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## 4 Health delivery mechanisms

Public acute care hospitals and general practitioners (GPs) are important providers of government funded health care services in Australia, and this chapter reports on the performance of these service types. Descriptive information for each service type is contained in section 4.1.

The performances of public acute care hospitals and GPs are presented separately, and at this stage there is no attempt to explore the links between these two service types. A framework of performance indicators for each service type is outlined in section 4.2, future directions for reporting are covered in section 4.3, and discussion of key results is contained in section 4.4. The interactions of different health service delivery mechanisms are discussed for particular health issues in chapter 5.

The framework and data for general practitioners are reported here for the first time. Public acute care hospitals have been covered in earlier Reports, but new data are reported here on the appropriateness of their services.

### 4.3 Profile of health delivery

#### Public acute care hospitals

A key objective of government is to provide public acute care hospital services to improve the population's access to cost effective acute health services (box 4.1). These hospitals provide a range of services including:

- acute care services to admitted patients;
- emergency and outpatient services to non-admitted patients;
- mental health services including inpatient services provided by designated psychiatric/psychogeriatric units as well as community based services;
- services to non-acute patients (for example, patients undergoing rehabilitation and long stay nursing home-type patients); and
- teaching and research activities.

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Box 4.2 **Some common health terms used in this chapter**

**Acute care episode:** involves 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 stay in hospital, although acute care services may also be provided to non-admitted patients.

**Acute care hospital:** a hospital that provides at least minimum medical, surgical or obstetric services for inpatient treatment and/or care, and around-the-clock, comprehensive, qualified nursing services as well as other necessary professional services

**Admission:** the process by which an inpatient commences an episode of care

**Ambulatory care:** services provided by an acute care hospital to non-admitted patients

**Casemix adjustment:** adjustment of data on treated cases to account for the number and type of cases. Cases are sorted into diagnosis related groups which represent a class of patients with similar clinical conditions requiring similar hospital services.

**Co-morbidity:** the simultaneous occurrence of two or more diseases or health problems that affect the care of the patient

**General practice:** a medical practice that offers primary, continuing, comprehensive whole-person care for individuals, families and the community

**Length of stay:** the period from admission to separation less leave days. Same day patients are admitted and separated on the same date.

**Medicare:** a program funded by the Commonwealth Government that subsidises private medical services

**Non-acute episode:** involves clinical episodes provided to admitted and non-admitted patients, including planned geriatric respite, palliative care, geriatric evaluation and management and services for nursing home type patients. Clinical services delivered by designated psychiatric or psychogeriatric units, designated rehabilitation units, and mothercraft and dental services are also considered to be non-acute.

**Public hospital:** a hospital that provides free treatment and accommodation to eligible admitted persons who elect to be treated as public patients. It also provides free services to non-admitted patients and may provide (and charge for) treatment and accommodation services to private patients

**Separation:** the discharge, transfer or death of a hospital inpatient

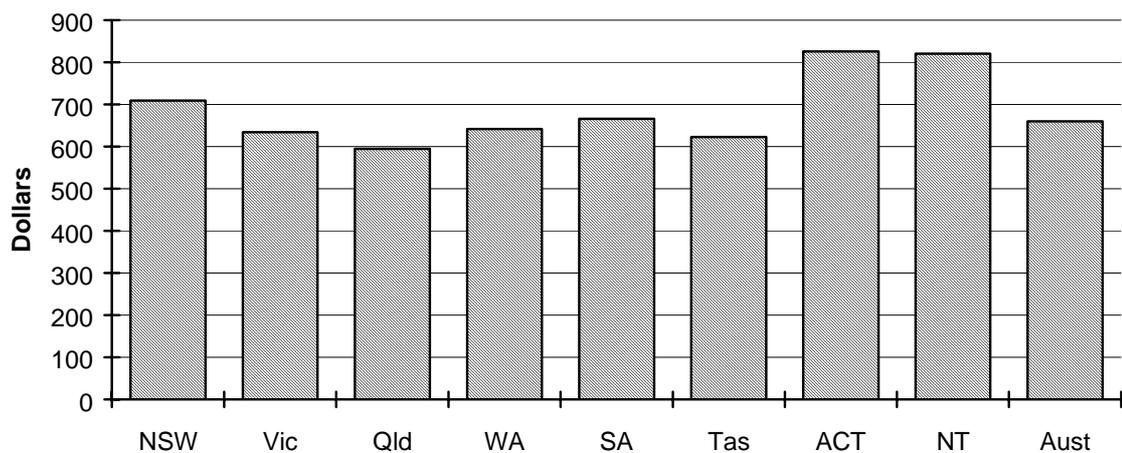
The data presented in this section largely relate to acute care services provided to admitted patients (which comprise the bulk of public hospital services). The data also relate to some non-acute care services because most jurisdictions are currently unable to identify all acute and non-acute care services separately. The level of non-acute services provided by public acute care hospitals varies across jurisdictions.

Changes to some variables reduce the comparability of data presented here with data presented in previous Reports. The accuracy of the data provided by all jurisdictions has improved in recent years, for example. There are also data differences that hinder some comparisons across States and Territories; for example, the Victorian data reported on public acute care separations were compiled somewhat differently from data for other jurisdictions. The Victorian data exclude most non-acute separations and therefore more closely measure the ‘true’ number of public *acute* care separations (box 4.3). The data for all other jurisdictions may include some non-acute separations, so may not be completely comparable.

An alternative method to collect data is used by the Australian Institute of Health and Welfare, which collects and reports data for all jurisdictions including Victoria. Their cost data includes non-acute services delivered by public acute care hospitals; because a higher proportion of mental health services are provided through public acute care hospitals in Victoria than in most other States and Territories, this will have a relatively greater affect on Victoria’s cost data. Both sets of data are reported for Victoria where possible.

Government recurrent expenditure on public hospitals of \$12.2 billion in 1996-97 (table 4A.4) was directed to 727 public hospitals (704 public acute care hospitals and 23 public psychiatric hospitals) (table 4A.1). This was the equivalent of governments spending \$660 per capita. Across jurisdictions, per capita recurrent expenditure ranged from \$595 in Queensland to \$826 in the ACT (figure 4.1).

Figure 4.1 **Recurrent expenditure per capita — public acute and psychiatric hospitals, 1996-97**



Data source: table 4A.4.

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#### Box 4.4     **Explaining the differences in the Victorian data**

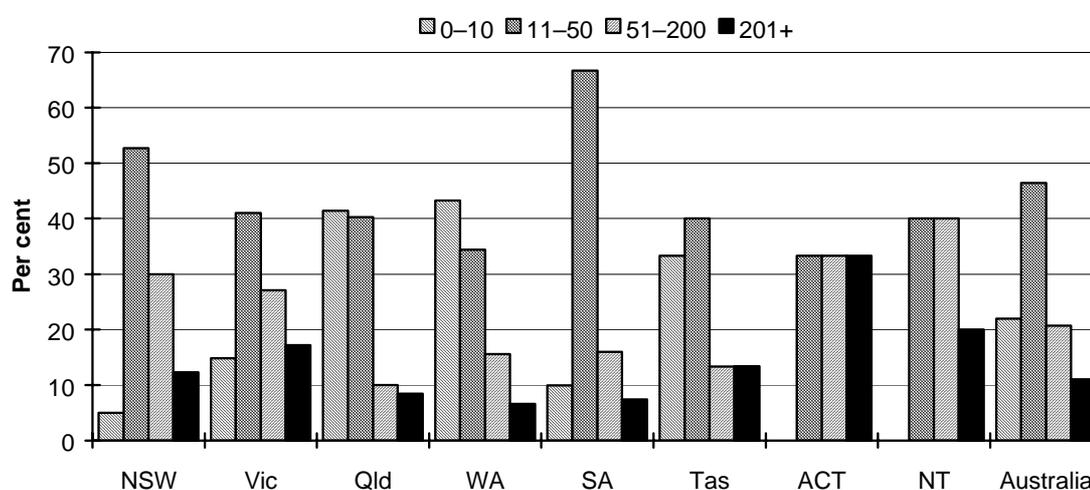
Performance indicators are derived from data that are collected by Australian Institute of Health and Welfare from all jurisdictions using standard definitions. This provides comparable data on hospitals but does not provide comparable data on the services provided in hospitals. Some Victorian data for 1996-97 reported in this chapter were collected on a different basis from data collected for the other jurisdictions. The Victorian data attempt to measure acute care services and expenditure more closely by excluding the following 'non-acute', 'sub-acute' and psychiatric services that are delivered in public acute care hospitals:

- mental health services (from 1996, all mental health services have been managed by general hospitals in Victoria; these services were not integrated to the same extent in other jurisdictions and therefore did not need to be explicitly excluded from these jurisdictions' data.);
- specialist aged care and rehabilitation services (funded through the Aged Care Program);
- rehabilitation services;
- palliative care services;
- mothercraft and dental hospital services; and
- multipurpose services (These pool Commonwealth and State Government funding to improve the delivery of health and aged care services in rural and remote communities. They are generally non-acute care services).

The extent to which data for other jurisdictions have excluded these services delivered in public acute care hospitals varies across jurisdictions. It may be possible to exclude some of these services for other jurisdictions in future Reports. The National Mental Health Strategy requires all jurisdictions to report expenditure and inpatient activity, for example, and thus these services could be excluded in the future. However, the ability of jurisdictions to exclude rehabilitation and palliative care services will be more varied.

Over 68 per cent of the 727 public acute care and psychiatric hospitals had up to 50 beds and only 3 per cent had more than 500 beds. There were more smaller sized hospitals across all jurisdictions, particularly in States that cover large geographic areas. Over 75 per cent of hospitals in Queensland and WA had fewer than 50 beds. The distribution of medium sized hospitals was skewed more towards the higher populated jurisdictions; almost two thirds of Australian hospitals with 51–200 beds were in NSW and Victoria alone (figure 4.2).

Figure 4.3 Public acute care and psychiatric hospitals, by size, 1996-97<sup>a</sup>



<sup>a</sup> Size is based on the number of available beds.

Data source: table 4A.3.

There were 174 695 full time equivalent staff employed in Australian public acute care and psychiatric hospitals in 1996-97. Nurses comprised 44.3 per cent of these staff, while the remainder were salaried medical officers (8.1 per cent), diagnostic and allied health professionals (12.8 per cent), other personal care staff (3.1 per cent), administrative and clerical staff (14.0 per cent) and domestic and other staff (17.7 per cent) (table 4A.2).

There were over 3.6 million separations from public acute care hospitals in 1996-97, of which 42 per cent were same day separations. Public hospitals also handled 32 million non-admitted occasions of service in that year (table 4A.5).

The six most common types of treatment in public hospitals (by Australian National Diagnosis Related Group [AN-DRG]) in 1996-97 (including same day cases) were:

- renal dialysis (9.8 per cent of separations);
- chemotherapy (3.7 per cent);
- vaginal delivery without complications (3.2 per cent);
- other gastroscopy for non-major digestive disease without complications and co-morbidities (2.0 per cent);
- other colonoscopy without complications and co-morbidities (1.4 per cent); and
- bronchitis/asthma in admitted patients aged 50 years and under without complications (1.2 per cent) (table 4A.6).

This section (and the chapter more generally) focuses on separations *excluding* same day separations, to more easily relate the descriptive information to selected indicators. An indicator of public hospital efficiency used is ‘the average length of stay in public acute care hospitals, excluding same day separations’.

Thus, excluding same day separations, the six most common types of public hospital treatment between 1994-95 and 1996-97 are summarised in table 4.1. ‘Vaginal delivery without complications’ had the highest number of separations (excluding same day cases) in each year between 1994-95 and 1996-97 inclusive. ‘Bronchitis/asthma in admitted patients aged 50 years and under without complications’, ‘heart failure and shock’ and ‘chronic obstructive airways disease’ were also consistently among the most common procedures.

**Table 4.1 Top six AN-DRGs (excluding same day cases) in public hospitals, by volume<sup>a</sup>**

AN-DRGs	1996-97 separations		1995-96 separations		1994-95 separations	
	No.	% <sup>b</sup>	No.	% <sup>b</sup>	No.	% <sup>b</sup>
Vaginal delivery without complicating diagnosis	107 817	5.1	109 695	5.0	149 299	5.1
Bronchitis/asthma in admitted patients aged 50 years and under without complications and co-morbidities	35 369	1.7	38 840	1.8	42 565	1.5
Chronic obstructive airways disease	33 146	1.6	28 485	1.3	33 018	1.1
Heart failure and shock	29 892	1.5	30 776	1.4	37 312	1.3
Cholecystectomy without common bile duct exploration	22 594	1.1	na	na	35 180	1.2
Tonsillectomy and/or adenoidectomy	20 112	1.0	21 960	1.0	37 468	1.3

<sup>a</sup> Data for all separations in public hospitals where the episode of care was reported as acute or was not reported. <sup>b</sup> Proportion of total separations, excluding same day separations. **na** Not available.

