National Health Performance Framework Report

by the National Health Performance Committee

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A report to the Australian Health Ministers' Conference

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National Health Ministers' Benchmarking Working Group (1999), *Third National Report on Health Sector Performance Indicators – A Report to the Australian Health Ministers' Conference*, Commonwealth Department of Health and Aged Care, Canberra.

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www.health.gov.au/publicat.htm (Commonwealth Department of Health and Aged Care)
www.health.qld.gov.au (Queensland Health)

Contents

Abbreviations/Acronyms

ABS	Australian Bureau of Statistics
ACAP	Aged Care Assessment Program
ACHS	Australian Council on Healthcare Standards
ACIR	Australian Childhood Immunisation Register
ACSQHC	Australian Council for Safety and Quality in Health Care
AGPAL	Australian General Practice Accreditation Ltd
AHMAC	Australian Health Ministers' Advisory Council
AIFS	Australian Institute of Family Studies
AIHW	Australian Institute of Health and Welfare
ALOS	Average length of stay
AN-DRG	Australian National Diagnosis Related Group
AR-DRG	Australian Revised Diagnosis Related Group
BEACH	Bettering the Evaluation and Care of Health
DALE	Disability Adjusted Life Expectancy
DALY	Disability Adjusted Life Years
DHAC	Department of Health and Aged Care (Commonwealth)
DRG	Diagnosis Related Group
DTP	Diphtheria Tetanus Pertussis
EPC	Enhanced Primary Care (package)
ETS	Environmental tobacco smoke
GPA	General Practice Australia
HACC	Home and Community Care
Hib	Haemophilus Influenzae type b
IRSD	Index of Relative Socioeconomic Disadvantage
MBS	Medicare Benefits Schedule
MMR	Measles-mumps-rubella
n.a.	not available
NCIRS	National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases
NHDD	National Health Data Dictionary
NHIMG	National Health Information Management Group
NHMBWG	National Health Ministers' Benchmarking Working Group
NHMRC	National Health and Medical Research Council
NHPC	National Health Performance Committee
NPHP	National Public Health Partnership
OECD	Organisation for Economic Cooperation and Development
OPV	Oral Polio Vaccine
RACGP	Royal Australian College of General Practitioners
SCRCSSP	Steering Committee for the Review of Commonwealth/State Service Provision
SES	Socioeconomic scale
SLA	Statistical local area
TGA	Therapeutic Goods Administration
URTI	Upper respiratory tract infection
WHO	World Health Organization

National Health Performance Committee

Vision:

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

Mission:

The National Health Performance Committee will work to foster the use of benchmarking based on national performance measures and indicators to improve the quality of care of health services.

Goals:

- To extend the national performance indicator framework for services other than acute inpatient services. This would include not only indicators of the overall health system's performance, but also 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 the nation.
- To improve the timeliness of reporting of performance information.

Terms of reference:

- 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.
- Establish and maintain appropriate national performance indicators within the national performance measurement framework.
- Receive and consider input to the national performance measurement framework and on existing and potential performance indicators.
- Facilitate the use of data at the health service unit level for benchmarking purposes.
- Encourage the health industry to work within the national performance measurement framework and use the agreed performance indicators in benchmarking to improve performance.
- Encourage the development of expertise in the use of benchmarking for performance improvement.
- Provide Australian Health Ministers' Conference and other national authorities with a comparative analysis and information of national health system performance.
- Develop and maintain linkages with other relevant national committees.
- Report progress to the Australian Health Ministers' Conference and other national authorities on achieving its mission.

Executive Summary

The National Health Performance Committee (NHPC) was formed at the request of the Australian Health Ministers' Conference 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.

In February 2000, the NHPC embarked on the development of a new Australian health performance framework. A Discussion Paper was disseminated widely for comment to jurisdictions, government and non-government providers, and consumers in the health system. An NHPC workshop to refine and improve the proposed framework was held in July 2000. The new framework has been adapted from the Canadian Institute for Health Information framework as part of the Canadian Roadmap Initiative that was established in 1999.[1]

The NHPC undertook a scan of high level goals and objectives of the Commonwealth and State health systems and determined that the framework would provide relevant information on the attainment of those goals.

The framework has not been developed as a model of the health system. Rather it is designed to provide structure as to how we approach an appraisal of how well the health system is performing. The framework is expected to support benchmarking for health system improvement and to provide information on national health system performance. Through the promotion of the framework, the NHPC also aims to facilitate the use of data at the health service unit level for benchmarking purposes.

The framework consists of three tiers: Health Status and Outcomes, Determinants of Health and Health System Performance. These tiers do not represent a hierarchy but reflect the fact that health status and health outcomes are influenced by the impacts of health determinants and health system performance. Questions are posed for each tier and dimension and it is anticipated that performance indicators will be chosen or developed to provide answers to the questions that will give us a guide as to how well the health system is doing.

Four dimensions are presented in the Health Status and Outcomes section and include health conditions, human function, life expectancy and wellbeing, and deaths. The second tier includes the Determinants of Health and these are grouped into environmental factors, socioeconomic factors, community capacity, health behaviours and person-related factors.

Health System Performance has been grouped into nine dimensions of performance. A single indicator may provide information across one or more of the nine dimensions. For example an indicator relating to an intervention might additionally be considered across different populations and also within the context of the time taken to receive that intervention. Therefore the indicator reflects the effectiveness, accessibility and responsiveness of the intervention.

Quality in the performance framework is considered to be an integral part of the framework. The dimensions considered in determining the quality of the system are very similar to those measuring performance. A system will only perform well if it is delivering high quality interventions in a cost-effective manner.

In developing the framework, equity was explicitly mentioned as one measure of health system performance. However, it was clear that equity was integral to the entire framework, hence the question 'Is it the same for everyone?' in all three tiers. This approach will guide how the data is broken down and interpreted. Data will be considered at a national and state level, as well as by age, sex, place of residence, and socioeconomic status. Specific populations, groups or communities may be considered and may include Aboriginal and Torres Strait Islander peoples and non-English speaking people. Health status will be considered and then specific issues related to health determinants and system delivery will be explored to provide information on performance, as well as possible scope for improvement.

In this report, criteria for the selection and evaluation of performance indicators are proposed. Examples of performance measures relevant to each of the tiers are provided to illustrate dimensions of the tiers and to show how the NHPC will be using the framework for its annual performance report to Ministers. These examples do not represent the final selection of indicators for the 2001 or subsequent Performance Reports.

[1] Canadian Institute for Health Information and Statistics Canada (2000), *Canadian Health Information Roadmap Initiative Indicators* framework, Ottawa. (www.cihi.ca/)

This report concludes with a discussion on indicator development and the nature of the annual reporting to Ministers.

In its *Fourth National Report on Health Sector Performance Indicators* (July 2000), the Committee set itself three key goals in addition to continuing the work of the National Health Ministers' Benchmarking Working Group, which had initially concentrated on the acute health sector. These goals are:

- to extend the national performance indicator framework for services other than acute inpatient services. This would include not only indicators of the overall health system's performance, but also 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 the nation; and
- to improve the timeliness of reporting of performance information.

The performance framework provides a valuable tool to identify trends and patterns, inform decision making, and evaluate progress of efforts to address health challenges.

Chapter 1 Introduction

Preamble

The purpose of this report is to describe and illustrate a national health performance framework that has been developed by the National Health Performance Committee (NHPC). The framework is intended to support performance measurements at all levels of the health system, although its primary purpose is to capture the dimensions of performance at a system or national level. The audience for this report therefore is potentially very broad.

This document is not the annual report from the NHPC to the Australian Health Ministers and therefore a full range of indicators is not reported against nor is an overview of the Australian health system provided. This is a report from the Committee that outlines the framework and describes the anticipated style and content of future reporting to Health Ministers. The indicators presented in this report are merely examples of the sort of information that could be reported on. They are intended to be illustrative of various aspects of the framework.

The vision of the NHPC is for a health system that searches for, compares, learns from the best and improves performance through the adoption of benchmarking practices across all levels of the system. Its goal is 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 for services such as community health, general practice and public health.

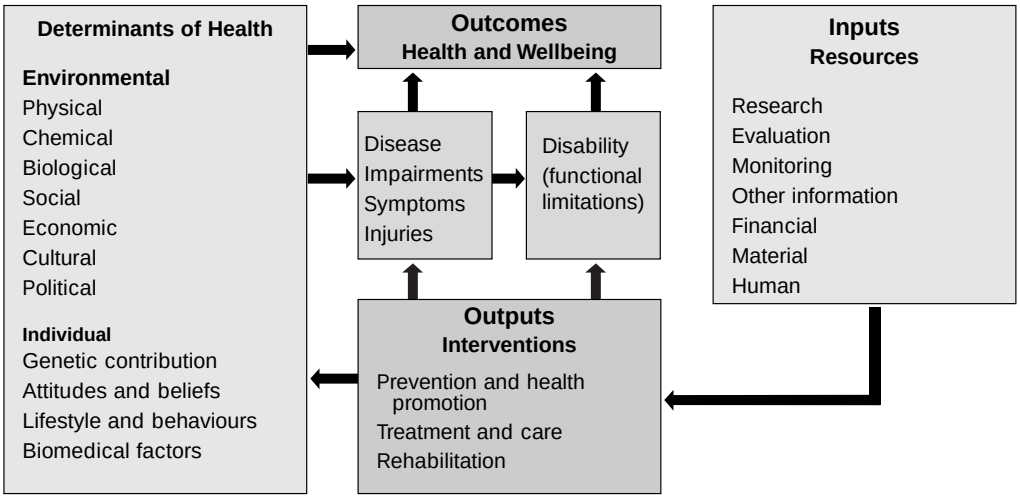
Australian Health System[1]

The Australian health system is complex, with many types and providers of services (public and private) and a range of funding and regulatory mechanisms. The States and Territories are primarily responsible for the delivery and management of health (including public health) services and for maintaining direct relationships with most health care providers, including the regulation of health professionals. The Commonwealth funds most medical services provided out of hospital and most health research. The Commonwealth, States and Territories jointly fund public hospitals and community care for aged and disabled persons.

A Conceptual Framework for Health

A conceptual framework of the health system is presented in *Australia's Health 2000*. Figure 1.1 illustrates the relationships between components of the health system and how these are aligned.

Figure 1.1: A Conceptual Framework for Health



Source: Derived from Australian Institute of Health and Welfare (2000), Australia's Health 2000, Canberra.

[1] For more information on the Australian health system refer to: Australian Institute of Health and Welfare (2000), *Australia's Health 2000*, AIHW, Canberra; Australian Institute of Health and Welfare (1999), *Australia's Welfare 1999*, AIHW, Canberra; and the Department of Health and Aged Care, *Annual Report* (various years).

Funders and purchasers within the health system are becoming more focused on outcomes. Outcomes are defined as a change in the health of an individual, or group of people or a population, which is wholly or partially attributable to an intervention or a series of interventions. The measurement of outcomes is a formidable task with current information systems and processes. When measuring performance of a system or program it is important to consider the process involved in turning inputs into outputs and evaluating the outcomes.

The health performance framework should be informed by an understanding of the factors that impact on health outcomes. Consistent with the conceptual framework outlined in Figure 1.1, system performance can be measured taking the following approach:

- the monitoring of inputs to the health system such as human resources, capital, facilities, equipment, and information systems;
- the measurement of outputs such as hospital separations, number of consultations with service providers, the provision of medication and diagnostic services, preventative actions, and rehabilitation services; and
- the monitoring of outcomes through changes of health status of individuals, groups and communities.

Finding short and medium-term measures to provide information on whether the health system is delivering the appropriate care/service/interventions to the people most at need is the challenge for the NHPC. Health outcomes identified by the framework may be difficult to measure in the short term, so it will be important to measure the relationships between inputs and outputs in the shorter term and over a longer period establish performance measures that show an association between the interventions and outcomes.

The difficulty in measuring outcomes and attributing them to system performance is that an outcome may be the result of many factors. These factors can include the results of a variety of interventions across the continuum of care, e.g. interventions in primary care, acute care and continuing care as well as the impact of the determinants of health influencing individuals, groups or communities. Research will be an important linking factor to establish relationships between outputs (interventions) and outcomes (change in the health status of individuals and populations).

Role of the National Health Performance Committee

The NHPC was formed at the request of the Australian Health Ministers' Conference 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.

The vision, mission and terms of reference of the NHPC as agreed by the Health Ministers are outlined on page v.

Development of the Framework

The NHPC's predecessor, the National Health Ministers' Benchmarking Working Group (NHMBWG), and also the NHPC itself, have published a total of four reports using a different framework from the one presented in this report. The previous framework focused on the performance of the acute care hospital sector and the NHMBWG recommended the framework be expanded to reflect a broader view of health systems.

To develop a broader framework for measuring performance in the Australian health system, a discussion paper was developed by the NHPC in February 2000 and disseminated widely to government and non-government providers and participants and consumers in the health system. A workshop was held the following month under the auspices of the National Public Health Partnership (NPHP) to provide advice to the NHPC on population health perspectives for a performance framework, criteria for selection of performance indicators and the development work required, taking into account existing work.[2]

[2] National Public Health Partnership (2000), *Performance Indicator Frameworks for Population Health, Report on Workshop held on 16 March 2000*, Melbourne.

An NHPC workshop was held in Adelaide in July 2000 with over 40 people from a range of backgrounds to refine and improve the proposed framework. Written feedback was also widely requested and this feedback has informed deliberations about the framework or been incorporated into the framework.

A temporary joint taskforce between the NHPC and the NPHP called the Population Health Taskforce on Performance, (or PopToP) assisted with production of example indicators in this report.

The framework consists of three tiers: health outcomes, determinants of health and health system performance. A wide range of frameworks for national reporting were reviewed including the Australian Institute of Health and Welfare conceptual framework for health,[3] the United States' *Healthy People 2010*,[4] United Kingdom quality framework[5] and the Canadian Institute of Health Information framework.[6] The Canadian Health Information framework was selected and adapted for use in Australia. It was developed as part of the Canadian Roadmap Initiative that was established in 1999 to improve the quality, comparability, utilisation and dissemination of information on the health of Canadians and the functioning of the health system.

The National Health Performance Committee undertook a scan of high level goals and objectives of the Commonwealth, State and Territory health systems and determined that the framework would provide relevant information on the attainment of those goals. There was significant commonality between the jurisdictions for health goals and objectives, and these mapped well to the Australian Health Care Agreements objectives. The common goals identified in the scan also mapped well to the World Health Organization's three goals of improving health, enhancing responsiveness to the expectations of the population and assuring fairness of financial contribution. (See Appendix 2 for further information.)

The framework developed by the NHPC allows us to assess the performance of the health system consistent with the conceptual framework shown in Figure 1.1. It is designed to provide structure as to how we approach an appraisal of how well the health system is performing. The framework is expected to support benchmarking for health system improvement and to provide information on national health system performance. Through the promotion of the framework, the NHPC also aims to facilitate the use of data at the health service unit level for benchmarking purposes.

Structure of the Report

Chapter One provides an overview of how the National Health Performance Framework was developed, the role of the NHPC and gives an overview of the report.

Chapter Two provides a comprehensive explanation of the framework and the tiers and the dimensions within the framework. The criteria for selecting performance indicators for the framework is also outlined in this chapter.

Chapters Three, Four and Five present a selection of indicators to illustrate how the framework can be applied to national reporting on the health system performance. Chapter Three presents a selection of indicators on health status and outcomes. Chapter Four presents a selection of determinants that impact on health at the individual or population level. Chapter Five presents a sample of indicators for measuring the performance of the health system. Examples of indicators are presented for population health, acute care, primary care and continuing care, as it is the intention of the Committee to present information on the broader health system.

[3] Australian Institute of Health and Welfare (2000), *Australia's Health 2000*, Canberra.
[4] US Department of Health and Human Services (2000), *Healthy People 2010*, US Government Printing Office, Pittsburgh, US. (http://www.health.gov/healthypeople/)
[5] United Kingdom Audit Commission (2000), *Aiming to Improve: The Principles of Performance Measurement*, Management Paper, June, UK. (http://www.audit-commission.gov.uk/); United Kingdom Audit Commission (2000), *On Target: The Practice of Performance Indicators*, Management Paper, June, UK. (http://www.audit-commission.gov.uk/); United Kingdom Department of Health (2000), *Quality and Performance in the NHS Performance Indicators*, July, UK. (http://www.doh.gov.uk/, updated July 2000); United Kingdom Department of Health (1999), *A First Class Service: Quality In The New NHS*. (http://www.doh.gov.uk/, updated February 1999)
[6] Canadian Institute for Health Information (CIHI) and Statistics Canada (2000), *Canadian Health Information Roadmap Initiative Indicators Framework 2000*, Ottawa. (www.cihi.ca/)

Chapter Six presents proposed future directions for the NHPC for reporting on the performance of the health system.

Appendix 1 outlines the services and functions of the health care sectors (e.g. population health, primary care, acute care and continuing care). The approach used by the World Health Organization to measure health system performance is outlined in Appendix 2 to enable an international comparison to be made with the proposed framework in this report.

The NHPC would appreciate any comments on:

- the framework e.g. its utility and application; and
- measures that could be used in the Annual Report to Health Ministers, both current and still to be developed measures.

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

Chapter 2 National Health Performance Framework

Using the Framework to Measure Performance

The NHPC has developed a new framework to report performance of the Australian health system at a national level. The framework (Table 2.1) is the result of extensive review, wide consultation and consideration by the NHPC.

The Committee also supports and encourages the use of the framework for measuring performance at all levels of the health system. Feedback on the framework is welcomed and it is anticipated the framework will evolve and improve over time.

Essentially, the framework is a structure to guide the understanding and evaluation of the health system. It facilitates consideration of how well the health system or program is performing. The framework consists of three tiers, which do not represent a hierarchy. The relationships between the tiers and dimensions of the framework are important. Questions are posed for each tier and dimension and it is anticipated that performance indicators will be chosen or developed to provide answers about the performance of the system. It is important to note that it is possible that any single indicator could provide information in several dimensions across the framework.

In this publication a performance indicator is defined as 'a statistic or other unit of information which reflects, directly or indirectly, the extent to which an anticipated outcome is achieved or the quality of the processes leading to that outcome'.[1]

The first tier of the framework, Health status and outcomes, has four dimensions: health conditions, human function, life expectancy and wellbeing, and deaths.

The second tier, Determinants of health, includes five dimensions: environmental factors, socioeconomic factors, community capacity, health behaviours and person-related factors.

The third tier, Health system performance, has been grouped into nine dimensions: effective, appropriate, efficient, responsive, accessible, safe, continuous, capable and sustainable.

Equity is integral to the framework. Equity of the system will be considered and presented across all tiers of the framework, using the question of 'is it the same for everyone?' Differentials reported by age, sex, rurality, ethnicity, socioeconomic status, jurisdiction, or for Aboriginal and Torres Strait Islander peoples, may be presented to provide information about performance in addressing inequities, and to highlight possible scope for improvement.

Quality is also an integral and overarching part of the health system performance tier of the framework. The dimensions considered in determining the quality of the system are very similar to those measuring health system performance. The overall performance of the system cannot be assessed through a single dimension such as cost effectiveness. A system is only performing well when it delivers interventions of a high quality that encompass issues of efficiency, effectiveness etc. as outlined within the framework.

An analysis of the world's health systems is currently being undertaken by the World Health Organization (WHO). Notwithstanding the experimental nature of the data used in many of the WHO indicators, this report provides a valuable external point of reference for the Australian health system. (See Appendix 2 for further details.)

[1] National Health Information Management Group (2000), *National Summary of the 1998 Jurisdictional Reports against the Aboriginal and Torres Strait Islander Health National Performance Indicators for Aboriginal and Torres Strait Islander Health*, AIHW Cat. no. 5, AIHW, Canberra.

Table 2.1 National Health Performance Framework

Health Status and Outcomes

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
Prevalence of disease, disorder, injury or trauma or other health-related states.	Alterations to body, structure or function (impairment), activities (activity limitation) and participation (restrictions in participation).	Broad measures of physical, mental, and social wellbeing of individuals and other derived indicators such as Disability Adjusted Life Expectancy (DALE).	Age and/or condition specific mortality rates.

Determinants of Health

Are the factors determining 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
Physical, chemical and biological factors such as air, water, food and soil quality resulting from chemical pollution and waste disposal.	Socioeconomic factors such as education, employment, per capita expenditure on health, and average weekly earnings.	Characteristics of communities and families such as population density, age distribution, health literacy, housing, community support services and transport.	Attitudes, beliefs knowledge and behaviours e.g. patterns of eating, physical activity, excess alcohol consumption and smoking.	Genetic-related susceptibility to disease and other factors such as blood pressure, cholesterol levels and body weight.

Health System Performance

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
Care, intervention or action achieves desired outcome.	Care/intervention/action provided is relevant to the client's needs and based on established standards.	Achieving desired results with most cost effective use of resources.
Responsive	**Accessible**	**Safe**
Service provides respect for persons and is client orientated. It includes respect for dignity, confidentiality, participation in choices, promptness, quality of amenities, access to social support networks, and choice of provider.	Ability of people to obtain health care at the right place and right time irrespective of income, physical location and cultural background.	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.
Continuous	**Capable**	**Sustainable**
Ability to provide uninterrupted, coordinated care or service across programs, practitioners, organisations and levels over time.	An individual's or service's capacity to provide a health service based on skills and knowledge.	System or organisation's capacity to provide infrastructure such as workforce, facilities and equipment, and be innovative and respond to emerging needs (research, monitoring).

Source: Derived from Canadian Institute for Health Information (CIHI) and Statistics Canada, Canadian Health Information Roadmap Initiative Indicators framework 2000 (www.cihi.ca/).

The tiers and dimensions of the framework are described in more detail below, and chapters 3, 4 and 5 present examples of how performance can be reported against the framework.

Tier 1 Health Status and Outcomes

Health Status and Outcomes

How healthy are Australians? Is it the same for everyone? Where is the most opportunity for improvement?

The health system is one part of the broader social system involving government and non-government programs. The health status of populations, and their use of health services, is determined by a wide range of social and community factors as well as individual behaviours. To take account of these influences, the framework acknowledges that baseline health status needs to be ascertained using measures of the prevalence of disease or injury, human function, life expectancy and wellbeing, and mortality rates across the population. Changes in health status may then be measured, and perhaps attributed to interventions or other known factors to determine achievement against stated desired outcomes.

This tier of the health performance framework includes dimensions related to health status and outcomes of the population as a whole. The performance related questions posed are:

- How healthy are Australians?
- Is it the same for everyone?
- Where is the most opportunity for improvement?

