
5 Public hospitals

Public hospitals are important providers of government funded health care services in Australia. This chapter reports on the performance of each State and Territory's public hospital system, and in particular focuses on acute care services.

A profile of public hospital systems is contained in section 5.1. Policy developments in performance measurement of public hospitals are outlined in section 5.2. A framework of performance indicators and the key performance indicator results for public hospitals are outlined in section 5.3. The performance indicator framework and key results for maternity services, a significant component of a public hospital's activity, are discussed in section 5.4 and future directions in reporting are covered in section 5.5. Terms and definitions are summarised in section 5.6. The performance of public hospitals in delivering a range of health care is also examined in other chapters of this Report. Referrals to hospitals for specific conditions by general practitioners is a subject of chapter 6. The performance of public hospitals in delivering breast cancer treatment and mental health care services is examined in chapter 7. In many jurisdictions, the delivery of patient transport and aged care services depend on the activity of public hospitals; the performances of these are examined in chapters 11 and 12 respectively.

This year, improvements have been made in the reporting of capital costs and casemix adjusted relative length of stay. Also, data are reported for the first time on maternity services.

Supporting tables

Supporting tables for chapter 5 are provided on the CD-ROM enclosed with the Report. The files are provided in Microsoft Excel 97 format as `\Publications\Reports\2001\Attach5A.xls` and in Adobe PDF format as `\Publications\Reports\2001\Attach5A.pdf`.

Supporting tables are identified in references throughout this chapter by an 'A' suffix (for example, table 5A.3 is table 3 in the electronic files). They may be subject to revision. The most up-to-date versions of these files can be found on the Commission's Review web page (www.pc.gov.au/service/gsp/2001/). Users without

Internet access can contact the Secretariat to obtain up-to-date versions of these tables (see details on the inside front cover of the Report).

5.1 Profile of public hospital systems

Definition

A key objective of government is to provide public hospital services to ensure the population has access to cost effective health services, based on clinical need and within clinically appropriate times, regardless of geographic location. Public hospitals provide a range of services, including:

- acute care services to admitted patients;
- sub- and non-acute services to admitted patients (for example, rehabilitation or palliative care, or long stay maintenance care);
- emergency, outpatient and community care services to non-admitted patients;¹
- mental health services, including services provided to admitted patients by designated psychiatric/psychogeriatric units, as well as community based services;
- public health services; and
- teaching and research activities.

This chapter focuses on acute care services provided to admitted patients and emergency services provided to non-admitted patients in public acute care hospitals. These services comprise the bulk of public hospital activity, and in the case of acute care services to admitted patients, have the most reliable data available. However, some data include sub- and non-acute care services where they cannot yet be separately identified from acute care. Hence, the performance of a range of other hospital services is not yet covered in this Report. Stand-alone psychiatric hospitals are also included in the profile section of the chapter, although their role is diminishing in accordance with the National Mental Health Strategy. Under the Strategy, the provision of psychiatric treatment is shifting away from specialised psychiatric hospitals to public acute hospitals and the community sector. Some common health terms relating to hospitals are defined in box 5.1.

¹ Community care services comprise care provided by hospital staff offsite in clinics or in the home.

Box 5.1 **Some common health terms**

Patients

Admitted patient: a patient who has formally undergone an admission process into a public hospital to begin an episode of care. Admitted patients may receive acute, sub-acute or non-acute care services.

Non-admitted patient: a patient who has not undergone an admission process to receive an acute, sub-acute or non-acute episode of care.

Types of care

Acute care: 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.

Ambulatory services: services provided by hospitals to non-admitted patients.

Sub-and non-acute care: clinical services provided to admitted and non-admitted patients suffering from *chronic* illnesses or recovering from such illnesses. They include planned geriatric care, palliative care, geriatric care evaluation and management, and services for nursing home-type patients. Clinical services delivered by designated psychiatric or psychogeriatric units, designated rehabilitation units, and mothercraft services are also considered to be non-acute.

Hospital outputs

Separation: the discharge, transfer, death or change of episode of care of an admitted patient. For measuring a hospital's activity, separations are used in preference to admissions because diagnoses and procedures can be more accurately recorded at the end of a patient's stay and patients may undergo more than one separation from the time of admission. Admitted patients who receive same day procedures (for example, renal dialysis) are recorded in separation statistics.

Casemix adjusted separations: the number of separations is often adjusted to account for differences across hospitals in the complexity of their episodes of care. Casemix adjustment is an important step to achieving comparable measures of efficiency across hospitals and jurisdictions.

Non-admitted occasions of service: a hospital's total number of clinical services provided to non-admitted patients. Services include emergency department visits, pathology, counselling, group therapy and community health consultations. Hospital non-admitted occasions of service have not yet been adjusted for the relative differences in the complexity of services provided.

(continued next page)

Box 5.1 (continued)

Other common health terms

Comorbidity: the simultaneous occurrence of two or more diseases or health problems that affect the care of the patient.

AR-DRG v4.1 (Australian Revised Diagnosis Related Group, version 4.1): a patient classification system that hospitals use to match their patient services (hospital procedures and diagnoses) with their resource needs. AR-DRG v4.1 is based on the ICD-10-AM classification and replaces the earlier AN-DRG v3.0/3.1.

ICD-10-AM: a classification of diseases and injuries, the Australian modification (AM) of the International Standard Classification of Diseases and Related Health Problems, Revision 10 (ICD-10). ICD-10-AM replaces the earlier ICD-9-CM (Australian Version of the International Classification of Diseases, Revision 9, Clinical Modification).

Funding

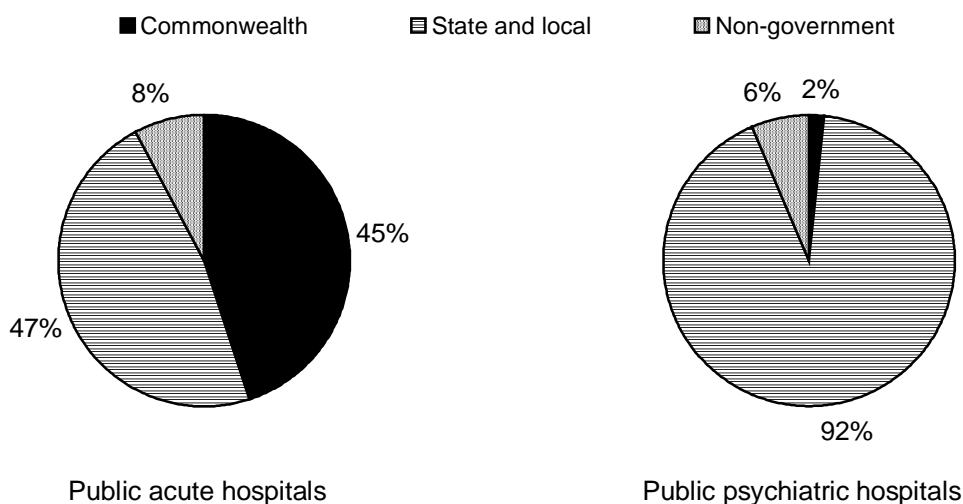
Total recurrent expenditure on public hospitals (excluding depreciation) was \$13.7 billion in 1998-99 (1998-99 prices) (table 5A.1).² In real terms, this expenditure increased 2 per cent in the 1998-99 year (AIHW 2000a).

Commonwealth, State and Territory governments, health insurance funds, individuals, workers compensation and compulsory motor vehicle third party insurance cover, finance the expenditure on public hospitals. The most recent comparative data available on hospital expenditure by source of funds are for 1997-98 (figure 5.1 and table 5A.35).³ 1997-98 is also the latest year for which data are available separately for public acute and psychiatric hospitals. In that year, around \$365 million was spent on public psychiatric hospitals and \$11.85 billion was spent on public acute hospitals (AIHW 2000b).

² This figure includes spending on patient transport.

³ The 1997-98 expenditure data (in figure 5.1) are not directly comparable with the 1998-99 expenditure data. The 1997-98 data have a broader scope. The more recent data exclude expenditure for population health, primary and community based services administered by hospitals and trust fund expenditure (AIHW 2000a).

Figure 5.1 **Expenditure on public hospitals, by source of funds, 1997-98 (per cent)**



Source: table 5A.35.

Public hospitals accounted for 70.4 per cent of recurrent expenditure on health services by State and Territory governments in 1997-98. In contrast, public hospitals accounted for only 31.5 per cent of Commonwealth government recurrent spending on public acute hospitals (table 5A.35).

For selected public acute hospitals, expenditure on admitted patients (based on the inpatient fraction) comprised 70–80 per cent of total recurrent expenditure in 1998-99 (table 5A.24). Acute non-psychiatric admitted patients accounted for 68 per cent of hospital expenditure in NSW and 63 per cent in Victoria (table 5A.25).

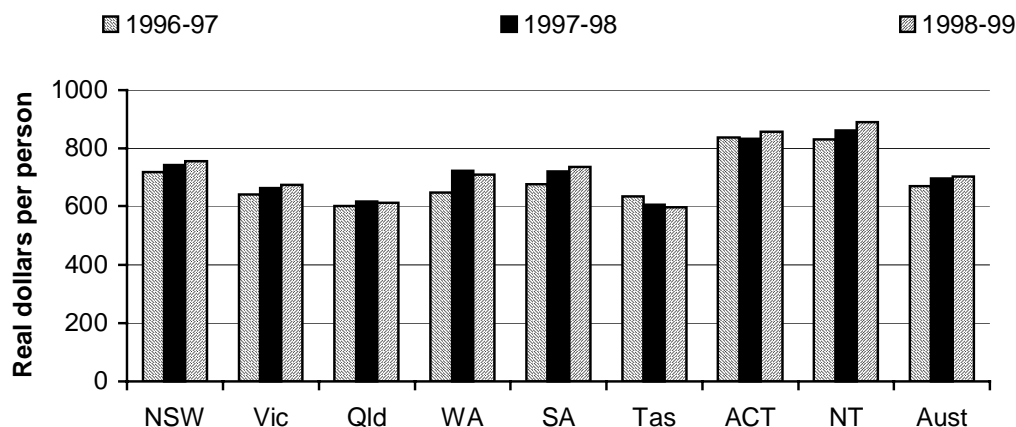
In 1998-99, per capita government recurrent expenditure on public hospitals was \$701 for Australia, ranging from \$597 in Tasmania to \$888 in the NT (1997-98 prices). Real expenditure per capita across Australia increased over time, from \$668 to \$701 between 1996-97 and 1998-99 (figure 5.2 and table 5A.2). Not all states followed this trend.

Size and scope of sector

Hospitals

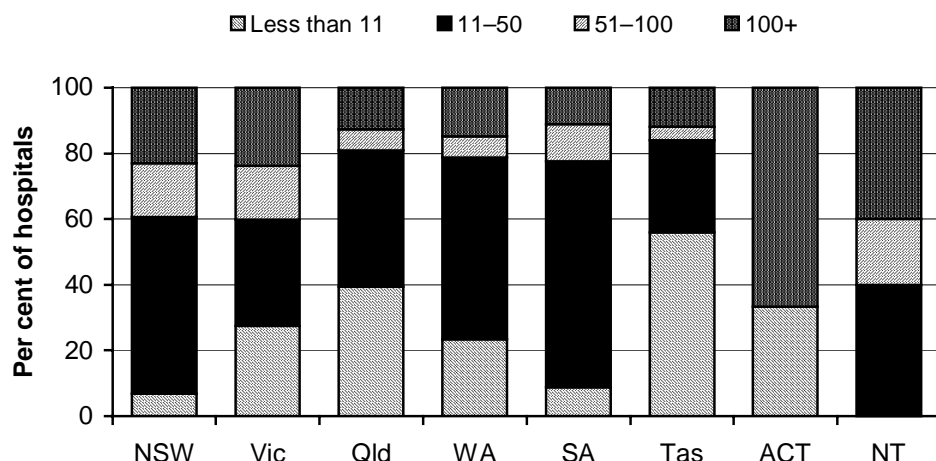
In 1998-99, Australia had 755 public hospitals (726 public acute care hospitals and 29 public psychiatric hospitals) with 53 885 beds (AIHW 2000a). The median size of public hospitals was 28 beds. In all States and Territories, except the ACT, most hospitals tended to have less than 100 beds (figure 5A.3 and table 5A.3).

Figure 5.2 Recurrent expenditure per person, public acute and psychiatric hospitals (1997-98 prices)



Source: table 5A.2.

Figure 5.3 Public acute care and psychiatric hospitals by size, 1998-99^{a, b, c}



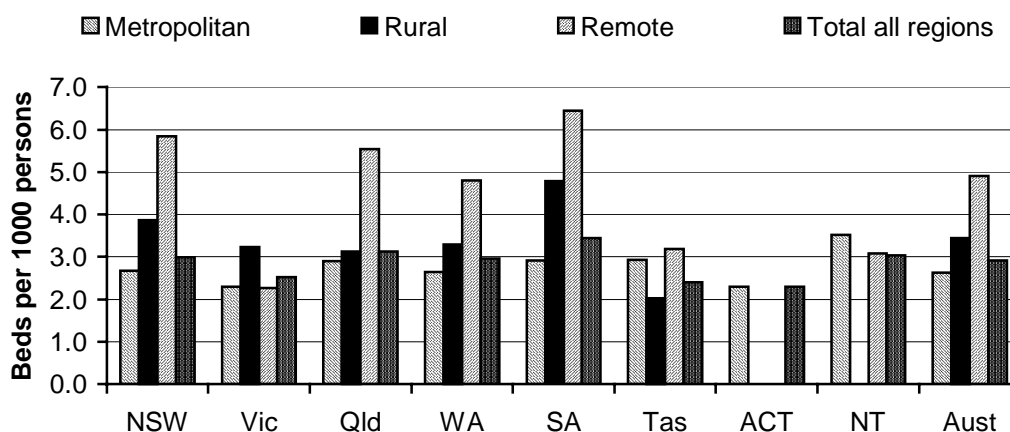
^a The number of hospitals reported can be affected by administrative and/or reporting arrangements, and is not necessarily a measure of the number of physical hospital buildings or campuses. ^b Size is based on the number of available beds. ^c The count of hospitals in Victoria is a count of the campuses that separately report data to the Victorian Admitted Episodes Database.

Source: table 5A.3.

Beds

On average, there were 2.9 beds per 1000 people in 1998-99 (figure 5.4 and table 5A.4). The number of beds per 1000 people was highest in SA (3.4) and lowest in the ACT, Tasmania and Victoria (2.3, 2.4 and 2.5 respectively). Nationally, more beds were available per 1000 people in remote areas. However, this does not provide an indication of regional access to particular types of service or of the distance required to travel to access these services.

Figure 5.4 **Number of available beds, by region, public acute and psychiatric hospitals 1998-99^a**



^a An 'available bed' is immediately available to be used by an admitted patient. A bed is immediately available if located in a suitable place for care, with nursing and auxiliary staff available within a reasonable period. Surgical tables, recovery trolleys, delivery beds, cots for normal neonates, emergency stretchers/beds not normally authorised or funded, and beds designated for same day non-admitted patient care are excluded (AIHW 2000c).

Source: table 5A.4.

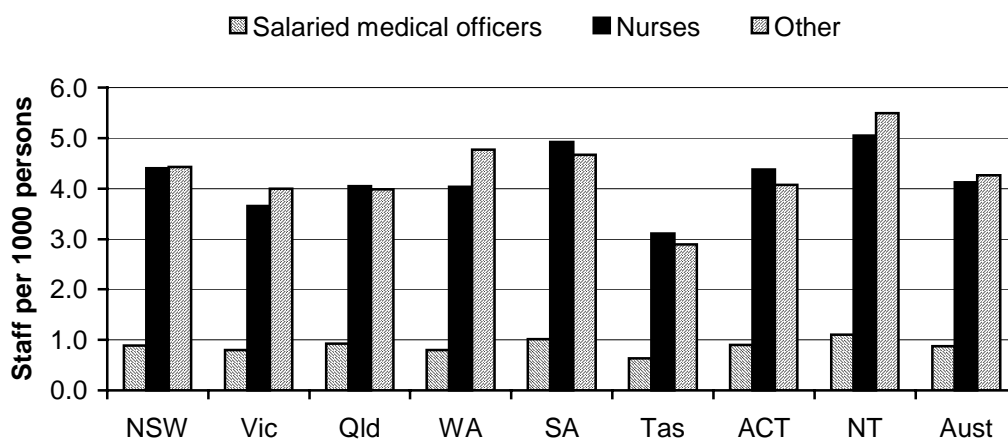
Staff

There were 175 535 full time equivalent staff employed in Australian public acute care and psychiatric hospitals in 1998-99 (based on the average number of staff available for the year). Nurses comprised 45 per cent of staff (78 319) and salaried medical officers represented 9 per cent (16 458). Other staff (diagnostic and allied health professionals, other personal care staff, administrative and clerical staff, and domestic and other staff) made up the remainder (table 5A.5). Tasmania had the least staff per 1000 people (6.6) and the NT had the most (11.6) (figure 5.5 and table 5A.5).

