9 Public hospitals

Public hospitals are important providers of government funded health care services in Australia. This chapter reports on the performance of State and Territory public hospitals, with a focus on acute care services. It also reports separately on a significant component of the services provided by public hospitals — maternity services.

Public hospital systems are described in section 9.1. A framework of performance indicators and the key performance indicator results for public hospitals are outlined in section 9.2. Section 9.3 includes a profile of maternity services provided by public hospitals, along with a performance indicator framework and key results for maternity services. Future directions in reporting are discussed in section 9.4. Terms and definitions are summarised in section 9.5.

This year, an indicator of surgical site infections is included for the first time, replacing the more general hospital acquired infections rates. In addition, changes have been made to the relative stay index indicator, and a number of indicators have more complete data than in previous reports.

Supporting tables

Supporting tables for chapter 9 are provided on the CD-ROM enclosed with the Report. The files are provided in Microsoft Excel 97 format as \Publications\Reports\2004\Attach9A.xls and in Adobe PDF format as \Publications\Reports\2004\Attach9A.pdf.

Supporting tables are identified in references throughout this chapter by an 'A' suffix (for example, table 9A.3 is table 3 in the electronic files). These files can be found on the Review web page (www.pc.gov.au/gsp/2004/index.html). Users without Internet access can contact the Secretariat to obtain these tables (see details on the inside front cover of the Report).

9.1 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-acute and non-acute services to admitted patients (for example, rehabilitation or palliative care, or long stay maintenance care)
- emergency, outpatient and other services to non-admitted patients[1]
- mental health services, including services provided to admitted patients by designated psychiatric/psychogeriatric units
- public health services
- 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 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. Some data in the chapter include sub-acute and non-acute care services where they cannot yet be separately identified from acute care. In some instances, stand-alone psychiatric hospitals are also included, 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 mainstream public hospitals and the community sector. The performance of psychiatric hospitals and psychiatric units of public hospitals is examined more closely in the Health management chapter (chapter 11). Some common health terms relating to hospitals are defined in box 9.1.

[1] Other services to non-admitted patients include community health services such as baby clinics and immunisation units, district nursing services and other outreach services. Definitions are provided in (AIHW 2001a).

Box 9.1 **Some common terms relating to hospitals**

Patients

Admitted patient: a patient who has formally undergone an admission process in 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 a formal admission process, but who may receive care through an emergency department, outpatient or other non-admitted service.

Types of care

Classification of care depends on the principal clinical intent of the care received.

Acute care: clinical services provided to patients, including managing labour, curing illness or treating injury, 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.

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

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

(Continued on next page)

Box 9.1 **(Continued)**

Non-admitted occasions of service: clinical services provided by hospitals to non-admitted patients. Services may include emergency department visits, outpatient services (such as pathology, radiology and imaging, and allied health services, including speech therapy and family planning) and other services to non-admitted patients. Hospital non-admitted occasions of service are not yet recorded consistently across States and Territories, and relative differences in the complexity of services provided are not yet documented.

Other common health terms

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

AR-DRG (Australian Refined Diagnosis Related Group): a patient classification system that hospitals use to match their patient services (hospital procedures and diagnoses) with their resource needs. AR-DRG versions 4.1 and 4.2 are based on the ICD-10-AM classification.

ICD-10-AM (the Australian modification of the International Standard Classification of Diseases and Related Health Problems): a classification of diseases and injuries replacing the earlier ICD-9-CM (Australian version of the International Classification of Diseases, revision 9, clinical modification).

Source: AIHW (2001a); DHAC (1998); NCCH (1998).

Funding

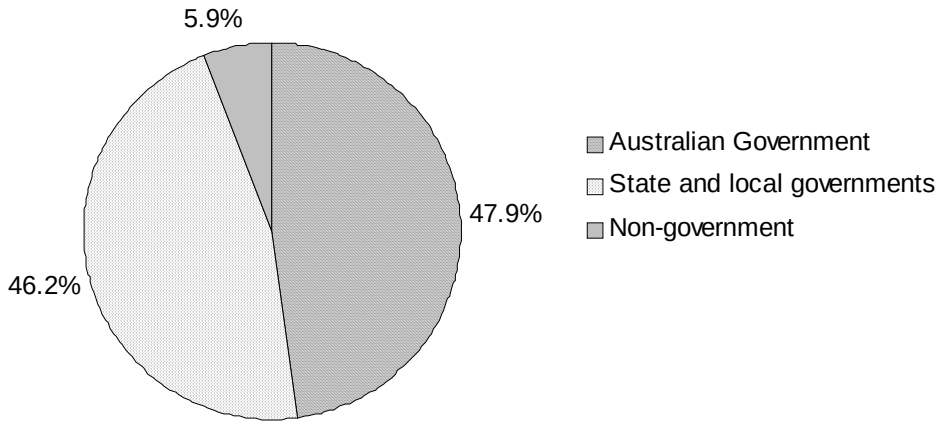
Total recurrent expenditure on public hospitals (excluding depreciation) was $16.8 billion in 2001-02 (table 9A.1).[2] In real terms, expenditure increased by 5.0 per cent in 2001-02, compared with the 2000-01 level (AIHW 2003a).

Financing for public hospitals comes from a number of sources. The Australian, State and Territory governments, health insurance funds, individuals, and workers compensation and compulsory motor vehicle third party insurance cover finance expenditure on public hospitals. Based on preliminary data, governments contributed about 94.1 per cent of funding for public (non-psychiatric) hospitals in 2001-02 (figure 9.1).[3] Public (non-psychiatric) hospitals accounted for 36.6 per cent of government recurrent expenditure on health services in 2001-02 (AIHW 2003b).

[2] This figure includes spending on patient transport.

[3] These expenditure data (figure 9.1) are from the Australian Institute of Health and Welfare's (AIHW's) *Health Expenditure Australia* and are not directly comparable with the expenditure data drawn from the AIHW's *Australian Hospital Statistics*. The *Health Expenditure Australia* data have a broader scope; the *Australian Hospital Statistics* data exclude expenditure for

Figure 9.1 **Recurrent expenditure on public (non-psychiatric) hospitals, by source of funds, 2001-02 (per cent)[a]**



a Based on preliminary AIHW and Australian Bureau of Statistics (ABS) estimates.

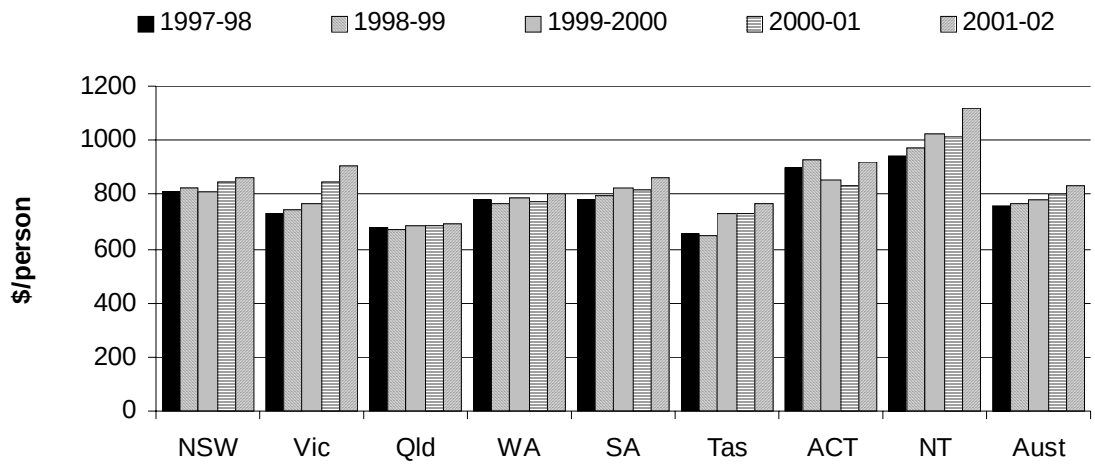
Source: AIHW (2003b).

For selected public hospitals, expenditure on admitted patients (based on the inpatient fraction) ranged from 81 per cent to 69 per cent of total recurrent expenditure across jurisdictions in 2001-02 (table 9A.4). In 2001-02, government recurrent expenditure on public hospitals was $835 per person for Australia, ranging from $1118 per person in the NT to $690 per person in Queensland (2000-01 dollars). Nationally, real expenditure per person increased over time, from $759 to $835 between 1997-98 and 2001-02 (2000-01 dollars) (figure 9.2).

In 2001-02, public hospitals (including psychiatric hospitals) received $1.5 billion in revenue from non-government sources — an amount that accounted for 9.1 per cent of all recurrent expenditure (excluding depreciation). Total revenue in each State and Territory comprised patient revenues (including income from private and compensable patients), recoveries (including fees from private practitioners treating private patients in public hospitals, staff meals and accommodation) and other revenue (investment income, charities and bequests). Some Australian Government health insurance subsidy payments are indirectly included in total income via health insurance payments received as part of patient revenue. The proportion of hospital expenditure per person funded from non-government sources varied across jurisdictions in 2001-02 (figure 9.3).

population health, primary and community-based services administered by NSW hospitals and trust fund expenditure (AIHW 2001a).