Four dimensions are included in this tier:

- health conditions;
- human function;
- life expectancy and wellbeing; and
- deaths.

Health Conditions

The *health conditions* dimension provides information on the prevalence of disease, injury or other health-related states. Information on the prevalence, incidence and burden of disease and injury provides a baseline to evaluate trends in the population's health. The ultimate effectiveness of health programs and strategies can be indicated from this baseline data, although there may be social and/or economic circumstances that influence health conditions. A decline in the prevalence or severity of a disease or injury is an important goal of a well performing health system.

Possible indicators for this dimension may include prevalence, incidence or burden of disease such as:

- trends in the prevalence/incidence of health conditions within the National Health Priority Areas such as diabetes, cardiovascular disease, cancer, mental health including depression, injury and asthma; and
- morbidity attributable to licit and illicit drugs.

Human Function

The *human function* dimension captures information on the level of disability and impaired function in the population. It includes information on the prevalence of impaired functioning, activity limitations and restrictions in participation. It is one of the goals of the health system to maintain optimal function of people and limit impairment or disability related to injury, disease or other disorders.

Possible indicators for this dimension may include:

- years lived with disability (YLD); and
- impairment ratings and levels of independence/dependence.

Life Expectancy and Wellbeing

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.

Indicators that may give an impression of performance of the health system in achieving these goals are:

- Disability-adjusted life expectancy (DALE) (See Box 2.1);
- Disability-adjusted life years (DALY) (See Box 2.1); and
- self-assessed health.

Deaths

The *deaths* dimension includes age and/or condition-specific mortality rates. Information on rates and causes of death by age, sex and population group will provide valuable information on the causes and conditions that lead to premature death and identify groups at risk. A reduction in premature deaths would indicate effective interventions across the health system.

Possible indicators may include:

- perinatal and infant mortality;
- years of life lost (YLL) for certain health conditions; and
- leading causes of death.

Box 2.1 Explanatory notes for the terms 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) = Life expectancy adjusted for the average time spent in states of less than full health weighted for severity.
Disability Adjusted Life Years (DALY) = YLL + YLD

YLL = Years of life lost due to premature mortality
YLD = Years of life lived with disability

The DALE 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.

The DALY measure is the number of years lost due to premature mortality (relative to a standard life expectancy) combined with years lived in states of less than full health and is known as a health gap measure. At the population 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.

'Disability' in this context 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.

Over-reliance on aggregated measures such as DALE and DALY can obscure information on the impact of particular disabilities. However, both the mortality and disability components of DALYs can be scrutinised separately.

The definition for YLD shown above is the definition used by the World Health Organization. The definition that is more commonly used in Australia is 'years of life lost due to disability'.

See the Glossary for further details.

There may be issues around the acceptability to some groups of people with a disability of both the DALE and DALY concepts in general and the specific weights assigned to various disabilities. 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. The technical application of the terms from a statistical and data measurement perspective will also be subject to further debate within Australia.

Tier 2 Determinants of Health

Determinants of Health

Are the factors determining health changing for the better? Is it the same for everyone? Where and for whom are these factors changing?

This tier of the framework takes into account factors that influence the health status of Australians. Factors reported in this domain may be external to the traditional view of the health system, for example, education levels, housing, and community infrastructure. Also included are genetic susceptibility to disease and health-related behaviours. In order to evaluate the performance of the health system, it is important to identify and measure the impact of the determinants on health outcomes. The reporting of health determinants in relation to the performance of the health system will work to highlight the need for and facilitate inter-sectoral approaches where appropriate to improve health outcomes.

The proposed questions for this tier are:

- Are the factors determining health changing for the better?
- Is it the same for everyone?
- Where and for whom are these factors changing?

The Determinants of Health tier includes five dimensions:

- environmental factors;
- socioeconomic factors;
- community capacity;
- health behaviours; and
- person-related factors.

Environmental Factors

Environmental factors such as air, water, food and soil quality and access to clean water and fresh fruit and vegetables directly influence the health of Australians. Longer-term environmental impacts include the depletion of the ozone layer, increases in UV levels and increased salinity of our water systems.

Possible measures to monitor environmental factors include:

- air quality - levels of pollution, dust and pollen counts, Legionella reports;
- stratospheric ozone levels;
- smoke-free homes and workplaces;
- water – pollutants, bacterial readings, blue green algae; and
- food quality – salmonella reports etc.

Socioeconomic Factors

Research has shown clear associations between *socioeconomic factors* such as education, employment and income and the health status of Australians. Generally, population groups with lower socioeconomic status have poorer health than those with higher socioeconomic status. Reporting the socioeconomic factors affecting health will help to inform public policy. This could encourage greater intersectoral collaboration to help address health inequalities and improve health status and health outcomes.

Suitable indicators may include health outcomes or health determinants broken down by:

- education level (primary/secondary/tertiary);
- employment status; and
- income.

Community Capacity

Community capacity incorporates information on characteristics of communities that can influence health, such as health literacy, quality housing, community support services, transport, community safety and social support. It also includes measures of local health services. Concepts and measures of community capacity are currently the focus of considerable research and development. Appropriate national performance indicators that relate health to community capacity will be developed.

Indicators could include:

- health services in the locality;
- trust in health professionals;
- health literacy; and
- community support services.

Health Behaviours

Poor health is strongly associated with, or caused by, certain *health behaviours*. Poor diet, insufficient physical activity, excess alcohol consumption and smoking are common risk factors for many diseases and conditions including cancers, diabetes, heart disease and stroke.

Possible indicators to monitor may include:

- tobacco use;
- excessive consumption of alcohol;
- illicit drug use;
- levels of physical activity; and
- nutritional intake.

Person-related Factors

Person-related factors include age, genetic and biomedical characteristics. These are factors outside those normally influenced by individual behaviours or by the environment. Genetic factors determine predisposition to certain conditions.

Possible indicators for this dimension could include:

- rates of specific genetically determined diseases e.g. Down's syndrome, muscular dystrophy, cystic fibrosis and haemophilia; and
- rates of specific birth defects e.g. congenital anomalies of the heart.

Tier 3 Health System Performance

Health System Performance

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?

This tier of the framework on health system performance accommodates reporting on a range of service categories and types of interventions across the spectrum of the health care system. It includes population health programs, primary care services, and acute and continuing care sectors. It can be applied to all settings and different organisational levels. The dimensions require that health care services be:

- effective;
- appropriate;
- efficient;
- responsive;
- accessible;
- safe;
- continuous;
- capable; and
- sustainable.

Effective

The definition proposed for *effective* in the framework is 'care/intervention/action achieves the desired result in an appropriate timeframe'. In framing a question related to effectiveness, it could be:

- Is the care/intervention/action achieving the desired outcome?

In the Fourth Report on Health Sector Performance Indicators,[2] the term *effectiveness* includes the concepts of quality, appropriateness, accessibility and equity. In the new framework, the term *effective* will be used to evaluate whether health interventions are primarily achieving the desired results in the timeframe expected, for example, if radiotherapy is effective in reducing the size of tumours or immunisation reduces the prevalence of the disease in the community.

Indicators for *effective* could be drawn from:

- immunisation rates and prevalence of disease;
- HIV education and the practice of safe sex;
- SIDS education and the prevalence of sudden death in infants; and
- breast screening and detection of small size cancers.

Appropriate

Appropriate care is considered to be 'relevant to the client's needs and based on established standards'. The questions to be asked for this dimension could be:

- Is the care/intervention/action provided relevant to the client's needs?

- Is the care/intervention/action based on established standards?

Appropriate care is also *effective* care, but the treatment is considered in relation to the patient's particular needs, requests and prognosis. Treatments for similar conditions may vary according to the patient's needs and this may take into account factors such as:

[2] National Health Performance Committee (2000), *Fourth National Report on Health Sector Performance Indicators – A Report to the Australian Health Ministers' Conference*, Sydney.

- allergies or adverse reactions;

- a person's preference for treatment at home or in a medical facility;

- a choice between aggressive treatment versus palliative care;

- elective versus emergency procedures;

- the stage of the disease process or severity of injury; and

- cultural influences and religious beliefs.

Appropriate care or treatment should be based on established and accepted standards, such as evidence-based clinical guidelines.

In evaluating how appropriate an intervention is, or how well the system is delivering appropriate care, it may be possible to evaluate treatments provided for the disease and injuries associated with the greatest burden of disease. The treatments given could be compared to recommended approaches from evidence-based guidelines or accepted clinical practice and whether the treatment chosen was most appropriate for the patient's needs.

Appropriate may overlap with *effective* but the main differentiation is that several interventions for a health condition may be effective and available, but one of the treatments may be more relevant or appropriate to the person's needs or community objectives. Furthermore, a particular intervention may be considered to be effective but inappropriate.

An indicator to report on appropriate care could include:

- proportion of hospitals and available beds that have Australian Council on Healthcare Standards (ACHS) accreditation status.

Efficient

The definition proposed for an *efficient* system is 'achieve desired results with most cost effective use of resources'. The question to be answered from this dimension could be:

- What outputs and outcomes can be achieved with the available resources?

It is important when evaluating the performance of the health system that efficiency is not considered at the expense of quality or equity. In reporting efficiency, both technical and allocative efficiency are included.

Technical efficiency is the degree to which the least cost combination of resource inputs occurs in production of a particular service. A more technically efficient system will provide more outputs for the same inputs. For example, efficiency gains may be achieved by the amalgamation of several sole practices into a central practice. Savings are gained through the reduction of fixed costs for each practice (inputs), without reduction in the number of treatments per service provider (outputs).

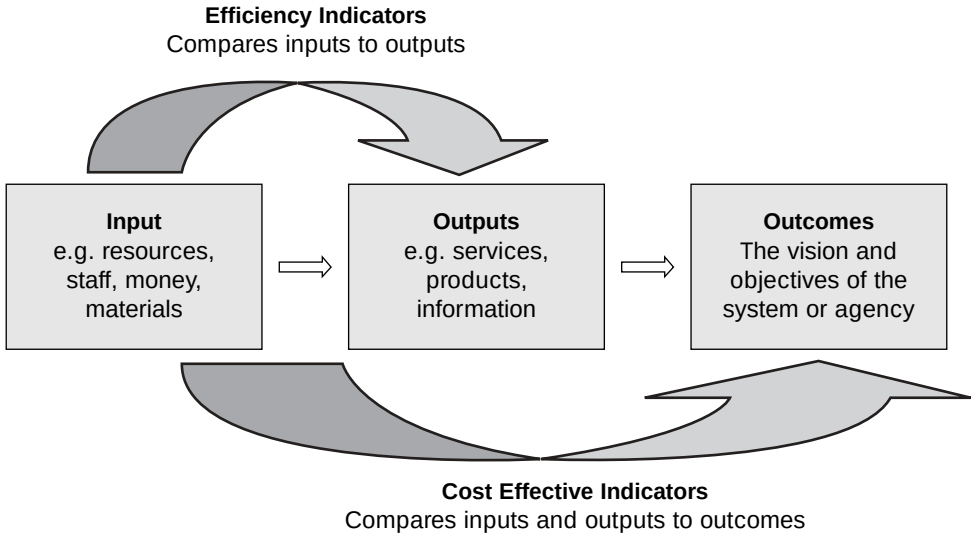
Allocative efficiency is the degree to which maximum benefit (or outcomes) is obtained from available resources.[3] A system that is allocatively efficient will provide improved outcomes for the same or less cost. Achieving allocative efficiency pre-supposes that health care services are efficient in the everyday meaning of the term i.e. that the best possible ratio of inputs to outputs has been achieved.[4]

Efficiency of the health system has been traditionally measured by comparing inputs to outputs and has been defined as 'the rate of translation of inputs into outputs'.[5] However, definitions can vary depending on the perspective taken and efficiency is a concept that can be applied in different contexts i.e. in production, in the mix of products and in consumption.

In the context of this report, *technical efficiency* will refer to the production of an output with the least cost inputs and *allocative efficiency* will refer to the least cost mix of outputs that delivers a desired outcome. *Cost-effectiveness of the system* compares the outputs and inputs of the system to the outcomes. Figure 2.1 illustrates this relationship.

[3] Boyce et al. (1997), *Quality and Outcome Indicators for Acute Healthcare Services*, AGPS, Canberra.
[4] Duckett, S. (1999), 'Policy challenges for the Australian health care system' *Australian Health Review*, 22(2): p. 134.
[5] Australian Institute of Health and Welfare (2000), *Integrating Indicators: Theory and Practice in the Disability Services Field*, AIHW Cat. no. DIS 17, Disability Series, AIHW, Canberra, p. 5.

Figure 2.1 Flow diagram representing the relationship between inputs, outputs and outcomes



Source: Derived from Canadian Institute for Health Information (CIHI) and Statistics Canada, Canadian Health Information Roadmap Initiative Indicators Framework 2000 (www.cihi.ca/); United Kingdom Audit Commission (2000), On Target: The Practice of Performance Indicators, Management Paper, June 2000; and Australian Institute of Health and Welfare (2000), Integrating Indicators: Theory and Practice in the Disability Services Field, AIHW Cat. no. DIS 17, Disability Series.

Cost effectiveness is measured by comparing the cost of inputs to outcomes. A more cost effective outcome will require less resources to achieve the same result. For example, effective preventative approaches such as immunisation or the use of protective equipment are less costly than the treatment and rehabilitation costs for related injury or illness, with better outcomes for the people at risk.

Allocative efficiency is related to cost effectiveness and appropriateness as it is concerned with how services are integrated and combined to deliver the most effective and appropriate care with the least cost.

Examples of efficiency indicators could include:

- cost per casemix adjusted separation in public hospitals;
- average cost per DRG/average benefit per DRG;
- cost per GP visit; and
- cost per woman screened for breast cancer.

Responsive

Responsiveness is the dimension that evaluates consumer and community experience and expectations of the health system. The *World Health Report 2000* presents a definition of responsiveness as 'a service that provides respect for persons and is client orientated'.[6] This definition has been adopted for the framework.

The questions for this dimension could be:

- Do the clients of the service feel respected and is the service orientated to their needs?

- Is the health system meeting expressed needs and concerns of patients and their carers/families?

In considering responsiveness of the health system, the WHO report distinguishes between elements related to respect for human beings as persons, and more objective elements of how a system meets certain commonly expressed concerns of patients and their families as clients of health systems. The two categories were subdivided into seven distinct elements or aspects of responsiveness.

[6] World Health Organization (2000), *World Health Report, Health Systems – Improving Performance*, Geneva.

Respect for persons includes:

- respect for the dignity of the person;
- confidentiality, or the right to determine who has access to one's personal health information; and
- autonomy to participate in choices about one's health. This includes helping to choose what treatment to receive or not to receive.

Client orientation includes:

- prompt attention: immediate attention in emergencies, and reasonable waiting times for non-emergencies;
- amenities of adequate quality, such as cleanliness, space and hospital food;
- access to social support networks – family and friends – for people receiving care; and
- choice of provider, or freedom to select which individual or organisation delivers one's care.

The Department of Health and Aged Care is undertaking the WHO Responsiveness Survey in Australia to obtain a performance measure for this dimension and to test the process and methodology used by the World Health Organization.

A measure of commitment in Australia to improving the responsiveness of the system is the participation of consumers in the planning and management of health service delivery. This process to ensure the consumer voice is reflected in decision making is incorporated in several accreditation processes, is used in national mental health reporting and is being developed within some jurisdictions. Some states, like Victoria, have mandatory establishment of consumer advisory committees to metropolitan health service boards while others have voluntary establishment of mechanisms to ensure consumer participation. A performance indicator for national reporting of this process measure could be developed.

Other indicators could include:

- the degree of reporting to consumers;
- the handling of complaints from consumers; and
- participation of consumers in decision making and advisory processes.

Accessible

Accessible health care is defined by the 'ability of people to obtain health care at the right place and right time irrespective of income, cultural background or physical location'. This dimension is related to how readily people are able to access care without barriers of distance, discrimination, affordability and restriction of service. It encompasses the objective of equity. A fair health system should provide appropriate care to people without bias.

The questions for this dimension could be:

- Is appropriate health care available for all people at locations that are within reasonable travelling distance from their home?
- Is there reasonable access to emergency health care if required?
- Is the service available at appropriate hours and provided with sufficient frequency to meet the needs of people?
- Is cost of travel or care a barrier for people accessing appropriate care?
- Is care community focused and sensitive to cultural and religious customs and beliefs?

Distance and physical location can limit access to health services, particularly for people who live in rural and remote areas of Australia. People either travel long distances to obtain care or a service may be taken to them, for example 'fly-in, fly-out medical services'. Emergency care when needed is critical.

For acute services, several performance indicators used to date include:

- emergency department waiting times to service delivery;
- elective surgery waiting times;
- separations per thousand target group of population; and
- general practitioner services per thousand population living in rural, remote and metropolitan areas.

Indicators for equity of access could be utilisation rates by target group compared to national average e.g. health care service use by Aboriginal and Torres Strait Islander peoples, rural populations etc.

Safe

The definition proposed for the *safe* dimension is 'the avoidance or reduction to acceptable levels of actual or potential harm from health care management or the environment in which health care is delivered'. This aspect of performance relates to prevention or minimisation of causes of adverse events associated with the delivery of health actions.

The question for this dimension could be:

- Are the risks associated with the delivery of health actions identified and managed?

In reporting under this dimension, it would be necessary to report on the spectrum of health care settings and include acute and primary care settings, as well as the community and the home. Data is available on hospital-based adverse events, but it may be difficult getting information from primary care settings and home and community-based care.

Comprehensive reporting on safety would need to include information on adverse events and include aspects of risk identification and risk management.

It may be possible to collect information on whether a health facility or provider has developed a risk management plan where risks have been identified for the action/intervention, as well as for the environment. The prevalence of adverse events relevant to the health action could then be used to assess the effectiveness of the risk management plans. It would be important for the aspects of safety and risk management to be tied to accreditation.

Possible performance indicators for safety could be presented in relation to the setting, e.g. acute care, primary care etc. Also it will be important to link with other safety reporting by the Australian Council for Safety and Quality in Health Care (ACSQHC).

The existing indicators address the identification of adverse events in the system, but they do not address how well the system deals with the management of the risk and improvement in safety. Performance indicators related to the system need to be developed and should be done in consultation with the ACSQHC. Indicators for other health settings will need to be identified and possibly developed.

A relevant indicator could be:

- number of approved products withdrawn from the market or requiring a change to conditions of approval for safety-related reasons.

Continuous

Continuous care is defined as the 'ability to provide uninterrupted, coordinated care/intervention/action across programs, practitioners, organisations and levels over time'. The question for this dimension could be:

- Is the delivery of health care actions provided in a coordinated and continuous manner across the continuum of care?

The focus of this dimension is to evaluate whether there is integration of services for the individual, with the aim of improved care resulting from improved communication between individual care providers and between facilities where care may be provided. It has been identified that communication and care planning between acute care providers/facilities, primary care providers and community health workers can be improved to provide less fragmented services.

The Commonwealth Government recently introduced Medicare Benefits Schedule (MBS) items to address this issue. Care planning and case conference items are available for older Australians and people with chronic and complex needs with the aim of improving the coordination of care. Coordinated Care Trials are also being conducted in Australia to evaluate the effect of more coordinated approaches to dealing with patients with complex health care needs, including coordination between various parts of the health system, from primary to continuing care.

At a program level, performance may be evaluated using the Coordinated Care Trials as an example. At a system level, it may be possible to evaluate the use of the new MBS items for care planning and case conferencing and patient outcomes.

A relevant indicator could be:

• usage of Medicare Benefits Schedule item 720 for care planning.

Capable

The definition proposed for *capable* relates to 'an individual or service's capacity to provide a health care/service/intervention based on skills and knowledge'. The questions related to this dimension could be:

- Do the people providing the care, service or intervention have the relevant qualifications, skills and experience?

- Are the facilities for the provision of care appropriate?

The primary focus for this dimension relates to the training of health professionals and other staff involved in the delivery of care. Standards for undergraduate and postgraduate education can be evaluated across the spectrum and may involve academic institutions, medical colleges and registration boards.

In regard to the capability of the facilities, this may involve the application of standards developed by organisations such as the Royal Australian College of General Practitioners, Australian Physiotherapy Association, Australian Council on Healthcare Standards and Standards Australia. Accreditation bodies have a wealth of information about the compliance with standards developed by the professions.

Performance measures for assessment of capability could relate to the skill, knowledge and education of health workers. This could include measures such as the total number of professionals registered to work in Australia, their level of education, postgraduate training etc. Performance measures could include the proportion of General Practitioners as those who have completed the RACGP training course and those practising who are not vocationally registered. This principle could also apply to medical specialists, allied health professionals and nurses.

Capability of facilities providing care could be evaluated using accreditation status through an industry recognised assessor.

Performance measures could include:

• the proportion of accredited practices/facilities for general practice, physiotherapy and hospitals.

Sustainable

A health system that is sustainable will 'provide infrastructure such as workforce, facilities and equipment, be innovative and respond to emerging needs (research, monitoring)'.

Questions to be asked to assess the sustainability of the health system could include:

- Is there sufficient funding allocated to provide an appropriately trained workforce?

- Is there sufficient funding allocated to the building and maintenance of facilities?

- Is there sufficient funding and provision of appropriate equipment for health care?

- Is innovation and research supported and funded adequately?

- Do management practices in the health system reflect current best practice?

- Are information systems providing timely and appropriate information to provide feedback to better manage the health system?

Performance indicators for this dimension could include:

• per cent expenditure (private/public) on health related research, international comparisons;

• per cent expenditure on teaching compared to service delivery; and

• financial measures e.g. asset ratios.

Criteria to Select Performance Indicators for the Framework

The NHPC intends to continually develop and improve the high-level performance indicators to report on the health system to Health Ministers. The following selection criteria have been developed for use in selecting and evaluating performance indicators. The general criteria could be applied at all levels of the health system, from individual program level to whole system performance.

Some of the criteria apply to individual indicators and others to a set of indicators. It is not anticipated that each criterion will be met for every indicator; rather the selection criteria will provide guidance for the development and continual improvement of the set of performance indicators.

The NHPC recommends that indicators should be defined in technical specifications to ensure consistency of reporting. Where appropriate, performance indicators should have a numerator and denominator and conform to existing data definitions. Indicators developed for this framework will take account of established national health information development processes, so that these indicators can be incorporated into the National Health Data Dictionary, which provides an established core set of uniform definitions. Further information can be found from sources such as the National Health Data Dictionary,[7] and from the AIHW's Knowledgebase web site.[8]

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 peoples, rural/urban, socioeconomic etc).

3. *Be understood by people who need to act.*
   People who need to act on their own behalf or on 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. *Measurement over time will reflect results of actions.*
   If action is taken, tangible results will be seen indicating improvements in various aspects of the nation's health.