Sources: table 4A.7; SCRCSSP (1997;1998).

## General practice

Consulting a GP was the second most common health related action of Australians in 1995, after use of medications (ABS 1997). GPs in Australia fulfil a broad range of medical functions such as diagnosing and treating illness (both chronic and acute), maintaining long term health, maintaining continuity of care and acting as a gatekeeper for other health care services (Wilton and Smith 1997). The most common reasons for visiting a GP were to obtain a check-up (8.3 per cent of

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reasons), coughs (6.2 per cent) and to obtain a prescription (5.7 per cent) (ABS 1997).

Most GPs are private practitioners whose services are largely funded through Medicare (a Commonwealth Government program). Unlike most other government health care services, Medicare is not capped: the total cost of general practice services funded under Medicare is entirely determined by a GP's volume of patients. GPs averaged 5.5 consultations per head of population in 1994-95, costing the Commonwealth Government approximately \$2.2 billion (or 52.5 per cent of services funded under Medicare) (Wilton and Smith 1997).

Some State and Territory Governments provide funding for general practice health care services (for example, the Victoria Government provides education and training services for rural doctors, and the NT employs some doctors to provide general practice services in rural and remote areas). State and Territory Governments are also responsible for registering and licensing GPs in their jurisdiction. Australia had over 29 000 GPs in 1996, up by 5416 (or 22.8 per cent) from the level in 1986 (AIHW 1998b). These doctors operated in approximately 5500 practices across Australia, with each being responsible for approximately 16 000 consultations in the year (Wilton and Smith 1997).

## 4.4 Framework of performance indicators

### Public acute care hospitals

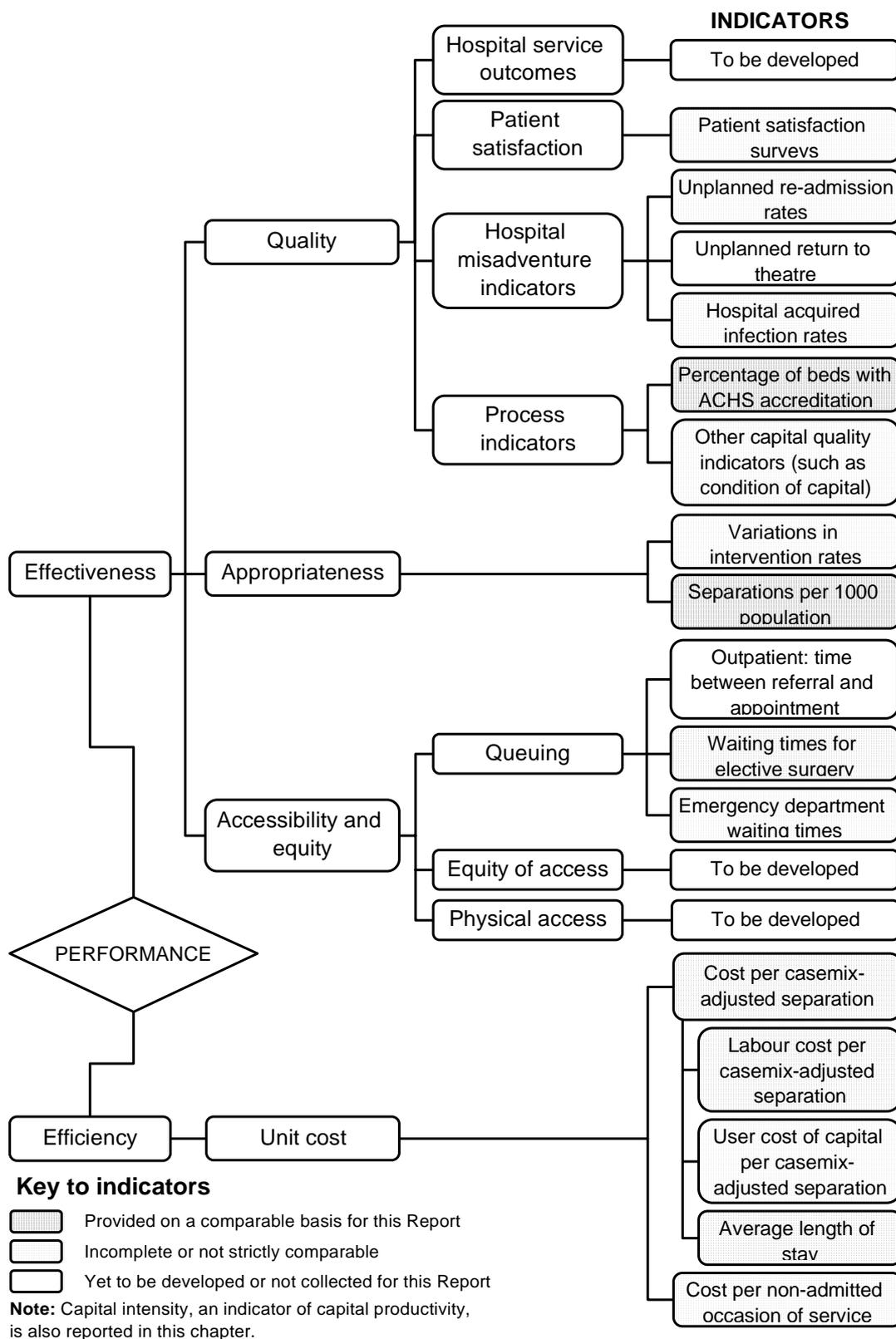
The framework of performance indicators for public acute care hospitals is based on the shared government objective for public acute care hospitals (box 4.5).

**Box 4.6 Objective for public acute care hospitals**

The common government objective for public acute care hospitals is to provide ready access to high quality, cost effective acute and specialist services that are responsive to individual needs.

The framework captures general aspects of the performance of public acute care hospitals in providing health care services, many of which cannot be individually costed (figure 4.4).

Figure 4.5 Performance indicators for public acute care hospitals



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The effectiveness of services provided is reflected in terms of quality (as indicated by patient satisfaction, misadventures and accreditation), appropriateness (as indicated by the total separation rate and the rate for certain procedures) and access. Efficiency indicators include the cost per casemix-adjusted separation, average length of stay and cost per non-admitted occasion of service.

No new indicators were added to the framework for this Report. However, a greater range of data for appropriateness and quality of care indicators was included. Variations across jurisdictions in separation rates for selected procedures, for example, are reported for the first time since the 1995 Report. A greater number of jurisdictions also reported on unplanned re-admission to hospital and hospital-acquired infection rates.

This Report also incorporated time series data to a much greater extent than has been possible in previous years. Time series data were reported for the proportion of beds accredited, unplanned re-admission to hospital, cost per non-admitted occasion of service, and average length of stay.

Unfortunately, it was not possible to present time series data for cost per casemix-adjusted separation (which is the major efficiency indicator for public acute care hospitals) because (a) recent improvements have changed the data presented for all jurisdictions, (b) there have been changes in the types of hospitals included in the collection for NSW, and (c) unqualified neonates (that is, healthy babies) were excluded from the analysis in 1996-97. It is intended that comparisons across time will be possible for future Reports.

## **General practice**

The medical treatment and advice provided by GPs comprise the largest source of primary health care in Australia. Primary health care generally refers to non-institutional health care services. It is often the first point of contact for people seeking health advice, assistance with a health problem and/or support for living with chronic illness or disability. Other examples of primary health include:

- services provided by pharmacists in community pharmacies;
- therapy and treatment services such as counselling, allied health services and community nursing in non-institutional settings or in the home; and
- preventative strategies such as health promotion, early identification, early prevention and information services.

The framework of performance indicators for general practice reflects the primary care objectives for general practitioners (box 4.7).

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**Box 4.8 Objectives for general practice**

General practice aims to promote the health of Australians by:

- acting as a main point of entry to the health care system;
- coordinating and integrating health care services on behalf of clients; and
- providing continuity of care

in a cost-effective manner.

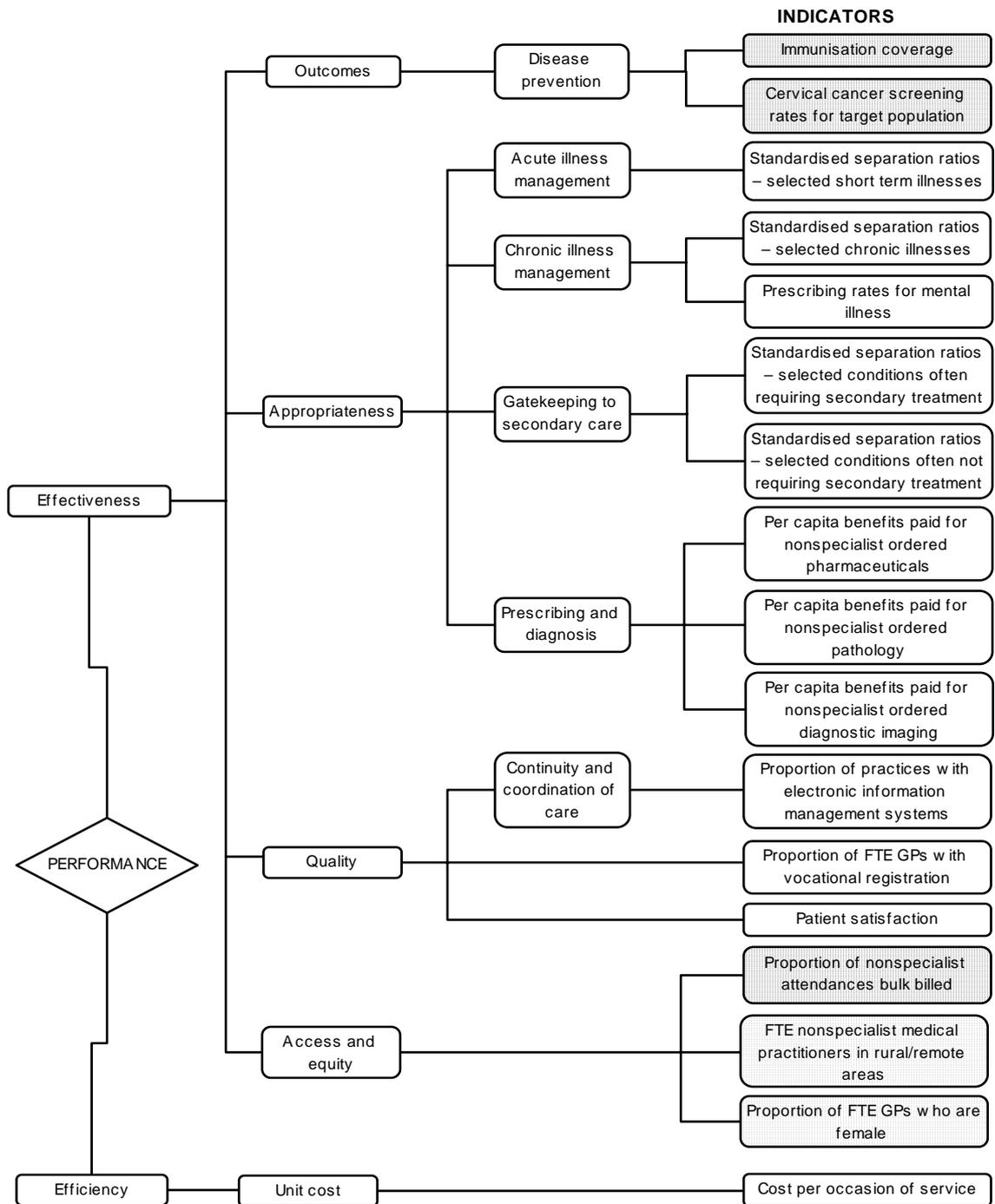
Performance indicators for general practice report the effectiveness and efficiency with which GPs deliver primary health care services (figure 4.6). The framework is based on research conducted in Australia and the United Kingdom to develop performance indicators for primary care aspects of general practice. The framework will change over time as better indicators are developed and as the focus and objectives for general practice change.

Effectiveness indicators relate to four broad categories: outcomes, appropriateness, quality, and access and equity. The outcome indicators focus on disease prevention, particularly immunisation coverage and cervical cancer screening rates.