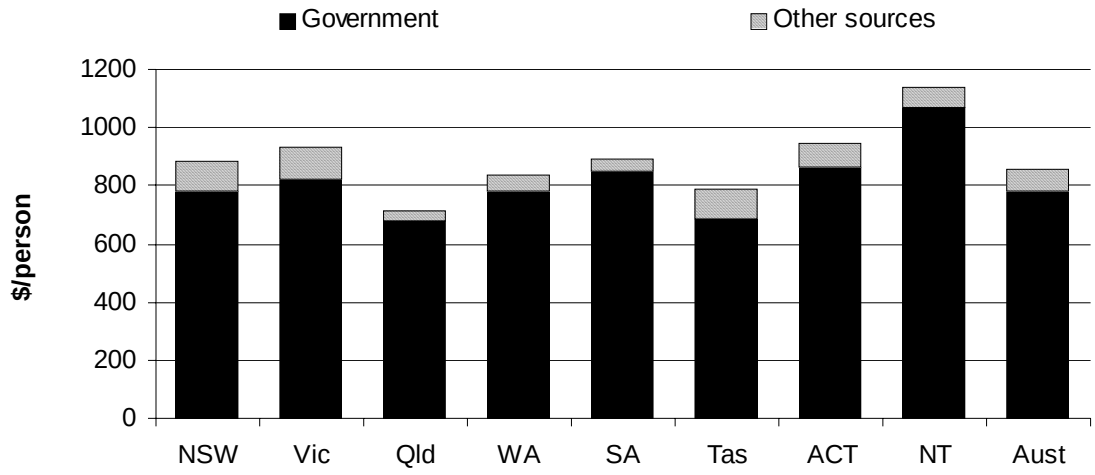
Figure 9.2 **Real recurrent expenditure per person, public hospitals (including psychiatric) (2000-01 dollars)[a, b, c]**



a Expenditure data exclude depreciation and interest payments. **b** NSW hospital expenditure recorded against special purposes and trust funds is excluded. NSW expenditure against primary and community care programs is included from 2000-01. **c** For 2001-02, Tasmanian data for two small hospitals are not supplied and data for one small hospital are incomplete. For 2000-01, data for six small Tasmanian hospitals are incomplete.

Source: AIHW (2003a, 2003b); ABS (unpublished); table 9A.2.

Figure 9.3 **Source of funds per person, public hospitals, 2001-02[a]**



a Data include psychiatric hospitals.

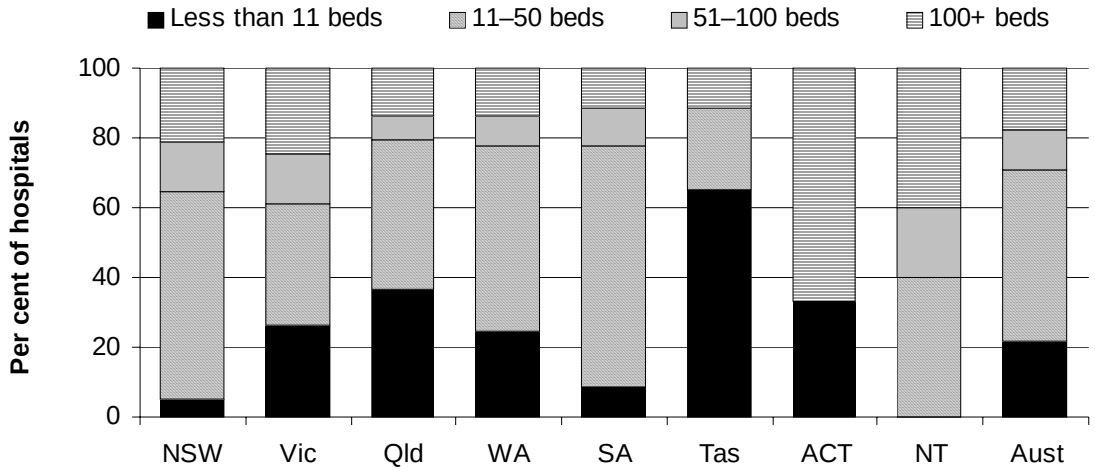
Source: AIHW (2003a); tables 9A.1 and 9A.5.

Size and scope of sector

Hospitals

In 2001-02, Australia had 746 public hospitals (including 22 psychiatric hospitals). Although 71.0 per cent of hospitals had fewer than 50 beds, these smaller hospitals represented only 19.6 per cent of total available beds (figure 9.4).

Figure 9.4 **Public hospitals, by size, 2001-02[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 report data separately to the National Hospital Morbidity Database.

Source: AIHW (2003a); table 9A.3.

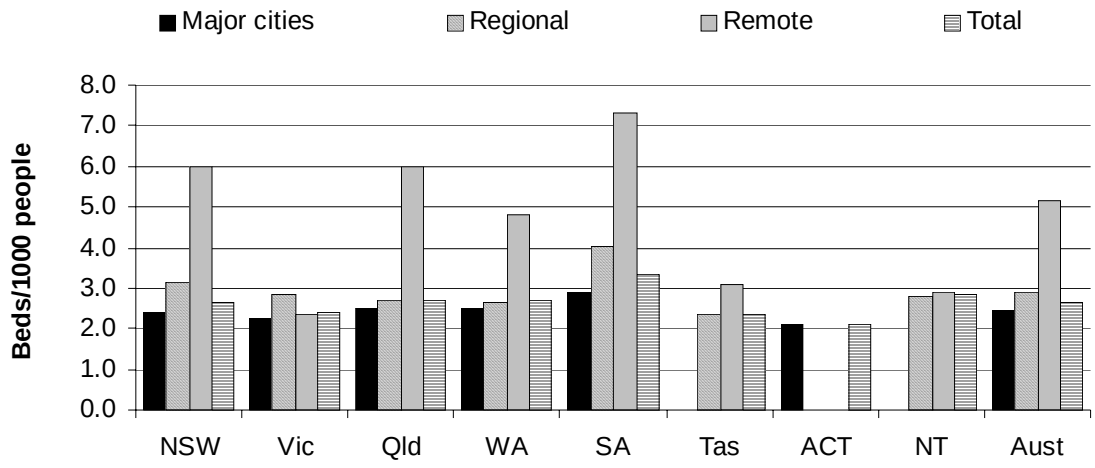
Beds

There were 51 461 available beds in public hospitals in 2001-02 — 949 fewer than in 2000-01 (AIHW 2003a). However, the concept of an available bed is becoming less important in the overall context of hospital activity, particularly in light of increasing same day hospitalisations and the provision of hospital-in-the-home care (AIHW 2003a). There are also differences in how available beds are counted, both across jurisdictions and over time.

On average, there were 2.7 beds per 1000 people in 2001-02 (figure 9.5). The number of beds per 1000 people was highest in SA (3.3) and lowest in the ACT (2.1). Nationally, more beds were available per 1000 people in remote areas, although this finding does not indicate regional access to particular types of service or the distance required to travel to access these services. These data need to be

viewed in the context of the age and sex structure (information in appendix A) and the morbidity and mortality of the population in each jurisdiction.

Figure 9.5 **Available beds, public hospitals, by region, 2001-02[a, b]**



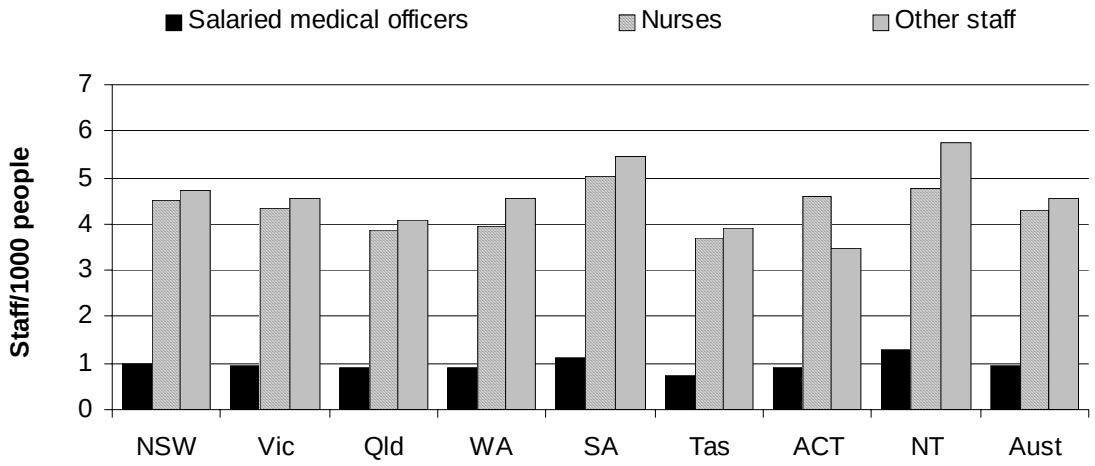
a An 'available bed' is one that is immediately available to be used by an admitted patient. A bed is immediately available if located in a suitable place for care, with nursing and auxiliary staff available within a reasonable period. Surgical tables, recovery trolleys, delivery beds, cots for normal neonates, emergency stretchers/beds not normally authorised or funded, and beds designated for same day non-admitted patient care are excluded. Beds in wards that were closed for any reason (except weekend closures/wards staffed and available on weekends only) are also excluded (AIHW 2001a). **b** Data need to be viewed in the context of the age and sex structure and the morbidity and mortality of the population in each jurisdiction. The age and sex structure of the population in each jurisdiction is provided in appendix A, and mortality rates are provided in the Health preface.

Source: AIHW (2003a); table 9A.6.