[7] Australian Institute of Health and Welfare (2000), *National Health Data Dictionary (NHDD)*, AIHW, Canberra.
[8] http://www.aihw.gov.au/

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.*

Selection Criteria for Sets of Performance Indicators

Criteria related to sets of indicators or composite indices should:

1. Cover the spectrum of the health issue.

2. Reflect a balance of indicators for all appropriate parts of the framework.

3. Identify and respond to new and emerging issues.

4. Be capable of leading change.

5. Provide feedback on where the system is working well, as well as areas for improvement.

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; and

• 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 of an agency 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.

In addition, as the input, output, and outcomes model (Figure 2.1) suggests, 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 taken over the longer term, it will be possible to build up meaningful measures of the efficiency and effectiveness of health outputs and the impact on health outcomes.

Chapter 3 Health Status and Outcomes

The proposed framework has as the first tier the health status and health outcomes for the Australian community. The indicators for this domain will help to answer the questions: How healthy are Australians? Is it the same for everyone? Where is the most opportunity for improvement? The dimensions covered by the first tier are shown in Table 3.1.

Table 3.1 Dimensions of the First Tier of the National Health Performance Framework

Health Status and Outcomes 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**
Prevalence of disease, disorder, injury or trauma or other health-related states.	Alterations to body, structure or function (impairment), activities (activity limitation) and participation (restrictions in participation).	Broad measures of physical, mental, and social wellbeing of individuals and other derived indicators such as Disability Adjusted Life Expectancy (DALE).	Age and/or condition specific mortality rates.

Many of the measures listed under each dimension are well established, having an acceptable degree of data quality. Some development work is being undertaken in specific areas, including wellbeing, burden of disease and Disability Adjusted Life Expectancy. This will yield enhanced indicators in the future.

Example indicators

This chapter contains some examples of indicators that could be used to report on the health status and health outcomes for Australians. Table 3.2 shows how the sample indicators described in this chapter relate to the dimensions within the tier.

Table 3.2 Example indicators

Example indicator	Dimension within Tier 1
International comparison of Disability Adjusted Life Expectancy (DALE)	Life expectancy and wellbeing
Burden of disease for major disease groups, health conditions and injury	Relates to all dimensions
Burden of disease for mental health	Relates to all dimensions
Self-assessed health status by age	Life expectancy and wellbeing
Indigenous and non-Indigenous infant mortality rates	Deaths
Deaths from suicide and self-inflicted injury by sex	Deaths
Premature deaths attributable to drug and alcohol misuse by sex	Deaths

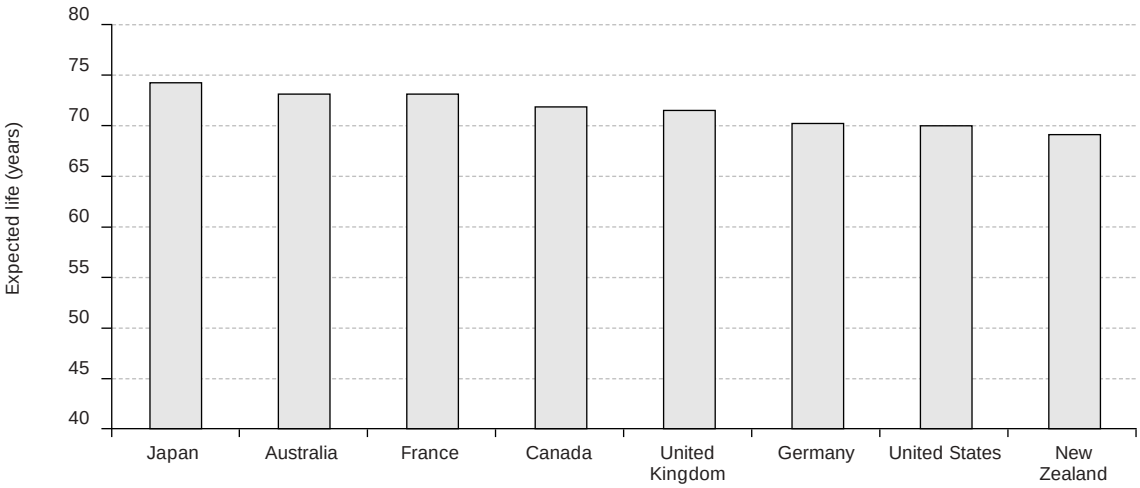
These descriptive indicators were chosen to represent the major issues encompassed within this domain, for which there are established measures and available national data. The indicators presented illustrate what could be provided in future reports for this tier.

Issues

Although there has been considerable work in describing the health status of Australians, there are a number of areas that do not have adequate indicators. In particular, improved methods are needed to address the questions ‘Is it the same for everyone?’ and ‘Where is the most opportunity for improvement?’ Developing indicators for these areas and the relevant national data sets will take time. In some cases, the nature of the link between the measure and the health status needs to be established.

New data collections may be required to report on indicators for this domain. These will need to be resourced and developed via the established national health information development processes.

Example indicator 3.1 International comparison of Disability Adjusted Life Expectancy (DALE)



Ranked order of disability adjusted life expectancy for population (selected countries), 1999

Rank	Country	Expected life in years	Rank	Country	Expected life in years
1	Japan	74.5	12	Canada	72.0
2	Australia	73.2	14	United Kingdom	71.7
3	France	73.1	15	Norway	71.7
4	Sweden	73.0	22	Germany	70.4
6	Italy	72.7	24	United States	70.0
7	Greece	72.5	28	Denmark	69.4
8	Switzerland	72.5	31	New Zealand	69.2

Source: World Health Organization (2000), The World Health Report 2000, Health Systems – Improving Performance, Annexe table 5, p. 176.

- The WHO Report, 2000 has used disability-adjusted life expectancy (DALE) to assess overall population health as this measure is directly comparable to life expectancy estimated from mortality alone and is readily comparable across populations. This measure converts the total life expectancy to the equivalent number of years of good health.
- Australia enjoys one of the highest life expectancies in the world and has an estimated healthy life expectancy for the population of 73.2 years in 1999, second in the world behind Japan (at 74.5 years). Other countries ranked significantly lower included Canada 12th (72.0 years), New Zealand 31st (69.2 years), United Kingdom 14th (71.7 years) and the United States 24th (at 70.0 years).
- Countries selected for DALE comparison in the table are from more developed regions of the world. The disability adjusted life expectancies of less developed countries are considerably lower.
- While the overall life expectancy figure for Australia is high, for certain sub-population groups e.g. Aboriginal and Torres Strait Islander peoples, it is much lower.

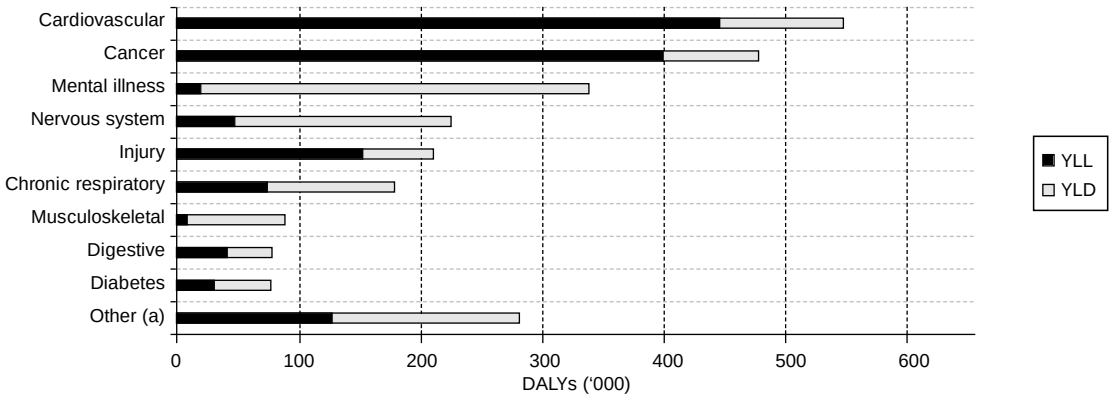
For further information see:

Appendix 2 of this report.
World Health Organization (2000), *The World Health Report 2000, Health Systems – Improving Performance*, Geneva.
Murray C. Salamon J.A. and Mathers C. (1999), *A Critical Examination of Summary Measures of Population Health*, GPE Discussion Paper no. 12, World Health Organization, Geneva.

Web site:

http://www.who.int/

Example indicator 3.2 Burden of disease for major disease groups, health conditions and injury



(a) Includes Genitourinary, Infectious, Congenital, Respiratory infections, Neonatal conditions and 'other' diseases, conditions or injuries.

Burden of disease (YLL, YLD and total DALYs) for major disease groups, health condition or injury, Australia, 1996

Major disease group, health condition or injury	YLL	YLD	DALY	Major disease group, health condition or injury	YLL	YLD	DALY
	– '000 –				– '000 –		
Cardiovascular	447	100	547	Diabetes	31	45	77
Cancer	400	79	478	Genitourinary	15	46	61
Mental illness	18	320	338	Infectious	28	19	47
Nervous system	48	177	225	Congenital	19	19	37
Injury	152	58	210	Respiratory infections	16	15	31
Chronic respiratory	76	104	180	Neonatal conditions	21	9	30
Musculoskeletal	7	82	89	Other	29	45	74
Digestive	41	36	77				

Source: Australian Institute of Health and Welfare (1999), The Burden of Disease and Injury in Australia, by Mathers C. Vos T. and Stevenson C., AIHW Cat. no. PHE 17, Canberra.

- Disability Adjusted Life Years (DALYs) for a disease or health condition are calculated as the sum of the years of life lost due to premature mortality (YLL) in the population and the years lived with a disability (YLD) for incident cases of the health condition. One DALY equals one lost year of 'healthy' life (see Glossary).
- In Australia in 1996, DALYs were highest for cardiovascular disease and cancer – mainly due to premature mortality from these causes.
- DALYs for mental illness, nervous system and musculoskeletal conditions were due mainly to years lived with a disability.
- The DALY methodology provides a way to link information on disease causes and occurrence to information on both short-term and long-term health outcomes, including impairments, functional limitations (disability) and death. The burden of disease methodology is designed to inform health policy in relation to the distribution of health problems between subpopulations. It also provides a common metric of health benefits derived from preventive, curative or rehabilitative interventions in cost-utility analyses.

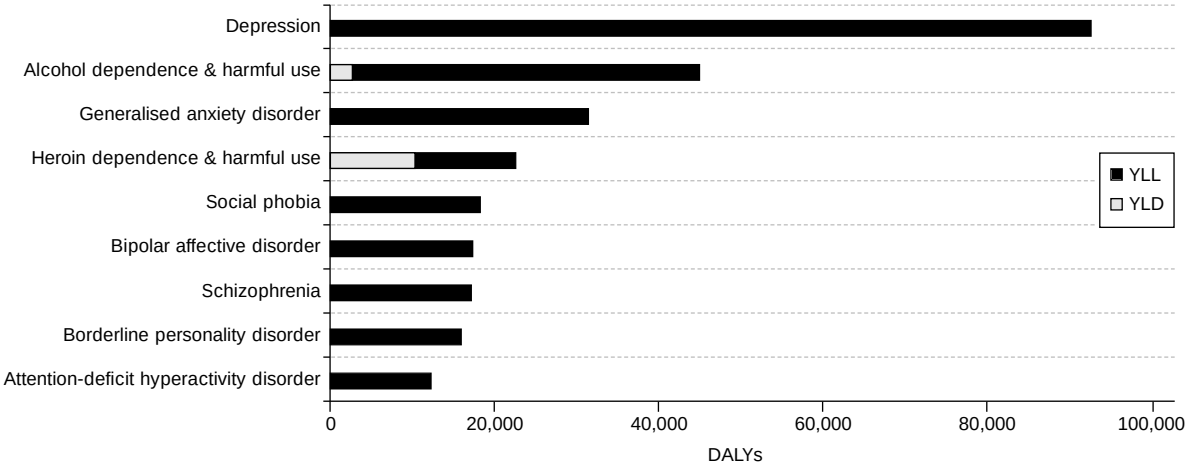
For further information see:

Australian Institute of Health and Welfare (1999), *The Burden of Disease and Injury in Australia*, by Mathers C. Vos T. and Stevenson C., AIHW Cat. no. PHE 17, Canberra.

Web site:

http://www.aihw.gov.au/

Example indicator 3.3 Burden of disease for mental health



Burden of disease – mental health (YLL, YLD and DALYs) for major category of mental disorder, Australia, 1996

Category of mental disorder	YLL	YLD	DALYs	Category of mental disorder	YLL	YLD	DALYs
Depression	221	92,795	93,016	Anorexia nervosa	214	5,621	5,835
Alcohol dependence and harmful use	4,308	41,065	45,372	Panic disorder	4	5,588	5,592
Generalised anxiety disorder	0	31,830	31,830	Bulimia nervosa	41	5,300	5,340
Heroin dependence and harmful use	10,457	12,719	23,175	Obsessive-compulsive disorder	0	4,699	4,699
Social phobia	0	18,613	18,613	Agoraphobia	0	4,600	4,600
Bipolar affective disorder	37	17,661	17,698	Cannabis dependency and harmful use	0	4,416	4,416
Schizophrenia	272	17,416	17,688	Mental retardation (no defined aetiology)	66	3,506	3,572
Borderline personality disorder	0	16,371	16,371	Other drug dependency and harmful use	2,149	1,319	3,468
Attention-deficit hyperactivity disorder	0	12,959	12,959	Benzodiazepine dependency and harmful use	143	2,968	3,111
Post-traumatic stress disorder	0	7,693	7,693	Separation anxiety disorder	0	2,648	2,648
Autism and Asperger's syndrome	0	5,897	5,897	Other mental disorders	305	0	305

Source: Australian Institute of Health and Welfare (1999), The Burden of Disease and Injury in Australia, by Mathers C, Vos T. and Stevenson C., AIHW Cat. no. PHE 17, Canberra.

- In Australia in 1996, mental illness was responsible for 13.3% of total DALYs (0.8% of all deaths, 1.4% of YLL and 27.2% of YLD). The burden of mental disorders was dominated by years lived with a disability. This perspective would be lost if relying on deaths data alone.
- Depression was the major cause of mental illness burden, followed by alcohol dependence and harmful use and generalised anxiety disorder.

For further information see:

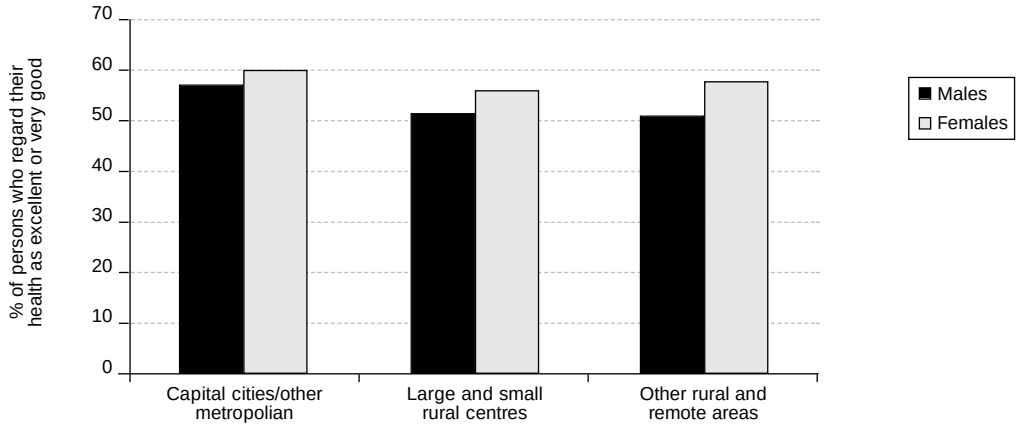
Commonwealth Department of Health and Aged Care and Australian Institute of Health and Welfare (1999), *National Health Priority Areas Report: Mental Health 1998*, Canberra.
Australian Institute of Health and Welfare (1999), *The Burden of Disease and Injury in Australia*, by Mathers C. Vos T. and Stevenson C., AIHW Cat. no. PHE 17, Canberra.
Vos T, Mathers C. (2000), The burden of mental disorders: A comparison of methods between the Australian burden of disease studies and the Global Burden of Disease Study, *Bulletin of the World Health Organization,* 78:427–38.

Web sites:

http://www.aihw.gov.au/
http://www.dhac.gov.au/

Example indicator 3.4 Self-assessed health status by age

Self-assessed health status by section of state, Australia, 1997



Self-assessed health status by age groups (a)**, Australia, 1997**

Age group (years)	Excellent (very good)	Good	Fair/poor
	– % –		
18–24	64.1	27.2	8.7
25–34	65.4	26.6	8.1
35–44	65.6	24.7	9.7
45–54	56.4	27.8	15.8
55–64	46.9	31.3	21.8
65–74	39.1	34.4	26.5
75+	36.8	29.9	33.4
All ≥ 18	57.3	28.0	14.7

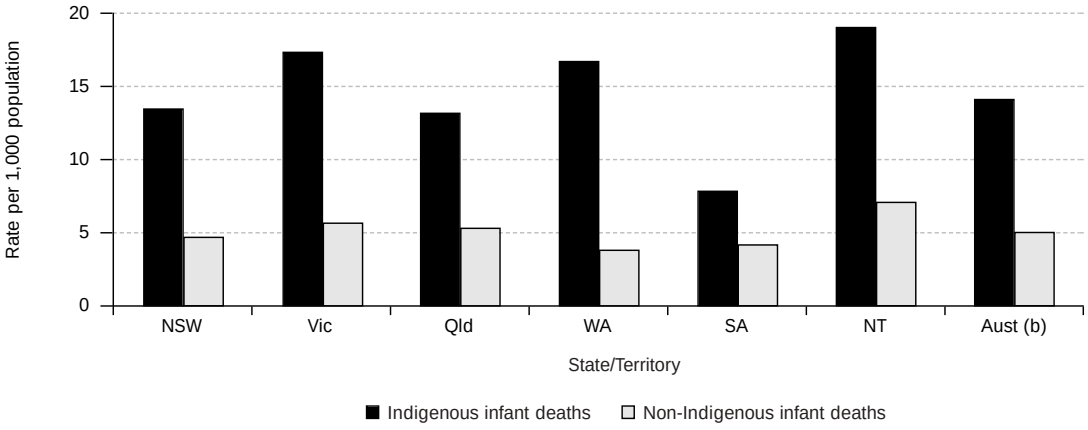
(a) Figures are age-adjusted to the 1991 total Australian population.
Source: Australian Institute of Health and Welfare (unpublished work), Analysis of the results of the National Survey of Mental Health and Wellbeing (ABS 1998, Cat. no. 4326.0).

- Self-rated health is a measure of individuals' perceptions of their health generally. It is believed to principally reflect physical health problems (acute and chronic conditions and physical functioning) and to a lesser extent, health behaviours and mental health problems (Cott et al, 1999).
- Longitudinal studies worldwide have consistently shown that global self-rated health is a strong and independent predictor of subsequent illness and premature death (Idler and Benyamini, 1997). In 1997, most Australians rated their health as good, very good or excellent.
- The proportion of people rating their health as fair or poor increased with age, from 8.7% among those aged 18–24 years to 33.4% among those aged 75 years or more.
- When self-ratings of physical and mental health are examined separately, ratings of physical health decline with age, but ratings of mental health do not (AIHW, 2000).
- The proportion of males who reported that their health was excellent or very good was consistently lower than females, declining from 57.5% of all males in capital and metropolitan cities to 51.3% in smaller rural and remote areas.

For further information see:

Australian Institute of Health and Welfare (2000), *Australia's Health 2000: The Seventh Biennial Health Report of the Australian Institute of Health and Welfare*, AIHW, Canberra.
Cott C.A. Gignac M.A. and Badley E.M. (1999), 'Determinants of self rated health for Canadians with chronic disease and disability', *Journal of Epidemiology Community Health*, 53: 731–6.
Idler E.L. and Benyamini Y. (1999), 'Self-rated health and mortality: A review of twenty-seven community studies', *Journal of Health and Social Behaviour*, 38: 21–37.

Example indicator 3.5 Indigenous and non-Indigenous infant mortality rates



Indigenous and non-Indigenous infant mortality rates, by jurisdiction, 1999

State/Territory	Indigenous infant deaths		Non-Indigenous infant deaths		Total infant deaths (a)	
	Number	Rate	Number	Rate	Number	Rate
NSW	41	13.4	394	4.7	504	5.8
Vic	9	17.3	322	5.6	331	5.6
Qld	39	13.1	227	5.3	266	5.7
WA	26	16.7	88	3.8	117	4.7
SA	5	7.8	72	4.2	78	4.3
NT	27	19.0	15	7.1	42	11.7
Aust (b)	**149**	**14.1**	**1,186**	**5.0**	**1,408**	**5.7**

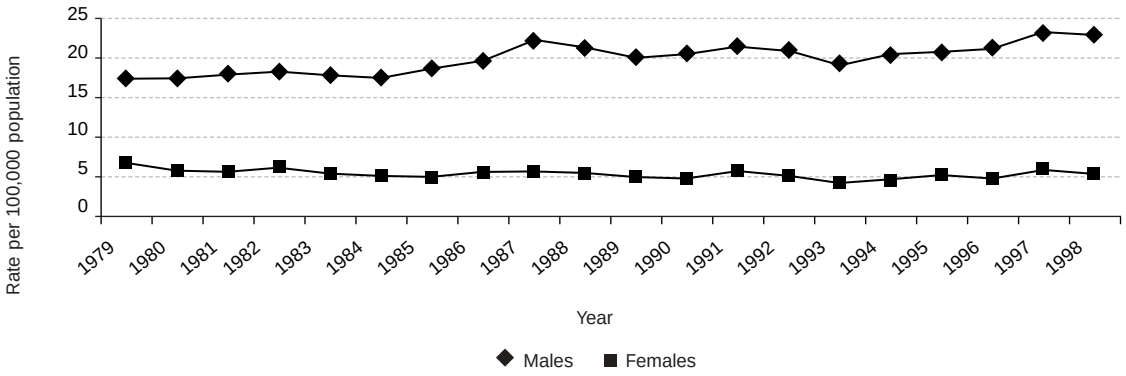
(a) Includes 'not stated' Indigenous status.
(b) Excludes data for ACT and Tasmania that was not reported due to small numbers.
Source: Australian Bureau of Statistics (ABS) (2000), Deaths Australia, 1999, Cat. no. 3302.0.