Appropriateness indicators focus on four aspects: acute illness management; chronic illness management; gatekeeping to secondary care; and prescription and diagnosis. Acute illness management is measured by standardised separation rates for some short term illnesses for which hospital admission is generally avoidable — severe ear/nose/throat infection, cellulitis, kidney/urinary tract infection and gastroenteritis. Separation rates significantly greater than the average for these illnesses may demonstrate issues of care delivery in general practice that need to be further explored.

Two indicators measure GP performance in chronic illness management — prescribing rates for mental illness (which have yet to be defined) and standardised separation rates for some chronic illnesses. People suffering asthma, diabetes and epilepsy sometimes require hospitalisation for acute episodes of illness, but ongoing management of these chronic conditions is a prime responsibility of GPs. High levels of separations for these conditions may indicate the need for improvement in GP management of these patients.

Figure 4.7 Performance indicators for general practice and primary care



**Key to indicators**

- Provided on a comparable basis for this Report
- Incomplete or not strictly comparable
- Yet to be developed or not collected for this Report

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Standardised separation rates for conditions often requiring hospitalisation (cataracts, hip replacement and angiography) and standardised separation rates for conditions often not requiring hospitalisation (insertion of grommets, tonsillectomy and fallopian tube surgery for infertility) are indicators for GP gatekeeping to secondary care activities. Low separation rates for cataracts, hip replacement and angiography may indicate deficiencies in the primary care system. Similarly, high separation rates for insertion of grommets, tonsillectomy and fallopian tube surgery for infertility may indicate inappropriate care by GPs because conditions requiring these treatments often can be managed at the primary care level. High levels of benefits for pharmaceuticals, pathology and diagnostic imaging ordered by GPs may also indicate inappropriate care.

The quality of GPs' services is reflected by the proportion of full time equivalent GPs with vocational registration, and patient satisfaction (yet to be developed). The proportion of practices with electronic information management systems is also included as a quality indicator because it is considered that management systems improve continuity of care (by assisting patient management and communication with other providers). Access and equity is measured by the proportion of nonspecialist attendances that are bulk billed (thereby alleviating any financial barriers to primary health care), the proportion of full time equivalent nonspecialist medical practitioners in rural/remote areas and the proportion of full time equivalent GPs who are female.

Cost per occasion of service is the only suggested efficiency indicator for GP services at this stage.

## **4.5 Future directions**

The key challenges for improving reporting on health delivery include:

- filling gaps in reporting on public acute care hospitals and general practice; and
- extending the coverage of the Review.

### **Filling gaps in reporting**

#### *Emergency department waiting times*

Hospitals in NSW, Victoria and Queensland reported data on emergency department waiting times. However, inconsistencies across jurisdictions mean that comparisons are not yet possible.

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A recent study recommended two emergency department waiting time indicators for national reporting (Whitby *et al.* 1997). The first indicator relates waiting times to the urgency of treatment required (triage category):

- proportion of category 1 patients (those needing resuscitation) seen immediately;
- proportion of category 2 (emergency) patients seen within 10 minutes;
- proportion of category 3 (urgent) patients seen within 30 minutes;
- proportion of category 4 (semi-urgent) patients seen within 60 minutes; and
- proportion of category 5 (non-urgent) patients seen within 120 minutes.

The second indicator is waiting times in emergency department before inpatient admission. Jurisdictions have agreed on data items and definitions for these indicators, and nationally comparable data are expected by July 2000.

### *Quality of care*

All Australian governments and the users of health care services are interested in assessing and improving quality of care. The definition of quality in health care is a source of continuing debate. A recent study defined the term as 'the style of care practised and taught by leaders within the profession' and 'the care needed to achieve the legitimate medical and non-medical goals set by the patient with the assistance of the physician' (Ibrahim *et al.* 1998). No single indicator can measure quality across all providers. An alternative strategy is to identify and report on *components* of quality of care. In future years, this Report will focus on the following two components of quality:

- client satisfaction with services; and
- incident monitoring and reporting (patient safety).

### *Client satisfaction*

Client satisfaction indicators, used to report on the quality of services, emphasise the relationship between the consumer and the service. Satisfaction surveys and complaints mechanisms have been used to gather some information about the quality of care provided in public acute care hospitals.

Information on patient satisfaction is reported for Victoria, WA, Tasmania, the ACT and the NT. A study on quality and outcome indicators stated that:

Patient surveys provide vital information about the acceptability of care delivery, reports of experiences with the processes of care and health status and quality of life, patients' health behaviours and intervention-specific outcomes. In recent years it has

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been established that patients provide accurate and reliable estimates of all these aspects of care — with the only demonstrated limitation being in reports of resource utilisation. (Boyce *et al.* 1997, p. 30)

Indicators of aggregate satisfaction generally reveal high levels of satisfaction with care provided in public acute care hospitals. However, these data offer few insights for policy makers and hospitals on areas requiring improvement.

Following reporting of a statewide survey in Victoria, the Department of Human Services commissioned additional work to derive composite indexes of satisfaction on specific aspects of hospital care, including access and discharge processes, provision of general and treatment information, and complaints mechanisms. The department is tendering to develop a model for ongoing monitoring of patient satisfaction (that provides reliable and comparable information on patient perceptions of their hospital care) for implementation and use within 12 to 18 months. The Report will continue to monitor developments in patient satisfaction and encourage the introduction of nationally comparable patient surveys.

Some information on client perceptions of health care is also available via complaints systems. All States and Territories have independent health complaints bodies that investigate and conciliate complaints and recommend improvements to health care services. Complaints information is reported to parliaments annually, but differences in data definitions prevent comparisons across jurisdictions.

The National Health Complaints Information System Project (funded by the Commonwealth Department of Health and Aged Care) aims to establish a national health complaints information system. Analysis of a standard data set is due to commence in mid-1999. It is anticipated that more data providers will be invited to join the system once protocols and reporting agreements have been established.

### *Incident monitoring and reporting (patient safety)*

Identifying ‘adverse events’ and developing ways to prevent them is another strategy for improving the quality of care provided in public acute care hospitals and for reducing costs. The Quality in Australian Health Care study, for example, examined over 14 000 admissions in 1992 and found that 16.6 per cent of admissions were associated with an adverse event which resulted in a disability or a longer hospital stay for the patient. Fifty-one per cent of the adverse events were considered preventable.

An ‘adverse event’ can be defined as ‘an unintended injury that was caused by medical management and resulted in a measurable disability’, or more broadly as ‘any situation in which an inappropriate decision was made when, at the time, an

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appropriate alternative could have been chosen'. The nature of adverse events can vary from minor complications to serious and life threatening events. Some are caused by an identifiable action by a health care worker, while others result from failure to perform an act that was necessary under the circumstances.

Some jurisdictions are trialing various incident monitoring and reporting systems (box 4.9). As yet, there are no nationally comparable data available because problems (such as accurately defining adverse events and dealing with incomplete medical records) are yet to be resolved. National comparisons based on data from such studies would also require adjustments to account for variations in factors such as complexity (as is done for cost comparisons). However, reliable and nationally comparable adverse events indicators would allow hospitals to review their performance. They would also allow consumers to make more informed decisions about their health care.

#### *Non-admitted patient classification*

The Victorian Department of Human Services has developed an output based funding system for non-admitted patient services to improve funding allocations and incentives for efficiency. The Victorian Ambulatory Classification System was introduced for selected major teaching and/or specialised hospitals in July 1997 and extended to Ballarat Health Services and Bendigo Health Care Group in July 1998.

The activities of outpatient and emergency departments are classified into 45 categories grouped under nine headings: medical; surgical; dental; orthopaedic; psychiatric related; obstetric and gynaecology; paediatrics; emergency medicine; and allied health. The categories relate to major areas of clinical practice and achieve levels of resource homogeneity similar to those for AN-DRGs.

Hospitals receive a variable funding component based on patient encounters, which incorporate the clinic visit and associated ancillary services (pharmacy, pathology and radiology) provided to the patient 30 days either side of the visit. The 30 day window was chosen to capture the majority of services for a particular visit and to enable a reasonable and practical time period for reporting and funding. The funding model also recognises fixed elements and activities such as teaching. Compensation grants were provided to participants in the first two years to smooth the transition.

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#### Box 4.10 **Recent developments in adverse events reporting**

Three major studies on incident monitoring and reporting are underway in Australia.

- Quality Assurance Royal North Shore is an adverse event detection system covering the Royal North Shore, Hornsby, Ryde and Seventh Day Adventist hospitals in Sydney. Clinical nurses review medical records of patients experiencing the following events: unplanned readmission within 14 days of discharge; unplanned transfer to intensive care; unplanned return to operating theatre; caesarean section; length of stay greater than 30 days; and death. These medical records are reviewed against 24 generic criteria, such as hospital-acquired infection and inappropriate drug use. Primary clinicians examine and assess any record exhibiting one or more criteria to confirm that an unexpected event occurred.
- Limited Adverse Events Screening is used at Wimmera Base Hospital and 10 small hospitals in Victoria, Toowoomba Base Hospital (Queensland) and Campbelltown Hospital (NSW). Records staff screen all inpatient medical records against eight general patient outcome criteria that indicate that an adverse event may have occurred. Inpatient records exhibiting one or more criteria are sent to a surveillance committee to confirm that an adverse event has occurred. The committee also determines what action is required to prevent further occurrences. Wimmera Base Hospital recorded an adverse event rate of 0.97 per cent in 1996.
- Australian Incident Monitoring Study was established by the Australian Patient Safety Foundation to record and study incidents that affect patient safety and the quality of services. The system collects information about any incident that could have harmed or did harm someone. The incident does not have to be preventable or involve an error by the health care team. Information about contributory factors, human error, factors minimising adverse events and corrective strategies is collected anonymously on a written form. The system covers all hospitals in SA and the NT, one metropolitan network and four rural consortia in Victoria and may be extended to WA and the ACT.

#### *BEACH survey*

The Bettering the Evaluation and Care of Health (BEACH) program will collect information about why people visit their GP, the health problems that GPs manage, and what types of treatment general practice patients receive. The program aims to:

- provide reliable and valid information about GP–patient encounters;
- assist in determining the needs of GPs and their patients; and
- assess patient based risk factors and their effect on health service activity.

A random sample of 1000 GPs from across Australia will be surveyed each year about 100 consecutive consultations. The survey will request information on GP characteristics (such as age, sex, years in general practice and practice size); patient

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characteristics (age, sex, aboriginality, ethnicity and whether a new patient at the practice); patient reasons for the encounter; whether the problem was work related; management action taken (such as drugs prescribed, counselling, referral to a specialist and admission to a hospital); and population risk factors (such as smoking status, alcohol consumption and exercise level).

Data collection for the survey began in April 1998 and the first reports are expected to be published during 1999. Therefore, more comprehensive data on the activities of GPs may be available for the 2000 Report.

### **Extending the coverage of the Review**

A longer term goal of the Steering Committee is to include a framework for community health services, similar to that for public acute care hospitals and general practice. Community health services provide health promotion and early detection services, assess health problems and provide care. These services are diverse by nature, incorporating a range of service providers (dietitians, community nurses, psychologists and so on). This multidisciplinary approach makes it difficult to define the scope of community health services accurately and to attribute health outcomes to particular providers.

Various projects — such as the Community Health Information Model and the National Codeset Project: Community Based Health Services — have been established to describe the activities of community health. Building on this work, the Commonwealth Department of Health and Aged Care let a consultancy in 1998 that aimed to:

- describe community health components and their interrelationships;
- describe current work on measuring the performance of community health;
- describe related work undertaken to develop datasets;
- assess the feasibility of developing and reporting performance indicators; and
- develop a work plan.

The final report of the consultancy is due in March 1999.

### **Improving the treatment of superannuation**

A study by the Steering Committee of the treatment of superannuation found differences between reported costs and estimated true costs for a range of services including public hospitals. The Steering Committee intends to work with the health sector to introduce a more consistent treatment of superannuation costs, in line with

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the recommendations in *Superannuation in the Costing of Government Services* (SCRCSSP 1998b). This should improve the comparability and accuracy of unit cost information in future Reports.

## 4.6 Key performance indicator results

### Public acute care hospitals

As discussed in section 4.7, public acute care hospitals provide a range of services to admitted patients, some of which may be non-acute services such as rehabilitation and palliative care. The extent to which these non-acute treatments can be identified and excluded from the analysis differs across jurisdictions.

Non-acute services (particularly, psychiatric services delivered by public acute care hospitals) were excluded from the data provided by Victoria. However, data for some other jurisdictions include some psychiatric and other non-acute services. This affects comparisons of performance with other jurisdictions for the following indicators:

- total separations per 1000 people;
- recurrent cost per casemix-adjusted separation; and
- average length of stay.