Staff

There were 192 187 full time equivalent (FTE) staff employed in Australian public hospitals in 2001-02 (based on the average number of staff available for the year). Nurses comprised 43.8 per cent of FTE staff, and salaried medical officers represented 9.7 per cent. Other staff (diagnostic and allied health professionals, other personal care staff, administrative and clerical staff, and domestic and other staff) made up the remaining 46.5 per cent (AIHW 2003a). The NT had the most FTE staff per 1000 people (11.8) while Tasmania had the least (8.3) (figure 9.6). These data need to be viewed with care because they are affected by differences across jurisdictions in the recording and classifying of staff. In some jurisdictions, there has been an increase in the outsourcing of services with a large labour related component (for example, food services and domestic services). Increased outsourcing may explain the apparent decline in FTE staff in some staffing categories, along with some of the differences across jurisdictions (AIHW 2003a).

Figure 9.6 **Average FTE staff, public hospitals, 2001-02[a, b, c, d, e]**



a Where average FTE staff numbers were not available, staff numbers at 30 June 2002 were used. Staff contracted to provide products (rather than labour) are not included. **b** For Victoria, FTEs may be slightly understated. **c** For Queensland, pathology services are provided by staff employed by the State pathology service and are not reported here. **d** Data for six small Tasmanian hospitals were not supplied. **e** These data need to be viewed with care because they are affected by differences across jurisdictions in the recording and classifying of staff.

Source: AIHW (2003a); table 9A.7.

Activity

Admitted patient care

There were around 4.0 million acute, sub-acute and non-acute separations in public hospitals in 2001-02 (table 9A.8). Of these, acute separations accounted for 95.6 per cent, newborns with some qualified days accounted for 1.2 per cent[4] and rehabilitation care accounted for 1.8 per cent (table 9A.9). (Palliative care, non-acute care and other care made up the residual.) Public psychiatric hospitals accounted for around 0.5 per cent of total separations in public hospitals in 2001-02. Of the total number of separations in public (non-psychiatric) hospitals, 47.7 per cent were for same day patients (table 9A.8).

Table 9.1 shows the 10 Australian Refined Diagnosis Related Groups (AR-DRGs) with the highest number of overnight acute separations in public hospitals for 2001-02. These 10 AR-DRGs accounted for 16.0 per cent of all acute separations nationally and 18.5 per cent of all acute separations in the NT, which reported the

4 All babies born in hospital are admitted patients, however, only qualified days for newborns are included in the patient day count under the Australian Health Care Agreements.

highest jurisdictional percentage. In 2001-02, 1.9 million same day separations occurred in public hospitals in Australia. Renal dialysis accounted for 29.0 per cent of these separations and chemotherapy accounted for 6.2 per cent (AIHW 2003a). There may be differences across jurisdictions in the way in which renal dialysis and chemotherapy patients are treated, with some patients treated as same day admissions and others as outpatients.

Table 9.1 **Ten AR-DRGs with the most overnight acute separations, public hospitals, 2001-02 (per cent)[a, b, c]**

	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*	*Aust*
Vaginal delivery w/o CD	4.8	4.7	5.3	4.3	3.5	4.5	5.6	5.0	4.7
Chest pain	1.9	1.6	2.1	1.2	1.7	0.9	1.0	1.5	1.7
Oesophagitis, gastroenteritis and miscellaneous digestive system disorders, age >9 years, w/o cat/sev CC	1.7	1.4	1.7	1.6	1.6	1.3	0.9	0.8	1.6
Cellulitis aged >59 years, w/o cat/sev CC	1.2	1.1	1.5	1.5	0.9	1.0	1.0	4.3	1.3
Caesarean delivery w/o CD	1.1	1.2	1.4	1.1	1.0	1.0	1.2	1.3	1.2
Bronchitis and asthma aged <50 years, w/o CC	1.2	1.0	1.0	1.4	1.6	0.8	0.9	1.0	1.2
Respiratory infections/inflammations w/o CC	1.2	1.1	1.1	1.4	1.0	1.0	1.2	2.4	1.2
Heart failure and shock w/o cat CC	1.1	1.1	1.0	1.0	1.1	1.0	0.8	0.7	1.1
Unstable angina w/o cat/sev CC	1.1	1.0	1.4	0.7	0.8	1.1	1.0	0.8	1.1
Abdominal pain or mesenteric adenitis w/o CC	1.1	1.1	1.1	1.0	0.9	0.7	0.9	0.7	1.0
Proportion of acute separations accounted for by 10 AR-DRGs with most acute separations	16.4	15.4	17.7	15.1	14.2	13.4	14.6	18.5	16.0
Total acute separations ('000)	**700**	**482**	**352**	**176**	**177**	**40**	**28**	**29**	**1982**

cat = Catastrophic. CC = complications and co-morbidities. CD = complicating diagnosis. sev = Severe. w/o = without. **a** Separations for which the type of episode of care was reported as 'acute' or 'newborn with qualified patient days', or was not reported. **b** Totals may not add as a result of rounding. **c** Excludes same day separations.

Source: AIHW (2003a); table 9A.10.

Table 9.2 lists the 10 AR-DRGs that accounted for the most patient days (17.8 per cent of all patient days recorded) for overnight stays in 2001-02. Schizophrenic disorders associated with involuntary mental health legal status

accounted for the largest number of patient days, followed by vaginal delivery without complicating diagnosis.

Table 9.2 **Ten AR-DRGs with the most patient days (excluding same day separations), public hospitals, 2001-02 (per cent)[a]**

	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*	*Total*
Schizophrenic disorders w involuntary mental health legal status	2.0	3.2	3.9	3.5	3.2	1.1	0.8	na	2.8
Vaginal delivery w/o CD	2.5	2.4	2.8	2.5	1.9	2.4	2.6	3.0	2.5
Tracheostomy, any age, any condition	2.0	2.4	2.1	1.9	2.8	1.7	2.6	2.3	2.2
Major affective disorder aged <70 years w/o cat/sev CC	1.9	1.9	2.1	3.1	2.8	2.1	2.6	0.8	2.1
Schizophrenia disorders w/o legal status	2.4	1.7	1.2	1.9	1.4	5.4	1.7	1.9	2.0
Chronic obstruction airway disease w cat/sev CC	1.6	1.4	1.5	1.5	1.4	1.4	0.8	1.2	1.5
Stroke with sev CD/procedure	1.3	1.6	1.1	1.3	1.3	1.4	1.4	0.6	1.3
Dementia and other chronic disturbances of CF	0.9	1.6	0.8	1.1	2.6	2.4	0.2	0.3	1.2
Heart failure and shock w/o cat CC	1.3	1.1	1.2	1.1	1.2	1.1	0.9	0.7	1.2
Respiratory infection/ inflammations w sev or moderate CC	1.1	1.0	0.9	0.9	1.1	0.8	1.1	2.2	1.0
Proportion of patient days accounted for by top 10 AR-DRGs	17.0	18.4	17.7	18.8	19.6	19.7	14.7	13.1	17.8
Total days (excluding same day separations) ('000)	**3 955**	**2 706**	**1 733**	**958**	**1 008**	**284**	**164**	**163**	**10 971**

cat = catastrophic. CC = complications and co-morbidities. CD = complicating diagnosis. CF = cerebral function. sev = Severe. w/o = without. w = with. **a** Separations for which the type of episode of care was reported as 'acute' or 'newborn with qualified patient days', or was not reported.

Source: AIHW (unpublished); table 9A.11.

Non-admitted patient services

There is no agreed classification system for services to non-admitted patients, so activity is difficult to measure and cannot be compared across jurisdictions. As well as differences in the way that data are collected, differing admission practices will lead to variation in the services reported across jurisdictions. In addition, States and Territories may differ in the extent to which these types of services are provided in non-hospital settings (such as community health centres) (AIHW 2003a). The complexity of the occasion of service is also not taken into account — for example,

a simple urine glucose test is treated equally with a complete biochemical analysis of all body fluids (AIHW 2001a). Table 9.3 presents data from the Australian Institute of Health and Welfare (AIHW) *Australian Hospital Statistics* publication and can be considered to contain best available estimates of activity in this area.

A total of 39.5 million occasions of service were provided to individual non-admitted patients in public hospitals in 2001-02. In addition, public hospitals also delivered 444 089 group sessions during this time (where a group session is defined as a service provided to two or more patients, excluding services provided to two or more family members) (table 9A.12). In public hospitals in 2001-02, accident and emergency services comprised 14.6 per cent of all occasions of service to non-admitted patients. Pathology services, allied health and other medical, surgical and obstetric services were the most common types of outpatient care (table 9.3).

Table 9.3 **Ten most common types of non-admitted patient care, public hospitals, 2001-02 (per cent)[a]**

	NSW[b]	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*[c]	*Aust*[d]
Accident and emergency [e]	12.9	17.0	13.8	13.2	21.0	12.6	23.0	28.2	14.6
Outpatient services									
Other medical/ surgical/ Obstetric	20.7	20.0	25.3	12.0	39.7	34.5	47.0	25.1	22.3
Allied health	18.4	14.3	6.6	21.8	11.0	14.3	2.0	3.5	14.6
Pathology	11.4	9.7	27.3	14.5	..	23.3	7.8	20.3	14.6
Radiology and organ imaging	2.2	8.1	8.1	7.4	10.5	8.6	14.9	21.7	6.0
Pharmacy	5.0	4.9	8.5	3.4	..	6.2	0.1	1.3	5.3
Mental health	0.7	12.5	0.9	3.3	0.8	0.2	1.7	..	3.1
Dental	1.5	2.4	4.9	0.2	0.3	0.3	..	..	2.1
Other non-admitted									
Community health	17.8	6.1	2.0	17.6	..	..	..	..	10.4
District nursing	5.3	4.6	0.8	4.0	..	..	..	..	3.5
10 most common as a proportion of total	95.9	99.5	98.1	97.4	83.5	100.0	96.4	100.0	96.6
Total occasions of service ('000)	**15 557**	**7 098**	**8 821**	**4 262**	**2 231**	**803**	**412**	**339**	**39 523**

a Reporting arrangements have varied significantly across years and across jurisdictions. **b** Data for accident and emergency include subsequently admitted patients, but other non-admitted occasions of service counts do not. Breakdown of service types shows considerable variation in NSW data from 2000-01 to 2001-02. The reason is that on 1 July 2001, NSW adopted the non-admitted patient service type (NHDD ID 000440) classification for occasions of service. Data totals are correct but further checking of the consistency of reporting is underway. **c** Radiology figures for the Northern Territory are underestimated and pathology figures relate only to three of the five hospitals. **d** Includes only those States and Territories for which data are available. **e** Method for determining which patients were subsequently admitted varies. .. Not applicable.

