 to 1995 and remained stable since then (Indicator 1.02).

Overall National Health Priority Area cancer death rates fell between 1980 and 2001 by 13% for males and 5% for females. There was a decrease in age-standardised lung cancer death rates for men, of 33%, but the rate for female deaths from lung cancer increased by 57%. This increase for women correlated with an increase in tobacco smoking in the 1970s. There is a time-lag of about 30 years between the damage done by tobacco to the lungs and the resulting lung cancer death. The lung cancer rate for women is expected to decline in the next 20 years because smoking rates decreased in the 1980s and 1990s.

Overall death rates from heart disease, stroke and cancer, which contribute to 59% of all deaths for males and 58% for females, have decreased 46% from 1980 to 2001 (Indicator 1.08).

Injury death rates have also fallen substantially—33% from 1980 to 2001. Much of the decrease was in motor vehicle accident deaths where there was a 62% decline in death rates—an annual average decline of 4.4%.

Other areas where death rates have shown substantial declines include illicit drug deaths and deaths due to human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS). HIV/AIDS emerged as a major problem in young and middle-aged men in the 1980s, and reported AIDS diagnosis and deaths peaked in 1994. Deaths were 737 in 1994, but since then have declined to 97 in 2001 (AIHW 2002b).

Mortality can be subdivided into those causes where premature deaths (deaths below 75 years) are potentially avoidable, whether it be by prevention or treatment, and those causes where premature death is mostly unavoidable.

In Australia potentially avoidable mortality has been steadily declining. It fell 55% for males and by 48% for females from 1980 to 2001. In contrast, mostly unavoidable mortality rates fell by 22% for males and 17% for females (Indicator 1.06).

Potentially avoidable mortality is subdivided into primary (prevention), secondary (early intervention) and tertiary (medical treatment) categories. The potentially avoidable mortality amenable to primary interventions fell by 42%, that amenable to secondary interventions fell by 53% and that amenable to tertiary interventions fell by 57%.

This decline in primary, secondary and tertiary avoidable mortality illustrates that the decline in mortality in Australia is due both to preventive and to treatment interventions.

Living healthier?

People are living longer—but are they healthier? As indicated, there is a significantly lower occurrence of heart disease, stroke and injury as compared to a decade ago (Indicator 1.01 and AIHW: de Looper & Bhatia (2001)). Overall, cancer incidence rates rose from 1983 to 1994, but there has been a decline from 1994 to 1999 (Indicator 1.02).

Between 1993 and 1998 the prevalence of severe and profound activity limitation that requires assistance showed an apparent increase, but this was largely the result of changes in survey methods (Indicator 1.03).

Diabetes mellitus is one of the most common chronic diseases of the Western world. Most developed countries have recorded increases in male diabetes mortality since the postwar period, with the Australian death rate for males increasing by 30% since 1950. Age, and the modifiable risk factors of obesity and physical activity, are the main determinants of the onset of Type 2 diabetes symptoms. The incidence of diabetes in Australia is rising significantly (Commonwealth Department of Health and Aged Care & AIHW 1999; AIHW 2002b). It is estimated that around 3% of the population have been diagnosed with diabetes mellitus and consider themselves to still have the condition (ABS 2003a:5).

Mental disorders impose a heavy burden of human suffering, accounting for 27% of healthy years of life lost due to all disabilities (AIHW: Mathers et al 1999). Mental illness also contributes, directly or indirectly, to the death of many Australians each year. About 10% of Australians self-report long term mental or behavioural problems (ABS 2003a:6), and 12.6% reported high or very high levels of psychological distress in 2001. This was an increase since the 8.2% reported in 1997, though some of this apparent increase may have been due to methodological differences between the 1997 and 2001 surveys (Indicator 1.05). Mental illness, especially depression, is projected to emerge as an even greater contributor to disease burden worldwide (Murray & Lopez 1996).

Disorders of the musculoskeletal system (joints, muscles and bones) are among the most common health conditions and have a large impact on wellbeing and use of resources. While they are not immediately life threatening, these conditions cause immense disability (AIHW 2002b:80). They accounted for 7% of the years of healthy life lost in 1996. It is estimated that 14% of Australians have some form of arthritis (ABS 2003a:3).

The prevalence of asthma in Australia is one of the highest in the world, with more than 2 million Australians estimated to be affected by the disease (ABS 1997a). Asthma prevalence is highest for those aged 5–14 years and more common amongst males than females for those aged up to 15 years. Compared to other countries, the prevalence of asthma among school aged children is one of the highest (AIHW 2002b:73).

Health inequality in Australia

There are still substantial health inequalities in Australia. For potentially avoidable mortality, for example, those living in the most disadvantaged areas have avoidable mortality rates 54% higher those living in the least disadvantaged areas. Data from NSW indicates that the absolute gap in avoidable mortality between the most and least disadvantaged areas has reduced in the last 20 years, but the relative mortality rate gap has widened (NSW Department of Health 2002).

The starkest health inequalities in Australia are those between the Aboriginal and Torres Strait Islander peoples and other Australians. Aboriginal and Torres Strait Islander peoples face life expectancies about 20 years lower than other Australians. Infant mortality is also twice as high. For diseases such as circulatory system disease the chance of dying is twice as high and for Aboriginal and Torres Strait Islander men and women aged between 35 and 64, the rate of death from diabetes was 20 times higher and 33 times higher respectively than that for other Australians. For external causes such as accidents, suicide and assault, the Aboriginal and Torres Strait Islander risk of dying was about 3 times higher than for other Australians (ABS & AIHW 2003).

There are mortality inequalities between those in the bush and those in cities. Much of this inequality is due to Aboriginal and Torres Strait Islander health disadvantage, but other factors such as economic disadvantage are at play as well.

The mortality burden of disadvantaged groups in Australia is high. It is 41% higher for males and 26% higher for females from the bottom socioeconomic quintile compared with the top socioeconomic quintile (AIHW: Mathers et al. 1999).

Indicator 1.01 Incidence of heart attacks

Indicator definition

Description: Incidence of acute coronary heart disease events ('heart attacks').

Numerator: The sum of (a) the number of deaths recorded as CHD deaths and (b) the number of non-fatal hospital separations for heart attack recorded as acute myocardial infarction (AMI), for people aged 40–90 years.

Denominator: People aged 40–90 years.

Presentation: Age-standardised rate per 100,000 population, standardised to the June 2001 Australian population.

Rationale and evidence

This measure uses routinely available data to track the incidence of acute CHD events or AMI, more commonly referred to as heart attacks. AMI involves the blockage of a coronary artery leading to the death of heart muscle tissue. AMI frequently results in death, often before admission to hospital. In 2000–01 CHD was the underlying cause of 21% of all deaths. People who survived had higher risks of a further event, but these risks can be reduced by access to appropriate treatments and modifications to life style.

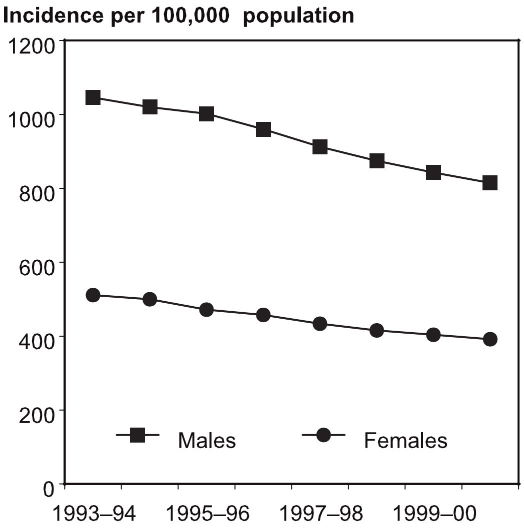
Changes in incidence of acute CHD events reflect the effectiveness of both primary and secondary preventive measures, as well as the effectiveness of heart disease treatments such as revascularisation.

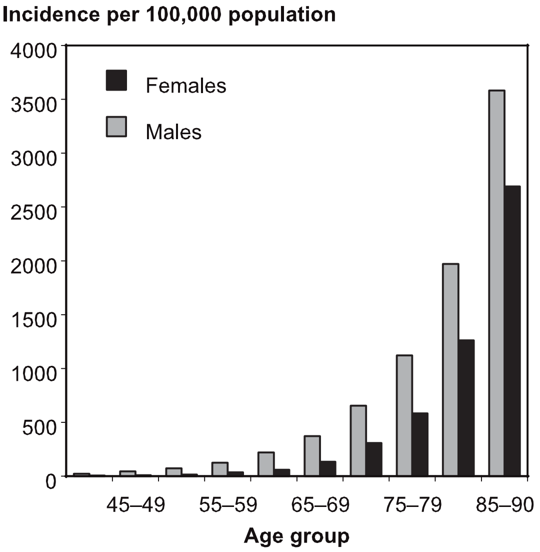
What the data show

- Between 1993–94 and 2000–01, the rate of acute coronary heart disease events fell by 22.1% for males and 23.3% for females, representing a fall of about 3% per year.
- In 2000–01 there were 48,238 acute CHD events among 40–90 year olds. If the rate of 1993–94 had applied in 2000–01, there would have been 62,406 heart attacks in 2000–01 (over 14,000 more).
- The number of deaths from CHD among 40 to 90 year olds in 2000–01 was 22,773 (see Indicator 1.08). Much of the 34% decline in the CHD death rate from 1993–94 to 2000–01 for 40 to 90 year olds was due to the fall in the incidence of acute CHD.
- This fall in acute CHD rate had two components. First, a reduction in first-ever heart attacks due to improvements in risk factor levels in the general population, such as smoking, high blood pressure and poor nutrition (AIHW: Mathur 2002). Second, a reduction in heart attacks for those who had already had one heart attack due to better management of the disease with changes in health behaviour, pharmaceutical treatment and surgical interventions like coronary artery bypass graft (AIHW: McElduff et al. 2002).
- A third to a half of the fall in heart disease incidence in the 1970s and 1980s can be attributed to risk factor changes (Dobson et al. 1993). No Australian analysis has been done for the 1990s to indicate which proportion of the fall was due to better surgical and drug treatment, and which was due to risk factor improvements, but overseas studies in

the United States and New Zealand (Hunink et al. 1997; Hu et al. 2000; Capewell 2000) have estimated that about half of the decline was due to better treatment and half was due to the net impact of risk factor changes.

- The fall in incidence has been greatest (21%–25%) for those in the age groups 65 to 84 for males and 40 to 84 for females. The fall was less for males in the age group 40–64 (16%) and males and females in the age-group 85–90 (5% and 4%, respectively) (AIHW: Mathur 2002).





Sources: AIHW National Hospital Morbidity Database; AIHW National Mortality Database. Methods described in AIHW: Mathur S 2002.

Notes

1. First graph displays age-standardised incidence rates.
2. Data are for financial years, reflecting how hospital admission data are collected in the National Hospital Morbidity Database. To align the mortality data, which are based on calendar years, with the hospital data, coronary deaths are averaged over consecutive years to obtain financial year data.
3. CHD codes ICD-9 are 410–414, ICD-10-AM codes are I20–I25; AMI ICD-9 code 410 and ICD-10-AM code I21.
4. For CHD, mortality data for 1997 and earlier have been multiplied by 1.01 to allow for the change in automated coding system by the Australian Bureau of Statistics (ABS).

Figure 1.01(a): CHD events, people aged 40–90 years, Australia, 1993–94 to 2000–01

Figure 1.01(b): Estimated CHD events per 1000,000 population using hospital morbidity data and mortality data, by age group, 2000–01

Indicator related to:

1.06 Potentially avoidable deaths

2.08 Physical inactivity

2.09 Overweight and obesity

2.11 High blood pressure

3.08 Survival following acute coronary heart disease event

3.19 Access to elective surgery

Indicator 1.02 Incidence of cancer

Indicator definition

Description:	Incidence rates for cancer.
Numerator:	New cases of registrable cancer.
Denominator:	Total population.
Presentation:	Age-standardised rate per 100,000 population, standardised to the June 2001 Australian population.

Rationale and evidence

Cancers are a major cause of disease burden. At current rates 1 in 3 men and 1 in 4 women will be directly affected by cancer in the first 75 years of life (AIHW & AACR 2002). This indicator tracks changes in incidence rates for registrable cancers, which are well reported through cancer registries in all jurisdictions.

Incidence rates are affected by underlying risk factors. For example, 10,619 (12.9%) new cases of cancer in 1999 were attributable to cigarette smoking (AIHW & AACR 2002). Incidence rates are also partly affected by strategies to improve early detection.

What the data show

- For all cancers, the incidence rate for males increased from 1983 to 1994 and then decreased, whereas in females the incidence rate slowly increased from 1983 to 1995 and remained stable since. Males have a greater incidence rate for all cancers than females. Cancer currently accounts for 31% of male deaths and 26% of female deaths.
- Between 1990 and 1999, the male incidence rate for cancers rose by an average of 0.3% per year, while the rate for females rose by 0.8% per year. Over the same period, mortality rates fell each year by 1.1% for males and 1.0% for females (AIHW & AACR 2002).
- A significant proportion of the rise in female incidence rate can be attributed to the continuing increase of breast cancer incidence, which in turn can be attributed in part to detection of cancers by breast screening programs. Female lung cancer incidence is also still increasing. The rise and then fall in male incidence rate in the 1990s is strongly influenced by the rise and fall in reported prostate cancer incidence rate. The introduction of prostate-specific antigen testing led to a short term increase in the reported incidence of prostate cancer in recent years, due to earlier detection of cancers which may otherwise have been detected in later years, or may not have been detected in the person's lifetime (AIHW & AACR 2002).
- In males, the most common causes of registrable cancer are prostate cancer, colorectal cancer, lung cancer and melanoma. Together, these four cancers account for 59% of all registrable cancers in males.
- In females, breast cancer is the most common registrable cancer, followed by colorectal cancer, melanoma and lung cancer. These four cancers account for 59% of all registrable cancers in females.

- Between 1990 and 1999, the male incidence rate for smoking-related cancers fell by an average of 1.4% per year, while the rate for females rose by 0.8% per year. Over the same period, mortality rates fell each year by 1.7% for males and rose by 0.8% for females (AIHW & AACR 2002).

Table 1.02: Age standardised incidence rates per 100,000 population for selected cancers and all cancers, Australia, 1999

Rate per 100,000 persons	Colorectal	Melanoma	Lung	Prostate	Breast	Cervix	Non-Hodgkin's lymphoma	All cancers
Males	74.4	53.3	63.8	125.3			21.0	533.7
Females	54.1	37.4	25.7		110.6	8.2	14.9	383.1

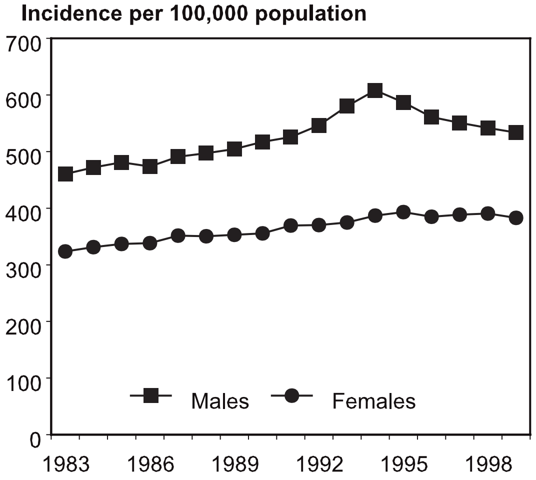


Figure 1.02(a): Incidence rates for all cancers, by sex, Australia, 1983–1999

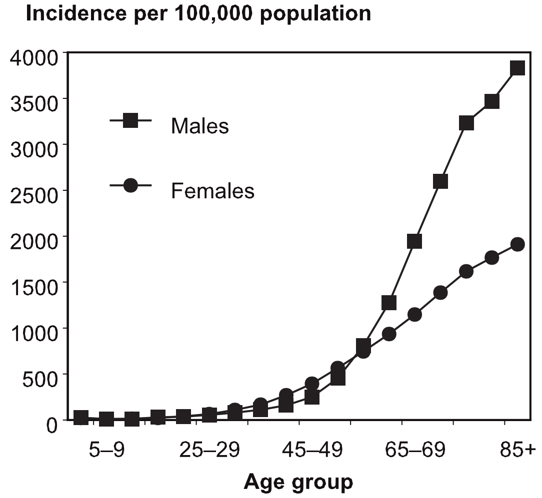


Figure 1.02(b): Incidence rates for all cancers, by age and sex, 1999, Australia

Sources: AIHW & AACR (2002); AIHW (unpub.)

Notes for Table 1.02(a), Figures 1.02(a) and 1.02(b):

- The 'All cancers' group covers all malignant neoplasms (ICD 10 codes C00–C96) excluding non-melanocytic skin cancer (C44) which is not a registrable cancer, and so is not comprehensively recorded in cancer registries. See Appendix 3 for codes of selected cancers.
- All rates are expressed per 100,000 males and per 100,000 females and are age standardised to the June 2001 Australian population.

Indicator related to:

1.06 Potentially avoidable deaths

1.08 Mortality for NHPA diseases and conditions

2.05 Adult smoking

2.07 Fruit and vegetable intake

3.03 Cervical screening

3.04 Breast cancer screening

3.09 Cancer survival

Indicator 1.03 Severe or profound core activity limitation

Indicator definition

Description: Severe or profound core activity limitation by age and sex.

Numerator: Those people who experience severe or profound activity limitations, such that they always or sometimes need assistance with particular activities.

Denominator: The population aged 5 years and over, 1988, 1993 and 1998.

Presentation: Age-standardised percentage, standardised to the June 2001 Australian population. Disability data have been adjusted using criteria common to the three Disability surveys.

Core activities are self-care, mobility and communication (See Appendix 3 for details).

A core activity limitation may be:

- profound—unable to perform a core activity or always needing assistance;
- severe—sometimes needing assistance to perform a core activity, has difficulty understanding or being understood by friends or family, communicates more easily using non-spoken forms of communication;
- moderate—not needing assistance, but having difficulty performing a core activity; or
- mild (See Appendix 3 for details of mild core activity restriction).

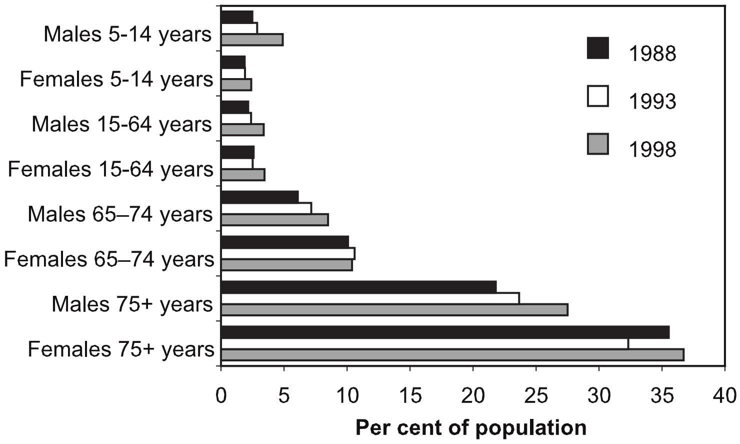
Rationale and evidence

This indicator summarises the extent of severe disability in the community. It is partially a measure of the effectiveness of the health system in preventing or treating disability. It also is an indication of the level of resources and support required to assist people with disabilities.

What the data show

- In 1998, the prevalence of severe or profound activity limitation was 6.1% (1,135,900 people) (ABS: Davis et al. 2001).
- The prevalence rate of severe or profound activity limitation for people of all ages was similar in 1988 and 1993 (about 4%), however this rate increased to 6.1% in 1998. (Note: these ABS (2001) numbers are not age-standardised).
- It has been suggested that over half (1.2 percentage points) of the increase in the rate of severe or profound activity limitation was attributable to changes in survey methods from 1993 to 1998. About 0.3 percentage points resulted from changes in the population age structure, and the remaining 0.5 percentage points could be explained by increased awareness of disability, increased willingness to report disability and/or actual increased severe or profound activity limitations (AIHW 2001a; ABS: Davis et al. 2001).
- In all years, females had a higher overall prevalence of severe and profound activity limitation than males. In 1998 it was 5.9% for females and 5.5% for males (age-standardised to the June 2001 population).

- The increase in 1998 of the prevalence of severe and profound activity limitation among boys 5 to 14 years was largely due to an increase in reports of attention deficit hyperactivity disorder (ADHD). The 4.9% prevalence in 1998 represented 37,000 children, of which 25,983 were children with ADHD. The increase in reported ADHD may be due to the change in the screening questions in the 1998 survey, an increase in the awareness of ADHD and/or a real increase in the condition.
- The difference between males and females in the prevalence rate for profound or severe activity limitation differs between age groups. For those aged between 5 and 14 years in 1998, the age-standardised prevalence rate for males (4.9%) was approximately two times higher than for females (2.4%). This was in contrast to those aged 65 to 74 years, where the age-standardised prevalence rate for females (10.4%) is 1.23 times the rate for males (8.5%). For those 75 and over, the female rate is 1.33 times the male rate. For those aged between 15 and 64, the prevalence rate was similar for males (3.4%) and females (3.5%).



Source: AIHW analysis of ABS 1998 Survey of disability, ageing and carers, ABS (1999).

Notes

1. Disability data were re-derived using criteria common to the three surveys.
2. Only people aged 5 years and over are included. Information on severity of core activity limitation among children aged under 5 years was collected in the 1998 survey but not in the previous surveys. These data are adjusted by the ABS to allow for some of the differences that occurred between 1993 and 1998 due to changes in the survey questions and protocol (ABS: Davis et al. 2001).
3. The rates are age-standardised against the June 2001 Australian population.

Figure 1.03: Prevalence rates of severe and profound core activity limitation, 1988, 1993 and 1998, Australia

Indicator related to:

2.04 Informal care

3.25 Health workforce

Indicator 1.04 Life expectancy

Indicator definition

Description: Life expectancy at birth.

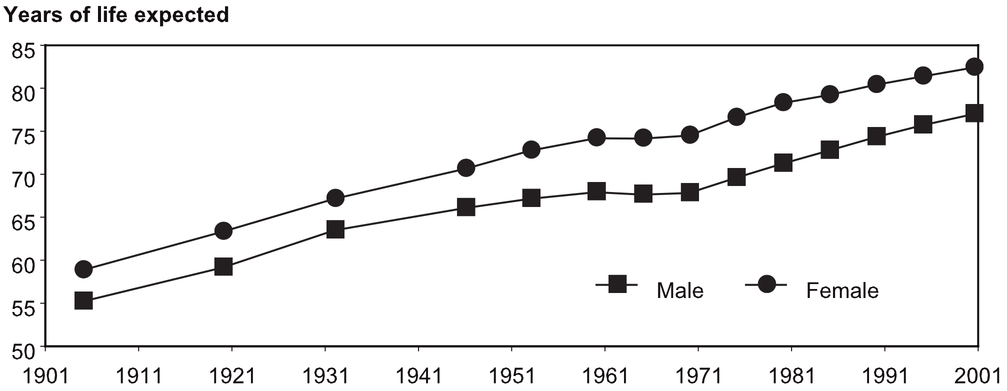
Presentation: Life expectancy represents the number of years a person born now could expect to live if they experienced mortality rates at each age that are currently experienced by the total (male or female) population.

Rationale and evidence

Life expectancy is a fundamental measure of health status. It is affected by many factors including socioeconomic status, the quality of the health system and the ability of people to access it, biomedical risk factors, social factors and genetic factors. The improvement in life expectancy that is due to the health system cannot be easily disentangled from other factors, but a number of recent analyses (Or 2000) indicate the health system has a major impact on life expectancy.

What the data show

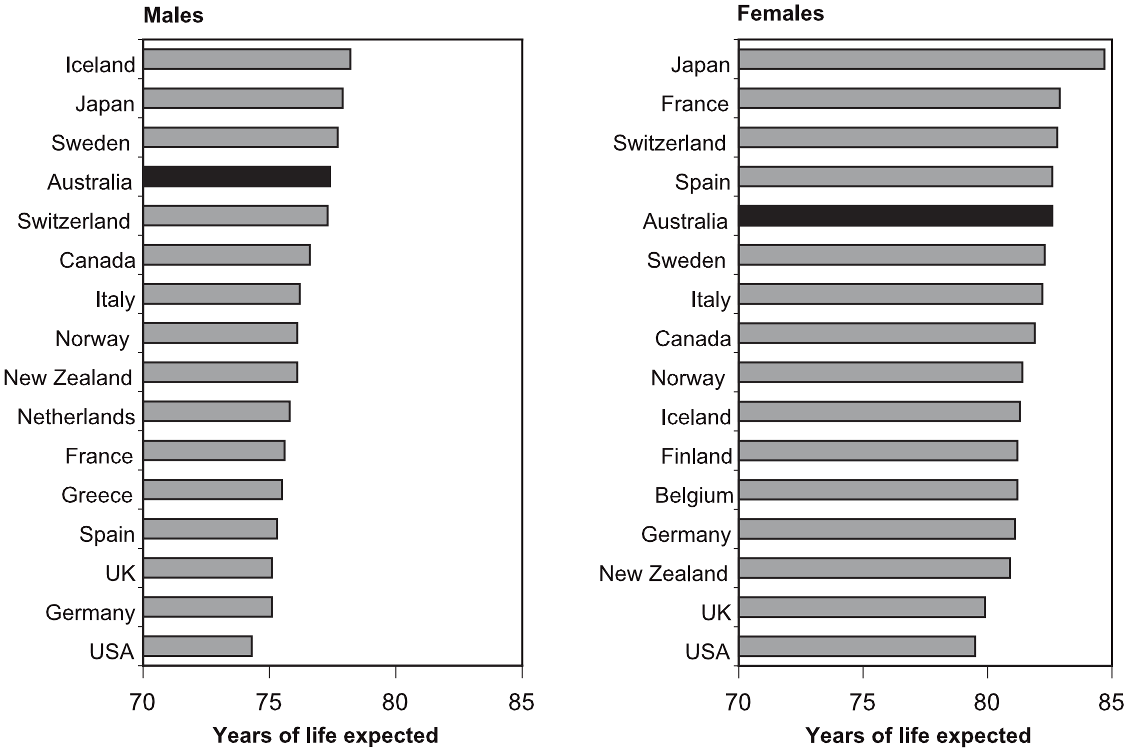
- The latest available data suggest that the Australian population continues to have one of the highest life expectancies in the world. The expected life span of people born in Australia in 2001 was 80.0 years for all people (equal third highest of OECD countries) 77.4 years for males (fourth highest) and 82.6 years for females (equal fourth). In 2001, Iceland had the highest life expectancy for males (78.2 years) and Japan had the highest life expectancy for females (84.7 years).
- From 1901–1910 to 1999–2001, life expectancy at birth increased by 21.8 years for males and 23.6 years for females.
- Mortality rates in Australia have reduced in the last 30 years at a faster rate than all other high-income OECD countries, bar Japan. (AIHW calculation using OECD (2003b)).
- Aboriginal and Torres Strait Islander peoples, for both males and females, had about 20 years lower life expectancy than non-Indigenous Australians. (Life expectancy at birth is currently 56 years among males and 63 years among females) (ABS 2002c). The high infant mortality rate for the Aboriginal and Torres Strait Islander population accounts for only 1 year of the 20-year difference in life expectancy between the Aboriginal and Torres Strait Islander population and the total population. The lower life expectancy for the Aboriginal and Torres Strait Islander population is largely due to much higher mortality rates in adulthood, especially between the ages of 45 and 65 years (ABS 2003a).
- Trends in Aboriginal and Torres Strait Islander mortality are difficult to discern due to changes in identification of Aboriginal and Torres Strait Islander peoples and other data quality issues. Even for those States and Territories—Western Australia, the Northern Territory and South Australia—with the most reliable data, no definite conclusions can be made about changes in mortality from 1991 to 2001 among Aboriginal and Torres Strait Islander Australians (ABS & AIHW 2003:188; ABS 2001a:27).



Sources: Australian Government Actuary (1999); ABS (2002c).

Note: See Appendix 3 for actual year ranges.

Figure 1.04(a): Life expectancy at birth, Australia, 1901 to 2001



Source: WHO (2002b).

Note: Only OECD countries are included, but data are sourced from the World Health Organization (WHO).

Figure 1.04(b): Life expectancy at birth, selected OECD countries, 2001

Indicator related to:

All indicators

1.08 Mortality for National Health Priority Area diseases and conditions

Indicator 1.05 Psychological distress

Indicator definition

Description: Level of psychological distress as measured by the Kessler 10.

Numerator: People with very high, high, moderate or low levels of psychological stress (as measured by the Kessler 10 (K10) survey instrument (Andrews & Slade 2001)).

Denominator: Australian population.

Presentation: Age-standardised proportion, standardised to the June 2001 Australian population.

Psychological distress is a major risk factor for mental disorders. The likelihood of having a mental disorder, particularly depression or anxiety, increases with the level of psychological distress as measured by the K10 scale (Andrews & Slade 2001).

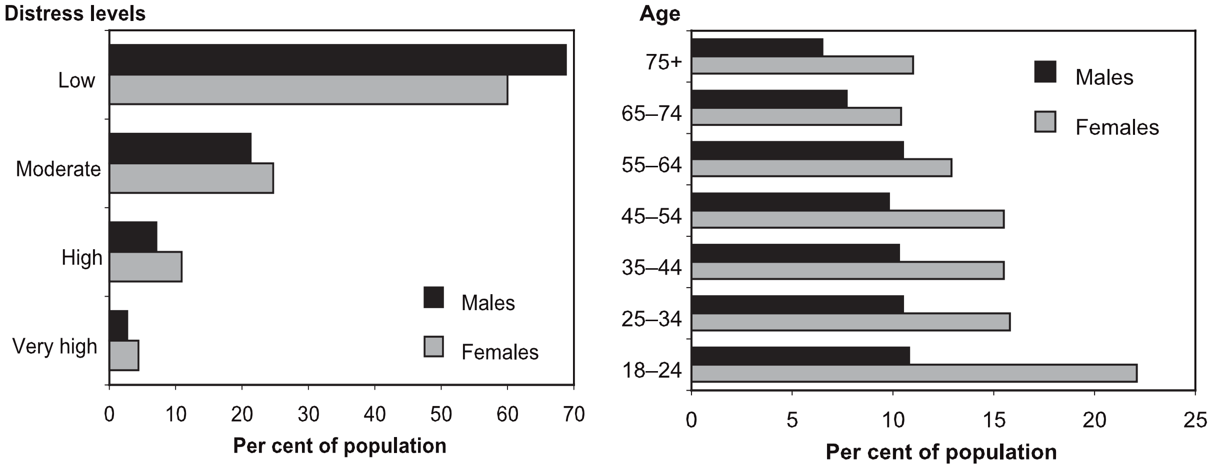
Mental health is designated a national health priority area for Australia and is the subject of a national strategy and action plan. Each year, almost one in five adults (18%) experiences a mental disorder. Depression is the fourth largest cause of years of life lost due to disability and premature death in Australia, and is among the top ten health problems managed by GPs (AIHW: Mathers et al. 1999; AIHW: Britt et al. 2001).

What the data show

- The ABS 2001 National Health Survey included a set of ten questions (K10) to measure psychological distress over the previous four-week period. These K10 questions cover the major domains of anxiety, depression and worry (such as nervousness, hopelessness, restlessness, depression, sadness and worthlessness) (ABS 2003c).
- K10 scores were grouped into four categories: low (indicating little or no psychological distress); moderate; high; and very high levels of psychological distress. Almost two-thirds (64.3%) of Australians aged 18 years and over were classified to low levels of psychological distress, 23.0% to moderate levels, 9.0% to high levels, and 3.6% to very high levels on the basis of their K10 score in the 2001 National Health Survey.
- A greater proportion of females (15.3%) than males (9.8%) reported a high or very high level of psychological distress in 2001. Of those who had very high levels of distress, 63% were females.
- The proportion reporting high or very high levels of psychological distress was highest among females aged 18–24 years (22.1%), and the rate declined with age thereafter. In males, the proportion was equally distributed at around 10% in all age groups up to 64 years, before declining in older age groups.
- The proportion of adults reporting a high or very high level of psychological distress in the 2001 National Health Survey (12.6%) was higher than in the 1997 Survey of Mental Health and Wellbeing (8.2%) (ABS 1998). The increase was greater in females (from 9.4% to 15.3%) than males (from 7.2% to 9.8%). Differences in survey methodologies between the 1997 and 2001 surveys may have influenced the apparent trend (ABS 2003c).
- An upward trend, although relatively smaller, in the reporting of high or very high levels of psychological distress was also observed in New South Wales health surveys,

which collected K10 data using consistent methods in 1997, 1998 and 2002 among those aged 16 years and over.

- The proportion of New South Wales residents reporting a high or very high level of psychological distress increased from 11.1 % in 1997 to 12.2% in 2002. The increase was observed in both males (from 9.2% to 10.5%) and females (from 12.9% to 14.0%) (NSW Department of Health).



Sources: ABS (2002e).

Notes

1. As measured by the K10 scale, from which a score of 10 to 50 is produced.
2. Age-standardised percentages.
3. Figure for men aged 75 and over is an estimate, has a relative standard error of between 25% and 50%, and should be used with caution.

Figure 1.05(a): Levels of psychological distress by sex, Australia, 2001

Figure 1.05(b): High or very high levels of psychological distress by age and sex, Australia, 2001

Indicator related to:

1.08 Mortality for National Health Priority Area diseases and conditions (suicide)	Also can be viewed as a determinant of health (Tier 2)

Indicator 1.06 Potentially avoidable deaths

Indicator definition

Description: Number of potentially avoidable deaths.

Numerator: Number of avoidable deaths (categorised as potentially avoidable within the present health system).

Denominator: People aged less than 75 years.

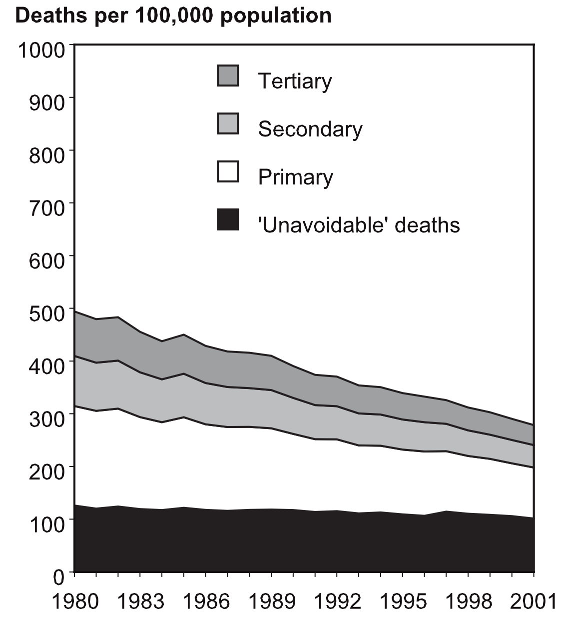
Presentation: Age-standardised rates per 100,000 population, standardised to the June 2001 Australian population.

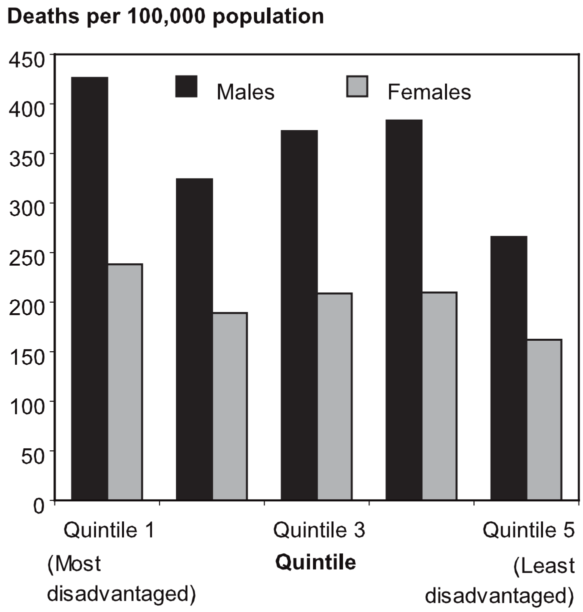
Rationale and evidence

Deaths classified as 'avoidable' are those that potentially could be avoided through the activities of the health and related sectors (Tobias and Jackson 2001; New Zealand Ministry of Health 1999). Potentially avoidable deaths can be assigned to primary (prevention), secondary (early intervention) and tertiary (medical treatment) levels of health intervention. This indicator provides a sense of where opportunities exist to reduce mortality across socioeconomic differentials through primary, secondary and tertiary interventions. This measure is similar but more comprehensive than those used to monitor potentially avoidable deaths in other countries (Tobias and Jackson 2001; Holland et al. 1994; Wood et al. 1999).