#### *Quality — process indicators*

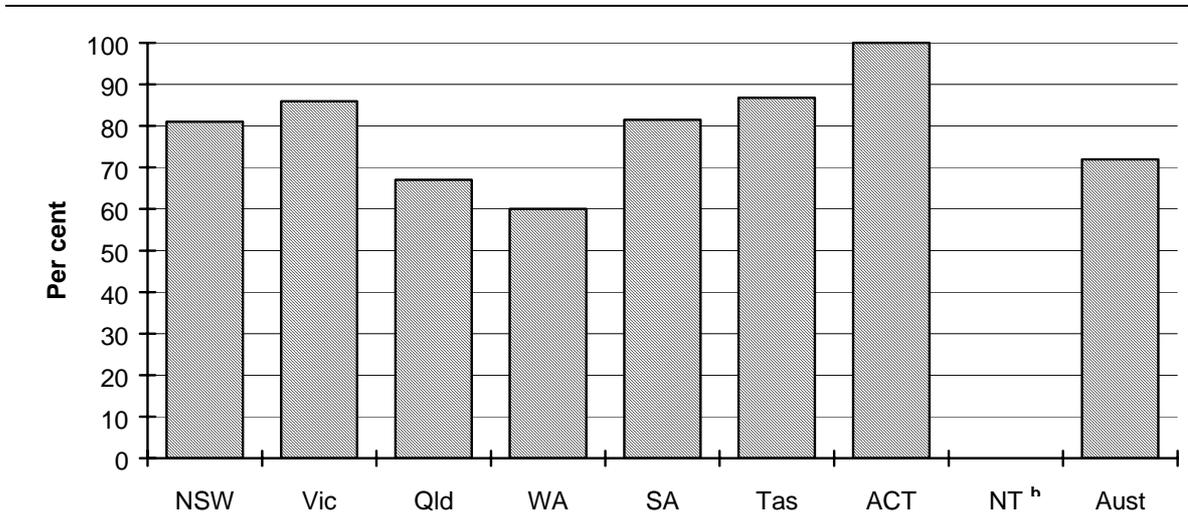
#### *ACHS accreditation*

Accreditation by the Australian Council on Healthcare Standards (ACHS) is achieved by those hospitals that demonstrate continual adherence to quality improvement standards. Although accreditation is not limited to the ACHS process, ACHS accreditation is one of the few nationally available indicators of hospital quality. However, it is an imperfect indicator of quality because hospital accreditation is voluntary. Further, the costs of preparing a hospital for accreditation is significant and therefore a low level of accreditation at the jurisdiction level may reflect a low participation rate rather than poor quality. The voluntary nature of the accreditation process also limits comparison among jurisdictions.

At 30 June 1997, 43 per cent of public hospitals (316) were ACHS accredited, accounting for 72 per cent of public hospital beds. Larger hospitals have been more active in seeking ACHS accreditation. Across jurisdictions, the percentage of

accredited public hospital beds ranged from 0 per cent in the NT to 100 per cent in the ACT (figure 4.8).

Figure 4.9 Proportion of public beds accredited by the ACHS<sup>a</sup>



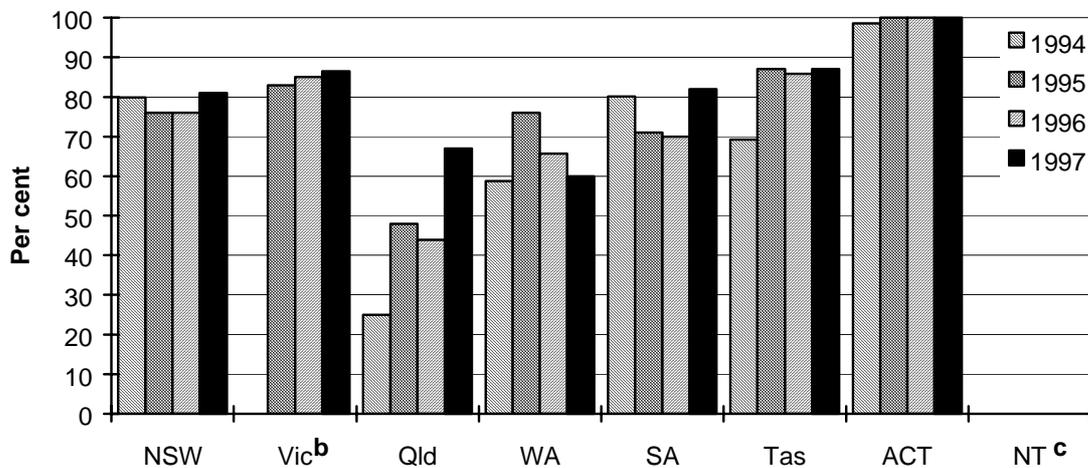
<sup>a</sup> As at 30 June 1997. <sup>b</sup> NT is working towards accreditation for its public hospital beds.

Data source: table 4A.8.

The trends in the proportion of public hospitals beds accredited by the ACHS differed between jurisdictions over the four years to 1997, although the proportion of public hospital beds with ACHS accreditation increased in all jurisdictions for which data were available between 1994 and 1997 (figure 4.10).

Variations in accreditation trends are likely to diminish for a number of reasons. First, more jurisdictions are opting to competitively tender and contract hospital services to non-government operator (with compulsory accreditation as a feature of all contracts) (SCRCSSP 1998b). Second, some jurisdictions (such as Victoria) are moving towards mandatory accreditation for all public acute care hospitals, which may prompt changes in the manner of reporting accreditation data.

Figure 4.11 Proportion of public hospital beds accredited by the ACHS — time series<sup>a</sup>



<sup>a</sup> Accreditation as at 30 June for each year. <sup>b</sup> Data were not available for 1994. <sup>c</sup> NT is working towards accreditation for its public hospital beds.

Data source: table 4A.8.

## Quality — patient satisfaction

### Patient satisfaction results

Agreed definitions across jurisdictions do not yet exist for this indicator. The timing, scope and sample size of the patient satisfaction surveys also differ, so it is not possible to compare results across jurisdictions.

Jurisdictions reported the following results:

- in Victoria, 96 per cent of respondents to a survey of 9918 inpatients in 1997 reported to be overall either ‘very satisfied’ or ‘fairly satisfied’ (as opposed to ‘satisfied’ or ‘not too satisfied’) with their hospital. Ninety-six per cent of respondents would recommend the hospital to their family or friends. Eighty-seven per cent of patients rated the quality of care as either ‘excellent’ or ‘very good’, and a further 10 per cent rated it as ‘good’ (table 4A.21);
- in WA, the overall indicator of satisfaction (a mean score out of 100) was 79.96 for all tertiary metropolitan hospitals, 82.40 for all secondary metropolitan hospitals, and 84.60 for all rural secondary hospitals (table 4A.26);
- in Tasmania, a small survey (172 responses) of patients attending one hospital in 1996 found that 94 per cent of surveyed patients rated the quality of care as ‘excellent’, ‘very good’ or ‘good’. Ninety per cent of surveyed patients rated the

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outcome of their hospital stay as ‘excellent’, ‘very good’ or ‘good’. The survey also investigated patient satisfaction with ‘care, treatment and communication, ‘staff’ (in terms of skills and information and communication) and ‘comfort/meals’. A substantial majority (at least 70 per cent) were satisfied (rating services as ‘excellent’, ‘very good’ or ‘good’) with all surveyed aspects of their hospital experience (table 4A.35);

- in the ACT, patients reported a satisfaction rating of 4 in 1996-97, where patient satisfaction is calculated on an index of 5.00 (1.00 = unsatisfied; 5.00 = fully satisfied) (table 4A.36); and
- in the NT, the overall satisfaction rate was 79.3 per cent (table 4A.38).

#### *Quality – hospital misadventure indicators*

This section reports data collected on unplanned re-admission rates and hospital-acquired infection rates. These indicators were evaluated in a recent research project (box 4.11). The Steering Committee acknowledges the limitations of the indicators and agrees with the project’s recommendation for improving indicators in the future. Until such data are available, the Steering Committee has decided to continue to report collected data on these indicators at the jurisdiction level, on the understanding that doing so is not worse than reporting nothing at all. A summary of data presented in this Report and the 1995 Report is presented in table 4.2.

The data reported below are not comparable and therefore are not used to make comparisons across jurisdictions. Care should be taken in interpreting these data.

#### *Unplanned re-admission rates*

The unplanned re-admission rate is the number of emergency patients re-admitted within 28 days of separation without a plan or intention for re-admission, divided by the total number of admissions excluding deaths. This definition is applied differently in each jurisdiction, so it is not possible to compare data across jurisdictions.

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#### Box 4.12 The Pilot Hospital-Wide Clinical Indicators Project

The Commonwealth Department of Health and Family Services funded the Pilot Hospital-Wide Clinical Indicators Project as part of the National Hospital Outcomes Program. The project investigated the link between the selected clinical indicators (used in this Report) and an overall assessment of all aspects of the quality of clinical care, determined by a panel of medical experts. The indicators evaluated were:

- rate of unplanned hospital readmission within 28 days of separation;
- rate of hospital-acquired bacteraemia;
- rate of post-operative wound infection following clean and contaminated surgery; and
- rate of unplanned return to an operating room.

The last indicator could not be extracted from available databases easily, so was not included in the project's more detailed analysis.

The project set a high standard for each indicator to meet, by requiring them to accurately reflect hospital-wide medical care. The final report concluded that there was a clinically weak and statistically insignificant relationship between the indicators and the overall assessment of quality of care, and therefore that the indicators were unsuited as national performance measures of hospital quality. That is, the indicators were not validated as measures of *hospital-wide* care.

But questions remain about whether the indicators reflect the quality of a more limited aspect of care — for example, do unplanned re-admissions reflect discharge planning procedures? Do wound infection rates reflect the standards of wound care during and immediately after surgery?

The study recommended that 'there is a strong rationale for individual institutions to continue to monitor these indicators as part of a quality improvement program' (Ibrahim *et al.* 1998, p. xii). The study urges caution in using these indicators for benchmarking purposes, but suggests that the indicators may be useful for identifying outliers or comparing the performance of hospitals with similar patient mix, rather than making close comparisons. The final report concludes that '... (a) low incidence of surgical wound infection is highly desirable ... wound infection rates should continue to be monitored .... Institutions whose rates are very high compared with the average should seek an explanation for this.' (Ibrahim *et al.* 1998, p. 43)

The project identified the lack of appropriate and widely recognised definitions, and the absence of structured data collections, as significant shortcomings of the indicators. The final report recommended that future indicators should be ideally constructed from planned collections of clinical data, and clinical data collection within hospitals should be improved.

Sources: Ibrahim *et al.* (1998); personal communication, Professor John McNeil, Head, Department of Epidemiology and Preventative Medicine, Monash Medical School.

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Jurisdictions reported the following results:

- in Victoria, the unplanned re-admission rate (which included patients re-admitted for reasons unrelated to the previous admission) was 10.3 per cent in 1996-97 compared to 10 per cent in 1995-96 (table 4A.19);
- in WA, the unplanned emergency re-admission rate was based on a survey of four metropolitan teaching hospitals, seven metropolitan nonteaching hospitals and 29 nonmetropolitan nonteaching hospitals. Unplanned re-admission rates for these hospitals were 2.12 per cent, 2.56 per cent and 3.24 per cent respectively in 1996-97 (table 4A.27);
- in SA, the unplanned re-admission rate was 4.57 per cent for all hospitals in 1997, compared with 6.4 per cent for metropolitan teaching hospitals, 6.8 per cent for other metropolitan hospitals and 7.8 per cent for country hospitals in 1995-96 (table 4A.31);
- in Tasmania, the unplanned re-admission rate across all hospitals was 1.01 per cent in 1996-97 (table 4A.33);
- in the ACT, the unplanned re-admission rate was 2.72 per cent for all hospitals in 1996-97 compared with 4.2 per cent in 1995-96 (table 4A.36); and
- in the NT, the unplanned re-admission rate was 4.04 per cent for the metropolitan teaching hospital in 1996-97 (table 4A.38).

### *Hospital-acquired infection rates*

There are three measures of hospital-acquired infection rates. The rate of post-operative wound infection is the number of patients with evidence of wound infection on or after the fifth post-operative day following clean (or contaminated) surgery, divided by the number of patients undergoing clean (or contaminated) surgery with a post-operative stay of at least five days. The rate of hospital-acquired bacteraemia is the number of patients who acquired bacteraemia during a hospital stay divided by the number of separations with a length of stay equal to or greater than two days. Again, these data are applied differently across jurisdictions, significantly reducing the value of comparisons.