- Infant mortality rates are defined as the number of deaths of children under one year of age in a calendar year per 1,000 live births in the same calendar year.
- Indigenous data should be interpreted with caution as:
  - a significant proportion of Indigenous deaths are not registered as Indigenous;
  - based on 1996 Census-based expectancies the level of coverage for Indigenous identification ranged from 43% in New South Wales to 83% in the Northern Territory; and
  - there are also deficiencies in Indigenous identification in birth registrations data.
- Variation in Indigenous infant mortality rates between jurisdictions should be interpreted with care as they may reflect variations in identification of Aboriginal and Torres Strait Islander peoples in both death and birth registration data collections.
- The 1999 Indigenous infant mortality rate was at least 2.5 times the total infant mortality rate for Australia. However, this is likely to underestimate the true ratio.

For further information see:

Australian Institute of Health and Welfare (1994–2001), *Australia's Mothers and Babies 1992–1999*, Perinatal Statistics Series Nos. 1–3, 5–10.
Australian Bureau of Statistics and Australian Institute of Health and Welfare (1999), *Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples, 1999*, ABS Cat. no. 4704.0, Canberra.
Australian Institute of Health and Welfare (1996), *Indigenous Mothers and their Babies 1991–1993*, Perinatal Statistics Series no. 4, AIHW National Perinatal Statistics Unit, Sydney.

Example indicator 3.6 Deaths from suicide and self-inflicted injury by sex



Deaths from suicide and self-inflicted injury by sex, Australia 1979–98 (a)

	1979	1982	1985	1988	1991	1994	1995	1996	1997	1998
					– Rate per 100,000 deaths –					
Males	17.6	18.5	18.8	21.5	21.7	20.7	20.9	21.3	23.5	23.1
Females	6.9	6.3	5.1	5.6	5.9	4.7	5.4	4.9	6.1	5.6
					– Number of deaths –					
Males	1,198	1,318	1,428	1,730	1,847	1,830	1,873	1,931	2,146	2,150
Females	479	459	399	467	513	428	495	462	577	533

(a) Suicide and self-inflicted injury classified according to the ICD-9 external cause codes E950–959.
Source: Australian Institute of Health and Welfare Mortality database.

- Suicide is a leading cause of death in Australia, responsible for 2,683 deaths (2,150 males, 533 females) in 1998.
- The rate of suicides among males has risen since 1979, mainly due to increased suicides among young men aged 15-24 years. Death rates in 1997 and 1998 (23 per 100,000 population) recorded the highest male suicide rates in the past 20 years.
- The female suicide death rate has remained close to 5 per 100,000 population over the past 20 years. However, the suicide rate has risen among young females, and the rate of suicide attempts has also increased among women (AIHW, 2000).
- Suicide and self-harm accounted for 20,131 hospital separations during 1997–98, more than 53,000 patient-days in total. These figures include people who died in hospital following the suicide attempt (AIHW, 2000, p. 82).
- Hanging has become the predominant method of suicide in Australia, with 1,217 suicide deaths by hanging, strangulation and suffocation in 1998 (AIHW, 2000, p. 8).

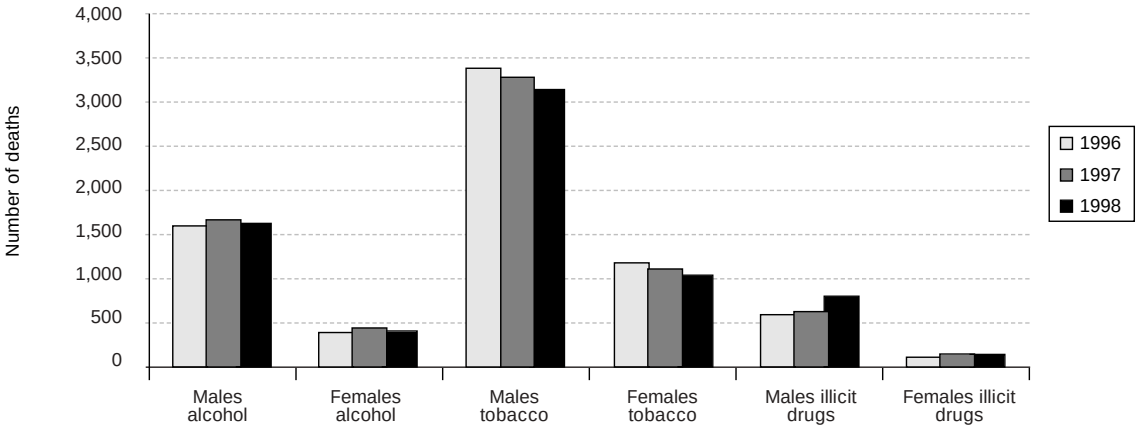
For further information see:

Australian Institute of Health and Welfare (2000), *Australia's Health 2000: The Seventh Biennial Health Report of the Australian Institute of Health and Welfare*, Canberra.
National Injury Surveillance Unit (2000), *'Suicide in Australia: Trends and Data for 1998'*, by Harrison J. E. and Steenkamp M., Australian Injury Prevention Bulletin no. 23, AIHW Cat. no. INJ 25, AIHW National Injury Surveillance Unit, Flinders University of South Australia, Adelaide.
Australian Institute of Family Studies (2000), *Valuing Young Lives: Evaluation of the National Youth Suicide Prevention Strategy*, by Mitchell P., Melbourne.

Web sites:

http://www.nisu.flinders.edu.au/
http://www.aihw.gov.au/
http://www.aifs.org.au/

Example indicator 3.7 Premature deaths attributable to drug and alcohol misuse by sex



Premature deaths attributable to drug and alcohol misuse by sex, Australia, 1996–1998 (a)

	Males			Females		
	1996 (c)	**1997** (c)	**1998**	**1996** (c)	**1997** (c)	**1998**
Alcohol						
Cancer	239	258	248	187	186	185
Alcoholism & alcoholic liver disease	513	539	477	148	160	150
Road injuries	402	370	367	53	61	51
Other (b)	457	506	538	18	54	49
Total Alcohol (c)	*1,612*	*1,673*	*1,631*	*407*	*461*	*434*
Tobacco	3,400	3,297	3,157	1,181	1,125	1,062
Illicit drugs	615	666	824	139	166	166
Total	**5,627**	**5,637**	**5,612**	**1,727**	**1,752**	**1,663**

Note: In some cases components may not add to totals due to rounding.
(a) 'Premature death' defined as death among persons aged less that 65 years.
(b) Figures relate to net result as some deaths are prevented by the use of alcohol in older age groups.
(c) Figures are derived using published estimates from Ridolfo and Stevenson 2001.
Source: Ridolfo B. and Stevenson C. (2001), The Quantification of Drug-Caused Mortality and Morbidity in Australia, 1998, AIHW Cat. no. PHE 29, (Drug Statistics Series no. 7), Canberra.

- The misuse of alcohol, tobacco and illicit drugs contributes to significant numbers of deaths in Australia each year. Preventing the harmful use of alcohol and all use of tobacco and illicit drugs could prevent around 7,000 deaths each year of Australians less than 65 years old.
- In 1998, alcohol misuse caused an estimated 2,065 deaths in Australians less than 65 years old, tobacco use an estimated 4,219 deaths and illicit drugs an estimated 990 deaths.
- Across all categories, the number of deaths was higher for males than for females.
- The number of alcohol and tobacco related deaths was stable between 1996 and 1998, while the number of illicit drug deaths increased by almost one-third over this period.

For further information see:

Ridolfo B. and Stevenson C. (2001), *The Quantification of Drug-Caused Mortality and Morbidity in Australia, 1998*, AIHW Cat. no. PHE 29 (Drug Statistics Series no. 7), Canberra.
Australian Institute of Health and Welfare (1999), *The Burden of Disease and Injury in Australia*, by Mathers C. Vos T. and Stevenson C., AIHW Cat. no. PHE 17, Canberra.

Web site:

http://www.aihw.gov.au/

Chapter 4 Determinants of Health

Determinants of health are factors that have either a positive or negative influence on health at the individual or population level. This tier of the framework seeks to answer the questions: Are the factors that determine good health changing for the better? Is it the same for everyone? and Where and for whom are these determinants changing? The dimensions covered by the second tier are shown in Table 4.1.

Table 4.1 Dimensions of the Second Tier of the National Health Performance Framework

Determinants of Health Are the factors determining 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**
Physical, chemical and biological factors such as air, water, food and soil quality resulting from chemical pollution and waste disposal.	Socioeconomic factors such as education, employment, per capita expenditure on health, and average weekly earnings.	Characteristics of communities and families such as population density, age distribution, health literacy, housing, community support services and transport.	Attitudes, beliefs knowledge and behaviours e.g. patterns of eating, physical activity, excess alcohol consumption and smoking.	Genetic-related susceptibility to disease and other factors such as blood pressure, cholesterol levels and body weight.

Indicators for some of these dimensions, particularly health behaviours, are well accepted. Indicators for other dimensions, including community capacity, and socioeconomic and environmental determinants of health, are less well established.

Example indicators

This chapter presents some sample indicators that could be used to report on the determinants of health. Table 4.2 shows how the sample indicators relate to the dimensions within this tier of the framework.

Table 4.2 Example indicators

Example indicator	Dimension within Tier 2
Unemployment and participation in the labour force, rate trends by sex	Socioeconomic factors
Environmental tobacco smoke: workplace smoking restrictions	Environmental factors
Pattern of tobacco use	Health behaviours
Percentage of people achieving ‘sufficient’ physical activity	Health behaviours
Percentage of people overweight or obese	Health behaviours

As for the Health Status and Outcomes domain (Chapter Three), these examples were chosen to represent the major issues encompassed within this domain for which there were established measures and available national data. The indicators presented illustrate those that could be included under this domain in future reports.

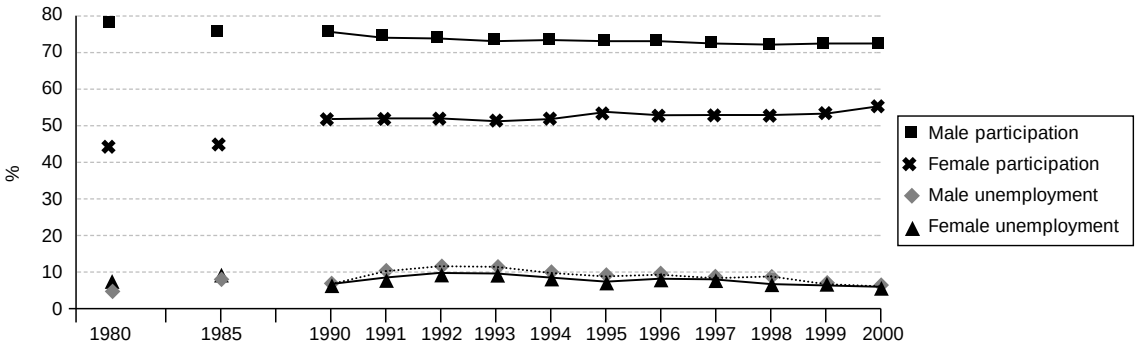
Issues

While there is general acceptance that all of the dimensions of health determinants shown in the framework influence health status and outcomes, the magnitude of those influences and the causal pathways are not always clear. For example, indicators for ‘community capacity’ require further conceptual work prior to the development of measures and collection of data. The understanding of these influences is developing as evidence from research continues to emerge.

Information to address the question ‘Is it the same for everyone?’ is available on some issues. However, further development of appropriate indicators to enable analysis of trends in health inequalities is required.

New data collections will be required to report on indicators for this domain. These will need to be resourced and developed via the established national health information development processes.

Example indicator 4.1 Unemployment and participation in the labour force, rate trends by sex



Unemployment and participation in the labour force, rate trends by sex, Australia, 1980 to 2000

Year	Male unemployment	Male participation	Female unemployment	Female participation	Total unemployment	Total participation
			– % –			
1980	5.0	77.9	7.5	44.7	5.9	61.1
1985	7.8	75.2	8.0	45.7	7.9	60.2
1990	6.9	75.0	7.1	51.8	7.0	63.3
1995	8.5	73.3	7.5	53.3	8.1	63.1
2000	6.5	72.0	5.9	54.8	6.2	63.3

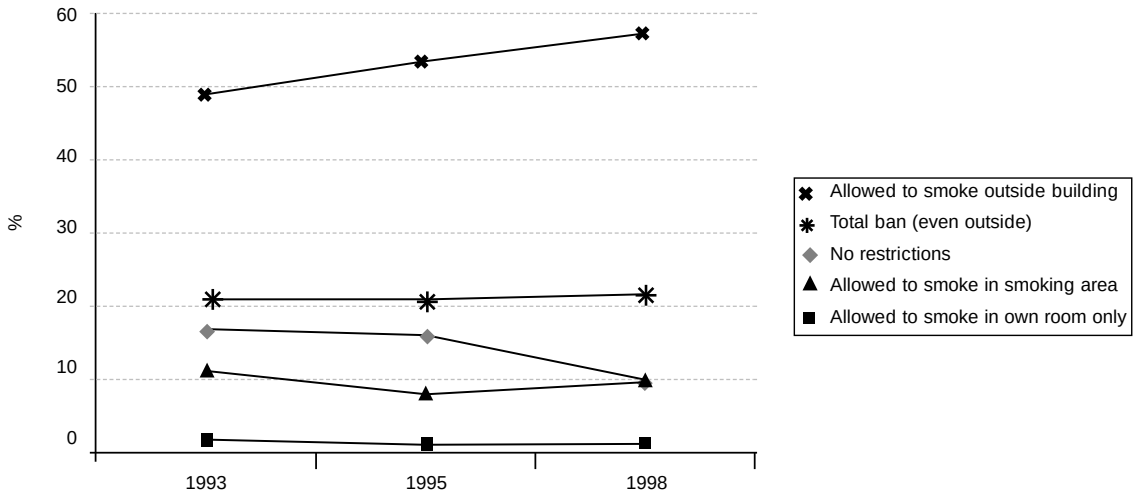
Note: Caution should be used when interpreting these statistics as definitions may have changed over time.
Source: Australian Bureau of Statistics, Labour Force, Australia (Cat. no. 6203.0).

- There is a strong association between labour force participation and health. Unemployment, job insecurity and uncertain future financial circumstances are all associated with adverse health outcomes.
- Participation in the labour force is associated with improved economic capability, as well as a sense of purpose and identity, regular activities, social status, social contacts, confidence and self-esteem – all of which contribute positively to health.
- Male participation has declined slightly since 1980 and female participation has increased. Overall, unemployment has declined since 1993. Other data indicates that there has been an increase in casual and temporary employment that is linked to job insecurity. This could be monitored in future reports.
- Other factors to report in the future include inability to work due to disability or illness, under-employment and economic support provided by members of the household.
- This indicator could be developed in the future to provide further information through an analysis of unemployment and participation rates by socioeconomic quintiles.

For further information see:

Mathers C. and Schofield D. (1997), 'The health consequences of unemployment: The evidence', *The Medical Journal of Australia*, 168: 178–182.
Royal Australasian College of Physicians (1999), *For Richer, For Poorer, in Sickness and in Health: The Socio-Economic Determinants of Health*, Sydney.
Wilkinson R. and Marmot M. (1999), *The Solid Facts: Social Determinants of Health*, WHO, Copenhagen.

Example indicator 4.2 Environmental tobacco smoke: workplace smoking restrictions



Non-smoking policies or restrictions in place in workplace, school or college, Australia, 1993–1998

	% of persons working or studying		
Restriction	**1993**	**1995**	**1998**
No restrictions	17.1	16.2	9.9
Allowed to smoke in own room only	1.5	0.7	1.0
Allowed to smoke in smoking area	11.5	8.4	10.4
Allowed to smoke outside building	48.6	53.3	57.0
Total ban (even outside)	21.3	21.4	21.7

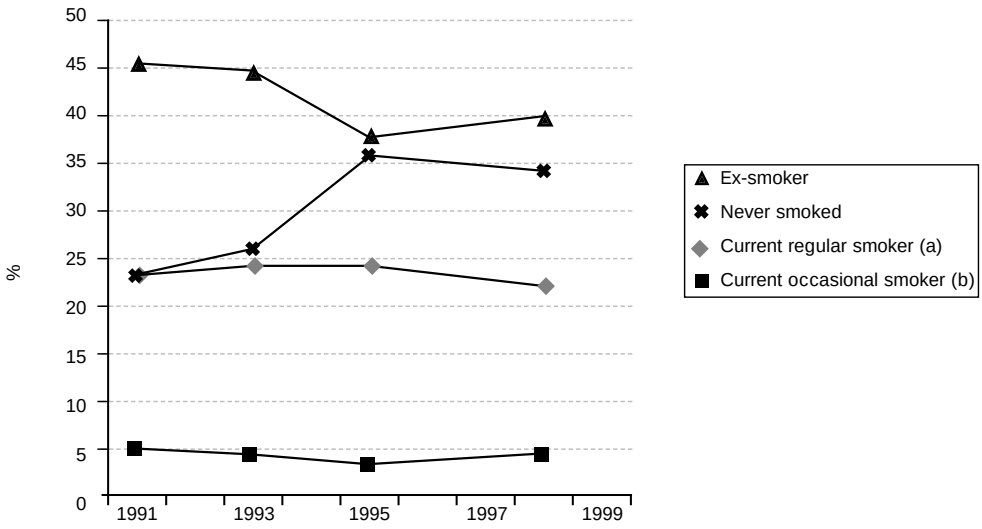
Sources: Australian Institute of Health and Welfare (various years), National Drug Strategy Household Survey 1993, 1995 and 1998.

- Smoking in the workplace is associated with an increased risk of fires and exposure to environmental tobacco smoke (ETS). ETS increases the risk of lung cancer and heart attack (NHMRC, 1997).
- Restrictions on smoking at work are associated with reduced exposure to ETS, reduced daily smoking rate and increased cessation. Smoking restrictions also contribute to smoking being regarded as more socially unacceptable and inconvenient (Chapman et al, 1999).
- Between 1993 and 1998, the proportion of respondents in the National Drug Strategy Household Survey who reported that their workplace had no restrictions on smoking declined (from 17.1% to 9.9%) and the proportion of respondents reporting that smoking was allowed only outside the work area increased (from 48.6% to 57.0%).

For further information see:

Chapman S. Borland R. Scollo M. Brownson R.C. Dominello A. and Woodward S. (1999), 'The impact of smoke-free workplaces on declining cigarette consumption in Australia and the United States', *American Journal of Public Health*, 89: 1018–1023.
National Health and Medical Research Council (NHMRC) (1997), *The Health Effects of Passive Smoking*, Australian Government Publishing Service, Canberra.

Example indicator 4.3 Pattern of tobacco use



Pattern of tobacco use, Australia, 1991 to 1998

	1991	1993	1995	1998
			– % –	
Current regular smoker (a)	23	24	24	22
Current occasional smoker (b)	5	4	3	4
Ex-smoker	46	45	38	40
Never smoked	23	26	36	34

(a) Regular smoker refers to persons who smoke daily/most days.
(b) Occasional smoker refers to persons who smoke less often than daily/most days.
Sources: Australian Institute of Health and Welfare: National Campaign Against Drug Abuse Household Survey 1991; National Drug Strategy Household Survey 1993, 1995, 1998.

- Tobacco use is the single most preventable cause of death in Australia. It was the major cause of drug-related deaths in 1998, causing around 19,000 deaths, or 80% of all drug-related deaths.
- Tobacco use is also a major cause of illness and disability. In 1998, 150,000 hospital episodes were attributed to the use of tobacco.
- When deaths, illness and disability are combined into a measure of total burden of disease, around 10% of the total burden can be attributed to tobacco smoking (AIHW, 1999 (Mathers et al)).
- It is estimated that over four million Australians were current smokers during 1998 (AIHW, 2000 (Fitzsimmons et al)).
- There was little change in the proportion of current regular smokers from 1991 (23%) to 1998 (22%). The proportion of ex-smokers declined from 46% to 40% and the proportion of people indicating they had never smoked a full cigarette increased from 23% to 34%.

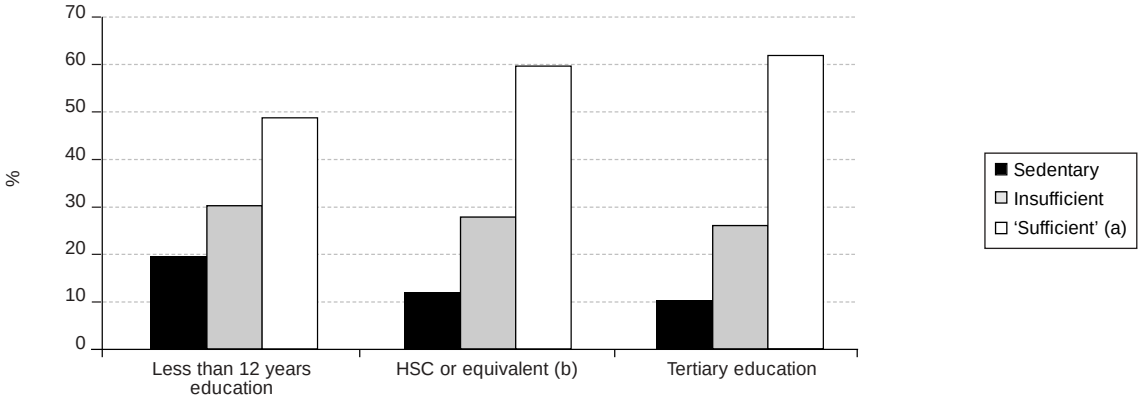
For further information see:

Australian Institute of Health and Welfare (2000), *Statistics on Drug Use in Australia 1998*, by Higgins K. Cooper-Stanbury M. and Williams P., AIHW Cat. no. PHE 16 (Drug Statistics Series no. 2), Canberra.
Australian Institute of Health and Welfare (1999), *The Burden of Disease and Injury in Australia*, by Mathers C. Vos T. and Stevenson C., AIHW Cat. no. PHE 17, Canberra.
Australian Institute of Health and Welfare (2000), *1998 National Drug Strategy Household Survey: State and Territory Results*, by Fitzsimmons G. and Cooper-Stanbury M., AIHW Cat. no. PHE 26 (Drug Statistics Series no. 5), Canberra.