What the data show

- For the period 1980–2001, there was a marked decrease in potentially avoidable mortality for males and females.
- Between 1980 and 2001, the overall mortality rate decreased by 33.4% for males and 29.4% for females. This decrease in overall mortality rate included a decrease in mostly avoidable mortality of 54.6% for males and 48.0% for females, and a decrease in mostly unavoidable mortality of 21.7% for males and 17.0% for females.
- The higher rate of potentially avoidable mortality for males than females partly reflected higher rate of ischaemic heart disease in males, and also higher rate of deaths due to injury (mostly motor vehicle accidents and suicides).
- Between 1980 and 2001, primary, secondary and tertiary avoidable mortality decreased. The patterns in decrease were different for males and females. For males, the largest decrease was for tertiary avoidable mortality (58.7%) followed by secondary avoidable mortality (57.2%) and primary avoidable mortality (51.9%). For females, the largest decrease was for secondary avoidable mortality (53.7%), tertiary avoidable mortality (49.5%) and then primary avoidable mortality (43.3%). Potentially avoidable mortality varied significantly between the five socioeconomic groups measured using the socioeconomic index for areas (SEIFA) index of relative disadvantage. As the socioeconomic status of an area increased, the age-standardised rate of avoidable mortality decreased. Males in the most disadvantaged areas (quintile 1) had (on average) avoidable age-standardised death rates 60.5% higher than males in the least disadvantaged category (quintile 5). Females in quintile 1 had avoidable mortality rates 47.1% higher than females in quintile 5.





Source: AIHW (unpub.)

Notes

1. Rates are per 100,000 population and are age-standardised to the June 2001 Australian population.
2. Methods used derive from the following publications: New Zealand Ministry of Health (1999), NSW Department of Health (2002). Available at: <http://www.health.nsw.gov.au/public-health/chorep/toc/pre_foreword.htm>. Accessed April 2003.

Figure 1.06(a): Primary, secondary and tertiary potentially avoidable mortality and 'unavoidable' mortality rates, 1980–2001, Australia

Figure 1.06(b): Potentially avoidable mortality rates by SEIFA quintile 2001, Australia

Indicator related to:

1.01 Incidence of heart attacks

1.02 Incidence of cancer

1.07 Infant mortality

1.08 Mortality for NHPA diseases and conditions

2.05 Adult smoking

2.06 Risky alcohol consumption

2.07 Fruit and vegetable intake

2.08 Physical inactivity

2.09 Overweight and obesity

2.10 Low birthweight babies

3.03 Cervical screening

3.04 Breast cancer screening

3.05 Childhood immunisation

3.06 Influenza vaccination

Indicator 1.07 Infant mortality

Indicator definition

Description:	Infant mortality rates.
Numerator:	Number of deaths of infants younger than one year (deaths registered with Registries of Births, Deaths and Marriages).
Denominator:	Number of live births (births registered with Registries of Births, Deaths and Marriages).
Presentation:	Rates expressed as deaths per 1,000 live births.

Rationale and evidence

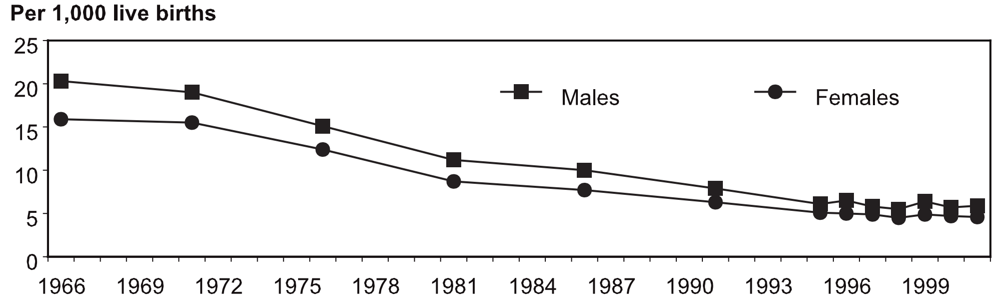
Infant mortality rates have been used as a measure of health system performance for many years, especially in developing countries. Infant mortality is an indicator of the quality of antenatal care, the effectiveness of obstetric services and the quality of infant care in the hospital and in the community. A high infant mortality rate is also associated with poor social conditions. The large reductions in infant mortality in the first half of the twentieth century were due to improvements in social and public health conditions and, later, the development of immunisation, the ensuing mass vaccination campaigns and the effective use of antibiotics. Recent reductions have been due to better treatment and the implementation of interventions such as the promotion of a prone sleeping position to prevent sudden infant death syndrome (SIDS).

What the data show

- Infant mortality decreased significantly during the last third of the century from 18.2 deaths per 1000 live births in 1966 to 5.3 in 2001. It has remained roughly constant over the period 1996 to 2001. In 2001, the infant mortality rate was 5.3 deaths per 1,000 live births (5.9 for males and 4.6 for females) (ABS 2002c; ABS 1994).
- Among 28 OECD countries, Australia had the sixteenth highest infant mortality rate in 2000. Australia was eleventh in 1980. Australia, at 5.2 deaths per 1,000 live births in 2000, had significantly worse infant mortality rates than countries such as Sweden (3.4) and Iceland (3.0), even though overall life expectancy is similar to these countries. Australia's infant mortality rate is relatively high, partly because the Aboriginal and Torres Strait Islander infant mortality rate is so high (OECD 2003a). If the Aboriginal and Torres Strait Islander infant mortality rate was at the same level as the rate for non-Indigenous Australians, Australia would have had the tenth lowest infant mortality rate in 2000, not the sixteenth lowest.
- Since the late 1960s, when Aboriginal and Torres Strait Islander infant mortality estimates were first recorded, Aboriginal and Torres Strait Islander infant mortality rates have been much higher than for the total Australian population, despite significant decreases over the period for Aboriginal and Torres Strait Islander infants (Taylor J 2003).
- In 1999–2001 the Aboriginal and Torres Strait Islander infant mortality rate for Western Australia (WA), South Australia (SA) and the Northern Territory (NT) (16.0 deaths per

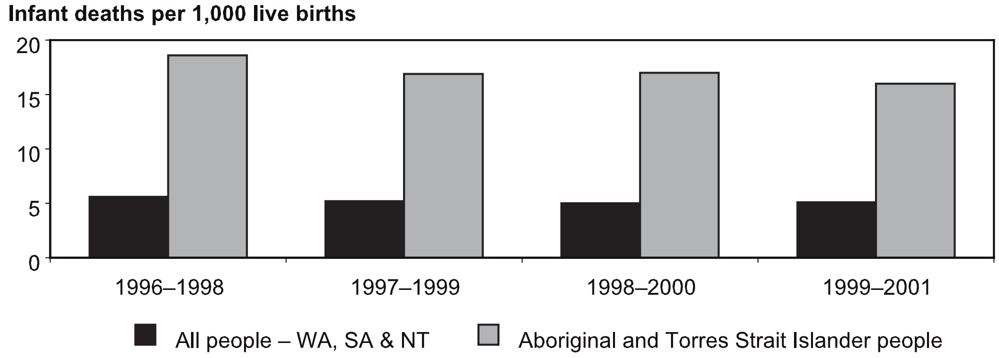
1000 live births) was three times the rate of all Australians (5.1). Over the period 1996–1998 to 1999–2001, Aboriginal and Torres Strait Islander infant mortality decreased by 14% from 18.6 deaths per 1,000 births to 16.0.

- Australian Aboriginal and Torres Strait Islander infant mortality rates are much higher than the corresponding Indigenous infant mortality rates of New Zealand, Canada and the United States (ABS 2001a).



Sources: ABS (2002c); ABS (1994).

Figure 1.07(a): Infant mortality rates, Australia, 1966–2001



Sources: AIHW National Mortality Database; ABS (2002b).

Notes

1. Only Western Australia, South Australia and the Northern Territory have been included in the graphs as it is only for these States and Territory that there are reasonably reliable data over the whole period. Queensland data is reliable from 1998 on (Queensland data in Appendix 2). Even for these States with reasonably reliable data, the trend over time in mortality rates must be interpreted cautiously, as identification of Aboriginal and Torres Strait Islander people is inconsistent and numbers are small. The infant mortality rate for the Aboriginal and Torres Strait Islander population for Queensland, Western Australia, South Australia and the Northern Territory in 1999–2001 was 14.2 deaths per 1,000 live births compared with the 16.0 deaths per 1,000 live births for WA, SA and the NT.
2. The graph excludes infants for whom Aboriginal and Torres Strait Islander status was unknown or missing (4 deaths in 1999, 8 deaths in 2000 and 15 deaths in 2001).
3. Deaths are by year of registration.

Figure 1.07(b): Infant mortality rates per 1,000 live births, by Aboriginal and Torres Strait Islander status, for Western Australia, South Australia and the Northern Territory, 1996–1998 to 1999–2001

Indicator related to:

1.06 Potentially avoidable deaths	2.10 Low birthweight babies

Indicator 1.08 Mortality for National Health Priority Area diseases and conditions

Indicator definition

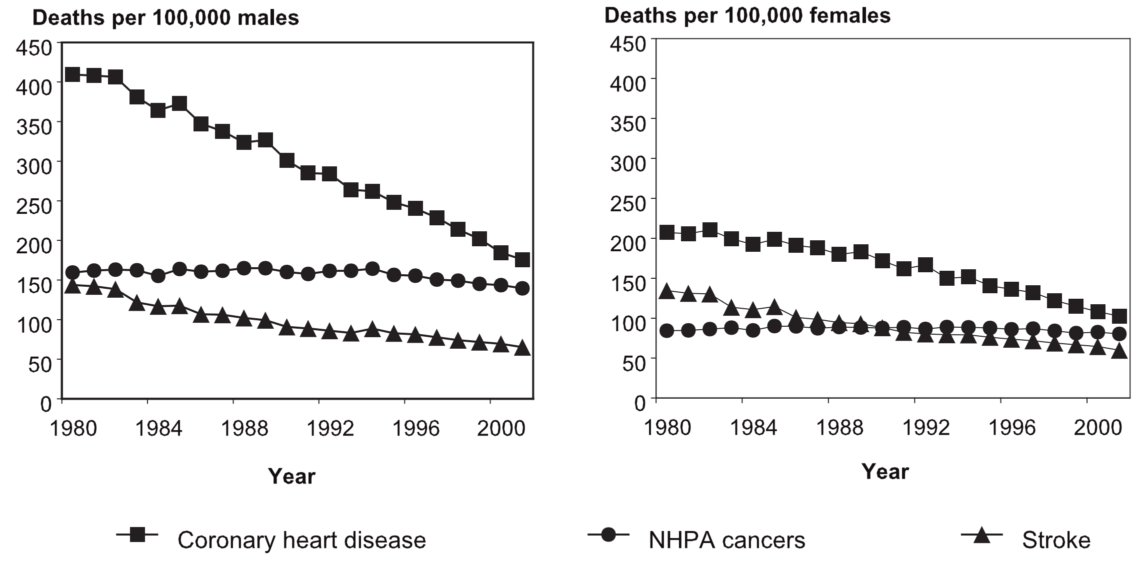
Description:	Death rates for National Health Priority Area (NHPA) diseases and conditions.
Numerator:	Number of deaths due to NHPA diseases and conditions (codes provided in Appendix 3).
Denominator:	Population of Australia.
Presentation:	Age-standardised death rates per 100,000 population, standardised to the June 2001 Australian population.

Rationale and evidence

Diseases and conditions selected for attention under the NHPA initiative are underlying causes of more than 54% of deaths in Australia. In addition, they contribute indirectly to deaths directly attributed to other causes. Tracking trends in NHPA death rates is important for understanding the long-term impact of the NHPA initiative.

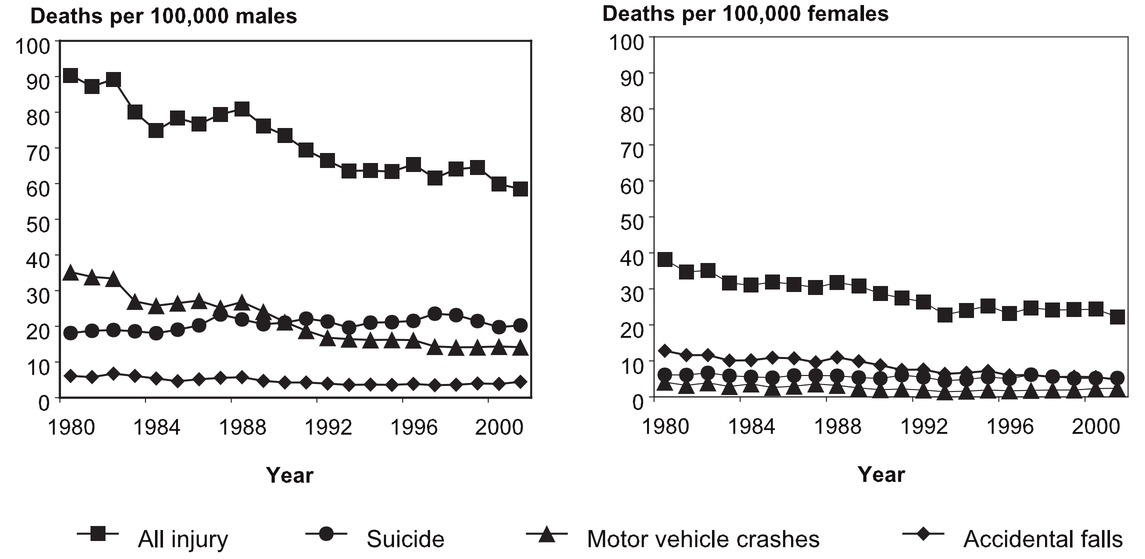
What the data show

- Death rates are a useful indicator of underlying trends in the health and wellbeing of a population. Deaths data offer the best available time-series to assess health performance and outcomes in Australia in the long term.
- NHPA diseases and conditions were responsible for more than 56% of male and 52% of female deaths in 2001. CHD and stroke were the leading underlying causes of death, followed by injuries and lung cancer. In addition, many of the NHPA diseases, such as diabetes, indirectly contribute to a large number of deaths otherwise attributed to non-NHPA causes.
- NHPA deaths show significant variation in age- and sex-related patterns. While injuries are a leading cause of death in younger age groups, CHD and stroke dominate the profile in older age groups. In all cases, death rates for males are higher than for females.
- A 43% reduction has occurred in death rates for the NHPA diseases and conditions from 1980 to 2001. CHD death rates fell by 54%, stroke death rates fell by 55%, breast cancer death rates fell by 14% and male lung cancer death rates fell by 33%. A large proportion of these reductions can be attributed to changes in risk factors, in particular to a reduction in tobacco smoking. (Female lung cancer death rates increased by 57% over the same period due to smoking increases among women during the 1970s. However, as female smoking decreased in the 1980s and 1990s, it is expected that female lung cancer rates will decline over the next 20 years.)
- No clear long-term trends have emerged in death rates for diabetes and asthma, although, in general, diabetes deaths have increased. The inconsistency in long-term trends may be due to variations in diagnostic criteria and/or to undetermined changes in underlying risk factors and disease management.



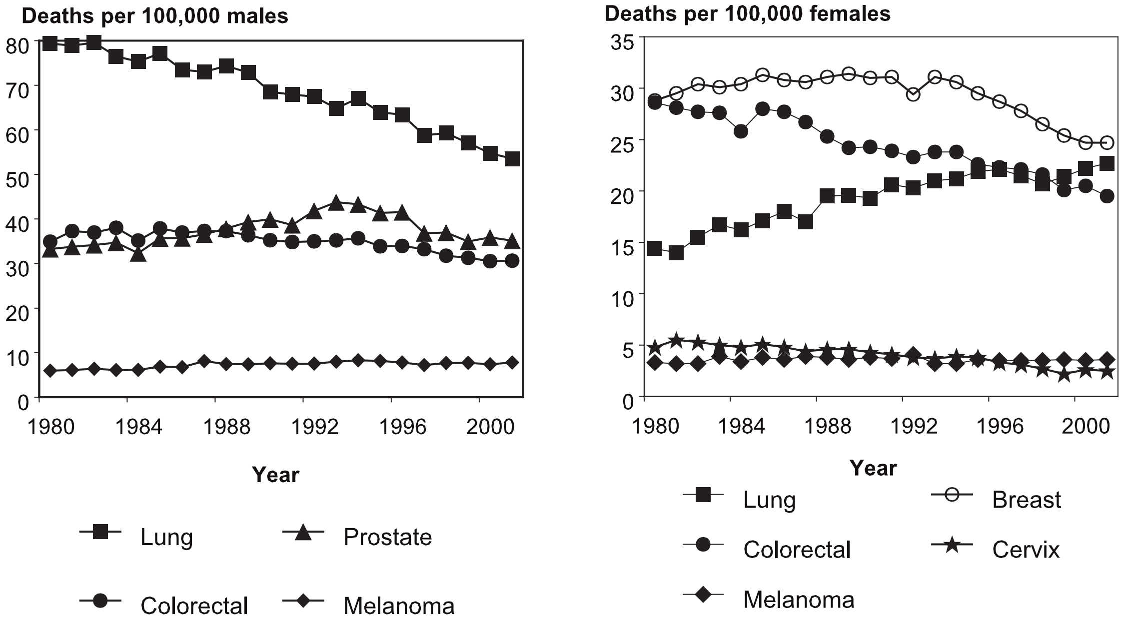
Source: AIHW National Mortality Database (this is a mirror of the ABS mortality database).

Figure 1.08(a): Death rates for selected NHPA diseases and conditions, Australia, 1980–2001



Source: AIHW National Mortality Database (this is a mirror of the ABS mortality database).

Figure 1.08(b): Death rates for selected NHPA diseases & conditions, injuries, Australia, 1980–2001



Source: AIHW National Mortality Database (this is a mirror of the ABS mortality database).

Figure 1.08(c): Death rates for NHPA cancers, Australia, 1980–2001

4 Determinants of health

Indicator 2.01 Children exposed to tobacco smoke in the home

Indicator 2.02 Availability of fluoridated water

Indicator 2.03 Income inequality

Indicator 2.04 Informal care

Indicator 2.05 Adult smoking

Indicator 2.06 Risky alcohol consumption

Indicator 2.07 Fruit and vegetable intake

Indicator 2.08 Physical inactivity

Indicator 2.09 Overweight and obesity

Indicator 2.10 Low birthweight babies

Indicator 2.11 High blood pressure

Introduction

The factors involved in the development of disease are likely to begin years before the onset of disease, through complex interactions between individual people, their environment and broad socioeconomic factors.

'Determinants of health' is the term used for factors that affect health at the individual or population level. These factors can be classified into proximal factors (those acting almost directly to cause disease, such as tobacco smoking); and distal causes that are further back in the causal chain and act via a number of intermediary causes (such as socioeconomic status). Individuals have a degree of control over some determinants (such as physical inactivity), but other determinants act primarily or entirely at a population level (such as the fluoridation of drinking water).

Reliable information on the size and distribution of determinants of health is crucial for:

- evaluating the effects of current health and social policies;
- developing and prioritising strategies for health gain;
- highlighting areas for possible intersectoral action; and
- determining research priorities.

Figure 4.1 shows the dimensions of health determinants included in the national health performance framework and selected indicators presented in this report.

Table 4.1: Tier 2 health system performance dimensions and selected indicators

Determinants of health (Tier 2) Are the factors that determine good health changing for the better? Is it the same for everyone? Where and for whom are these factors changing?				
Environmental factors	**Socioeconomic factors**	**Community capacity**	**Health behaviours**	**Person-related factors**
2.01 Children exposed to tobacco smoke in the home 2.02 Availability of fluoridated water	2.03 Income inequality	2.04 Informal care	2.05 Adult smoking 2.06 Risky alcohol consumption 2.07 Fruit and vegetable intake 2.08 Physical inactivity 2.09 Overweight and obesity	2.10 Low birthweight babies 2.11 High blood pressure

This report considers determinants of health that are protective as well as hazardous—it presents information about the protective benefits of water fluoridation, fruit and vegetable intake and physical activity. It highlights important negative trends in levels of overweight and obesity, insufficient physical activity, and risky patterns of alcohol consumption.

- In 2001, 58% of adult males and 42% of adult females were overweight or obese (Indicator 2.09), and this was much higher than in 1995.
- In 2001, 13% of males and 9% of females reported risky levels of drinking (Indicator 2.06).

- In 2000, 54% of Australians were insufficiently active to achieve a health benefit (Indicator 2.08) and this was worse than in 1997.

These disturbing trends are accompanied by some more positive ones.

- The prevalence of high blood pressure has continued to drop. Over the period 1980 to 1999–2000, the prevalence of high blood pressure halved to 21% among adult males and to 16% among adult females (Indicator 2.11).
- Tobacco use continues to decline. Daily smoking dropped from 33% of males 14 years and over in 1985 to 21% in 2001, and female daily smoking dropped from 26% in 1985 to 18% in 2001. However, smoking is still responsible for more deaths and disability than any other health behaviour, and smoking rates vary dramatically according to socioeconomic status and the health status of Aboriginal and Torres Strait Islander persons (Indicator 2.05).
- Around 780,000 Australian children aged 0–14 years are still exposed to environmental tobacco smoke at home, though the proportion of households with dependent children where someone smoked inside dropped from 31% in 1995 to 20% in 2001 (Indicator 2.01).

By presenting discrete information on individual indicators, this report provides only a limited picture of how determinants of health may act jointly to cause disease. For example, globally, 50% of cardiovascular disease among people aged 30 years and over can be attributed to high blood pressure, 31% to high blood cholesterol and 14% to tobacco, but the joint effect of these three risks amounts to about 65% of cardiovascular disease (WHO 2002b).

Although the determinants of health are increasingly well characterised and well reported, comparatively few resources are currently directed towards improving them (AIHW 2002g). Expenditure on preventive and promotional services, as a proportion of total health expenditure, has remained static over the last 30 years (Deeble 1999). The *World Health Report 2002* (WHO 2002b) focuses on the health gains—and reductions in health inequalities—that can be achieved by tackling the determinants of health.

The *World Health Report* (WHO 2002b) identifies a number of interventions that are cost-effective in all settings, including: population-wide salt- and cholesterol-lowering strategies; taxes on tobacco products; strategies to improve the safety of water supplies and measures to encourage safe injecting practices. The report recommends that governments should:

- play a stronger role in formulating risk prevention policies, including more support for scientific research and improved surveillance systems;
- give top priority to developing effective strategies for the prevention of large risks to health such as tobacco use, unhealthy diet, obesity and unsafe sex;
- use cost-effectiveness analyses to prioritise interventions;
- increase intersectoral and international collaboration to reduce major extraneous risks to health, such as lack of education; and
- seek to strike a balance between government, community and individual action (WHO 2002b).

Indicator 2.01 Children exposed to tobacco smoke in the home

Indicator definition

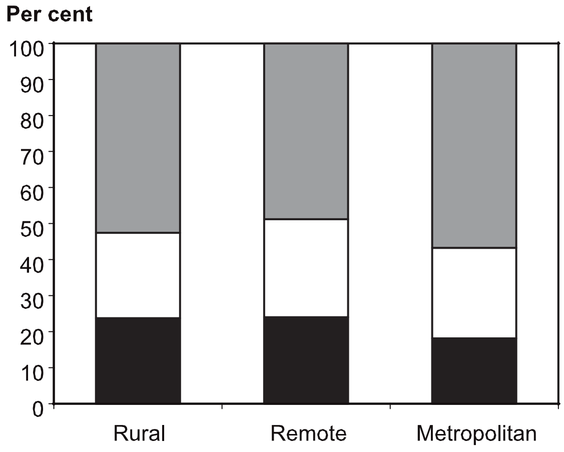
Description:	The proportion of households with dependent children (0–14 years) where adults report smoking inside.
Numerator:	Households with a household member who smokes inside that contain any dependent children aged 0–14 years (as reported by a member of that household).
Denominator:	Households with dependent children aged 0–14 years.
Presentation:	Percentage of households by household smoking status.

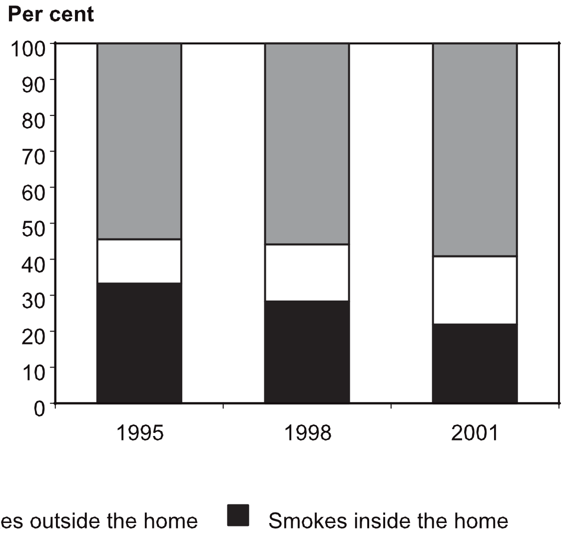
Rationale and evidence

The home is the most important source of exposure to environmental tobacco smoke for children. Children are particularly susceptible to the effects of environmental tobacco smoke. Passive smoking increase the risk of lower respiratory tract infections, middle ear disease, onset and worsening of asthma, decreased lung function, eye and nose irritation, low birthweight and SIDS in children (NHMRC 1997b; National Drug Strategy 2002). The benefits of reducing children's exposure to environmental tobacco smoke at home also include reduced school absenteeism, possibly increased school performance, reduced uptake of smoking and decreased consumption of tobacco among children who smoke (National Drug Strategy 2002).

What the data show

- In 2001, 44.6% of all Australian households with children under the age of 15 years contained people who were regular smokers. Nearly half of these households (19.7% of total households) contained smokers who smoked inside the house (AIHW National Drug Strategy Household Survey 1995–2001 database).
- Among all households containing smokers, those where someone was reported to smoke inside declined steadily from 1995 (31.9%) to 2001 (20.8%). For households containing smokers with dependent children aged under 15 years, this level declined from 31.3% in 1995 to 22.6% in 1998 and declined further in 2001 to 19.7%.
- From these data, it is estimated that approximately 780,000 Australian children aged 0–14 years may be exposed to environmental tobacco smoke at home.
- Smoking inside the home was more common in remote and rural regions (24% of households with dependent children), compared with metropolitan regions, where smoking occurred inside the home in 18% of households with dependent children.





Source: AIHW National Drug Strategy Household Survey 1995–2001 database.

Notes

1. Household smoking status (as reported by respondents aged 14 years and over).
2. Includes households where there are any dependent children under 15.
3. See Appendix 4 for information on RRMA.

Figure 2.01(a): Smoking status of households with dependent children, by Rural, Remote or Metropolitan Area (RRMA)[3], Australia, 2001

Figure 2.01(b): Smoking status of households with dependent children, 1995, 1998 & 2001, Australia

Indicator related to:

2.05 Adult smoking

3.02 Teenage purchase of cigarettes

Indicator 2.02 Availability of fluoridated water

Indicator definition

Description: Proportion of the population served by a reticulated water supply that provides satisfactory fluoride levels whether artificially fluoridated or naturally occurring.

Numerator: Number of people served by a reticulated water supply that is fluoridated at satisfactory levels.

Denominator: All people.

Presentation: By state and territory.

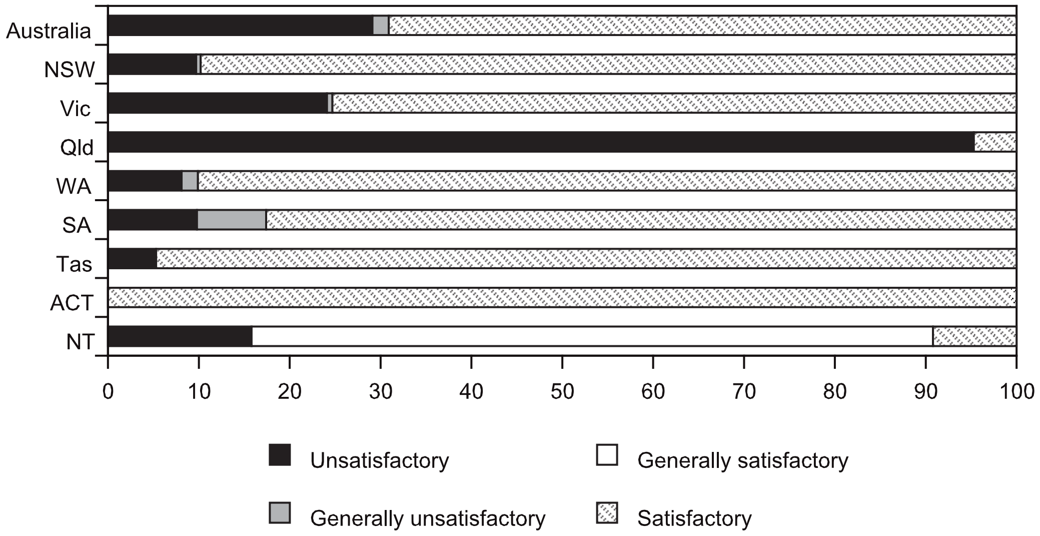
Rationale and evidence

- Dental decay is one of the most common health problems in Australia.
- Water fluoridation at optimal levels provides significant benefits in the prevention of caries for both deciduous and permanent teeth. Its protective effect is greatest in children, but is also demonstrated in adults (NHMRC 1999).
- Water fluoridation acts to reduce the significant social inequality in experience of dental caries in children. Its impacts are greatest among children from low income households (AIHW DSRU 1999).
- Residence in a fluoridated area may not necessarily indicate consumption of fluoridated water. Some households may receive unfluoridated water because the supply is fluoridated at a point after their distribution main. Domestic water filters or softeners may remove fluoride from the water supply. Some households rely largely on tank or bottled water for drinking (NHMRC 1999).

What the data show

- Satisfactory levels of fluoride in artificially fluoridated water vary according to the climate. In tropical Darwin 0.6 parts per million (ppm) fluoride is satisfactory but in temperate Hobart, 1.1 ppm is required (NHMRC 1999).
- Among Australian states, Tasmania has the best population coverage of fluoridated water, with 94.7% of the population living in areas with satisfactory water fluoridation levels. In contrast, only 4.7% of the Queensland population live in areas with satisfactory water fluoridation levels.
- Overall, 69.1% of Australians receive more than 0.7 ppm fluoride in their water supply, indicating a satisfactory level of water fluoridation.
- Caries of the permanent dentition of 12-year-old children (counted as the mean number of decayed, missing and filled teeth—DMFT) declined steadily from 4.79 in 1977 to 0.9 in 1996, a reduction of 83%. Since then, the trend has been stable, with a mean DMFT score of 0.83 in 1999 (Armfield et al. 2003).

- Queensland, which has the lowest levels of fluoridation, has the highest levels of caries experienced in both 5–6-year-old (deciduous dentition) and 12-year-old children (permanent dentition) of all States and Territories in Australia.
- Comparisons with OECD countries with national data within two years of that presented for Australia indicate that Australian 12-year-old children had the second lowest DMFT score (second to Luxembourg) and the highest proportion of that age group without caries.



Source: AIHW Dental Statistics Research Unit (unpub.).

Notes: Water supply fluoridation is classified according to NHMRC guidelines.

1. Unsatisfactory—does not meet National Health and Medical Research Council (NHMRC) Guidelines—water supply has less than 0.3 parts per million (ppm) fluoride.
2. Generally unsatisfactory—partly meets National Health and Medical Research Council (NHMRC) Guidelines—water supply has between 0.3 and 0.7 ppm fluoride.
3. Generally satisfactory—partly meets National Health and Medical Research Council (NHMRC) Guidelines—water supply has between 0.3 and 0.7 ppm fluoride, but because of local climatic conditions ie high temperatures in the Northern Territory, 0.3 to 0.7 ppm is generally satisfactory.
4. Satisfactory—meets National Health and Medical Research Council (NHMRC) Guidelines—water supply has greater than 0.7 ppm fluoride.

Figure 2.02: Access to fluoridated water, 2001–2002, Australia

Indicator 2.03 Income inequality

Indicator definition

Description:	Ratio of equivalised weekly incomes at the 80th percentile to the 20th percentile income.
Numerator:	High income: income at 80th percentile ranked by equivalised income.
Denominator:	Low income: income at 20th percentile ranked by equivalised income.
Presentation:	High/low income ratio over time.

Rationale and evidence

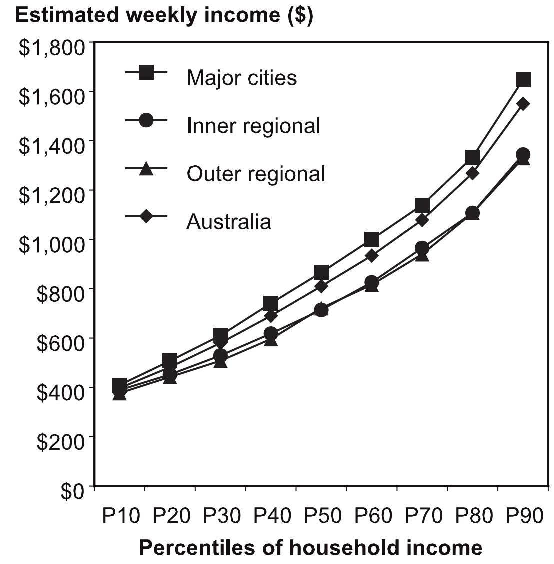
There is strong evidence, from Australia and other developed countries, that low income is associated with poor health (Turrell & Mathers 2000; Wagstaff & van Doorslaer 2000). Socioeconomic inequalities in health are important from both social justice and economic perspectives. Not only can they be considered 'unfair' and preventable, but they also have high direct and indirect costs for the health system (Sainsbury & Harris 2001).

The number of earners present in a household is an important determinant of household income. Low-income households are most likely to have government pensions and allowances as their major source of income, while most high-income households have employment-related income as their principal source of income.

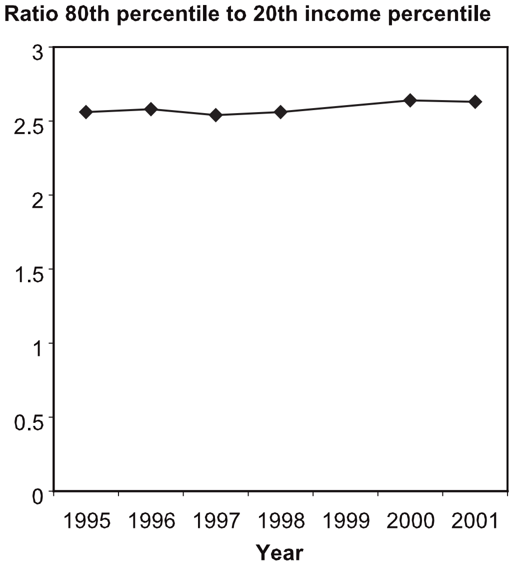
What the data show

- There has not been much movement in inequality measures of household disposable income from 1994–95 to 2000–01, but what movement there is indicates a worsening of inequality. The Australian Bureau of Statistics (ABS) concludes that 'the indicators therefore suggest some possible rise in income inequality over the second half of the 1990s (ABS 2003b). The National Centre for Social and Economic Modelling (NATSEM) estimates that there was little change in overall income inequality in the period 1982 to 1996–97 (Harding 2001).
- From 1994–95 to 2000–01 the ratio of the household income of the 80th percentile of households compared to the income of the 20th percentile of households remained much the same (ranging from 2.56 to 2.63). This indicates that households at the bottom of the income distribution have come close to maintaining their position compared to those at the top (Figure 2.03(b)).
- The share of all income received by high- and low-income households was relatively stable over this period. In 2000–01, the second and third deciles of households from the bottom received 11% of all income, while the top 20% of households received 39% of all income. These proportions were similar to, but somewhat worse, than the proportions in 1994–95.

- In 1999, the high income households in major cities had significantly higher equivalised weekly disposable incomes than those in high income households in outer and inner regional areas, but there was little difference for the lower income households. Thus inequality was greater in the major cities than in the outer and inner regional areas. (Outer and inner regional areas are defined by distances from major population centres. Appendix 4 shows the location of outer and inner regional areas in Australia).



Source: ABS Surveys of Income and Housing Costs.



Source: ABS (2003b).

Notes

1. Figures are person weighted, not household weighted.
2. Ratios are based on financial years ending June, 1995 to 2001.
3. The OECD equivalence scales were used to equivalise the after-tax household income—the numerator = the after-tax household income; the denominator = 1.0 (for the first adult in the household) plus 0.5 for each additional adult and 0.3 for each child.
4. Disposable income is gross income after income tax is deducted. Equivalised disposable income is the disposable income of households adjusted for the different income needs of households of different size and composition. The dollar amounts do not accord with the amounts household actually receive, but are the amounts they would have received if they all comprised two adults and two children aged less than 15 years (ABS 2003b).
5. The 20th percentile is used in the income distribution ratio rather than the 10th percentile as income data for the bottom decile are considered unreliable.
6. Figures for Australia includes some remote areas, but most remote and sparsely settled areas are not in the sampling frame for the Income and Housing Costs surveys.

Figure 2.03(a): Household income for household income percentiles, by location, Australia, 1999

Figure 2.03(b): Ratio of incomes for households at the 80th percentile over incomes for households at the 20th percentile, Australia, 1994–95 to 2000–01

Indicator related to:

1.06 Potentially avoidable deaths (by socioeconomic status)

3.17 Bulk billing for non-referred (GP) attendances

Indicator 2.04 Informal care

Indicator definition

Description: Number engaged in informal care.