Activity

There were around 3.9 million acute, sub- and non-acute separations in public acute and psychiatric hospitals in 1998-99 (table 5A.6). Public psychiatric hospitals accounted for around 0.5 per cent of total separations in public hospitals, and around 45 per cent of separations in public acute care hospitals were for same day patients (table 5A.6). Ninety two per cent of separations were classified as episodes of acute care, along with 4 per cent as newborns and 2 per cent as rehabilitation care (table 5A.8).

Figure 5.5 Average full time equivalent staff, public acute and psychiatric hospitals, 1998-99



Source: table 5A.5.

Table 5.1 shows the ten AR-DRGs (for an explanation, see box 5.1) with the most separations (including same day separations) in public hospitals in 1998-99. These accounted for an average of 26 per cent of all acute separations. In the NT, they accounted for around 44 per cent, of which 32.7 per cent were renal dialysis. Renal dialysis, chemotherapy and vaginal delivery without complicating diagnosis were the most common types of acute care provided by public hospitals in all jurisdictions (17.5 per cent of acute separations Australia-wide).

Over 34 million occasions of care were provided to individual non-admitted patients in public acute and psychiatric hospitals in 1998-99 (table 5A.10). In addition to the services provided to individuals by public acute hospitals, 486 202 group sessions were delivered through these hospitals in that year (where a group session is defined as a service provided to two or more patients, but excludes services provided to two or more family members). Table 5.2 shows the seven most common types of occasion of care provided to individual non-admitted patients in public acute hospitals in 1998-99. The most common types were accident and emergency services (14.6 per cent) and pathology services (12.2 per cent). Other medical, surgical and obstetric services accounted for 33 per cent of occasions of service.

Differing admission practices among States and Territories and differences in the extent to which these types of service are provided in non-hospital settings will lead to variation among jurisdictions in the services reported in table 5.2.

Table 5.1 Ten AR-DRGs with the most separations in public hospitals, 1998-99 (per cent of acute separations)^a

	<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>
Renal dialysis	9.7	13.5	9.5	12.6	8.4	12.4	19.0	32.7	11.3
Chemotherapy	2.4	3.8	3.5	3.8	3.3	5.1	7.3	0.5	3.3
Vaginal delivery without complicating diagnosis	3.4	2.9	2.9	2.5	2.1	2.5	3.5	2.8	2.9
Other gastroscopy for non-major digestive disease, same day	1.6	1.7	1.7	2.1	1.7	2.0	1.9	1.2	1.7
Other colonoscopy, same day	1.7	1.3	1.6	2.2	1.5	1.5	1.8	0.8	1.6
Other antenatal admission with moderate or no complicating diagnosis	0.9	1.1	1.3	0.9	1.3	1.2	0.6	1.8	1.1
Oesophagitis, gastroenteritis and misc. digestive system disorders, age >9 ^b	1.2	0.9	1.2	1.0	1.2	0.8	0.4	0.5	1.1
Bronchitis and asthma, age < 50 ^c	1.2	0.8	1.1	1.1	1.2	0.6	0.7	0.7	1.0
Chest pain	1.2	1.0	1.0	0.6	1.0	0.5	0.7	0.7	1.0
Abortion with D&C, aspiration curettage or hysterotomy	0.8	1.1	0.6	0.8	2.0	1.1	0.6	2.3	1.0
Per cent of acute separations accounted for by ten AR-DRGs with most separations	24.1	28.1	24.4	27.6	23.7	27.7	36.5	44.0	26.0
Total acute separations ('000)	1229	941	679	352	348	78	57	54	3742

^a Separations for which the type of episode of care was reported as acute, or newborn with qualified patient days, or was not reported. Includes same day separations. ^b Without catastrophic or severe complication or comorbidity. ^c Without complication or comorbidity.

Source: table 5A.9.

Table 5.2 Seven most common types of non-admitted patient care, public acute hospitals, 1998-99 (per cent)^a

	<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>
Accident and emergency	12	16	16	15	20	13	19	32	15
Pathology	14	10	13	16	..	17	7	18	12
Radiology and organ imaging	6	7	11	8	11	8	13	20	8
Other medical, surgical and obstetric	48	19	29	13	36	33	42	22	33
Mental health	8	12	2	2	1	0	1	..	6
Allied health	..	14	8	18	13	15	15	5	8
Community health	8	6	2	16	6
Total occasions of service ('000)	12 420	6 878	7 321	3 974	2 333	554	438	333	34 251

^a Data are not fully comparable because there is some variation in reporting categories across States and Territories; for example, the SA categories do not fully align with the national categories. .. Not applicable.

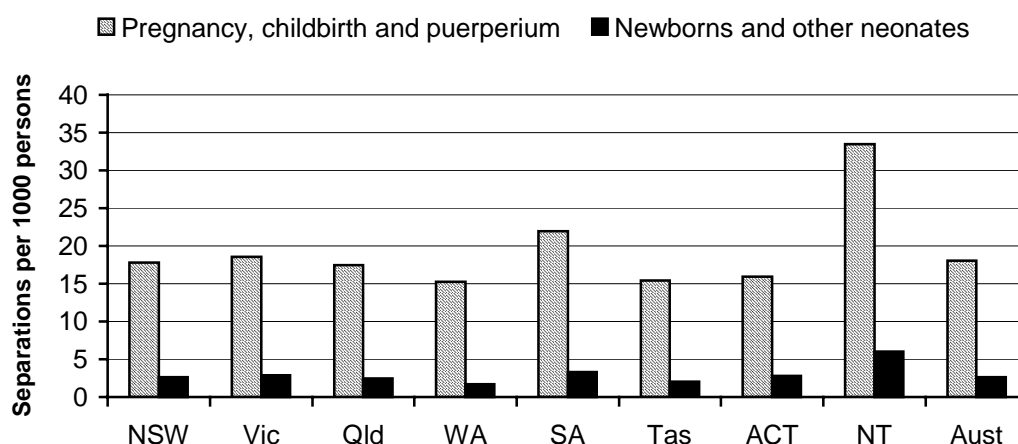
Source: table 5A.10.

Maternity services

Maternity services (specifically, AR-DRGs relating to pregnancy, childbirth and the puerperium) accounted for the third highest number of separations in public hospitals in Australia in 1998-99 (after diseases and disorders of the kidney and urinary tract, and diseases and disorders of the digestive system) (AIHW 2000a). Maternity services separations accounted for just over 9 per cent of total acute separations in public hospitals, and contributed around 8 per cent to the total cost of all acute separations in public hospitals in 1998-99 (table 5A.26).

Figure 5.6 shows that the NT had the highest number of public acute separations per 1000 persons for pregnancy, childbirth and the puerperium (33.5) in 1998-99 and WA had the lowest (15.2).

Figure 5.6 **Separation rates for maternity services public hospitals, 1998-99^{a, b, c}**



^a The puerperium refers to the period of confinement immediately after labour (around six weeks).
^b Newborns and other neonates include babies aged less than 28 days or babies aged less than one year with admission weight less than 2500 grams. ^c Separations for which the type of episode of care was reported as acute, or newborn with qualified patient days, or was not reported.

Source: table 5A.27.

Vaginal deliveries without complicating diagnosis accounted for a significant proportion of the separations for pregnancy, childbirth and the puerperium (32 per cent) in 1998-99 and alone accounted for the third highest number of total acute separations in public hospitals in that year (table 5.1). Excluding same day separations, vaginal deliveries without complicating diagnosis accounted for the highest number of acute separations in public hospitals and the second highest cost in 1998-99 (\$253 million) (table 5A.28).

Given the magnitude of separations and cost for maternity services, the Steering Committee has proposed, and is refining, a performance indicator framework (see section 5.4).

5.2 Policy developments

A number of jurisdictions have introduced policies aimed at improving the performance measurement of public hospitals.

The Victorian Government is developing hospital care performance indicators covering access, acceptability, appropriateness, effectiveness and safety, continuity of care, and the organisation of systems for quality improvement. Data collection systems need to be developed and refined before regular reporting occurs. In addition, the Victorian Government has agreed in principle, to recommendations of a national competition policy review of the *Health Services Act 1988 (Victoria)*, which specifies that the Commonwealth and States should cooperate to develop a set of nationally agreed performance indicators of the organisation and management of care by 1 July 2001.

Queensland Health will be undertaking a performance assessment of the Queensland public health system over the next three years, focusing on the acute sector in the short term and primary health care facilities in the medium term. Final indicator sets for effectiveness, appropriateness, safety, access and efficiency are expected to be available by early 2001, with performance information available from mid-2001. Final indicator sets for acceptability and continuity of care are expected to be available from mid-2001.

The ACT Department of Health, Housing and Community Care has substantially revised and standardised its 2000-01 purchase agreements with its major public acute hospitals. The purchase agreements provide for schedules on performance indicators and reporting requirements. The indicators focus on the dimensions of appropriateness and efficiency, requiring information on safety, quality, acceptability, demand management and responsiveness. In addition to the previous performance indicators on rates of unplanned re-admissions, returns to theatre and infections, new indicators have been included on: use of surgical, medical, paediatric, maternity and early onset psychosis pathways; complaints mechanisms and customer service improvement; numbers of operations cancelled more than twice; and throughput indicators. In cooperation with the hospitals, the department intends to benchmark on the performance indicators with other appropriate hospitals, as well as nationally, to examine performance trends over time.

5.3 Public acute hospitals

Framework of performance indicators

The primary focus of the performance indicator framework is on public acute hospitals (that is, excluding stand-alone psychiatric hospitals) and is based on the shared government objectives for public acute care hospitals (box 5.2). A long term objective of this framework is to effectively improve the reporting of admitted acute patients, whose statistics at times also include admitted other-than-acute and admitted psychiatric patients. The performance of psychiatric hospitals and psychiatric units of public acute hospitals is examined more closely in chapter 7.

Box 5.2 Objectives for public acute hospitals

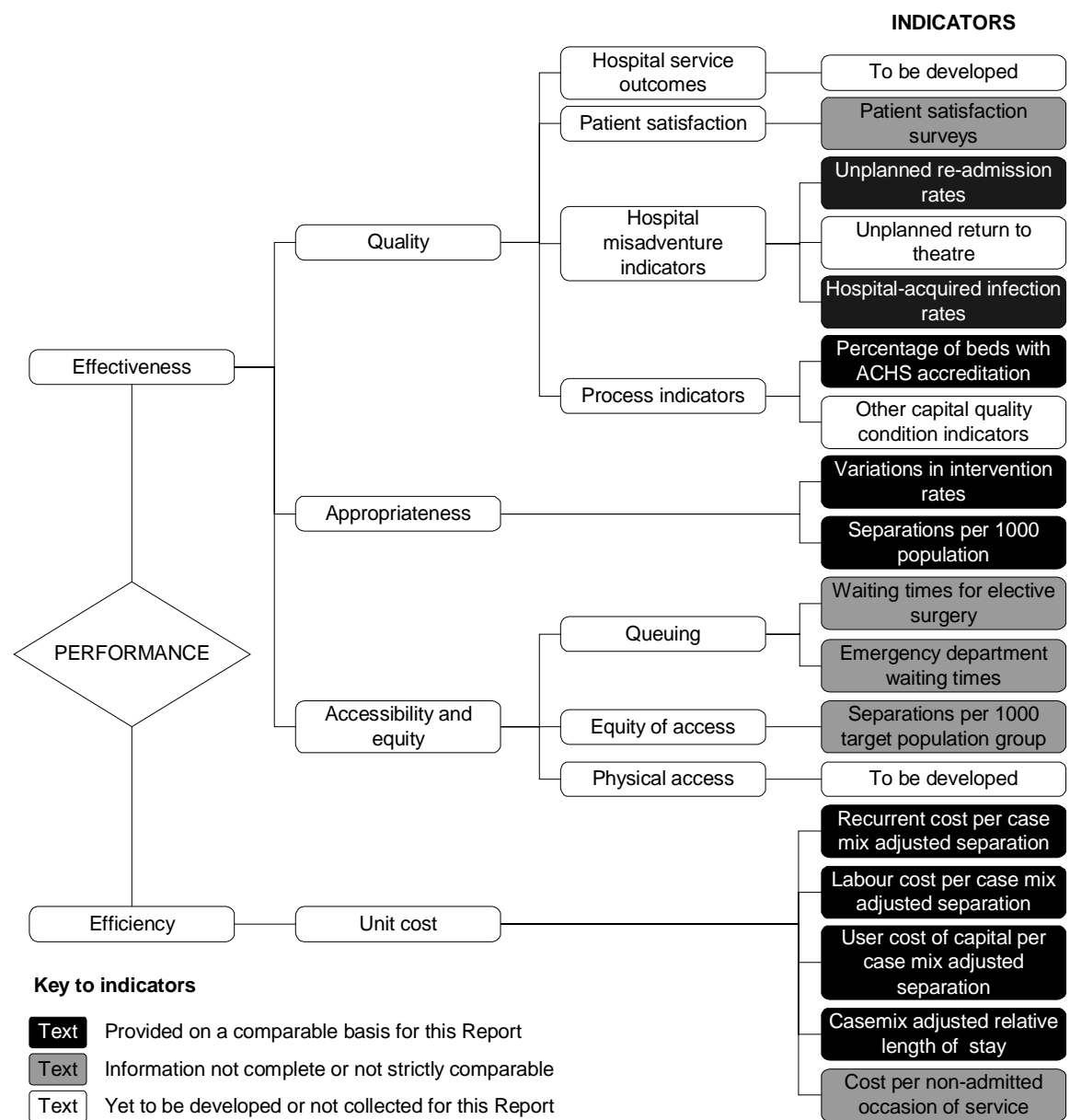
The common government objectives for public acute hospitals are to provide cost effective acute and specialist services that are:

- safe and of high quality;
- responsive to individual needs;
- accessible and equitable; and
- efficiently delivered.

The framework captures general aspects of the performance of public acute hospitals in providing health care services (figure 5.7). 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 (as indicated by emergency department and elective surgery waiting times). Efficiency indicators include the cost per casemix-adjusted separation and the cost per non-admitted occasion of service. Casemix adjusted relative length of stay is reported for the first time this year.

The number of separations per 1000 persons in target group populations was added to the framework for this Report, following its adoption as an indicator of access for Indigenous people by the Australian Health Ministers Conference. Data on the type of separations and the cause of hospitalisations were only available for 1997-98 and 1998-99 respectively. In addition, all jurisdictions have provided elective surgery waiting times data for the second time since 1997. Care needs to be taken when comparing these data across jurisdictions and over time.

Figure 5.7 Performance indicators for public acute hospitals



Key performance indicator results

Different delivery contexts, locations and types of client may affect the effectiveness and efficiency of health services. Appendix A of the Report contains detailed statistics and short profiles on each State and Territory, which may assist in interpreting the performance indicators presented in this chapter.

As discussed in section 5.1, public hospitals provide a range of services to admitted patients, including some 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. Similarly, psychiatric treatments are being transferred to public acute hospitals at rates that differ across jurisdictions.

Quality

All Australian governments and the users of health care services are interested in assessing and improving quality of care. There is no single definition of quality in health care, but the Institute of Medicine in the United States, defines quality, as ‘the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge’ (Lohr and Shroeder 1990, pp. 707-12). No single indicator can measure quality across all providers; an alternative strategy is to identify and report on *aspects* of quality of care.

There has been considerable debate and research to develop suitable indicators of the quality of health care, both in Australia and overseas. The Steering Committee reports data on the accreditation of public hospital beds, patient satisfaction and hospital misadventures (unplanned re-admission rates and hospital-acquired infection rates).

The value of clinical indicators, such as hospital misadventures, was evaluated in a research project undertaken in 1998 (box 5.3). The Steering Committee acknowledges the limitations of the current indicators, particularly given non-representative samples and other caveats for interpretation of the indicators outlined below, and agrees with the project’s recommendations for improving these indicators. Until improved 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 better than reporting nothing at all. As Boyce *et al.* (1997) state:

Most existing quality and outcome indicators are imperfect. ...We see the current generation of indicators as stepping stones to future better indicators. It will only be by their application in the health sector that indicators will improve (p. 3).