Web site:

http://www.aihw.gov.au/

Example indicator 4.4 Percentage of people achieving 'sufficient' physical activity



Percentage of people achieving 'sufficient' physical activity time during the previous week by age and education level, 1999 (a)

	Sedentary	Insufficient	'Sufficient' (a)
		– % –	
Age group (years)			
18–29	6.3	25.0	68.7
30–44	16.9	29.6	53.5
45–59	18.2	31.9	50.0
60–75	17.9	28.1	54.1
Level of education			
Less than 12 years	19.5	30.9	49.6
HSC or equivalent (b)	12.5	27.9	59.7
Tertiary	10.9	26.7	62.3

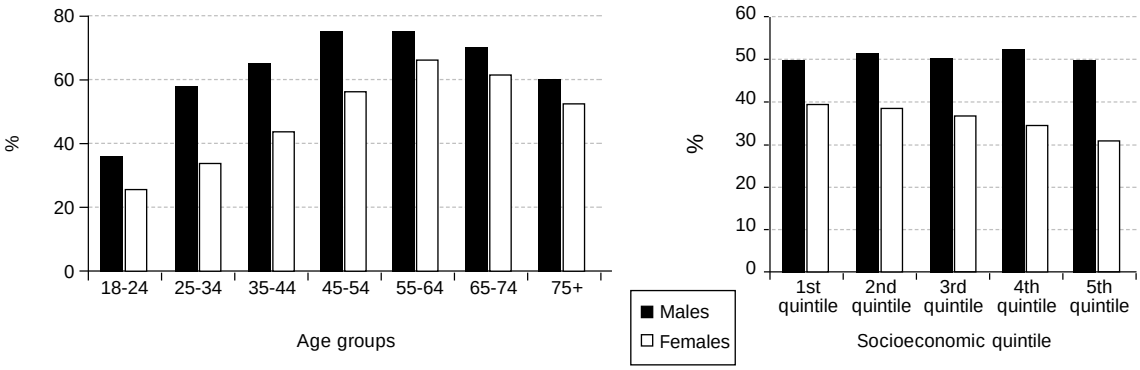
(a) ' Sufficient' time is defined as 150 minutes per week, using the sum of walking, moderate activity and vigorous activity (weighted by two). Age standardised to the 1991 Australian population.
(b) HSC = Higher School Certificate.
Source: Australian Institute of Health and Welfare (2000), National Physical Activity Survey 1999, p.29.

- 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 (Armstrong et al, 2000).
- Physical inactivity is responsible for about 7% of the total burden of disease in Australia and cost to the health system (AIHW, 1999 (Mathers et al) and AIHW, 2000 (Stephenson et al)).
- Physical activity varies by age, sex and level of education. In 1999, people with tertiary qualifications were most likely to report sufficient levels of physical activity (62%). Those with an education level less than year 12 were least likely to report this (50%). Sufficient activity level for a health benefit was most frequently reported by 18–29 year olds (69%), and least frequently reported by 45–59 year olds (50%).
- These data suggest that approaches targeting adults 30–59 years, especially those with lower education levels, are required to increase levels of physical activity. *Developing an Active Australia: A Framework for Action for Physical Activity and Health* (DHAC, 1998) recommends a range of strategies to promote increased levels of moderate-intensity physical activity.

For further information see:

Australian Institute of Health and Welfare (2000), *Physical Activity Patterns of Australian Adults: Results of the 1999 National Physical Activity Survey*, by Armstrong T. Bauman A. and Davies J., AIHW Cat. no. CVD 10, Canberra.
Stephenson J. Bauman A. Armstrong T. Smith B. and Bellow B. (2000), *The Costs of Illness Attributable to Physical Inactivity in Australia: A Preliminary Study*, Commonwealth Department of Health and Aged Care and the Australian Sports Commission, Canberra.
Commonwealth Department of Health and Aged Care (1998), *Developing an Active Australia: A Framework for Action for Physical Activity and Health*, Canberra.
Australian Institute of Health and Welfare (1999), *The Burden of Disease and Injury in Australia*, by Mathers C. Vos T. and Stevenson C., AIHW Cat. no. PHE 17, Canberra.

Example indicator 4.5 Percentage of people overweight or obese



Percentage of people overweight or obese, Australia, 1995 (a)

	Age group (years) (b)							SEIFA (c)				
	18–24	25–34	35–44	45–54	55–64	65–74	75+	1st (bottom) quintile	2nd quintile	3rd quintile	4th quintile	5th (top) quintile
	– % –							– % –				
Males	35.6	58.1	66.0	75.6	75.6	70.5	60.1	49.8	52.1	50.5	52.6	50.3
Females	25.9	33.9	44.4	56.4	66.5	62.1	53.1	40.2	38.5	36.8	35.2	31.4

(a) 'Overweight' is defined as BMI>=25; 'Obese' is defined as BMI>=30. See Glossary for definition of BMI.
(b) Age standardised to the 1991 Australian population.
(c) SEIFA (Socio-Economic Indexes for Areas) is a collection of indexes developed by the ABS. The SEIFA index used in this table is the Index of Relative Socio-Economic Disadvantage, where the first quintile represents the most disadvantaged and the fifth quintile represents the least disadvantaged.
Source: Australian Institute of Health and Welfare (unpublished work), Analysis of the results of the National Nutrition Survey, 1995 (ABS 1997, Cat. no. 4802.0).

- There is a strong association between overweight or obesity and health problems such as coronary heart disease, stroke and type 2 diabetes. In 1996, overweight and obesity accounted for over 4% of the total burden of disease in Australia (AIHW, 1999 (Mathers et al)).
- Prevalence of overweight and obesity among Australians increased significantly between 1980 and 1995 (from 27% to 43% among women and from 48% to 63% among men aged 25–64 in capital cities) (AIHW, 1999 CVD Series no.10:37).
- The 1995 National Nutrition Survey (ABS) estimated that about 7.4 million adult Australians (56% of those aged 18 years and over) were overweight or obese. Almost two-thirds (63%) of men were overweight or obese, with those aged 45–64 most likely to be overweight. Almost half (48%) of women were overweight or obese with the highest prevalence in the 55–64 years age group.
- The prevalence of overweight and obesity varies with employment status. Employed men were more likely to be overweight than unemployed men or those not in the labour force. Conversely, employed women were less likely to be overweight than those not in paid employment.
- Among women, those from lower socioeconomic groups were more likely to be overweight, but this association was not apparent among men.
- Increasing physical activity and having a healthy diet are key factors in reducing overweight and obesity. Addressing increasing prevalence of overweight and obesity will require a range of strategies encompassing behavioural, cultural, social, psychological and environmental factors.

For further information see:

Australian Bureau of Statistics and Commonwealth Department of Health and Aged Care Services (1998), *National Nutrition Survey: Nutrient Intakes and Physical Measurements, Australia,* 1995, ABS Cat. no. 4805.0, Canberra.
Australian Institute of Health and Welfare (1999), *The Burden of Disease and Injury in Australia*, by Mathers C. Vos T. and Stevenson C., AIHW Cat. no. PHE 17, Canberra.
Australian Institute of Health and Welfare (1999), *Heart, Stroke and Vascular Diseases, Australian Facts*, AIHW Cat. no. CVD 7, AIHW and the Heart Foundation of Australia (Cardiovascular Disease Series No. 10), Canberra.

Chapter 5 Health System Performance

Health System Performance (Tier 3) accommodates reporting on a range of service categories and types of interventions across the spectrum of the health care system. This includes population health programs, primary care services, and the acute and continuing care sectors. It can be applied to all settings and different organisational levels. Health System Performance will be reported against nine dimensions of performance as outlined in Table 5.1.

Table 5.1 Dimensions of the Third Tier of the National Health Performance Framework

Health System Performance		
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**
Care, intervention or action achieves desired outcome.	Care/intervention/action provided is relevant to the client's needs and based on established standards.	Achieving desired results with most cost effective use of resources.
Responsive	**Accessible**	**Safe**
Service provides respect for persons and is client orientated. It includes respect for dignity, confidentiality, participation in choices, promptness, quality of amenities, access to social support networks, and choice of provider.	Ability of people to obtain health care at the right place and right time irrespective of income, physical location and cultural background.	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.
Continuous	**Capable**	**Sustainable**
Ability to provide uninterrupted, coordinated care or service across programs, practitioners, organisations and levels over time.	An individual's or service's capacity to provide a health service based on skills and knowledge.	System or organisation's capacity to provide infrastructure such as workforce, facilities and equipment, and be innovative and respond to emerging needs (research, monitoring).

The NHPC will develop a set of high-level indicators that reflect the importance of the nine dimensions outlined above and be relevant to the goals and objectives of the health system. A single indicator may be relevant across several dimensions.

The health system can also be viewed as a care continuum linking the sectors across the system. This continuum incorporates the four sectors or levels of care that constitute the health system: Population health, Primary care, Acute care and Continuing care. (For examples of services and functions delivered within these four sectors, see Appendix 1). It should be noted that there is considerable overlap of services and functions between the sectors. Indicators may measure the effect of broad interventions across the care continuum.

Example Indicators

This chapter contains examples of indicators that could be used to report on the health sector performance tier within the framework, with examples given for each sector of the health system. Table 5.2 describes how the indicators relate to the dimensions of Tier 3.

Table 5.2 Example indicators

Example Indicator	Dimension within Tier 3
Population health	
Breast cancer screening: percentage of women screened who are aged 50–69 years	Effective
Breast cancer screening: program sensitivity	Effective
Immunisation: notification of measles 0–14 years	Effective
Immunisation: children fully vaccinated at 12 months of age	Effective
Number of approved products (medicines and medical devices) withdrawn from the market or requiring a change to conditions of approval for safety-related reasons	Safe
Primary care	
Number of general practitioner services per patient per region per year	Accessible
Rate of general practitioner antibiotic prescribing for presentations of upper respiratory tract infection	Appropriate
Proportion of GP practices registered for accreditation	Responsive
Acute care	
Hospital separation rates per 1,000 population	Appropriate
Hospital separation rates for Aboriginal and Torres Strait Islander peoples	Appropriate
Emergency department waiting times	Responsive, accessible
Cost per casemix adjusted separation	Efficient
Average length of stay (ALOS)	Efficient
Continuing care	
Usage of Medicare Benefits Schedule Item 720 for care planning	Continuous
Separations from hospitals to aged care homes for patients over 70 years	Continuous
Ratio of HACC hours of service provision	Appropriate

Breast cancer screening, immunisation performance indicators and product withdrawals are provided as examples for population health services. A systematic process will be used to develop further indicators for population health, based on the nine core functions for public health effort in Australia endorsed by AHMAC in June 2000.

The examples for the primary health care sector are taken from GP care although general practitioners are only part of primary health care delivery. Further indicators to be developed could cover other aspects of primary health care provision, for example, for community health services, dental services and mental health promotion and early intervention services.

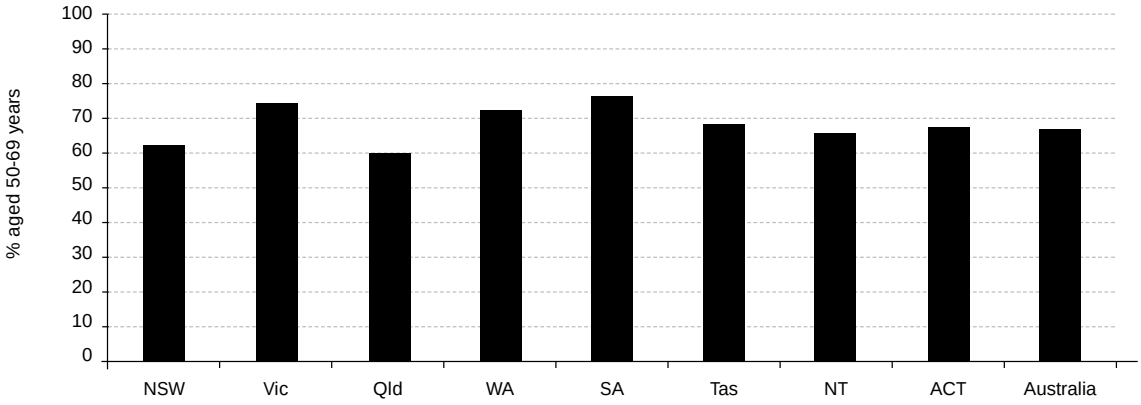
There are well-established information sources to measure performance of the acute care hospital system in terms of the efficient and accessible dimensions and ongoing endeavours to improve measurement across the other dimensions.

The example indicators illustrate how information currently available can be used to highlight acute care sector performance. The primary sources of data are the National Public Hospital Establishments Database and National Hospital Morbidity Database that draw on the primary data collections of individual State and Territory health authorities.

Continuing care indicators will be developed over the year. Three performance measures have been included in this report as an illustration of the framework and relate to the use of the Medicare Benefits Schedule item for multidisciplinary team care planning in the community, separations from the acute care sector to aged care homes, and the ratio of Home and Community Care hours of service provision.

The NHPC intends to also report in the future on selected areas of interest in the health system, as well as target populations and age groups. These may include Aboriginal and Torres Strait Islander peoples, rural and remote populations, children, older Australians, migrants, and low socioeconomic groups. The final chapter of this report further discusses this.

Example indicator 5.1 Breast cancer screening: percentage of women screened who are in the target age group aged 50–69 years



Percentage of women screened by BreastScreen Australia who are aged 50–69 years, by jurisdiction, 1997–1998 (a)

NSW	Vic	Qld	WA	SA	Tas	NT	ACT	Aust
				– % –				
62.4	75.1	60.6	72.8	76.6	68.5	66.2	67.6	67.4

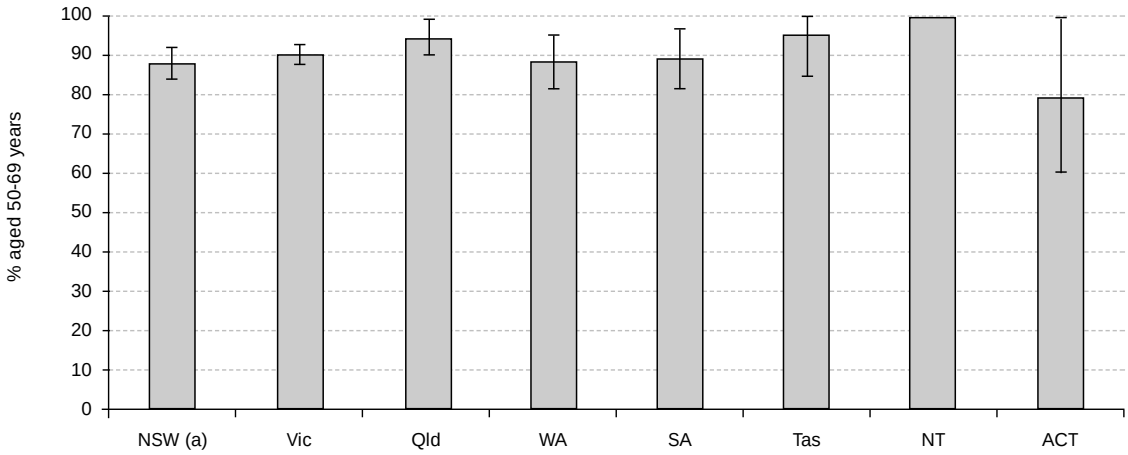
(a) Period covers 1 January 1997 to 31 December 1998.
Source: BreastScreen Australia.

- Women without symptoms aged 50–69 years are the target age group for the BreastScreen Australia Program. Screening of younger women is less effective in reducing mortality from breast cancer.
- The percentage of women screened who are aged 50–69 years is thus a measure of the effectiveness of the BreastScreen Australia Program.
- The National Accreditation Requirements for BreastScreen Australia state that at least 60% of all women screened should be aged 50 to 69 years.
- In the period 1997–1998, most women screened by BreastScreen Australia were in the target age group, across all States and Territories. This percentage ranged from 60.6% in Queensland to 76.6% in South Australia.

For further information see:

Australian Institute of Health and Welfare (2000), *BreastScreen Australia Achievement Report 1997* and *1998*, AIHW Cat. no. can 8 (Cancer Series no. 13), Canberra.

Example indicator 5.2 Breast cancer screening: program sensitivity



Program sensitivity for asymptomatic women aged 50–69 years, screened during 1996, first screening round, 0–12 months follow-up, by jurisdiction (a)

NSW (b)	Vic	Qld	WA	SA	Tas	NT	ACT
			– % –				
88.2	90.9	94.7	88.9	89.3	95.1	100.0	79.2
			– 95% confidence interval –				
84.8–91.6	87.9–93.7	90.7–98.7	82.5–95.2	82.1–96.3	85.3–100.0	Not applicable	58.4–100.0

(a) Data are age-standardised to the Australian population of women attending a BreastScreen Service in 1998.
(b) New South Wales data include both symptomatic and asymptomatic women.
Sources: BreastScreen Australia, BreastScreen NSW.

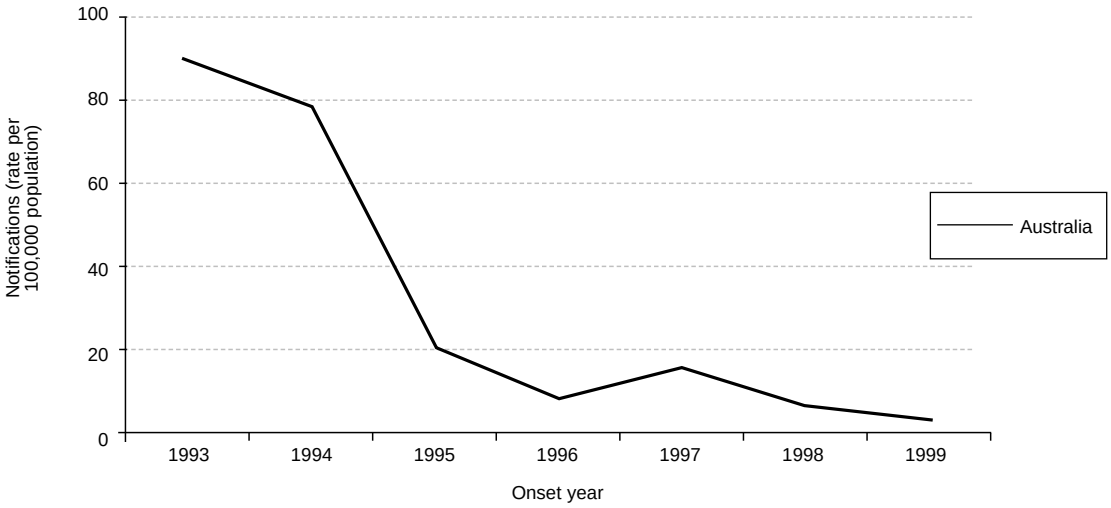
- BreastScreen Australia is the national publicly funded mammographic screening program. Program sensitivity is the proportion of invasive breast cancers that are detected within the BreastScreen Australia Program out of all breast cancers (interval[1] cancers plus screen detected cancers) diagnosed in Program-screened women in the screening interval.
- Program sensitivity is a measure that should ideally cover a 24-month period (the recommended screening interval) after a negative screening round. However, such data are not yet available for all States and Territories.
- Age-standardised program sensitivity rates for asymptomatic women aged 50-69 screened in 1996 and followed for 12 months after screening ranged from 79.2% for the Australian Capital Territory to 100% for the Northern Territory. Rates for States/Territories with small populations are less reliable because they are based on a relatively small number of cancers detected.

For further information see:

Australian Institute of Health and Welfare (2000), *BreastScreen Australia Achievement Report 1997* and *1998*, AIHW Cat. no. can 8 (Cancer Series no. 13), Canberra.

[1] An interval cancer is an invasive cancer that is diagnosed after a screening episode that detected no cancer and before the scheduled next screening episode.

Example indicator 5.3 Immunisation: notifications for measles 0–14 years



Notifications for measles, persons aged 0–14 years, by jurisdiction, 1993–1999

Onset year	NSW	Vic	Qld	WA	SA	Tas	NT	ACT	Aust
				– Rate per 100,000 population –					
1993	154.7	12.1	74.2	7.8	19.0	586.9	6.4	155.1	90.0
1994	88.3	13.7	172.3	23.6	17.0	29.0	575.7	141.3	78.8
1995	32.1	11.1	18.1	8.0	1.0	31.9	103.0	47.2	20.7
1996	11.4	7.1	6.0	5.9	2.7	15.1	40.5	13.3	8.6
1997	14.3	7.8	21.3	17.7	6.7	30.6	8.0	73.3	15.2
1998	7.9	2.8	3.6	10.8	0.7	34.3	0.0	12.2	6.3
1999	1.7	3.6	2.8	3.3	0.3	10.0	13.9	6.1	2.9

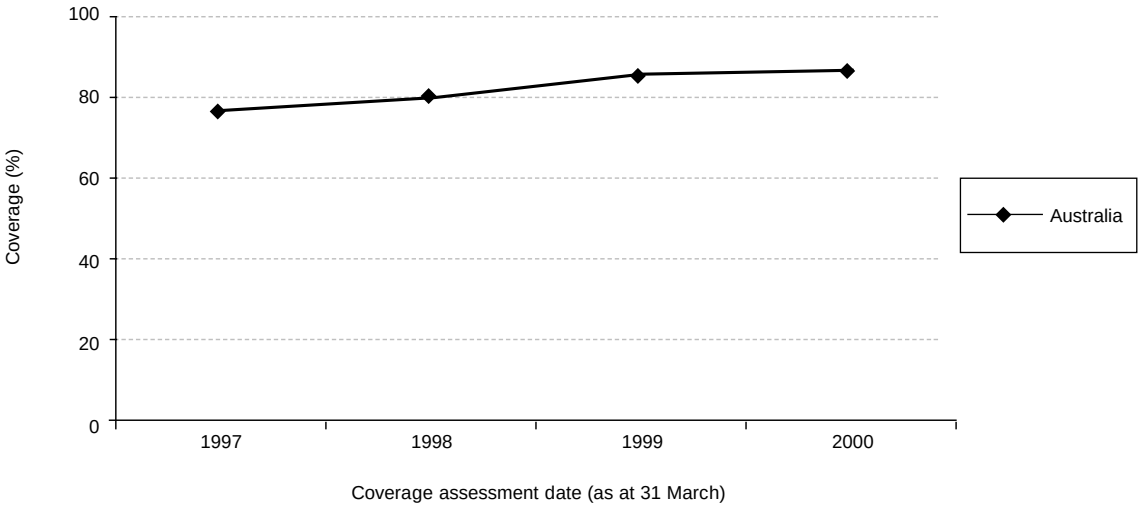
Source: National Notifiable Diseases Surveillance System (NNDSS), supplied by National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases.

- Notification rates for vaccine-preventable diseases, including measles, are measures of the performance of the public health system in providing effective vaccination services.
- All States and Territories experienced a measles epidemic in 1993–1994. This prompted the introduction of a second dose of measles-mumps-rubella (MMR) vaccine for adolescents aged 10–16 years. Prior to this time, children received only a single dose of vaccine at 12 months of age.
- Since the introduction of the two-dose policy in 1994, notifications for all age groups, especially those aged 0–14 years, have declined dramatically.
- The further reduction in notification rates in 1998 and 1999 reflects the impact of the Australian Measles Control campaign. This involved mass vaccination of all 5–12 year olds, lowering the age for the second dose of vaccine from 10–16 years to 4–5 years, and sending reminder letters to parents of preschool aged children who were due for vaccination.
- Variations in measles notification rates among States and Territories may reflect several factors other than vaccination coverage, including the level of naturally acquired immunity following outbreaks and the completeness of notification.