Numerator: Number of carers—primary and not primary.

Denominator: Total number of people living in households.

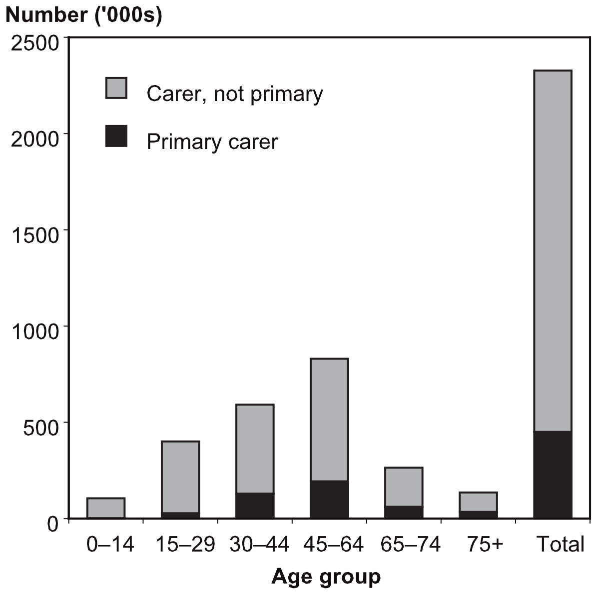
Presentation: Number of carers and carers as percentage of people living in households.

Rationale and evidence

- The number of people who are providing informal assistance to care for others represents an important indicator of community capacity.
- The need for this support is likely to increase in the future, with a growing population of older Australians, an increase in the prevalence of disability and a growing emphasis on home-based care.
- In 1998, 3.6 million people in Australia had a disability (19% of the total population). More than half (57%) of the 3.4 million people with a disability living in households needed assistance to move around or to go out, shower or dress, prepare meals, do housework, light property maintenance or paperwork, or to communicate (ABS 1999).
- Primary carers are those who provide most informal assistance with personal activities to another person in need of care. Caring has a major impact on the lives of primary carers.

What the data show

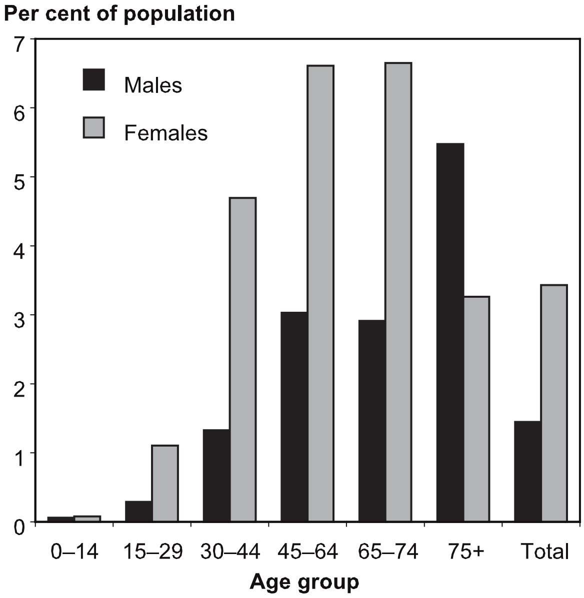
- Consistent data are not available to show trends in carer numbers over time.
- In 1998, 2.3 million people provided some assistance to those who needed help because of disability or ageing. Of these, 19% (450,900) were primary carers.
- Most primary carers were female (70%). Primary carers were most commonly aged 45–64 years (43%), followed by 30–44 years (28.7%) and 65 years and over (21.4%).
- Most primary carers (79%) cared for a person in the same household. Of these co-resident carers, most were caring for a partner (54%), child (26%) or parent (15%). Among non-resident carers, most were providing care to a parent (63%), and most were daughters (AIHW 1999a).
- Females (3.4%) were more than twice as likely as males (1.4%) to be primary carers. The proportion of females serving as primary carers peaked in the 45–74 year age group (6.6%), while for males this proportion peaked in the 75 years and over age group (5.5%).
- While most primary carers reported relatively good health, one in three were themselves classified as having an impairment or long-term condition that restricted their everyday activities (AIHW 1999a).



Source: AIHW analysis of 1998 ABS Survey of Disability, Ageing and Carers.

Figure 2.04(a): Carers, by carer status and age group, Australia, 1998

Note: A carer is a person who provides any informal assistance, in terms of help or supervision, to persons with disabilities or long-term conditions, or persons who are elderly. Primary carers are persons who provide the most informal assistance, in terms of help or supervision, to a person with one or more disabilities.



Source: AIHW analysis of 1998 ABS Survey of Disability, Ageing and Carers.

Figure 2.04(b): Primary carers, by age, by sex, Australia, 1998

Indicator related to:

1.03 Severe or profound core activity limitation

3.25 Health workforce

Indicator 2.05 Adult smoking

Indicator definition

Description: Proportion of adults who are daily smokers.

Numerator 1: People aged 14 years and over who smoke tobacco every day.

Denominator 1: People aged 14 years and over.

Numerator 2: People aged 18 years and over who smoke tobacco every day.

Denominator 2: People aged 18 years and over living in private dwellings.

Presentation: 1. Proportion of population over time who are daily smokers. This is not age-standardised.

2. Aboriginal and Torres Strait Islander peoples and non-Indigenous Australian smoking rates for various age groups.

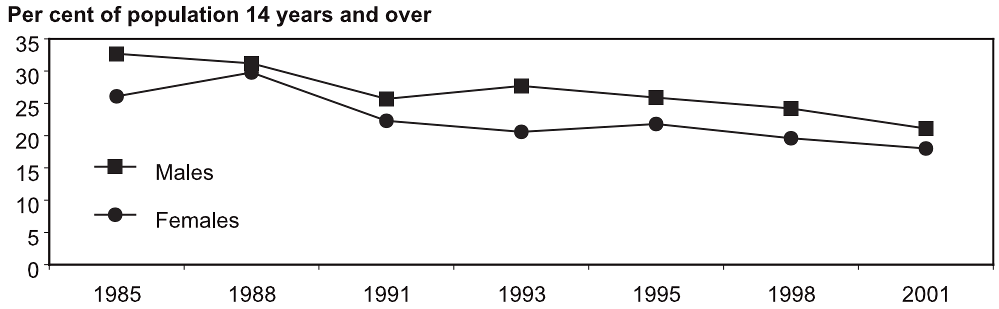
Rationale and evidence

- Smoking is the main cause, or a significant cause, of many diseases including cancer and cardiovascular disease, and is one of the leading causes of death.
- Smoking is responsible for the greatest burden of premature death and disability of all behavioural risk factors. In 1996, it accounted for around 14% of years of life lost due to premature mortality, and 5% of healthy years lost due to disability. Most of this burden is caused by lung cancer, chronic obstructive pulmonary disease and ischemic heart disease (AIHW: Mathers et al. 1999).
- Smoking is responsible for around 19,000 deaths and 143,000 hospital separations each year in Australia (AIHW: Miller & Draper 2001).

What the data show

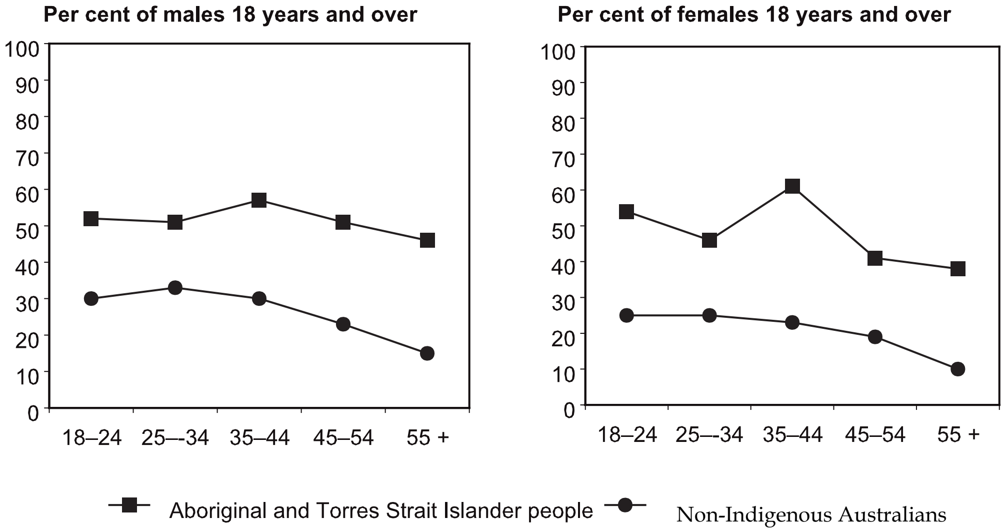
- Over the period 1985–2001, the proportion of people aged 14 years and over reporting that they smoked every day declined by around 30%, from 32.7% to 21.1% for males, and 26.1% to 18.0% for females (Figure 2.05(a)).
- In 2001, one in four people aged 18 years and over (24%) currently smoked: 22% were daily smokers and 2% smoked less often than once a day. Almost half (49%) reported that they had never smoked regularly, while 26% reported they were ex-smokers (ABS 2002e).
- For both males and females, the prevalence of daily smoking was higher in younger age groups than in older age groups. It was highest among males aged 25–34 years (33%) and females aged 18–34 years (25%) (ABS 2002e: 66).
- Smoking is more common among Aboriginal and Torres Strait Islander people. In 2001, 49% of Aboriginal and Torres Strait Islander people were daily smokers, compared with 22% of non-Indigenous Australians (ABS 2002f).
- Among Aboriginal and Torres Strait Islander people, the proportion of daily smokers was highest among those aged 35–44 years (57% of males and 61% of females).

- A higher proportion of people 14 years and over in the lowest socioeconomic quintile (23.4%) smoked daily, compared with those of the highest socioeconomic quintile (13.8%) in 2001. These proportions had declined from 25.3% and 17.0% respectively in 1998 (AIHW: Miller & Draper 2001.)



Sources: Social Issues in Australia Survey 1985; National Campaign Against Drug Abuse Social Issues Survey 1988; National Campaign Against Drug Abuse Household Survey 1991, 1993; National Drug Strategy Household Survey 1995, 1998, 2001.

Figure 2.05(a): Daily smokers by sex, people aged 14 years and over, Australia, by year, 1985 to 2001



Source: ABS (2002f).

Figure 2.05(b): Daily smokers, by Aboriginal and Torres Strait Islander status and age group, aged 18 years and over, Australia, 2001

Indicator related to:

1.01 Incidence of heart attacks

2.01 Children exposed to tobacco smoke in the home

3.02 Teenage purchase of cigarettes

Indicator 2.06 Risky alcohol consumption

Indicator definition

Description: Proportion of the population aged 18 years and over at risk of long term harm from alcohol.

Numerator: People classified to a health risk level (low-risk, risky or high-risk), based on their estimated average daily consumption of alcohol during the previous week.

Denominator: People aged 18 years and over.

Presentation: Proportion age-standardised to the 2001 Australian population in scope for the National Health Survey.

Rationale and evidence

- Excessive alcohol consumption increases the risk over time of chronic ill health and premature death (NHMRC 2001).
- Road traffic accidents and liver cirrhosis are the main causes of deaths associated with alcohol, while alcohol dependence is the leading cause of alcohol-related disability (AIHW: Mathers et al. 1999).
- 'Low-risk' levels of drinking are associated with only a minimal risk of harm, and may provide health benefits for some people (particularly by reducing the risk of heart disease from middle age). 'Risky' levels of drinking are those at which the risk of harm exceeds any possible benefits, while 'high-risk' levels of drinking are those at which there is a substantial risk of serious harm (NHMRC 2001) (see Table 2.06 for amounts of alcohol that define 'risky' and 'high risk').

What the data show

- In 2001, the majority of Australians aged 18 years and over (62%) had consumed alcohol in the previous week (71% of males and 52% of females). 12% of males and 22% of females had never consumed alcohol, or had last consumed alcohol 12 months or more previously (ABS 2002e).
- The majority of those who drank alcohol did so at a level which would pose a low risk to health (87% of males and 92% of females) (ABS 2002e).
- Just over one in ten (10.8%) adults reported that they drank alcohol at risky or high-risk levels. Males (13.2%) were more likely than females (8.5%) to report risky or high-risk levels of drinking.
- Among both sexes, the proportion reporting risky or high-risk levels of drinking in 2001 was higher than in 1995. In females, the 2001 level (8.5%) also exceeded that recorded in 1989–90 (7.4%), but in males the 2001 level (13.2%) was slightly lower than that recorded in 1989–90 (14.2%).
- Overall consumption of alcohol per head of population reached a peak of 9.8 litres of alcohol per person per year in 1981–82. It declined to 7.8 litres of alcohol per person per year in 1999–00, and has been relatively constant since (AIHW 2003f).

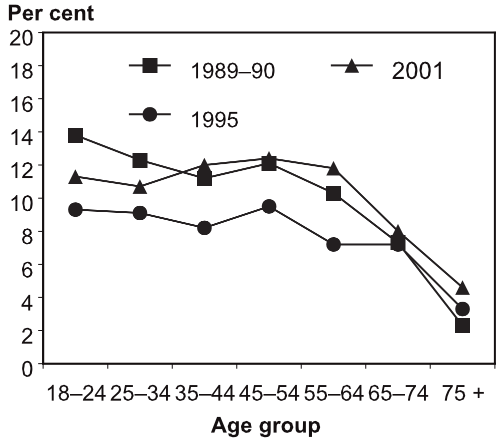
- Aboriginal and Torres Strait Islander adults were less likely (42%) than non-Indigenous adults (62%) to have consumed alcohol in the week prior to the interview. Of those that did consume alcohol, Indigenous Australians were more likely to consume at risky or high-risk levels (29%) compared with non-Indigenous Australians (17%) (ABS 2002f).
- Males aged 55–64 years (15.1%) and females aged 45–54 years (10.1%) were most likely to report risky or high-risk levels of drinking. Males were more likely than females to report risky or high-risk levels of drinking across all age groups up to age 74 years. Few people aged 75 years and over (4.6%) reported risky or high-risk levels of drinking, but males and females in this age group were equally likely to do so (ABS 2002e).

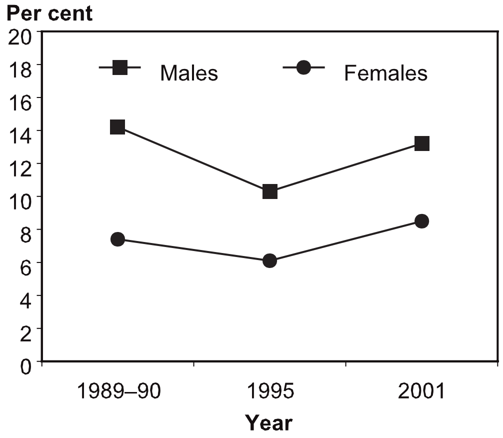
Table 2.06: Alcohol risk level by estimated average daily consumption of alcohol during the previous week

	No. of standard drinks per day	
	Males	**Females**
Low-risk	0–4	0–2
Risky	5–6	3–4
High-risk	≥ 7	≥ 5

Notes

1. Risk levels were based on National Health and Medical Research Council (NHMRC) levels for long-term harm (NHMRC 2001), and assume that the reported level of alcohol consumption for the previous week was typical.
2. 1 standard drink = 12.5 ml of alcohol.





Source: ABS (2002e).

Note: Age-standardised percentages.

Figure 2.06(a): Risky or high risk consumption of alcohol by age, Australia, 1989–90, 1995, 2001

Figure 2.06(b): Risky or high risk consumption of alcohol by sex, Australia, 1989–90, 1995, 2001

Indicator related to:

1.06 Potentially avoidable deaths

1.08 Mortality from National Health Priority Area diseases and conditions

Indicator 2.07 Fruit and vegetable intake

Indicator definition

Description: Proportion of people eating sufficient daily serves of fruit and vegetables.

Numerator: Self-reported intake of at least four serves of vegetables per day and at least two serves of fruit per day.

Denominator: Australian population, 12 years and over, living in private dwellings and non-sparsely settled areas.

Presentation: Age-standardised proportion of population, standardised to the 2001 Australian population.

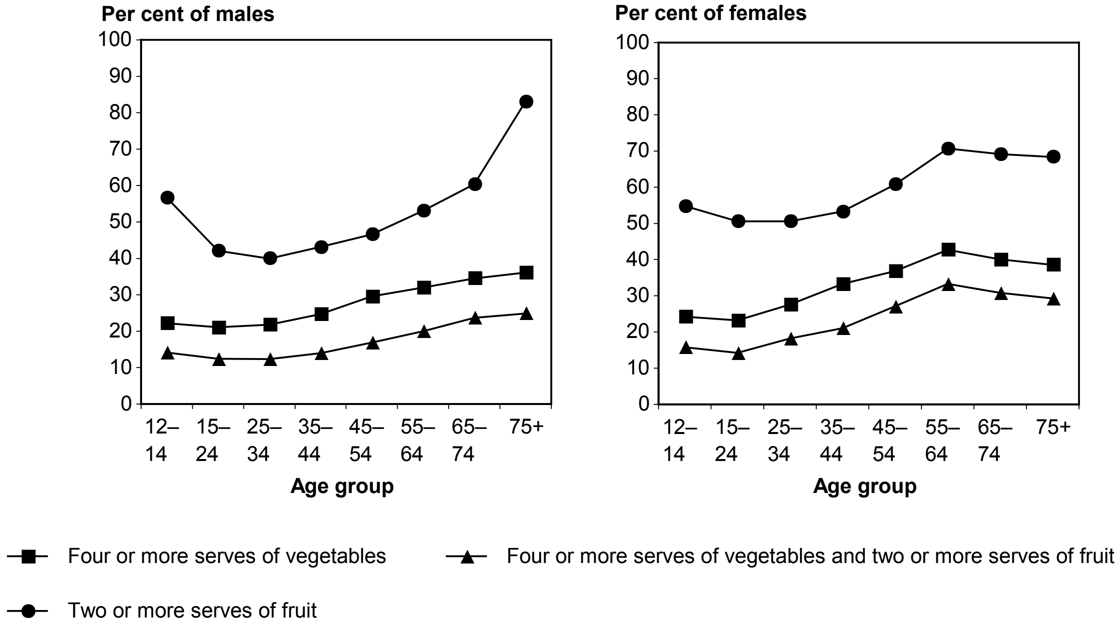
Rationale and evidence

- Fruit and vegetable intake is an important determinant of health. An intake of less than five serves of fruit and vegetables per day was estimated to be responsible for 2.7% of the burden of disease in 1996 (AIHW: Mathers et al. 1999).
- It is estimated that if everyone had eaten at least five serves of fruit and vegetables a day, then 4,000 deaths would have been avoided in 1996. Of these 4,000 avoidable deaths, 3,143 were cancer-related deaths and 734 were heart disease-related (AIHW: Mathers et al. 1999).
- Fruit and vegetables enhance health because of their high fibre content and their micronutrient content, and because a high intake of fruit and vegetables displaces substances like saturated fat. Consumption of fruit and vegetables is protective against coronary heart disease, hypertension, stroke and some cancers (NHMRC 2003).
- The NHMRC suggests that women eat 4–7 serves of vegetables and legumes per day, and 2–3 serves of fruit; for men the recommendation is 5–8 serves of vegetables and legumes per day and 2–4 serves of fruit (NHMRC 2003). *The Australian Guide to Healthy Eating* recommends consuming 4–8 serves of vegetables and 2–4 serves of fruit each day for adults (Children's Health Development Foundation SA 1998). The World Health Organization (WHO) recommends a different amount again, and does not include potatoes in its list of recommended vegetables. Despite the differences in the number of serves recommended, all authorities agree that most people should eat more fruit and vegetables.
- This indicator measures whether people report having had 4 serves or more of vegetables per day and 2 serves or more of fruit per day. This can be monitored using the National Health Survey.

What the data show

- In 2001, 26% of males and 33% of females reported usually consuming four or more serves of vegetables per day (AIHW analysis of ABS 2001 National Health Survey).
- In 2001, 47% of males and 58% of females reported usually consuming two or more serves of fruit per day.

- Overall in 2001, 16% of males and 33% of females reported usually consuming four or more serves of vegetables and also two or more serves of fruit daily.
- Younger people generally reported consuming less fruit and vegetables than older people (Figure 2.07). Thus, 22% of men aged 25 to 34 consumed four or more serves of vegetables per day, compared with 36% of men aged 75 and over.



Source: AIHW analysis of ABS 2001 National Health Survey.

Notes

1. People aged 12 years and over.
2. A serve is ½ cup (75g) cooked vegetables, 1 cup salad vegetables, 1 small potato, 1 medium piece (150g) of fruit or ½ cup fruit juice.

Figure 2.07: Usual daily intake of fruit and vegetables, by age, 2001

Indicator related to:

1.06 Potentially avoidable deaths

2.09 Overweight and obesity

Indicator 2.08 Physical inactivity

Indicator definition

Description: Proportion of adults insufficiently physically active to obtain a health benefit.

Numerator: Adults 18–75 years old who were active in walking, moderate activity or vigorous activity for less than 150 minutes per week and/or who did less than five sessions of activity per week.

Denominator: Australian adults 18–75 years old.

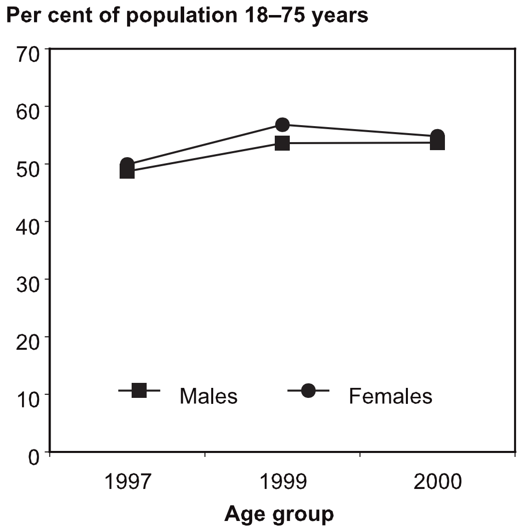
Presentation: Age-standardised proportions, standardised to the June 2001 Australian population.

Rationale and evidence

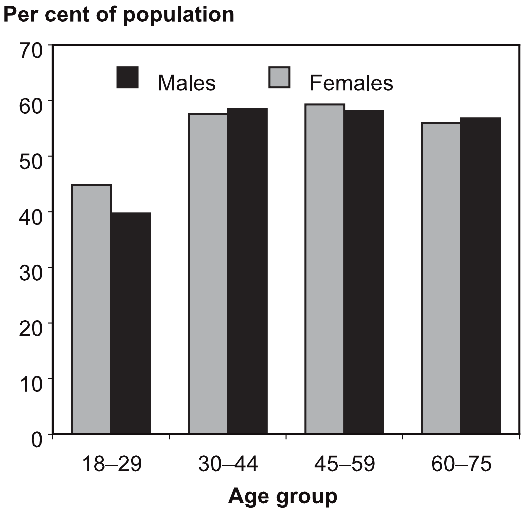
- Participation in physical activity has benefits for physical and mental health. It is associated with reduced risk of chronic disease, improved psychological wellbeing and reduced death rates (AIHW: Armstrong et al. 2000). Physical inactivity was responsible for an estimated 13,000 deaths in 1996 and about 7% of the total burden of disease in Australia in 1996, ranking second only to tobacco as a causative factor of disease (AIHW: Mathers et al. 1999).
- Physical inactivity is associated with high direct health costs, with a conservative estimate of around $400 million each year (based on health cost data for 1993–94) (Stephenson et al. 2000). An estimated gross saving of up to $3.6 million in health care costs might be achieved for every 1 percentage point gain in the proportion of the population that is sufficiently active.

What the data show

- In 2000, 54.2% of Australians were insufficiently active to achieve a health benefit. Physical inactivity has increased from 1997 to 2000. The percentage of those insufficiently active increased by 4.9 percentage points, from 49.4% in 1997.
- The percentage of women who were insufficiently active (54.8%) was higher than the percentage of men (53.7%). This was consistently the case between 1997 and 2000.
- The percentage of people who were insufficiently active increased with age from 42.2% for those aged 18–29 years to 58.7% for those aged 45–59 years. The percentage decreased slightly to 56.3% for those aged 60–75 years.



Sources: AIHW: Armstrong et al. (2000) and AIHW analysis of the 1997, 1999 and 2000 National Physical Activity Surveys.



Source: AIHW: Armstrong et al. (2000).

Notes

1. Age-standardised to the June 2001 Australian population.
2. Sufficient time and sessions is defined as 150 minutes (using the sum of walking, moderate activity and vigorous activity (where vigorous activity is weighted by two)) and five sessions of activity per week.

Figure 2.08(a): Proportion of people 18–75 years insufficiently physically active to obtain a health benefits, by sex, Australia, 1997, 1999, 2000

Figure 2.08(b): Proportion of people 18–75 years insufficiently physically active to obtain a health benefits, by sex, by age, Australia, 2000

Indicator related to:

1.01 Incidence of heart attacks

1.06 Potentially avoidable deaths

2.09 Overweight and obesity

Indicator 2.09 Overweight and obesity

Indicator definition

Description: Proportion of adults overweight or obese.

Numerator: People aged 18 years and over who are overweight or obese.

Denominator: People aged 18 years and over.

Presentation: Age-standardised proportion of population, standardised to the June 2001 Australian population in scope for the National Health Survey.

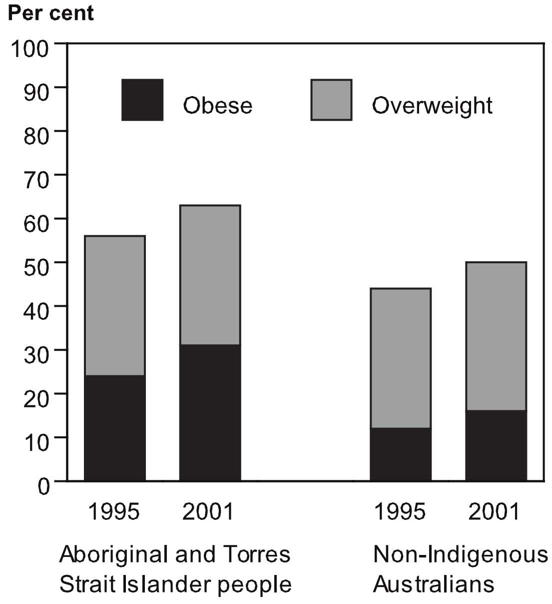
Rationale and evidence

- Obesity is epidemic in Australia, and the WHO has identified the increasing prevalence of obesity as a major public health problem for developed countries and an increasing number of developing countries.
- Overweight and obesity are key risk factors for preventable morbidity and mortality due to many diseases, particularly hypertension, cardiovascular disease, and non-insulin-dependent diabetes mellitus (NHMRC 1997a). Males under 65 who are overweight (but not obese) have a 35% greater chance of dying from heart disease than those who are not overweight. Males under 65 who are obese have an 80% greater chance of dying from heart disease than those who are not obese or overweight (AIHW: Mathers et al. 1999).
- In 1996, overweight and obesity accounted for over 4% of the total burden of premature death and disability in Australia (AIHW: Mathers et al. 1999).

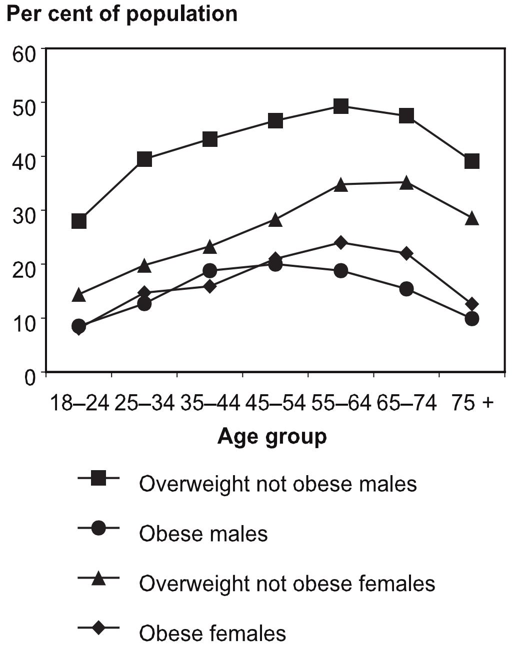
What the data show

- In 2001, 25% of the female adult population and 42% of the male adult population were overweight (but not obese); and 17% of the female adult population and 16% of the male population were obese.
- The prevalence of overweight and obesity among Australians aged 18 and over increased between 1989 and 2001 (from 32% to 42% among women and from 46% to 58% among men).
- From 1989 to 2001, reported rates of overweight or obesity among males were consistently higher (about 1.4 times) than those for females.
- Aboriginal and Torres Strait Islander peoples were more likely to be overweight or obese than non-Indigenous Australians. In 2001, 63% of Aboriginal and Torres Strait Islander people were overweight or obese, compared with 50% of non-Indigenous Australians (ABS 2002f).
- While reported rates of overweight were higher for males than for females, reported rates of obesity were similar for males and females. Reported rates of overweight and obesity tended to be highest for males and females in the 55–64 year age group (ABS 2002e).

- There is some evidence that people are gaining weight as they get older. Men aged 30–34 in 1980 gained over 8 kg as they aged to 50–54 in 2000 and women aged 30–34 gained over 12 kg during the 20-year period (AIHW: Bennett et al. 2004).
- The results presented here will underestimate the true prevalence of overweight and obesity, as they rely on self-reported height and weight which has been shown to generally underestimate overweight and obesity (AIHW: Waters 1993).



Source: ABS (2002f).



Source: ABS (2002e).

Notes

1. These proportions are age-standardised.
2. Includes only people living in non-sparsely-settled areas, aged 18 years and over.
3. Based on self-reported height and weight.
4. Overweight is defined as body mass index (BMI) ≥ 25 < 30, and obese is defined as BMI ≥ 30. See Appendix 3: Technical notes for further information.
5. Proportions are calculated excluding data where BMI is unknown. Height and weight information could not be obtained for approximately 20% of Aboriginal and Torres Strait Islander people, and for 8% of non-Indigenous Australians.

Figure 2.09(a): Overweight and obesity, by age and Aboriginal and Torres Strait Islander status, non-sparsely settled areas, Australia, 1995 and 2001

Figure 2.09(b): Overweight and obesity, by sex and age, non-sparsely settled areas, Australia, 2001

Indicator related to:

1.01 Incidence of heart attacks	2.07 Fruit and vegetable intake
1.06 Potentially avoidable deaths	2.08 Physical inactivity

Indicator 2.10 Low birthweight babies

Indicator definition

Description: Proportion of babies who are low birthweight.

Numerator: Number of low birthweight babies (excluding multiple births).

Denominator: Total number of babies born (excluding multiple births).

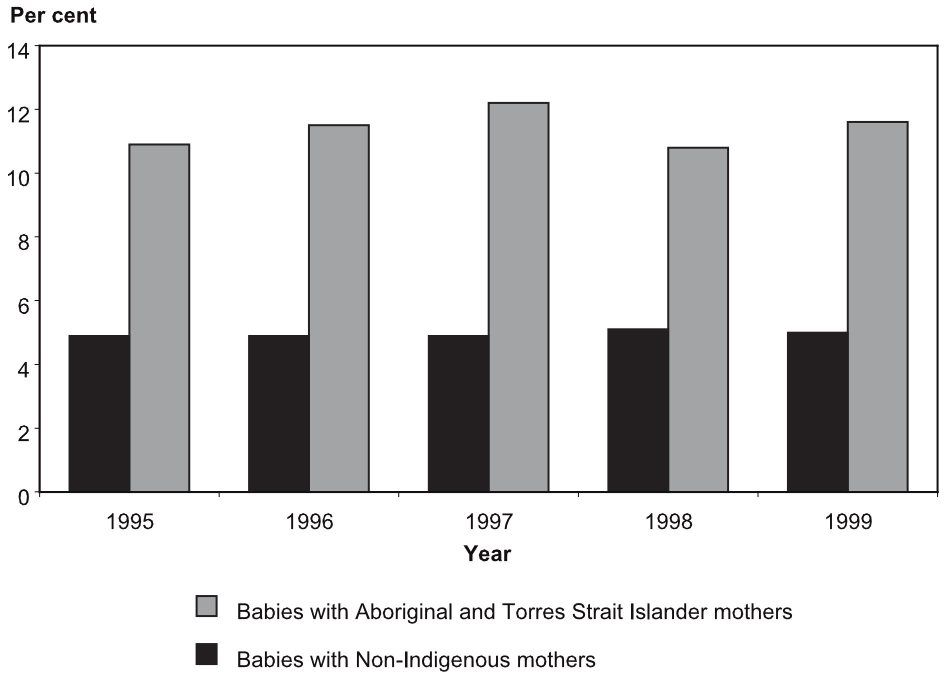
Presentation: Proportion of babies born with low birthweight.

Rationale and evidence

- Low birthweight babies (< 2500 g) are more prone to ill health during childhood and adult life, and this indicator is correlated with the level of development of a society.
- The factors contributing to low birthweight and to trends in the proportion of low birthweight babies are complex, so trends are not easy to interpret.
- Apart from multiple pregnancies, which are not counted in the indicator, the factors contributing to low birthweight include duration of pregnancy, maternal disease (particularly pre-eclampsia or genital tract infections), maternal smoking, number of previous children born to the mother, sex of the baby, maternal height, fetal chromosomal and birth defects, socioeconomic status and mother's nutritional status.
- Low birthweight may occur in babies born prematurely, or in babies with intra-uterine growth retardation who are born at or near full-term. It would be useful to be able to examine birthweight by duration of pregnancy, but accurate figures for duration of pregnancy are not currently available.

What the data show

- Rates of low birthweight have been fairly steady in recent years, both in babies born to Aboriginal and Torres Strait Islander mothers and babies born to non-Indigenous Australian mothers. In 1999, 6.7% of all Australian babies were of low birthweight, compared with 6.4% in 1995.
- From 1995–1999, babies born to Aboriginal and Torres Strait Islander mothers were twice as likely to be of low birthweight as babies born to non–Indigenous mothers (Figure 2.10).
- In 1999, 11.6% of babies of Aboriginal and Torres Strait Islander mothers were of low birthweight, compared to 5.0% of babies of non-Indigenous Australian mothers.



Source: AIHW National Perinatal Data Collection 2003.

Notes

1. Low birthweight babies are those weighing < 2500 g.
2. Multiple births excluded.
3. Data not available for Tasmania for 1999, data from 1998 used as a proxy for 1999.

Figure 2.10: Low birthweight babies by Aboriginal and Torres Strait Islander status of mother, Australia, 1995–1999

Indicator related to:

1.07 Infant mortality rates

2.05 Adult smoking

2.06 Risky alcohol consumption

2.07 Fruit and vegetable intake

Indicator 2.11 High blood pressure

Indicator definition

Description: Proportion of persons with high blood pressure.
Numerator 1: People with high blood pressure.
Denominator 1: Population aged 25–64 living in capital cities or urban areas.
Numerator 2: People reporting having hypertension.
Denominator 2: Population aged 18 years and over.
Presentation: Age-standardised proportion, standardised to the June 2001 Australian population.

Rationale and evidence

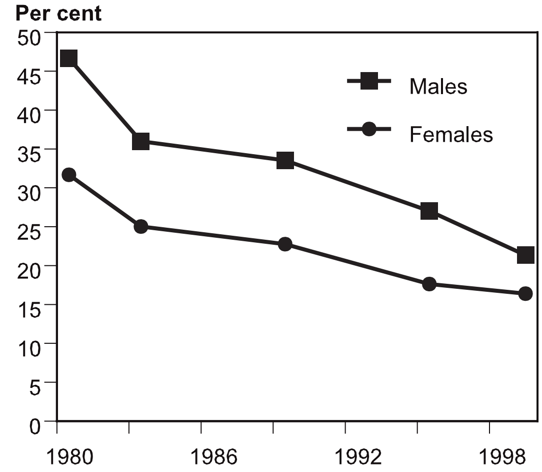
- High blood pressure is a major risk factor for heart disease, stroke and renal failure and accounted for about 5% of all premature death and disability in Australia in 1996 (AIHW: Mathers et al. 1999). High blood pressure is also one of the most common problems managed by GPs, affecting an estimated 15% of the general practice patient population (AIHW: Henderson et al. 2002).
- The factors contributing to high blood pressure include obesity, alcohol misuse, physical inactivity, high dietary salt intake and nutritional patterns that involve a low intake of fruit and vegetables and a high intake of saturated fat. Stress raises blood pressure transiently, but may contribute to high blood pressure in the longer term by influencing eating, drinking, smoking and physical activity patterns. Tobacco smoking increases the risk of heart attack and stroke threefold in people with high blood pressure (AIHW 2001b).
- High blood pressure is defined as ≥ 140 mmHg systolic pressure and/or ≥ 90 mmHg diastolic pressure, and/or receiving medication for high blood pressure.