The quality indicators presented here are also reported elsewhere, including in the annual reports of the WA and Tasmanian health departments (Health Department of WA 1998; Tasmanian Department of Community and Health Services 1998). As noted earlier, the ACT Department of Health, Housing and Community Care has included a range of clinical indicators in its purchase agreements with its major public hospitals.

Box 5.3 **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 in 1998. 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, as determined by a panel of medical experts. The indicators evaluated were:

- the rate of unplanned hospital re-admission within 28 days of separation;
- the rate of hospital-acquired bacteraemia;
- the rates of post-operative wound infection following clean and contaminated surgery; and
- the 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, requiring it to reflect hospital-wide medical care accurately. The final report concluded that a clinically weak and statistically insignificant relationship existed 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. Thus, the indicators were not validated as measures of hospital wide care.

Questions remain about whether the indicators reflect the quality of more limited aspects 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 project report 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). It urged caution in using these indicators for benchmarking purposes, but suggested 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 concluded 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 ideally future indicators should be constructed from planned collections of clinical data, and that clinical data collection within hospitals should be improved.

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

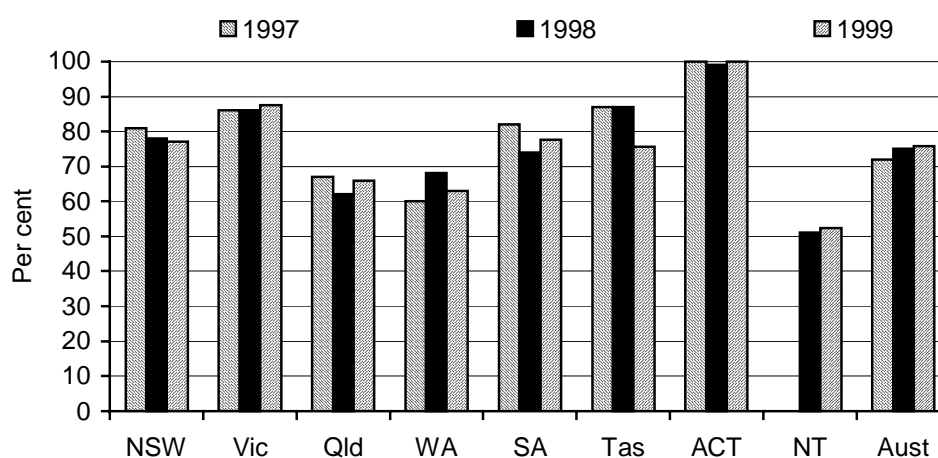
Accreditation

Public acute and psychiatric hospitals may seek accreditation through the Australian Council on Healthcare Standards (ACHS) Evaluation and Quality Improvement Program, ISO 9000 Quality Management System or other equivalent programs. Jurisdictions apply specific criteria to determine which accreditation programs are suitable. The ACHS requires hospitals to demonstrate continual adherence to quality improvement standards to gain and retain accreditation. Accreditation is not limited to the ACHS process, but comparable data on proportions of hospital beds with ACHS accreditation are one of the few nationally available indicators of hospital quality.

Accreditation is an imperfect indicator of quality for several reasons. While it indicates that accredited parties have passed a series of quality tests, it is not possible to draw conclusions about the quality of care in those hospitals that do not have accreditation. Public hospital accreditation is voluntary in all jurisdictions except Victoria, where it is now mandatory for all public acute hospitals (excluding those which provide sub-acute rehabilitation, dental or mothercraft services). The costs of preparing a hospital for accreditation are significant, so a low level of accreditation may reflect cost constraints rather than indicate poor quality. Also, the cost of accreditation may not rise proportionally with hospital size. This would be consistent with larger hospitals being more active in seeking ACHS accreditation (because it is relatively less costly for them) than actually offering superior care. That said, accreditation provides some information about the proportion of hospital beds in institutions that have been subject to some independent evaluation.

Seventy-six per cent of public acute and psychiatric hospital beds were in ACHS accredited hospitals at 30 June 1999. Across jurisdictions, the proportion ranged from 52 per cent in the NT to 100 per cent in the ACT (representing both hospitals) (figure 5.8 and table 5A.11). In some jurisdictions, hospitals sought alternative forms of accreditation not reflected in figure 5.8. For example, in Victoria, one small hospital was certified ISO 9000 compliant. In NSW, 15 public hospitals, previously accredited by the ACHS, were working in 1998-99 under either the Australian Quality Council or the Community Health Accreditation and Standards Program administered by the Australian Community Health Association framework. If these alternative forms of accreditation are counted as accredited in addition to ACHS accreditation, 80 per cent of NSW public hospital beds would have been accredited at 30 June 1999 (rather than 77 per cent as reflected in Figure 5.8) (AIHW 2000a).

Figure 5.8 Proportion of ACHS accredited public hospital beds, public acute and psychiatric hospitals^{a, b}



^a At 30 June. ^b The NT commenced accreditation in September 1997.

Source: table 5A.11.

Given that this indicator is intended to reflect the performance of public acute hospitals, it is a long term objective of the Steering Committee to report on the accreditation of public acute and psychiatric hospitals separately. Accreditation of stand-alone psychiatric hospitals and co-located psychiatric units in public acute hospitals are reported in chapter 7.

Patient survey results

Patient surveys have been used to assess the performance of hospitals in their delivery of clinical and non-clinical services. In the absence of other comparable indicators of quality, they provide a useful means of assessing the outcomes of hospital care. There is no agreement among jurisdictions on the best method of undertaking patient surveys and reporting the results. The timing and scope of patient satisfaction surveys also differ, so it is not possible to compare results across jurisdictions. Table 5.3 reflects the years in which patient satisfaction data have been provided by jurisdictions to the Review.

Table 5.3 Patient satisfaction data provided by jurisdictions, by SCRCSSP Report editions

Report edition	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
1995	✓	✓	✓	✓	✗	✗	✓	✗
1999	✗	✓	✗	✓	✗	✓	✓	✓
2000	✓	✓	✓	✓	✗	✓	✓	✗
2001	✓	✗	✗	✓	✗	✓	✓	✗

Sources: SCRSCCP (1995, 1999a and 2000).

Jurisdictions reported the following developments this year.

- New South Wales conducted a survey of 26 936 households with a response rate of 65 per cent. 11 per cent of males and 15 per cent of females reported at least one overnight hospital admission in the past 12 months. Of these, 90 per cent of males and 91 per cent of females rated inpatient care as excellent, good or very good. Three per cent of respondents reported inpatient care as poor. Seventy per cent of males and 75 per cent of females said they would prefer to return to the same hospital, and 15 per cent in each case said they would prefer a different hospital (table 5A.48).
- The Victorian Government is developing a statewide patient satisfaction survey of admitted patients in Victorian public hospitals. The survey will be conducted at quarterly and monthly intervals according to hospital size. Results for 2000 will be available from 2001.
- In Queensland, there is no state based survey, but hospitals use a variety of standard and self developed survey instruments, undertaken at various intervals depending on the health care setting.
- Western Australia conducts annual statewide patient surveys. The 2000 survey, conducted between January and June, was mailed to over 16 000 people covering 85 hospitals. Adults and parents of children admitted for care, along with maternity patients and sub- and non-acute patients were surveyed. The response rate was 49 per cent. Overall levels of satisfaction were 81.5 per cent for adult overnight stays, 79.7 per cent for child overnight stays, 84.9 per cent for adult same day, 83.5 per cent for child same day, and 82.3 per cent for maternity services (table 5A.56).
- In March 2001, the SA Government plans to undertake a telephone survey of 2500 to 3000 discharged patients from all acute hospitals in SA. In addition, most individual hospitals undertake their own patient satisfaction surveys using a variety of survey instruments and approaches which are undertaken at various intervals depending on the health care setting.
- In 1999, Tasmania conducted a mailout survey of 900 hospital patients. The response rate was 56 per cent. The survey examined satisfaction with non-clinical aspects of patient care, with categories including: Care, treatment and communication; Staff; and Comfort/meals. Overall, 66 per cent of respondents indicated they were very satisfied and 3 per cent suggested they were quite dissatisfied. Seventy per cent of respondents indicated they would definitely recommend the hospital to family and friends, and 3 per cent said they definitely would not recommend the hospital (table 5A.60).
- In 1999-2000, the two public hospitals in the ACT conducted mailout surveys of 4400 patients. The response rate was 52 per cent. Inpatient services and Day

Surgery both reported an 86 per cent overall satisfaction rate, with the Emergency Department having an overall satisfaction rate of 81 per cent.

Unplanned re-admission rates

The unplanned readmission rate is the total number of unplanned and unexpected re-admissions within 28 days of separation as a percentage of the total number of separations (excluding patient deaths) (table 5.4). (There is a more detailed definition of this indicator in table 5.14.)

Data is sourced for the first time this year from the ACHS (table 5.4). Over 300 private and public hospitals Australia-wide participated in the council's survey of unplanned re-admissions. The application of common definitions and counting rules means that the comparability of data has improved significantly from that collected for previous editions of the Report.

There are a number of caveats for the interpretation of this indicator. First, although the sample size was approximately 2 million separations, (ensuring that the reported rates are statistically significant for both public and private hospital totals), it is not clear to what extent differences between jurisdictions are due to casemix of hospitals or patient risk factors (ACHS 2000a). Second, there are some difficulties in identifying re-admissions that were unplanned (Ibrahim *et al.* 1998). A readmission is considered 'unplanned' or 'unexpected' if there was no documentation to verify that the re-admission was 'planned' and if the re-admission occurred through the accident and emergency department of a hospital (Ibrahim *et al.* 1998). Third, this indicator identifies only those patients readmitted to the same hospital, which may not always be the case.

Table 5.4 Unplanned re-admissions, per 100 admissions

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT^a</i>	<i>Public</i>	<i>Private</i>
1998										
Rate	2.27	3.06	2.55	1.41	3.28	0.98	2.85	na	3.23	1.49
Standard error	0.15	0.18	0.22	0.35	0.37	0.43	0.47	na	0.11	0.13
1999										
Rate	2.22	2.10	2.24	1.99	2.35	1.68	2.86	na	2.97	1.33
Standard error	0.12	0.14	0.22	0.32	0.30	0.41	0.39	na	0.09	0.10

^a NT data were not available because of the small number of hospitals. The NT government provided data on the emergency re-admission rate (5.6 per cent for 1998-99). The higher NT rate is more likely to reflect differences in definitions and application of counting rules than actual performance.

Source: table 5A.12.

The rate of unplanned re-admissions in 1998 and 1999 was approximately 2 per cent for most jurisdictions. The rate was highest in the ACT (2.86) in 1999 and

lowest in Tasmania (1.68). The rate of unplanned re-admission was larger for public hospitals (2.97) than for private hospitals (1.33) in 1999. The standard error was relatively larger for smaller jurisdictions, and caution should be exercised when making comparisons across jurisdictions. The rate of unplanned re-admissions fell among jurisdictions between 1998 and 1999, except in WA and Tasmania where they were already relatively low. There was no significant difference in the rate of unplanned re-admissions between rural and metropolitan hospitals (table 5A.12). The rate for both metropolitan and rural hospitals was 2.24 per cent.

Hospital-acquired infection rates

Three measures of hospital-acquired infection rates are reported here. 'Rates of post-operative wound infection' are defined for both clean and contaminated surgery. They are derived by dividing the number of inpatients with evidence of wound infection on or after the fifth post-operative day following clean (or contaminated) surgery, by the number of inpatients 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 inpatients who acquired bacteraemia during the period under study, as a percentage of the total number of separations with a hospital length of stay of 48 hours or more during the time period under study. (There is a more detailed definition of this indicator in table 5.14). This indicator does not reflect infections that do not become apparent until post discharge.

Data is sourced for the first time this year from the ACHS (table 5.5). Between 210 and 250 public and private hospitals participated in the Council's survey of hospital-acquired infection rates. As with the unplanned re-admission rate, the application of common definitions and counting rules has improved the comparability of data reported here.

The rate of post-operative infection (following clean surgery) in public hospitals in 1999 was lowest in Victoria (1.88 per cent) and highest in SA (3.06 per cent) (table 5.5). In all jurisdictions, the rate of infection for public hospitals was twice as high as the total for public and private hospitals. Similarly, the rate of post-operative infection (following contaminated surgery) in public hospitals in 1999 was lowest in Victoria (1.94 per cent) and highest in SA (4.61 per cent) and the rate for public hospitals was higher than that for all hospitals. Finally, the rate of hospital-acquired bacteraemia in public hospitals in 1999 was lowest in WA (0.25 per cent) and highest in SA (0.66 per cent). For this indicator, the standard error for the smaller jurisdictions is relatively large. Data are also presented for metropolitan and rural hospitals (table 5A.13). Across Australia, rural hospitals generally experienced

higher levels of post-operative infection rates, but lower levels of bacteraemia infection.

Table 5.5 Hospital-acquired infection, per 100 separations, 1999

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i> ^a	<i>ACT</i> ^a	<i>NT</i> ^{a, b}
Post-operative infection, following clean surgery								
Public hospitals								
Rate	1.99	1.88	3.02	2.38	3.06	na	na	na
Standard error	0.18	0.18	0.32	0.46	0.68	na	na	na
All hospitals								
Rate	1.19	0.71	1.67	1.14	0.90	1.00	na	na
Standard error	0.11	0.09	0.17	0.33	0.24	0.37	na	na
Post-operative infection, following contaminated surgery								
Public hospitals								
Rate	2.98	1.94	3.36	2.17	4.61	na	na	na
Standard error	0.23	0.19	0.37	0.50	0.77	na	na	na
All hospitals								
Rate	1.66	1.56	2.43	1.60	3.67	3.05	na	na
Standard error	0.13	0.13	0.21	0.44	0.47	0.67	na	na
Hospital-acquired bacteraemia								
Public hospitals								
Rate	0.49	0.48	0.30	0.25	0.66	na	na	na
Standard error	0.04	0.05	0.06	0.13	0.08	na	na	na
All hospitals								
Rate	0.41	0.29	0.28	0.22	0.58	0.31	0.39	na
Standard error	0.03	0.04	0.05	0.10	0.07	0.12	0.13	na

^a Not all data for Tasmania and the ACT were available and no data were available for the NT, because of the small number of hospitals. ^b The NT government provided public hospital data for post-operative wound infection following contaminated surgery (7.8 per cent) and hospital-acquired bacteraemia (0.53 per cent) (table 5A.78). The higher NT rates are likely to reflect differences in definitions and counting rules.

Source: table 5A.13.

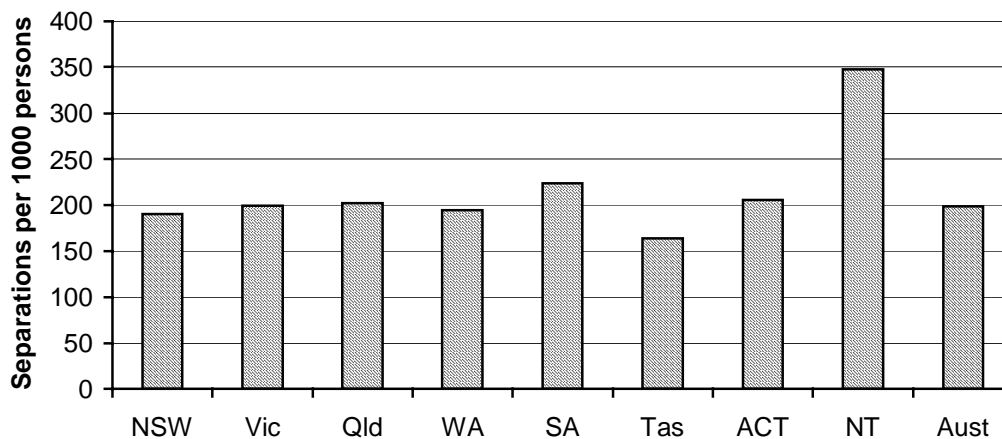
Appropriateness

Two indicators are presented for the appropriateness of care provided by public acute hospitals: the number of separations per 1000 people (also known as the separation rate) and separation rates for certain procedures. Both indicators, however, are problematic. First, the measures do not reflect differences in casemix across jurisdictions. Second, there is no benchmark as to the appropriate share of same day separations. Third, the appropriate mix/level is unclear (for example, a relatively high level of separations may reflect better access *or* over servicing). Comparisons are also complicated by different access to substitutable services (for example, private hospitals). Therefore, jurisdictional comparisons are most useful for highlighting differences, noting that more detailed analysis may be required.