Source: AIHW (2003a); table 9A.12.

9.2 Public hospitals

Framework of performance indicators

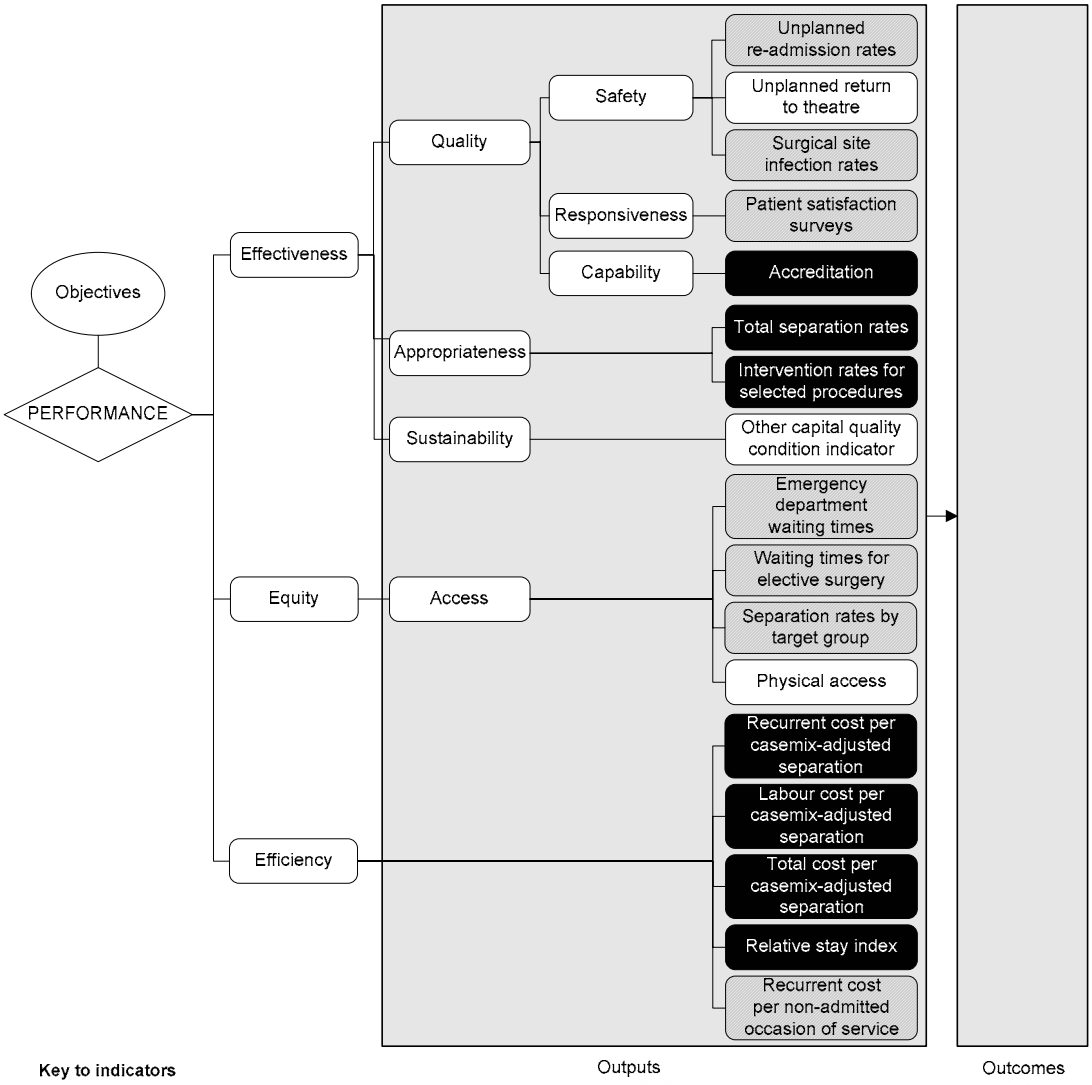
The performance indicator framework is based on the shared government objectives for public hospitals (box 9.2). The performance indicator framework shows which data are comparable in the 2004 Report (figure 9.7). For data that are not considered strictly comparable, the text includes relevant caveats and supporting commentary. Chapter 1 discusses data comparability from a Report-wide perspective (see section 1.6).

Box 9.2 **Objectives for public hospitals**

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

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

Figure 9.7 **Performance indicators for public hospitals**



Key performance indicator results

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

As discussed in section 9.1, 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 (non-psychiatric) hospitals at rates that differ across jurisdictions.

Effectiveness

Quality

All Australian governments and 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). No single indicator can measure quality across all providers; an alternative strategy is to identify and report on *aspects* of quality of care. The aspects of quality recognised in the performance indicator framework are safety, responsiveness and capability.

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 clinical indicators of safety (unplanned re-admission rates and surgical site infection rates), patient satisfaction and the accreditation of public hospital beds.

Safety

Improving patient safety is an important issue for all hospitals. Studies on medical errors have indicated that adverse health care related events occur in public hospitals in Australia and internationally, and that their incidence is potentially high (for example, Brennan *et al.* 1991; Wilson *et al.* 1995; Thomas *et al.* 2000; and

Davis *et al.* 2001). These adverse events can result in serious consequences for individual patients, and the associated costs can be considerable (Kohn *et al.* 1999).

The safety indicators presented here are also reported elsewhere, including in the annual reports of the WA, Tasmanian and ACT health departments, which report on unplanned re-admissions. The ACT Department of Health and Community Care has also included clinical indicators in its purchase agreements with its major public hospitals.

The data for the indicators are sourced from the Australian Council on Healthcare Standards' (ACHS) Comparative Report Service (Clinical Indicators). The ACHS data are collected for the purposes of internal clinical review by individual hospitals. They are predominantly used to demonstrate the potential for improvement across Australian hospitals if all hospitals could achieve the same outcomes as those of hospitals achieving the best outcomes for patients. When interpreting results of these indicators, emphasis needs to be given to the potential for improvement. Statewide conclusions cannot be drawn from the data because participation in the Comparative Report Service (Clinical Indicators) is voluntary, so the data are not necessarily drawn from representative samples. An explanation of the reporting of the ACHS clinical indicators is contained in box 9.3.

Box 9.3 **Reporting of ACHS clinical indicators**

The data for the unplanned re-admissions and surgical site infection rate indicators are sourced from the ACHS. The ACHS's methodology for reporting clinical indicators is explained in *Determining the Potential to Improve Quality of Care* (ACHS 2003). The ACHS reports the average (that is, mean) rate of occurrence of an event and the performance of hospitals at the 20th and 80th centiles (that is, the rate at [or below] which the top 20 per cent and 80 per cent of hospitals are performing). This is designed to allow hospitals to determine whether their performance against an indicator is above or below average, and what scope may exist for improvement.

Particular attention is paid to systematic variation between hospitals, variation between different categories of hospital (including different jurisdictions) and individual hospitals varying significantly from average hospitals (that is, outliers).

The ACHS calculates the average occurrence of an event for all hospitals and uses the shrinkage estimation method to estimate shrunken rates for individual hospitals. From these shrunken rates, the performance of hospitals at the 20th and 80th centiles is calculated. The potential gains from shifting (shrunken) 'mean' hospitals to the 20th centile are obtained by calculating the change in the occurrence of the event measured if the mean were equal to performance at the 20th centile.

(Continued on next page)

Box 9.3 **(Continued)**

(Shrunken rates are used rather than actual rates because actual rates of 0 per cent and 100 per cent may be obtained for individual hospitals based on random variation where there are low denominators. Shrinkage estimators adjust each hospital's observed rate using the hospital's numerator and denominator, together with the mean and standard deviations of other hospitals to obtained corrected rates. The smaller the denominator for an individual hospital, the larger is the shift to the overall mean.)

Using the shrunken rates, mean rates are calculated for individual categories of hospital (including jurisdictions) to determine stratum rates (box 9.4). If the stratum explains more than 10 per cent of the variation in rates, this is reported as a possible explanatory variable. The potential gains of each category shifting performance to the stratum with the lowest mean are also calculated.

Finally, using the shrunken rates for individual hospitals, the observed occurrence of the event measured is compared to the expected occurrence of the event to measure difference from the mean. To avoid responding to random variation, three standard deviations are plotted and values outside the three standard deviations are assumed to be systematically different from the average rate. The potential gains from shifting the performance of these outliers to the performance of mean hospitals are calculated (outlier gains) (ACHS 2003).

Source: ACHS (unpublished).

Unplanned re-admission rates

The unplanned re-admission 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). (There is a more detailed definition of this indicator in table 9.29.) There are a number of caveats for the interpretation of this indicator. First, it is not clear to what extent differences across jurisdictions are due to the casemix of hospitals or to patient risk factors (ACHS 2000). Second, there are some difficulties in identifying re-admissions that were unplanned (Ibrahim *et al.* 1998). A re-admission 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 re-admitted to the same hospital, which may not always be the case. These estimates should be viewed in the context of the statistical (standard) errors. High standard errors signal that data are particularly unreliable.