Jurisdictions reported the following results.

- *Post-operative wound infection following clean surgery:*
  - in WA, the rates for post-operative wound infections following clean surgery were based on a survey of two metropolitan teaching hospitals, six metropolitan nonteaching hospitals and 12 nonmetropolitan nonteaching hospitals. The rates for these hospitals were 2.02 per cent (for clean and

- 
- contaminated wounds combined), 0.36 per cent and 3.06 per cent respectively in 1996-97 (table 4A.27);
- in SA, the rate was 1.46 per cent across all hospitals in 1997 (table 4A.31);
  - in the ACT, the rate was 0.97 per cent for all hospitals in 1996-97, compared with 0.8 per cent in 1995-96 (table 4A.36); and
  - in the NT, the rate for the metropolitan teaching hospital was 3.3 per cent in 1996-97 (table 4A.38).
- *Post-operative wound infection following contaminated surgery:*
    - in WA, the rate was 2.51 per cent in six metropolitan nonteaching hospitals and 4.72 per cent in seven nonmetropolitan nonteaching hospitals in 1996-97 (table 4A.27);
    - in SA, the rate was 2.68 per cent for all hospitals in 1997 (table 4A.31);
    - in the ACT, the rate was 0.63 per cent for all hospitals in 1996-97 compared with 0.2 per cent in 1995-96 (table 4A.36); and
    - in the NT, the rate for the metropolitan teaching hospital was 6.45 per cent in 1996-97 (table 4A.38);
  - *The rate of hospital-acquired bacteraemia:*
    - in WA, the rate was 0.38 per cent in five metropolitan teaching hospitals, 0.93 per cent in five metropolitan nonteaching hospitals and 0.38 per cent in 32 nonmetropolitan nonteaching hospitals in 1996-97 (table 4A.27);
    - in SA, the rate was 0.27 per cent for all hospitals in 1996-97 (table 4A.31);
    - in Tasmania, the rate was 0.3 per cent for all hospitals in 1996-97 (table 4A.33);
    - in the ACT, the rate was 0.55 per cent for all hospitals in 1996-97 (table 4A.36); and
    - in the NT, the rate was 0.5 per cent for the metropolitan teaching hospital in 1996-97 (table 4A.38).

Table 4.2 **Quality of care data provided by jurisdictions for public acute care hospitals**

Year of Report:	Patient satisfaction		Unplanned re-admission to hospital		Unplanned return to operating room		Hospital-acquired infection rates	
	1995	1999	1995	1999	1995	1999	1995	1999
NSW	✓	×	×	×	×	×	×	×
Vic	✓	✓	✓	✓	×	×	×	×
Qld	✓	×	×	×	×	×	×	×
WA	✓	✓	×	✓	×	×	×	✓
SA	×	×	✓	✓	×	×	×	✓
Tas	×	✓	✓	✓	✓	×	✓	✓
ACT	✓	✓	✓	✓	✓	×	✓	✓
NT	×	✓	✓	✓	✓	×	✓	✓

## Access

### *Waiting times for elective surgery*

The proportion of elective surgery patients waiting longer than the accepted standards is one nationally recognised indicator of access to public acute care hospitals (HDWA 1998). The *Report on Government Service Provision 1997* contained data on elective surgery waiting times for public acute care hospitals for all jurisdictions. However, no data have been published since then. Some information is available for Victoria, WA, Tasmania, the ACT and the NT, but comparisons across jurisdictions are hindered by significant differences in the scope of the collections (including the number of hospitals) and the definitions adopted. The other jurisdictions collected elective surgery waiting time data, but they have indicated that they are unwilling to release it until comparable data are available for all jurisdictions. However, the Steering Committee notes that progress has been made in other areas of the Report by publishing the best available jurisdictional data based on different definitions, with the appropriate explanations and caveats, until more comparable national data are available.

Jurisdictions reported the following results:

- WA publishes data on the proportion of category 1 patients (that is, patients for whom surgery is desirable within 30 days) waiting longer than 30 days for surgery in public tertiary hospitals, using the national definitions where patients remain on the waiting list until admission. Patients who have been notified of a scheduled admission date (that is, booked patients) are included in these lists.

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- The share of category 1 patients waiting longer than 30 days was highest for gynaecology (100 per cent) in 1993. However, this related to the one patient on the list having to wait longer than 30 days. The shares for other specialties ranged from 86 per cent for ophthalmology to 33 per cent for cardiothoracic and other surgery. By 1997, the proportions of category 1 patients waiting for longer than the desirable period ranged from 0 per cent for gynaecology to 43 per cent for ear, nose and throat procedures (table 4A.29).
  - Tasmanian data relate to the number of category 1 (defined above) patients waiting longer than the desirable period for surgery.
    - At June 1997, 270 category 1 patients were on the waiting list for elective surgery. Overall, 112 (or 42 per cent) of category 1 patients waited longer than 30 days for treatment at June 1997 (table 4A.34).
  - ACT data relate to the number of category 1 and category 2 (that is, those for whom surgery is desirable within 90 days) patients waiting longer than desirable.
    - Overall, six category 1 patients (or 5 per cent) waited longer than 30 days for treatment at June 1997. Most specialties had no patients waiting longer than 30 days for surgery. For those that did, the proportion of patients overdue for surgery was highest for plastic surgery (14 per cent) and lowest for other surgery (2 per cent). However, this related to one patient on each list having to wait longer than 30 days. Overall, the number of overdue category 1 patients fell by 21 (or 78 per cent) between June 1996 and June 1997.
    - There were 583 category 2 patients waiting longer than 90 days in the ACT in at June 1997 (or 42 per cent). The specialty with the largest proportion of category 2 patients overdue for treatment was ophthalmology (65 per cent), while ear, nose and throat had the lowest proportion (13 per cent). Overall, the number of category 2 patients waiting longer than 90 days fell by 101 (or 14.8 per cent) between June 1996 and June 1997 (table 4A.37).
  - NT data relate to the number of category 1 and category 2 patients waiting longer than the desirable period for surgery.
    - Of the 92 category 1 patients waiting at 30 June 1998 census, 37 (or 40 per cent) had been waiting for over 30 days. The proportion of patients overdue for surgery was highest for urology, plastic and reconstructive surgery, and ophthalmology (100 per cent). However, these specialties only had one or two patients. The proportion for the other specialties ranged from 33 per cent for obstetrics and gynaecology, and ear, nose and throat surgery to 67 per cent for orthopaedic surgery. The proportion of category 1 overdue patients fell from 66 per cent (or 68 of 103) to 40 per cent (or 37 of 92) between the census dates of 30 June 1996 and 30 June 1998.

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- Of the 342 category 2 patients waiting at 30 June 1998 census, 121 (or 35 per cent) had been waiting for 90 days or more. The specialty with the largest proportion of category 2 patients overdue for treatment was urology (100 per cent), although this related to only one patient. Five of the six patients waiting for plastic and reconstructive surgery waited longer than 90 days, while 26 per cent third of obstetrics and gynaecology patients were overdue for treatment. The proportion of category 2 patients overdue fell from 52 per cent (or 233 of 446) to 35 per cent (or 121 of 342) between the census dates of 30 June 1996 and 30 June 1998 (table 4A.39).
  - Victoria uses a significantly different definition to calculate the number of elective surgery patients on waiting lists. Victoria classes patients waiting for elective surgery as booked patients and waiting list patients. Patients may be listed as booked for a maximum of six weeks. Patients who have been booked for longer than six weeks are reclassified as waiting list patients. Victoria also publishes the number of elective surgery patients waiting longer than desirable. Time waiting includes time on the waiting list and/or the booking list.
    - No category 1 patients waited longer than 30 days at June 1997. At June 1997, 179 category 1 patients were on the waiting list for elective surgery.
    - Over 2600 category 2 patients waited more than 90 days for surgery in Victorian hospitals at June 1997. The number fell by 840 (or 24 per cent) between September 1996 and June 1997 (table 4A.22).

While these data provide some information on access, public acute hospital services are provided on the basis of clinical need and elective surgery is only one aspect of the care they provide. Therefore, assessment of access would not be solely based on the waiting lists for elective surgery because these do not capture the needs of patients requiring services for acute and chronic medical conditions (Hall 1999).

### *Emergency department waiting times*

This indicator measures the proportion of patients treated within the time limits set according to the urgency of treatment required (described in section 4.8). Jurisdictions reported the following results for 1996-97:

- in NSW, 92 per cent of category 1 patients, 73 per cent of category 2 patients, 68 per cent of category 3 patients, 73 per cent of category 4 patients, and 93 per cent of category 5 patients were treated on time (table 4A.17);
- in Victoria, in 20 of the largest hospitals, the proportions of patients treated on time were: 100 per cent of category 1 patients; 78 per cent of category 2 patients; and 76 per cent of category 3 patients (table 4A.20);

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- in Queensland, the proportions of patients treated on time for two metropolitan hospitals were: 98 per cent of category 1 patients; 74 per cent of category 2 patients; and 74 per cent of category 3 patients (table 4A.24); and
  - in WA, the proportions of patients treated on time in two metropolitan teaching hospitals were: 100 per cent of category 1 patients; 96 per cent of category 2 patients; 86 per cent of category 3 patients; 79 per cent of category 4 patients; and 88 per cent of category 5 patients. The proportions ranged from 73 per cent of category 2 patients to 94 per cent of category 5 patients for three metropolitan nonteaching hospitals and from 82 per cent of category 2 patients to 92 per cent of category 5 patients in 39 nonmetropolitan nonteaching hospitals (table 4A.28).

### *Appropriateness*

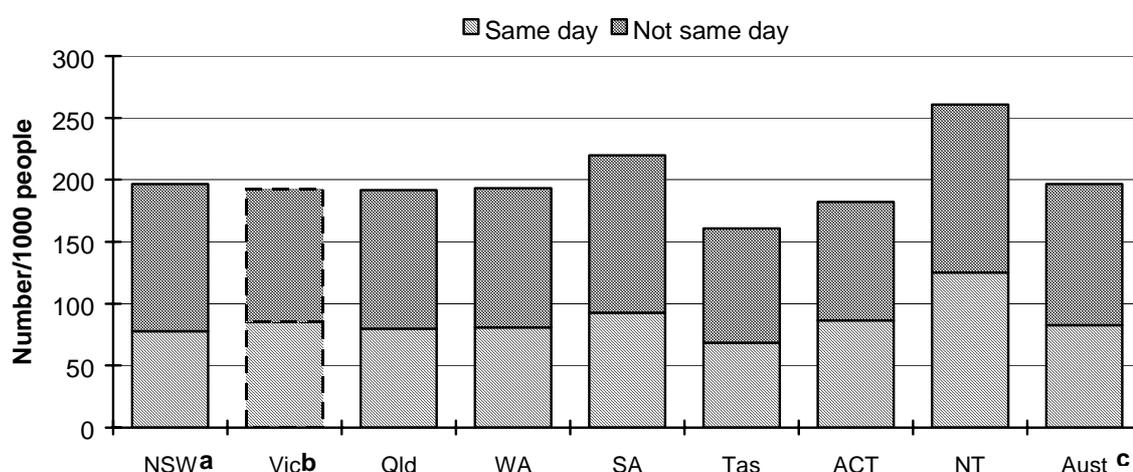
Two indicators are presented for the appropriateness of care provided by public acute care hospitals: the number of separations per 1000 people (also known as the separation rate) and separation rates for certain procedures. However, both indicators are problematic because the appropriate mix or level is unclear (for example, a relatively high level may reflect better access *or* overservicing). Therefore, comparisons across jurisdictions are most useful for highlighting differences that may require more detailed analysis.

### *Total separation rate*

There were approximately 3.6 million separations from Australian public acute care hospitals in 1996-97 (table 4A.5). This equated to 196.6 separations per 1000 persons (figure 4.12). Across jurisdictions, this figure ranged from 160.8 in Tasmania to 260.6 in the NT. The data reported for Victoria excluded mental health and other non-acute services (box 4.2). The data supplied indicate that there were 192.5 separations per 1000 persons in Victoria when these services were excluded, compared with 196.1 separations per 1000 persons when they were included.

Nationally 82.5 of a total of 196.6 separations per 1000 persons were same day separations in 1996-97. Tasmania had the lowest rate of same day separations (68.5) and the NT had the highest rate (125.1) (figure 4.13).