What the data show

- Over the period 1980 to 1999–2000, the prevalence of high blood pressure declined steadily. In males, prevalence halved, from 46.7% to 21.3%. In females, prevalence dropped by almost half, from 31.7% to 16.4%.
- The prevalence of high blood pressure increases with age. In 1999–2000, prevalence ranged from 6.7% of males aged 25–34 years to 80.0% of males aged 75 years and over, and from 2.4% of females aged 25–34 years to 75.8% of females aged 75 years and over.
- The national health surveys record hypertension reported by individuals. These surveys produce lower estimates than those which actually measure blood pressure, because some people have not had their high blood pressure diagnosed. The national health survey data is used as it is the only source of information about Aboriginal and Torres Strait Islander hypertension. In 2001, the percentage of people reporting hypertension was higher among Aboriginal and Torres Strait Islander people than non-Indigenous Australians, particularly in the younger age groups. Aboriginal and Torres Strait Islander people aged 35–44 years were 2.5 times more likely to report hypertension than

their non-Indigenous Australian counterparts, while Aboriginal and Torres Strait Islander people aged 45–54 years were 1.8 times more likely than their non-Indigenous Australian counterparts to report hypertension. The prevalence of self-reported hypertension among Aboriginal and Torres Strait Islander people aged 55 years and over was not significantly different to that for non-Indigenous Australian people of this age group (Figure 2.11 (b)).

- The proportion of Aboriginal and Torres Strait Islander females reporting high blood pressure (16%) was higher than the proportion of Aboriginal and Torres Strait Islander males (12%) (ABS 2002f).

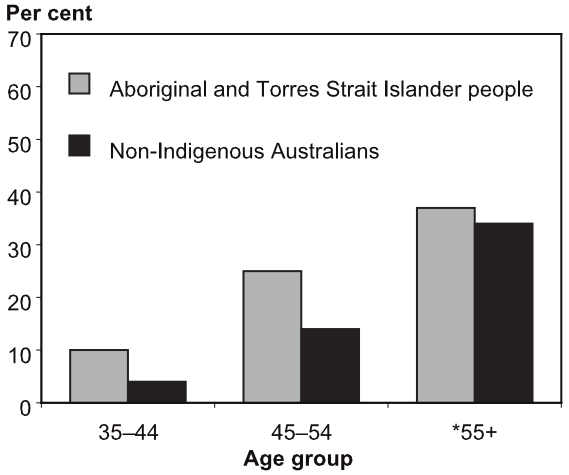


Source: AIHW analysis of 1980, 1983, 1989 Risk Factor Prevalence Studies, 1995 National Nutrition Survey, 1999–2000 Australian Diabetes, Obesity and Lifestyle Study.

Notes

1. Age-standardised to the June 2001 Australian population.
2. Includes only people living in capital cities or urban areas, aged 25–64.
3. High blood pressure is defined as ≥ 140 mmHg systolic pressure and/or ≥ 90 mmHg diastolic pressure as measured in the surveys, and/or receiving medication for high blood pressure.

Figure 2.11(a): Proportion of people with high blood pressure by sex, Australia, 1980 to 1999–2000



* The difference between the two populations is not significant in the 55+ age group.

Source: ABS (2002f).

Notes

1. Data is self-report of the condition of hypertension. This underestimates true hypertension.
2. Includes only people living in private dwellings. Non-Indigenous data excludes sparsely-settled areas.
3. Age-standardised to the 2001 Australian population.

Figure 2.11(b): Percentage of persons reporting hypertension by age group and Aboriginal and Torres Strait Islander status, Australia, 2001

Indicator related to:

1.08 Mortality for National Health Priority Area diseases and conditions

2.05 Adult smoking

2.06 Risky alcohol consumption

2.07 Fruit and vegetable intake

2.08 Physical inactivity

2.09 Overweight and obesity

5 Health system performance

Indicator 3.01 Unsafe sharing of needles
Indicator 3.02 Teenage purchase of cigarettes
Indicator 3.03 Cervical screening
Indicator 3.04 Breast cancer screening
Indicator 3.05 Childhood immunisation
Indicator 3.06 Influenza vaccination
Indicator 3.07 Potentially preventable hospitalisations
Indicator 3.08 Survival following acute coronary heart disease event
Indicator 3.09 Cancer survival
Indicator 3.10 Appropriate use of antibiotics
Indicator 3.11 Management of diabetes
Indicator 3.12 Delivery by caesarean section
Indicator 3.13 Hysterectomy rate
Indicator 3.14 Hospital costs
Indicator 3.15 Length of stay in hospital
Indicator 3.16 Waiting times in emergency departments
Indicator 3.17 Bulk billing for non-referred (GP) attendances
Indicator 3.18 Availability of general practitioner services
Indicator 3.19 Access to elective surgery
Indicator 3.20 Electronic prescribing and clinical data in general practice
Indicator 3.21 Adverse events treated in hospitals
Indicator 3.22 Enhanced Primary Care services
Indicator 3.23 Health assessments by GPs
Indicator 3.24 Accreditation in general practice
Indicator 3.25 Health workforce

Introduction

Health system performance (Tier 3) accommodates reporting on various service categories and interventions across the health care system.

The health care system may be viewed as a continuum linking the sectors within the system. This continuum incorporates four sectors: population health, primary care, acute care and continuing care. There is a considerable overlap of services and functions between these sectors.

The indicators selected for this report are drawn from these sectors, and are intended to cover the nine dimensions of performance outlined in Table 5.1. A single indicator may be relevant for several dimensions. The principal indicators are shown in Table 5.1.

Table 5.1: Tier 3 health system performance dimensions and selected indicators

Health system performance (Tier 3)		
How well is the health system performing in delivering quality health actions to improve the health of all Australians? Is it the same for everyone?		
Effective	***Appropriate***	***Efficient***
3.01 Unsafe sharing of needles	3.10 Appropriate use of antibiotics	3.14 Hospital costs
3.02 Teenage purchase of cigarettes	3.11 Management of diabetes	3.15 Length of stay in hospital
3.03 Cervical screening	3.12 Delivery by caesarean section	
3.04 Breast cancer screening	3.13 Hysterectomy rate	
3.05 Childhood immunisation		
3.06 Influenza vaccination		
3.07 Potentially preventable hospitalisations		
3.08 Survival following acute coronary heart disease event		
3.09 Cancer survival		
Responsive	***Accessible***	***Safe***
3.16 Waiting times in emergency departments	3.17 Bulk billing for non-referred (gp) attendances	3.20 Electronic prescribing and clinical data in general practice
	3.18 Availability of GPservices	3.21 Adverse events treated in hospitals
	3.19 Access to elective surgery	
Continuous	***Capable***	***Sustainable***
3.22 Enhanced Primary Care services	3.24 Accreditation in general practice	3.25 Health workforce
3.23 Health assessments by GPs		

The performance measures presented in this chapter provide an overview of the performance of the Australian health system. The overview that emerges is one of a system that demonstrates important improvements in performance, but for which there remains considerable scope for further improvement. Perhaps more evident is the need for further work on improving and developing performance measures and our understanding of the extent to which measures indicate the potential for improvement.

Health system performance

Effectiveness

A number of the measures presented suggest improvements in the effectiveness of the health system over time:

- The proportion of injecting drug users who reported sharing a needle or syringe has decreased from a peak of 22% of injecting drug users in 1999 to 14% in 2001 (Indicator 3.01).
- Participation in breast cancer screening has increased from 52% of women aged 50 to 69 years in 1996-97 to 56% in 1999-2000 (Indicator 3.04).
- Childhood immunisation rates continue to improve steadily. 75% of children were fully immunised at 12 months in March 1997, and in September 2002 it was 92% (Indicator 3.05).
- Coronary heart disease case-fatality rates have declined from 36% in 1993-94 to 30% in 2000-01 (Indicator 3.08).
- Five year relative survival rates for several types of cancer have improved. For all cancers, the five year relative survival rate for males increased from 44% in 1982–1986 to 57% in 1992-1997. For females the increase was from 55% to 63% (Indicator 3.09).
- A further improvement in effectiveness is shown by significant decreases in the proportion of young smokers who reported that they had personally purchased their most recent cigarette. From 1987 to 2001, the proportion of current teenage smokers personally purchasing their cigarettes has fallen by 60% for current smokers aged 12–15 years and by 25% for those aged 16–17 years (Indicator 3.02). However, while this indicator provides useful and encouraging data on legal compliance by retailers, it needs to be complemented by other indicators of smoking behaviour.

The rate of potentially preventable hospitalisations as measured by Ambulatory Care sensitive conditions (ACSC) provides a useful measure of the effectiveness of the primary care system in dealing with conditions that can be treated on ambulatory rather than an admitted patient basis. The increase in these rates with remoteness would suggest that this is an area where improvement should be possible (Indicator 3.07).

Appropriateness

The measures of appropriateness present a more mixed picture:

- The decreased prescribing rate for those oral antibiotics most commonly used to treat upper respiratory tract infections suggests that these infections are being managed more appropriately and efficiently by primary care providers (Indicator 3.10).
- On the other hand, the continuing increase in caesarean section rates is a matter of concern, as are the above average hysterectomy rates in regional Australia (Indicators 3.12 and 3.13). Of perhaps even greater concern is the continuing inability to specify desirable benchmarks for such indicators .

Accessibility and responsiveness

Some trends in measures of accessibility and responsiveness of health care services also present a mixed picture. These include the recent decrease in the percentage of non-referred (GP) services which are bulk billed (Indicator 3.17) and, over a five-year period, the marginal decrease in the number of full time equivalent primary care practitioners per 100,000 population (Indicator 3.18). The availability of primary care practitioners in rural and remote areas has improved, but there remain substantial differences between urban and rural areas.

Data on waiting times in emergency departments (Indicator 3.16) and on access to elective surgery (Indicator 3.19) are available, but it is hard to relate this data to need for, and accessibility to, hospital services.

Safety, continuity and capability

For 4% of hospital separations in 2001-02, adverse events were reported (Indicator 3.21). Some of these adverse events were due to hospital procedures and some due to services delivered elsewhere in the health system. Data are not yet adequate to indicate whether adverse events are decreasing or increasing.

The increase in the rate of practices using electronic prescribing software or data connectivity suggests an improvement in access to safe practice protocols (Indicator 3.20).

More GPs were adopting a multidisciplinary approach to health care by using the enhanced primary care (EPC) items. In the last quarter of 2000 23% of GPs used these items, increasing to 44% in the last two quarters of 2002 (Indicator 3.22).

Also GPs were starting to provide annual voluntary health assessments to eligible older people and Aboriginal and Torres Strait Islander people (Indicator 3.23).

Sustainable

The health workforce is getting older and, for doctors and nurses, graduates as a percentage of the total workforce has declined from 1993 to 2000. This raises concerns about the sustainability of the medical and nursing workforce (Indicator 3.25).

Interpretation and construction of indicators

In some instances, the interpretation, or even the basic data and construction of the indicator, continue to be problematic. The usefulness of the cost per casemix adjusted separation as a measure of the efficiency of public hospitals continues to be limited by the inability of many jurisdictions to accurately isolate the costs of sub-acute and psychiatric services for which diagnosis related groups (DRGs) are acknowledged to be inadequate measures of resource requirements. There is also an ongoing need to standardise the measurement of waiting times for treatment in emergency departments. However, the introduction of a relative stay index (adjusted for casemix) is a welcome improvement in the measurement of the efficiency of public and private hospitals.

Indicator 3.01 Unsafe sharing of needles

Indicator definition

Description: Percentage of injecting drug users, participating in surveys carried out at needle and syringe programs, who report recent sharing of needles and syringes.

Numerator: Injecting drug users, participating in surveys carried out at needle and syringe programs, who reported use of a needle and syringe after someone else in the month preceding the survey.

Denominator: Injecting drug users, participating in surveys carried out at needle and syringe programs.

Presentation: Proportion of injecting drug users who report recent sharing of needles and syringes, by sex, and over time.

Rationale and evidence

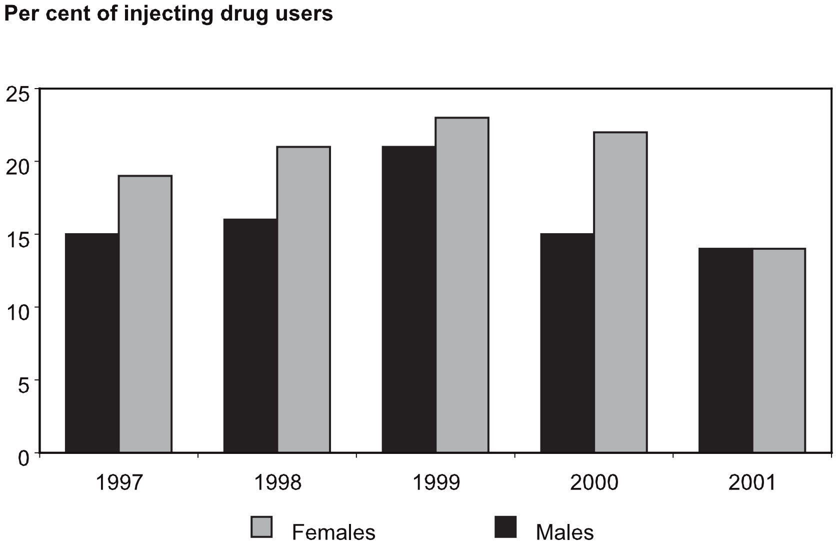
The indicator reflects the primary objective of needle and syringe programs, which is to prevent the transmission of blood-borne viruses among injecting drug users through sharing injecting equipment. Needle and syringe programs provide sterile injecting equipment and information to injecting drug users. There are approximately 100,000 drug users across Australia who inject at least ten times per month, with a further 175,000 who inject less frequently (Law 1999).

The introduction of needle exchange programs has been an important component of a multifaceted strategy to control the HIV/AIDS epidemic. This is one of the factors explaining Australia's successful control of the HIV/AIDS epidemic, relative to most other western nations. The programs continue to be important for controlling HIV/AIDS and other blood borne diseases, such as hepatitis C.

What the data show

- In 2001, the proportion of injecting drug users reporting the use of a needle and syringe after someone else was 14% for both males and females, the lowest proportion over the whole period 1997–2001. The reported use of a needle and syringe after someone else was highest in 1999 (21% of males and 23% of females).
- Partly because of the needle and syringe program, the proportion of people who newly acquired HIV associated with injecting drug use was only 3.5% of new cases in 2001 (National Centre in HIV Epidemiology and Clinical Research 2002). In contrast, in the United States, injecting drug use was associated with 11% of new HIV infection cases in 2001 (National Center for Health Statistics 2002).
- The number of new diagnoses for HIV remained relatively stable between 1997 and 2001 (about 750 new diagnoses each year) after falling from a peak of over 1,700 cases in 1985 (AIHW 2002b).

- There were 16,734 cases of hepatitis C virus infection diagnosed in 2001. This is an area where the needle and syringe program could have a major impact. Although we are unable to determine the source of infection for the vast majority of hepatitis C cases reported, for the 214 cases in 2000 where the source was known, 188 (89%) were associated with injecting drug use.
- Hepatitis C is a major cause of liver cancer. The number of deaths due to liver cancer increased by 20% from 1997 to 2001, from 645 deaths in 1997 to 778 deaths in 2001 (AIHW National Mortality Database).



Source: National Centre in HIV Epidemiology and Clinical Research (2002).

Note: 2,342 injecting drug users participated in surveys carried out by needle and syringe programs in 2001.

Figure 3.01: Injecting drug users reporting sharing of a needle and syringe in the preceding month, Australia, 1997–2001

Indicator 3.02 Teenage purchase of cigarettes

Indicator definition

Description: Percentage of teenage smokers who personally purchased their most recent cigarette.

Numerator: Current teenage smokers aged 12–15 and 16–17 years who reported that they had personally purchased their most recent cigarette.

Denominator: Current teenage smokers.

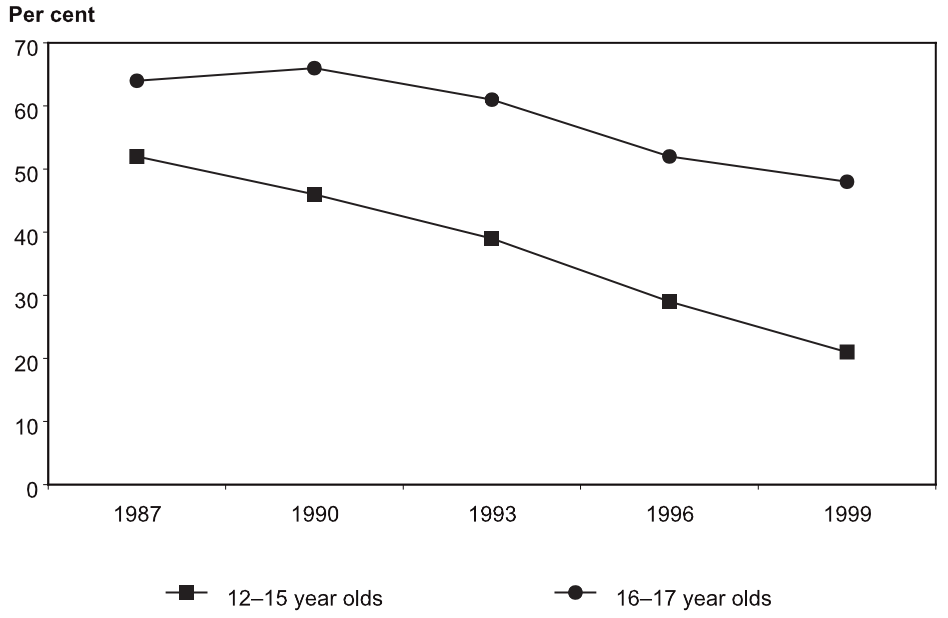
Presentation: Proportion of current teenage smokers who reported personally purchasing their most recent cigarette.

Rationale and evidence

Evidence suggests that there is a correlation between regular smoking, buying cigarettes and heavy cigarette consumption, and that decreasing the ability of teenagers to purchase their own cigarettes will assist in reducing the likelihood of teenagers making the transition from experimental to regular and addicted smoking. States and Territories have enacted legislation that prohibits tobacco sales to teenagers.

What the data show

- According to the 2001 National Drug Strategy Household Survey, around 20% of Australians aged 14 years and over were daily smokers, 23% were current smokers, one in four were ex-smokers and half the population had never smoked (AIHW 2002a).
- In 2001, one in five 14–19 year olds reported smoking, with 16.2% of females and 14% of males smoking every day (AIHW 2002a).
- In 1999, 21% of current smokers aged 12–15 years and 48% aged 16–17 years reported having personally purchased their last cigarette (Hill et al. 2002).
- Since 1987, the proportion of current teenage smokers personally purchasing their own cigarettes has fallen by 60% for current smokers aged 12–15 years and by 25% for those aged 16–17 years.
- Despite the success in reducing the proportion of teenage smokers who personally purchase their own cigarettes, there remain opportunities to further reduce these rates and thus weaken the transition from experimental smoking by teenagers to regular and addicted smoking.



Source: Hill et al. (2002).

Figure 3.02: Current teenage smokers who personally purchased their most recent cigarette, by year, Australia, 1987–1999

Indicator related to:

1.02 Incidence of cancer

1.08 Mortality for National Health Priority Area diseases and conditions

2.01 Children exposed to tobacco smoke in the home

2.05 Adult smoking

Indicator 3.03 Cervical screening

Indicator definition

Description:	Cervical screening rates for women within national target groups.
Numerator:	Women aged 20–69 years who have had a cervical smear recorded in the past two years.
Denominator:	Women aged 20–69 years excluding those who have had a hysterectomy.
Presentation:	Age-standardised proportion, standardised to the June 2001 Australian population.

Rationale and evidence

Up to 90% of all cases of cervical cancer could be prevented through regular screening. Increasing participation in cervical screening will reduce the number of women who develop cervical cancer and ultimately die from the disease. In Australia, it is recommended that women in the target age group of 20 to 69 years, who have ever been sexually active, have a Pap smear every two years. The organised National Cervical Screening Program was established in 1991. Between 1988 and 1998 the mortality rate for cervical cancer in the age group 20 to 69 years fell by 53% and the incidence fell by 41% (AIHW 2003c, Taylor R 2003).

Cervical screening is largely provided by GPs, although public sector providers such as family planning clinics and women's health services are also important. States and Territories take responsibility for supporting screening programs though recruitment activities and the support of population registers and reminder systems. The Australian Government is the primary source of funding for cervical screening, through the MBS. It also undertakes national policy co-ordination and acts on ensuring quality standards in cervical cytology.

What the data show

- In 2000–01, 63%[2] of Australian women within the target age group were screened for cervical abnormalities. This represents a slight fall from the period 1998–99, when 66% of Australian women within the target group were screened. The apparent decline in participation can be partly attributed to improvements in data linkage in the cervical cytology registers, and to changes in the hysterectomy fraction used to calculate the denominator.
- Participation in cervical screening varies across age groups and jurisdictions. In the age group 20–24 years 49% of women have been screened. This participation rate increases for women aged 25–54, reaching a peak of 71% for women aged 50–54. Participation drops for older women, decreasing to 45% for women aged 65–69 years.

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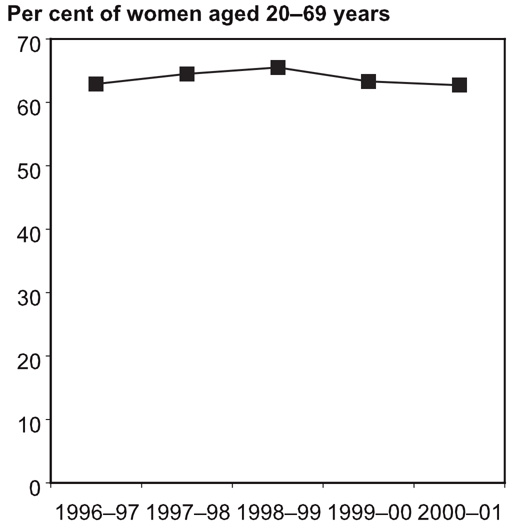
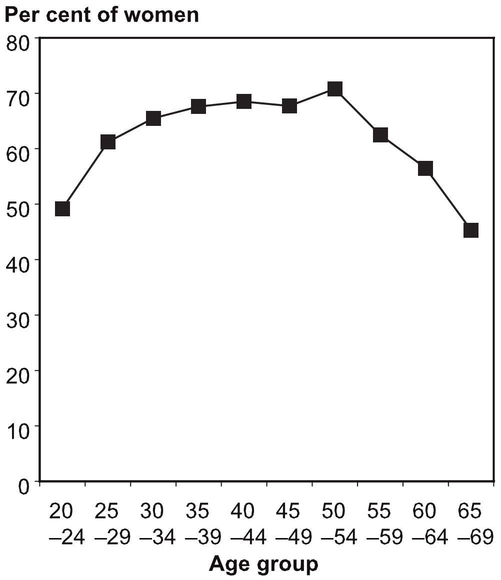
[2] Variations between these figures and the statistical reports of the National Cervical Screening Program are due to those reports being standardised to the 1991 Australian population whereas this report uses the 2001 population.

- In 2000–01, overall participation rates were highest for Tasmania (67%) and South Australia (66%) and lowest for New South Wales (60%) and Queensland (58%) (SCRCSSP 2002).
- Australia recommends a two-year screening interval for cervical screening. Many other countries adopt a three-year screening interval and some a five-year screening interval. This makes international comparison difficult. Data from New South Wales, Victoria, South Australia and Tasmania indicates that over three-quarters of eligible women have been screened over a three-year period (various State Annual Reports, AIHW 2003c, Taylor R 2003).





Source: 1996–97 to 1999–00 data from AIHW analysis of National Cervical Screening Program data. 2000–01 data from SCRCSSP (2002).

Source: SCRCSSP (2002).

Notes

1. The denominator of all proportions has been adjusted to remove women who have had a hysterectomy.
2. Age standardised to the June 2001 Australian population.
3. The Queensland screening register began in February 1999. Therefore the data for the periods 1996–1997 to 1998–1999 do not include data from Queensland.

Figure 3.03(a): Screening for cervical abnormalities, women aged 20–69 years, Australia, 1996–97 to 2000–01

Figure 3.03(b): Participation in the National Cervical Screening Program by women aged 20–69 years, by age, Australia, 2000–01

Indicator related to:

1.02 Incidence of cancer

3.09 Cancer survival

Indicator 3.04 Breast cancer screening

Indicator definition

Description: Breast cancer screening rates for women within the national target groups.

Numerator: Women aged 50–69 years who have participated in the BreastScreen Australia program.

Denominator: Women aged 50–69 years.

Presentation: Age-standardised proportions, standardised to the June 2001 Australian population.

Rationale and evidence

Breast cancer is a major cause of morbidity and death for women. Mammography screening offers an opportunity to detect breast cancer at an early stage and to begin effective treatment.

Various studies have suggested that mammography screening is most effective in detecting breast cancer for women aged 50–69 years. Women in this age group are the target for Australia's national screening program, BreastScreen Australia, although women aged 40–49 years and over 70 years are eligible to attend.

Mammography screening provided through BreastScreen Australia targets women without symptoms. However, other mammography for screening and diagnosis (i.e. for women with a strong family history or for investigation of breast symptoms) may occur in the private sector. A proportion of mammograms done in the private sector could be classed as screening mammograms, but it is not possible to determine the exact number. Therefore to some extent the figures presented here for the proportion of the target population receiving screening mammography are an underestimation of screening on a national basis.

What the data show

- In 1999–00, 56.4%[3] of women aged 50–69 years participated in the BreastScreen Australia Program.
- Between 1996–97 and 1999–00, participation increased by 10%, from 51.5% in 1996–97. Participation increased in all jurisdictions with the largest increases in Queensland (35.4%), the Northern Territory (18.6%), South Australia (13.5%) and Tasmania (12.8%).
- In 1999–00, participation was greatest in South Australia (64.1%) and the Australian Capital Territory (60.4%) and lowest for the Northern Territory (48.6%), New South Wales (53.1%) and Western Australia (53.3%).

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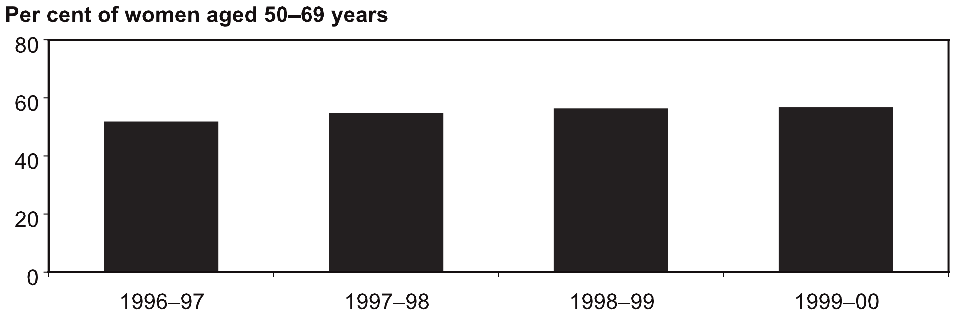
[3] Variations between these figures and the statistical reports of the Breastscreen Australia Program are due to those reports being standardised to the 1991 Australian population whereas this report uses the 2001 population.

- Participation rates are higher in rural regions of most States and Territories. However participation rates are much lower than the state average for Aboriginal and Torres Strait Islander women. Comparisons of participation rates between Aboriginal and Torres Strait Islander people and non-Indigenous women need to be treated with caution because of misclassification of Aboriginal and Torres Strait Islander status in the numerator and uncertainties about the denominator.
- Participation by women with a first language other than English (LOTE) varies between States and Territories. In New South Wales and South Australia, their participation rate is lower than average.

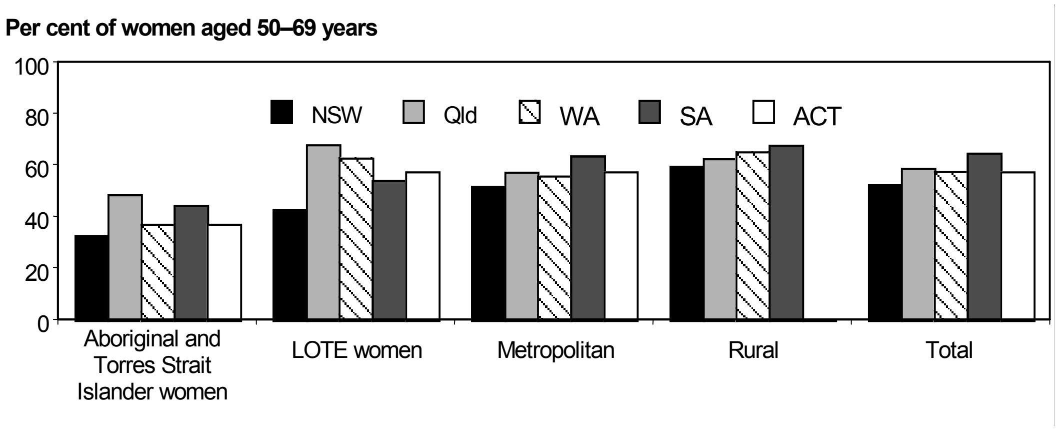


Sources: AIHW (1998); AIHW (2000a).

Notes 1. Age-standardised to the June 2001 Australian population.

2. Each year is statistically significantly different from all other years listed in this figure.

Figure 3.04(a): Participation of women aged 50–69 years in the BreastScreen Australia program, Australia, 1996–97 to 1999–00



Source: SCRCSSP (2002).

Notes 1. Age-standardised to the June 2001 Australian population.

2. Data were not available for Victoria, the Northern Territory or Tasmania as that was not disaggregated into categories. Therefore a national rate is not available.

3. See notes in Appendix 3 for further information.

Figure 3.04(b): Participation rates in the BreastScreen Australia program for women aged 50–69 years for selected target group, by jurisdiction, 2000–01

Indicator related to:

1.02 Incidence of cancer

3.09 Cancer survival

Indicator 3.05 Childhood immunisation

Indicator definition

Description: Number of children fully immunised at 12 months and at 24 months of age.

Numerator: Number of children in a three-month birth cohort (aged 12–15 months at the census date) who received vaccinations under the National Immunisation Program (NIP) by their first birthday, and number of children in a three-month birth cohort (aged 24–27 months at the census date) who received vaccinations under the NIP by their second birthday.

Denominator: Total number of children in each three-month cohort registered with the Australian Childhood Immunisation Register (ACIR) aged 12–15 months, and 24–27 months, at the census date.

Presentation: Proportion of children fully immunised.

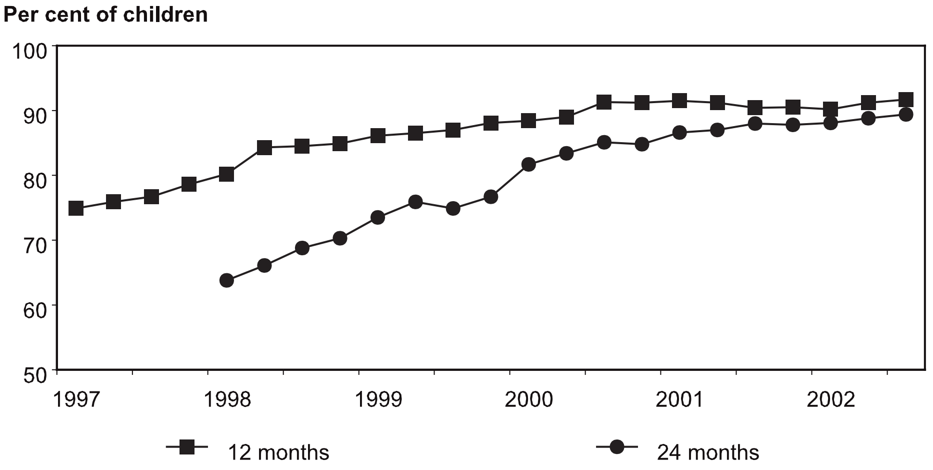
Rationale and evidence

Immunisation is generally highly cost-effective in reducing morbidity and mortality rates in vaccine-preventable diseases. Health system effectiveness in providing vaccination services can be measured by vaccination coverage at key milestones (such as 12 and 24 months of age).

Childhood immunisation is a cornerstone of public health practice. Similar measures are used by the WHO as key indicators of public health programs in all countries. The Australian immunisation program is a Australian Government/State/Territory public health program funded through the *Public Health Outcomes Funding Agreement*.

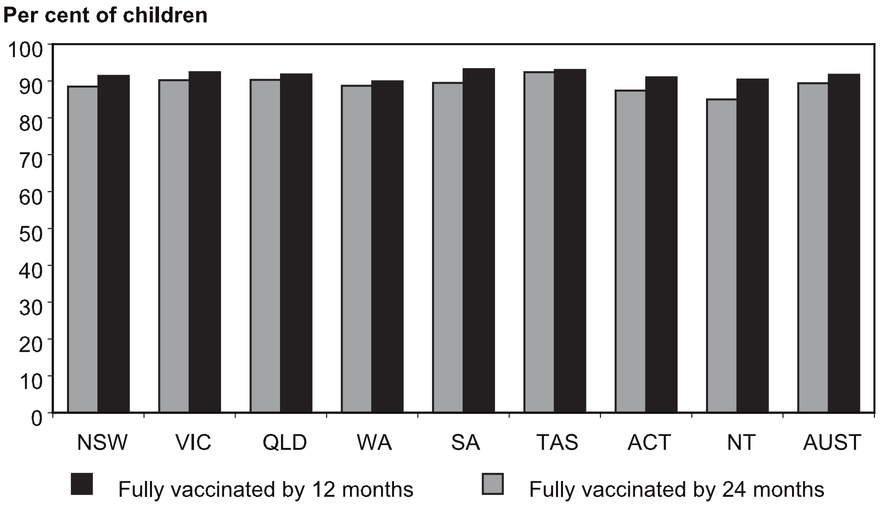
What the data show

- 91.7% of children in Australia aged one year and 89.4% of children aged 2 years had been fully immunised at 30 September 2002.
- Between 1997, when the ACIR was established, and 2000, immunisation coverage increased in all jurisdictions. In March 1997, 75% of children were fully immunised at 12 months. Since 2000, coverage estimates for children aged 1 year have been stable. Coverage estimates for children aged 2 years have continued to increase and are now converging to estimates for children aged 1 year.
- There were no marked differences between jurisdictions in immunisation coverage in 2002.
- Increases in immunisation coverage since 1997 have resulted in Australia achieving a relatively high level of childhood immunisation compared with most other countries. International comparisons are difficult because of differences in immunisation schedules adopted by countries, and differences in data collection methods. The ACIR provides high quality, accurate and comprehensive data, compared with other countries.



Source: National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases (2002).

Figure 3.05(a): Childhood immunisation at 12 months and 24 months, Australia, 1997–2002



Source: National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases (2002).

Figure 3.05(b): Childhood immunisation at 12 months and 24 months, by jurisdiction, 2002

Indicator related to:

3.07 Potentially preventable hospitalisations

Indicator 3.06 Influenza vaccinations

Indicator definition

Description: Percentage of adults 65 years and over who received an influenza vaccination for the previous winter.

Numerator: Number of adults aged 65 years and over sampled through the national Computer Aided Telephone Interview survey who self-report having received an influenza vaccine for the previous winter.

Denominator: Number of adults aged 65 years and over sampled in the national Computer Aided Telephone Interview survey.

Presentation: Proportion of adults aged 65 years and over who have received an influenza vaccine.

Rationale and evidence

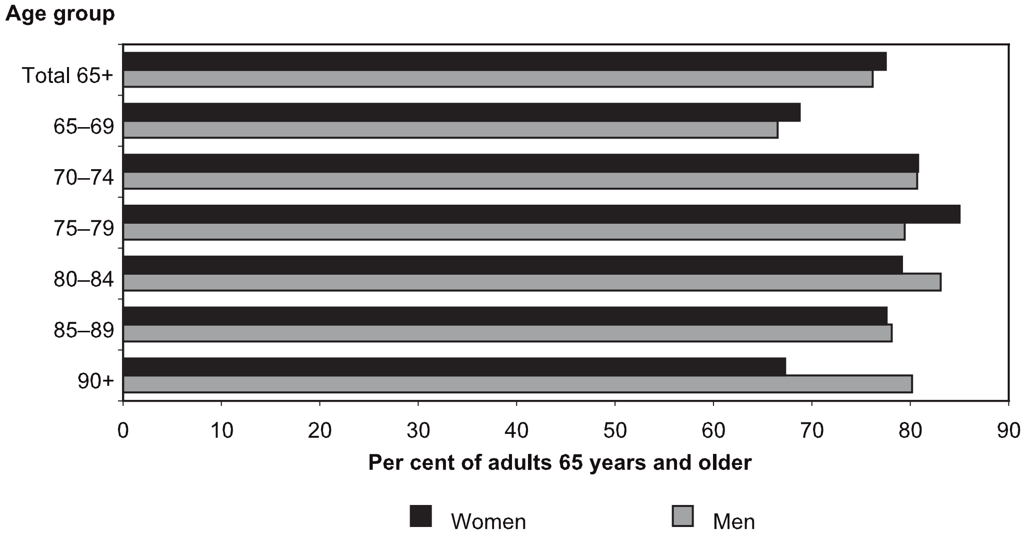
The Australian Standard Vaccination Schedule (NHMRC 2002), endorsed by the NHMRC, recommends yearly influenza vaccination for those aged 65 years and over.