New South Wales

Among those NSW public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of unplanned re-admissions was 2.9 per 100 admissions (subject to a standard error of 0.2). The ACHS estimated that if the performance of all NSW public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 1.9 per cent fewer re-admissions to NSW public hospitals (table 9.4). The terms in table 9.4 are defined in box 9.4.

Table 9.4 **Unplanned re-admissions per 100 admissions, public hospitals, NSW, 2002**[a]

No. hospitals	*No. reports*	*Numerator (re-admissions)*	*Denominator (separations)*	*Rate*	*Standard error* (±)
54	85	11 189	386 388	2.90	0.18
National performance at 80th centile (rate)	*National performance at 20th centile (rate)*	*Potential centile gains (re-admissions)*	*Change represented by potential gains (%)*	*Potential outlier gains (re-admissions)*	*Potential stratum gains (re-admissions)*
4.45	1.04	7 156	1.85	3 038	5 673

a Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction.

Source: ACHS (unpublished); table 9A.56.

Box 9.4 **Definitions of terms for clinical indicators**

Centile: value separating one hundredth parts of a distribution in order of size. The 20th centile of hospitals for the unplanned re-admissions indicator would represent the best performing 20 per cent of hospitals (with the lowest number of re-admissions); the 20th centile of hospitals for the infections indicators would represent the best performing 20 per cent of hospitals (with the lowest number of infections).

Centile gains: the potential gains from shifting mean hospitals to the performance at the 20th centile, obtained by calculating the change in the occurrence of an event if the mean were equal to performance at the 20th centile.

Denominator: the term of a fraction or equation showing the number of parts into which the numerator is being divided (usually written below the line). For the unplanned re-admissions indicator, the denominator is the total number of admissions in the participating hospital; for the infections indicators, the denominator is the total number of separations in the participating hospital.

Rate (mean): the sum of a set of numbers divided by the amount of numbers in the set, often referred to as an average.

Numerator: the term of a fraction or equation showing how many parts of the fraction are taken (usually written above the line). For the unplanned re-admissions indicator, the denominator is the total number of unplanned re-admissions in the participating hospital; for the infections indicators, the denominator is the number of relevant infections in the participating hospital.

Outlier gains: the potential gains from moving the performance of outlier hospitals to the performance of mean hospitals, obtained by calculating the change in the occurrence of an event if the outlier performance were equal to performance at the mean.

Stratum gains: the potential gains from a particular category of hospitals moving to the performance of the stratum with the lowest mean.

Stratum rate: mean rates for a particular jurisdiction.

Source: ACHS (2001).

Victoria

Among those Victorian public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of unplanned re-admissions was 2.4 per 100 admissions (subject to a standard error of 0.2). The ACHS estimated that if the performance of all Victorian public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 1.4 per cent fewer re-admissions to Victorian public hospitals (table 9.5). The terms in table 9.5 are defined in box 9.4.

Table 9.5 **Unplanned re-admissions per 100 admissions, public hospitals, Victoria, 2002[a]**

No. hospitals	*No. reports*	*Numerator (re-admissions)*	*Denominator (separations)*	*Rate*	*Standard error* (±)
41	70	6 043	251 633	2.40	0.22
National performance at 80th centile (rate)	*National performance at 20th centile (rate)*	*Potential centile gains (re-admissions)*	*Change represented by potential gains (%)*	*Potential outlier gains (re-admissions)*	*Potential stratum gains (re-admissions)*
4.45	1.04	3 417	1.36	1 403	2 451

a Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction.

Source: ACHS (unpublished); table 9A.61.

Queensland

Among those Queensland public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of unplanned re-admissions was 4.3 per 100 admissions (subject to a standard error of 0.4). The ACHS estimated that if the performance of all Queensland public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 3.3 per cent fewer re-admissions to Queensland public hospitals (table 9.6). The terms in table 9.6 are defined in box 9.4.

Table 9.6 **Unplanned re-admissions per 100 admissions, public hospitals, Queensland, 2002[a]**

No. hospitals	*No. reports*	*Numerator (re-admissions)*	*Denominator (separations)*	*Rate*	*Standard error* (±)
12	21	3 243	74 995	4.32	0.41
National performance at 80th centile (rate)	*National performance at 20th centile (rate)*	*Potential centile gains (re-admissions)*	*Change represented by potential gains (%)*	*Potential outlier gains (re-admissions)*	*Potential stratum gains (re-admissions)*
4.45	1.04	2 460	3.28	1 268	2 172

a Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction.

Source: ACHS (unpublished); table 9A.67.

Western Australia

Among those WA public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of unplanned re-admissions was 1.5 per 100

admissions (subject to a standard error of 0.5). The ACHS estimated that if the performance of all WA public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 0.4 per cent fewer re-admissions to WA public hospitals (table 9.7). The terms in table 9.7 are defined in box 9.4.

Table 9.7 **Unplanned re-admissions per 100 admissions, public hospitals, WA, 2002[a]**

No. hospitals	*No. reports*	*Numerator (re-admissions)*	*Denominator (separations)*	*Rate*	*Standard error* (±)
10	16	764	52 103	1.47	0.49
National performance at 80th centile (rate)	*National performance at 20th centile (rate)*	*Potential centile gains (re-admissions)*	*Change represented by potential gains (%)*	*Potential outlier gains (re-admissions)*	*Potential stratum gains (re-admissions)*
4.45	1.04	220	0.42	102	20

a Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction.

Source: ACHS (unpublished); table 9A.72.

South Australia

Among those SA public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of unplanned re-admissions was 2.3 per 100 admissions (subject to a standard error of 0.4). The ACHS estimated that if the performance of all SA public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 1.3 per cent fewer re-admissions to SA public hospitals (table 9.8). The terms in table 9.8 are defined in box 9.4.

Table 9.8 **Unplanned re-admissions per 100 admissions, public hospitals, SA, 2002[a]**

No. hospitals	*No. reports*	*Numerator (re-admissions)*	*Denominator (separations)*	*Rate*	*Standard error* (±)
13	19	1 613	69 191	2.33	0.42
National performance at 80th centile (rate)	*National performance at 20th centile (rate)*	*Potential centile gains (re-admissions)*	*Change represented by potential gains (%)*	*Potential outlier gains (re-admissions)*	*Potential stratum gains (re-admissions)*
4.45	1.04	891	1.29	290	625

a Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction.

Source: ACHS (unpublished); table 9A.76.

Data for Tasmania, the ACT and the NT were not provided by the ACHS because of the small number of hospitals that reported in those jurisdictions. Nationally, among those public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of unplanned re-admissions was 2.6 per 100 admissions. The ACHS estimated that if the performance of all Australian public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 1.6 per cent (or 15 465) fewer re-admissions to Australian public hospitals.

Surgical site infection rates

The surgical site infection rates for selected surgical procedures indicator is included for the first time this year, replacing the more general hospital acquired infections rates. The Australian Council for Safety and Quality in Health Care (ACSQHC) has identified a reduction in health care associated infections as a high priority area, recognising that infections can result in serious consequences for individual patients and place a significant burden on the health system.

The ACHS discontinued its collection of some hospital acquired infections data from the beginning of 2002, based on a review of its hospital-wide indicators. The more general hospital acquired infections indicators were replaced with more specific surgical site infection rates for selected surgical procedures. The new indicator has the advantages of improved comparability between hospitals and adjustment for risk, because there is less potential for casemix to influence the rates of infection. The new ACHS collection covers 11 surgical procedures, of which data for the four highest volume procedures are included here.

The infections data, like the unplanned re-admissions data, are collected for internal clinical review by individual hospitals. Statewide conclusions cannot be drawn from the data because health care organisations contribute to the ACHS on a voluntary basis, so the data are not necessarily drawn from representative samples. Estimates shown need to be viewed in the context of the statistical (standard) errors. High standard errors signal that the data may be particularly unreliable.

New South Wales

Among those NSW public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of surgical site infection for hip prosthesis was 2.4 per 100 procedures (subject to a standard error of 0.4). The ACHS estimated that if the performance of all NSW public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 1.1 per cent fewer infections following hip prosthesis surgery (table 9.9).

The mean rate of surgical site infection for knee prosthesis was 3.3 per 100 procedures (subject to a standard error of 0.7). The ACHS estimated that if the performance of all NSW public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 2.3 per cent fewer infections following knee prosthesis surgery (table 9.9).

The mean rate of surgical site infection for lower segment caesarean section was 1.0 per 100 procedures (subject to a standard error of 0.3). The ACHS estimated that if the performance of all NSW public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 0.1 per cent fewer infections following lower segment caesarean sections (table 9.9). NSW data for hysterectomy procedures are not published due to the low number of hospitals reporting.

Table 9.9 **Surgical site infections data for selected surgical procedures, public hospitals, NSW, 2002[a]**

	Hip prosthesis	*Knee prosthesis*	*Lower segment caesarean section*	*Abdominal hysterectomy*
No. hospitals	15	14	12	np
Infection rate	2.40	3.29	1.04	np
Standard error (±)	0.37	0.65	0.28	np
National performance at 80th centile (rate)	4.13	4.23	2.46	np
National performance at 20th centile (rate)	1.34	0.99	0.98	np
Potential centile gains (no. of infections)	11	20	1	np
Change represented by potential gains (%)	1.06	2.30	0.05	np
Potential outlier gains (no. of infections)	–	7	–	np
Potential stratum gains (no. of infections)	25	29	20	np

a Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction. **np** Not published. – Nil or rounded to zero.