Total separation rates

There were approximately 3.8 million separations from public acute hospitals in 1998-99 (table 5A.7). Nationally, this translated into nearly 199 separations per 1000 people, ranging from 164.1 per 1000 in Tasmania to 347.6 per 1000 in the NT (figure 5.9).

Figure 5.9 Separation rates in public acute hospitals, 1998-99^a

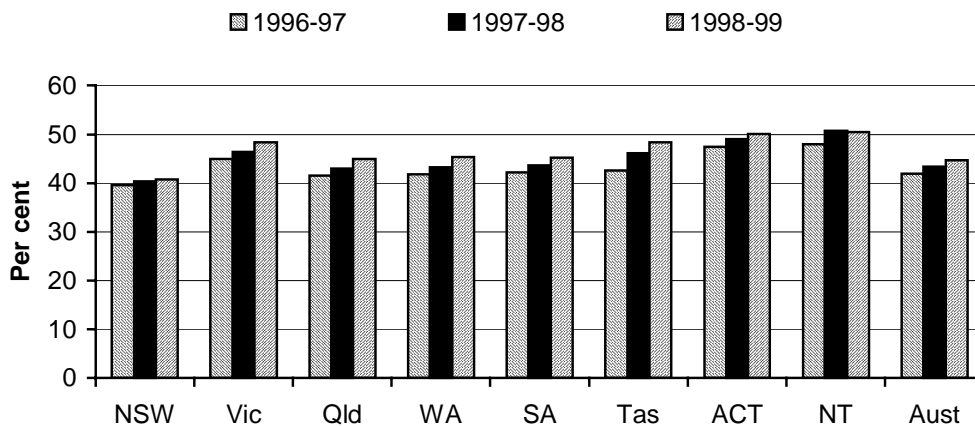


^a Directly age standardised to the Australian population at 30 June 1991.

Source: table 5A.7.

Nationally, nearly 45 per cent of separations were same day separations in 1998-99. Between 1996-97 and 1998-99, the proportion of same day separations rose in all states except the NT (figure 5.10).

Figure 5.10 Proportion of separations that were same day, public acute hospitals



Source: table 5A.7.

Separation rates for certain procedures

Separation rates for certain procedures are used to indicate the appropriateness of hospital care, with procedures selected for their frequency and for being elective and discretionary (given the availability of alternative treatments) (table 5.6). Care needs to be taken when interpreting the differences in the separation rates of the selected procedures. Variations in rates may be attributable to variations in the prevalence of the conditions being treated, or to differences in clinical practice among States and Territories. Higher/lower rates are not necessarily associated with inappropriate care. High rates may be acceptable for certain conditions and not for others (table 5.6). Separation rates for tonsillectomy and myringotomy may reflect the performance of general practice at the primary care level (see chapter 6).

The data available are for all hospitals, so reflect the activities of both public and private health systems.⁴

Interpretation of table 5.6 is complicated by the staggered implementation of the new version of disease classification (the *International Statistical Classification of Diseases and Related Health Problems, Revision 10, Australian Modification — ICD-10-AM*). New South Wales, Victoria, the ACT and the NT used the ICD-10-AM classification from July 1998, with the other jurisdictions adopting it from July 1999. Table 5.6 is separated into the two groups of jurisdictions representing the different versions of the procedure classifications. There are some inconsistencies between the two codes, with the major differences in the data for arthroscopy and diagnostic gastrointestinal endoscopies (AIHW 2000a).

The most common procedures in 1998-99 were endoscopy, lens insertion and arthroscopic procedures (table 5.6). Separation rates for all procedures varied across jurisdictions, in some cases markedly (for example, for myringotomy). Table 5A.14 indicates whether the differences between the separation rate for a particular State and the rate for all other jurisdictions (excluding that State) are statistically significant.

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

⁴ Data include public acute, public psychiatric, private acute, private psychiatric and private free standing day hospital facilities. Some private hospitals are excluded resulting in underreporting of some procedures, particularly those more likely to be performed in private hospitals. Thus, these types of procedure will be undercounted for some jurisdictions (AIHW 2000a).

Statistically significant differences from the average rates for these procedures in all other jurisdictions were recorded across all States and Territories (table 5A.14).

Table 5.6 **Separations per 1000 people, public and private hospitals by selected procedure, 1998-99^{a, b}**

	ICD-10-AM				ICD-9-CM			
	NSW	Vic	ACT	NT	Qld	WA	SA	Tas
A relatively high rate may indicate more appropriate care								
Angioplasty	0.9	1.1	0.4	0.8	0.7	1.0	0.9	1.0
Coronary artery bypass	1.0	0.9	0.7	0.6	0.9	0.7	0.7	0.6
Hip replacement	1.0	1.1	1.5	0.5	0.9	1.2	1.1	1.2
Lens insertion	6.0	4.9	3.5	4.3	6.4	6.4	4.1	3.9
A relatively high rate may indicate over reliance on procedures								
Hysterectomy	1.6	1.6	1.6	0.8	1.7	1.9	1.9	1.8
Tonsillectomy	1.9	2.0	1.4	0.6	1.8	1.9	2.4	1.1
Myringotomy	1.7	2.3	1.5	0.6	1.8	2.2	3.3	1.3
Caesarean section separation rate ^c	2.9	2.9	2.4	2.9	3.3	3.3	3.4	3.0
Caesarean section separations per 100 in-hospital births	20	22	19	23	23	24	25	21
Implications of a high or low rate are unclear								
Appendicectomy	1.4	1.5	1.4	1.2	1.5	1.6	1.3	1.3
Cholecystectomy	2.3	2.2	1.6	1.3	2.3	2.1	2.3	1.8
Arthroscopy ^d	0.8	1.9	0.7	1.5	4.1	5.5	7.9	4.8
Arthroscopic procedures (includes arthroscopies)	4.9	5.3	4.2	3.2				
Endoscopy	23.6	24.8	11.7	12.9	27.3	23.4	21.7	20.5

^a Separation rates per 1000 people are age and sex standardised to the Australian population at 30 June 1991. ^b Exclude multiple procedures during the same separation within the same sentinel group. ^c The number of caesarean sections depends on the birth rate as well as the population, thus it is useful to express the rate per birth as well as per population. ^d The inclusion of arthroscopy codes as well as arthroscopic procedure codes reflects mapping problems from the old to the new classification system. There are two possible interpretations of the ICD-9-CM codes (AIHW 2000a). The AIHW concludes that there were coding problems for Victorian arthroscopy data.

Source: table 5A.14.

Accessibility and equity

Emergency department waiting times

This indicator measures the proportion of patients seen within the time limits set according to the urgency of treatment required. Waiting times measure the time elapsed from presentation to the emergency department to commencement of

service by a treating medical officer or nurse. A 1997 study recommended two emergency department waiting time indicators for national reporting (Whitby *et al.* 1997). One of these indicators relates waiting times to the urgency of treatment required (the triage category):

- triage category 1: patients needing resuscitation — seen immediately;
- triage category 2: emergency — patients seen within 10 minutes;
- triage category 3: urgent — patients seen within 30 minutes;
- triage category 4: semi-urgent — patients seen within 60 minutes; and
- triage category 5: non-urgent — patients seen within 120 minutes.

Data for all jurisdictions are presented in table 5.7 for 1998-99. The data include both public and private patients. There are nationally agreed definitions but, as with the elective surgery data, differences in how the data are collected may exist, and great care should be taken in interpreting these data. Data may vary across jurisdictions as a result of differences in clinical practices (for example, on the allocation of cases to urgency categories). Other data issues to be investigated include any differences in when the elapsed time commences (for example, when the patient arrives at the triage desk, or when a triage category is allocated) and the precision with which the starting time of treatment is recorded. Other issues arise with the use of benchmarks. A patient in triage category 2 who waits 11 minutes, for example, is recorded the same as one waiting 18 minutes, even though the latter event may be of much greater concern.

Table 5.7 Emergency department waiting time to service delivery, 1998-99 (proportion of patients seen within triage category)^a

<i>Triage category</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld^b</i>	<i>WA^c</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT^d</i>
1 – Resuscitation	96	100	97	93	97	95	100	99
2 – Emergency	76	82	72	82	72	80	87	47
3 – Urgent	63	76	63	72	63	69	80	66
4 – Semi-urgent	68	58	68	69	65	79	69	54
5 – Non-urgent	89	82	88	87	91	95	81	74
Data coverage								
Estimated proportion of emergency visits	79	na	na	100	na	100	100	93
Number of hospitals	51	na	na	na	8	4	na	na

^a Nationally agreed definitions exist but differences in how data are collected may exist and care should be taken in interpreting these data. ^b Period January to June 2000. Based on hospitals with a role delineation of 4 or greater. ^c WA data cover only the Metropolitan Health Service. ^d The high percentage of category 2 patients recorded as not seen within the timeframe is not a true reflection of clinical practice.

Source: tables 5A.15.

Waiting times for elective surgery

The proportion of elective surgery patients waiting longer than the accepted standard is a nationally recognised indicator of access to public acute hospitals (Health Department of WA 1998). Hospitals also collect waiting time data for internal management purposes.

The three generally accepted urgency categories (see table 5.13 for complete definitions) for elective surgery are:

- category 1, for which admission is desirable within 30 days;
- category 2, for which admission is desirable within 90 days; and
- category 3, for which admission at some time in the future is acceptable.

Category 1 and category 2 patients waiting longer than desirable are usually described as ‘overdue’, while category 3 patients waiting longer than one year are subject to an ‘extended wait’ (AIHW 1999a). For simplicity, the term ‘extended wait’ is also used here to describe ‘overdue’ patients. There is no specified or agreed desirable wait for category 3 patients, so the term ‘extended wait’ is used for patients waiting for longer than 12 months. Under the 1998–2003 Australian Health Care Agreements, the States and Territories report to the Commonwealth the number of category 3 patients who, on admission, have waited longer than 12 months for elective surgery.

Where patients experience a change in their clinical condition leading to a review of their urgency category, waiting times are recorded as the period in the most recent urgency category and in any previous more urgent categories. This is with the exception of Victoria, which records the time waiting in the most recent urgency category.

Elective surgery waiting times are difficult to measure objectively, and the data can be complex to interpret. The two widely accepted measures of waiting times are the proportion of patients on waiting lists with extended waits (at a census date) and the proportion of patients admitted after extended waits (based on throughput data). Both present conceptual and data issues.

From a patient’s perspective, the relevant question is, ‘If I need surgery, what is the likelihood that I will have to wait longer than is considered desirable?’ To develop strictly comparable data to answer this question, clinical judgements about need for surgery, and allocations by surgeons into the three categories of urgency, would need to be consistent across jurisdictions. Current data collections assume there is some standardisation across Australia in how these ratings are allocated, but the definitions remain relatively broad (Clover *et al.* 1998). As a result, systemic differences in clinical practices across jurisdictions (such as differences in the

complexity of cases treated as admitted patients), as well as in the performance of hospital systems, may affect reported results. Differences in the scope of the collections (including the proportion of hospitals and elective admissions covered) may also affect comparisons across jurisdictions.

The proportion of patients subject to extended waits for elective surgery at public hospitals is reported for each urgency category in table 5.8. It indicates the proportion of those patients waiting on that date, who have been waiting an extended time. Generally it will overstate the likelihood of an extended wait, because patients who wait for long periods are more likely to be counted at census points (AIHW 1995).

An alternative indicator based on admissions data — that is, the proportion of patients admitted with extended waits — also has some shortcomings. Those who were on a waiting list but were never admitted (because they became emergency cases, decided to be treated in a private hospital or died) are not counted (AIHW 1995). In addition, some patients waiting may not be admitted because their condition improved sufficiently to make treatment unnecessary, or because they declined treatment for other reasons (Lee *et al.* 1987).

Queensland, WA, SA, the ACT and the NT provided data on patients on waiting lists by clinical speciality for 1998-99 (tables 5A.52, 55, 59, 63 and 64), as well as waiting times for all clinical categories. Victoria, Queensland and Tasmania provided aggregated data for all clinical categories (table 5.8).

Table 5.8 Proportion of elective surgery patients with extended waits, 1998-99^a

<i>Clinical urgency category</i>	<i>NSW</i>	<i>Vic^b</i>	<i>Qld</i>	<i>WA^c</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>
Per cent of patients on waiting lists with extended waits, 30 June 1999								
Category 1	na	0.2	2.1	na	26.8	44.1	34.0	8.9
Category 2	na	29.6	12.3	na	19.0	64.4	45.0	12.0
Category 3	na	20.2	27.3	na	9.4	35.9	26.0	2.9
Per cent of patients admitted from waiting lists with extended waits, 30 June 1999								
Category 1	na	1.3	4.4	12.4	9.7	22.0	14.0	55.0
Category 2	na	14.2	9.2	25.7	11.3	36.3	37.0	41.0
Category 3	na	5.6	9.0	17.4	2.4	15.8	15.0	16.0
Data coverage								
Coverage of elective admissions	na	na	95.0	na	na	na	na	100

^a The data include both public and private patients. ^b Victorian waiting times recorded as the period in the most recent urgency category. ^c Data for WA are for tertiary hospitals only. There were 215 354 admissions in tertiary hospitals for 1998-99 of which 125 433 were elective admissions. Estimates for waiting list admissions based on a sample of 26 299 waiting list admissions.

Source: table 5A.16.

Elective surgery waiting time data provide some information on access, but 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, the assessment of access would not be based on only 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).

Victoria uses a significantly different definition to calculate the number of elective surgery patients on waiting lists. It classes patients waiting for elective surgery as 'booked patients' and 'waiting list patients'. Booked patients have been given a definite admission date (within six weeks) and unbooked patients are still waiting for a date. Patients who have been booked longer than six weeks are reclassified as waiting list patients. Victoria also publishes the number of elective surgery patients waiting longer than desirable. Waiting time includes time on the waiting list and/or the booking list. Data for Victoria were available in aggregate only.

Separations by target group

Equity of access to hospital services is another measure of accessibility and hence of the effectiveness of the health sector. Without a patient's appropriate access to hospital services, the consequences of any injury or illness are more likely to result in either permanent disability or premature death. Equity of access has been measured using data on Indigenous and non-Indigenous separations.

Data on Indigenous people are limited by the completeness with which Indigenous people are identified in hospital records and completeness is likely to vary across States and Territories. The Australian Bureau of Statistics (2000a) noted that studies of a limited number of individual hospitals suggest that the proportion of Indigenous people correctly identified in hospital records ranges from less than 50 per cent to close to 100 per cent. It found that for 1998-99, the quality of data on Indigenous hospitalisations was considered acceptable only in the NT, SA and WA (AIHW 2000a). National reporting on data quality in hospitals is expected in 2002. In the meantime, few jurisdictions have data of consistent quality — with the exception of the NT (ABS 2000a, *Condon et al.* 1998). In addition, difficulties in estimating the size of the Indigenous population limits the comparability of data over time.

Descriptive data on Indigenous and non-Indigenous separations in public hospitals in 1998-99 are provided in table 5.9. Indigenous separations accounted for around 4 per cent of total separations in 1998-99, although Indigenous people represented around 2 per cent of the total population in 1998 (AIHW 2000a). Most Indigenous separations occurred in public hospitals (98 per cent). The low proportion of private

hospital separations for Indigenous people may partly be due to a lower proportion of Indigenous patients being correctly identified in private hospitals and partly to a lower usage of private hospitals (ABS 2000a). Data in table 5.9 should be interpreted cautiously and are considered acceptable only for the NT, SA and WA (AIHW 2000a).

Table 5.9 Separations by Indigenous status, public hospitals, 1998-99^a

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT^b</i>	<i>Aust</i>
Number of public hospital separations ('000)									
Indigenous	29	6	45	34	11	0	0	32	157
Non-Indigenous	1245	964	638	324	337	27	57	22	3613
Not-reported	0	0	26	0	8	53	1	1	90
Total	1273	970	709	358	356	81	59	55	3860
Separations in public hospitals as a proportion of total separations (per cent)									
Indigenous	96	95	99	98	98	91	95	na	98
Non-Indigenous	69	66	69	63	70	69	78	na	68

^a Identification of Aboriginal and Torres Strait Islander patients is not complete, and completeness varies across jurisdictions. ^b Includes only public hospitals.

Source: table 5A.17.