Each year, influenza and its consequences account for many deaths in the elderly population and also place significant burdens on the health system. In 2001 in Australia, influenza and pneumonia accounted for 2,702 deaths and 62,917 (1.0%) of hospital separations for the whole population.

Influenza vaccination has been demonstrated to reduce deaths and hospitalisations amongst older people.

What the data show

- National monitoring of influenza vaccination of people aged 65 years and older has only recently begun, so data on trends are not available.
- Data presented in this report are for the 2002 winter only. An estimated 77% of adults aged 65 years and over received an influenza vaccine for the 2002 winter. Rates are higher for people aged 70 years and over.
- In 2001–02, influenza and pneumonia were an underlying cause of death for 2,700 deaths over all age groups and for 2,250 deaths of people aged 75 years and over.
- The Australian vaccination rate for adults aged 65 years and over compares favourably with that of the United Kingdom, where the rate was 66% in 2001 (United Kingdom Department of Health 2002) and the United States of America where the rate was 65% in 2000 (National Center for Health Statistics 2002).



Source: AIHW (2003a).

Figure 3.06: Influenza vaccination of adults aged 65 years and over, by age and sex, Australia, 2002

Indicator related to:

3.07 Potentially preventable hospitalisations

Indicator 3.07 Potentially preventable hospitalisations

Indicator definition

Description:	Admissions to hospital that could have potentially been prevented through the provision of appropriate non-hospital health services.
Numerator:	Potentially preventable hospital separations (see Appendix 3 for ICD-10-AM codes). **Vaccine-preventable conditions** include influenza, bacterial pneumonia, tetanus, measles, mumps, rubella, pertussis and polio. **Potentially preventable acute conditions** include dehydration/gastroenteritis; kidney infection; perforated ulcer; cellulitis; pelvic inflammatory disease; ear, nose and throat infections and dental conditions. **Potentially preventable chronic conditions** include diabetes, asthma, angina, hypertension, congestive heart failure and chronic obstructive pulmonary disease.
Denominator:	Total population.
Presentation:	Age-standardised rate per 1,000 population, standardised to the June 2001 Australian population by geographical remoteness regions.

Rationale and evidence

Potentially preventable hospitalisation (PPH) rates measure the effectiveness, timeliness and adequacy of non-hospital care, including population health, primary care and outpatient services, in preventing hospitalisations for particular conditions. The definitions adopted in this report are based on the *Victorian Ambulatory Care Sensitive Conditions Study* (Victorian Government Department of Human Services 2002). This study built on a large number of previous studies into ambulatory care sensitive conditions (for example: Billings et al. 1993; Bindman et al. 1995; Weissman et al. 1992), which were recently the subject of systematic review and empirical analysis (UCSF-Stanford University Evidence-based Practice Center 2001).

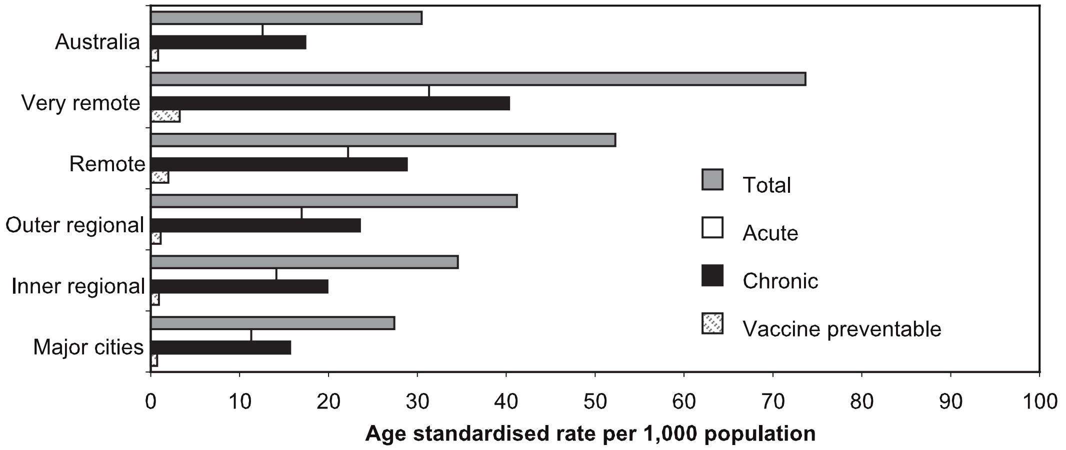
These studies show that the availability of non-hospital care explains a significant proportion of the variation between geographic areas in hospitalisation rates for the specified conditions. Other explanations for this variation include variations in the underlying prevalence of the conditions, in clinical coding standards, and in the likelihood that patients will be treated on an outpatient rather than admitted patient basis. Potentially preventable hospitalisations will never be entirely eliminated, but the variation between geographic areas demonstrates considerable potential for strengthening the impact of non-hospital care.

What the data show

- There were 600,759 hospital separations in 2001–02 that were identified as potentially preventable. These included 16,545 separations for vaccine-preventable conditions (predominantly influenza and pneumonia) and 247,732 separations for acute conditions (with the largest numbers for dental, dehydration and gastroenteritis conditions). Chronic conditions accounted for 343,649 separations, with diabetes complications

(142,992) and chronic obstructive pulmonary disease (54,856) the conditions with the largest numbers of separations.

- Hospitalisation rates for PPHs were highest in very remote regions, with rates more that 2.42 times the national average. Rates in other regional and remote areas were also much higher than rates in major cities. These patterns are consistent with the lower per person provision of general practice care, other primary care and specialist services in rural and remote Australia.
- Rates also varied between categories of socioeconomic status. Rates in the most disadvantaged regions were 50% higher than those of the most advantaged regions.
- Comparing States and Territories, rates for PPHs were lowest in the Australian Capital Territory and New South Wales (30% and 9%, respectively, below the national average) and highest in the Northern Territory (40% higher than the national average). Rates for other States were between 4% and 8% higher than the national average.



Source: AIHW analysis of AIHW hospital morbidity data base.

Notes

1. Rates per 1,000 population were age-standardised to the June 2001 Australian population.
2. As patients can have more than one individual condition within a category, the sum of the individual conditions will not necessarily equal the total for the broad category.
3. Australia excludes 'Unknown' state of residence and non-Australian residents. See map in Appendix 4 for Remoteness categories.

Figure 3.07: Separation rates[1] for potentially preventable hospitalisations by broad categories[2], by Remoteness Area of usual residence, Australia(3), 2001–02

Indicator related to:

3.05 Childhood immunisation

3.06 Influenza vaccination

3.11 Management of diabetes

3.18 Availability of GP services

3.22 Enhanced Primary Care services

Indicator 3.08 Survival following acute coronary heart disease event

Indicator definition

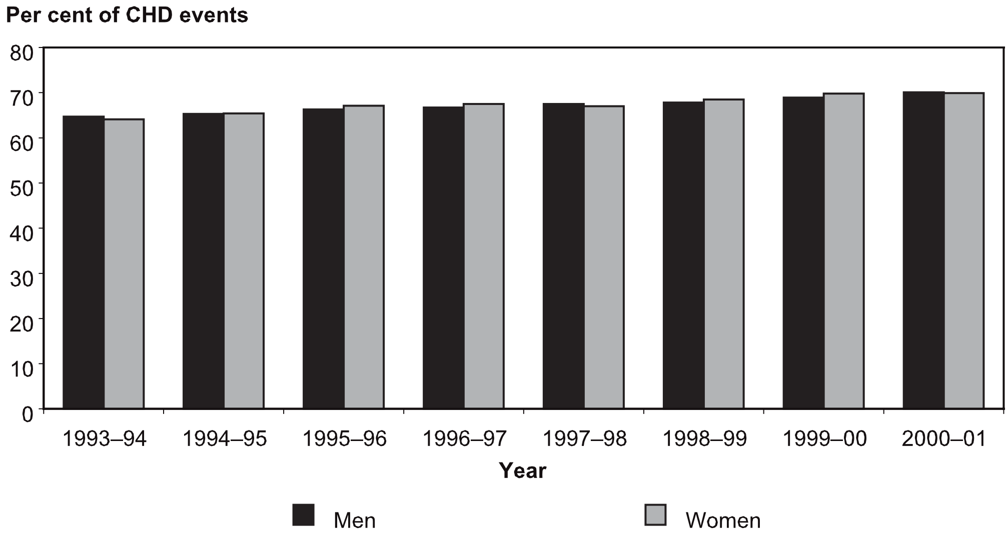
Description:	Deaths occurring after acute CHD events ('heart attacks').
Numerator:	Deaths of people aged 40–90 years, due to CHD.
Denominator:	All incident cases of acute CHD events (including both the number of non-fatal hospital separations due to acute CHD and the number of deaths).
Presentation:	Age-standardised proportion, standardised to the June 2001 Australian population.

Rationale and evidence

Survival following an acute CHD event provides an indication of the effectiveness of health systems in getting patients to hospital quickly and initiating treatment, such as thrombolytic therapy or primary angioplasty, as early as possible. It also indicates how effective interventions (such as coronary bypass grafts and treatments of risk factors such as hypertension and hypercholesterolemia) are in preventing severe heart attacks which kill people before they can reach hospital.

What the data show

- In 1993–94, 35% of males and 36% of females suffering heart attacks died. This reduced to 30% of males and females in 2000–01. For men this represented a decline of 15% in the proportion suffering heart attacks who died, and for females it was a decline of 16%.
- In survival terms, the proportion surviving a heart attack increased from 65% to 70%.
- Heart attacks here refer to those heart attacks serious enough to require hospital admission. If more people with mild heart attacks are being admitted to hospital, this data will overestimate the improvement in survival.
- This data is not a measure of the survival of individuals following heart attacks, but is a population-wide measure which estimates survival following heart attack whether that is a first, second or subsequent heart attack for the individual.



Sources: AIHW National Hospital Morbidity Database; AIHW National Mortality Database.

Note: Age-standardised to the 2001 Australian population aged 40–90 years.

Figure 3.08: Survival following CHD events, 1993–94 to 2000–01

Indicator related to:

1.01 Incidence of heart attacks

3.19 Access to elective surgery

Indicator 3.09 Cancer survival

Indicator definition

Description:	Five-year relative survival proportions for people diagnosed with cancer.
Numerator:	Number of people diagnosed with cancer who survived for five years after diagnosis.
Denominator:	Number of similar people in the general population who survived for the same period in the absence of cancer.
Presentation:	Five-year relative survival proportions.

Rationale and evidence

Survival after diagnosis of cancer is an important measure in assessing the broad impacts of prevention and early detection methods such as screening and treatment. Relative survival is the ratio between what actually happens to a group of people with cancer and what would normally have happened to them in the absence of cancer. Thus, for example, a relative survival of 100% indicates that the disease has made no difference to survival of the group over a given period. A survival rate of less than 100% indicates that cancer did reduce survival compared to the population without cancer.

What the data show

- From 1982–1986 to 1992–1997, the five-year relative survival rates for both males and females have increased. For all cancers, the five-year relative survival rate for males increased from 44% in 1982–1986 to 57% in 1992–1997. For females the increase was from 55% to 63%.
- Females have higher five-year relative survival rates from all cancers than males.
- Five-year relative survival was highest for those aged 20–29 years, and decreased with age for those aged 30 years and over (AIHW & AACR 2001).
- In 1987–1991 Australia had the second highest five-year relative survival rate of all cancers compared with European countries and the United States for both males and females. The United States had the highest relative survival for 1987–1991 (AIHW & AACR 2001).
- Five-year relative survival was lowest for males and females living in remote centres (49.7% and 53.4%, respectively). This was statistically significantly lower than for males and females living in rural and metropolitan areas (AIHW & AACR 2003).
- Across all geographic areas, five-year survival was highest for those aged 20–29 years and decreased with age for those aged 30 years and over (AIHW & AACR 2003).
- With regard to socioeconomic status, five-year relative survival was highest for those in quintile 5 (the least disadvantaged) (61.4% for males and 62.2% for females), which was statistically significantly higher than for those in quintiles 1-4 (the most disadvantaged) (AIHW & AACR 2003).

Source: AIHW & AACR (2001).

Notes

1. Excludes non-melanoma skin cancer.
2. Age adjustment uses as a standard population the total number of cancer cases diagnosed from 1992–1997.

Figure 3.09: Five-year relative cancer survival rate following diagnosis, by sex, Australia, 1982–86 to 1992–97

Indicator related to:

1.02 Incidence of cancer

3.03 Cervical screening

3.04 Breast cancer screening

Indicator 3.10 Appropriate use of antibiotics

Indicator definition

Description: Number of prescriptions for oral antibiotics ordered by general practitioners (GPs) for the treatment of upper respiratory tract infections.

Numerator: Number of patient encounters where commonly used antibiotics are prescribed by GPs for URTI problems.

Denominator: Number of patient encounters for URTI by GPs.

Presentation: Prescribing rate per 100 encounters for URTI.

Rationale and evidence

URTIs without complications are most often caused by viruses. Antibiotics have no efficacy in the treatment of viral infections, but are still frequently prescribed when they occur. Overuse of antibiotics increases antibiotic resistance in the general population. A decline in the prescribing rate of antibiotics for URTI may be an indication of the more appropriate management of viral infections.

Data from the Pharmaceutical Benefits Scheme (PBS) were not used for this indicator because they do not include information on diagnosis or on medications that fall below the subsidy threshold or on private prescriptions. Data on prescriptions written by doctors was obtained from the BEACH survey of GPs (AIHW: Britt et al. 2002). Prescribing by GPs is somewhat higher than the prescriptions actually filled by the pharmacist.

What the data show

- The prescribing rate of antibiotics for URTI problems declined from 42.1 per 100 URTI problems in 1998–99 to 33.1 per 100 problems in 2001–02. The decline was significant for cephalosporins and broad-spectrum penicillin (Figure 3.10(a)).
- Where antibiotics are necessary for the management of some URTIs, narrow spectrum penicillins are recommended. These include amoxycillin, amoxycillin+clavulanate, and phenoxymethylpenicillin (Therapeutic Guidelines Ltd 2000). Between 1999 and 2001, the relative prescribing of these antibiotics (as a percentage of antibiotic prescribing for URTIs) increased (National Prescribing Service Limited 2003). This suggests a move towards the more appropriate management of URTIs.
- URTI was the second most common problem managed with antibiotics (14.4 per 100 antibiotic encounters), after acute bronchitis (15.3 per 100 antibiotic encounters). Between 1998–99 and 2001–02, there was no significant change in the management rate of URTI (problems per 100 encounters) (AIHW: Britt et al. 2002:110, 112).

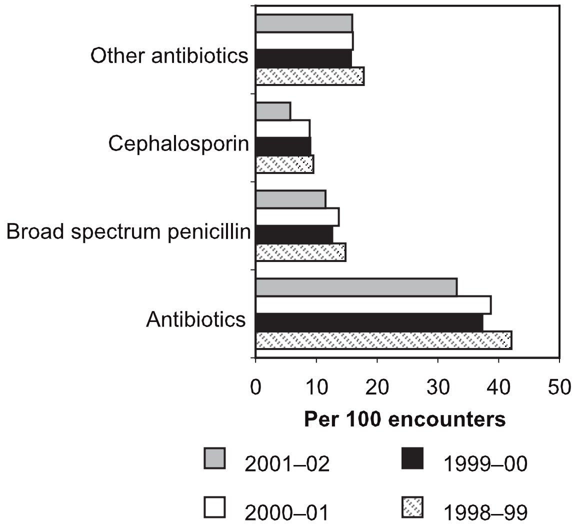


Figure 3.10(a): Prescribing rates of antibiotics for URTIs, Australia, 1998–99 to 2001–02

Source: AIHW: Britt et al. (2002):110–111.

Note: Year refers to the BEACH data year which runs from April to March.

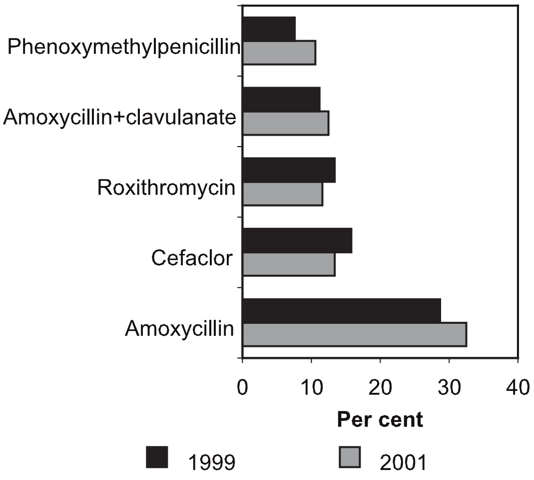


Figure 3.10(b): Percentage of antibiotics prescribed for URTIs, by type, Australia, 1999 and 2001

Source: Analysis of BEACH data published in National Prescribing Service Limited (2003).

Note: Year is calendar year.

Note: Amoxycillin, amoxicillin-clavulanate and phenoxymethylpenicillin are narrow spectrum antibiotics

Indicator related to:

3.07 Potentially preventable hospitalisations

Indicator 3.11 Management of diabetes

Indicator definition

Description:	Proportion of people with diabetes mellitus who have received an annual cycle of care within general practice.
Numerator:	Number of people with diabetes mellitus who have received an annual cycle of care in 2002 within PIP general practices.
Denominator:	Estimated number of people with diabetes mellitus managed within PIP general practices in 2002.
Presentation:	Proportion of people with diabetes mellitus who have received an annual cycle of care in 2002 within PIP general practices.

Rationale and evidence

This indicator is intended to measure the extent to which GPs are able to provide continuity or coordination of care for the prevention and management of diabetes mellitus, an example of a chronic condition. However, there are no accurate counts of the number of people in Australia who know they have diabetes or who have had appropriate management of the condition within general practice. For example, the estimate of those who knew they had diabetes as a long-term condition, from the ABS 2001 National Health Survey, was 554,200 (533,000 were aged 25 years or older). The estimate from the AusDiab survey conducted in 2000 was 878,000 (aged 25 years or older), and included those who knew they had diabetes (439,000) and those who didn't know until they participated in the survey (439,000) (AIHW analysis of The Australian Diabetes, Obesity and Lifestyle Study (AusDiab) database). For this reason, the indicator reported here is based on data from general practices participating in the Practice Incentives Program (PIP). PIP practices covered 78.2% of patients in general practice in 2002.

The numerator is estimated as the standardised Whole-Patient Equivalents (SWPEs) (see Appendix 3 for definition of SWPE) receiving an annual cycle of care for diabetes in 2002 at PIP practices. The diabetes annual cycle of care represents appropriate diabetes care in accordance with the RACGP and Diabetes Australia guidelines. For further information and information about the calculation of the denominator, see Appendix 3.

What the data show

- There were an estimated 744,975 people (SWPEs) with known diabetes mellitus whose condition was managed by PIP practices during 2002. Of these people, 18.2% (135,943 SWPEs) received an annual cycle of care for diabetes.
- A vast majority (98.3%, 133,671) of the people who received a cycle of care for diabetes in 2002 were from practices that participated in the diabetes management initiative.
- Large rural areas had the highest proportion of people who had received an annual cycle of care (20.1%), closely followed by other metropolitan areas (19.5%). The proportion was lowest for remote centres (9.3%).

- By May 2003, there were 4,593 practices participating in PIP, and 87% of those had signed-on for the diabetes management initiative. This was an increase from 67% in November 2001.

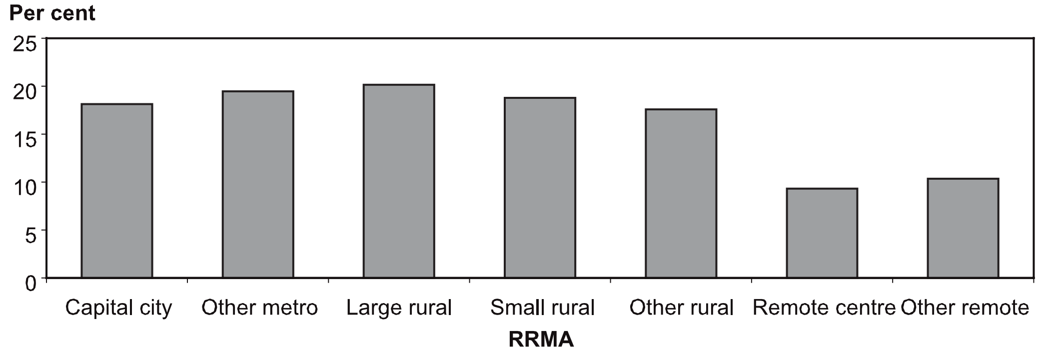


Figure 3.11(a): Percentage of persons with diabetes mellitus who completed an annual cycle of care within PIP practices in 2002, by RRMA

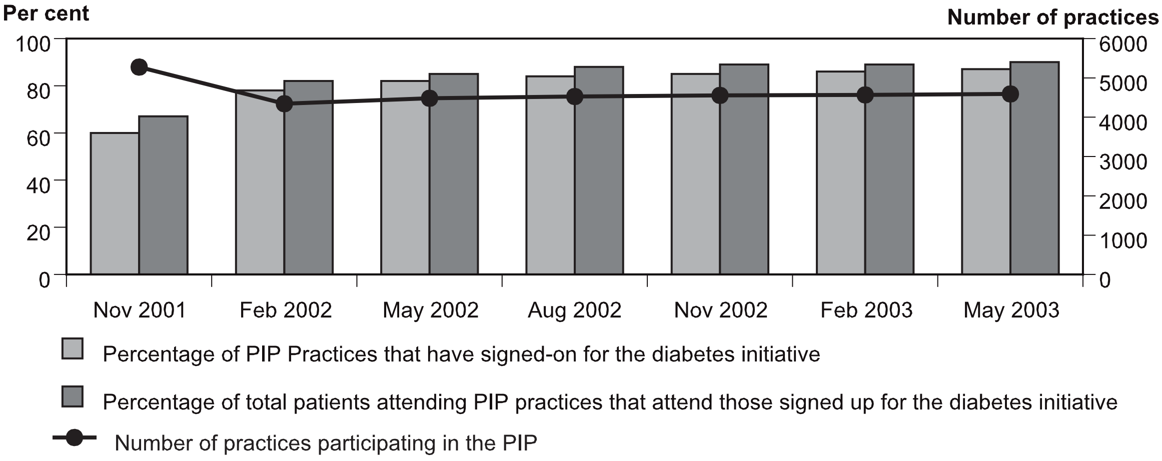


Figure 3.11(b): Proportion of practices (and their patients) participating in the Practice Incentives Program that have signed-on for the Diabetes Initiative, Australia, November 2001 to May 2003

Source: Australian Government Department of Health and Ageing (unpub.)

Notes

1. Number of people known to have diabetes is the number of SWPEs in PIP practices who had a glycosylated haemoglobin (HbA1c) test performed in 2001 or 2002.
2. MBS codes: HbA1c test for established diabetes—66551, 66554 and 73840. Completion of annual cycle of care for diabetes management—2517 to 2526 and 2620 to 2635.

Indicator related to:

3.07 Potentially preventable hospitalisations

3.22 Enhanced Primary Care services

Indicator 3.12 Delivery by caesarean section

Indicator definition

Description:	Caesarean sections as a proportion of all confinements by hospital status.
Numerator:	Confinements where birth is by caesarean section.
Denominator:	Total number of hospital confinements of all women aged 15–49.
Presentation:	Percentage of hospital confinements resulting in caesarean section.

Rationale and evidence

Caesarean section is one of the most common surgical procedures in Australia. Decisions to deliver by caesarean can be made before the onset of labour (elective caesarean) or after the onset of labour (emergency caesarean). Delivery by caesarean section is appropriate in a range of circumstances related to the clinical characteristics of patients, including failure to progress in labour, advanced maternal age, first births compared with second births, previous caesarean section, multiple pregnancy, breech presentation and low birthweight. However, studies across the world have shown that other factors are important contributors to variation, including the practice patterns of individual doctors and other non-clinical factors such as health insurance status, hospital characteristics and exercise of patient choice. Of the 21 OECD countries that reported caesarean section for 1999, Italy had the highest percentage (32.4%) while the Netherlands had the lowest (11.3%). The median was Iceland (17.3%). Six countries were below 15% (OECD 2002).

What the data show

- In 2000, the year for which the latest national data is available, 23.1% of hospital confinements in Australia involved delivery by caesarean section. This rate has increased over the last decade from 17.5% in 1990.
- Caesarean section rates have increased in both public and private hospitals. Factors contributing to increased rates include an increase in maternal age, higher level of health insurance, greater access to private hospitals and exercise of patient's choice, and changes in practice responding to the medical indemnity crisis (AIHW NPSU 2003).
- Caesarean section rates are higher for older mothers. Whilst women are tending to have babies at older ages, this only partially accounts for increases in the overall rate. There have been significant increases in rates for each age group.
- Caesarean section rates are higher for private patients than public patients. In 1999, 34.5% of confinements of private patients involved delivery by caesarean section. Rates are also higher for women who are treated as private patients in public hospitals.
- Increasing use of caesarean section has been observed in all reporting OECD countries, except the United States of America. In 1999, Australia's rate of 21.7% caesarean sections of all live births was 25% higher than the OECD median and the fourth highest of the 21 OECD countries that reported that year (OECD 2002).

- The national rate of caesarean sections for in-hospital births has increased from 21.8% in 1998–99 to 26.7% in 2001–02 (AIHW 2003b). (There are differences between this data from the national hospital statistics collection and the data above from the perinatal statistics collection in that the hospital statistics collection does not include all private hospitals and some data recording practices are different).

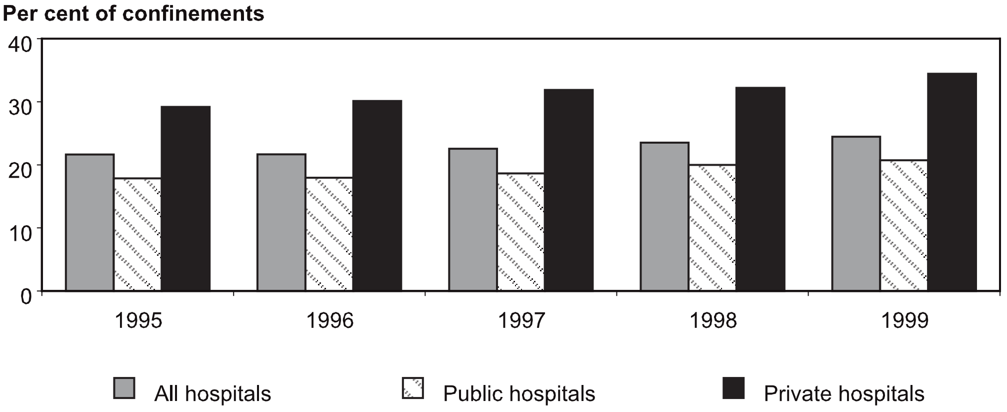


Figure 3.12(a): Delivery by caesarean section, by private or public hospital status, Australia, 1995–1999

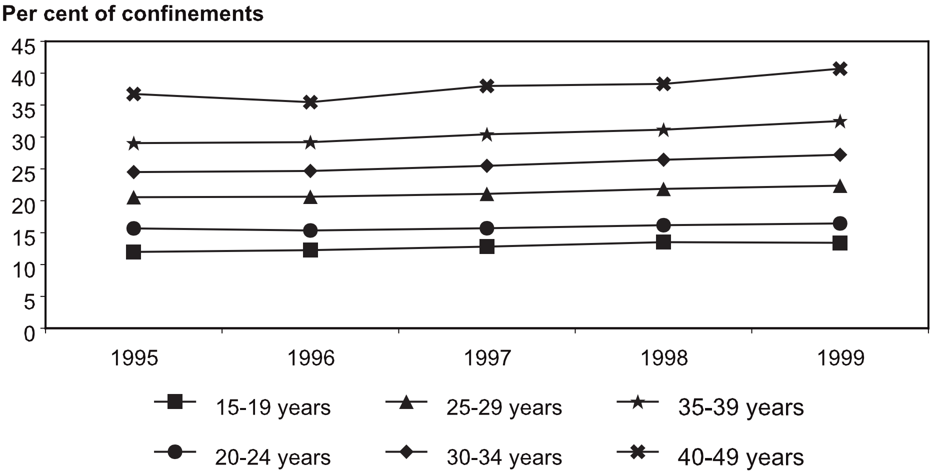


Figure 3.12(b): Delivery by caesarean section, by age of mother, Australia, 1995–1999

Source: National Perinatal Data Collection (2003). AIHW (2003b).

Notes

1. Multiple births excluded.
2. 1995–1997—no hospital accommodation classification for Victoria.
3. 1995–1999—no classification for hospital accommodation for the Northern Territory.
4. Caesarian includes elective, emergency and unspecified. Cases that did not specify hospital status are excluded.
5. Data not available for Tasmania in 1999: data from 1998 used as a proxy for 1999.
6. Denominator: confinements where hospital status is public or private (unknown and not stated are excluded).
7. Age grouping is 5 year intervals except 40–49.
8. Denominator: all confinements of mothers 15 years to 49 years in that year.

Indicator 3.13 Hysterectomy rates

Indicator definition

Description: Separation rates for hysterectomies.

Numerator: Number of acute hospital separations with hysterectomy for women aged 15–69 years.

Denominator: Number of women aged 15–69 years by relevant area of residence.

Presentation: Age-standardised rate per 100,000 population, standardised to the June 2001 Australian population.

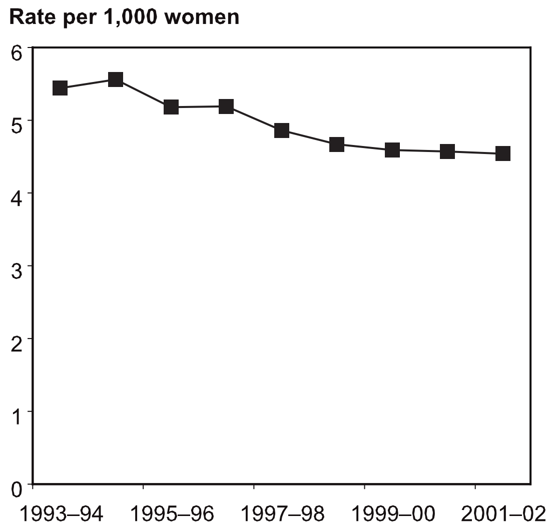
Rationale and evidence

Hysterectomy involves the partial or full removal of the uterus. It is one of the most common surgical procedures performed in Australian hospitals. Just under one in ten women will undergo a hysterectomy by the age of 40 years and around one in five will undergo a hysterectomy before the age of 50 years (Graham et al. 2001). The procedure is usually performed to treat a range of conditions including recurrent uterine bleeding, chronic pelvic pain, or menopause, usually in some combination. Hysterectomies can also be performed to treat genital cancer or in cases of trauma.

Although there is no nationally agreed appropriate hysterectomy rate, it is believed that hysterectomies could be overused. Several studies have shown that the variation in hysterectomy rates between regions cannot be explained by the underlying patterns of disease (AHRQ 2002).

What the data show

- In 2001–02, there were 4.54 hysterectomies performed for every 1,000 Australian women aged 15–69 years.
- Hysterectomy rates have declined by around 20% since 1993–94.
- Hysterectomy rates were highest for women aged 40–49 years.
- The hysterectomy rate was highest in inner regional (5.27 per 1000 women aged 15–69 years) and outer regional (5.23) areas. Rates were slightly lower than the national average for major cities (4.27) and remote areas (4.57). Rates were lowest for the most remote regions (3.55).
- Hysterectomy rates were significantly lower for women in the most advantaged socioeconomic areas (4.04 per 1000 women aged 15–69 years).
- Rates vary between jurisdictions, with the highest rates reported for South Australia and the lowest for the Northern Territory and New South Wales.
- Analysis by a number of state and territory health authorities has shown considerable variation in rates between regions within jurisdictions. This evidence of variation in use of hysterectomies between regions is a starting point for further investigation and analysis.



Source: AIHW (2003b).

Notes

1. Age-standardised to the June 2001 Australian population. Rate expressed as separations per 1,000 women aged 15–69 years.
2. Hysterectomies are identified using the following ICD-10-AM codes: hysterectomy blocks [1268], [1269], codes 90450-00 and 90450-01. It is important to note that this analysis includes the following hysterectomies that other analyses such as studies by the US Agency for Healthcare Research and Quality exclude: (1) women undergoing hysterectomy for malignancy of the cervix, uterus, ovary and/or fallopian tube; and (2) women where the principal diagnosis is (a) lower abdominal trauma of (b) pregnancy, childbirth or puerperium.
3. ASGC remoteness category—see Appendix 4 for map of Australia showing remoteness categories.

Figure 3.13(a): Hospital hysterectomy separation rate, women aged 15–69 years, Australia, 1993–94 to 2001–02

Figure 3.13(b): Hospital separations for hysterectomies, by Remoteness Area of usual residence, women aged 15–69 years, 2001–02

Indicator 3.14 Hospital costs

Indicator definition

Description: Average cost per casemix-adjusted separation for public acute care hospitals.

Numerator: Total admitted patient costs reported for public acute care hospitals. Costs are calculated by multiplying total reported costs by the admitted patient fraction (IFRAC) reported for each hospital.

Denominator: Total casemix-adjusted separations reported for public acute care hospitals. Separations include all care types, including those other than acute. Newborns with no qualified days are excluded, along with records that do not relate to admitted patients (boarders and posthumous organ procurement).

Presentation: Cost per casemix-adjusted separation.

Rationale and evidence

The cost per casemix-adjusted separation is a measure of the average cost of admitted patient care and as such can be taken as a measure of the relative technical efficiency of hospitals. The measure of hospital outputs is weighted for differences in the casemix of hospitals, which takes account of a major criticism of approaches that compare average costs per separation. Casemix weightings are based on the Australian refined DRGs (AR-DRGs) and on previous DRG versions.

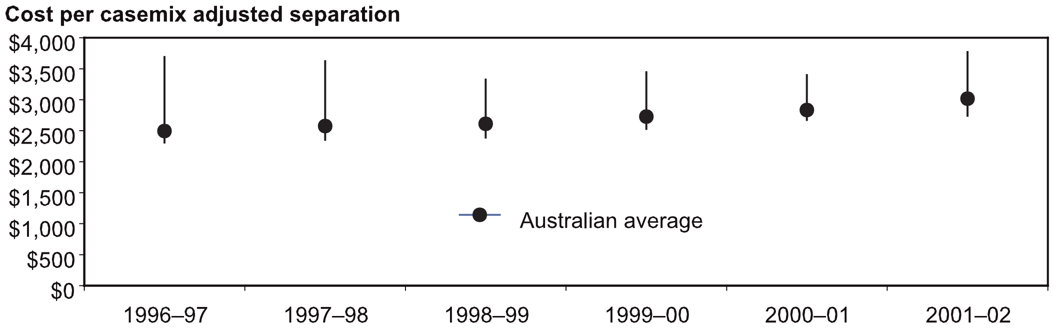
DRGs are a relatively poor measure of outputs for non-acute and psychiatric services and even though these services account for a small proportion of acute hospital outputs, caution should be applied in interpreting results related to DRGs. Because casemix weights change from year to year, caution should also be applied in interpreting time series. Care needs to be taken to allow for differences between jurisdictions in counting rules, financial reporting methods, treatment of particular expenditure items and allocation of overhead costs. Differences in the scope of services delivered by hospitals may reduce their comparability. For example, some jurisdictions admit patients who may be treated as non-admitted patients in other jurisdictions. The measure is sensitive to differences between jurisdictions in input prices, particularly differences in salary and wage levels for key health staff categories, which may mask underlying differences in the productivity of hospitals.

What the data show

- The average cost per casemix-adjusted separation for 2001–02 was $3,017. This represents an increase of 7.6% on the previous year. Increases in the costs of medical staff and visiting medical officers, nursing and medical supplies accounted for a major share of the increase in costs compared with the pervious year.
- The cost per casemix-adjusted separation has increased over time from $2,496 in 1996–97 to $3,017 in 2001–02, an average annual increase of 3.9%.
- Employee-related costs (including visiting medical officers) account for 72% of recurrent costs. Nursing is the largest single cost component, accounting for 27% of costs, followed

by medical costs. Medical and drug supplies are the largest component of non-labour-related costs, accounting for 48% of non-labour costs.

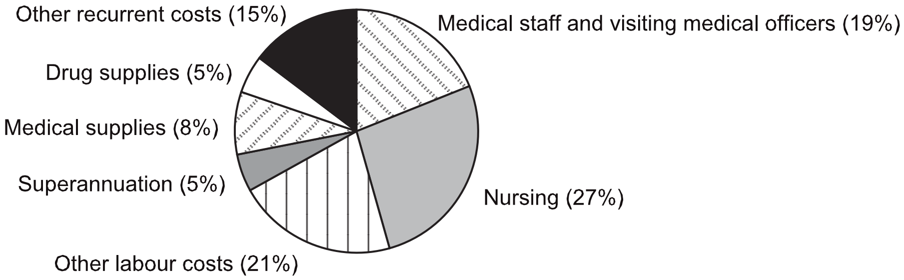
- In 2001–02, the cost per casemix-adjusted separation was highest in the Australian Capital Territory ($3,769) and the Northern Territory ($3,709), and lowest in Queensland ($2,741) and South Australia ($2,898).