Source: ACHS (unpublished); table 9A.57.

Victoria

Among those Victorian public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of surgical site infection for hip prosthesis was 3.7 per 100 procedures (subject to a standard error of 0.6). The ACHS estimated that if the performance of all Victorian public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 2.4 per cent fewer infections following hip prosthesis surgery (table 9.10).

The mean rate of surgical site infection for knee prosthesis was 1.7 per 100 procedures (subject to a standard error of 1.3). The ACHS estimated that if the performance of all Victorian public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 0.8 per cent fewer infections following knee prosthesis surgery (table 9.10).

The mean rate of surgical site infection for lower segment caesarean section was 2.6 per 100 procedures (subject to a standard error of 0.3). The ACHS estimated that if the performance of all Victorian public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 1.6 per cent fewer infections following lower segment caesarean sections (table 9.10).

The mean rate of surgical site infection for abdominal hysterectomy was 0.9 per 100 procedures (subject to a standard error of 0.3). The ACHS estimated that if the performance of all Victorian public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 0.2 per cent more infections following abdominal hysterectomies (table 9.10).

Table 9.10 **Surgical site infections data for selected surgical procedures, public hospitals, Victoria, 2002[a]**

	Hip prosthesis	*Knee prosthesis*	*Lower segment caesarean section*	*Abdominal hysterectomy*
No. hospitals	8	9	10	8
Infection rate	3.70	1.74	2.61	0.87
Standard error (±)	0.63	1.26	0.29	0.25
National performance at 80th centile (rate)	4.13	4.23	2.46	1.92
National performance at 20th centile (rate)	1.34	0.99	0.98	1.02
Potential centile gains (no. of infections)	8	2	28	-1
Change represented by potential gains (%)	2.36	0.75	1.63	-0.15
Potential outlier gains (no. of infections)	4	–	13	–
Potential stratum gains (no. of infections)	13	4	45	3

a Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction. – Nil or rounded to zero.

Source: ACHS (unpublished); table 9A.62.

Queensland

Among those Queensland public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of surgical site infection for hip prosthesis

was 3.5 per 100 procedures (subject to a standard error of 0.5). The ACHS estimated that if the performance of all Queensland public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 2.1 per cent fewer infections following hip prosthesis surgery (table 9.11).

The mean rate of surgical site infection for knee prosthesis was 1.4 per 100 procedures (subject to a standard error of 0.9). The ACHS estimated that if the performance of all Queensland public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 0.4 per cent fewer ‘infections following knee prosthesis surgery (table 9.11).

The mean rate of surgical site infection for lower segment caesarean section was 0.9 per 100 procedures (subject to a standard error of 0.3). The ACHS estimated that if the performance of all Queensland public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 0.1 per cent more infections following lower segment caesarean sections (table 9.11).

The mean rate of surgical site infection for abdominal hysterectomy was 1.4 per 100 procedures (subject to a standard error of 0.3). The ACHS estimated that if the performance of all Queensland public hospitals matched the performance of the top 20 per cent of public hospitals nationally, there would be 0.4 per cent fewer infections following abdominal hysterectomies (table 9.11).

Data for WA, SA, Tasmania, the ACT and the NT were not provided by the ACHS because of the small number of hospitals that reported in those jurisdictions. Nationally, among those public hospitals participating in the ACHS Comparative Report Service in 2002 the mean rate of surgical site infections following hip prosthesis surgery was 2.8 per 100 separations. The ACHS estimated that if the performance of all Australian public hospitals matched the performance of the top 20 per cent of public hospitals, there would be 1.4 per cent fewer infections following hip prosthesis surgery in Australian public hospitals.

Table 9.11 **Surgical site infections data for selected surgical procedures, public hospitals, Queensland, 2002[a]**

	Hip prosthesis	*Knee prosthesis*	*Lower segment caesarean section*	*Abdominal hysterectomy*
No. hospitals	10	10	10	6
Infection rate	3.47	1.36	0.92	1.38
Standard error (±)	0.52	0.85	0.26	0.28
National performance at 80th centile (rate)	4.13	4.23	2.46	1.92
National performance at 20th centile (rate)	1.34	0.99	0.98	1.02
Potential centile gains (no. of infections)	11	2	-1	1
Change represented by potential gains (%)	2.13	0.37	-0.06	0.36
Potential outlier gains (no. of infections)	–	–	–	–
Potential stratum gains (no. of infections)	18	7	21	4

a Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction. – Nil or rounded to zero.

Source: ACHS (unpublished); table 9A.68.

The mean rate of surgical site infections following knee prosthesis surgery was 2.4 per 100 separations. The ACHS estimated that if the performance of all Australian public hospitals matched the performance of the top 20 per cent of public hospitals, there would be 1.4 per cent fewer infections following knee prosthesis surgery in Australian public hospitals.

The mean rate of surgical site infections following lower segment caesarean section surgery was 1.7 per 100 separations. The ACHS estimated that if the performance of all Australian public hospitals matched the performance of the top 20 per cent of public hospitals, there would be 0.7 per cent fewer infections following lower segment caesarean section surgery in Australian public hospitals.

The mean rate of surgical site infections following abdominal hysterectomy surgery was 1.4 per 100 separations. The ACHS estimated that if the performance of all Australian public hospitals matched the performance of the top 20 per cent of public hospitals, there would be 0.4 per cent fewer infections following abdominal hysterectomy surgery in Australian public hospitals.

Responsiveness

Patient survey results

Patient satisfaction surveys have been used to assess the performance of hospitals in their delivery of clinical and non-clinical services. Patient surveys are different from other sources of hospital quality data because they provide the consumer's perspective. They can be particularly useful for obtaining information on the human dimension of hospital care, such as whether patients feel that they were treated with respect and provided with appropriate information regarding their treatment. 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 9.12 reflects the Report editions for which jurisdictions provided patient satisfaction data.

Table 9.12 **Patient satisfaction data provided by jurisdictions for each Report edition**

Report Edition	*NSW*	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*
1995	✓	✓	✓	✓	✗	✗	✓	✗
1999	✗	✓	✗	✓	✗	✓	✓	✓
2000	✓	✓	✓	✓	✗	✓	✓	✗
2001	✓	✗	✗	✓	✗	✓	✓	✗
2002	✗	✓	✗	✓	✓	✓	✓	✗
2003	✓	✗	✓	✓	✓	✓	✓	✗
2004	✓	✓	✗	✓	✓	✓	✓	✗

Source: SCRSCCP (1995, 1999, 2000, 2001a, 2002 and 2003).

Jurisdictions reported the following developments this year:

- NSW conducted a patient survey during 2002, sampling over 15 000 people, 1927 of whom had stayed at least one night in hospital in the previous 12 months. The survey received a 67.6 per cent response rate. Of those patients surveyed following an overnight hospital stay, 91 per cent rated their care as 'excellent', 'very good' or 'good'. The results are outlined in table 9A.58.
- Victoria conducted a survey from September 2000 to October 2003 of people who had been patients of a Victorian acute public hospital. The return annual sample size required was approximately 16 500. For the second year of the survey, 70 per cent of patients were 'very satisfied' with their hospital treatment and a further 25 per cent were 'fairly satisfied' (table 9A.63).

- Table 9A.69 shows details of a previously reported survey conducted in Queensland.
- WA conducted a mailout patient survey between August 2002 and June 2003, covering inpatients at WA public hospitals. The total sample size was about 9000, with a 52 per cent response rate. For overnight adult patients, 89.1 per cent of respondents reported that their hospital stay had had beneficial effects on their health and the weighted overall indicator of satisfaction was 79.7 out of 100. Detailed results are outlined in table 9A.73.
- SA conducted a survey from August to October 2002 of South Australians admitted to public hospitals who had stayed between one and 34 nights in June 2002. The total patient satisfaction score was 87.2 per cent. Detailed results are outlined in table 9A.77.
- Tasmania conducted a survey of 1590 acute public hospital patients discharged between June and September 2002. Overall, 95.3 per cent of hospital patients rated their care as 'good' or 'very good' (table 9A.81).
- The ACT surveyed its acute inpatients, emergency and day surgery patients using mailout surveys in 2002-03. The response rate for the survey was 44 per cent. Overall, 81 per cent of patients were satisfied with the service they received. Communication from staff to patients and family members was identified as an area for improvement (table 9A.84).
- No Territory-wide patient satisfaction data for the NT have been collected in recent years. Hospitals conduct their own hospital specific patient satisfaction surveys. Development of a Territory-wide survey is planned.