A performance indicator of Indigenous access to hospitals is given by the rate of separations per 1000 people. Data on separation rates for Indigenous people and all people by State and Territory for all hospitals (both public and private) are presented in table 5.10. Once again, data in this table should be interpreted with care

Table 5.10 Estimates of separations per 1000 people from all hospitals by reported Indigenous status^{a, b, c}

	<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>
1997-98									
Indigenous people	398	367	543	785	703	139	392	904	540
Total population	277	293	311	283	313	268	266	341	291
1998-99									
Indigenous people	357	361	597	816	691	na	na	887	562
Total population	278	301	321	301	314	259	267	352	296

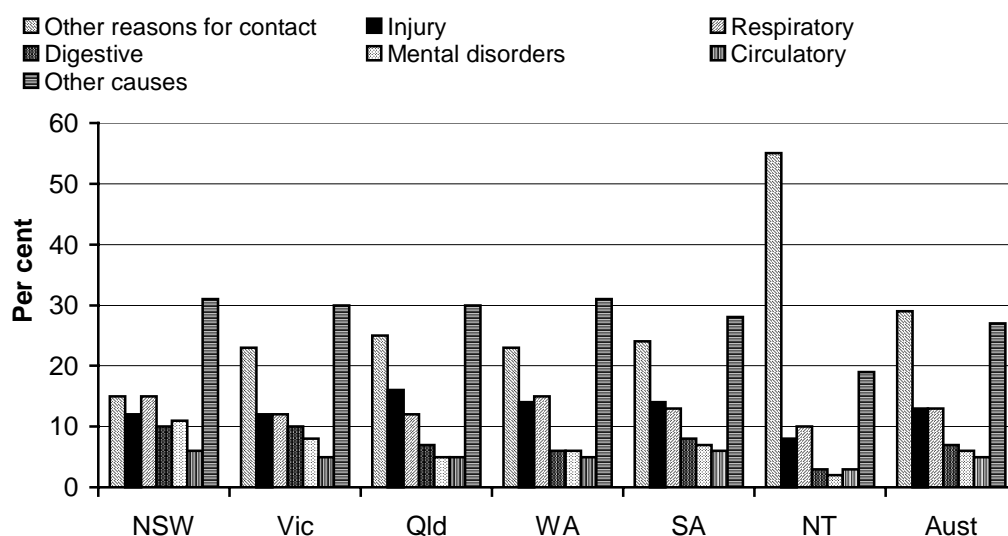
^a The rates were directly age-standardised to the Australian population at 30 June 1991. ^b Only public hospitals in the NT. ^c Identification of Indigenous people is not always complete and varies across jurisdictions. Incomplete identification of Indigenous people means comparisons between the Indigenous population and the total population are preferable to using estimates of the non-Indigenous population. The total population estimates provide a valid comparison because the Indigenous population is a small proportion of the total (ABS 2000a). **na** Not Available because Aboriginal or Torres Strait Islander status was not reported for 69 per cent of separations in Tasmania, and there was known underreporting in the ACT.

Source: table 5A.18.

and are considered acceptable only for the NT, SA and WA (AIHW 2000a). Overall, on an age-standardised basis, 562 separations for Indigenous patients (including same day separations) were reported per 1000 Indigenous population (except Tasmania and the ACT) in Australia. This was markedly higher than the corresponding overall population figure of 296 per 1000 (table 5.10). The NT reported the highest rate of Indigenous separations (887 per 1000) even though its private hospital was not included. The rates for both Aboriginal and Torres Strait Islander people were higher than those for other patients in all age groups, and markedly so for patients aged over 34 years. The highest rates overall were recorded for Indigenous females in the 55–64 age group (AIHW 2000a).

Figures 5.11 and 5.12 show descriptive data on the most common reasons for hospital separations for Indigenous people in 1997-98. The most common reasons for males included other causes (such as dialysis), respiratory problems and injuries. The most common reasons for females included other causes (such as dialysis) followed by injuries.

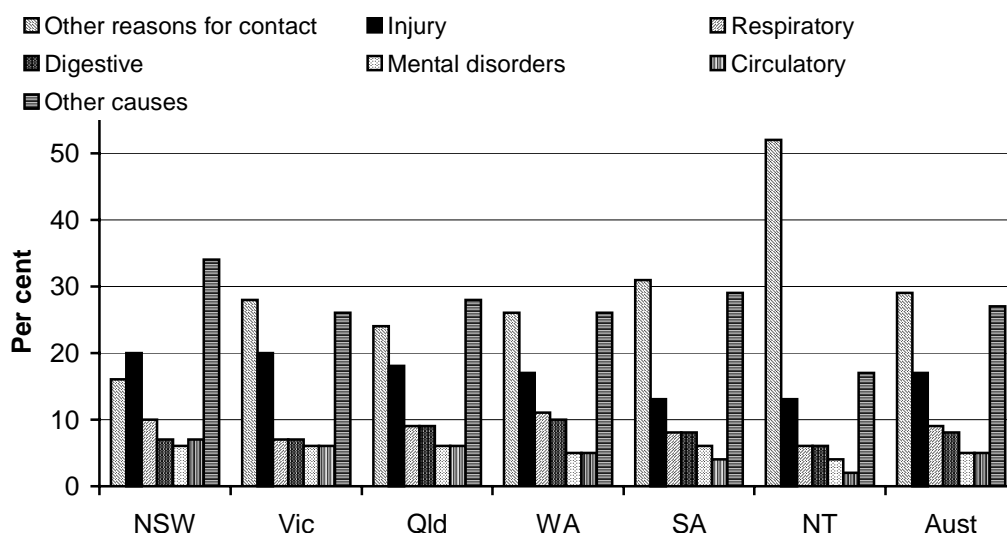
Figure 5.11 Indigenous males: most common reasons for hospital separations, 1997-98^{a, b, c, d, e, f, g}



^a Data are based on place of hospitalisation. Excluded are separations for which age and/or sex was missing. Data for Tasmania and the ACT are not presented due to relatively small numbers. Most common reasons for hospitalisation are based on ICD-9 chapters. ^b Data for Australia include Tasmania and the ACT. ^c Only public hospitals in the NT. ^d The quality of identification of hospital patients is likely to vary by State and Territory, although the level of underidentification is unknown in most hospitals. ^e No information on Indigenous status of patients was available for private hospitals. ^f Includes dialysis. 'Other reasons for contact' includes all ICD-9 V-codes, which is a supplementary classification used to indicate circumstances that influence health status or bring people into contact with the health care system but that do not fit into the main disease and injury coding system. ^g 'Other causes' includes all other ICD-9 chapters combined.

Source: table 5A.20.

Figure 5.12 Indigenous females: most common reasons for hospital separations, 1997-98^{a, b, c, d, e, f, g}



^a Data are based on place of hospitalisation. Excluded are separations for which age and/or sex was missing. Data for Tasmania and the ACT are not presented due to relatively small numbers. Most common reasons for hospitalisation are based on ICD-9 chapters. ^b Data for Australia include Tasmania and the ACT. ^c Only public hospitals in the NT. ^d The quality of identification of hospital patients is likely to vary by State and Territory, although the level of underidentification is unknown in most hospitals. ^e No information on Indigenous status of patients was available for private hospitals. ^f Includes dialysis. 'Other reasons for contact' includes all ICD-9 V-codes, which is a supplementary classification used to indicate circumstances that influence health status or bring people into contact with the health care system but that do not fit into the main disease and injury coding system. ^g 'Other causes' includes all other ICD-9 chapters combined.

Source: table 5A.20.

Table 5.11 shows age standardised separation rates for Indigenous people and for the total population in 1998-99 for selected diseases. Indigenous separation rates tend to be markedly higher — particularly female Indigenous separation rates. The widest differential was for diabetes. Separation rates across Australia for Indigenous people for diabetes were around five times as high as the total population for men and seven times as high for women. In WA, separation rates for diabetes for Indigenous people were eight times as high as the total population for men and 13 times as high for women.

The data in table 5.11 should be viewed with caution because of the identification problem. Data are considered acceptable only for WA, SA and the NT (AIHW 2000a). In addition, in 1998-99, there were two classifications in use in Australia for recording hospital diagnoses — ICD-10-AM was used by the NT, the ACT, NSW and Victoria and ICD-9-CM was used by the other States. While data for the four latter states are mapped to ICD-10-AM, comparability may be affected.

Table 5.11 Separation rates for selected conditions by Indigenous status, all hospitals, 1998-99^a

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas^b</i>	<i>ACT^c</i>	<i>NT^d</i>	<i>Aust^e</i>
<i>Separation rate for Indigenous people per 1000^f</i>									
Acute myocardial infarction ^h									
Male	3.6	3.2	na	5.2	2.9	0.0	na	3.5	4.1
Female	1.7	2.0	na	3.7	1.8	0.0	na	1.5	2.4
Injury and poisoning									
Male	31.5	29.3	na	79.9	60.2	1.4	na	46.2	49.6
Female	22.1	21.8	na	71.6	40.2	1.6	na	44.7	38.5
Respiratory diseases									
Male	35.7	24.0	na	81.0	56.3	4.4	na	52.7	48.3
Female	40.3	27.9	na	80.3	50.2	1.5	na	51.6	46.5
Diabetes ^g									
Male	3.7	2.8	na	9.3	12.0	0.0	na	5.1	7.0
Female	4.0	2.9	na	14.4	13.3	0.0	na	3.5	8.1
Tympanoplasty ⁱ									
Male	0.2	0.6	na	0.9	1.4	0.0	na	0.4	0.5
Female	0.1	0.7	na	1.9	0.7	0.0	na	0.7	0.6
<i>Separation rate for all people per 1000^f</i>									
Acute myocardial infarction ^h									
Male	2.3	2.2	na	2.4	2.4	1.7	na	1.7	2.3
Female	1.0	0.9	na	1.0	0.9	0.9	na	1.0	1.0
Injury and poisoning									
Male	24.2	22.0	na	26.4	27.0	21.1	na	28.2	25.5
Female	16.2	15.8	na	18.8	18.4	14.4	na	23.2	17.3
Respiratory diseases									
Male	20.4	17.8	na	18.8	23.3	13.2	na	25.7	19.6
Female	16.3	14.4	na	15.9	19.4	10.9	na	23.2	15.9
Diabetes ^g									
Male	1.1	1.2	na	1.2	2.2	2.3	na	4.1	1.3
Female	0.9	1.1	na	1.1	1.8	1.4	na	1.6	1.1
Tympanoplasty ⁱ									
Male	0.2	0.2	na	0.4	0.3	0.1	na	0.3	0.2
Female	0.2	0.2	na	0.3	0.3	0.1	na	0.4	0.5

^a Identification of Indigenous patients is not complete and completeness varies across jurisdictions. The quality of data is considered acceptable only for WA, SA and the NT. ^b Tasmanian data are likely to be statistically invalid. ^c ACT did not release data as they are incomplete. ^d Public hospitals only in the NT. ^e Totals for Australia based on data from all jurisdictions (including the ACT and Queensland). ^f The rates were directly age-standardised to the Australian population at 30 June 1991. ^g Separations for diabetes are likely to be underestimates because in many cases, hospitalisation is attributed to diseases associated with diabetes such as heart disease, renal disease, or eye problems. ^h Heart attack. ⁱ Surgical repair of the ear drum.

Source: table 5A.19.

Efficiency

Two approaches to measuring the efficiency of public hospital services are used in this Report. One is the cost per unit of output (the unit cost) and the other is the adjusted relative length of stay index, because costs are correlated with the length of stay at aggregate levels of reporting. Both measures have improved markedly since they were first reported in the 1995 Report.

The Review's approach is to report the full costs of a service where they are available. Where the full costs of a service cannot be measured accurately, the Review seeks to report estimated costs that are comparable. Where differences in comparability remain, the Review seeks to document the nature of those differences.

The Review has identified a range of financial reporting issues that have also affected the accuracy and comparability of unit costs for acute care services. These include the treatment of payroll tax, superannuation, depreciation and the user cost of capital.

Cost estimates for Tasmanian public hospitals exclude payroll tax, following recommendations contained in SCRCSSP (1999b). The superannuation expense for the NT in 1997-98 was estimated using the average for other jurisdictions; research by the Steering Committee suggested that this approach may understate the expense for the NT (SCRCSSP 1998).

Depreciation and the user cost of capital associated with buildings and equipment are included with estimates of unit costs. A number of issues remain to improve further the quality of these estimates. The inclusion of these capital costs improves the accuracy of the unit costs of acute care services.

Care should be taken when comparing the available indicators of efficiency across jurisdictions. Differences in counting rules, the treatment of various expenditure items (for example, superannuation) and the allocation of overhead costs have the potential to hinder comparisons across jurisdictions. Differences in the use of salary packaging may allow hospitals to lower their wage bills (and thus State or Territory government expenditure) while maintaining their staffs' after-tax income. No data were available for reporting on the effect of salary packaging and any variation in its use across jurisdictions.

Differences in the scope of services being delivered by public hospitals may also reduce the comparability of efficiency measures. Some jurisdictions admit patients who may be treated as non-admitted patients in other jurisdictions (AIHW 2000a).

Recurrent costs per casemix adjusted separation

The recurrent cost per casemix adjusted separation is an indicator of hospitals' cost performance for admitted patients. This indicator measures the average cost of providing care for an admitted patient (whether overnight stay or same day), adjusted for the relative complexity of the patient's clinical condition and of the hospital services provided (AIHW 1999b). It is a biased indicator because while all admitted patient separations and their costs are included in the calculations, cost weights are not available for non-acute admitted patients. Average cost weights for acute patients typically underestimate the costs of other-than-acute separations (including rehabilitation and non-acute) (AIHW 2000a).

Another problem is that the recurrent cost per casemix adjusted separation does not distinguish between separations of acute and other-than-acute patients. Jurisdictions differ in the rate at which the care of psychiatric patients is being transferred from stand-alone psychiatric hospitals to public acute hospitals and community based services. While other-than-acute admitted patients now comprise approximately 3 per cent of total admitted patient episodes, this is likely to grow over time.

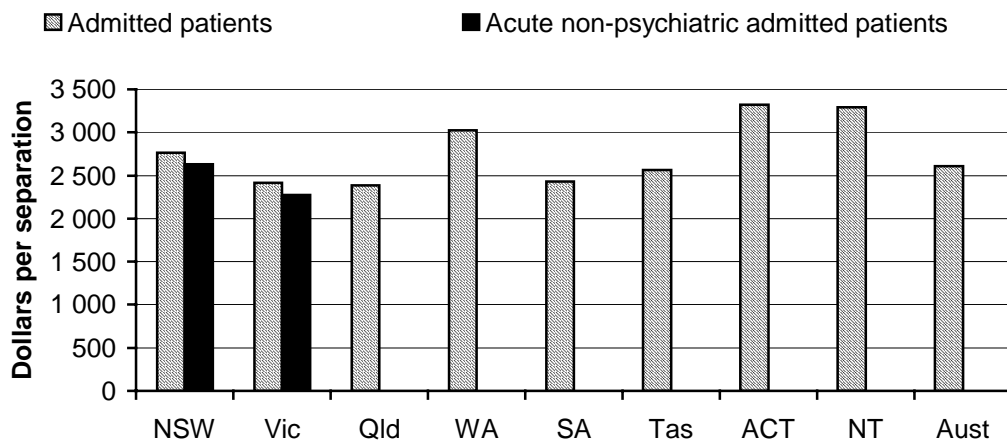
To address these problems, Victoria and NSW also report recurrent cost per casemix adjusted separation for acute non-psychiatric admitted patients. Other jurisdictions are expected to also be able to isolate acute care costs in the near future. These revised estimates more closely align with the cost estimates provided by Victoria in last year's Report. Both indicators are presented in figure 5.13 (tables 5A.24 and 5A.25).

The data for both versions of the indicator exclude spending on non-admitted patient care, the user cost of capital and depreciation, research costs and payroll tax. Victoria and NSW also excluded expenditure on other-than-acute and psychiatric patients for their estimates of recurrent cost per casemix adjusted separation for acute non-psychiatric admitted patients. Overnight stays, same day separations and private patient separations in public hospitals and private patient recurrent costs are included. The institutional scope excludes psychiatric hospitals, drug and alcohol services, rehabilitation hospitals, mothercraft hospitals, hospices, hospitals with fewer than 200 separations, acute metropolitan hospitals with fewer than 2000 separations (including dental hospitals), hospitals subject to major trauma, and small non-acute and multipurpose services. The 1998-99 data exclude hospitals that account for 4.2 per cent of total separations across Australia, although the proportion of separations excluded varies across jurisdictions (table 5A.24).

Refinements to the basis of excluding institutions mean that the institutional scope for this indicator differs over time. Thus, comparisons over time of recurrent cost per casemix adjusted separation should be treated with caution.