For further information see:

National Centre for Immunisation Research and Surveillance of *Vaccine Preventable Diseases (2000), Vaccine Preventable Diseases and Vaccination Coverage in Australia, 1993–1998: Supplement*, by McIntyre P. et al, Communicable Diseases Intelligence, Communicable Diseases Network Australia, DHAC, Canberra.

Example indicator 5.4 Immunisation: children fully vaccinated at 12 months of age



Children fully vaccinated for three doses of DTP, OPV and Hib (a) **at 12 months of age, by jurisdiction, 1997–2000**

Coverage assessment date	NSW	Vic	Qld	WA	SA	Tas	NT	ACT	Aust
				– (%) –					
31 Mar 97	71.9	80.8	78.2	63.9	77.3	75.1	61.4	75.8	74.9
31 Mar 98	78.5	83.0	83.2	77.0	79.3	82.3	59.2	81.0	80.2
31 Mar 99	83.5	87.9	88.0	85.9	88.6	87.7	77.3	88.7	86.1
31 Mar 00	86.5	90.0	89.7	86.9	90.2	91.1	82.7	91.1	88.4

Note: By 3-month birth cohorts born in January 1996–January 1999 and assessed in March 1997–March 2000.
(a) DTP - Diphtheria Tetanus Pertussis; OPV - Oral Polio Vaccine; Hib - Haemophilus Influenzae type b.
Source: Australian Childhood Immunisation Register (ACIR), supplied by National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases.

- Vaccination coverage at key milestones (12 months and 24 months) is a measure of the performance of the public health system in providing appropriate vaccination services.
- To estimate vaccination coverage from the Australian Childhood Immunisation Register (ACIR), the vaccination status of 3-month birth cohorts is assessed 2 months after the due date for vaccination to allow for delayed notification to the ACIR. A child is defined as 'fully vaccinated' at 12 months if he or she has received three doses of DTP, poliomyelitis vaccine and Hib vaccine.
- Vaccination coverage increased over the 4-year assessment period for all jurisdictions. The greatest increases were seen in Northern Territory and Western Australia, where estimates for the first cohort were relatively low. However, these low estimates almost certainly arose from early difficulties in transmitting data to the ACIR.
- As of March 2000, Victoria, South Australia, Tasmania and the Australian Capital Territory had reached the Immunise Australia Program target of 90% coverage. However, actual rates are likely to be higher as under/late reporting to the ACIR reduces coverage estimates by up to 10%.
- The most likely reason for the continuing low coverage estimates in the Northern Territory is the limited use of Medicare numbers as unique identifiers, making matching of vaccination encounters difficult.

For further information see:

National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases (2000), *Vaccine Preventable Diseases and Vaccination Coverage in Australia, 1993–1998: Supplement*, by McIntyre P. et al, Communicable Diseases Intelligence, Communicable Diseases Network Australia, DHAC, Canberra.

Example Indicator 5.5 Number of approved products (medicines and medical devices) withdrawn from the market or requiring a change to conditions of approval for safety-related reasons

Reasons for recall of medicines during 1999–2000

Reason	Number
Foreign matter	46
Adverse reaction	11
Impurity and degradation	11
Labelling and packaging defect	8
Illegal supply	5
Potency-strength does not meet specifications	5
Micro-organism contamination	1
Other	10
Total	**97**

Reasons for recall of medical devices during 1999–2000

Reason	Number
Mechanical and physical defect	60
Electrical defect	27
Software defect	19
Diagnostic inaccuracy	18
Sterility	18
Labelling and packaging defect	6
Potency-strength does not meet specifications	2
Adverse reaction	1
Other	44
Total	**195**

Source: Therapeutic Goods Administration, Commonwealth Department of Health and Aged Care Annual Report 1999–2000.

- Therapeutic goods are regulated in Australia to ensure that medicinal products and medical devices meet standards of safety, quality and efficacy at least equal to that of comparable countries. This is achieved through:
  - a risk management approach to pre-market evaluation and approval of therapeutic products intended for supply in Australia;
  - licensing of manufacturers; and
  - post-market surveillance.
- In 1999–2000, 13,116 reports of suspected adverse drug reactions were received – about 1,000 more than the previous year. A heightened emphasis on and awareness of TGA post-market vigilance activities may explain this increase.
- The TGA Recalls Unit investigated 374 complaints or notifications about problems with therapeutic goods (179 medicines and 195 medical devices). After deliberations with companies, 292 products were recalled – 97 medicines and 195 medical devices. Recalls of therapeutic goods for use in humans can occur for reasons relating to their quality, safety or efficacy.

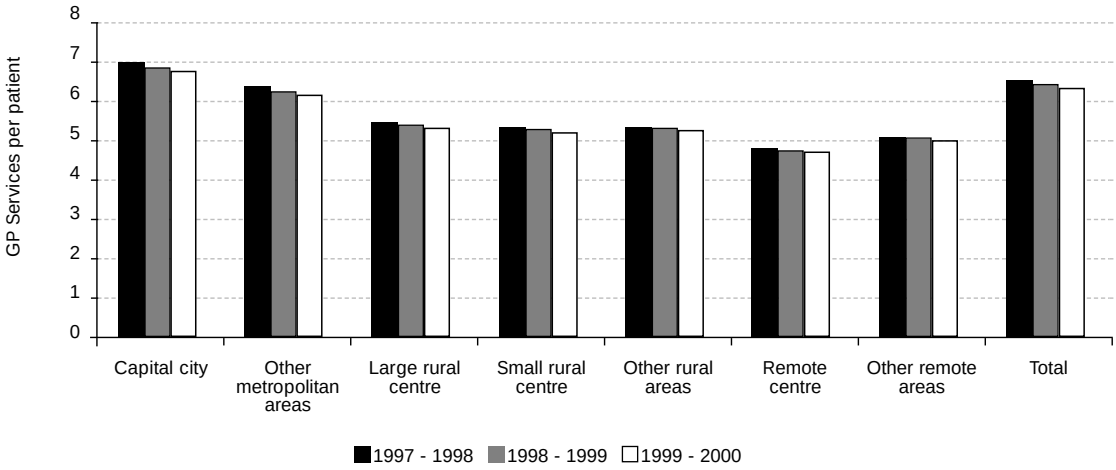
For further information see:

Therapeutic Goods Administration (TGA) (various issues), *TGA News: The Official Newsletter of the Therapeutic Goods Administration*, Canberra.
Therapeutic Goods Administration (TGA) (various issues), *Australian Adverse Drug Reactions Bulletin* by the Adverse Drug Reactions Advisory Committee, Canberra.
Therapeutic Goods Administration (TGA) (various issues), *Australian Therapeutic Devices Bulletin News*, Canberra.

Web site:

http://www.tga.health.gov.au/

Example indicator 5.6 Number of General Practitioner services per patient per region per year



GP services per patient per region per year, Australia 1997–98 to 1999–2000

Region	1997–98	1998–99	1999–2000
		– GP services per patient (a) –	
Capital city	6.96	6.89	6.82
Other metropolitan areas	6.36	6.28	6.20
Large rural centre	5.49	5.42	5.36
Small rural centre	5.35	5.28	5.26
Other rural areas	5.36	5.33	5.30
Remote centre	4.84	4.77	4.77
Other remote areas	5.09	5.10	5.04
Total	**6.49**	**6.42**	**6.36**

(a) A standardised whole patient equivalent is an indicator of practice workload based on the number of patients seen. A standardised whole patient equivalent is the sum of the fractions of care provided by doctors to their patients, weighted for the age and sex of each patient. Fractions of care are calculated by dividing the schedule fee value of all Medicare and Veterans', Affairs non-referred attendances provided by the doctor to the patient within the twelve month reference period, by the total schedule fee value of all non-referred attendances received by the patient within that reference period (DHAC unpublished).

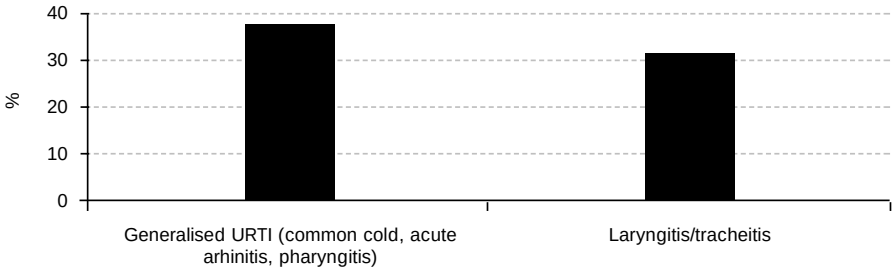
Source: Veterans' Affairs, unpublished data. (Original table compiled by Department of Health and Aged Care (1997), General Practice in Australia 1996.)

- GP services per patient are closely related to doctor supply and patient accessibility to GP services.
- Over the last three years GP services per patient across all regions decreased from 6.49 to 6.36 with all regions recording a decrease.
- Metropolitan patients continue to have the best access to GP services.

For further information see:

Commonwealth Department of Health and Aged Care (2000), *General Practice in Australia 2000*, Canberra.

Example indicator 5.7 Rate of general practitioner antibiotic prescribing for presentations of upper respiratory tract infection



Rate of antibiotic prescribing for presentations of upper respiratory tract infection (URTI), Australia, 1999

Selected type of upper respiratory tract infection	% of patients presenting who received antibiotics by type of upper respiratory tract infection
	%
Generalised URTI (common cold, acute rhinitis, pharyngitis) (a)	37
Laryngitis/tracheitis (a)	31

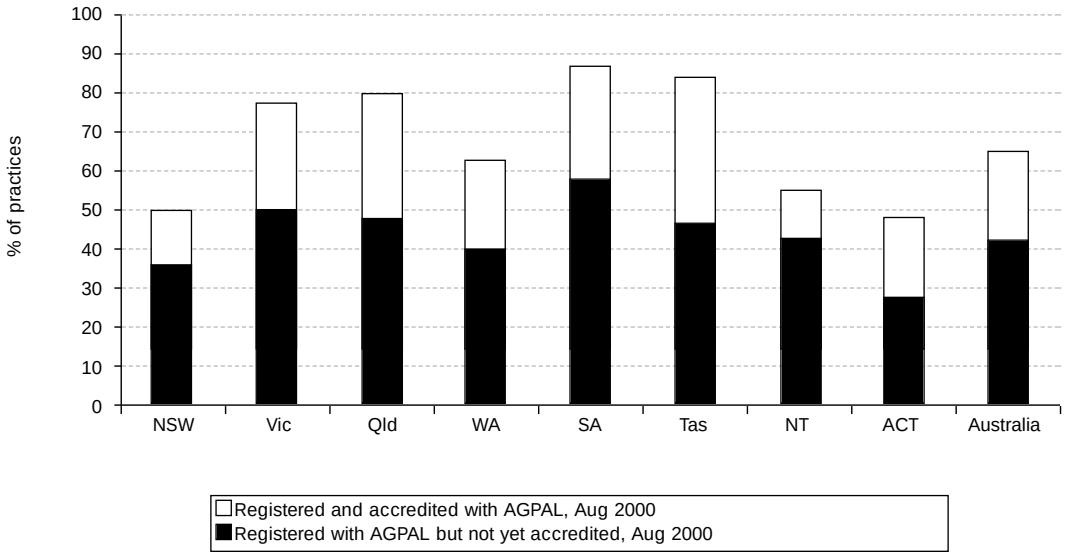
(a) These conditions are commonly due to viral infections where antibiotics provide no benefit.
Source: BEACH 1999 (data accessed through National Prescribing Service)

- This indicator provides an assessment of the appropriateness of health care provided by GPs, using data obtained through the Bettering the Evaluation and Care of Health (BEACH) survey.
- The BEACH survey in 1999 found that an antibiotic was prescribed in 50.3% of encounters where the reason for presenting was upper respiratory tract infection problems. Of the 50.3% where an antibiotic was prescribed for upper respiratory tract infection (including generalised URTI (common cold, acute rhinitis, pharyngitis), laryngitis and tracheitis, acute tonsillitis/streptococcal sore throat, sinusitis, etc), more than half the encounters were for conditions primarily due to viral infections where antibiotics provide no benefit. The table lists two conditions as examples – generalised URTI (37%) and laryngitis/tracheitis (31%). These two types of upper respiratory tract infection were selected as they are the most likely to be due to viral infections where antibiotics provide no benefit.
- The total number of antibiotic prescriptions dispensed through community pharmacies fell from 26.0 million to 23.3 million in 1998–99.

For further information on the BEACH surveys see:

http://www.fmru.org.au/

Example indicator 5.8 Proportion of GP practices registered for accreditation



Proportion of GP practices registered and accredited with Australian General Practice Accreditation Ltd (AGPAL), by jurisdiction, August 2000 (a)

GP Practices	NSW	Vic	Qld	WA	SA	Tas	NT	ACT	Aust
				– % –					
Registered and accredited with AGPAL, Aug 2000	13.6	28.0	32.0	22.0	28.4	36.7	11.3	20.0	22.0
Registered with AGPAL but not yet accredited, Aug 2000	36.2	49.8	48.3	40.9	58.8	47.5	43.4	27.7	43.2

(a) Two agencies provide accreditation for general practice – Australian General Practice Accreditation Ltd (AGPAL) and General Practice Australia (GPA). GPA data are not publicly available.

Source: Adapted from Table 6A.26, Steering Committee for the Review of Commonwealth/State Service Provision 2001, Report on Government Services.

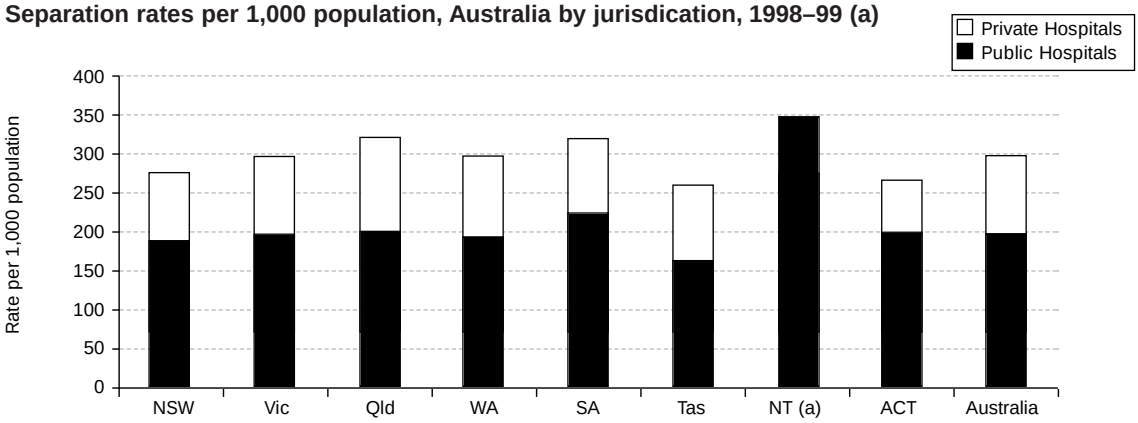
- The standards for accreditation are determined by the RACGP and are an indication of the profession being responsive to clients' needs.
- Accreditation of practices is a systematic way to help identify quality in general practice and to provide GPs with a framework for improving their practices over time.
- The number of practices accredited will rise as those practices that have registered for accreditation achieve that status.
- There is a three-year re-accreditation cycle and some practices will be seeking re-accreditation shortly. This will be reflected in future data.
- Two agencies provide accreditation for general practice – AGPAL and General Practice Australia (GPA). GPA data are not publicly available.

For further information on AGPAL accreditation see:

http://www.agpal.com.au/

Example indicator 5.9 Hospital separation rates per 1,000 population

Separation rates per 1,000 population, Australia by jurisdication, 1998–99 (a)



(a) Data for private hospitals in NT is not available. (See Table 5.2, AIHW (2000), Australian Hospital Statistics 1998–99).

Separation rates per 1,000 population, Australia, 1994–95 to 1998–99 (a)

	1994–95	1995–96	1996–97	1997–98	1998–99
			– Rate –		
Public acute hospitals (b)	183.9	190.6	193.1	197.0	198.7
Private hospitals	80.4	85.1	89.2	93.2	95.5
Public acute and private hospitals	263.0	274.7	281.6	289.4	293.5

(a) Excluding public psychiatric hospitals. Directly age standardised to the total 1991 Australian population.
(b) Includes private patients.
Source: Australian Institute of Health and Welfare (2000), Australian Hospital Statistics 1998–99. (See Table 4.1.)

- Hospital separation rates (the number of people leaving hospital per 1,000 population) have been used as a measure of appropriateness; however, they are difficult to interpret given they are affected by access to substitutable services, differences in health status between population groups and doctor referral patterns. There is also no consensus about the desirable separation rate at a sector or even procedure level. However, significant variations from average rates serve as a signal to better understand the contributing factors of under or over-servicing.
- There were over 5.7 million separations in 1998–99 that translated to a total of 293.5 separations per 1,000 population. The separation rate in public acute hospitals was 198.7 per 1,000 population and in private hospitals was 95.5 per 1,000 population, reflecting the relative size of the public and private sectors and their occupancy rates.
- The increase in the private sector from 1994–95 to 1998–99 was 4.4% per annum compared with 2.0% in the public sector, reflecting an increasing private sector share. Incentives introduced by the Federal Government to support private hospital insurance may influence the ratio of private to public hospital separation rates.
- Changes in separation rates over time can also indicate whether there are pressures on utilisation beyond population growth that should be better understood and managed.
- Separation rates increased by an average of 2.7% per annum over the years from 1994–95 to 1998–99.

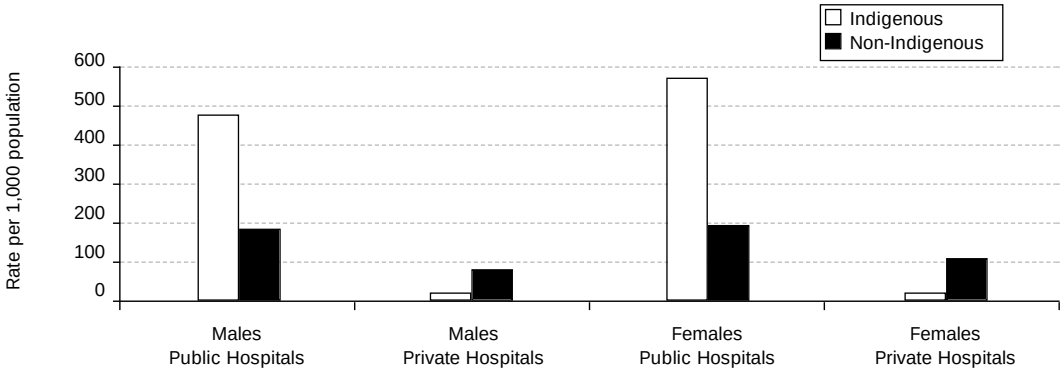
For further information see:

Australian Institute of Health and Welfare (2000), *Australian Hospital Statistics, 1998–99*, Canberra.
Australian Institute of Health and Welfare (2000), *Australia's Health Services Expenditure to 1998–99*, AIHW Series Health Expenditure Bulletin No. 16, Canberra.

Web site:

http://www.aihw.gov.au/publications/health/ahs98–9/

Example indicator 5.10 Hospital separation rates for Aboriginal and Torres Strait Islander peoples



Separation rates for Aboriginal and Torres Strait Islander peoples per 1,000 population, Australia, 1997–98 (a)

	Separations for people identifying as Indigenous	Other separations (b)	Ratio of Indigenous to non-Indigenous
	– Rate –		Ratio
Males			
Public hospitals (c)	470	188	2.50
Private hospitals (d) (e)	18	86	0.21
Total	**488**	**275**	**1.77**
Females			
Public hospitals (c)	568	201	2.83
Private hospitals (d) (e)	22	102	0.22
Total	**589**	**303**	**1.94**

Note: In some cases components may not add to totals due to rounding.
(a) Excludes separations for which age and/or sex was not stated. Directly age standardised to the total 1991 Australian population.
(b) Includes separations identified as non-Indigenous and those for whom Indigenous status was recorded as unknown.
(c) Includes repatriation hospitals and public psychiatric hospitals.
(d) No data were available for private hospitals in the Northern Territory and a few other small private hospitals, and no information on Indigenous status of patients was available for private hospitals in Victoria.
(e) Includes private free-standing day hospitals.
Source: ABS, Occasional Paper: Hospital Statistics, Aboriginal and Torres Strait Islander Australians, Cat. no. 4711.0.

- Aboriginal and Torres Strait Islander Australians have higher rates of hospital admissions, at around twice the rate of the non-Indigenous population. Separations for Indigenous Australians in 1997–98 accounted for 2.7% of all separations although Aboriginal and Torres Strait Islander peoples only comprised about 2.1% of Australia's population in 1996.
- There is under-enumeration of Indigenous Australians in hospital statistics due to issues of correct identification. This suggests that rates are even higher than those recorded. Western Australia and Northern Territory are considered to be the jurisdictions with the best identification of Indigenous Australians and had standardised utilisation rates per 1,000 population respectively of 692 and 688 for Indigenous men and 845 and 869 for Indigenous women.
- Most separations for people identifying as Indigenous occurred in public hospitals. The low number of private hospital separations reflect in part the lower proportion of Indigenous patients correctly identified in private hospitals and the more limited access to private hospitals in rural and remote regions where overall Indigenous hospital utilisation is higher.

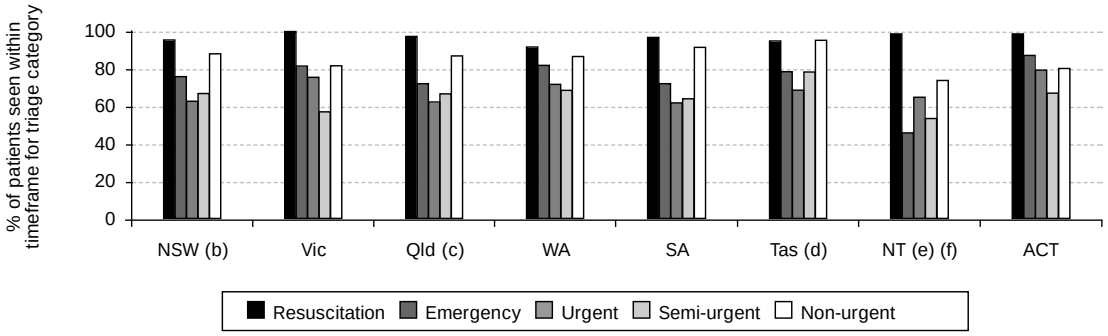
For further information see:

Australian Institute of Health and Welfare (2000), *Australian Hospital Statistics, 1998–99,* Canberra.
Australian Institute of Health and Welfare (2000), *Australia's Health Services Expenditure to 1998–99,* AIHW Series Health Expenditure Bulletin No. 16.