Figure 4.14 Separations from public acute care hospitals, 1996-97



<sup>a</sup> Data included separations from Department of Veterans' Affairs hospitals. <sup>b</sup> The data for Victoria were adjusted to exclude psychiatric and non-acute services from the public hospital data published by the AIHW (box 4.2). The number of separations per 1000 persons (as published by the AIHW) was 196.1; there were 88.0 same day separations per 1000 people. <sup>c</sup> Based on data for Victoria as published in *Australian Hospital Statistics* (AIHW 1998a).

Data source: table 4A.9.

### Separation rates for certain procedures

Separation rates for certain procedures are also used to indicate the appropriateness of public hospital care. The procedures were selected for their frequency and (given the availability of alternative treatments) for being elective and discretionary procedures.

Nationally, endoscopy had the highest number of separations — at 24.0 per 1000 persons (standardised for age and sex differences across jurisdictions) — among the identified procedures in 1996-97 (table 4.3). It was followed by lens insertion and caesarean section (5.05 and 2.79 separations per 1000 persons respectively). Separation rates for all procedures varied across jurisdictions.

The number of separations per 1000 persons differed most widely for:

- endoscopy (13.4 in the ACT to 25.3 in Victoria);
- lens insertion (2.45 in the ACT to 6.23 in Queensland); and
- tonsillectomy (0.48 in the NT to 2.49 in SA)

Some of the selected procedures, such as angioplasty and coronary artery bypass graft, are alternative treatment options for people diagnosed with similar conditions. Significant differences in the separation rates for these procedures may highlight

differences in treatment methods across jurisdictions. NSW, WA and the ACT recorded differences in separation rates for these procedures, whereas there were no significant differences in Victoria, SA, Tasmania and the NT.

**Table 4.4 Separations per 1000 persons, all hospitals, by selected procedure, 1996-97<sup>a</sup>**

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Aust</i>
Angioplasty	0.67	0.90	0.47	0.77	0.87	0.81	0.47	0.54	0.73
Coronary artery bypass graft	1.03	0.90	0.90	0.53	0.88	0.78	0.79	0.53	0.91
Hip replacement	0.94	1.09	0.87	1.02	1.09	1.36	1.21	0.38	1.00
Appendectomy	1.39	1.53	1.38	1.50	1.34	1.55	1.17	0.85	1.43
Hysterectomy	1.76	1.82	1.81	1.84	2.26	2.31	1.94	1.17	1.84
Tonsillectomy	1.60	2.16	1.87	1.81	2.49	1.32	1.65	0.48	1.86
Cholecystectomy	2.24	2.19	2.22	1.78	2.42	2.09	2.09	1.39	2.18
Caesarean section	2.65	2.72	3.05	2.70	3.19	3.03	2.54	2.42	2.79
Lens insertion	5.10	4.91	6.23	4.94	3.84	3.79	2.45	4.30	5.05
Endoscopy	25.2	25.3	25.1	20.6	20.0	22.2	13.4	13.6	24.0

<sup>a</sup> Rates standardised for age and sex to the Australian population at 30 June 1991.

Source: table 4A.10.

### *Efficiency*

Care should be taken when comparing the following indicators across jurisdictions. Differences in the indicators may be partly the result of different reporting and counting rules in producing financial data or treating various expenditure items (for example, superannuation). Further, there are differences in the extent to which jurisdictions included psychiatric and other non-acute services provided in public acute care hospitals (box 4.2).

One proxy indicator of efficiency is government inputs per unit of output (unit cost). Another indicator is average length of stay.

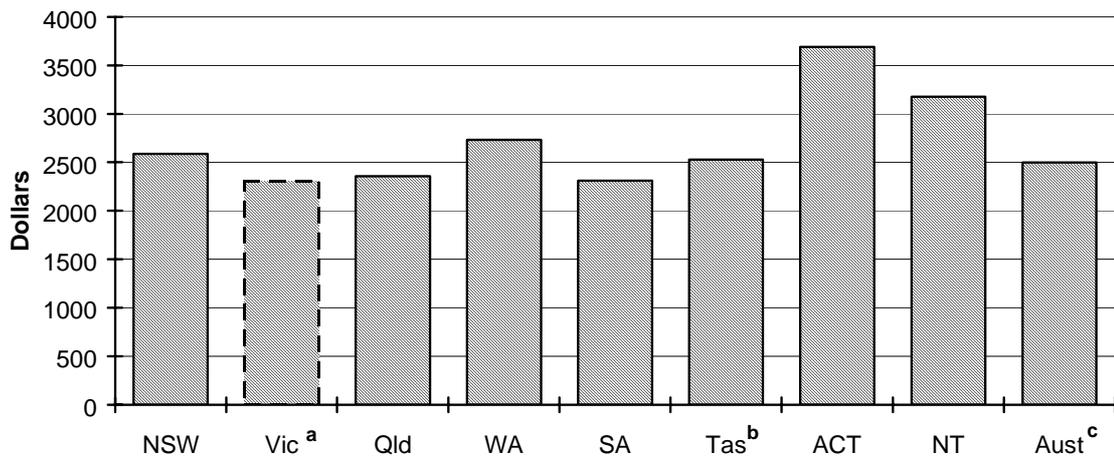
### *Recurrent costs per casemix-adjusted separation*

As discussed in section 4.2, improvements to the data provided for all jurisdictions mean that comparisons over time of recurrent cost per casemix-adjusted separation should be treated with caution. This section presents data for 1996-97 only.

Recurrent cost per casemix-adjusted separation is an indicator of hospitals' cost performance. This indicator measures the average cost of providing care for an admitted patient, adjusted for the relative complexity of the mix of patients' clinical conditions and of the hospital services provided (AIHW 1998a).

The estimated cost per casemix-adjusted separation for Victoria was \$2304. If Victoria's mainstreamed psychiatric and other non-acute services were included, then the cost per casemix-adjusted separation for that jurisdiction was \$2353 (see Box 4.2 for a discussion of the Victorian data). Estimates for the other jurisdictions ranged from \$2309 in SA to \$3689 in the ACT (figure 4.15).

Figure 4.16 **Recurrent cost per casemix-adjusted separation for public acute care hospitals, 1996-97**



<sup>a</sup> The data for Victoria were adjusted to exclude psychiatric and non-acute services from the public hospital data published by the AIHW (box 4.2). The cost per casemix-adjusted separation for Victoria (as supplied by the AIHW) was \$2353. <sup>b</sup> Tasmania is the only jurisdiction that collects payroll tax from its public acute care hospitals. To improve comparability, payroll tax (estimated by the Tasmanian Department of Health and Human Services to be \$133 per casemix-adjusted separation) was subtracted from the cost per casemix-adjusted separation estimate supplied by the AIHW (\$2660). <sup>c</sup> Based on data for Victoria and Tasmania as published in *Australian Hospital Statistics* (AIHW 1998a).

Data source: table 4A.11.

A number of bodies, including the Steering Committee, have been seeking to improve the comparability of data. However, some anomalies remain. The superannuation expense for 1996-97 for WA and the NT was estimated using the average for other jurisdictions. Subsequent research by the Steering Committee suggests that this may produce a reasonable estimate for WA but understates this expense for the NT (SCRCSSP 1998b, p. 14).

#### *User cost of capital per casemix-adjusted separation*

NSW, Victoria, Queensland, SA, Tasmania and the ACT provided information on the user cost of capital per casemix-adjusted separation (a measure of capital use) for buildings and equipment. However, the asset valuation data used were only

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indicative and should not be compared across jurisdictions. Jurisdictions reported the following results for 1996-97:

- in NSW, user cost of capital was \$243 for buildings and \$105 for equipment;
- in Queensland, the cost was \$2118 for buildings and \$108 for equipment;
- in WA, the cost was \$799 for buildings and \$171 for equipment;
- in SA, the cost for metropolitan hospitals was \$386 for buildings and \$189 for equipment;
- in Tasmania, the cost was \$244 for buildings and \$115 for equipment; and
- in the ACT, the cost was \$608 for buildings and \$236 for equipment (table 4A.12).

#### *Cost per non-admitted occasion of service*

The cost per non-admitted occasion of service is the proportion of expenditure allocated to patients who were not admitted, divided by the total number of non-admitted patient occasions of service.

Jurisdictions reported the following results.

- in NSW, the cost per non-admitted patient occasion of service was \$64 for emergency services, \$76 for primary and community based services and \$83 for outpatient services in 1996-97. Costs for these services in 1995-96 were \$59, \$54 and \$70 respectively (table 4A.18);
- in Queensland, the cost of treatment per non-admitted occasion of service in 1996-97 ranged from \$49 in nonteaching hospitals to \$88 in metropolitan hospitals. Similar costs were recorded in 1995-96 (table 4A.25);
- in WA, the cost per non-admitted occasion of service was \$55 in metropolitan nonteaching hospitals and \$70 in nonmetropolitan nonteaching hospitals, rising to \$118 in teaching hospitals. The cost per admitted occasion of service for some nonteaching hospitals included emergency department costs (table 4A.30);
- in SA, the cost per non-admitted occasion of service for metropolitan hospitals was \$73 in 1996-97, compared with \$71 in 1995-96. Costs in the latest year ranged from \$42 for surgical services to \$134 for accident and emergency services. The cost per non-admitted occasion of service for country hospitals was \$24 in 1996-97 (table 4A.32); and
- in the NT, the cost per non-admitted occasion of service for the metropolitan teaching hospital was set at \$70 in 1996-97 (table 4A.38).

Victoria collects data on the basis of cost per encounter (which includes the clinic visit and all ancillary services provided within a 30 day period either side of the clinic visit). The average cost per encounter was \$104 (based on 12 months activity and cost data from seven major hospitals) in 1996-97. This compared with an average cost per encounter of \$105 in 1995-96 (based on six months activity and cost data from eight hospitals) (table 4A.23).

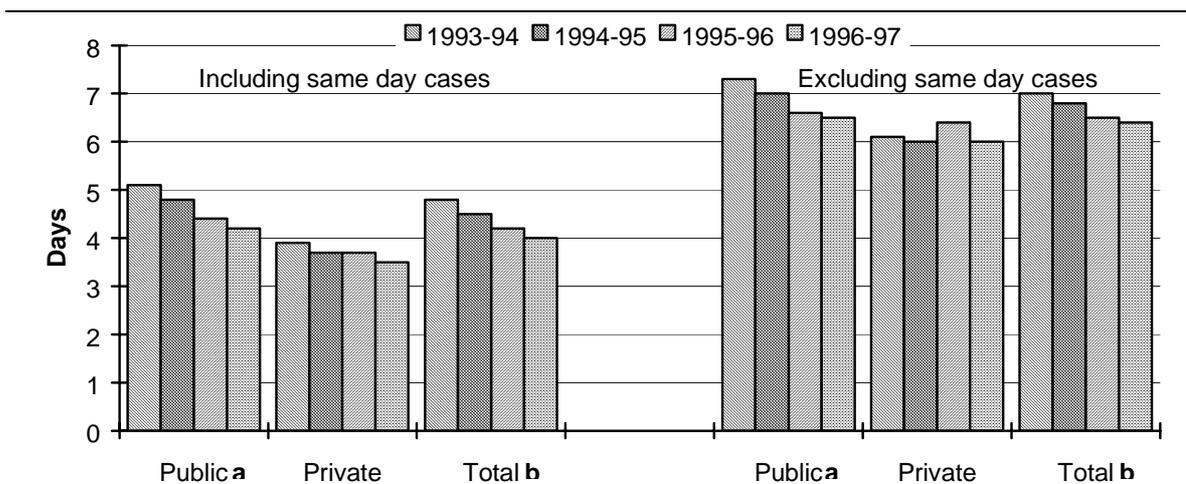
### *Average length of stay*

The average length of stay has a significant effect on the costs of treatment for admitted hospital patients. In particular, differences across jurisdictions in the proportions of same day separations for some AN-DRGs can affect costs.

The average length of stay (including same day cases) for public acute care hospitals was 4.2 days in 1996-97; this was higher than that for private hospitals (3.5 days) and for all hospitals (excluding public psychiatric hospitals) (4.0 days). Average length of stay declined for public acute care, private and all hospitals between 1993-94 and 1996-97: down from 5.1 days, 3.9 days and 4.8 days respectively.

Excluding same day cases, the average length of stay in 1996-97 remained greater in public acute care hospitals (6.5 days) than in private hospitals (6.0 days) and all hospitals (6.4 days). The average length of stay for public acute care hospitals and private hospitals fell steadily between 1993-94 and 1996-97, although not markedly in the most recent year (only declining from 6.5 days to 6.4 days) (figure 4.17).