Capability

Accreditation

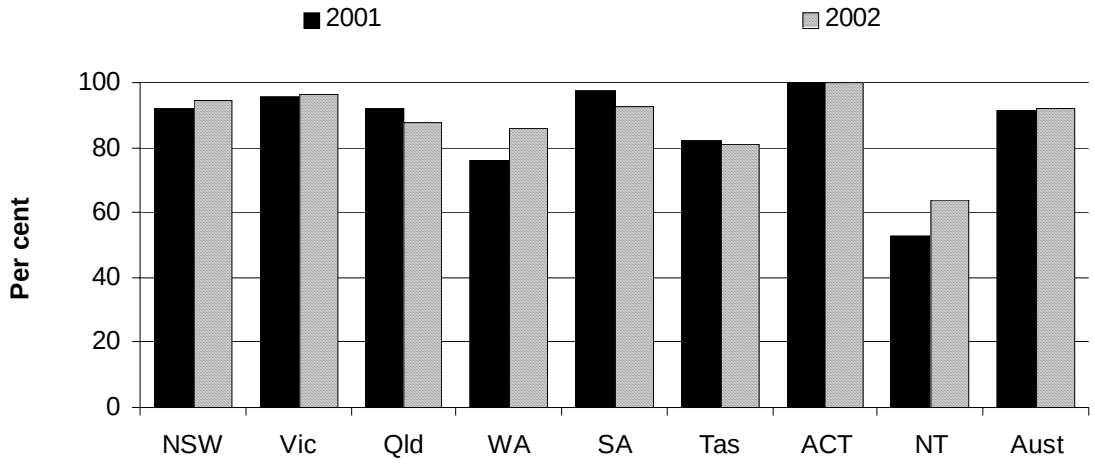
Public hospitals may seek accreditation through the ACHS Evaluation and Quality Improvement Program, the Australian Quality Council, the Quality Improvement Council, the International Organisation for Standardization 9000 Quality Management System or other equivalent programs. Jurisdictions apply specific 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.

The ACSQHC (2002) has noted that accreditation of health care facilities has contributed significantly to quality practices and system wide awareness of quality issues, while noting accreditation processes could be improved. Accreditation is an

imperfect indicator of quality for several reasons. While accreditation indicates that a series of quality tests has been passed, 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 hospitals (excluding those which provide only 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 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. Comparable data on proportions of hospital beds with accreditation are one of the few nationally available indicators of hospital quality.

Ninety-two per cent of public hospital beds were accredited at 30 June 2002. Across jurisdictions, the proportion ranged from 100 per cent in the ACT to 64 per cent in the NT (figure 9.8).

Figure 9.8 **Proportion of accredited beds in public hospitals[a, b, c]**



a Accreditation status at 30 June. In 2002, where average available beds for the year were not available, bed numbers at 30 June 2000 were used. **b** Does not indicate that hospitals without accreditation are of lesser quality. Accreditation is voluntary (except in Victoria, where it is now mandatory for most public hospitals). **c** Data include psychiatric hospitals.

Source: AIHW (2003a); table 9A.13.

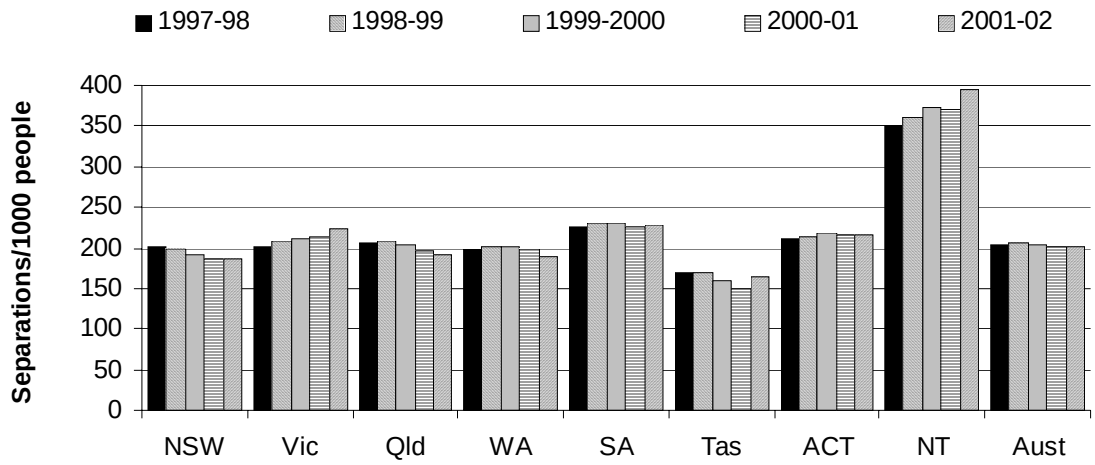
Appropriateness

Two indicators are presented for the appropriateness of care provided by public hospitals: total separation rates and intervention rates for selected procedures. For these indicators, relatively high rates may reflect a tendency for overservicing and relatively low rates may reflect a tendency for underservicing. Both indicators, however, are problematic because a range of other factors influence the rates. First, the appropriate mix/level is unknown (for example, a relatively high level of separations may reflect better access *or* overservicing). Second, variations in admission rates also reflect different practices in classifying patients as either admitted same day patients or outpatients. Third, comparisons are complicated by different access to substitutable services (for example, private hospitals). Last, the total separation rates measure does not reflect differences in casemix across jurisdictions. Jurisdictional comparisons are most useful, therefore, for highlighting differences, noting that more detailed analysis may be required.

Total separation rates

There were approximately 3.9 million separations from public (non-psychiatric) hospitals in 2001-02 (table 9A.8). Nationally, this translates into 201.8 separations per 1000 people, ranging from 394.3 per 1000 in the NT to 164.6 per 1000 in Tasmania (figure 9.9).

Figure 9.9 **Separation rates in public (non-psychiatric) hospitals[a]**



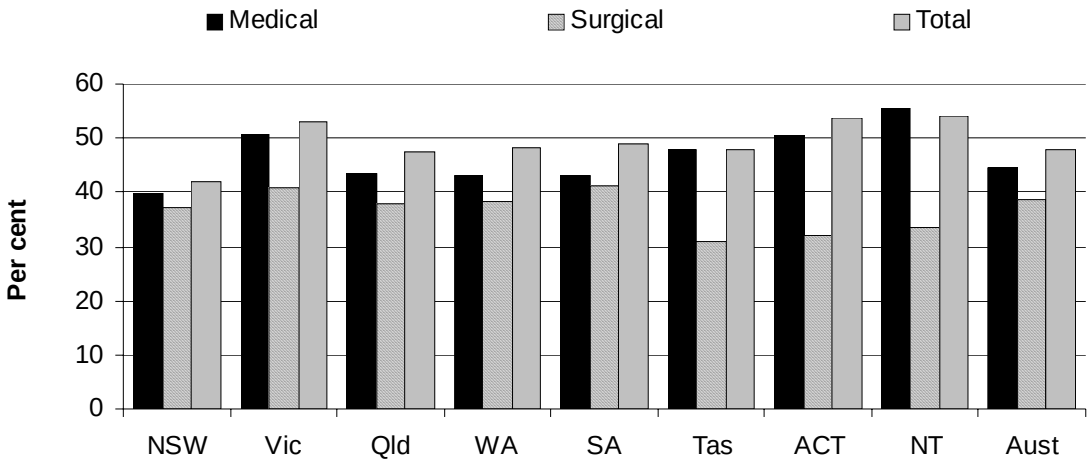
a Data are directly age standardised to the Australian population at 30 June 2001.

Source: AIHW (2003a); table 9A.14.

As indicated previously, variations across jurisdictions in the thresholds applied for classifying patients as either same day admitted patients or outpatients will affect this indicator. The extent to which this is likely to be a factor can be inferred from the variation in the proportion of same day separations across jurisdictions. Jurisdictions that have a high proportion of same day separations are likely to have a lower threshold for classifying patients as admitted, so will tend to have higher separation rates. This is particularly the case for medical separations. The national proportion of medical separations that were same day was 44.5 per cent in 2001-02. The NT reported the highest percentage rate of same day medical separations (55.4) and NSW reported the lowest (39.6) (figure 9.10). Lower jurisdictional variation is likely in admission practices for surgical procedures, as reflected by lower variability in the proportion of same day separations (figure 9.10).

Same day separations in public (non-psychiatric) hospitals increased by 5.6 per cent between 2000-01 and 2001-02, and the proportion of separations that were same day increased from 46.4 per cent to 47.7 per cent. In contrast, overnight separations in public (non-psychiatric) hospitals remained virtually unchanged between 2000-01 and 2001-02 (table 9A.14).

Figure 9.10 **Proportion of medical, surgical and total separations that were same day, public (non-psychiatric) hospitals, 2001-02[a]**



a Data for chemotherapy and radiation, and other separations are included in table 9A.15.

Source: AIHW (unpublished); table 9A.15.

Intervention rates for selected procedures

Intervention rates for selected 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 9.13). The list of procedures has changed this year. Separation rates for asthma and Type 2 diabetes have been excluded because they are now included in chapter 10 (on primary and community health).

Care needs to be taken when interpreting the differences in the intervention 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 across States and Territories. Higher/lower rates are not necessarily associated with inappropriate care. Higher rates may be acceptable for certain conditions and not for others. Higher rates of angioplasties and lens insertions, for example, may represent appropriate levels of care, whereas higher rates of hysterectomies or tonsillectomies may represent an overreliance on procedures, and no clear inference can be drawn from higher rates of arthroscopies or endoscopies. Some of the selected procedures, such as angioplasty and coronary artery bypass graft, are alternative treatment options for people diagnosed with similar conditions.

The data reported include all hospitals, so reflect the activities of both public and private health systems.[5] The most common procedures in 2001-02 were endoscopies, lens insertions and arthroscopic procedures (table 9.13). Intervention rates for all procedures varied across jurisdictions. Both Queensland and SA had the highest intervention rates for five procedures. The NT had the lowest intervention rate for 12 of the 15 procedures. Table 9A.16 outlines which State or Territory intervention rates are statistically significantly different from the collective intervention rate for all other jurisdictions. Statistically significant and material differences in the intervention rates for these procedures may highlight variations in treatment methods across jurisdictions.

[5] 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 2002a).