For all admitted patients, Queensland had the lowest recurrent cost per casemix adjusted separation (\$2390) in 1998-99, and the ACT and the NT had the highest (\$3326 and \$3297) (figure 5.13). The average for Australia was \$2611 in 1998-99. For acute non-psychiatric separations, the recurrent cost per casemix adjusted separation in 1998-99 was \$2275 in Victoria, and \$2631 in NSW.

Figure 5.13 Recurrent cost per casemix adjusted separation, 1998-99^{a, b, c, d}



^a Excludes the user cost of capital and depreciation. ^b Psychiatric hospitals, drug and alcohol services, mothercraft hospitals, unpeered and other, hospices, rehabilitation facilities, small non-acute and multi-purpose services excluded. ^c Tasmania is the only jurisdiction with a significant payroll tax burden. As a result, payroll tax has been estimated at 6.7 per cent of salary plus superannuation and removed. ^d NSW, Victoria, the ACT and the NT report in ICD-10-AM grouped to AR-DRG v4.1. Queensland, WA, SA and Tasmania report in ICD-9-CM grouped to AR-DRG v4.0. There are possibly slight differences as a result of this use of the different ICD classifications.

Source: table 5A.24 and table 5A.25.

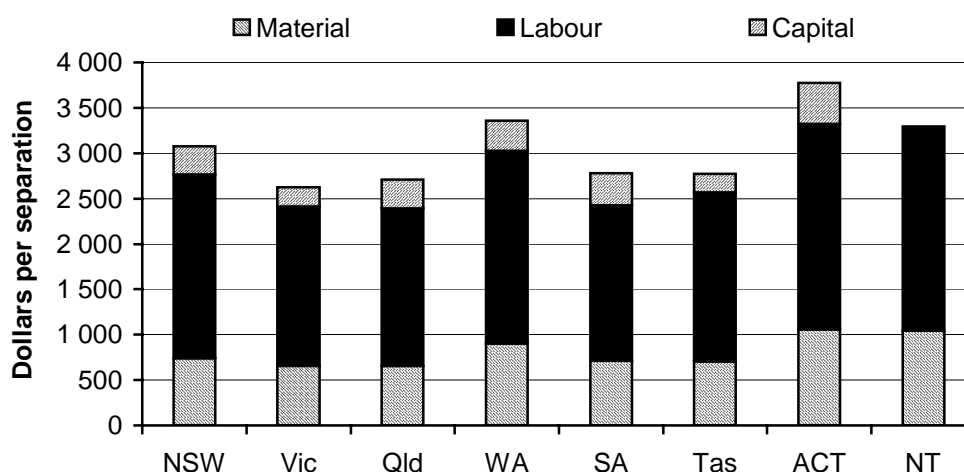
Inclusion of capital costs

The estimated unit cost of admitted care services inclusive of capital costs is reported below. Total cost per casemix adjusted separation is defined as the recurrent cost per casemix adjusted separation plus the capital costs (the depreciation and the user cost of capital of buildings and equipment) per casemix adjusted separation. The indicator is reported only for admitted patients.

Depreciation is defined as the cost of consuming an asset's services, and is measured by the reduction in value of an asset over the financial year. The user cost of capital is the opportunity cost of the capital, and is equivalent to the return foregone from not using the funds to deliver other government services or to retire debt.

Recurrent costs should exclude interest payments if they are to be added to the user cost of capital to derive full costs. Interest payments have not been excluded in the analysis here. However, data separately reported on interest expenses showed that they varied from effectively zero for NSW, Victoria, the ACT and the NT, and 2 per cent of recurrent expenditure for WA. This amount was deducted directly from WA's capital costs to avoid double-counting. The NT is still operating on a cash expenditure basis and was unable to identify its depreciation or asset values. From the remaining jurisdictions, Victoria had the lowest total cost per casemix adjusted separation at \$2623, and the ACT had the highest at \$3772 (figure 5.14).

Figure 5.14 **Total cost per casemix adjusted separation, public acute hospitals, 1998-99** ^{a, b, c, d}



^a 'Labour' includes medical and non-medical labour costs. 'Material' includes other non-labour recurrent costs. 'Capital' is defined to include the user cost of capital plus depreciation associated with the delivery of inpatient services in the public acute hospitals described in figure 5.14. ^b Excludes the user cost of capital associated with land. This is reported in table 5A.21. ^c Variation across jurisdictions in the collection of data suggests that the data should be treated as indicative. ^d NT is on a cash-accounting regime and was unable to provide user cost of capital or depreciation data.

Source: tables 5A.21 and 5A.24.

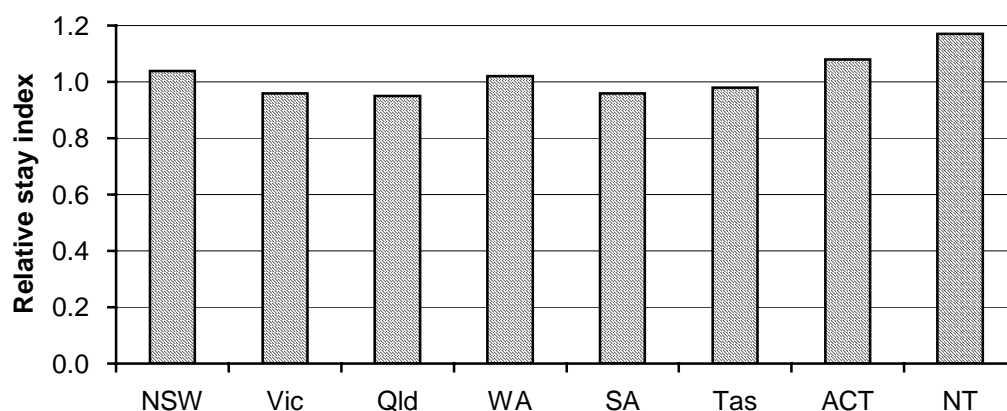
Casemix adjusted relative stay index

Length of stay is adjusted for casemix for the first time this year. This is a considerable improvement on previous years, providing a more accurate reflection of differences across jurisdictions in length of stay. Without adjusting for casemix, hospitals with more complex patients will appear to have relatively higher lengths of stay. Since length of stay has a significant impact on costs, such hospitals may erroneously appear less efficient. The casemix adjusted measure is known as the 'relative stay index' and is defined as the actual number of acute bed days divided by the expected number of acute bed days adjusted for casemix. Same day dialysis

and chemotherapy patients have been excluded from the calculations. The relative length of stay for Australia is one. A relative stay index greater than one indicates that an average patient's length of stay is higher than would be expected given the jurisdiction's casemix distribution. A relative stay index of less than one indicates that the number of bed days used was less than would have been expected.

The index for public acute patients is presented for all jurisdictions for 1998-99 in figure 5.15. The NT is highest with an index of 1.17. Queensland is lowest with an index of 0.95.

Figure 5.15 **Casemix adjusted relative stay index, public acute patients, 1998-99^a**



^a Stays of 200 days and over are excluded. Index includes acute patients only. Same day dialysis and chemotherapy are excluded.

Source: table 5A.23.

Recurrent 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. Occasions of service include examinations, consultations, treatments or other services provided to patients in each functional unit of a hospital. This measure does not adjust for complexity of service; for example, a simple urine glucose test is treated equally with a complete biochemical analysis of all body fluids (AIHW 2000c).

Cost per non-admitted occasion of service was provided by all jurisdictions except Victoria and the NT. The NT was unable to provide data for 1998-99. Victoria collects data on the basis of cost per encounter. An encounter includes the clinic visit and all ancillary services provided within a 30-day period either side of the clinic visit. Victoria recorded 1.01 million encounters at 21 public hospitals in

1998-99. Based on cost data from 13 major hospitals in 1998-99, the average cost per encounter was \$114. This compared with an average cost per encounter of \$109 in 1997-98 (based on cost data from nine major hospitals) and \$104 in 1996-97 (based on cost data from seven major hospitals) (table 5A.50).

Other jurisdictions reported the following results for cost per occasion of service.

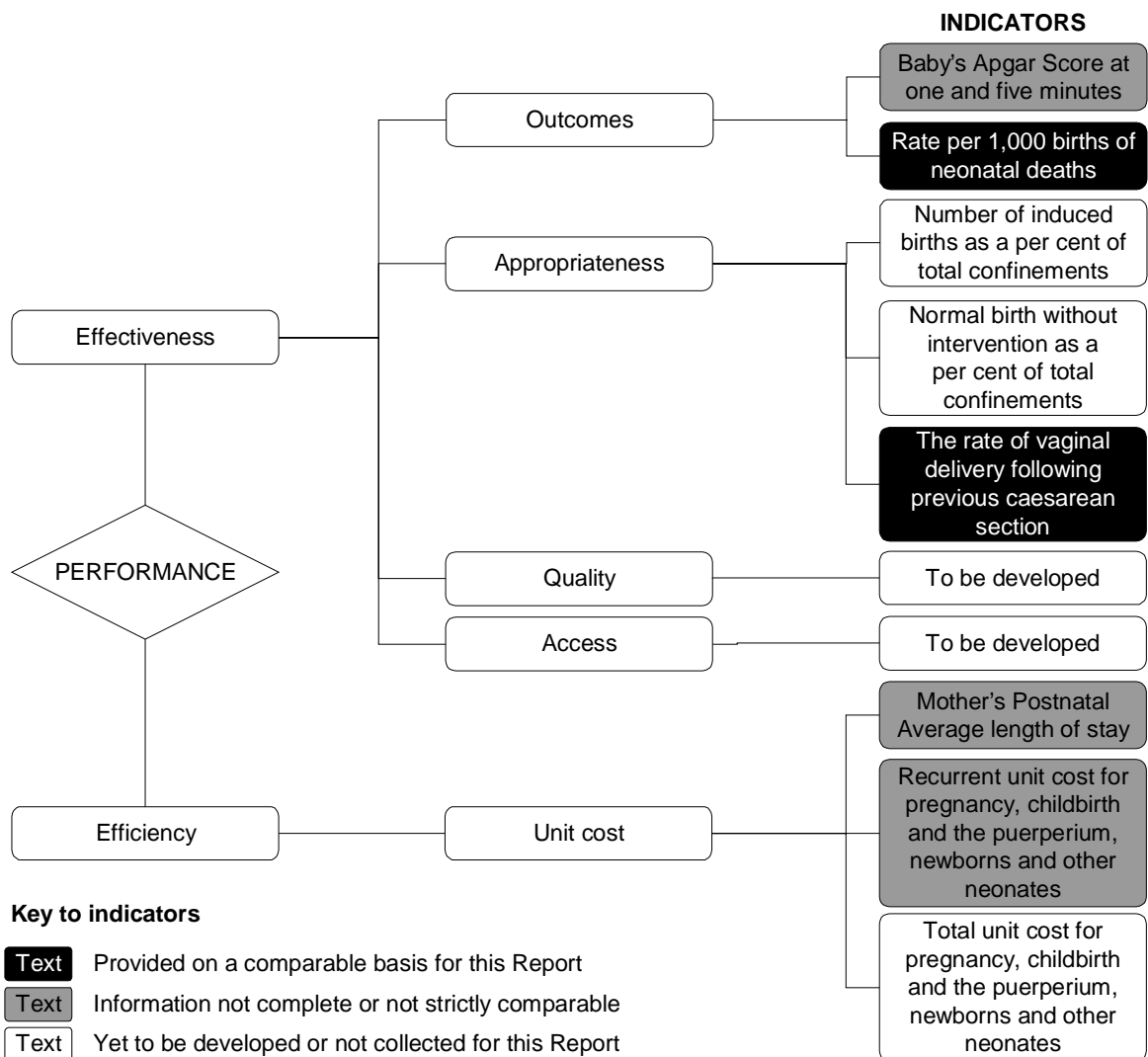
- New South Wales reported cost per occasion of service of \$109 in 1998-99, an increase from \$99 in 1997-98 (table 5A.47).
- Queensland reported cost per occasion of service of \$63 for public acute hospitals in 1998-99. Costs per occasion of service were higher in metropolitan areas than in non metropolitan areas (table 5A.51).
- In WA, costs per occasion of service for public acute hospitals were \$78 and for public psychiatric hospitals, \$41. Costs were higher in non metropolitan areas than in metropolitan areas (tables 5A.53 and 54).
- In SA, cost per occasion of service for public acute hospitals was \$122 in 1998-99, with reported costs higher in metropolitan than in non metropolitan areas (table 5A.58).
- Tasmania reported cost per occasion of service data for outpatients of \$123 in 1998-99 (table 5A.61).
- The ACT reported cost per occasion of service of \$183 for public acute hospitals in 1998-99 (table 5A.62).

5.4 Maternity services performance framework

Framework of performance indicators

The performance framework for maternity services is outlined in figure 5.16, and has the same objectives as for public acute hospitals in general. The framework is under development by the Steering Committee and, as with all the performance indicator frameworks, will be subject to regular review.

Figure 5.16 Proposed performance framework for maternity services^a



^a Normal birth without intervention refers to spontaneous vertex deliveries in which the baby's head is the presenting part.

Key performance indicator results

Outcomes

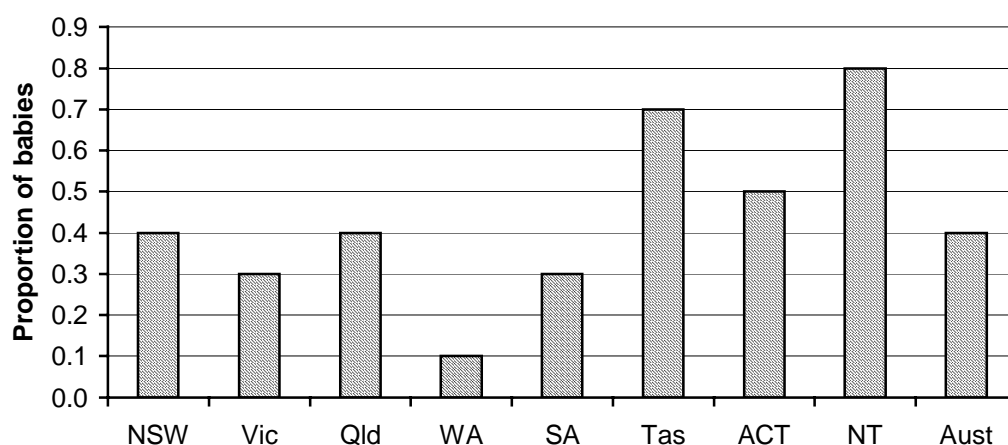
Two maternity service outcome indicators are included in the Report this year: the Apgar score, which indicates a baby's wellbeing soon after birth, and the neonatal death rate.

Apgar score

The Apgar score is a numerical score used to evaluate a baby's condition shortly after birth. It is based on an assessment of the baby's heart rate, breathing, colour, muscle tone and reflex irritability. Between 0 and 2 points are given for each of these five characteristics, and the total score may vary between 0 and 10. The Apgar score is routinely assessed at one and five minutes after birth, and subsequently at five-minute intervals if it is still low at five minutes (Day *et al.* 1999). Low Apgar scores of less than 4 are strongly associated with babies' birthweights.

Apgar scores for one and five minutes after birth for all live births for 1997 are presented in the attachment (table 5A.29) based on the latest available AIHW data. Over 97 per cent of confinements in 1997 occurred in hospitals, with nearly 70 per cent in public hospitals (Day *et al.* 1999). More recent data for Apgar scores for public hospitals for 1998 and 1999 sourced from the ACHS are also presented in the attachment (table 5A.29). Data from the ACHS are not available for Tasmania, the ACT and the NT because of the small number of hospitals, and reported data is subject to high standard errors.

Figure 5.17 **Proportion of babies with an Apgar score of 3 or less 5 minutes post delivery, 1997^a**



^a 'Low Apgar score' is defined as the number of babies born with an Apgar score of three or below at five minutes post-delivery. Foetal death in utero-diagnosed prior to commencement of labour is excluded.