**Figure 4.18 Average length of stay, public acute care and private hospitals**



**a** 'Public' refers to public acute care hospitals. **b** 'Total' refers to public acute care and private hospitals only.

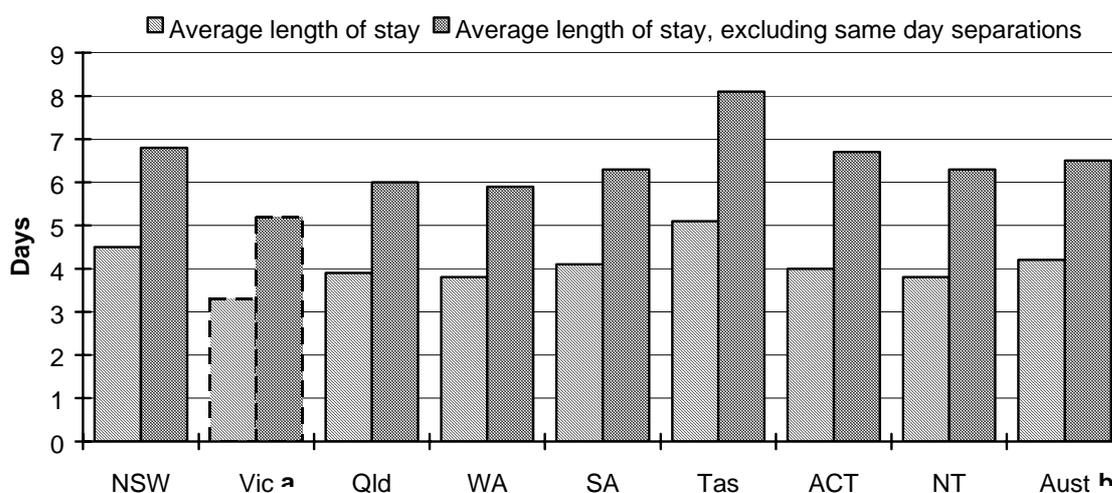
Data source: table 4A.13.

The longer average length of stay in public acute care hospitals than in private hospitals reflects the tendency for public hospitals to treat more difficult and chronic conditions (which tend to require a longer average length of stay).

Tasmania reported the longest average length of stay for public acute hospital treatment in 1996-97 — 5.1 days. Victoria reported the shortest average length of stay — 3.3 days — if mental health and other non-acute services were excluded. When these services were included, the average length of stay in Victorian public acute hospitals was 4.1 days. Of the other jurisdictions, both WA and the NT reported the shortest average length of stay (3.8 days for each).

Excluding same day procedures, Tasmania again reported the longest average length of stay (8.1 days) and Victoria reported the shortest average (5.2 days); also again, Victoria's average was higher (6.6 days) when compiled on the same basis as used for the other jurisdictions. Of the other jurisdictions, WA reported the shortest average length of stay (5.9 days) (figure 4.19).

Figure 4.20 Average length of stay in public acute hospitals, 1996-97



<sup>a</sup> The data for Victoria were adjusted to exclude psychiatric and non-acute services from the public hospital data published by the AIHW (box 4.2). The average length of stay for Victorian hospitals (using data provided by the AIHW) was 4.1 days (6.6 days when excluding same day separations). <sup>b</sup> Based on data for Victoria as published in *Australian Hospital Statistics* (1998a).

Data source: table 4A.14.

Against the overall trend, the average length of stay for the five most common procedures increased in 1996-97 — only 'vaginal delivery without complications' recorded a shorter average length of stay in 1996-97 (3.4 days) than in the two years previously (3.6 days). The average length of stay reported for the other four

procedures increased between 1994-95 and 1996-97, rising quite substantially in some cases — for example, from 6.7 days in 1994-95 to 8.0 days in 1996-97 for ‘chronic obstructive airways disease’ (table 4A.15).

A possible explanation for this trend is that co-morbidity is more likely to occur in the other four procedures other than in ‘vaginal delivery without complications’. Further, patient choice and the redesign of obstetric programs to reduce the length of stay may have also influenced the shorter length of stay for ‘vaginal delivery without complications’. Similarly, the trend towards treating ‘chronic obstructive airways disease’ patients with less serious symptoms on an outpatients basis will increase the average length of stay for admitted patients.

**Table 4.5 Average length of stay in public hospitals for the five AN-DRGs with the highest number of separations (days)<sup>a, b</sup>**

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Aust</i>
Vaginal delivery without complications									
1994-95	3.5	3.8	3.4	3.7	3.6	3.9	3.4	3.7	3.6
1995-96	3.2	3.4	3.7	3.3	3.5	3.6	3.6	3.5	3.5
1996-97	3.3	3.5	3.2	3.5	3.4	3.3	3.0	3.6	3.4
Chronic obstructive airways disease									
1994-95	7.2	5.8	6.6	6.5	6.8	7.6	7.2	5.7	6.7
1995-96	7.9	6.9	6.1	6.3	6.3	7.5	5.7	6.5	6.5
1996-97	8.5	7.1	7.8	8.3	7.6	9.7	10.2	6.5	8.0
Bronchitis and asthma in persons aged 50 years and younger without complications									
1994-95	2.1	1.9	2.2	2.2	2.1	2.1	2.4	2.5	2.1
1995-96	2.3	2.1	2.5	2.1	2.2	2.1	1.9	2.1	2.1
1996-97	2.3	2.0	2.3	2.3	2.3	2.3	2.4	2.7	2.2
Heart failure and shock									
1994-95	7.3	6.6	6.4	6.3	6.6	7.1	8.0	6.4	6.8
1995-96	7.2	6.8	5.9	6.2	6.0	7.6	6.3	6.2	6.5
1996-97	8.4	7.6	7.6	8.2	7.3	9.2	9.1	6.9	8.0
Cholecystectomy without common duct exploration									
1994-95	3.6	3.3	2.9	3.3	3.9	3.3	3.7	3.8	3.4
1995-96	3.2	3.0	3.3	2.5	2.7	3.2	2.9	3.3	2.9
1996-97	3.9	3.4	2.9	4.0	3.5	3.7	3.9	4.5	3.6

<sup>a</sup> Excluded same day cases. <sup>b</sup> Separations for which the type of episode of care was reported as either ‘acute’ or ‘not reported’.

Sources: table 4A.15; SCRCSSP (1997;1998).

## General practice

### Outcomes

Child immunisation rates are outcome indicators for the performance of GPs in providing primary care. Child immunisation services are delivered by many providers, such as GPs, baby health clinics, hospitals and school/kindergartens. An ABS survey of child immunisation found that most children were immunised in doctors' surgeries (although estimates from the Australian Childhood Immunisation Register indicate less than 1 per cent of child immunisations in the NT occur in the private sector). Sixty-one per cent of children fully immunised against measles, mumps and rubella were immunised at a doctor's surgery. Similarly, 73.6 per cent of children fully immunised against *haemophilus influenzae* type b (Hib) were immunised at a doctor's surgery (table 4.6). Other common locations for child immunisations included local council facilities and baby health clinics.

Table 4.7 Location of immunisation, by type of vaccine, 1995<sup>a, b, c</sup>

	Doctor's surgery	Local council	Baby health clinic	School/ kindergarten	Hospital	Other health service	Other	Not known
Diphtheria/tetanus/ whooping cough	63.3	22.5	17.3	1.5	2.4	2.2	0.7	0.0*
Polio	62.4	22.5	18.3	1.8	2.5	2.3	0.8	0.1*
Measles	61.4	18.7	14.8	0.2	2.1	2.0	1.3	0.2
Mumps	61.1	19.0	14.8	0.2	2.1	2.0	1.3	0.2
Rubella	61.2	19.2	14.5	0.3	2.0	2.0	1.4	0.2*
<i>Haemophilus</i> <i>influenzae</i> type b	73.6	14.3	10.0	0.2	2.0	1.8	0.7	0.2*
Diphtheria/tetanus booster	64.3	15.1	12.8	3.8	2.5	2.7	0.9	0.4*

<sup>a</sup> As at April. <sup>b</sup> Fully immunised children aged 3 months to 6 years. <sup>c</sup> Components may add to more than 100 because respondents may have reported more than one location of vaccination. \* Relative standard error is between 25 per cent and 50 per cent.

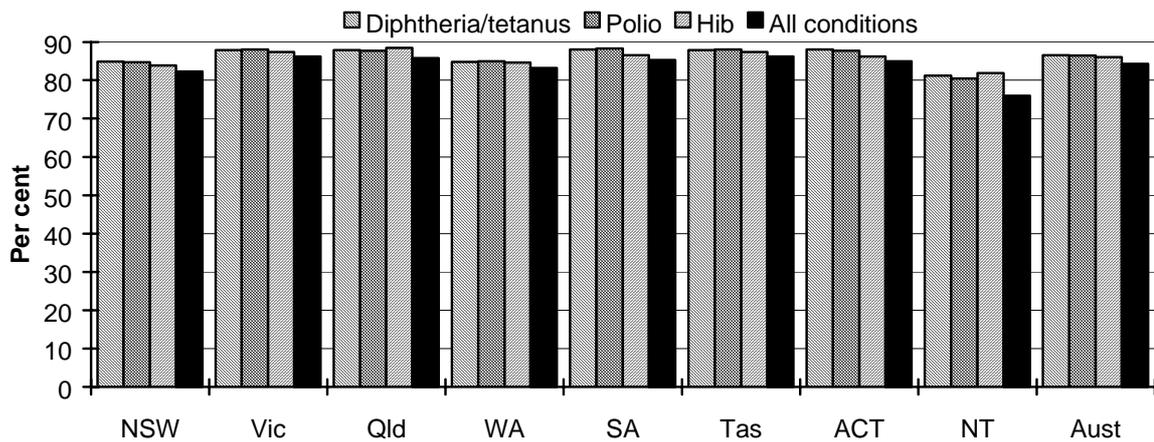
Source: table 4A.40.

The proportion of children aged 3 months to 6 years that were fully immunised at April 1995 ranged from 50 per cent for Hib to 92 per cent for measles. While useful, these data were based on a survey of only 14 800 children. More comprehensive information is available from the Australian Childhood Immunisation Register established in January 1996 which covers over 64 000 children — 84.3 per cent of these children aged 1 year were fully immunised at June 1998 (figure 4.21).

The proportions of children fully immunised against selected diseases were higher — 86.5 per cent for diphtheria/tetanus, 86.4 per cent for polio and 86.0 per cent for Hib. Across jurisdictions, the NT recorded the lowest proportion of children that

were fully immunised (76.0 per cent), while Victoria and Tasmania recorded the highest (86.2 per cent).

Figure 4.22 Children aged 1 year who were fully immunised<sup>a</sup>

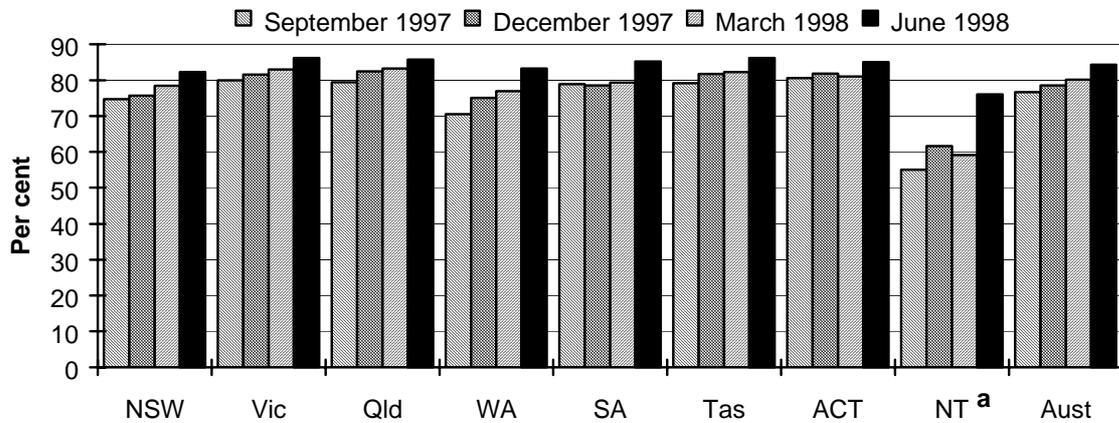


<sup>a</sup> At 30 June 1998.

Data source: table 4A.42.

Data from the register are available for four quarters. Across Australia, the proportion of children that were fully immunised grew steadily between September 1997 and June 1998 (figure 4.23). Overall, the proportion rose by 7.6 percentage points. A similar pattern of growth was recorded for all jurisdictions except the NT, where the proportion fell between December 1997 and March 1998 before rising again in June 1998. The largest rise (21.0 percentage points) was recorded in the NT, followed by WA (12.7 percentage points).