Sources: AIHW, Australian Hospital Statistics, various years.

Note: Lines represent range of cost per casemix-adjusted separation across the jurisdictions.

Figure 3.14(a): Cost per casemix-adjusted separation, public hospitals, Australia



Sources: AIHW (2003b); AIHW (2002c).

Notes

1. Includes estimated medical costs for private patients.
2. Per cent increase in public hospital costs calculated from increases in costs per casemix-adjusted separation.

Figure 3.14(b): Increases in public hospital costs 2000–01 to 2001–02, Australia

Indicator related to:

3.15 Length of stay in hospital

Indicator 3.15 Length of stay in hospital

Indicator definition

Description: Relative stay index (RSI) by medical surgical and other DRGs.

Numerator: Number of actual patient days for acute care separations.

Denominator: Expected number of patient days, given the DRG mix for a particular hospital, and other factors influencing length of stay.

Presentation: Ratio of the average length of stay for each jurisdiction to the total Australian average length of stay (casemix adjusted).

Rationale and evidence

The average length of hospital stay per separation is a measure of the efficiency of acute care hospitals. However, because hospitals and jurisdictions vary in terms of their casemix, (i.e. the mix of patients within DRGs), it is appropriate to adjust length of stay measures to account for casemix.

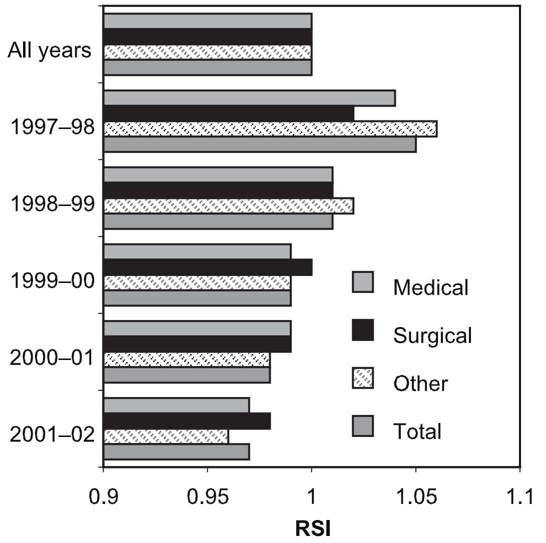
An RSI compares the actual length of stay in a hospital to the expected length of stay. An RSI rating of > 1 indicates that the average length of stay is longer than would be expected given the jurisdiction's or hospital's casemix distribution. An RSI rating of < 1 indicates that the number of patient days used was less than would have been expected. There are two different RSI calculation methods used. The indirect method uses the casemix and age distribution of the jurisdiction or hospital to estimate the expected stay. Calculated in this way, RSI is not directly comparable between cells in the table (Appendix 2) as each cell is a comparison of the cell with the average. The direct method adjusts the casemix of the jurisdiction or hospital to the national casemix, allowing cells to be directly comparable. The RSIs presented here are calculated using the direct standardisation method.

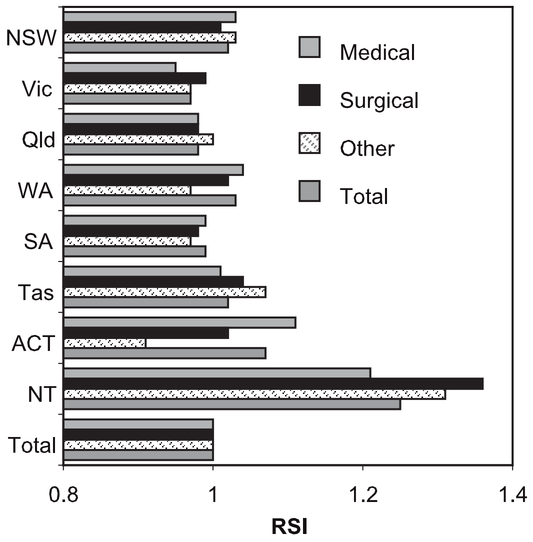
Some caution needs to be applied in interpreting these indices. Despite the approach used for adjusting for casemix, there may be other factors that contribute to the resulting indices. For example, there are DRGs that are predominantly performed in the public sector in some States and Territories, which are generally associated with more complex emergency surgical and medical cases.

What the data show

- There are variations between jurisdictions and between the public and private sectors in the RSI for 2001–02.
- For surgical separations, the directly standardised RSI was 1.02 for public hospitals (longer lengths of stay than expected) and 0.97 for private hospitals (lower lengths of stay than expected). Within the public sector, Queensland had the lowest RSI for surgical separations at 0.99.
- Between 1997–98 and 2001–02 there was a fall in the directly standardised RSI for both the public and private sectors for medical and surgical separations. On a casemix adjusted basis, the average length of stay in private hospitals fell by 11% for surgical separations and 6% for medical separations. In public hospitals the average length of stay fell by 8% for surgical separations and 7% for medical separations.

- For medical separations, the directly standardised RSI is 0.98 for public hospitals and 1.13 for private hospitals. Within the public sector, Queensland had the lowest directly standardised RSI for medical separations at 0.91.





Source: AIHW analysis of National Hospital Morbidity Data Base.

Note: There may be a slight discontinuity between 97–98 and 98–99 due to the ICD-9-CM to ICD-10 AM changeover.

Figure 3.15(a): Relative stay index, by separation type, by year, all hospitals, 1997–98 to 2001–02

Figure 3.15(b): Relative stay index, by type of separation, by state and territory, 2001–02

Indicator related to:

3.14 Hospital costs

Indicator 3.16 Waiting times in emergency departments

Indicator definition

Description:	Percentage of patients who are treated within national benchmarks for waiting in public hospital emergency departments for each triage category.
Numerator:	Presentations to public hospital emergency departments that were treated within benchmarks for each triage category.
Denominator:	All presentations to public hospital emergency departments for each triage category.
Presentation:	Proportion of patients presenting to emergency departments who are treated within national benchmarks for waiting for each triage category, by state and territory.

Rationale and evidence

Emergency departments in public hospitals play a key role in ensuring that the public hospital system is able to manage emergency patients requiring rapid treatment and also less urgent cases where community-based medical care is not appropriate or not available.

Patients attending emergency departments should be treated within an appropriate time. All patients attending public hospital emergency departments are assessed and are assigned a triage category, which reflects the urgency with which treatment should commence. The appropriate time for commencing treatment decreases as the urgency of the triage category increases. Within Australia, benchmarks for the commencement of treatment have been identified for each triage category (AIHW 2001c). The benchmarks are as follows:

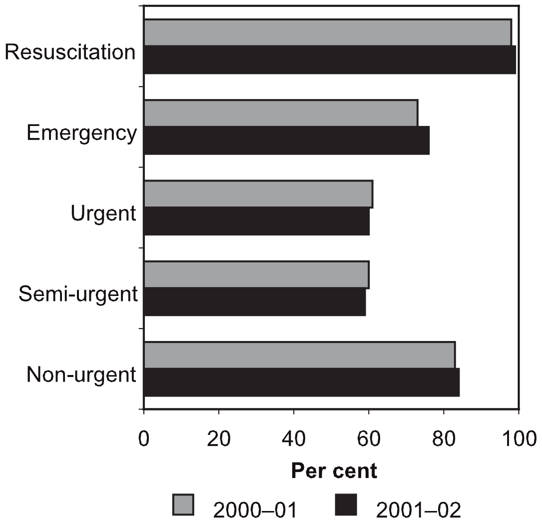
• triage category 1:	patient needs resuscitation	seen immediately
• triage category 2:	emergency	seen within 10 minutes
• triage category 3:	urgent	seen within 30 minutes
• triage category 4:	semi-urgent	seen within 60 minutes
• triage category 5:	non-urgent	seen within 120 minutes

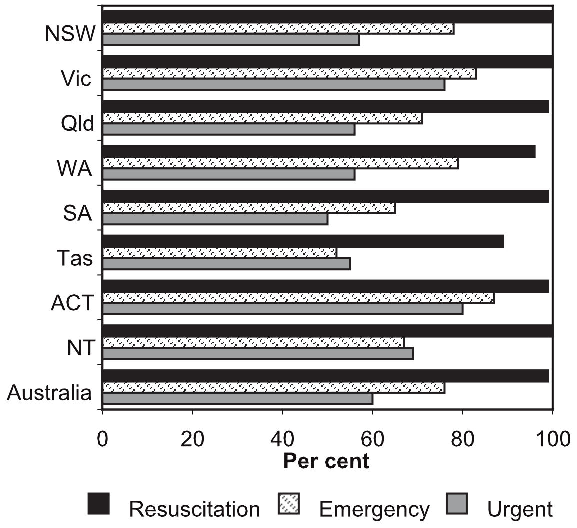
This indicator measures the extent to which these benchmarks have been achieved.

What the data show

- In 2001–02, over 99% of patients requiring resuscitation were seen immediately, and 76% of patients requiring emergency treatment were seen within 10 minutes. This was a slight improvement over the previous year for resuscitation and emergency patients.
- In 2001–02, 60% of patients requiring urgent treatment were seen within 30 minutes, 59% of patients requiring semi-urgent treatment were seen within 60 minutes and 84% of patients requiring non-urgent treatment were seen within 120 minutes. There was deterioration over the previous year for these triage categories.

- There is variability between jurisdictions in the achievement of the benchmarks for triage categories 2–5, which may reflect variation in coverage, how waiting times are calculated, triage categorisation and the types of patients that present to emergency departments.





Source: AIHW (2003b).

Note: Triage category is the urgency of the patient's need for medical and nursing care.

Figure 3.16(a): Presentations to public hospital emergency departments treated within benchmark times, by triage category, Australia

Figure 3.16(b): Presentations to public hospital emergency departments treated within benchmark times, by triage category, by state and territory, 2001–02

Indicator related to:

3.17 Bulk billing for non-referred (GP) attendances

3.18 Availability of GP services

Indicator 3.17 Bulk billing for non-referred (GP) attendances

Indicator definition

Description:	Proportion of non-referred (GP) attendances that are bulk-billed (or direct-billed) under the Medicare program.
Numerator:	Number of non-referred (GP) attendances that are bulk-billed.
Denominator:	Total number of non-referred (GP) attendances.
Presentation:	Proportion.

Rationale and evidence

Accessibility to medical services can be considered across a number of dimensions such as affordability, and availability of services in terms of when and how readily they can be obtained by patients. This indicator considers accessibility from an affordability perspective.

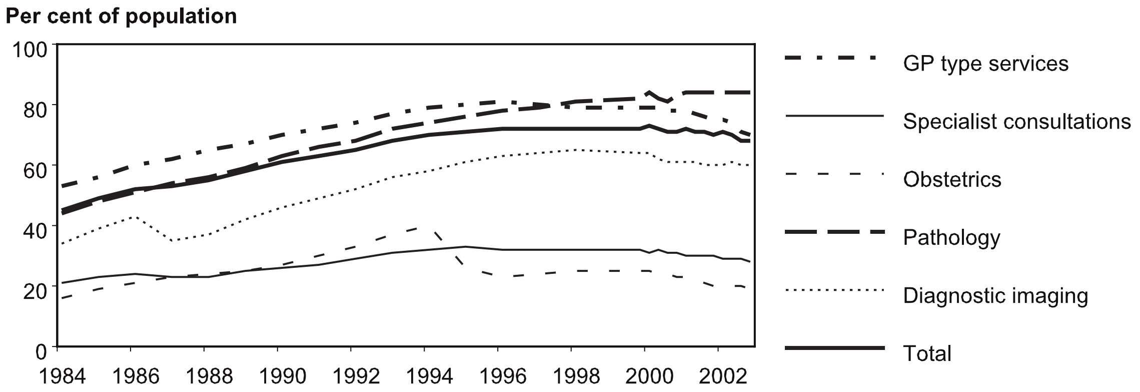
Where GP services are bulk-billed, the Medicare rebate is accepted as the full cost of the medical service. In contrast, patient-billed services involve an out-of-pocket cost that needs to be met by the patient.

Changes in the level of bulk billing do not, in isolation, provide a clear indicator of affordability of, or access to GP services. Factors that affect the interpretation of this indicator are included in the technical notes in Appendix 3.

What the data show

- In 2002–03, 70% of non-referred (gp) attendances were bulk-billed. While this rate remained high compared to the 53% proportion it was in 1984–85, it had decreased from the peak (80.6%) reached in 1996–97.
- The number of non-referred (GP) attendances that were bulk-billed declined from 82.6 million in 1996–97 to 67.3 million in 2002–03. The total number of non-referred (GP) attendances (those not bulk-billed as well as those bulk-billed) also declined, from 103.1 million in 1997-98 to 96.9 million.
- While the level of bulk billing for diagnostic imaging services increased from 1984–85 to 1998–99 and then decreased thereafter, the level of bulk-billing for obstetrics peaked in 1994-95. Bulk billing for specialist attendances increased from 21% in 1984–85 to 33% in 1995–96 and was 27% in June 2003. Bulk billing for pathology has increased continuously from 44% in 1984–85 to 84% in June 2003. The overall level of bulk billing across all services under the Medicare program was 67.8% in 2002–2003.
- At 90%, bulk billing for non-referred attendances remained high for the 10% of population living in the most disadvantaged areas, dropped with increasing socioeconomic status for the three groups that follow to 70% for the fourth decile. It rose again for the fifth, sixth and seventh deciles to 77%. The eight and ninth deciles had a 74% bulk-billing rate. The least disadvantaged group had, through the whole period, the lowest rate of bulk billing—66% in 2001–02.

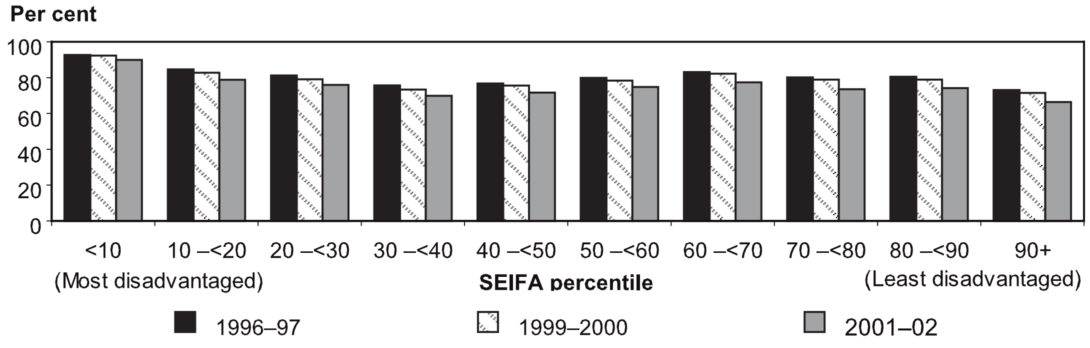
- Between 1996–97 and 2001–02, bulk billing for non-referred attendances declined across the socioeconomic spectrum, irrespective of socioeconomic status.
- Bulk billing for non-referred attendances declined in capital cities, other urban areas and all rural areas. However, it showed an upward trend in remote centres until 2000–01 before declining and remained unchanged in other remote areas (Table A3.17(c)).
- The average patient contribution per service (out of hospital only) in current price terms, for patient-billed non-referred (GP) attendances increased from just under $9 in 1996–97, the peak year for bulk billing, to $12.91 in 2002–03.



Source: Commonwealth Department of Health and Ageing (2002b); Australian Government Department of Health and Ageing web site, <www.health.gov.au/haf/medstats/btabs.htm>.

Note: GP type services include non-referred attendances and enhanced primary care (EPC).

Figure 3.17(a): Bulk billing of medical services, Australia, 1984–85 to December 2002



Source: Australian Government Department of Health and Ageing (unpub.)

Notes

1. The socioeconomic status of people was measured by the average Socioeconomic Index for Areas (SEIFA) score for the postcode of their area. Post office box postcodes were not represented. As a result, the totals may differ slightly from other published statistics.
2. The categories are in decreasing order of disadvantage: <10 represents the 10% most disadvantaged areas as measured by SEIFA. 90+ represents the 10% least disadvantaged.

Figure 3.17(b): Bulk billing of non-referred services, by relative index of socioeconomic disadvantage, Australia, 1996–97, 1999–2000, 2001–02

Indicator 3.18 Availability of general practitioner services

Indicator definition

Description: Availability of GP services on a full-time workload equivalent (FWE) basis.

Numerator: Full-time workload equivalent: FWE is calculated for each GP by dividing the GP's Medicare billing by the mean billing of full-time GPs.

Denominator: Population by relevant area.

Presentation: Rate per 100,000 population.

Rationale and evidence

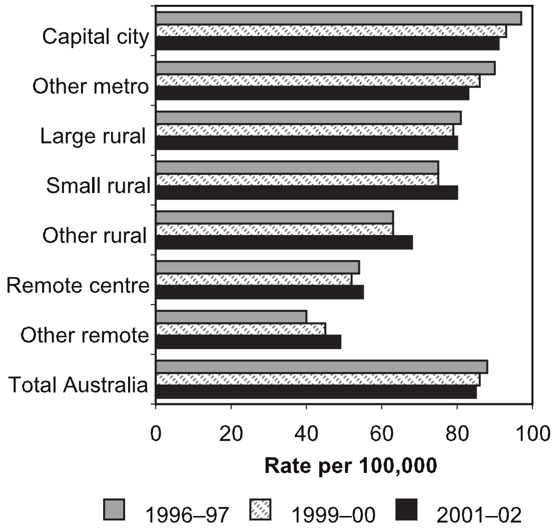
GPs are often the first point of contact for health services. Their availability, therefore, reflects accessibility to health services, particularly to primary care.

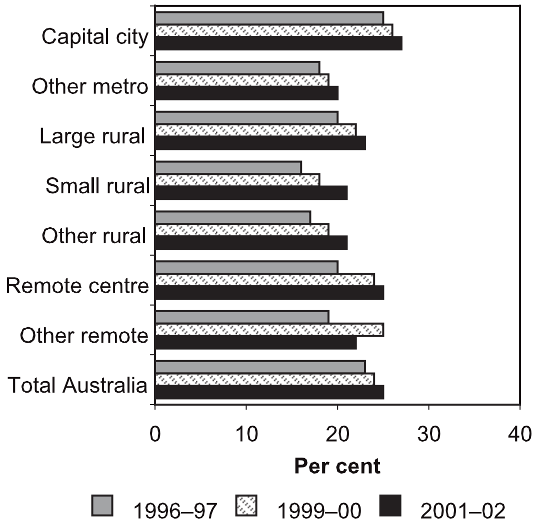
At the end of 2001–02, there were 24,307 non-specialist medical practitioners who claimed MBS benefits. This figure provides an estimate of the stock of GPs who bill Medicare but does not account for large variations in the number of services provided, and gives the same weight to full-time, part-time and casual GPs. A standardised measure is used to estimate the workforce supply of GPs. The FWE adjusts for the partial contribution of casual and part-time GPs, and the contribution of GPs who work more than the average full-time doctor does. At the end of 2001–02, there were 16,736 FWE GPs in Australia.

The billing threshold for included GPs was $82,415 in 2001–02. These thresholds were $71,940 and $75,585 for 1996–97 and 1999–2000, respectively.

What the data show

- Between 1996–97 and 2001–02, the number of FWE GPs in rural and remote areas increased by 11.4% (from 3,596 to 4,005 FWE GPs). The greatest increase was in other remote areas (23.6%) and the least was in large rural centres (6.2%).
- A comparison of the data between these two years shows that the distribution of GPs in 2001–02 is becoming less uneven across the RRMAs.
- Between 1996–97 and 2001–02, the number of FWE GPs per 100,000 population has decreased marginally for Australia overall, from 88 to 85.
- In 2001–02, availability remained highest in capital cities and lowest in other remote areas. The number of FWE GPs per 100,000 population appears to be increasing in rural areas.
- Female GPs currently represent 35% of GPs, but only 25% of GP workload as measured by FWE. This reflects the high rate of part-time and casual workforce participation amongst female doctors.
- Like the rest of the Australian workforce, the GP workforce is getting older on average. In 2001–02 GPs aged 55 and older represented 26% of FWE GPs in Australia.
- From 2004 there will be an additional 234 medical school places bonded to areas of workforce shortage and 150 GP registrars trained each year.





Source: Australian Government Department of Health and Ageing (unpub.)

Notes

1. FWE numbers were based on the doctors' practice location postcodes at which services were rendered within the reference period.
2. Estimated resident population was based on the 2001 Census Benchmark.
3. See Appendix 4 for information on the Rural, remote or metropolitan area (RRMA) classification.

Figure 3.18(a): FWE GPs per 100,000 population, by RRMA, 1996–97, 1999–2000, 2001–02

Figure 3.18(b): Female FWE GPs by RRMA, Australia, 1996–97, 1999–2000, 2001–02

Indicator related to:

3.07 Potentially preventable hospitalisations

3.16 Waiting times in emergency departments

3.17 Bulk billing for non-referred (GP) attendances

Indicator 3.19 Access to elective surgery

Indicator definition

Description: Median waiting time for access to elective surgery—from the date they were added to the waiting list to the date they were admitted.

Presentation: The median waiting time by state and territory. Days on which the patient was not ready for care are omitted. For patients transferred from a waiting list managed by one hospital to that managed by another, the time waited on the first list is not generally included.

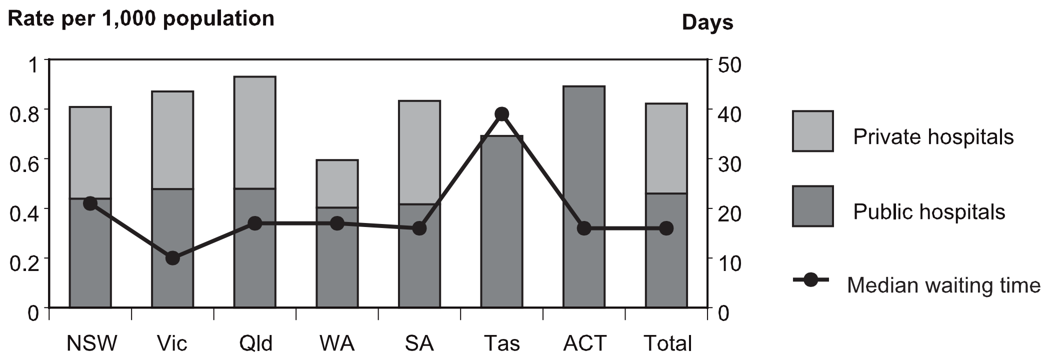
Rationale and evidence

These indicators track median waiting times and separation rates for three surgical procedures: coronary artery bypass grafts, hip replacements and knee replacements.

Differing rates suggest variable access and could reflect unmet need.

What the data show

- The median waiting time for coronary artery bypass surgery was 16 days nationally in 2001–02. This varied between jurisdictions, from 10 days in Victoria to 39 days in Tasmania.
- Hospital separation rates for coronary artery bypass surgery also varied between jurisdictions. Jurisdictions with higher surgery rates did not necessarily have lower median waiting times. Coronary artery bypass surgery is one procedure for achieving revascularisation. Angioplasty procedures are increasingly used as an alternative. However, waiting times for medical procedures such as angioplasty are not included in national data collected for elective surgery waiting times.
- Nationally, the median waiting time for total hip replacement was 96 days. The median varied between jurisdictions from 56 days in Queensland to 264 days in Tasmania. Age-standardised separation rates also varied between jurisdictions. Again, jurisdictions with higher surgery rates did not necessarily have lower median waiting times. Queensland had the lowest waiting times but also had one of the lowest separation rates. In comparison, Tasmania had the highest median waiting time and the second highest separation rate.
- A similar picture emerges for total knee replacement. The median waiting time was 131 days nationally, with significant variation between jurisdictions. Jurisdictions with comparatively higher separation rates did not necessarily achieve lower waiting times.



Note: The coronary artery by-pass procedure is not performed in the Northern Territory.

Figure 3.19(a): Surgery rates and waiting times for coronary artery by-pass, by state and territory, 2001–02

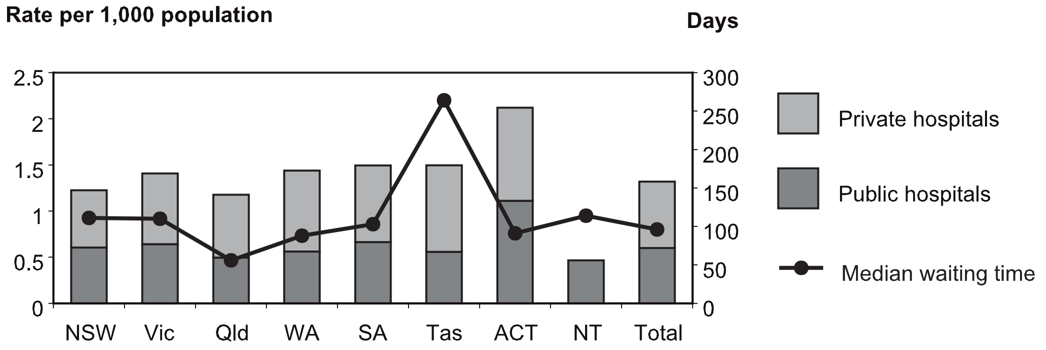


Figure 3.19(b): Surgery rates and waiting times for total hip replacement, by state and territory, 2001–02

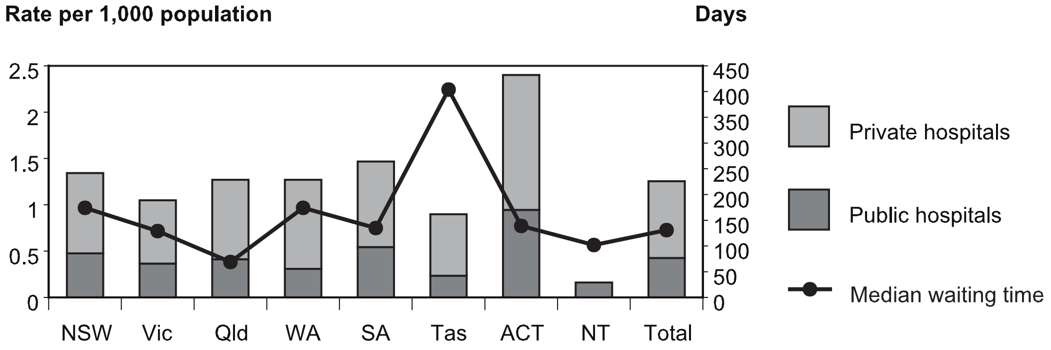


Figure 3.19(c): Surgery rates and waiting times for total knee replacement, by state and territory, 2001–02

Source: AIHW (2003b).

Note: Rate expressed as public and private hospital separations per 1,000 persons resident in that jurisdiction. Age-standardised to the June 2001 Australian population. Victoria reported that for 2001–2002, private hospital separations were underestimated by up to 9%.

Indicator related to:

1.01 Incidence of heart attacks

1.03 Severe or profound core activity limitation

3.08 Survival following acute coronary heart disease event

Indicator 3.20 Electronic prescribing and clinical data in general practice

Indicator definition

Description:	Percentage of general practices in the Practice Incentives Program (PIP) who transfer clinical data electronically or use electronic prescribing software.
Numerator:	Number of practices in the PIP who transfer clinical data electronically or use electronic prescribing software.
Denominator:	Number of practices in the PIP.
Presentation:	Percentage of general practices in the PIP who transfer clinical data electronically or use electronic prescribing software.

Rationale and evidence

The PIP provides financial incentives for aspects of general practice that contribute to quality care and better patient outcomes. In 2002, PIP practices covered 78% of all patient care provided by GPs, measured in terms of SWPE (see Appendix 3: Technical notes for definition of SWPE). The use of electronic software to generate prescriptions electronically improves safety by reducing errors of prescribing and dispensing, and adverse drug reactions. Electronic transfer of clinical information improves practice efficiency by providing access to timely and reliable clinical data, and improved maintenance of health records for patients.

What the data show

- In May 2003, there were 4,331 practices participating in PIP and using either electronic prescribing or data connectivity software, representing 94% of all PIP practices. Most PIP practices (3,948, or 86%) used electronic prescribing and transferred clinical data electronically.
- Between August 1999 and May 2003, the use of computers increased from 50% to 90.5% for prescribing, and from 68% to 89.7% for sending and receiving clinical data.
- Use of computers for electronic prescribing was highest in rural areas (94 to 96%), lowest in remote areas (84 to 87%), and metropolitan areas were inbetween (89 to 90%). Use of computers for sending and/or receiving clinical data showed a similar pattern.
- The advantages of using computers for electronic prescribing as a measure of safety include the generation of a typed script, compared to a hand written script; provision of automatic warnings for drug reactions and assistance with dosage calculation. The PIP electronic prescribing incentive applies only to the generation of a typed script. Whether the other advantages of electronic prescribing are realised depends on the GP implementing the patient medical record component of the software, and the extent to which this happens is not known. Without the patient medical record, the drug reaction, dosage calculation and other functions of the software associated with the medical record do not operate.

- The PIP electronic transfer of clinical data incentive requires that a practice transmit or receive patient clinical information electronically. However, the incentive does not prescribe the proportion of information that must be transmitted in this manner.

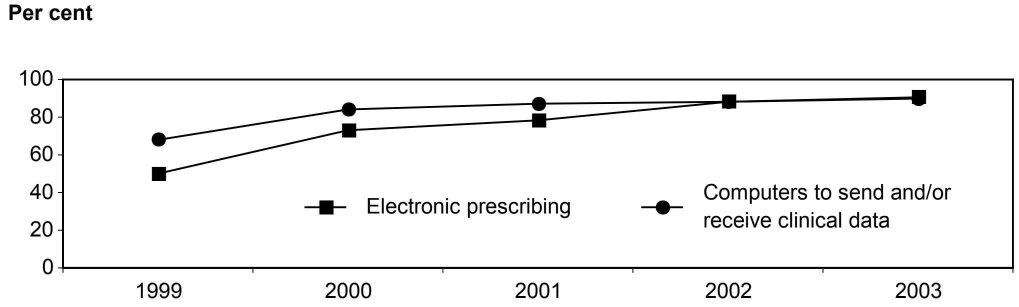


Figure 3.20(a): Use of computers for clinical purposes, percent of PIP practices, by year, Australia, August 1999 to May 2003

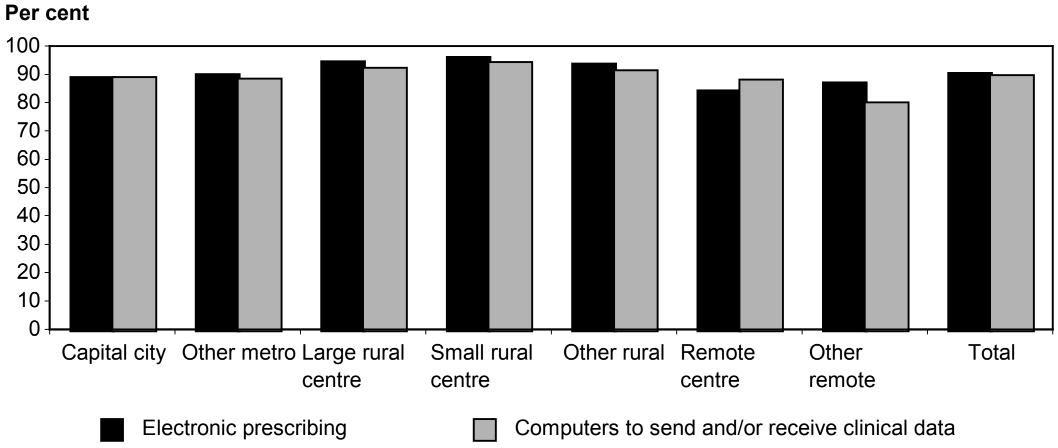


Figure 3.20(b): Use of computers for clinical purposes, PIP practices, by geographical region, Australia, May 2003

Source: Australian Government Department of Health and Ageing (unpub).

Notes

1. This data is only indicative of activity in general practice as not all practices participate in PIP and participation varies across Australia.
2. The last quarter of the financial year has been supplied from 2001 as it is the most stable quarter as policy changes tend to be introduced at the beginning of financial years.
3. Capital city = state and territory capital city statistical divisions; Other metropolitan centre = one or more statistical subdivisions that have an urban centre with a population of 100 000 or more; Large rural centre = SLAs where most of the population resides in urban centres with a population of 25 000 or more; Small rural centre = SLAs in rural zones containing urban centres with populations between 10 000 and 24 999; Other rural area = all remaining SLAs in the rural zone; Remote centre = SLAs in the remote zone containing populations of 5 000 or more; Other remote area = all remaining SLAs in the remote zone. (Further information on the RRMA geographical classification in Appendix 4.)

Indicator related to:

3.11 Management of diabetes

Indicator 3.21 Adverse events treated in hospitals

Indicator definition

Description:	Proportion of hospital separations where an adverse event treated and/or occurred.
Numerator:	Number of hospital separations where an adverse event was reported as a reason for hospitalisation or was treated during the hospitalisation.
Denominator:	Total number of hospital separations.
Presentation:	Number of adverse events treated and/or occurring in hospitals as a proportion of total hospital separations.

Rationale and evidence

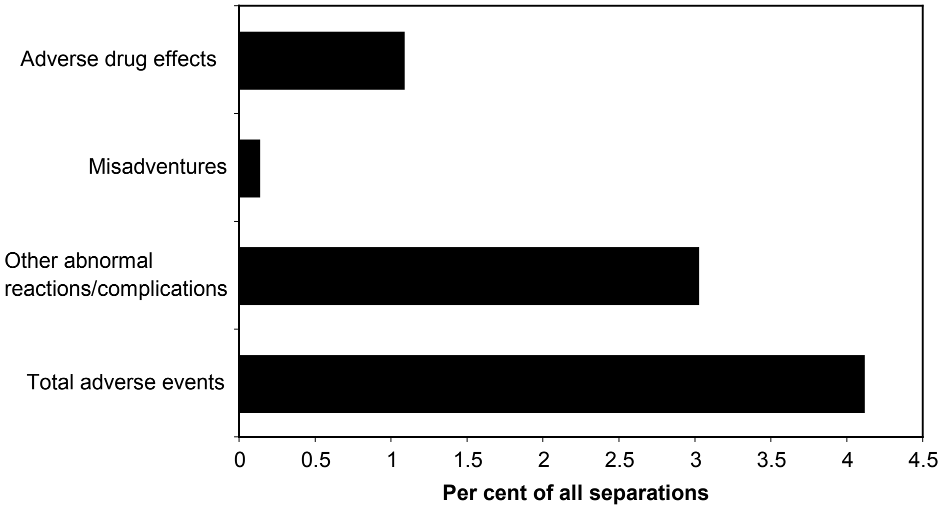
Adverse events occur when harm arises from health care management, rather than from the patient's underlying disease or condition. All health care carries risks of adverse events, but the Australian Council for Safety and Quality in Health Care, government health authorities and others are working to support those who work in the health system to deliver safer patient care, for example in the areas of medication use and health care-associated infections (ACSQHC 2003). The Council is also working to improve the reporting and analysis of data on adverse events, in order to inform patient safety improvement activities. Increasing reports of adverse events may therefore reflect these initiatives, rather than increased risks in health care.

Hospital separation data from the AIHW *National Hospital Morbidity Database* includes information that can be used to identify the proportion of public and private hospital separations associated with adverse events that occurred in a previous admission or in non-hospital health care, but which resulted or contributed to a new hospital admission, or those that occurred and were treated during a single admission. Not all hospital adverse events are identifiable in the data, so adverse events that occurred during a hospital admission but manifested after discharge (and did not result in a readmission) are not identified. Similarly, some types of adverse event (such as those associated with obstetric care, in-hospital patient falls and accidental poisoning associated with incorrect use of drugs) are not identifiable. Thus, the data shown here can be interpreted as representing selected adverse events in health care that have resulted in, or have affected, hospital admissions, rather than all adverse events that occurred in hospitals.

What the data show

- In 2001–02, there were 262,168 separations from hospital for which an adverse event was reported. These included 7,531 with misadventures (such as an accidental cut, perforation or laceration during a surgical operation), 192,383 separations with complications (such as post-operative infections and haemorrhages) and 68,162 with an adverse drug effect (when the drug had been used correctly).

- Overall, in 2001–02 4.1% of hospital separations were reported with adverse events, about the same as in 2000–01 (4.2%). The proportion of separations for which adverse events were reported cannot be directly compared between hospitals, because the risks depend on the types of patients and procedures undertaken, and there may also be differences in data reporting practices.



Source: AIHW (unpub.).