Web site:

http://www.aihw.gov.au/publications/health/ahs98–9/

Example indicator 5.11 Emergency patients – % of patients seen within the timeframe for triage category



Emergency department waiting times: proportion of patients seen within triage category, by jurisdiction, 1998–99 (a)

Triage category number	NSW (b)	Vic	Qld (c)	WA	SA	Tas (d)	NT (e)(f)	ACT
				– % –				
1. Resuscitation	96	100	97	93	97	95	99	100
2. Emergency	76	82	72	82	72	80	47	87
3. Urgent	63	76	63	72	63	69	66	80
4. Semi-urgent	68	58	68	69	65	79	54	69
5. Non-urgent	89	82	88	87	91	95	74	81

(a) The relevant triage category indicates the urgency and hence the maximum length of time patients may be required to wait for treatment. The following category numbers indicate the maximum waiting period: Category 1 – seen immediately, Category 2 – within 10 minutes, Category 3 – within 30 minutes, Category 4 – within 60 minutes and Category 5 – within 120 minutes.
(b) Estimates based on a coverage of 79% of emergency visits and 59 hospitals.
(c) For period January to June 2000. Based on hospitals with a role delineation of 4 or greater.
(d) Coverage is based on four public hospitals and 100% of emergency department visits.
(e) Coverage includes 93% of emergency visits. Excludes patients who were triaged and then discharged from the triage because patient did not wait; moved to another emergency department; received treatment by resuscitation triage; or sought own GP.
(f) The low percentage of category 2 patients recorded as not seen within the timeframe is not a true reflection of clinical practice.
Source: State and Territory governments.

- Responsive and accessible services are important dimensions of health system performance and access to emergency care is an indicator of the overall performance of the acute hospital sector. Timely and clinically appropriate access to emergency care is a high priority for the community and reflects the capacity of hospitals as a whole to deal with the most urgent cases, particularly those reflected in triage categories 1 to 3.
- Data from individual jurisdictions on the percentage of patients seen within each triage category are based on standard definitions. However, the method of collection and quality of data varies so they should be interpreted with caution. The data indicate the priority given to those patients needing immediate resuscitation (triage category 1).
- A more comparable and informative measure of performance on emergency department waiting times would be provided if there was also data on the average time waited for each triage category.

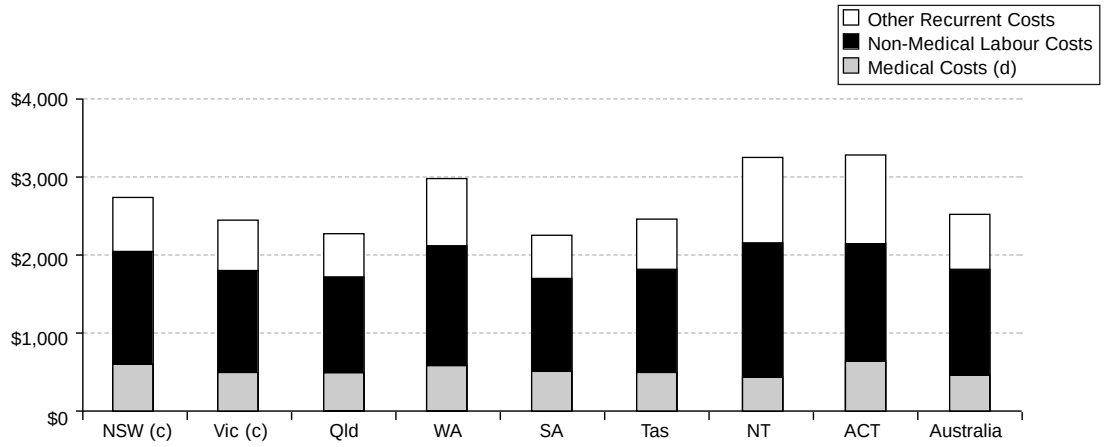
For further information see:

Steering Committee for the Review of Commonwealth/State Service Provision, (SCRCSSP) (2001), *Report on Government Services 2001*, AusInfo, Canberra.

Web site:

http://www.pc.gov.au/service/gspindex.html

Example indicator 5.12 Cost per casemix adjusted separation



Cost ($) per casemix-adjusted separation (a)**, selected public acute hospitals** (b)**, by jurisdiction, 1998–99**

	NSW (c)	Vic (c)	Qld	WA	SA	Tas	NT	ACT	Aust
	– Cost ($) per casemix adjusted separation –								
Medical costs (d)	552	416	385	536	477	458	448	629	475
Non-medical labour costs	1,472	1,345	1,349	1,587	1,245	1,406	1,808	1,638	1,413
Other recurrent costs	742	652	656	903	708	704	1,041	1,059	723
Total costs	**2,766**	**2,413**	**2,390**	**3,026**	**2,430**	**2,568**	**3,297**	**3,326**	**2,611**

(a) Excluding depreciation.
(b) Psychiatric hospitals, drug and alcohol services, mothercraft hospitals, un-peered and other, hospices, rehabilitation facilities, small non-acute and multi-purpose services are excluded from this table (see Appendix 11 of Australian Hospital Statistics 1998–99 for further information).
(c) New South Wales and Victoria have further developed an alternative methodology that is based on acute non-psychiatric patients only. See comments below. Also excludes patients receiving subacute and palliative care.
(d) Includes an estimate of medical costs for private patients.
Source: Australian Institute of Health and Welfare, Australian Hospital Statistics, 1998–99.

- The recurrent cost per casemix-adjusted separation in public hospitals is one measure of efficiency based on the expenditure per unit of output.
- New South Wales and Victoria are also able to provide cost per acute casemix-adjusted separations for non-psychiatric patients only. Total cost per separation on this basis was $2,631 for New South Wales and $2,275 for Victoria.
- While there have been improvements in costing of public hospital care and greater consistency in methodology between states, differences in counting rules remain which require caution when making comparisons between jurisdictions. Changes in costing methodology between years also impair comparison of trend data.
- Data on cost per casemix-adjusted separation produced at a hospital and DRG level by health authorities provide important information for benchmarking performance and identify the sources of cost pressures.

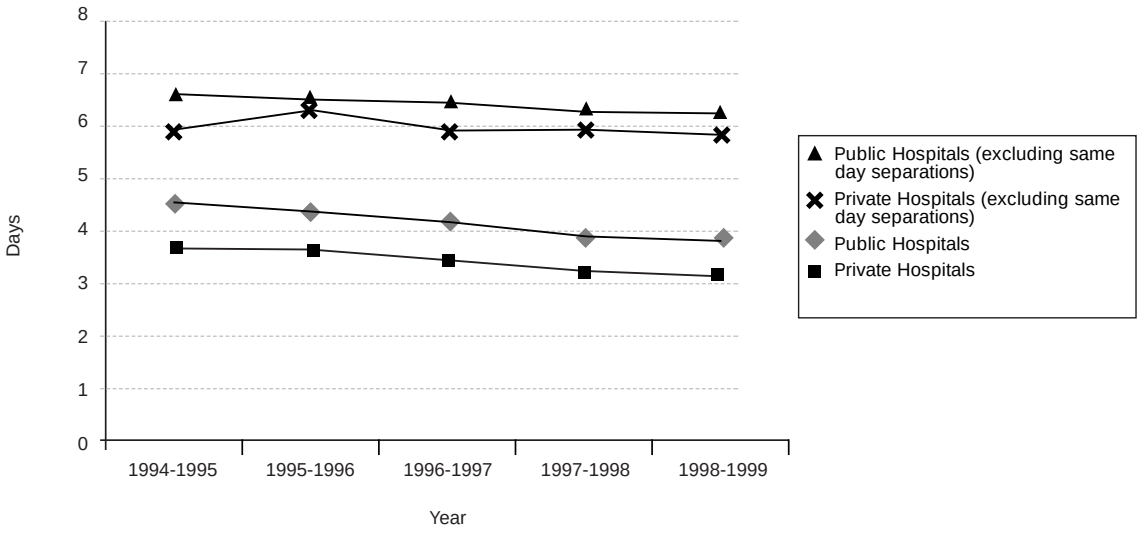
For further information see:

Australian Institute of Health and Welfare (2000), *Australian Hospital Statistics, 1998–99*, Canberra.

Web site:

http://www.aihw.gov.au/publications/health/ahs98–9/

Example indicator 5.13 Average length of stay (ALOS)



Average length of stay, Australia, 1994–95 to 1998–99

Average length of stay	1994–95	1995–96	1996–97	1997–98	1998–99
			– days –		
Including same day separations					
Public acute hospitals	4.6	4.4	4.2	4.0	3.9
Private hospitals (a)	3.7	3.7	3.5	3.3	3.2
All hospitals (b)	**4.3**	**4.2**	**4.0**	**3.8**	**3.7**
Excluding same day separations					
Public acute hospitals	6.7	6.6	6.5	6.4	6.3
Private hospitals (a)	6.0	6.4	6.0	6.0	5.9
All hospitals (b)	**6.5**	**6.5**	**6.4**	**6.3**	**6.2**

(a) Includes private psychiatric hospitals and private free-standing day hospital facilities.
(b) Excludes public psychiatric hospitals.
Source: Australian Institute of Health and Welfare, Australian Hospital Statistics, 1998-99 (Table 4.1).

- Average length of stay is a measure of the efficiency of the admitted services provided by acute hospitals given the impact on total cost of each episode of care.
- There was a decrease in average length of stay in both the private and public sector averaging almost 4% per annum in both sectors. A factor contributing to the lower average length of stay in the private sector is the greater provision of day only care.
- The increase in same day separations explains a large part of the declining average length of stay. Excluding same day separations, average length of stay declined by 1.5% per annum in public sector hospitals, and at a slower rate in private sector hospitals. Ideally the length of stay should be adjusted for changes in casemix complexity over time since increases in case complexity would impact on length of stay and the apparent changes in efficiency.

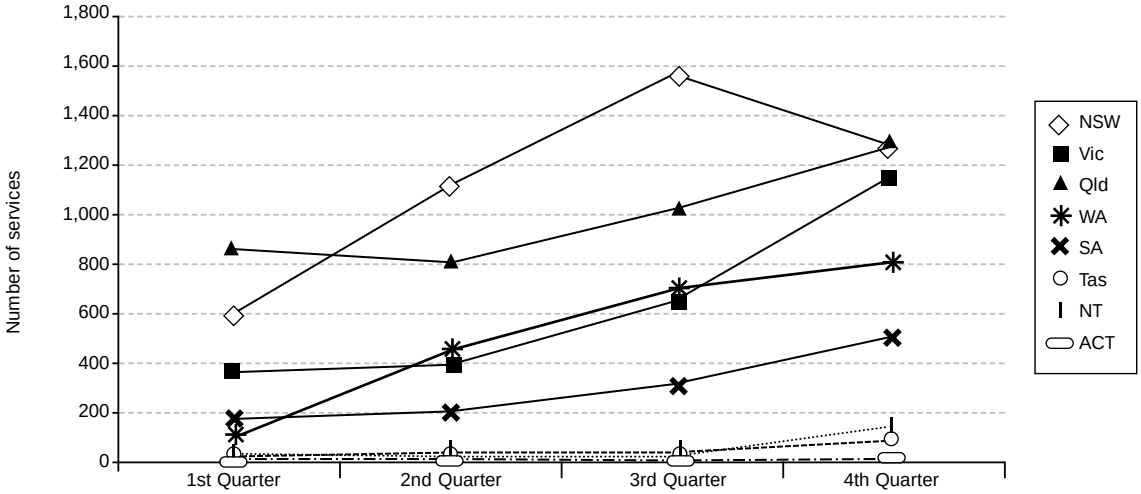
For further information see:

Australian Institute of Health and Welfare (2000), *Australian Hospital Statistics, 1998–99*, Canberra.

Web site:

http://www.aihw.gov.au/publications/health/ahs98–9/

Example indicator 5.14 Usage of Medicare Benefits Schedule Item 720 for care planning



Note: Item 720 that was introduced in November 1999 refers to the services of a medical practitioner, in consultation with a multidisciplinary care plan team, to develop a multidisciplinary community care plan for a patient. Data for the item reflect the month the service was processed by HIC and may vary due to processing days in month rather than service delivery.
Source: Health Insurance Commission on-line statistics, January 2001.

Usage of Medicare Benefits Schedule Item 720 for care planning by jurisdiction, for the calendar year 2000 by quarter

2000	NSW	Vic	Qld	WA	SA	Tas	NT	ACT	Aust
				– Number of services –					
1st qtr	594	364	874	116	179	22	33	6	2,188
2nd qtr	1,128	404	829	440	213	24	14	6	3,058
3rd qtr	1,563	651	1,044	699	307	21	29	4	4,318
4th qtr	1,256	1,144	1,293	813	509	90	133	5	5,243

- Information shows an increase in the use of the Medicare Benefits Schedule Item developed as part of the enhanced primary care (EPC) package.
- This item refers to the services of a medical practitioner, in consultation with a multidisciplinary care plan team, to develop a multidisciplinary community care plan for a patient.
- The item shows evidence of care planning in the community – an important component of the dimension *continuous*.
- Other care plan items are available to reflect care planning in other settings e.g. hospitals.
- This item is included as illustrative of this section of the framework rather than a rigorously defined indicator of health system performance. Further development work is to be undertaken in this area.

Web site:

http://www.hic.gov.au/

Example indicator 5.15 Separations from hospitals to aged care homes for patients over 70 years

Hospital separations for patients over 70 years by type of episode of care and mode of separation, Australia, 1998–99

Type of episode of care	Discharge/ transfer to an(other) acute hospital	Discharge/ transfer to an aged care home	Discharge/ transfer to an (other) psychiatric hospital	Discharge/ transfer to other health care accommo-dation (a)	Statistical discharge: type change (b)	Left against medical advice/ discharge at own risk	Statistical discharge from leave	Died	Other (c)
				– Number –					
Acute care	78,989	29,904	741	3,067	21,619	1,618	573	38,056	1,119,900
Rehabilitation	3,548	2,952	28	509	3,392	150	245	558	43,781
Palliative care	396	376	1	47	216	11	83	5,682	3,595
Non-acute care	1,662	5,029	9	294	1,887	81	145	1,670	8,213
Other care	66	64	2	19	279	2	3	38	2,174
Not reported	37	138	32	3	157	89	181	72	11,666
Total	**84,698**	**38,463**	**813**	**3,939**	**27,550**	**1,951**	**1,230**	**46,076**	**1,189,329**

(a) Includes mothercraft hospitals and hostels recognised by the Commonwealth Department of Health and Aged Care, unless this is the usual place of residence.
(b) A hospital stay may be divided into separate episodes of care of different types.
(c) Includes discharge to usual residence/own accommodation/welfare institution (including prisons, hostels and group homes providing primarily welfare services).
Source: Australian Institute of Health and Welfare (2000), Australian Hospital Statistics 1998–99 (Table 5.15).

- This data is useful for assessing continuity of care when used in conjunction with other indicators. The table provides information on type of care and mode of separation for patients aged over 70 years, particularly those who were discharged from hospital to their own usual residence.
- While 2.7% of acute separations for patients over 70 years are to aged care homes, it is important to recognise that around 60% of all admissions to nursing homes are in hospital at the time of application for admission (AIHW, 1998, p. 54). The acute care–residential care interface is therefore of critical importance to the residential aged care sector.
- Monitoring the nursing home–acute hospital divide is made more difficult (the above comment relates to 1996–97 data) as in the post-reform aged care data set there is no variable that indicates whether or not the person was in hospital at the time of admission. The only available data refers to place of assessment. Data on whether or not the person was in hospital at the time of admission would be useful for policy purposes.

For further information see:

Australian Institute of Health and Welfare (1998), *Nursing Homes in Australia 1996–97: A Statistical Overview*, AIHW Cat. no. AGE 9, AIHW and DHAC (Aged Care Statistics Series No. 3), Canberra.
Australian Institute of Health and Welfare (forthcoming), *Residential Aged Care Services in Australia 1999–2000*, AIHW, Canberra.
Australian Institute of Health and Welfare (1999), *Older Australia at a Glance*, by Gibson D. Benham C. and Racic L., second edition, AIHW Cat. no. AGE 12, Canberra.

Example indicator 5.16 Ratio of Home and Community Care (HACC) hours of service provision

Ratio of HACC hours of service provision, average hours per month, 1993–94 to 1997–98

Service type	1993–94	1997–98	% change	1993–94	1997–98	% change
	Per 1,000 persons aged 70 and over			Per 1,000 persons aged 65 and over with a profound or severe core activity restriction		
Home help (hours)	428	441	3.0	1,423	1,465	3.0
Personal care (hours)	109	143	1.2	364	477	1.0
Home nursing (hours) (a)	206	127	–38.3	686	423	–38.3
Paramedical (hours)	20	23	15.0	65	77	18.5
Home respite care (hours)	155	196	26.5	515	653	26.8
Centre day care (hours)	421	506	20.2	1,399	1,682	20.2
Home meals (number)	746	697	–6.6	2,481	2,317	–6.6
Centre meals (number)	101	100	–1.0	337	333	–1.2
Home maintenance/modification (hours)	42	45	7.1	140	151	7.9

(a) Excludes the Northern Territory – home nursing is not HACC funded in the Northern Territory.
Source: DHSH (1995), Section 2, pp.1–2; DHAC unpublished data, 1998; ABS 1997, 1998, 1999b:15 sourced from Australian Institute of Health and Welfare (1999), Australia's Welfare 1999: Services and Assistance, Canberra.

- The Home and Community Care Program (HACC) is jointly funded by the Commonwealth and State and Territory governments. The Commonwealth Government provides some 60% of the funds nationally. The bulk of home-based and community-based services are provided under the auspices of this program. It includes home nursing services, delivered meals, home help and home maintenance services, transport and shopping assistance, paramedical services, home and centre-based respite care, and advice and assistance of various kinds. HACC also provides brokered or coordinated care for some clients, through community options or linkages projects. (While figures in the table above relate to persons aged 70 years and over and 65 years and over with a profound or severe core activity restriction, HACC provides services to people of all ages with disabilities.)
- This indicator provides data on the hours of services provided under the HACC Program in relation to the number of people aged 70 and over and the number of people aged 65 and over with a profound or severe core activity restriction. These ratios of HACC service provision to the potential client group allow changes in the level of provision of HACC services to be examined in the context of the increasing size of the aged population between 1993–94 and 1997–98.

For further information see:

Australian Institute of Health and Welfare (1998), *Nursing Homes in Australia 1996–97: A Statistical Overview*, AIHW Cat. no. AGE 9, Aged Care Statistics Series No. 3, AIHW and DHAC, Canberra.
Australian Institute of Health and Welfare (forthcoming), *Residential Aged Care Services in Australia 1999–2000*, AIHW, Canberra,
Australian Institute of Health and Welfare (1999), *Older Australia at a Glance*, by Gibson D. Benham C. and Racic L. second edition, AIHW Cat. no. AGE 12, Canberra.

Chapter 6 Future Directions

The indicators presented in this report are intended to be illustrative only of the dimensions of the framework and also were readily available for inclusion in this report. These indicators have not been endorsed as national indicators to be presented to the Australian Health Ministers' Conference. Further work will be undertaken to identify a key set of indicators that most closely align with the strategic direction inherent within the framework. As a result, some of the existing indicators from this report may be adopted and in some cases new indicators may need to be developed.

Timetable for Future Reports

The Committee intends this report to be a transition report showing the anticipated style and content of future reporting. Future reports on the performance of the Australian health system to AHMC will be annual and will be timed so that the most recent data will be reported. This would need to occur after the collation of data in sources such as the annual report *Australian Hospital Statistics* published each June by the Australian Institute of Health and Welfare (AIHW). In other words, the goal for release of the Committee's annual report would be between August and December each year, giving a time lag of between 14 and 18 months after the end of each financial year. However, where possible data from the year that has just finished will be included (e.g. MBS).

Another factor to be considered in developing a detailed timetable is the availability of data from periodic collections that are not conducted on an annual basis. For example, some of the most relevant population surveys are conducted by the Australian Bureau of Statistics with frequencies of between two and five years.

The Committee also needs to identify how its reporting will fit into other national reports established through such mechanisms as the Australian Health Care Agreements, the Australian Council for Safety and Quality in Health Care and the Council of Australian Governments' Steering Committee for the Review of Commonwealth-State Service Provision. This needs to be done in order to communicate a clear purpose for the NHPC reports and reduce overlap. This task will be undertaken once the current report has been considered by AHMAC and the Australian Health Ministers' Conference.

The Committee is also considering the resource implications of developing its own website with links to AIHW's website and also to AHMAC's website (after it has been developed).

Objectives for Future Reports

The National Health Ministers' Benchmarking Working Group had initially concentrated on the acute health sector. In its *Fourth National Report on Health Sector Performance Indicators* (July 2000), the Committee set itself three key goals in addition to continuing the work of its predecessor. These goals are to:

- extend the national performance indicator framework for services other than acute inpatient services. This would include not only indicators of the overall health system's performance, but also for services such as community health, general practice and public health;
- establish good links with, and take advantage of, the vast range of work being undertaken on performance indicator development across the nation; and
- improve the timeliness of reporting of performance information.

An important goal for the next report will be to present a statement of key priorities for the development (where necessary) and reporting of performance indicators within the broad framework presented in this report. Having developed a framework and selection criteria, the Committee must now identify measures which are relevant to the goals and objectives of health systems and health care providers. These measures will be taken in a consistent manner over time in order to establish and measure progress towards appropriate benchmarks and targets. They will take into account the whole spectrum of the health system and the continuum of care across population health, primary care, acute care and continuing care. In order to address the issue of equity, the distribution of the data will determine the particular 'view' of data presentation and inform future indicator development.

As well as reporting regularly on a number of agreed high-level performance indicators, the Committee also envisages a more detailed treatment of key issues or themes which are of current interest to stakeholders from the public and private sectors. This would involve more detailed reporting of performance on these issues both between Australian jurisdictions and where possible on an international basis. Depending on the currency of the issue, these measures may be presented annually for an agreed period or less frequently. Alternatively, the themes may change from year to year and some issues may only be discussed on a once-off basis.