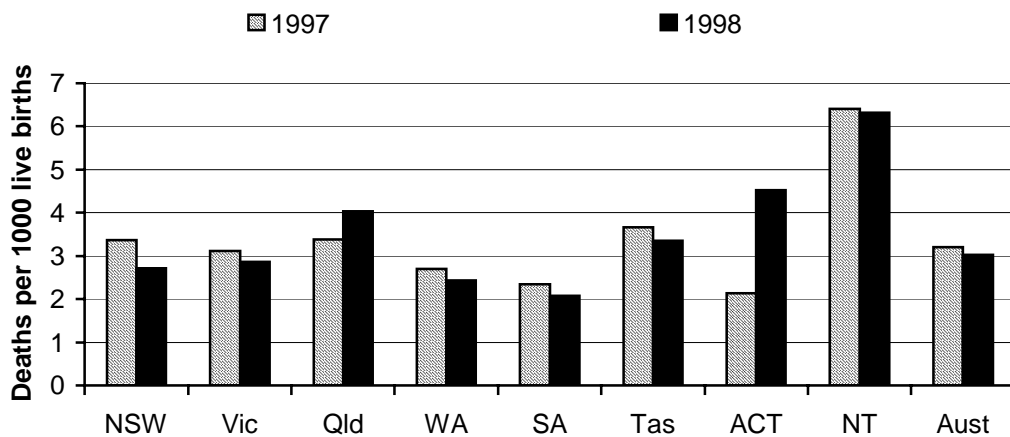
Source: table 5A.29.

Comparable data are available for 1997 for both private and public hospitals. Table 5A.29 is not adjusted for birthweight. In 1997, low Apgar scores of 0–3 were recorded at five minutes in 0.4 per cent of live births (figure 5.17). The NT had the highest proportion of live births with low Apgar scores at five minutes (8 per cent) and WA the lowest (0.1 per cent).

Neonatal deaths

Neonatal death is the death of a live born infant within 28 days of birth. The rate of neonatal deaths is expressed per 1000 total live births (not just hospital live births). Australia-wide, the rate fell from 4.6 deaths per 1000 live births in 1990 to 3.0 deaths per 1000 live births in 1998 (table 5A.31). In 1998, the neonatal death rate was highest in the NT (6.3 deaths per 1000 live births) and lowest in SA (2.1 deaths per 1000 live births) (figure 5.18 and table 5A.31).

Figure 5.18 Neonatal death rate^a



^a Rate expressed as a proportion of total live births in Australia.

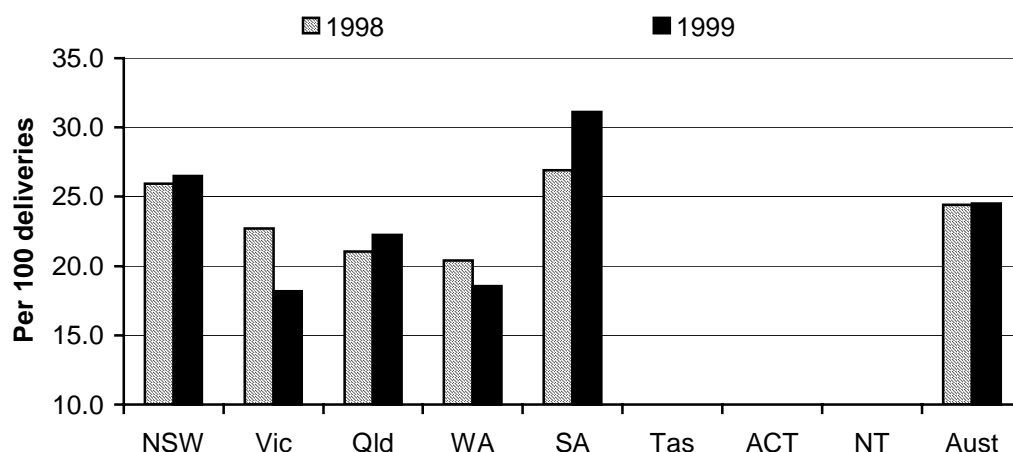
Source: table 5A.31.

Appropriateness

One appropriateness indicator is reported this year: the rate of vaginal delivery following previous primary caesarean section. Variations in rates across jurisdictions may highlight differences in intervention rates that require more detailed analysis.

The rate of vaginal delivery following primary caesarean section is defined as the number of patients delivering vaginally following a previous primary (first) caesarean section, as a proportion of the total number of patients delivering who have had a previous primary caesarean section and no intervening pregnancies of greater than 20 weeks gestation (ACHS 2000b).

Figure 5.19 **Rate of vaginal delivery following primary caesarean (all hospitals)^{a, b}**



^a Defined as the number of patients delivering vaginally following a previous primary caesarean section divided by the total number of patients delivering who have had a previous primary caesarean section and no intervening pregnancies of greater than twenty weeks gestation. ^b Data for Tasmania, the ACT and the NT were not available because of the small number of hospitals.

Source: table 5A.32.

Data is sourced from the ACHS for 1998 and 1999. The rate of vaginal delivery in 1999 for Australia (all hospitals) was 24.5 per cent, and was highest in SA (31.1) and lowest in Victoria (18.2) (figure 5.19). The rate of vaginal delivery was higher in rural hospitals (28.2) than in metropolitan hospitals (23.7) in 1999 (table 5A.32). The rate was also higher in public hospitals than for all hospitals for the jurisdictions whose data were available (table 5A.32).

Efficiency

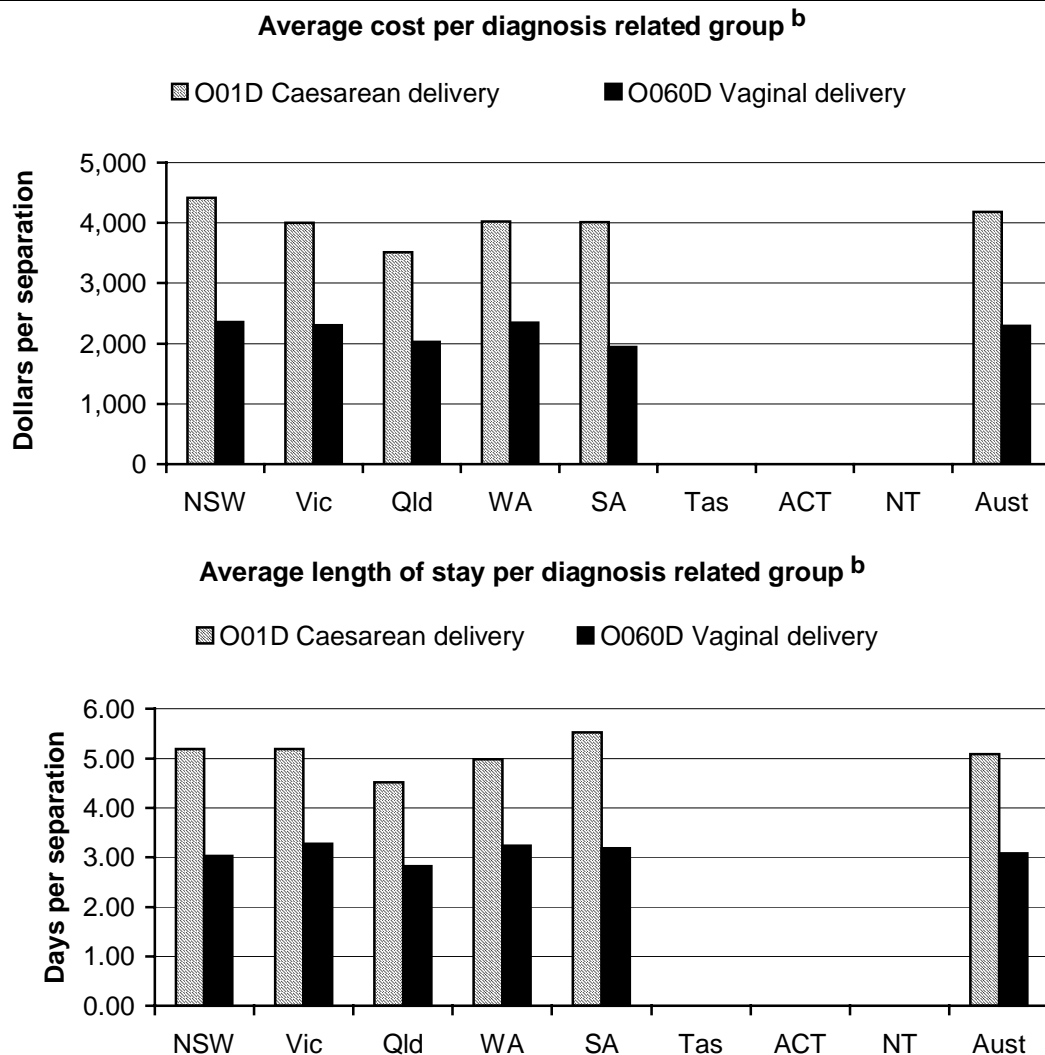
Two efficiency indicators are reported for maternity services — the cost per separation and the average length of stay. Figure 5.20 presents data for the two largest diagnosis related groups that account for the largest number of maternity separations. Data for a number of other delivery-related diagnosis related groups is given in table 5A.33.

Data are sourced from the National Hospital Cost Data Collection and are based on the AR-DRG classification version 4.1 (1998-99). The National Hospital Cost Data Collection is a voluntary annual collection coordinated by the Commonwealth Department of Health and Aged Care of hospital cost and activity data — including national and jurisdiction cost weights — covering the financial year prior to the collection period. Survey respondents comprise mostly larger hospitals, and as such,

cost estimates may tend to underestimate the real costs to a jurisdiction because of their scale economies.

Data were not available for Tasmania, the ACT and the NT because of the small number of hospitals. According to figure 5.20, the average cost for caesarean delivery without complications is \$4186 for Australia. The lowest cost was in Queensland (\$3512) and the highest was in NSW (\$4418). In contrast the average length of stay was 5.08 days for Australia, and the shortest stay was in Queensland (4.51 days) and the longest in SA (5.52 days).

Figure 5.20 **Cost and average length of stay for selected diagnosis related groups, public hospitals, 1998-99** ^a



^a Data for Tasmania, the ACT and the NT were not available because of the small number of hospitals.

^b Includes O01D Caesarean delivery without complicating diagnosis, and O060D Vaginal delivery without complicating diagnosis.

Source: Table 5A.33.

The average cost for a vaginal delivery without complications was \$2292 for Australia. The lowest cost was in Queensland (\$2027) and the highest cost was in NSW and WA (\$2355 and \$2345). The average length of stay was 3.08 days for Australia, and the shortest length of stay was in Queensland (2.82) and the longest in WA (3.24).

5.5 Future directions in performance reporting

Key challenges for the Steering Committee in future years are to:

- improve the reporting of hospital services delivered to special needs groups;
- improve the reporting of indicators contained in the performance indicator frameworks and not currently reported; and
- better reflect ‘appropriateness’ of hospital and maternity services.

Provision of hospital services to people with special needs — Indigenous

As indicated in chapter 2, a priority for the Review is to improve the reporting of the access of Indigenous Australians to mainstream hospital services. This is likely to involve identifying the range of hospital services accessed by Indigenous Australians.

Data presented in this Report describe the separation rates for Indigenous people for a range of conditions. However, this information provides only a partial indication of Indigenous people’s access to hospital services, because:

- there is an underreporting of patients’ Indigenous status. This results in an underestimation of Indigenous people’s access to acute care admitted services;
- the Report does not collect data on the delivery of non-admitted patient services to Indigenous persons; and
- data have not been reported on the costs associated with providing admitted and non-admitted services to Indigenous clients.

There are also no data on what is the appropriate level of hospital care to Indigenous clients. The ‘Health preface’ reports on the relatively high level of public hospital expenditure on Indigenous people. This expenditure may be in part the consequence of the pattern of health care services delivered at the primary level (GPs and community health services), the low levels of Indigenous access to other Commonwealth programs (such as access to listed pharmaceuticals), as well as an

underlying susceptibility to certain diseases and injuries. Conversely, the lack of data on distances travelled to access hospital services may reveal that Indigenous clients are not receiving sufficient hospital care.

It is the Steering Committee's long term strategy to improve reporting of Indigenous access to hospital services, and in particular:

- distances travelled to access hospital services. The refined Australian Health Ministers' Advisory Council endorsed National Performance Indicators for Aboriginal and Torres Strait Islander Health includes access indicators based on the distance to primary care services and acute hospital services (indicators 16, 17 and 18); and
- the cost of accessing hospital services.

Improving the reporting of indicators

Significant improvements have been achieved this year with the reporting of cost per casemix adjusted separations and the casemix adjusted relative stay index. The Steering Committee is examining whether differences in the counting and measurement of assets has a material impact on the cost of capital in hospitals. Any refinements as a result would have the potential to improve the measurement of efficiency. Significant improvements can also be made to the data collected on patient views and patient safety.

Patient views

Patient surveys are increasingly used as a means of assessing the outcomes of hospital services. While surveys are potentially useful if they are implemented correctly, survey data at present are neither sufficiently comparable over time nor across jurisdictions to be used as performance indicators.

Some information on client views 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 (box 5.4). Complaints information is reported to parliaments annually, but differences in data definitions are preventing comparisons across jurisdictions.

Box 5.4 Northern Territory complaints mechanism

The NT Health and Community Services Complaints Commission was formed with the enactment of the *Health and Community Services Complaints Act 1998*. The Act requires public and private health providers to submit statistics on customer complaints. Territory Health Services was a major public health provider submitting a return. Two years of statistical returns are available since Territory Health Services complaints handling was upgraded and began collecting uniform data.

During the first year of the Commission's operation, Territory Health Services complaint numbers increased 28 per cent from the previous year. From 1998-99 to 1999-2000, numbers declined from 575 to 555. Based on occasions of service, less than 1 per cent of service users registered complaints.

Nature of the complaints

Category	1998-99		1999-2000	
	no.	per cent	no.	per cent
Access to services	168	29	192	35
Privacy	104	18	81	15
Quality of treatment	80	14	107	19
Communication	51	9	65	12
Standards	20	3	11	2
Decision-making	18	3	8	1
Other	134	24	91	16
Total	575	100	555	100

There are no national benchmarks for numbers of complaints handled in the public health sector to which Territory Health Services might be compared.

Outcomes of the complaints were also reported by Territory Health Services. In 1999-2000, 170 (30.5 per cent) complaints involved an explanation to be provided, 139 (24.9 per cent) complaints involved providing the service to the client, and 109 (19.4 per cent) complaints required providing an apology or registering the client's concern. For 35 complaints, Territory Health Services took more serious action. For these, procedures were changed, conciliation offered, disciplinary action undertaken, refund provided, policies developed or changed, and compensation paid.

Source: NT Government.

The National Health Complaints Information Project — established by the Australasian Council of Health Complaints Commissioners and initially funded by the Commonwealth Government — is developing national standards for health complaint data to overcome this problem. The National Health Complaints Information Project is also developing a national database of health complaint

information for quality improvement purposes. The Project is in the process of seeking funding.

Patient safety monitoring

Patient safety is an important policy issue for public hospitals. A number of studies have indicated that the incidence of ‘adverse’ events (sometimes referred to as ‘misadventures’) is potentially high (Wilson *et al.* 1995, Thomas *et al.* 1999 and 2000) and the costs of preventable adverse events can be considerable. In the US, total national costs (lost income, lost household production, disability and health care costs) of preventable adverse events (medical errors resulting in injury) have been estimated at between US\$17 billion and US\$29 billion (Kohn *et al.* 1999).

There is no nationally consistent, reliable or comprehensive system of quantitative measurement of the incidence of preventable medical misadventures in Australia. While some incident reporting mechanisms exist (for example, the Australian Incident Monitoring Study of the Australian Patient Safety Foundation), reporting is voluntary and benchmarks of ‘acceptable’ levels of preventable risk have not yet been developed.

Published data of hospital separations due to misadventures during surgical and medical care, and medical device incidents are available (AIHW 2000d). Data published include injuries and poisoning from medical misadventures such as foreign objects accidentally left in the body during surgical care, failure of sterile precautions, mismatched blood used in transfusion and performance of an inappropriate operation (ICD-10-AM classifications Y60–Y82). Around 1300 separations in Australian hospitals in 1998-99 were attributed to these types of medical misadventures (table 5.12). Data published also represent surgical or other medical procedures that cause abnormal reactions or complications recorded after the procedure was undertaken (classifications Y83–Y84). Over 58 000 separations were attributed to these types of misadventures in 1998-99 (table 5.12).

These data are not necessarily comparable across hospitals and jurisdictions because differences in casemix affect the risk of misadventures occurring and there are differences between hospitals and jurisdictions in the coding of misadventures arising during surgery. In addition, the data reflect a small portion of the full spectrum of potential medical errors and are likely to suffer from the collection and measurement problems outlined above.