Notes

1. An adverse event is defined as ICD-10-AM external cause codes Y40 to Y84 (complications of medical and surgical care).
2. As there can be more than one adverse event reported for each separation, the total number of separations with adverse events is less than the sum of the categories.

Figure 3.21: Proportion of all separations with an adverse event that were treated in hospital, Australia, 2001–02

Indicator related to:

3.20 Electronic prescribing and clinical data in general practice

Indicator 3.22 Enhanced Primary Care services

Indicator definition

Description: Percentage of GPs using Enhanced Primary Care (EPC) items.

Note: EPC items may be claimed by vocationally registered GPs and non-vocationally registered GPs, but not by specialists or consultant physicians. They are referred to as 'GPs' for this indicator.

Numerator: Number of GPs eligible to claim EPC items who claimed 375 or more non-referred attendances ('active' GPs) within a jurisdiction during a quarter and also claimed at least one EPC item during the quarter.

Denominator: Total number of GPs eligible to claim EPC items who claimed 375 or more non-referred attendances within the jurisdiction during the quarter.

Presentation: Percentage of GPs using EPC items over time and by state and territory.

Rationale and evidence

The EPC Medicare items provide a framework for a multidisciplinary approach to health care through a more flexible, efficient and responsive match between care recipients' needs and services available. They provide annual voluntary health assessments for older Australians and care planning and case conferencing services for people of any age with chronic conditions and complex, multidisciplinary care needs.

The percentage of 'active' GPs who use EPC items in the MBS is a measure of the extent of GP involvement in continuity and coordination of care.

What the data show

- The uptake of Medicare EPC items by GPs increased from 23% in quarter 4, 2000, to 46% in quarter 2, 2002, and remained at 44% during the following two quarters.
- There were 7,454 'active' GPs who used at least one Medicare EPC item in quarter 4, 2002, compared with 3,933 in quarter 4, 2000.
- At 47%, the uptake for quarter 4 of 2002 was highest in South Australia. It was close to the national average (44%) in other jurisdictions except the Northern Territory and the Australian Capital Territory, where it was 16% and 28% respectively.
- During 2001–02, a total of 449,800 EPC services were provided, an increase of 287,678 services (mostly care planning), compared with the previous year (Australian Government Department of Health and Ageing, GP Access Branch, unpub.)

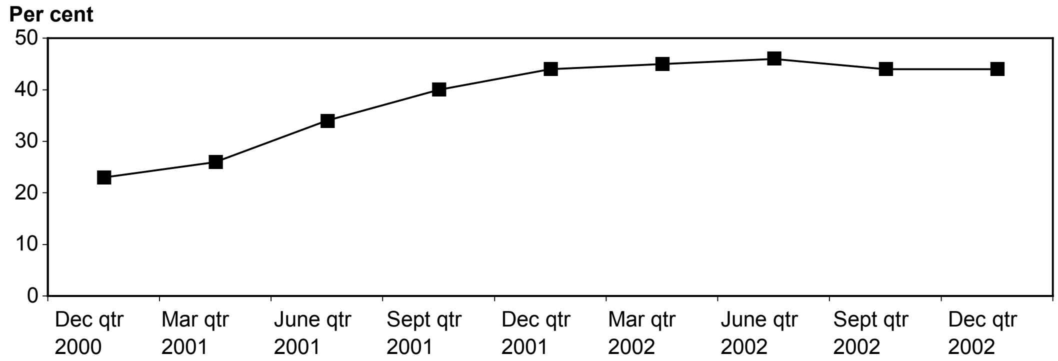


Figure 3.22(a): Percentage of 'active' GPs using Medicare enhanced primary care (EPC) items, by quarter, 2000 to 2002, Australia

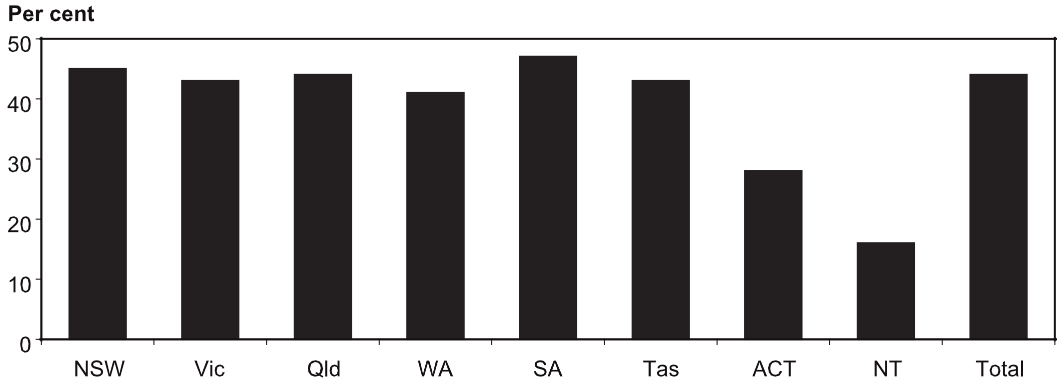


Figure 3.22(b): Percentage of 'active' GPs using Medicare EPC items by state and territory, December quarter 2002

Source: Australian Government Department of Health and Ageing, GP Access Branch (unpub).

Notes

1. The enhanced primary care items include health assessments (A14), multidisciplinary care plans (A15 sub-group1) and case conferences (A15 sub-group 2, excluding items relating to Consultant Physicians and Psychiatrists). It does not include services that qualify under the Department of Veterans' Affairs National Treatment Account or services provided in public hospitals.
2. Percentage of 'active' GPs using EPC items is estimated by dividing the number of medical practitioners who claimed at least one EPC item within the State/Territory, during the Quarter and who also claimed 375 or more NRAs (see note 2) within the State/Territory during the Quarter, by the number of medical practitioners (including Vocationally Registered GPs (VR GPs) and non-Vocationally Registered GPs (non-VR GPs), but not including specialists or consultant physicians) who claimed 375 or more NRAs within the State/Territory, during the Quarter.
3. NRAs refer to VR-GP, non-VR GP non-referred attendances and EPC attendances. They do not include services that qualify under the Department of Veterans' Affairs National Treatment Account. They do not include services provided in public hospitals.

Indicator related to:

3.07 Potentially preventable hospitalisations

3.11 Management of diabetes

Indicator 3.23 Health assessments by general practitioners

Indicator definition

Description:	Percentage of eligible older people who have received an enhanced primary care (EPC) annual voluntary health assessment.
Numerator:	Number of people in the eligible population who received an annual voluntary health assessment in the financial year 2001–02. The indicator includes voluntary health assessments undertaken both in consulting rooms and wholly or partly in the patient's home, by a medical practitioner including a Vocationally Registered GP or a non-Vocationally Registered GP, but not a specialist or consulting physician.
Denominator:	Estimated number of people in the eligible population. For the non-Indigenous Australian population, the eligible population is defined as people aged 75 years and over who are not hospital in-patients or living in a residential aged care facility. For Aboriginal and Torres Strait Islander people, the eligible population is defined as people aged 55 years and over who are not hospital in-patients or living in a residential aged care facility.
Presentation:	Percentage of eligible older people who have received an EPC assessment.

Rationale and evidence

In November 1999, new MBS items were introduced to provide for annual voluntary health assessments for older Australians. Annual voluntary health assessments for older Australians provide an opportunity for a GP to undertake an in-depth assessment of the patient's health. Health assessments cover the patient's medical, physical, psychological and social function. These assessments enable more timely preventive and treatment actions to enhance the health of the patient.

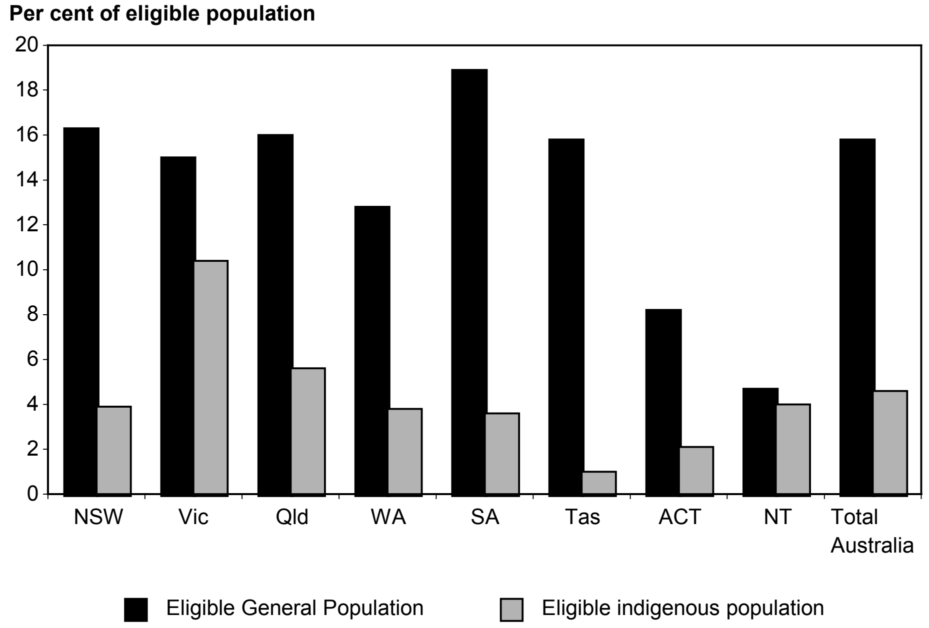
The eligible population is defined in terms of specific age ranges for both the non-Indigenous Australian population and for Aboriginal and Torres Strait Islander peoples. The lower age range for Aboriginal and Torres Strait Islander peoples recognises that they face increased health risks at a much earlier age than most other groups in the population, and broadly reflects the difference in average life expectancy for the two population groups.

Differences between estimates for indigenous and non-indigenous populations should be interpreted with caution because of problems of identification. A voluntary indigenous identifier was not introduced on the MBS until November 2002.

What the data show

- In the financial year 2001–02, 16% of the eligible non-Indigenous Australian population received a voluntary health assessment, compared with 5% in the eligible Aboriginal and Torres Strait Islander population.

- The proportion receiving annual health assessments showed a large variation across States and Territories. For the non-Indigenous Australian population, it varied from 5% in the Northern Territory to 19% in South Australia. For the Aboriginal and Torres Strait Islander population, it varied from 1% in Tasmania to 10% in Victoria.



Source: Australian Government Department of Health and Ageing (unpub.).

Notes

1. Eligible General Population = (General population 75 years and over) less (Aboriginal and Torres Strait Islander population 75 years and over) less (Residential Aged Care Facility population (other Australians) 75 years and over).
2. Eligible Aboriginal and Torres Strait Islander Population = (Aboriginal and Torres Strait Islander population 55 years and over) less (Aboriginal and Torres Strait Islander population in Residential Aged Care Facilities 55 years and over).
3. MBS items included are EPC item nos. 700, 704, 702 and 706. EPC items 700 and 704 cover health assessments undertaken in consulting rooms; items 702 and 706 cover health assessments undertaken wholly or partly in the patient's home.
4. General population figures are based on the 2001 Census Estimated Residential Population (ABS publication 3101.0 Australian Demographic Statistics 20/03/2003 Sep 2002).
5. Residential aged care population numbers are based on permanent residents as at 30 June 2002 (Australian Government Department of Health and Ageing).
6. Differences between estimates for indigenous and non-indigenous populations should be interpreted with caution because of problems of identification. A voluntary indigenous identifier was not introduced on the MBS until November 2002.

Figure 3.23: Rate of enhanced primary care health assessment, Australia, by state and territory, 2001–02

Indicator related to:

3.07 Potentially preventable hospitalisations

3.11 Management of diabetes

Indicator 3.24 Accreditation in general practice

Indicator definition

Description:	Number of general practices accredited against the Royal Australian College of General Practitioners (RACGP) Standards for General Practices.
Presentation:	Number of accredited practices participating in the Practice Incentives Program (PIP) and the proportion of general practice services provided by these practices.

Rationale and evidence

Accreditation of general practice is an indicator of the quality of health care delivered by GPs through a process of continuous quality improvement. It is a voluntary process of peer review that involves the assessment of general practices against standards developed by the RACGP. Accredited practices demonstrate that they have complied with and met various criteria against a set of national standards.

Practices may be accredited by one of two organisations approved to undertake the assessment. Practices can gain accreditation through either Australian General Practice Accreditation Limited (AGPAL) or GPA Accreditation *Plus.*

A measure of the provision of quality health care through general practice is the proportion of practices that are accredited. Data on the number of accredited practices provides the numerator in establishing the proportion of accredited practices. At the end of July 2003, there were 4,774 practices reported as accredited by AGPAL and GPA. As there is no requirement for practices to be centrally registered, however, the total number of practices nationally is not known. It is therefore not possible to calculate the denominator (the total number of practices) to produce a measure of the proportion of practices accredited.

Another option is to measure the proportion of GP services that are provided by accredited practices. In this case, it is possible to determine the denominator (the total number of services) but not the numerator (the number of services provided by accredited practices).

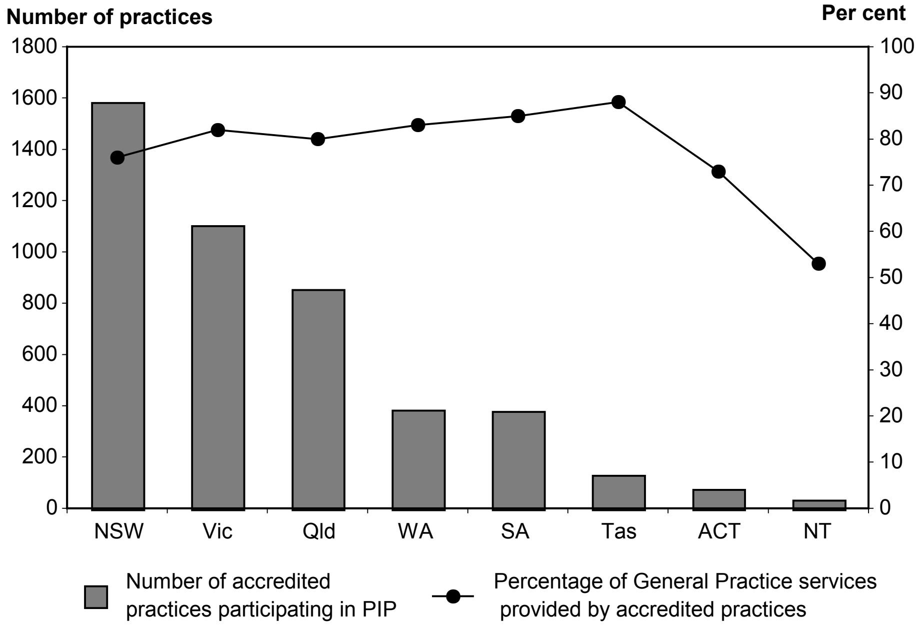
An alternative, which is measurable, is the proportion of services provided by practices participating in the Practice Incentives Program (PIP). Since practices must be accredited or registered for accreditation to join the PIP, data from this Program is broadly representative of the number of accredited practices.

At the end of July 2003, there were 4,516 accredited practices participating in the PIP, representing 94.6% of those reported as accredited by AGPAL and GPA. In 2002, these accredited practices participating in the PIP delivered 77.7% of the total number of services provided by general practice in that year.

What the data show

- As at August 2003 there were 4,622 practices participating in the PIP with 4,516, or almost 98%, fully accredited (only practices that are accredited or registered for accreditation can participate in PIP). The remaining 106 practices were registered for accreditation but not yet accredited.

- Data on the number of accredited practices participating in the PIP by geographical location is not currently available. Data from the August 2003 quarter will be used as a reference point to establish future trends.
- The proportion of general practice services provided by accredited practices participating in the PIP exceeds 70% of the total number of GP services in each jurisdiction, with the exception of the Northern Territory. Nationally 77.7% of GP services are provided by these accredited practices participating in PIP.



Source: Australian Government Department of Health and Ageing (unpub.).

Figure 3.24: Number of accredited practices participating in the PIP and the proportion of General Practice services provided by these practices

Indicator 3.25 Health workforce

Indicator definition

Indicator 1

Description: Graduates in pharmacy, medicine and nursing as a percentage of the total pharmacy, medical and nursing workforce.

Numerator: Graduates in pharmacy, medicine and nursing.

Denominator: Total pharmacy, medical and nursing workforce.

Presentation: Percentage.

Indicator 2

Description: Percentage of health practitioners aged 55 years and over.

Numerator: Number of pharmacists, primary care practitioners, medical specialists and nurses aged 55 years and over.

Denominator: Total pharmacy, primary care practitioner, medical specialist and nursing workforce.

Presentation: Percentage.

Rationale and evidence

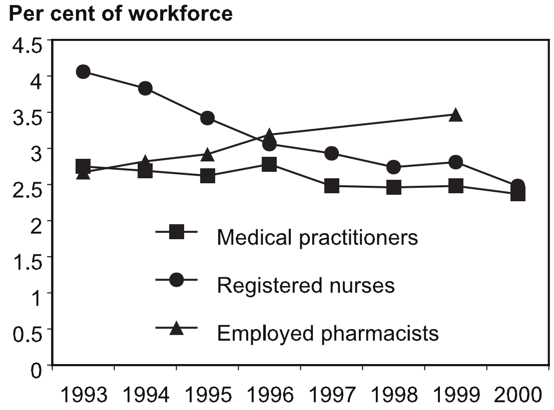
Two key factors that affect the sustainability of the health workforce are whether the number of new entrants are sufficient to replace the existing workforce, and the proportion of the workforce who are close to retirement. A reduction in the numbers graduating as a proportion of the total workforce could indicate sustainability problems. A large proportion of the workforce aged 55 years and over could indicate a problem in the coming decade as that age group starts to retire. These indicators cannot substitute for a full workforce analysis which allows for migration, trends in full-time work, and expected demand increases, but they can indicate that further attention should be given to the issue.

What the data show

- In 1999, 1,248 Australian citizens or permanent residents completed medical bachelor degrees at Australian universities. This figure represented 6% of all employed primary care practitioners and 2.5% of the 50,329 employed medical practitioners in Australia. In 1993, graduates were 2.8% of employed medical practitioners.
- The 7,612 Australian citizens or permanent residents who completed nursing courses in 2000 comprised 4.2% of all employed registered nurses in 2001. This compares with 10,464 who graduated in 1994, making up 6.6% of employed registered nurses in that year. The number of students completed nursing courses has decreased every year since 1994.
- The 649 Australian citizens and permanent residents who completed pharmacy courses in 2000 represented 4.4% of employed pharmacists in 1999. In comparison, the 461

students who completed pharmacy courses in 1994 made up 3.5% of employed pharmacists in that year.

- Between 1995 and 1999, the number of full-time equivalent practitioners per 100,000 population, based on a 35-hour full-time working week, decreased for primary care practitioners (from 145 to 134), for specialists (from 125 to 123) and for nurses (from 1,079 to 1,018). The number of full-time equivalent pharmacists increased from 77 to 83 per 100,000 population.
- Between 1995 and 1999, the average age increased for each of the above health professional groups. Average age was highest for specialists (49.9 years of age in 1999) followed by primary care specialists (47.7 years of age) and pharmacists (46.1 years). Nurses were the youngest profession with an average age of 41.6 years in 1999.
- The percentage of professionals aged 55 years and over increased between 1995 and 1999. The percentage of medical practitioners aged 55 years and over in 1999 was highest for specialists at 31.2%. One quarter (25.1%) of primary care practitioners, 31.0% of pharmacists and 10% of nurses were aged 55 years and over in 1999.

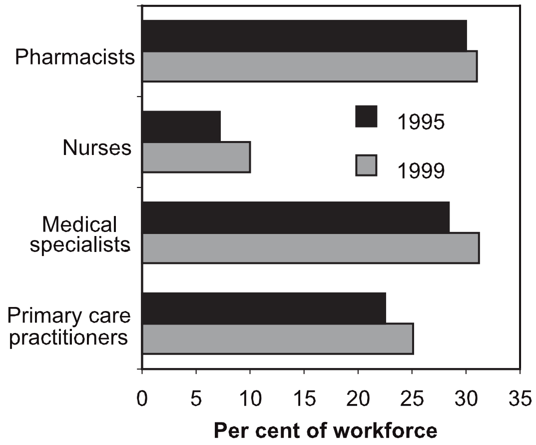


Sources: AIHW: various medical, nursing and pharmacy labour force survey data.

Notes

1. Course completion data includes an unknown but small number of New Zealand citizens.
2. The number of completions for pharmacists for 2000 have been used in place of the 233 completions recorded in 1999, as the 1999 figure was artificially low due to some courses being extended from 3 to 4 years duration.

Figure 3.25(a): Graduates as a percentage of total workforce: doctors, nurses and pharmacists, Australia, 1993 to 2000



Sources: AIHW: various medical, nursing and pharmacy labour force survey data, 1995 and 1999.

Notes

1. Employed (excluding those on extended leave).
2. Nurses include registered and enrolled nurses.
3. Primary care practitioners are those medical practitioners engaged in general practice or in the primary care of patients. They are mostly GPs.
4. Medical specialists are those recognised as specialists by the relevant specialist professional college in Australia.

Figure 3.25(b): Medical, nursing and pharmacy workforces, percentage aged 55 and over, 1995 and 1999

Indicator related to:

3.17 Bulk billing for non-referred (GP) attendances

3.18 Availability of GP services

6 International developments in health sector performance analysis

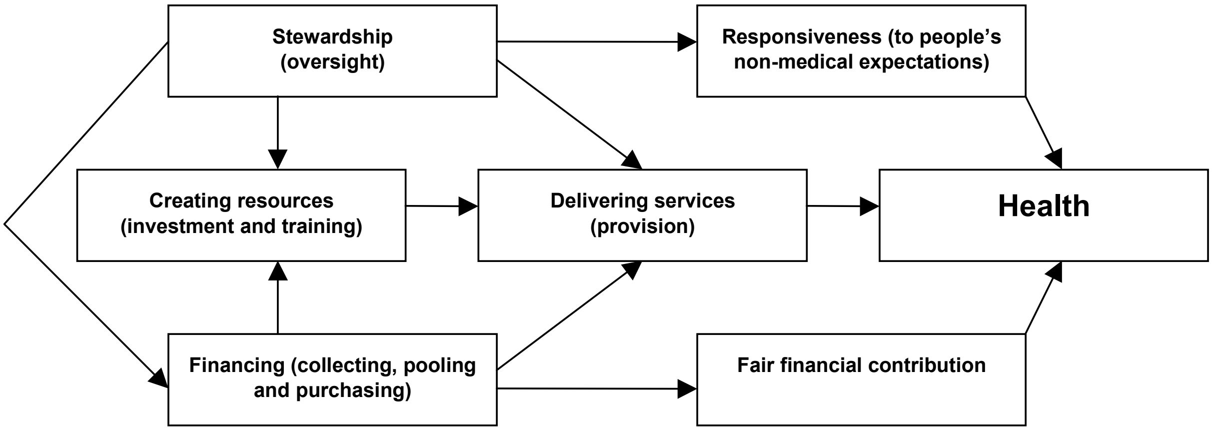
Interest in the use of performance indicators appears almost universal across health systems internationally and nationally. This interest derives from a wide range of motivations including:

- promoting stronger governance;
- better accountability;
- improved community understanding of health systems;
- enhanced consumer influence within health systems;
- promotion of competition between providers and services; and
- service quality improvement.

International and national work on development of performance indicators has led to many performance indicator frameworks and an enormous proliferation of indicators. This chapter provides a brief overview of some key international developments.

World Health Organization

In the *World Health Report 2000 Health Systems: Improving Performance* (WHO 2000) the WHO attempted to make a major step forward in methods for assessing and comparing national health system performance. The report offered a performance framework (Figure 6.1) that articulated three core goals for health systems: improving health, responsiveness to the expectations of the population, and fairness in financial contributions. The report also identified four core functions of health systems: stewardship, financing, creating resources and delivering services.



Source: WHO 2000.

Figure 6.1: WHO framework for health system performance

The report developed a range of methods for assessing and ranking national health system performance. Although criticised, this report has been a catalyst for a close examination of the core elements of health system performance, and how these might be measured.

Through the international burden of disease project, the WHO has promoted the development of a range of summary measures of population health. Table 6.1 presents data on two summary indicators of population health from the 2002 *World Health Report* (WHO 2002b) life expectancy at birth and healthy life expectancy (HALE) at birth. HALE is the number of healthy years of life a person born in a particular year is expected to enjoy. On these measures, Australia ranks third or fourth among OECD countries.

Although the WHO measure of HALE is enjoying wider currency, the NHPC has identified a number of important issues which are raised by the use of Burden of Disease measures such as HALE, Disability Adjusted Life Expectancy (DALE) and Disability Adjusted Life Years (DALYs), particularly when they are used as performance indicators in the Australian health service planning environment. These issues are discussed in Appendix 5 to this report. As stated in the Appendix, it is important that the values and assumptions underlying this methodology be understood and discussed by both the immediate organisational clients of the NHPC and by a wide spectrum of the general community. Comments on this Appendix would therefore be particularly welcome and should be addressed to the Executive Officer of the NHPC.

Table 6.1: Life expectancy and healthy life expectancy (HALE), total population, selected OECD countries, 2001

	Life expectancy at birth		HALE at birth	
	Years	**Rank**	**Years**	**Rank**
Japan	81.4	1	73.6	1
Switzerland	80.2	2	72.8	2
Sweden	80.0	3	71.8	3
Australia	**80.0**	**3**	**71.6**	**4**
France	79.3	6	71.3	5
Italy	79.3	6	71.0	7
Spain	78.9	10	70.9	9
New Zealand	78.5	12	70.3	13
Germany	78.2	15	70.2	14
Canada	79.3	6	69.9	18
United Kingdom	77.5	19	69.6	20
United States of America	77.0	21	67.6	22

Note: Rank is among OECD countries.

Source: WHO (2002b).

Organisation for Economic Co-operation and Development

International comparison of health system performance has been a focus over many years for the Organisation for Economic Co-operation and Development (OECD), originally through its role in compiling comparative health data, more recently in actively promoting the development of a framework and performance indicators. The OECD *Health Data Base* (OECD 2003b) is a rich source of international comparative data.

In 2001, the OECD embarked on a three-year health project focusing on measuring and analysing the performance of health care systems in member countries and factors affecting performance. The purpose of the analysis is to help decision-makers formulate evidence-based policies to improve their health systems' performance. One focus of the project is to develop indicators reflecting the technical quality of medical care. Six priority areas have been identified: patient safety, primary care, prevention/health promotion, mental health, diabetes, and cardiovascular care. Indicators under consideration for this project and their alignment with the indicators selected for the national health performance report are shown in Table 6.2. It is encouraging to see a high level of overlap between the two sets of indicators.

Table 6.2: OECD project draft indicators

Draft OECD indicators	Comparable indicators in this report
High priority (A List)	
Asthma mortality rate, ages 5–40	No comparable indicator
5-year observed and relative survival rates for breast, cervical and colorectal cancers	Indicator 3.09
Cervical cancer screening rate, age 20–69, within the past 3 years	Indicator 3.03
End-stage renal failure among diabetics	No comparable indicator
30-day (in hospital) mortality rate following acute myocardial infarction	Indicator 3.08
30-day (in hospital) mortality rate following stroke	No comparable indicator
Proportion of diabetics with HbA1c < 6.5%	Indicator 3.11 addresses
In-hospital waiting time for femur fracture surgery	No comparable indicator
Proportion of children completing basic vaccination program	Indicator 3.05
Incidence rates for pertussis, measles and hepatitis B	No comparable indicator
Lower priority (B List)	
Suicide rate for total population, population age 15–19 and age 20–29	Indicator 1.08
5-year observed and relative survival rates for non-Hodgkin's lymphoma, childhood leukaemia and lung cancer	Indicator 3.09
Mammography rate in past 3 years, age 50–69	Indicator 3.04
Vaccination rate for polio at age 24 months	Indicator 3.05
Vaccination rate for influenza, age 65 or over	Indicator 3.06
Liver, heart and kidney transplants—observed 5-year survival rates for each procedure	No comparable indicator

(continued)

Table 6.2 (continued) : OECD project draft indicators

Toe, foot, and lower extremity amputation rate for diabetics	Indicator 3.07
Smoking rates	Indicator 2.05
Revision rate after hip replacement	No comparable indicator
Rate of retinal examination in diabetics	No comparable indicator
Incidence of lung cancer	Indicator 1.02

Source: OECD (unpub.)

International Health Policy Survey

Various non-government groups, such as the Commonwealth Fund of New York, have also promoted the development of comparative health system indicators (Anderson & Hussey 2002) and funding of international community surveys (Blendon et al. 2002, 2003). Since 1998, the Commonwealth Fund of New York has funded an annual *International Health Policy Survey*. The survey provides some unique insights into community experiences and perceptions of health systems in Australia, Canada, New Zealand, the United Kingdom and the United States. A selection of results from the 2001 and 2002 surveys are presented below.

Dissatisfaction with health systems is widespread in all countries, with a majority of respondents suggesting that health systems need fundamental changes or to be rebuilt completely (Table 6.3). Compared with other countries, slightly more people in Australia indicated that the health system needs only minor change. The survey points to some areas in which consumer experiences and perceptions may have contributed to dissatisfaction with the broader health system. Access to services is a major issue. Table 6.4 shows the percentage of adults who experienced problems in accessing a range of services because of cost.

Table 6.3: Satisfaction with health care system

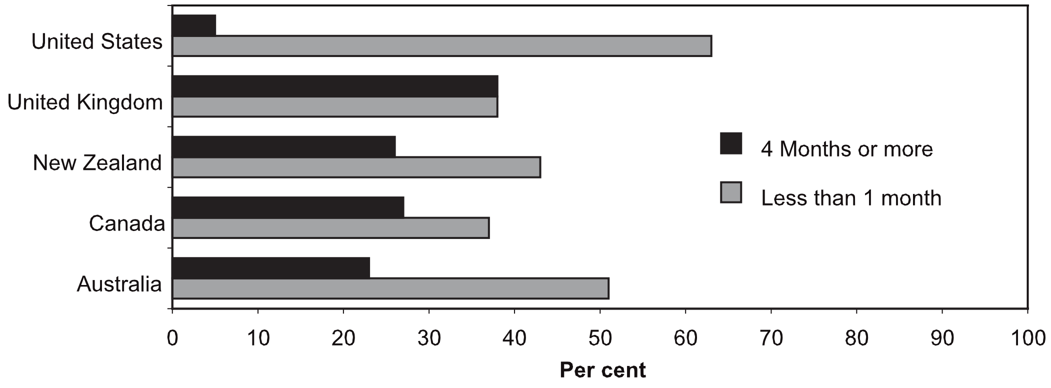
	Australia	Canada	New Zealand	United Kingdom	United States
Adults who responded that health system needs:			(per cent)		
Only minor changes	25	21	18	21	18
Fundamental change	53	59	60	60	51
To be rebuilt completely	19	18	20	18	28

Source: Blendon et al. 2003

Table 6.4: Access problems in the past year because of cost

	Australia	Canada	New Zealand	United Kingdom	United States
			(per cent)		
Did not fill a prescription	19	13	15	7	26
Had a medical problem but did not see a doctor	11	5	20	3	24
Did not get a test, treatment, or follow-up	15	6	14	2	22
Needed dental care but did not see a dentist	33	26	37	19	35

Source: Blendon et al. 2003.



Source: Blendon et al. 2002.

Figure 6.2 : Waiting time for elective or non-emergency surgery, by country, 2001

Figure 6.2 presents data on experience of accessing non-emergency surgery. Around 53% of respondents waited less than one month in Australia, which is slightly better than the experience in other countries with the exception of the United States.

Performance indicators in other countries

Many countries are developing national performance indicator sets. These sets are typically developed to provide publicly available information that complements other performance information used and published elsewhere. The development of indicator sets typically reflects particular issues for the local health care system.

As a unitary system which is largely publicly funded, the United Kingdom National Health Service has considerable scope to effectively use performance indicators in directly managing services performance. The United Kingdom National Health Service has developed sets of performance indicators to complement its *Performance Assessment Framework* (<www.doh.gov.uk/nhsperformanceindicators>; Smith 2002). The indicator sets include comparative information for the population of geographic areas and for service providers. Around 40 indicators are reported annually and publicly released. In addition, a star rating system is applied in rating overall performance of authorities.

In addition to the dynamics created by public release of performance indicators, and the star rating system, the United Kingdom National Health Service links the indicators to a graded system of responses. Organisations with the poorest level of performance are required to produce a performance action plan and this plan is closely monitored. The best performing organisations can earn autonomy, meaning they will be subjected to less frequent monitoring, fewer inspections, retention of more of the proceeds of local land sales for re-investment in local services, extra resources for taking over and turning around persistently failing health care trusts, be able to establish private companies, and have greater opportunities to shape national policy.

The performance management system in the United Kingdom is supplemented by a variety of other strategies and indicator sets. For example, the responsibly of regulating public providers lies with the Commission for Health Improvement. A comprehensive and well-resourced system for technology and service delivery evaluation has been established through the National Institute for Clinical Excellence. Other performance indicator sets have been developed for the United Kingdom National Health Service for a broad range of other purposes.

In other systems, performance indicators may not always have been used directly in performance management. In Canada, the Federal and Provincial governments have agreed on a set of around 40 performance indicators for public reporting. These will be used largely as a public accountability mechanisms, although individual Provinces may make more extensive use of these indicators in their local performance management processes.

In the United States, indicator sets have been developed for a wide range of purposes. There are four major national indicator sets: *Healthy People 2010*, Health Plan Employer Data and Information Set (HEDIS), the Joint Commission on Accreditation of Healthcare Organisations (JCAHO) core measures of performance , and the Agency for Health Care Research and Quality (AHRQ) quality indicators.

The headline indicators for *Healthy People 2010* (see <www.healthypeople.gov>) are mostly focused on population health issues including the health of the population and minorities, health determinants, health promotion and preventive strategies, and some indicators related to access to health services care and insurance are also included.

For many years the National Committee for Quality Assurance in the United States has promoted the development of a set of indicators (HEDIS) of the quality of services delivered through health maintenance organisations (see <www.ncqa.org>). HEDIS incorporates a range of effectiveness of care measures and also consumer assessment of care measures, covering the broad areas of staying healthy, getting better, living with illness and doctor communication and services. A key focus of HEDIS is to leverage competitive forces to promote quality. The indicators are published and made available to purchasers of health insurance plans (mostly employers) and consumers. Recently many United States government insurance plans, such as Medicare and Medicaid programs, have made the reporting of HEDIS measures mandatory, and there have been moves to extend HEDIS measures to other managed care and indemnity insurance schemes.

The Joint Commission on Accreditation of Healthcare Organisations (JCAHO) is a public/private United States agency concerned with accreditation of hospitals and other health care provider organisations. Recently JCAHO developed a set of core measures of performance, which it promotes across hospitals in the United States (see <www.jcaho.org>). These indicators were agreed following a rigorous review of evidence, extensive industry consultation and pilot testing. The indicators deal with specific aspects of treatment of some relatively high volume conditions: AMI, heart failure, community-acquired pneumonia and maternity services. Some measures align with the HEDIS set.

Further safety and quality indicators have been developed in the United States by the AHRQ (see <www.ahrq.gov>). These indicators can be derived from administrative datasets related to hospital care. There are three groups of indicators: preventable hospitalisations, hospital quality indicators and patient safety indicators. The indicators were developed following a systematic review of evidence, empirical testing of indicators and consultation with experts and clinicians. AHRQ emphasises that these indicators are screening tools and have known strengths and weaknesses.

Certain broad themes seem to be common amongst these international developments. There are strong efforts in most countries to coordinate and align indicator sets across national systems. At the same time, there is recognition that there is no single core indicator set that meets all purposes. There is an increasing emphasis on the public disclosure of indicators for sub-national organisational units (United States, Canada, United Kingdom). National indicator sets are expanding to include indicators that reflect quality of clinical processes, in addition to indicators of access and broader health outcomes. There is an increasing recognition of the need for a balanced set of indicators, and of the dangers of focusing on particular aspects of performance over others. In addition, the evidence base for indicators is being rigorously and systematically reviewed.

7 Using the National Health Performance Framework and benchmarking

Introduction

The NHPC was formed in August 1999. The development of an indicator framework and the start of national reporting have been the focus for the committee during its first two years. During the latter part of 2002, the committee focused both on indicator development and on benchmarking.

The following terms of reference of the committee are specifically related to benchmarking:

- To develop and maintain a national performance measurement framework for the health system, primarily to support benchmarking for health system improvement and to provide information on national health system performance.
- To facilitate the use of data at the health service unit level for benchmarking purposes.
- To encourage the health industry to work within the national performance measurement framework and to use the agreed performance indicators in benchmarking to improve performance.
- To encourage the development of expertise in the use of benchmarking for performance improvement.

It has also been a goal of the NHPC to extend the national performance indicator framework for services other than acute inpatient services, and to include services such as community health, general practice and public health.

During 2002, the NHPC held a major workshop with key stakeholders on benchmarking processes. This chapter highlights the issues raised at this workshop. A related initiative, a review of performance indicators for the purposes of NHPC reporting, was also worked upon in the latter part of 2002.