Examples of possible themes currently under consideration include:

- cardiovascular disease;
- health inequalities; and
- private health insurance.

Cardiovascular Disease

Cardiovascular disease is an example of a possible theme. Despite improvements over the last 30 years, heart disease possibly offers the best prospect for further mortality gain as Australian mortality rates are still 2–3 times those of southern Europe and four times the rate in Japan.

Through its three tiers, the NHPC framework permits reporting on Australia's key national priorities.

The first tier, Health Status and Outcomes, allows the incidence (health conditions) of and mortality (deaths) from heart disease to be benchmarked, both internationally and within Australia. It also allows changes over time to be tracked and variations within the Australian population to be described – urban/rural, Indigenous/non-Indigenous, and socioeconomic status patterns.

The second tier, Determinants of Health, allows the key behaviours of smoking/diet/activity etc. (health behaviours) and blood pressure and cholesterol (person-related factors) to be described.

The third tier allows the performance of the health system to be described under the four broad headings of population health, primary care, acute care and continuing care. Nine dimensions within the tier, e.g. *effectiveness* and *accessibility*, address key attributes of the health system.

Health Inequalities

Australia's health is very good by international comparisons. However, there are significant variations within sub-populations in Australia. The underlying causes of health inequalities, and possible responses to them, are complex, multifactorial and, in some cases, contentious.

The inequality in health between Indigenous and non-Indigenous Australians is a stark example of the health differentials between population groups in Australia.

The performance framework can be used to monitor health inequalities in each of the three tiers. The relevant question in each tier is 'Is it the same for everyone?' For example, in Tier 1, Health Status and Outcomes can be reported by showing the prevalence or incidence of diseases, injury, disability, and/or death by measures such as socioeconomic quintiles or age standardised rate ratios for Indigenous and non-Indigenous Australians.

Private Health Insurance

Private health insurance is an important component of the health financing system, adding to the overall health care budget and providing an opportunity for individuals to use private health care services instead of publicly provided ones. Very significant changes in the level of private health insurance coverage have occurred over the last two years.

The performance of the private health insurance system can be measured in terms of its overall impact on health services and financing. A study of the performance of the health insurance industry might, for example, take into account the number of privately insured persons (including those in higher risk areas such as those aged over 65 years), the range of services funded and utilisation rates for the insured versus non-insured population.

Conclusion

Some of the measures for possible inclusion in the Annual Report from the NHPC to Ministers are currently available, while others would require considerable development work. Trends over time and variations within the population can also be described. The Framework will also assist in measuring Australia's performance against the World Health Organization's three goals of improving health, enhancing responsiveness to the expectations of the population and assuring fairness of financial contribution. It will greatly assist Ministers, funders and purchasers, and other key policy makers to better understand the health system and the impact it has, in order to make longer term investment decisions that will improve the health and wellbeing outcomes for Australians now and for the future.

Appendix 1 Services and Functions of the Health Care Sectors

Care Continuum	Services and Functions
Population Health	• Assess, analyse and communicate population health needs and community expectations • Prevent and control communicable and non-communicable diseases and injuries • Promote and support healthy lifestyles and behaviours • Promote, develop and support healthy public policy • Plan, fund, manage and evaluate health gain and capacity building programs • Strengthen communities and build social capital • Promote, develop, support and initiate actions which ensure safe and healthy environments • Promote, develop and support healthy growth and development throughout all life stages • Promote, develop and support actions to improve the health status of Aboriginal and Torres Strait Islander peoples and other vulnerable groups
Primary Care	• General Practice • Community health services • Aboriginal and Torres Strait Islander health services • Dental services • Aspects of Emergency Department Services • Mental health promotion and early intervention services • Aspects of services delivered by medical specialists
Acute Care	• Emergency care • Aspects of services delivered by medical specialists • Acute admitted patient care • Acute mental health services • Post-acute community care • Hospital in the home
Continuing Care	• Chronic disease management and maintenance • Aged care assessment • Rehabilitation • Palliative care • Maintenance and long-term care • Mental health maintenance and management

Appendix 2 World Health Report 2000 – Comparing Health Systems

Introduction

The World Health Organization (WHO) has released results from a new analysis of the world's health systems using five performance indicators to measure health systems in 191 Member States. The aim is to measure the impact of health systems in a comprehensive and consistent manner. The report also provides detailed commentary and discussion on what needs to be done to improve health system performance. A statistical summary compares performance. The findings were released in the World Health Organization's *The World Health Report 2000, Health Systems – Improving Performance*.

The World Health Organization states that with respect to its clients 'health systems have a responsibility not just to improve health but to protect them against the financial cost of illness - and to treat them with dignity'.[1] Thus, health systems have three fundamental objectives and these are to:

1. Improve the health of the population they serve.
2. Respond to the people's expectations.
3. Provide financial protection against the costs of ill health.

Health system performance in the WHO Report, 2000 is assessed by comparing system attainment with what the system has been able or has the potential to accomplish. For its first report, using the newly derived performance measures, the World Health Organization relied considerably on modelled or proxy data to develop the indexes on which country performance was ranked. The findings in the form of country rankings generated some controversy. However, on behalf of the Commonwealth Minister for Health and Aged Care, Australia's response has been to welcome the WHO Report, 2000 as an important first step that measures the impact of health systems in a comprehensive and consistent manner and to express support for a continuing consultation process to develop the performance measures. A subsequent resolution of the WHO Executive Board will ensure that future World Health Reports, to be compiled every two years from 2002, will evolve from a scientific peer review of health systems performance methodology and a technical consultation process. Member countries will be also consulted on the best data to be used for assessing their health system performance. It is evident that new data systems in Australia and other countries will be required to fully achieve the WHO objectives.

Health system performance assessment within Australia, the task set for the National Health Performance Committee, should evolve in concert with international efforts of the World Health Organization and other bodies. A description of measures used in the WHO Report, 2000 follows.

Overall level of population health

World Health Organization uses the measure of disability-adjusted life expectancy – DALE – (or 'healthy life expectancy') to assess the overall level of population health. This measure converts the total life expectancy for a population to the equivalent number of years of 'good health'.

Inequality in health within the population

This WHO measure assesses inequality across individuals in countries by looking at differences in child survival.

Responsiveness

Responsiveness includes two major components:

a) respect for people (including dignity, confidentiality and autonomy of individuals and families to decide about their own health); and

b) client orientation (including prompt attention, access to social support networks during care, quality of basic amenities and choice of provider).

[1] World Health Organization (2000), *World Health Report, Health Systems – Improving Performance*, Geneva, released 21 June 2000. (http:/www.who.int/whr/).

There are two aspects of responsiveness measured: overall level, and distribution. The level of responsiveness was based on a survey of key informants in selected countries. Distribution relates to groups of people that are disadvantaged with regard to responsiveness, and was also determined by the key informant survey.

Fairness in financing

The fair financing measure estimates the degree to which health funding is raised according to the ability to pay for all members of the population. It captures concerns such as progressivity, and protection from catastrophic health costs. Fair financing is only concerned with distribution. It is not related to the total resource bill or to how the funds are used.

Overall health system attainment

The sum of all five measures of the three goals is the achievement of the health system, or how well it is doing. The five measures are summed up into a single measure, weighting each goal by its relative importance. The weights came from a survey of goal preferences of over 1,000 people from 125 countries, results of which were remarkably consistent across nationalities, income and education.

Overall health system performance

In addition to assessing performance against the five indicators, the World Health Organization also assessed how well health systems are doing compared with the best they could be expected to do given available resources.

Two measures were used:

- The first measures performance by health life expectancy, with performance defined as the ratio between level of health achieved and the level of health that could possibly be achieved by a perfect system.
- The second measure, overall performance, relates overall health system performance to available resources.

Within the WHO Report, 2000 details on the different goals for health systems and the measures of performance are provided. New concepts and measures which lay the empirical basis for assessing health system performance are presented in a statistical annex.

Glossary

Accessible
Accessible health care is characterised by the ability of people to obtain appropriate health care at the right place and right time irrespective of income, cultural background or geography.

Acute
Defined as having a short and relatively severe course of illness.

Acute care
An intervention (or set of interventions) to alter the course of an acute episode of illness. Clinical services provided to patients, including performing surgery, relieving symptoms and/or reducing the severity of illness or injury, and performing diagnostic and therapeutic procedures. Most episodes involve a relatively short hospital stay, although acute care services may also be provided to non-admitted patients. (See Appendix 1 for further information.)

Acute hospital
A hospital that provides at least minimal medical, surgical or obstetric services for inpatient (admitted patient) treatment and/or care, and provides round the clock comprehensive qualified nursing services as well as other necessary professional services. It must be licensed by a State or Territory health authority or controlled by government departments. Most of the patients have acute conditions or temporary ailments and the average stay per admission is relatively short.

Allocative efficiency
Allocative efficiency is the capacity of the system to achieve optimal outcomes at the least cost. An allocatively efficient system would provide improved outcomes for the same or less cost. It is noted that within the health field, methodologies to measure allocative efficiency are in the development stages.

Appropriate
Identified in the framework as care, intervention or action that is considered to be appropriate to the patient's particular needs, requests and prognosis. Appropriate care or treatment should be based on established and accepted standards, such as evidence-based clinical guidelines.

AR-DRG
An Australian system of Diagnosis Related Groups (DRGs). See DRG.

Asymptomatic
Without symptom/s of a particular illness.

Average case weight
A number describing the overall relative costliness of the patients treated by a hospital or group of hospitals compared with another hospital or group, or compared with the unit value (1.00).

Average length of stay (ALOS)
The average of the lengths of stay for a group of admitted patients in a hospital or group of hospitals. The length of stay for a patient is the difference between the date of separation and date of admission, less any leave days. For same day patients, the length of stay is attributed a value of one day.

Benchmarking
The ongoing, systematic process to search for and introduce best practice into an organisation. Benchmarking is generally used to compare an organisation or service with similar leading oganisations or services to provide a catalyst to improve performance.

Best practice
The cooperative way in which organisations and their employees undertake business activities in all key processes – and the use of benchmarking – that can be expected to lead to sustainable world class positive outcomes.

Body Mass Index (BMI)
A person's weight (body mass) relative to height. It is a measure of body mass corrected for height that is used to assess the extent of weight deficit or excess. In sedentary populations, body mass index (BMI) also provides an imprecise but practical indicator of the level of body fat. Adult body mass index is calculated by: weight (kg) divided by (height (m) squared). (See AIHW, National Health Data Dictionary (NHDD) for further information.)

Breast cancer screening: program sensitivity
BreastScreen Australia is the national publicly funded mammographic screening program. Program sensitivity is the proportion of invasive breast cancers that are detected within the BreastScreen Australia Program out of all breast cancers (interval cancers plus screen detected cancers) diagnosed in Program-screened women in the screening interval. The measure should ideally cover a 24-month period (the recommended screening interval) after a negative screening round. However, such data are not yet available for all States and Territories.

Capable

For the purposes of this report, capable relates to an individual's or service's capacity to provide a health care/service/intervention based on skills and knowledge.

Casemix

The number and type of patients treated by a hospital or group of hospitals. In Australia, casemix for inpatients is described using the AR-DRG classification system.

Casemix adjusted separations

The number of separations for a hospital or group of hospitals multiplied by the average case weight. This product is often termed the units of care.

Case weight

The relative costliness of a particular DRG, determined so that the average case weight for all DRGs is 1.00.

Community capacity

Characteristics of communities and families such as population density, age distribution, health literacy, housing, community support services and transport that indicate resilience and capability.

Continuing care

Uninterrupted, seamless and integrated care that is provided across the continuum. (See Appendix 1 for further information.)

Cost effectiveness

Cost effectiveness analysis compares the cost of inputs to outcomes measured in natural units (e.g. cost per life saved, fracture avoided etc.) for a number of similar alternative activities in order to determine the most cost effective one. A more cost effective approach will achieve a better outcome for the same or less inputs.

Cost utility analysis is a type of cost effectiveness analysis where outcomes include a quality of life component (QALYs, DALYs, etc).

Depreciation

A representation of the service potential of an asset consumed during a financial period.

Disability

Disability in the context of DALE and DALY terms 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.

Disability adjusted life expectancy (DALE)

Disability adjusted life expectancy (DALE) is estimated from three kinds of information:

- the fraction of the population surviving to each age calculated from birth and death rates;
- the prevalence of each type of disability at each age; and
- the weight assigned to each type of disability which may or may not vary with age. (See *Disability weights.)*

Survival at each age is adjusted downward by the sum of all the disability effects, each of which is the product of the weight and prevalence of the respective condition in the population. The sum of all conditions in the population determines prevalent YLD.

The DALE measure is calculated from prevalent YLD (as opposed to incident YLD which are usually presented in DALYs). It takes the sum of prevalent YLD from all non-fatal health states as a proportion of the years lived by the population of interest in the year of study by age and sex. These proportions are then applied to the L (x) column in a life table and thus adjust the life expectancy measure for disability. See also *Disability weights* and *YLD*.

In its *World Health Report 2000*, the World Health Organization (WHO) used DALE as a healthy life expectancy measure. The occurrence of disabling health states is greater in poorer countries and therefore the DALE measure gives a better representation of the health differentials between countries than life expectancy alone[1].

Disability adjusted life years (DALYs)

The DALY measure is the number of years lost due to premature mortality (relative to a standard life expectancy) combined with years lived in states of less than full health and is known as a health gap measure. The Global Burden of Disease study used a standard life table (West Level 26) with life expectancy at birth of 82.5 years in women and 80 years in men as the reference to calculate the YLL component of DALYs. The Australian Burden of Disease studies opted to use the 1996 Australian cohort life expectancy as the reference. The cohort life expectancy is correction of period life expectancy by a projected continuing decline in age-and-sex specific mortality rates. (See also *Disability weights.)*

[1] World Health Organization (2000), *World Health Report, Health Systems – Improving Performance*, Geneva, released 21 June 2000. (http://www.who.int/whr/)

Disability weights

Disability weights are constructed from use of a preference measure indicating society's willingness to prevent, cure or treat that health state in relation to other health problems. As such, it does not imply any value on an individual experiencing an illness or disability. There may, however, be issues around the acceptability to some groups of people with a disability of both the DALE and DALY concepts in general, and the specific weights assigned to various disabilities. 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.

It is important to note a methodological difference in the calculation of estimates for years lived with disability (YLD), a component of both the DALY and DALE measures. The contribution of *each* disease to the overall result is accounted for within the DALY measure, while this is not the case for the DALE measure. The DALE measure is therefore conceptually closer to the more familiar notion of life expectancy without adjustment due to a narrower definition of the term 'disability'.

DRG

DRGs (Diagnosis Related Groups) provide a clinically meaningful way of relating the number and type of patients treated in a hospital (that is, its casemix) to the resources required by the hospital. Each DRG represents a class of patients with similar clinical conditions requiring hospital services.

DTP - Diphtheria tetanus pertussis

A vaccine that protects against diphtheria, tetanus and pertussis (whooping cough).

Effective

Identified in the framework as care, intervention or action that achieves a desired result in an appropriate timeframe.

Efficient system

A system which achieves desired results with the most cost effective use of resources. (See also *technical efficiency* and *allocative efficiency.)*

Enhanced Primary Care (EPC) package

The Enhanced Primary Care package is made up of a range of innovative programs designed to assist people with chronic illnesses and complex care needs (many of whom are older Australians) as well as their carers and the health professionals who look after them. The aim of the programs is to promote a more integrated approach to service delivery among health professionals and other service providers (see http://www.health.gov.au/pubs/budget99/fact/hfact2.htm). Importantly, these programs encourage a greater role for consumers in making decisions about their health. The Package includes the following initiatives: helping GPs participate in multidisciplinary care planning, Commonwealth Carelink Centres, further coordinated care trials, preventing falls in older people and IT initiatives to keep health providers in touch.

Environmental factors

Physical, chemical and biological factors such as air, water, food and soil quality. These factors may be affected by chemical pollution and waste disposal.

Health behaviours

Health behaviours are an accumulation of attitudes, beliefs, knowledge and practices that result in a person's health behaviours e.g. patterns of eating, physical activity, excess alcohol consumption and smoking.

Health condition

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

Health literacy

Community awareness and knowledge of health related issues.

Health outcome

A change in the health of an individual, or group of people or population, that is attributable to an intervention or series of interventions.

Hib - Haemophilus influenzae type b

A vaccine that protects against a bacterium that causes meningitis and other serious infections in young children.

Human function, alterations to

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

Immunisation

A process of inducing immunity to an infectious agent by administering a vaccine.

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Services by a medical practitioner, in consultation with a multidisciplinary care plan team, to develop a multidisciplinary community care plan for a patient.

MMR

Measles-mumps-rubella vaccine.

Morbidity

Any departure from a state of physiological or psychological wellbeing. Collectively, morbidity refers to the details of conditions and treatments relating to a group of patients.

National Health Data Dictionary (NHDD)

The NHDD provides national standard data definitions and specifies national minimum data sets.

National Health Information Knowledgebase (NHIK)

The NHIK is an electronic repository and information management environment for metadata and data standards. The Knowledgebase is an Internet application designed and created by the Australian Institute of Health and Welfare. The web site address is: http://www.aihw.gov.au/knowledgebase/index.html

National Hospital Morbidity Database (NHMD)

The NHMD is a compilation of electronic summary records collected in admitted patient morbidity systems in public and private hospitals. Almost all hospitals in Australia are included. The exceptions are public hospitals not within the jurisdiction of a State or Territory health authority or the DVA (such as hospitals operated by correctional authorities and hospitals located in offshore territories). The database is managed and maintained by the AIHW.

National Public Hospital Establishments Database (NPHED)

The NPHED is held by the AIHW and is a collation of data on all public hospitals operated by the State and Territory health authorities and the DVA. The data are provided for acute care hospitals, psychiatric hospitals, drug and alcohol hospitals, and dental hospitals. However, the database does not include information on private hospitals, and excludes some smaller hospitals not within the jurisdiction of the State and Territory health authorities (such as those run by correctional authorities and those in offshore territories).

OPV - Oral Polio Vaccine

Oral polio vaccine, also known as Sabin vaccine.

Performance indicator

In the context of this report, a performance indicator is a statistic or other unit of information which reflects, directly or indirectly, the extent to which an anticipated outcome is achieved or the quality of the processes leading to that outcome.[2]

Population health/Public health

Population health, sometimes referred to as public health, is the organised efforts of society to protect and promote people's health with an emphasis on prevention. Population health actions are delivered to whole populations or sub-groups rather than through individual services and treatments. It addresses the issues, problems and priorities of the population as a whole as a starting point and population subgroups (in particular at-risk groups). (See Appendix 1 for further information).

Primary care

Primary care includes care delivered by general practitioners and community health services (including Aboriginal and Torres Strait Islander health services). (See Appendix 1 for further information.)

Public (hospital) patient

An eligible person who receives or elects to receive a public hospital service free of charge or whose treatment is contracted to a private hospital.

Quality-adjusted life years (QALYs)

A single measure of health outcome that simultaneously captures gains from reduced morbidity (quality gains) and reduced mortality (quantity gains). With QALYs reduced morbidity gains are equal to the improvement in quality of life from a particular intervention, (measured on a scale between 0 and 1), multiplied by the number of years the improvement lasts. The principal difference between QALYs and DALYs is that the severity weighting (or 'utility') is derived from asking patients to rate their health status while in DALYs severity weights are derived from asking health experts or the general public to rate a whole series of health states. A minor difference is that in the disability weight in DALYs a value of 0 represents a state of full health and 1 the worst possible health state while in QALYs the inverse notation is used.

[2] National Health Information Management Group (NHIMG) (2000), *National Summary of the 1998 Jurisdictional Reports against the Aboriginal and Torres Strait Islander Health National Performance Indicators for Aboriginal and Torres Strait Islander Health*, AIHW Cat. no. 5. AIHW, Canberra.

Responsiveness

Responsiveness is defined as 'a service that provides respect for persons and is client orientated'.[3]

Safe

Identified in the framework as the avoidance or reduction to acceptable levels of actual or potential harm from health care management or the environment in which health care is delivered.

Note: The definition of this indicator will be considered by the Australian Council for Safety and Quality in Health Care as part of its process in developing definitions.

Self-assessed health

Self-assessed health is a measure of an individual's perception of their health generally. There are standardised survey instruments (SF36) of self-rated health which reflect physical health problems and mental health problems. It has been shown to be an independent predictor of survival.

Separation

The term used to refer to the episode of care, which can be a total hospital stay (from admission to discharge, transfer or death), or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

Socioeconomic quintiles

This method uses an index that classifies people according to the average disadvantage of their statistical local area (SLA) of usual residence. The Index of Relative Socio-Economic Disadvantage (IRSD), developed by the Australian Bureau of Statistics, is constructed using principal components analysis. It is derived from social and economic characteristics of the local area such as a low income, low educational attainment, high levels of public sector housing, high unemployment, and jobs in relatively unskilled occupations.

Data are classified into quintiles of socioeconomic disadvantage according to the IRSD for people's SLA of usual residence, with quintile 1 including the most disadvantaged households and quintile 5 the least. SLAs are grouped into quintiles so that each quintile contains approximately 20% of the total Australian population.

Sustainable

Within the context of the report, sustainable relates to a health system that provides infrastructure such as workforce, facilities and equipment, is innovative and responsive to emerging needs (e.g. research, monitoring).

Technical efficiency

Technical efficiency is the degree to which the least cost combination of resource inputs occurs in production of a particular service. A more technically efficient system will provide more outputs for the same inputs. This can be achieved through such measures as achieving economies of scale.

Triage category

The urgency of the patient's need for medical and nursing care.

Years of life lived with disability (YLD)

This measure relates to years lived with disability. See *Disability* and *Disability weights*.

Note: This definition is found in the Global Burden of Disease study published by the Harvard School of Public Health on behalf of the World Health Organization and the World Bank.[4] The Australian Burden of Disease study refers to YLD as 'years of life lost due to disability'.[5]

Years of life lost (YLL)

This measure relates to years lost to premature mortality.

Note: Further definitions of terms can be found in the relevant sources.

[3] World Health Organization (2000), *World Health Report, Health Systems – Improving Performance*, Geneva, released 21 June 2000.
[4] Murray C.J. and Lopez A.D. (eds.) (1996), *The Global Burden of Disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020*, Harvard School of Public Health (on behalf of the World Health Organization and the World Bank), Harvard University, Cambridge, MA.
[5] Australian Institute of Health and Welfare (1999), *The Burden of Disease and Injury in Australia*, by Mathers C., Vos T. and Stevenson C., AIHW Cat. no. PHE 17, Canberra.

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Notes