Table 5.12 Separations due to misadventures during surgical and medical care, medical device incidents, all hospitals, 1998-99^{a, b}

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT ^c	Total
<i>Number of separations</i>									
Y60–Y82	400	700	73	66	50	12	4	3	1308
Y83–Y84	18 904	15 061	9 495	7 184	5 297	1 694	381	262	58 278
<i>Rate per 100 000 separations^d</i>									
Y60–Y82	21.7	47.8	6.5	12.1	9.9	9.4	5.3	5.5	22.8
Y83–Y84	1 027.4	1 027.5	847.8	1 319.2	1 045.6	1 326.7	504.7	477.4	1 016.2
Total	1 049.1	1 075.2	854.3	1 331.3	1 055.5	1 336.1	510.0	482.8	1 039.0

^a Includes ICD-10-AM codes 'Y60–Y68 misadventures during surgical and medical care, medical device instruments'. Does not include 'Y40–Y59 drugs, medicaments, biological substances in therapeutic use, and 'Y85–Y98 sequelae and supplementary factors'. ^b In 1998-99, NSW, VIC, the ACT and the NT reported using the new ICD-10-AM classification while Queensland, WA, SA, and Tasmania reported using the old ICD-9-CM classification. This may affect comparability. ^c Public hospitals only. ^d Rate is not adjusted for differences in casemix.

Source: AIHW (2000a).

In addition, WA provided some data in the 2000 Report for hospital misadventures among admitted patients as a proportion of total separations for 1997-98 (table 5A.57). For public hospitals, 0.106 per cent of separations involved a misadventure.

A national reporting system for errors that result in serious injury and death of patients in the health care system is a key priority for the Australian Council for Safety and Quality in Health Care. The Council was established in January 2000 by Commonwealth, State and Territory governments with funding of \$50 million for five years, and reports to the Australian Health Ministers' Conference. The Council is to lead national efforts to promote systemic improvements in the safety and quality of health care in Australia with a particular focus on minimising the likelihood and effects of error.

Non-admitted patient classification

It is the long term aim of the Review to expand the coverage of this chapter. This includes improving the reporting of non-admitted services delivered by public acute hospitals (especially clinical services such as pathology and emergency departments). An important step is the development of a non-admitted patient classification system.

Several States are working on systems for improved reporting of non-admitted patients by classification. National agreement on definitions, like those for acute admitted patients with AN-DRGs, will be needed before comparable reporting can commence.

The Victorian Department of Human Services has developed a system for measuring outputs for (and funding) non-admitted patient services in major hospitals. The activities of outpatient departments are classified into 45 clinical specialties grouped under nine headings: medical; surgical; dental; orthopaedic; psychiatric related; obstetrics 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 are funded on the basis of patient encounters within the 45 clinical specialties, plus other fixed components. A patient encounter incorporates the clinic visit and associated ancillary services (pharmacy, pathology, 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 period for reporting and funding. The Victorian Ambulatory Classification System was implemented in 1999-2000, with the cost weights for the study being determined on the basis of a three-year, rolling average cost.

The Queensland Ambulatory Casemix Classification System for public hospitals is based on a costing study commissioned in 1996. Since implementation in 1996-97, some minor modifications have been made. The system has 64 clinic types, which are amalgamated, into seven broad areas for Commonwealth reporting purposes. The system incorporates new, repeat and age split variables. The counting unit is occasions of service. The system is now well established among Queensland facilities for which payment modelling is carried out.

The South Australian ambulatory classification system was implemented across all South Australian public hospitals in 1999-2000. The outpatient and emergency patient classification systems and related cost weights were derived as part of the *Outpatient Costing and Classification Study* undertaken in 1998 and commissioned by the then Commonwealth Department of Health and Family Services and South Australian Health Commission. Fifteen of the thirty study sites were from South Australia and the data provided by these hospitals was used to develop local South Australian cost weights. The study has national significance. The outpatient clinic and emergency department classifications developed through the study formed the basis of the current national classifications and the costing data from the study were used to develop national outpatient and emergency services weights (used extensively in the National Hospital Cost Data Collection). The classification system consists of 11 emergency department categories based on triage score and disposition and 79 outpatient classes based on areas of clinical practice (outpatient clinics and allied health disciplines). Teaching, metropolitan non-teaching, large rural, small rural and specialist hospital categories were established with separate cost weights for each category. This accounted for the different cost structures of the hospitals, in particular the different payment arrangements for medical staff.

Telephone, telemedicine and group encounters attract separate funding (from face-to-face encounters). Funding for patient encounters incorporates the ancillary services (imaging, pathology and dispensed pharmaceuticals) provided to patients 14 days either side of the visit.

Better reflecting ‘appropriateness’ of hospital services

At present, ‘appropriateness’ is measured according to the number of separations per 1000 people, the proportion of separations that were same day, and variations in ‘intervention rates’ for certain procedures (measured as separation rates). While these indicators lack accepted benchmarks for comparison, they do attempt to describe differences in hospital activity across jurisdictions.

Another aspect of appropriateness is whether hospital acute care services can be delivered by some other means even if the procedure may not differ. Services can be substituted via changing labour (for example, greater use of nurses or GPs), or identifying opportunities to do the same procedure in a different environment (that is, at home or in a purpose-built facility other than a hospital). For any given procedure, alternative forms of delivery may better suit certain types of patients. For example, Caplan *et al.* (1999) found that hospital-in-the-home may be preferable for older people. The aim of service substitution is to increase the patient’s welfare and/or lead to improved cost effectiveness.

Box 5.5 outlines a number of service delivery alternatives which could substitute for acute care services.

Box 5.5 Service delivery alternatives

‘Day surgery’ refers to same day separations either in a hospital or freestanding clinic. It is a substitute to the admission of patients overnight. The Report currently collects data on the proportion of separations that were same day.

‘Hospital-in-the home’ involves provision of acute care in non-hospital accommodation such as the patient’s own residence.

‘Step-down facilities’ are where patients are transferred out of the acute ward into an adjacent facility where their progress can be monitored in a less intensive setting.

‘Coordinated care programs’ recognise patients at high risk of hospital admission (for example, asthmatics, diabetics, patients with heart disease) and intervene to lower admission rates by providing incentives for better patient management.

Source: DHAC (1999).

Opportunities for reporting on service substitution in the near future exist because:

- same day procedures are an increasingly common activity of public acute hospitals;
- hospital-in-the-home has been implemented (at varying rates) in most jurisdictions. NSW provided funding in 1998 for a number of rural hospitals to develop pilot programs, and 42 Victorian public hospitals offer hospital-in-the-home services. Queensland, SA, Tasmania, the ACT and the NT all offer established hospital-in-the-home programs, while in WA, a pilot project, Homeward 2000, has been operating since November 1998; and
- Australian Coordinated Care Trials may be forthcoming with data.

5.6 Terms and definitions

Table 5.13 Terms

<i>Term</i>	<i>Definition</i>
Aboriginal concept of health	'Not just the physical wellbeing of an individual, but ... the social, emotional and cultural wellbeing of the whole community in which each individual is able to achieve their full potential as a human being thereby bringing about the total wellbeing of their community. It is a whole of life view and includes the cyclical concept of life-death-life (NACCHO 1997).
Aboriginal concept of community control	'A process which allows the local Aboriginal community to be involved in its affairs in accordance with whatever protocols or procedures are determined by the Community' (NACCHO 1997).
Accessibility index	A measure of hospital access equity, primarily for Indigenous people.
Acute care episode	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.
Acute care hospital	A hospital that provides at least minimum medical, surgical or obstetric services for admitted patient treatment and/or care, and around-the-clock, comprehensive, qualified nursing services and other necessary professional services.
Admission	The process by which an admitted patient commences an episode of care.
Allied health (non-admitted)	All occasions of service to non-admitted patients where services are provided at units/clinics providing treatment/counselling to patients. These include units primarily concerned with physiotherapy, speech therapy, family planning, dietary advice, optometry, occupational therapy.
Ambulatory services	Services provided by an acute care hospital to non-admitted patients.
Apgar score	Numerical score used to evaluate a baby's condition after birth.
Average length of stay	Equal to the arithmetic mean of the length of stay for all patient episodes, estimated by dividing total occupied bed days by total episodes.
Bulk billed services	Attendances for which the medical practitioner bills the Commonwealth Government directly
Caesarean section	Operative birth through an abdominal incision.
Casemix adjustment	Adjustment of data on cases treated to account for the number and type of cases. Cases are sorted into diagnosis related groups (AN-DRGs) which represent a class of patients with similar clinical conditions requiring similar hospital services.
Case weight	The relative costliness of a particular AN-DRG, determined so that the average case weight for all AN-DRGs is 1.00
Catastrophic	An acute or prolonged illness usually considered to be life threatening or with the threat of serious residual disability. Treatment may be radical and is frequently costly.

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Table 5.13 (continued)

<i>Term</i>	<i>Definition</i>
Comorbidity	The simultaneous occurrence of two or more diseases or health-problems.
Community health services	Health services for individuals and groups delivered in a community setting, rather than via hospitals or private facilities.
Community health (non-admitted)	Occasions of service to non-admitted patients provided by designated community health units within the establishment. Such units include baby clinics, immunisation units, aged care assessment teams etc. Some community health care may involve a hospital employee providing a service away from his or her hospital establishment.
Complication	Additional medical problems that develop following a procedure, treatment or illness. Complications are usually directly or indirectly related to a procedure (risk of the procedure), treatment (side effect or toxicity) or illness.
Emergency department waiting times to service delivery	The time elapsed for each patient from presentation to the emergency department to commencement of service by a treating medical officer or nurse.
Emergency department waiting times to admission	The time elapsed for each patient from presentation to the emergency department to admission to hospital.
General practice	The organisational structure in which one or more GPs provide and supervise health care for a 'population' of patients. This definition includes medical practitioners who work solely with one specific population such as women's health and Indigenous health.
Inpatient fraction (IFRAC)	The ratio of inpatient costs to total hospital costs.
Length of stay	The period from admission to separation less any days spent away from the hospital (leave days).
Medicare	The Commonwealth Government funding of private medical and optometrical services (Medicare Benefits Schedule). Some users use the term to include other forms of Commonwealth Government funding: selected pharmaceuticals (Pharmaceutical Benefits Scheme); and public hospital funding (Australian Health Care Agreements), which provide public hospital services free of charge to public patients.
Neonate	A live birth less than 28 days old. The neonatal period is exactly 28 completed days commencing on the date of birth (day 0) and ending on the completion of day 27.
Non-acute episode of care	Involves clinical services 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 delivery by designated psychiatric or psychogeriatric units, designated rehabilitation units, and mothercraft services are also considered non-acute.
Non-admitted patient services	Services provided to non-admitted patients of the kind defined in the <i>National Health Data Dictionary</i> version 6, data element no. 231 'Type of non-admitted patient care'. Services include: emergency services; outpatient services; and other non-admitted patient services.

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Table 5.13 (continued)

<i>Term</i>	<i>Definition</i>
Opportunity cost	The return forgone on the next best investment. Calculated as eight per cent of depreciated replacement value of buildings, equipment and land.
Overdue patient	A patient whose wait has exceeded the time determined as clinically desirable in relation to the urgency category to which he or she has been assigned for elective surgery.
Primary care	Essential health care based on practical, scientifically sound and socially acceptable methods made universally accessible to individuals and families in the community
Private patient medical costs (estimated)	The sum of salary/sessional and visiting medical officer payments divided by the number of public patient days multiplied by the number of private patient days.
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 eligible non-admitted patients and may provide (and charge for) treatment and accommodation services to private patients. Charges to non-admitted patients and admitted patients on discharge may be levied in accordance with the Australian Health Care Agreements (e.g. aids and appliances).
Puerperium	The period or state of confinement after labour.
Qualified/unqualified newborn	A newborn patient day is qualified if the infant: is the second or subsequent live born infant of a multiple birth whose mother is an admitted patient; is admitted to an intensive care facility in a hospital; or is admitted to, or remains in, hospital without its mother. A newborn patient day is unqualified if the infant does not meet any of these three criteria. Unqualified patient days are excluded from measurement of patient days for newborn episodes of care.
Real expenditure	Actual expenditure adjusted for changes in prices.
Same day patients	A patient whose admission date is the same as the separation date.
Sentinel procedures	Procedures that are the most common surgical operations, provided by acute care hospitals during a given period of time.
Separation	The discharge, transfer or death of a patient admitted to hospital.
Spontaneous vertex	Vaginal birth without intervention in which the baby's head is the presenting part.
Triage category	The urgency of the patient's need for medical and nursing care: category 1 — resuscitation ie immediate (within seconds) category 2 — emergency ie within 10 minutes category 3 — urgent ie within 30 minutes category 4 — semi-urgent ie within 60 minutes category 5 — non-urgent ie within 120 minutes.
Unreferred attendances	GP services, emergency attendances after hours, other prolonged attendances, group therapy and acupuncture.
Urgency category for elective surgery	category 1 patients — admission within 30 days is desirable for a condition that has the potential to deteriorate quickly to the point that it may become an emergency.

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Table 5.13 (continued)

<i>Term</i>	<i>Definition</i>
	category 2 patients — admission desirable within 90 days for a condition causing some pain, dysfunction or disability, but that is not likely to deteriorate quickly or become an emergency.
	category 3 patients — admission at some time in the future acceptable for a condition causing minimal or no pain, dysfunction or disability, that is unlikely to deteriorate quickly and that does not have the potential to become an emergency.

Table 5.14 Indicators

<i>Indicator</i>	<i>Definition</i>
Apgar score	The definition used by the Australian Council on Healthcare Standards is the number of babies born with an Apgar score of four or below at five minutes post-delivery or an Apgar score of six or below ten minutes post-delivery as a proportion of the total number of babies born. Foetal death in utero prior to commencement of labour is excluded.
Average length of stay	The average of the lengths of stay for a group of admitted patients in a hospital or group of hospitals.
Condition of capital	Ratio of depreciated replacement value to total replacement value.
Cost per casemix adjusted separation	Recurrent expenditure * inpatient fraction/total number of casemix adjusted separations + estimated private patient medical costs.
Cost per non-admitted occasion of service	Recurrent expenditure * (1–inpatient fraction)/total number of non-admitted occasions of service.
Elective surgery waiting times	The time elapsed for a patient on the elective surgery waiting list, from the date he or she was added to the waiting list for a procedure to a designated census date.
Emergency department waiting times to service delivery	The time elapsed for each patient from presentation to the emergency department to commencement of service by a treating medical officer or nurse.
Hospital-acquired infection – bacteraemia	The total number of inpatients who acquire bacteraemia during the time period under study divided by the total number of separations with a length of stay of 48 hours or more during the time period under study. Hospital-acquired bacteraemia is defined as positive blood culture for inpatients who were afebrile on admission – that is, those with a temperature less than 37.4 degrees Celsius, who become febrile 48 hours or more after admission.
Hospital-acquired infection – wound infection	The number of inpatients having evidence of wound infection on or after the fifth post-operative day following clean (contaminated) surgery during the time period under study divided by the total number of inpatients undergoing clean (contaminated) surgery with a post-operative length of stay equal to or greater than five days. All endoscopies are excluded as are intra-cavity procedures such as oral, aural, nasal, urethral, vaginal and anal operations. Clean surgery – those operations performed in a sterile field. Contaminated surgery include those operations which breach the gastro-intestinal, respiratory and genito-urinary tracts or where a break in aseptic technique occurs; and traumatic wounds

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Table 5.14 (continued)

<i>Indicator</i>	<i>Definition</i>
Mortality rate	The number of deaths per 100 000 people.
Labour cost per casemix adjusted separations	$((\text{Salary and wages}) \times (\text{inpatient fraction}) + \text{visiting medical officer payments}) / \text{total number of casemix adjusted separations}$.
Neonatal death rate	Number of deaths of live born infants within 28 days of birth divided by the total number of live births.
Percentage of facilities accredited with the Australian Council on Healthcare Standards	The ratio of accredited beds to all hospital beds in the jurisdiction.
Separations per 1000 population	The rates of hospital separations per 1000 population.
Unplanned hospital re-admissions	The total number of unplanned and unexpected re-admissions within 28 days of separation, during the time period under study, divided by the total number of separations (excluding deaths) for the same time period. Unplanned hospital re-admission refers to an unexpected admission for further treatment of the same condition for which the patient was previously hospitalised; an unexpected admission for treatment of a condition related to one for which the patient was previously hospitalised; or an unexpected admission for a complication of the condition for which the patient was previously hospitalised. Day stay patients are included in both the numerator and the denominator. This indicator addresses patients readmitted to the same organisation.
User cost of capital per casemix adjusted separation	$(\text{Depreciation} + \text{opportunity cost}) / \text{casemix adjusted separations}$.
Vaginal delivery following primary caesarean section	The number of patients delivering vaginally following a previous primary (first) caesarean section as a proportion of the total number of patients delivering who have had a previous primary caesarean section and no intervening pregnancies greater than twenty weeks gestation.