**Figure 4.24 Children aged 1 year who were fully immunised for all conditions**



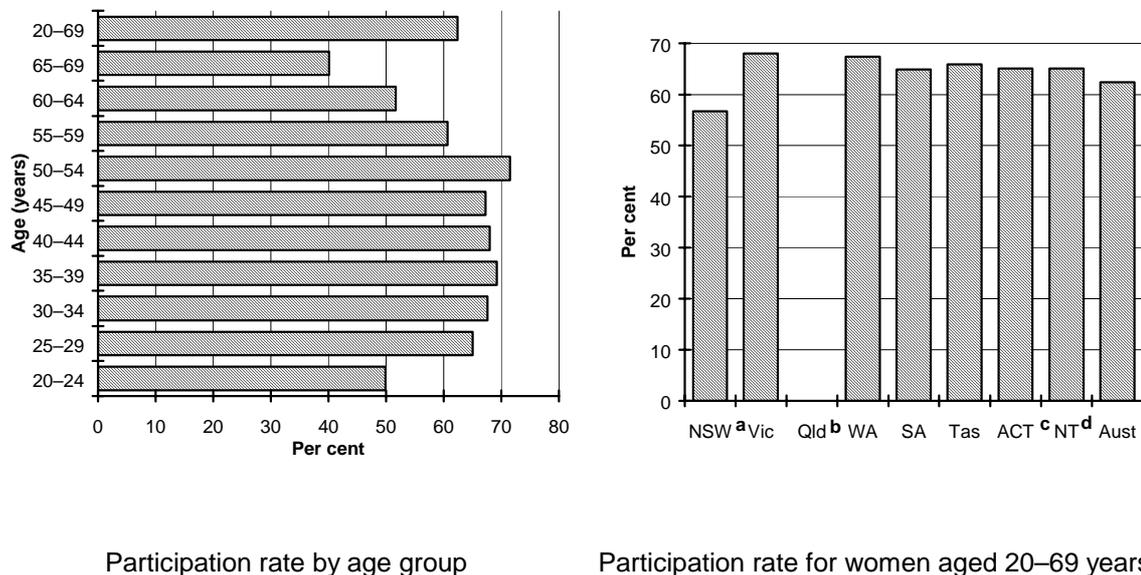
<sup>a</sup> NT rate is unreliable due to problems matching NT children with records on the Australian Childhood Immunisation Register. This results in exclusion of fully immunised children from NT coverage estimates.

Data source: table 4A.42.

The second outcome indicator for primary care services provided by GPs is the screening rate for cervical cancer. Like child immunisation, cervical cancer screening tests (that is, Pap smears) are offered by a range of health care providers: GPs, gynaecologists, family planning clinics and hospital outpatient clinics. However, GPs have been targeted in an effort to improve screening rates.

Cervical cancer screening is targeted at sexually active women aged 20–69 years of age. Around 62 per cent of females in the target group were screened for cervical cancer between January 1996 and December 1997 (figure 4.25). The participation rate was highest for women aged 50–54 years (71.5 per cent) and lowest for women aged 65–69 years (40.1 per cent). Across jurisdictions, the participation rate ranged from 56.7 per cent in NSW to 68.0 per cent in Victoria.

**Figure 4.26 Participation rates of women in cervical cancer screening programs, 1996 and 1997**



<sup>a</sup> Data estimated for January–July 1996. <sup>b</sup> There was no Pap smear register in Queensland. <sup>c</sup> The ACT register contains only women with an ACT address. <sup>d</sup> Data estimated for January–March 1996.

Data source: table 4A.43.

### Access and equity

There are three indicators of the access and equity of health care services delivered by general practitioners: the proportion of nonspecialist attendances that are bulk billed, full time equivalent nonspecialist medical practitioners in rural/remote areas and the proportion of full time equivalent GPs who are female.

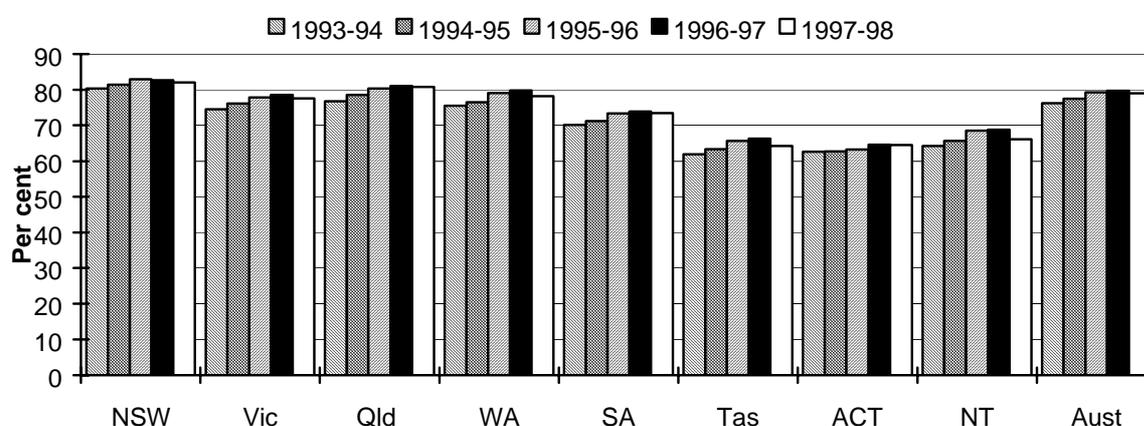
The first of these —the proportion of nonspecialist attendances that are bulk billed — indicates the affordability of GP services. Under Medicare, clients may pay the GP’s consultation fee and then seek reimbursement from the government, or the GP may bill the government directly, thereby reducing out-of-pocket costs for patients. A high proportion of services that are bulk billed indicates a greater level of affordability.

Visits to GPs are classed as unreferral attendances under Medicare. Unreferred attendances are further disaggregated into services provided by vocationally registered GPs and other attendances (some of which may also have been provided by GPs). Unreferred attendances provided by vocationally registered GPs accounted for 88 per cent of total unreferred attendances in 1997-98. The discussion below concentrates on unreferred attendances provided by vocationally registered GPs. However, similar levels were recorded for total unreferred attendances.

Seventy-nine per cent of unreferral attendances to vocationally registered GPs were bulk billed in 1997-98 (figure 4.27). The share ranged across jurisdictions, from 82 per cent in NSW to 64 per cent in Tasmania.

There was a small fall (-0.8 percentage points) in the proportion of vocationally registered GP unreferral attendances bulk billed between 1996-97 and 1997-98. A similar fall was also recorded in all States and Territories. However, in general, the proportion of total unreferral attendances that were bulk billed has been rising over time — up 2.7 percentage points between 1993-94 and 1997-98.

Figure 4.28 Bulk billed services provided by vocationally registered GPs



Data source: table 4A.44.

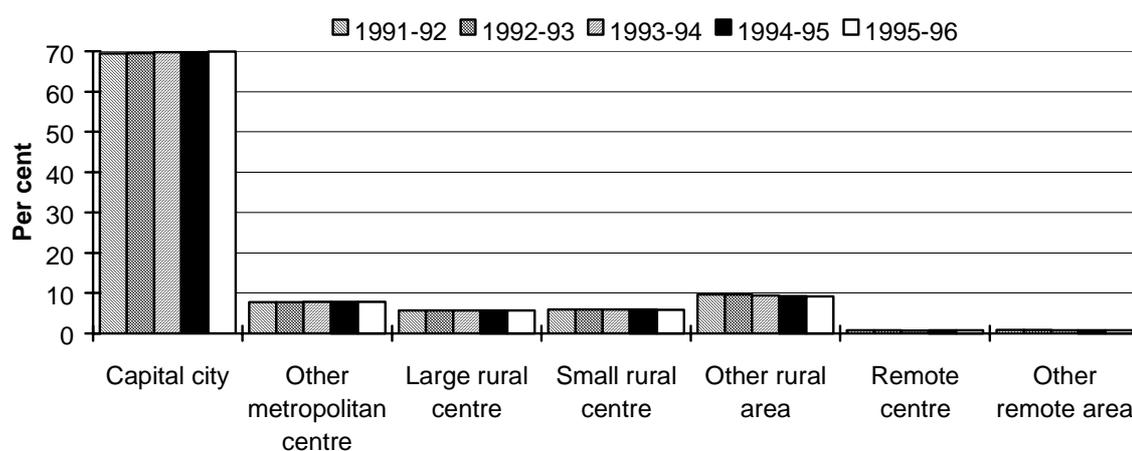
Another important access issue is access of people in nonmetropolitan areas to primary health care services provided by GPs. The Commonwealth Government introduced initiatives — such as the General Practice Rural Incentives Program, establishing Rural Division Coordinating Units and financial incentives through the Better Practice Program — to encourage and support GPs moving to and working in rural areas.

Seventy per cent (or 11 172) of full time equivalent nonspecialist medical practitioners worked in capital cities in 1995-96 (figure 4.29). A further 20 per cent of the total worked in rural centres and areas, and 7.8 per cent worked in other metropolitan areas. By contrast, less than 1 per cent worked in each of remote centres and other remote areas.

The number of full time equivalent nonspecialist medical practitioners rose by 13.3 per cent (or 1881) between 1991-92 and 1995-96. The strongest growth occurred in the number of nonspecialist practitioners working in capital cities (an

increase of 14.2 per cent), followed by growth in those working in other metropolitan areas (14.1 per cent) and large rural centres (13.8 per cent). By contrast, growth in the number working in remote centres and other remote areas was less than the average (7.3 per cent and 2.6 per cent respectively). As a result, the distribution of full time equivalent nonspecialist medical practitioners did not change significantly over the period (figure 4.15).

Figure 4.30 Full time equivalent nonspecialist medical practitioners, by region

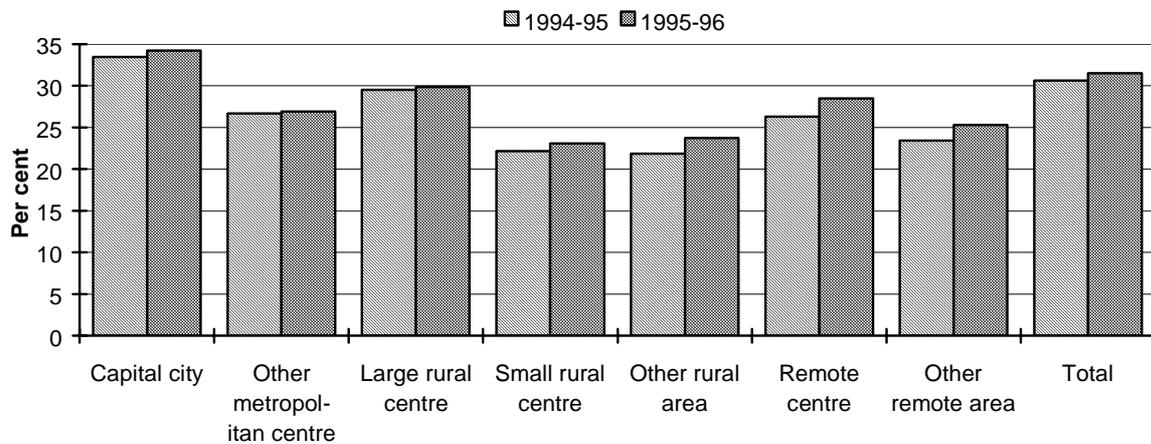


Data source: table 4A.46.

The final access indicator relates to the proportion of GPs that were female, recognising that some female patients may be uncomfortable discussing health matters with a male GP. Data on this indicator relate to the proportion of full time equivalent GPs billing Medicare that were female.

Of the 17 700 full time equivalent GPs billing Medicare in 1995-96, 31.5 per cent (or 5581) were female (figure 4.31). The female share ranged from 34 per cent in capital cities to 23 per cent in small rural centres.

Figure 4.32 Recognised female GPs billing Medicare, by region



Data source: table 4A.47.

The number of female full time equivalent GPs billing Medicare rose by 261 (or 4.9 per cent) between 1994-95 and 1995-96. This increased the female proportion of all GPs by almost 1 percentage point between 1994-95 and 1995-96. The number of female GPs increased in all regions except other remote centres (where it did not change). However, the proportion of GPs in other remote areas that were female increased over the period, as it did for all regions.

## 4.9 Jurisdictions' comments

Jurisdictions' comments for chapters 4 and 5 are contained at the end of chapter 5.