The 2002 NHPC benchmarking workshop

Whilst the NHPC has reported on benchmarking activities in its previous reports to Ministers on health system performance, there is the need for a further development of benchmarking processes within the broader health industry.

Benchmarking activities have been conducted in the health (chiefly hospital) sector for a number of years. However, while there are examples of excellent work in some areas, generally speaking benchmarking activities have been disorganised and inefficient.

There is a need for further development of benchmarking activities in order to make the practice more effective in achieving desired outcomes. There also need to be formal steps to incorporate public health and general practice in such benchmarking activities.

During the latter part of 2002, the NHPC convened a major workshop with other interested parties to discuss the characteristics of effective benchmarking, the factors that give rise to good benchmarking practices and the barriers to effective benchmarking. The output was a report entitled *Benchmarking to Improve Health Performance* (See http://www.health.nsw.gov.au/pubs/index.html) endorsed by AHMAC, to set up the NHPC's workplan in relation to benchmarking over the next few years.

Issues discussed at the workshop

The workshop brought together a wide range of people from across the health sector. These included clinicians, managers, consumers, policy makers and researchers, who provided perspectives from Australian, state and territory governments, hospitals, general practice, community health, allied health and Aboriginal and Torres Strait Islander health services.

The NHPC's vision is for benchmarking of performance across the Australian health system so that:

- all stakeholders would have more useful information on the performance of the health system;
- decision making would be better informed at all levels;
- public accountability and transparency would be enhanced;
- benchmarking would be extended to all sectors of the health system; and
- benchmarking to improve performance would become routine, standardised and collaborative.

It is important to note that participants at the workshop acknowledged that it was important to address the ambiguities and connotations of the terminology used, particularly the term 'benchmarking' itself. It was felt that this term was used imprecisely to mean either the process of measurement and comparison only, or the use of measurement and comparison in order to make improvements. Confusion about the meaning of benchmarking contributed to frustration with the constant collection of data without any apparent outcome. The group also felt that benchmarking had negative connotations of judgement and punishment. It was suggested that a new term be coined to reflect the following core values:

- reflective practice
- transparency and openness
- trust and respect
- collaboration and collegiality
- respect for the rights of individuals.

However, as yet no term has been coined by the NHPC to replace the word 'benchmarking' which would encapsulate the notions of data comparison and action to improve outcomes while at the same time being free from negative connotations. In the absence of an alternative term, therefore, the NHPC feels it important to focus on the values implicit in the term.

Principles of benchmarking

The workshop agreed on a number of principles, that should underpin the benchmarking process, which embrace the values mentioned above.

- The fundamental outcome of benchmarking is improvements in outcomes for patients and consumers.
- Benchmarking exists to support continuous improvement in performance and outcomes.
- Priority is based on potential for improvement.
- Indicators should be methodologically defensible and linked to action.
- Benchmarking should be as simple as possible.
- Effective benchmarking requires appropriate incentives and the removal of disincentives.

Outcomes of the NHPC workshop

Consumers were strongly represented at the workshop. Consumer engagement was seen as vital in the process of developing benchmarking approaches. Given that the fundamental purpose of benchmarking is to improve outcomes for consumers, strategies are needed to enlist consumers as partners in the process of defining and measuring outcomes and proposing strategies for action. The workshop recommended that a consumer representative be included on the NHPC, and that the NHPC encourage representation of consumers on formal bodies at the local level.

Furthermore, the question was raised as to whether the introduction of benchmarking practices can actually lead to health system improvement at the health service unit level, and whether there was any evidence to support this. Participants at the workshop outlined specific examples of benchmarking practice that showed improvements in process and outcome indicators as a result of interventions. However, a literature search indicated that this topic has not been the subject of vigorous scientific examination. It would be advantageous to draw on local Australian experiences that have been shown to work.

The workshop recommended that the NHPC, in conjunction with major benchmarking bodies, commission a piece of work to determine:

- the conditions under which the introduction of benchmarking practices can lead to health system improvement at the health service unit level, within the hospital care setting;
- the conditions under which the introduction of benchmarking practices can lead to health system improvement in the areas of public health and general practice, where the health outcome is determined mainly by health-related interventions; and
- the conditions under which managerial, organisational and motivational factors make the practices outlined above more effective.

The workshop supported the continuing use of the national health performance framework. While the framework has been developed with the intention of structuring reports to Australian Health Ministers on the performance of the health system, it could also provide a useful template for structuring data for a variety of performance reporting and benchmarking activities.

An advantage of the framework is that it directs attention to a broad and balanced range of performance dimensions, even though these dimensions may not always be applicable to specific performance measurement efforts. The proposed criteria for selecting indicators for the framework also provide a useful check list for ensuring that performance measures that will be effective in performance improvement are identified or developed. This check list includes measures relating to public health and general practice.

The main barriers to effective benchmarking practice were identified as issues of motivation and development of support mechanisms.

More detailed information on the workshop findings and recommendations by the NHPC can be found in the report *Benchmarking to Improve Health Performance*.

A copy of the report can be found on the following web site:
http://www.health.nsw.gov.au/pubs/index.html

8 Future directions

The National Health Performance Committee (NHPC) was formed at the request of AHMC to develop and maintain a national performance measurement framework for the health system. The NHPC is also required to establish and maintain appropriate national performance indicators within the national performance measurement framework for the purpose of its reporting. Its objective is to provide information on the Australian health system to show trends and patterns, and to inform decision making and evaluation of efforts to address health challenges.

The NHPC released the *National Health Performance Framework Report* in 2001 (NHPC 2001). The report outlined the performance of the Australian health system in relation to the three tiers of the framework: health status and outcomes, determinants of health, and health system performance, and provided a rational structure for national reports that followed. The 2001 and 2003 national reports based on the national health performance framework provide information on national health system performance and support benchmarking for health system improvement (NHPC 2002).

After release of the 2001 national report, the NHPC discussed its future direction and how best it might fulfil its terms of reference within its available resources, and decided to focus on the terms of reference relating to the review of indicator development and benchmarking throughout the remainder of 2002. A workshop to identify a set of indicators for inclusion in national reporting was held in the second half of 2002. The output of this workshop was a report identifying a set of indicators for inclusion in national health performance committee reports, and where further research and development was required. Two workshops on benchmarking were also held in the latter part of 2002 to develop the NHPC's plan for benchmarking. Recommendations included indicator and data development, for example for primary care and access to core services, and development of benchmarking practices.

The NHPC's reporting role also includes maintenance of the national health performance framework. When the *National Health Performance Framework Report* was published in August 2001 (NHPC 2001) feedback was sought on the use of the framework as well as further measures that could be included, both current and still to be developed.

The NHPC decided to review the framework after a period of three years. Relevant issues for review are the appropriateness of the 18 dimensions under the framework and its compatibility with international frameworks. With respect to the latter issue, a proposed International Organization for Standardization (ISO) health indicators conceptual framework has been adopted by ISO as a technical specification. This will have implications for the national health performance framework in terms of international reporting of data and linking to a standard form of metadata representation of indicators. The next review of the national health performance framework is due in mid-2004.

The NHPC has also decided that reporting on indicators within the framework would best be done every two years. In some data sets, changes in performance are more obvious over longer time periods than one year. In other cases, data for certain subject matter are only available for irregular time periods. In the light of the minor changes that occur between annual reports, and the available resource constraints, the NHPC plans to produce these general reports only every two years after production of this 2003 report, and additionally release resources for reports on special interest topics. The selection of special interest areas, for inclusion in published output, would be guided by direction from Ministers.

The list of special interest areas for possible consideration by Health Ministers includes:

- mental health
- National Health Priority Areas e.g. Cardiovascular disease, Diabetes, Cancer, Asthma, Injury, Mental health
- primary health and community care
- public health
- Aboriginal and Torres Strait Islander health
- care of older Australians
- health and health care in rural and remote areas
- safety and quality
- health and health care of children and young people
- private sector health care
- inequalities in health within the Australian population
- arthritis/musculoskeletal conditions/osteoporosis.

Work on such special interest areas could be undertaken in any combination of ways. It could be:

- undertaken by the NHPC as a stand-alone piece of work, possibly in the form of an occasional paper; or
- undertaken by the NHPC in conjunction with other groups.

The NHPC seeks feedback from stakeholders as to what priority special interest areas should be given for reporting in 2004. The next general report will be due in 2005. Work will also be continuing on data development activities relating to primary health and access to core services, within budget constraints.

Abbreviations

AACR	Australasian Association of Cancer Registries
ABS	Australian Bureau of Statistics
ACHS	Australian Council on Healthcare Standards
ACIR	Australian Childhood Immunisation Register
ACSQHC	Australian Council for Safety and Quality in Health Care
ACT	Australian Capital Territory
ADHD	attention deficit hyperactivity disorder
AGPAL	Australian General Practice Accreditation Limited
AGPS	Australian Government Publishing Service
AHMC	Australian Health Ministers' Conference
AHMAC	Australian Health Ministers' Advisory Council
AHRQ	Agency for Healthcare Research and Quality [USA]
AIDS	acquired immunodeficiency syndrome
AIHW	Australian Institute of Health and Welfare
AIHW DSRU	AIHW Dental Statistics and Research Unit
AIHW NPSU	AIHW National Perinatal Statistics Unit
AMI	acute myocardial infarction
ANCAHRD	Australian National Council on AIDS, Hepatitis C and Related Diseases
AR-DRG	Australian refined diagnosis-related group
ARIA	Accessibility/Remoteness Index of Australia
ASVS	Australian Standard Vaccination Schedule
BMI	body mass index
CEO	Chief Executive Officer
CHD	coronary heart disease
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DALE	disability adjusted life expectancy
DHAC	[Australian Government] Department of Health and Aged Care
DHA	[Australian Government] Department of Health and Ageing
DHSH	[Australian Government] Department of Human Services and Health
DMFT	decayed, missing and filled teeth
DPIE	[Australian Government] Department of Primary Industry and Energy
DRG	diagnosis-related group
EPC	enhanced primary care
FWE	full-time workload equivalent
g	gram

GDP	gross domestic product
GISCA	National Key Centre for the Applications of Geographical Information Systems
GP	general practitioner
GPA	General Practice Australia
GST	goods and services tax
HALE	healthy life expectancy
HbA1c	glycosylated haemoglobin
HDL	high density lipoprotein
HEDIS	Health Plan Employer Data and Information Set
HIV	human immunodeficiency virus
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
ICD-9	the World Health Organization's International Classification of Diseases, 9th Revision
ICD-10	the World Health Organization's International Statistical Classification of Diseases and Related Health Problems [otherwise known as the International Classification of Diseases], 10th Revision
ICD-9-CM	Official NCC Australian Version of the International Classification of Diseases, 9th Revision, Clinical Modification
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification, developed by the [Australian] National Centre for Classification in Health (NCCH)
IFRAC	admitted patient fraction
ISO	International Organization for Standardization
JCAHO	Joint Commission on Accreditation of Healthcare Organisations
K-10	Kessler 10
LOTE	language other than English
MBS	Medicare Benefits Schedule
ml	millilitre
NATA	National Association of Testing Authorities
NCHECR	National Centre in HIV Epidemiology and Clinical Research
NCQA	National Committee on Quality Assurance [USA]
NHMRC	National Health and Medical Research Council
NHPA	National Health Priority Area
NHPC	National Health Performance Committee
NHS	National Health Service [of England & Wales]
NPHPG	National Public Health Partnership Group
NSW	New South Wales
NT	Northern Territory
OECD	Organisation for Economic Co-operation and Development

PBS	Pharmaceutical Benefits Scheme
PIP	Practice Incentives Program
PPH	potentially preventable hospitalisation
ppm	parts per million
Qld	Queensland
RACGP	Royal Australian College of General Practitioners
RCS	Residential Classification Scale
RRMA	rural, remote or metropolitan area
RSE	relative standard error
RSI	relative stay index
SA	South Australia
SCRCSSP	Steering Committee for the Review of Commonwealth/State Service Provision
SEIFA	socioeconomic index for areas
SIC	Statistical Information Committee
SIDS	sudden infant death syndrome
SWPE	standardised whole patient equivalent
Tas	Tasmania
UCSF	University of California, San Francisco
URTI	upper respiratory tract infection
Vic	Victoria
WA	Western Australia
WHO	World Health Organization

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Appendix 1: Membership of the National Health Performance Committee at July 2003

Member	Organisation
Dr David Filby (Chair)	SA Department of Human Services
Commonwealth	
Ms Tania Utkin	Australian Government Department of Health and Ageing
Dr Vin McLoughlin	Australian Government Department of Health and Ageing
Dr Judy Straton	Australian Government Department of Health and Ageing
States/Territories	
Mr Jim Pearse	NSW Health
Ms Sharon Willcox	Department of Human Services, Victoria
Dr Ian Ring	Queensland Heath
Ms Elizabeth Rohwedder	Department of Health, Western Australia
Mr Tony Woollacott	SA Department of Human Services
Mr Brendon Davidson	Department of Health and Human Services, Tasmania
Ms Susan Killion	ACT Department of Health, Housing and Community Care
Dr Steve Guthridge	NT Department of Health and Community Services
Organisations	
Ms Jenny Hargreaves/Dr Ching Choi	Australian Institute of Health and Welfare
Mr Russell Schneider	Australian Health Insurance Association Limited
Mr Michael Roff	Australian Private Hospitals Association
Ms Shirley Shaw*	Consumers' Health Forum
Dr Ric Marshall	National Health Information Management Group (From October 2003 the Statistical Information Committee)
Dr Louisa Jorm	National Public Health Partnership

*From July 2003.

Appendix 2: Data tables

Tables listing the data behind each of the figures in this report, and additional related data are on the internet at <www.aihw.gov.au> and in the CD enclosed with this publication.

Appendix 3: Technical notes

Detailed technical notes for this report are on the internet at <www.aihw.gov.au> and in the CD enclosed with this publication.

Appendix 4: Geographic classifications: RRMA, ARIA and ASGC Remoteness

Until recently, rurality had been described almost exclusively by the seven-level Rural, Remote and Metropolitan Areas (RRMA) classification. This classification is based on the size of the local population centre as well as a measure of remoteness (DPIE & DHSH 1994).

Work by the National Key Centre for the Social Applications of Geographical Information Systems (GISCA) from 1996, saw the development of improved measures of remoteness: the Accessibility/Remoteness Index of Australia (ARIA), a continuous variable with a remoteness score of 0-12; and its successor, ARIA+ (with a remoteness score of 0-15).

From ARIA, the Department of Health and Ageing developed its five-level classification (also called ARIA), and from ARIA+, ABS developed its six-level classification, the Australian Standard Geographic Classification (ASGC) Remoteness structure (DHAC & GISCA 1999, ABS 2001b).

Note: taken from AIHW 2002b:216.

Map of Australia by ASGC regions

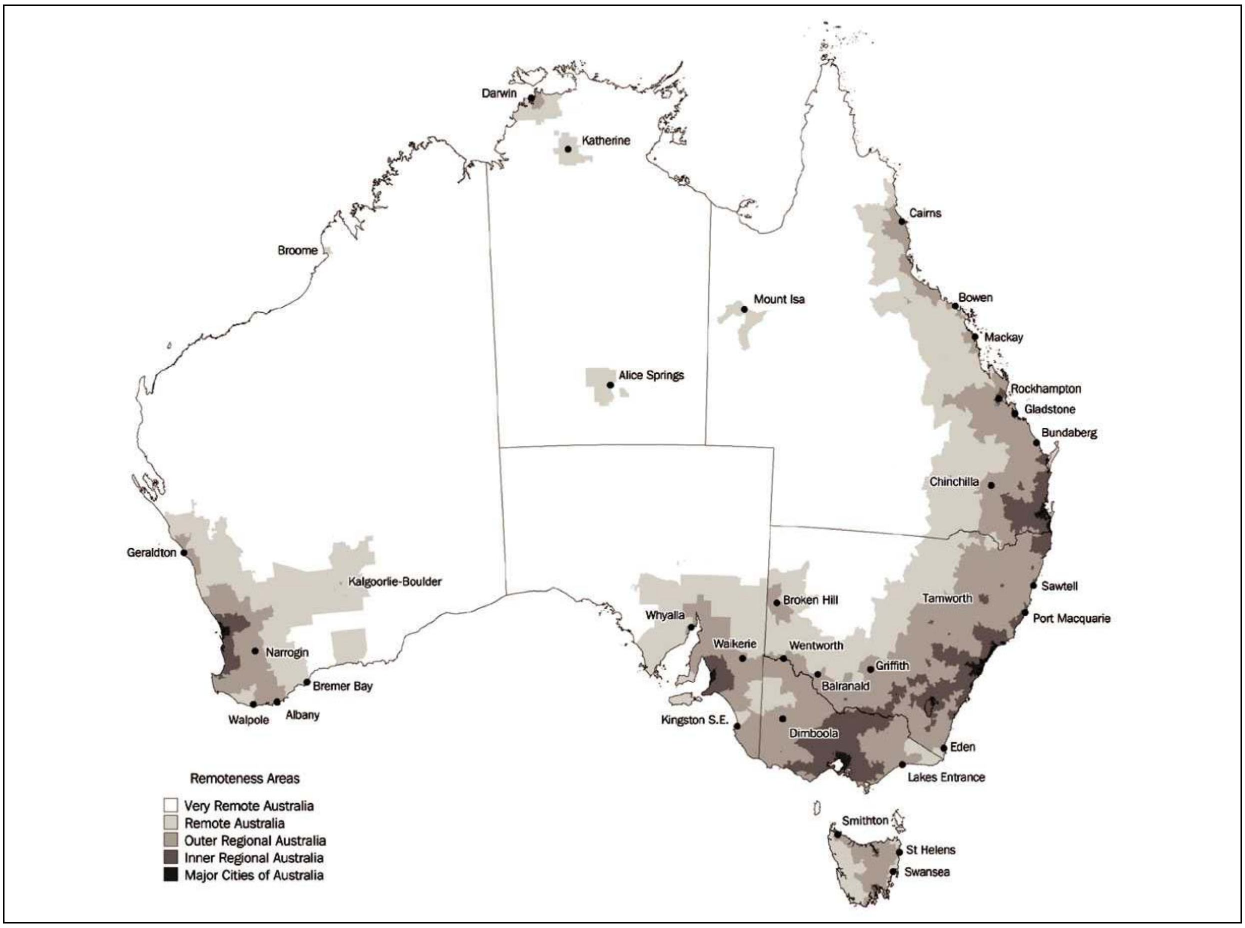

Table A4.1: Remoteness classifications

RRMA				DHAC ARIA			ASGC Remoteness		
Broad category	**Fine Category**	**Population ('000,000)**	**%**	**Category**	**Population ('000,000)**	**%**	**Category**	**Population ('000,000)**	**%**
Metropolitan	Capital Cities	11.6	64	Highly Accessible	14.9	81	Major Cities*	12.1	66
	Other Metropolitan centres	1.4	8						
Rural	Large Rural centres	1.1	6	Accessible	2.2	12	Inner Regional*	3.8	21
	Small Rural centres	1.2	7				Outer Regional*	2.0	11
	Other Rural areas	2.4	13	Moderately Accessible	0.8	4			
Remote	Remote centres	0.2	1	Remote	0.2	1	Remote*	0.3	0.3
	Other Remote areas	0.3	2	Very Remote	0.2	1	Very Remote**	0.2	0.2
							Migratory*	<0.1	

Notes

1. This table is a rough guide only, the various classes in each classification are not equivalent.

2. This table is taken from AIHW 2002b :216.

Source: AIHW Population Estimates.

Appendix 5: Disability Adjusted Life Expectancy and Disability Adjusted Life Years as performance measures for health status and outcomes

Background and purpose

In February 2000 the National Health Performance Committee (NHPC) embarked on the development of a new Australian health performance framework. It took as a starting point a framework developed by the Canadian Institute of Health Information as part of the Canadian Roadmap Initiative that was established in 1999. The Canadian framework was incorporated in an NHPC Discussion Paper which was disseminated widely for comment to jurisdictions, government and non-government providers, and consumers in the health system (NHPC 2000). An NHPC workshop to refine and improve the proposed framework was held in July 2000 and a revised version of the framework has now been published in the NHPC's *National Health Performance Framework Report* (NHPC 2001).

The framework consists of three tiers:

1. Health Status and Outcomes,
2. Determinants of Health, and
3. Health System Performance.

These tiers do not represent a hierarchy but reflect the fact that health status and outcomes are influenced by health determinants and health system performance.

Each tier in turn comprises a number of dimensions and the intention is that performance indicators will be developed for each dimension. In particular, Tier One (Health Status and Outcomes) has four dimensions:

Health conditions: Prevalence of disease, disorder, injury or trauma or other health-related states.

Human function: Alterations to body, structure or function (impairment), activities (activity limitation), and participation (restrictions in participation).

Life expectancy and wellbeing: Broad measures of physical, mental and social wellbeing of individuals and other derived indicators such as Disability Adjusted Life Expectancy (DALE).

Deaths: Age and/or condition specific mortality rates.

The *life expectancy and wellbeing* dimension includes broad measures of physical, mental and social wellbeing of individuals and other derived indicators. It is one of the goals of the health system to assist people to live a potentially achievable life span with minimal disability or disease. The NHPC has identified disability adjusted life expectancy (DALE) and disability adjusted life years (DALY) as indicators that (together with self-assessed health) may give an impression of the performance of the health system in achieving these goals (NHPC 2001:10).

The DALE and DALY measures were originally developed as tools to measure and compare the overall burden of disease in different communities and nations. The value pointed to by the proponents of this type of measure is that it combines the impact of a wide range of disease and disability into a single measure of 'health' status which combines the total mortality and morbidity experience of each community.

However, the use of these concepts as performance indicators by the NHPC raises the possibility that they may be used to assess the performance of health service delivery systems and to quantify funding needs as well as to describe the burden of disease which each system is called upon to address. It is therefore important that the values and assumptions underlying this methodology be understood and discussed by both the immediate organisational clients of the NHPC and by a wide spectrum of the general community.

This paper represents an attempt to explain and comment critically on these values and assumptions and to identify issues that need to be addressed when using the DALE and DALY measures in Australian health service planning. It was prepared for the NHPC by officers of the Victorian Department of Human Services and incorporates comments contributed by other officers of that Department and of the South Australian Department of Human Services and the Australian Institute of Health and Welfare. However, differences of opinion remain as to the relative importance of these issues.

The meaning and derivation of DALE and DALY

Both Disability Adjusted Life Expectancy (DALE) and Disability Adjusted Life Years (DALY) are summary measures of population health.

Disability Adjusted Life Expectancy (DALE) is defined as life expectancy adjusted for the average time spent in states of less than full health weighted for severity. This measure estimates the number of years that a person could expect to live in a defined state of 'health' and is therefore a health expectancy measure. It is a measure of years lived in full health combined with years lived in states of less than full health weighted for severity of disability.

Disability Adjusted Life Years (DALY) is defined by the formula

DALY = YLL + YLD, where

YLL = Years of life lost due to premature mortality, and

YLD = Years of life lost due to disability.

In other words, this measure is the number of years lost due to premature mortality (relative to a standard life expectancy) combined with the number of 'healthy' years lost due to disability and is known as a health gap measure. At the population health level, it can be interpreted as the gap between current health status and an ideal in which everyone lives into old age free of disease or disability.

Both of these concepts incorporate a number of social values. For example, the use of a 'standard life expectancy' in calculating the DALY measure means that years of life lost (YLL) are not calculated against an arbitrary norm, say 75 years. Instead, YLL are calculated against a standard life table and hence a death at any age (even at age 100 years) accrues

YLL; in fact, the Australian studies use the cohort life expectancy–that is, the life expectancy for the current period adjusted upwards to include a projected further decline in mortality in future years.

An 'economic discounting' issue also arises as to the value assigned to an additional period of life experienced in the future as against the same period experienced now.

Social values also impinge on the definition of disability and the weights assigned to each disability. In both the DALE and DALY measures 'disability' is defined as any departure from full health, and can include a short-term disability from a common cold through to a long-term disability such as quadriplegia. This is a broader definition of disability than that often used in common language. Each type and level of disability is assigned a weight reflecting social value choices based on social research in a range of countries at various stages of economic development.

The 'Person Trade-Off' methodology underlying these measures, and the associated social issues, are discussed more fully in the Australian Burden of Disease and Injury Study published in 1999 by the Australian Institute of Health and Welfare (Mathers et al. 1999) and in the Victorian Burden of Disease Study published in the same year by the Victorian Department of Human Services (Public Health Division 1999).

The purpose of this paper is to comment on the social values and issues raised by the use of disability weights, including the underlying 'Person Trade-Off' methodology and the need for Australian disability weights, and their implications for performance reporting. The issues raised by age weighting and economic discounting are also important but are not discussed in this paper.

Limitations on the use of DALE and DALY as health outcome measures

By including 'Life expectancy and wellbeing' as a dimension of the Health Status and Outcomes Tier of its framework, the NHPC has raised the possibility that the DALE and DALY measures could be used, not just as descriptors of the health status of the community, but as health outcome measures for health service performance.

In its 2000 discussion paper, the NHPC defined *health outcome indicators* in the following way:

> '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.' (NHPC 2000:10)

The implication here is that two different health interventions or services which lead to an equal increase in a health outcome indicator are of equal value, at least as measured by that indicator. There may of course be other indicators against which the interventions or services may yield different values but as far as this indicator is concerned they are of equal value.

However, this 'equal value' criterion is disavowed by the authors of the Australian Burden of Disease and Injury Study in their explanation of the interpretation of disability weights. They explain:

> 'All other things being equal, society would prefer to prevent or cure a case of paraplegia (weight 0.57) rather than a case of low back pain (weight 0.06), if each case could be restored to full function for the same cost and there were insufficient resources to do both. However, the use of health state preferences and DALY or

> QALY measures to quantify loss of health or health gain carries no implication that society will necessarily choose the maximisation of health gain as the main or only goal for the health system. Additionally, the disability weights should not be further interpreted as giving a value to the maximum benefit obtained by saving the life of a person with that health problem, but leaving them in the health state. We should not interpret a weight of 0.5 for paraplegia as saying that saving the life of a paraplegic person (but not changing their disability status) is given only half the value of saving the life of a person in good health'. (AIHW: Mathers et al. 1999:12)

The implication of this important qualification is that the DALE and DALY measures may have value as a broad measure of the burden of disease, and in particular the impact of non-fatal disease, but serious issues about the value of human life may arise if they are used to assign a value to different health outcomes either for individual clients or at the aggregate level for different population groups or communities. Some of these issues are identified and discussed in this section. The NHPC does not claim to be able to resolve these issues but considers it important that they be exposed for public discussion.

Should changes in mortality and morbidity be combined in a single measure?

DALYs can be used in cost-effectiveness analysis to measure the difference in outcomes between an intervention and a comparator (for example, current treatment practice). To cite an Australian example, this has been done in the ACE-Heart Disease and ACE-Mental Health studies where the research design has required benefits from changes in mortality to be combined with benefits from changes in health related quality of life. The use of DALYs and similar measures such as quality adjusted life years (QALYs) for this purpose is common practice in economic analyses as well as their use as broad measures of burden of disease.

However, there is an alternative view that any attempt to combine changes in mortality with changes in morbidity or quality of life must inevitably be an attempt to combine 'apples and oranges' by counting the years of life of a disabled person as some fraction of the years of life of a 'healthy' person. Acceptance of this alternative view would require economic analysts to quantify mortality and quality of life benefits separately without making any judgement on how the two compare. This would be left to the users of the research, some of whom might find it difficult to make a decision for or against an intervention with a small risk of death but an improvement in quality of life.

There is a range of views as to the desirability of this. Some researchers believe that measures such as DALYs or QALYs are the only way to make this type of distinction explicit. Others would claim that it confounds and masks the trade-off being made in these decisions, by artificially equating two very different performance factors. Still other groups in the community might argue for other ways of making this type of choice, such as giving an absolute priority to reduction in mortality or maximising the ability of the individual health service consumer to make an informed choice.

Should the DALY and DALE measures be used to guide resource allocation decisions?

It is becoming increasingly recognised that health service resources are finite and that choices must inevitably be made in their allocation–and in fact are being made although the basis of choice is not always explicit. Burden of disease and cost-effectiveness analyses can be used to help policy makers to base decisions in this area more on a composite aggregation of available evidence that involves a careful weighing of 'clinical' need and the costs of an intervention. This recognises that if the cost per aggregate unit of benefit is very large then the community may forego opportunities to spend the same resources on more cost-effective interventions. The proponents of such analysis argue that DALY and DALE measures provide a single aggregate output unit that can be used for this purpose.

However, this approach to policy making can only occur in the context of the general policy constraints imposed on the delivery of Australian health services. In some clinical situations it may be necessary to ask individual clients to 'gamble' by deciding whether or not to accept treatment which might either improve their health or result in death. There may also be situations where there is less uncertainty but a clear understanding that a given treatment will provide a shorter but healthier life. At present, however, any systematic attempt by Australian public hospitals or health authorities to remove these choices from the individual client and their clinician and base them on planning, funding or performance measurement criteria is likely to be inconsistent with the Australian Health Care Agreement principle (enacted by all state and territory governments as a condition of Australian government funding) that 'access to public hospital services by public hospital patients is to be on the basis of clinical need and within a clinically appropriate period'.

Moreover, any attempt by an individual health service provider to deny health services to people on the grounds of disability would expose those responsible to prosecution under anti-discrimination legislation and probably to other legal and professional sanctions. One purpose of these sanctions is to limit the ability of health service providers and planners to make choices which may divert resources away from interventions which extend the lives of disabled people. In the current composite measure combining mortality and morbidity, interventions that extend the lives of disabled people while leaving them in the same disabled state 'would deliver less DALYs' than interventions that extend the lives of healthy people while leaving them in the same healthy state.

An issue of this nature arose in the US State of Oregon in the well known 'Oregon experiment'. In the early 1990s a list of about 700 pairs of conditions and treatments to be given priority for funding under the Medicaid scheme was drawn up and submitted by the Oregon legislature to the US Federal Government for approval. The first list was rejected on the grounds (which some commentators believe questionable) that it was inconsistent with the Americans with Disabilities Act 1990 because the ranking of condition-treatment pairs was based in part on an assessment of the potential for restoring a full quality of life, an outcome not possible for people with disabilities. Extensive revision to avoid this type of discrimination was required before agreement was given for the list to become operational in February 1994 (Bodenheimer 1997 Ham 1998).

In practice, therefore, any attempt to use DALYs or DALE to 'ration health services' must be constrained by other policy considerations. While this constraint will obviously occur in the post-research decision-making process, it may also impact on research design. For example, if policy constraints will prevent discrimination in providing treatment for one condition (such as heart disease) to people with or without a long term disability (such as deafness), this may limit the extent to which comorbidity or the combined effect of these conditions may be factored into the research design or the economic analysis.

The NHPC acknowledges these issues and notes that it has explicitly included equity considerations in its performance measurement framework–for example, in the 'Accessible' dimension of Tier Three and more generally in the overarching question 'Is it the same for everyone?' (NHPC 2001:8).

Issues raised by the use of DALE and DALY as health status measures

Notwithstanding this limitation, burden of disease measures such as DALE and DALY are considered by many health service researchers to have value as a measure of health status. This is acknowledged by the Director of the Australian Institute of Health and Welfare in his Foreword to the Australian Burden of Disease and Injury Study:

> 'Burden of disease analysis provides a unique perspective on health–one that integrates fatal and non-fatal outcomes, yet allows the two classes of outcomes to be examined separately as well.' (AIHW: Mathers et al. 1999:*v*.)

For example, the Study shows that mental disorders are the leading cause of non-fatal disease burden in Australia, accounting for 27.2% of the years of life lived with a disability in 1998, in dramatic contrast to their contribution of only 0.8% of deaths and 1.4% of years of life lost (AIHW: Mathers et al. 1999:88). It is arguable that the message which these figures send to those responsible for determining health service priorities is not really strengthened, and may even be somewhat diluted, by combining the figures to show that mental illness is the third highest contributor (13.3%) to the total DALY measure.

However, the validity of findings such as these rests not only on the accuracy of the epidemiological data on mortality and illness used in the measures but on the validity of the weights assigned to various disabilities (in this case non-fatal mental illness). These weights are based on overseas research, for example in the United States and the Netherlands, and on the judgements of valuation panels with male/female experts from a range of countries at various stages of economic development. There may be an issue around whether the weights determined in this way actually reflect, or even should reflect, the values held in the Australian community.

One aspect of this issue which may need to be highlighted in community discussion is the fact that, in this context, disability is given a particularly broad definition which includes any departure from full 'health', and can include a short-term disability from a common cold, through to a long-term disability such as quadriplegia.

Many disabled people believe that disability does not necessarily equate to poor health. In the early stages of an acquired disability such as paraplegia or quadriplegia this may be the case and individuals may have a greater dependence on health services but once stable, can lead a normal healthy lifestyle. Moreover, people with congenital disabilities such as cerebral palsy or intellectual disability may have no greater dependence on health services than a person without a disability.

If a person with a severe disability (i.e. paraplegia or quadriplegia) has an active and participatory lifestyle with appropriate equipment and 'maintenance medication' they more often than not have full health. There is considerable research here and overseas that indicates people with a disability when actively engaged in employment, tend to have less sick time and hours away from work then people without a disability.

How does this 'burden of disease' term relate to the World Health Organization's definition of disability under the new International Classification of Functioning, Disability and Health (ICF)? In the ICF, disability is an umbrella term for impairment, activity limitation or participation restrictions. ICF lists environmental factors that interact with these constructs.

People with disability have been striving for years to portray disability as something separate from poor health and illness. In doing so there has also been a consistent effort to see disability and difference as something that can be adjusted to and that it was not necessarily negative. There have been real efforts to distance disability from being a burden and show that people do not ‘suffer’ simply because they have a disability.

An alternative view reflecting these perceptions is that ‘burden of disease’ research should try to measure the level of dependence on the health system and/or community, rather than the willingness of people to trade off years of life in various states of disability. This would require (for example) research into this dependence by people with musculo-skeletal type conditions in comparison to paraplegia and/or quadriplegia. It is not clear whether decisions made under the Person Trade-Off methodology are based on levels of dependence ascertained by specific research or assumptions made on the ‘severity’ of each disability. It would also be interesting to know whether any ‘weighting’ is given to length of time with disability to take into consideration the ‘stabilisation’ effect (which may include a period of personal adjustment but also experimentation with aids, appliances and medications in order to achieve stability) or the availability of maintenance resources.

Specific issues will arise in relation to every type of disability and to some extent the issues will be specific to each disability. For example, the burden of severe deafness on each person will depend on a number of factors including:

- the extent to which each person has been able to acquire language skills, which will depend on the age of and rapidity of onset of deafness–to some extent this is taken into account by assigning different weights for deafness arising in young children but this may not adequately discriminate between different levels of language skills;
- although the weights discriminate between treated and untreated conditions, they may not adequately take account of differences in the ability of the individuals to access modern technology–for example, the burden may be less if the individual is able to spend $5,000 on digital hearing aids rather than $2,000 on analog hearing aids; this may depend on socio-economic factors and, aggregated to the national level, may also vary between countries;
- the availability of support services (for example, targeted education programs); and
- perhaps most importantly, the extent to which deaf people are accepted and valued in the community.

The NHPC has acknowledged the need for further discussion and consultation around these issues in its 2001 National Report on Health Sector Performance Indicators. In this report the NHPC pointed out that:

> The weights assigned to various disabilities are derived from overseas research that attempted to measure the extent to which people were prepared to trade off reductions in mortality against reductions in disability (i.e. years of life with good health against years of life with various disabilities). There may be issues around the acceptability to the Australian community in general and to various disability groups of both the basic trade-off methodology and the specific weights assigned to various disabilities…At the very least, there is a need for discussion within the community as to how well the weights (especially those derived from overseas research) reflect the views of both the people most affected by disability and Australian society as a whole. (NHPC 2002: Glossary)

There clearly needs to be an Australian project to develop ‘disability weights’ and this should include participation by clients of health services and people with disabilities and their carers as well as the general population. The original international projects were based on the views of health professionals or experts and non-health university graduates. In more recent work the WHO has conducted large population surveys in over 30 countries using different techniques to the original ‘Person Trade-Off’ methodology. These include asking a representative sample of the population to rank health states according to severity as well as to indicate on a visual analog scale (a ‘barometer’ ranging from 0 for the best possible health state to 1 for the worst possible health state) the relative position of the health states considered.

Issues for the National Health Performance Framework

Although this discussion is primarily concerned with issues around the use and limitations of the DALE and DALY measures, the NHPC acknowledges that these issues also have implications for the logical structure and consistency of its National Health Performance Framework, with particular reference to the dimension ‘Life expectancy and wellbeing’. Like the DALE and DALY measures, this dimension combines two distinct health service objectives–the reduction of mortality and the reduction of disability. Although often complementary, these two objectives are conceptually separate and their combination in a single measure implies a trade-off between them.

The NHPC has agreed to review its framework after a period of three years. This should provide an opportunity for the issues discussed in this paper to be discussed within the wider Australian community.