Table 9.13 **Separations per 1000 people, public and private hospitals by selected procedure or diagnosis, 2001-02[a, b, c, d]**

	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*	*Total*[e]
Appendicectomy	1.22	1.31	1.57	1.56	1.28	1.50	1.36	1.11	1.36
Coronary artery bypass	0.86	0.85	0.88	0.60	0.76	0.73	0.47	0.82	0.82
Angioplasty	1.19	1.42	0.98	1.16	1.08	1.24	1.27	0.88	1.20
Caesarean section separation rate	3.16	2.96	3.84	3.69	3.56	2.79	2.58	2.90	3.29
Caesarean section separations per 100 in-hospital births[f]	25.0	26.4	28.8	29.1	29.2	23.3	22.6	24.5	26.7
Cholecystectomy	2.30	2.32	2.48	2.25	2.54	2.13	2.18	1.18	2.34
Diagnostic gastrointestinal endoscopy	26.13	29.34	33.44	27.62	25.27	21.78	13.51	11.86	27.94
Hip replacement	1.27	1.4	1.15	1.44	1.44	1.56	1.51	0.70	1.32
Revision of hip replacement	0.16	0.17	0.15	0.18	0.17	0.20	0.20	0.11	0.17
Hysterectomy	1.63	1.51	1.88	2.16	2.14	2.22	2.01	0.68	1.75
Lens insertion	7.33	6.59	8.05	7.71	6.65	4.54	6.03	5.20	7.15
Tonsillectomy	1.61	1.82	1.73	2.01	2.39	0.99	0.98	0.36	1.74
Myringotomy	1.37	1.93	1.40	2.26	3.14	1.11	1.28	0.48	1.71
Knee replacement	1.40	1.04	1.24	1.27	1.40	0.93	1.45	0.50	1.26
Prostatectomy	1.17	1.46	1.07	1.11	1.20	1.12	1.12	0.68	1.22
Arthroscopic procedures (includes arthroscopies)	5.00	6.03	4.88	7.13	8.83	4.87	5.05	3.89	5.73

a The procedures and diagnoses are defined using ICD-10-AM codes. **b** Some private hospitals are not included. **c** Rate per 1000 population was directly age and sex standardised to the Australian population at 30 June 2001 using December 2001 population estimates as divisors. **d** Excludes multiple procedures/diagnosis for the same separation within the same group. **e** Excludes non-residents and unknown State or Territory of residence. **f** Caesarean sections divided by separations for which in-hospital birth was reported. This is an approximate measure of the proportion of all births that are by caesarean section, as births out of hospitals are not included.

Source: AIHW (2003a); table 9A.16.

Equity

Public hospitals have a significant influence on the equity of the overall health care system. While access to public hospital services is important to the community in general, it is particularly so for population groups such as Indigenous people and people of low socioeconomic status, who may have difficulty in accessing alternative services, such as those provided by private hospitals.

Access

Emergency department waiting times

This indicator measures the proportion of patients seen within the time limits set according to the urgency of treatment required. These time limits are set according to triage category, as follows:

- triage category 1: need for resuscitation — patients 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
- triage category 5: non-urgent — patients seen within 120 minutes.

Data for all jurisdictions for patients presenting to public hospital emergency departments in 2001-02 are presented in table 9.14.

The nationally agreed definition for measurement of waiting times is to subtract the time at which the patient presents at the emergency department (that is, the time at which the patient is clerically registered or at which he or she is triaged, whichever occurs earlier) from the time of commencement of service by a treating medical officer or nurse. Patients who subsequently do not wait for care after being triaged or clerically registered are excluded from the data. There is some variation in how the waiting times data are calculated across jurisdictions, which may slightly affect the comparability of the data. Victoria, Queensland, WA and the ACT use the national definition. The NT uses the time of registration as the starting point, while NSW, SA and Tasmania use the time of triage. In SA, patients are always triaged before being clerically registered (AIHW 2003a). There may also be differences in the precision with which the starting time of treatment is recorded.

Data may vary across jurisdictions as a result of differences in clinical practices (for example, the allocation of cases to urgency categories). The proportion of patients in each triage category who were subsequently admitted may provide an indication of the comparability of triage categorisations across jurisdictions and thus the comparability of the waiting times data (table 9A.17).

Other issues arise with the use of benchmarks. A patient in triage category 2 who waits 11 minutes, for example, would be recorded the same as one waiting 18 minutes, even though the latter event may be of much greater concern. There are also differences in data coverage across jurisdictions, with the estimated proportion

of emergency visits covered ranging across jurisdictions in 2001-02 from 100 per cent in the ACT and the NT, to 42 per cent in WA (table 9.14).

In 2001-02, NSW, Victoria and the NT had the highest proportion of patients seen within the triage timeframe for category 1 (100 per cent) and Tasmania had the lowest proportion (89 per cent). For triage category 2, the ACT had the highest proportion of patients seen within the relevant timeframe (87 per cent) and Tasmania had the lowest (52 per cent). Victoria and NSW generally had a higher than average proportion of emergency department patients who were subsequently admitted (table 9A.17).

Table 9.14 **Emergency department patients seen within triage category timeframes, public hospitals, 2001-02 (per cent)[a, b]**

Triage category	*NSW*[c]	*Vic*	*Qld*[d]	*WA*	*SA*[e]	*Tas*[f]	*ACT*[g]	*NT*[h]	*Aust*
1 — Resuscitation	100	100	99	96	99	89	99	100	99
2 — Emergency	78	83	71	79	65	52	87	67	76
3 — Urgent	57	76	56	56	50	55	80	69	60
4 — Semi-urgent	60	64	59	51	51	57	72	63	59
5 — Non-urgent	86	85	80	74	88	89	82	90	84
Total	**64**	**72**	**62**	**58**	**55**	**61**	**78**	**70**	**64**
Data coverage									
Estimated proportion of emergency visits[i]	72	60	56	42	77	84	100	100	64

[a] Care needs to be taken in interpreting these data. Nationally agreed definitions exist, but there may be differences in how data are collected. Data may vary across jurisdictions as a result of differences in clinical practices. [b] Includes data for hospitals not included in the specified hospital peer groups. [c] Excludes records with incomplete information. [d] The number of patients seen and the number of patients admitted were not available for June 2002 for two hospitals, and waiting time was not available for three hospitals. Data for May 2002 were used for these hospitals. [e] Proportion of patients seen on time is based on one hospital for the medium hospitals peer group, and on eight hospitals for the total. [f] Estimated proportion of patients who were subsequently admitted is based on three hospitals. [g] Waiting time information was not available for 3929 records. The denominator for the proportion of patients seen on time includes only records where waiting time information was available. [h] The NT figures are based on a real time data entry system, so delayed data entry for the commencement of service may cause recorded waiting times to be longer than actual waiting times. [i] The occasions of service for accident and emergency reported to the National Public Hospital Establishments Database for hospitals reporting to the Emergency Department Waiting Times Data Collection as a proportion of the total occasions of service for accident and emergency reported to the National Public Hospital Establishments Database.

Source: AIHW (2003a); table 9A.17.

Waiting times for elective surgery

Two elective surgery access indicators are reported: overall waiting times and waiting times by clinical urgency category. The former is a national indicator that

the health sector developed after the Australian Health Ministers' Advisory Council (AHMAC) decision in late 2001 not to report by urgency category. In its decision to develop a new indicator, AHMAC acknowledged that the data by urgency category are not comparable across jurisdictions. Data for the overall indicator are comparable.

To reflect the importance of treating patients according to the urgency of their condition, the Steering Committee has decided to continue to report by clinical urgency category. However, systematic differences across jurisdictions in clinicians' judgments about the urgency of particular cases — as well as in the performance of hospital systems — are likely to affect reported results. The Steering Committee considers that standardisation of the data for this indicator should be a priority.

Both indicators will be affected by variations in jurisdictions' approach to reporting patients who change clinical urgency category while on the waiting list and patients who transfer from a waiting list managed by one hospital to a waiting list managed by a different hospital (AIHW 2003a). Where patients experience a change in their clinical condition leading to a review of their urgency category, the national definition specifies that waiting times are recorded as the period in the most recent urgency category and in any previous more urgent categories. All jurisdictions except SA follow this definition; SA records total waiting time in all 'ready for care' categories (AIHW 2003a), which has the effect of increasing the apparent waiting time for admissions in SA compared with other jurisdictions where patients are on a list of lower urgency category.

Where patients transfer between waiting lists managed by different hospitals, generally only the time spent on the final list would be included in the waiting time reported. The ACT reports on the total time waited on all waiting lists, which may have the effect of increasing the apparent waiting times for admissions in the ACT compared with other jurisdictions. SA has stated that it is uncommon for patients to switch between waiting lists managed by different hospitals in that jurisdiction (AIHW 2003a).

For the overall waiting times indicator, waiting times are generally calculated by comparing the date on which a patient is added to a waiting list with the date on which they are admitted. Admissions data exclude patients who were on waiting lists but not subsequently admitted for surgery. In 2001-02, 14.7 per cent of patients were removed from waiting lists for reasons other than admission, including admission as an emergency patient for the relevant procedure, death of the patient, treatment at another location, the patient declining the surgery, or inability to contact the patient (AIHW 2003a).

Table 9.15 presents data for the overall waiting times indicator — the number of days within which 50 per cent (that is, the 50th percentile) and 90 per cent (the 90th percentile) of patients are admitted. In 2001-02, the days waited at the 50th percentile ranged from 40 days in the ACT to 23 days in Queensland. The days waited at the 90th percentile ranged from 339 in Tasmania to 132 in Queensland. The proportion of patients waiting more than 365 days ranged from 9.0 per cent in Tasmania, to 3.6 per cent in Queensland and SA (table 9.15).

Table 9.15 **Elective surgery waiting times, public hospitals, 2001-02**

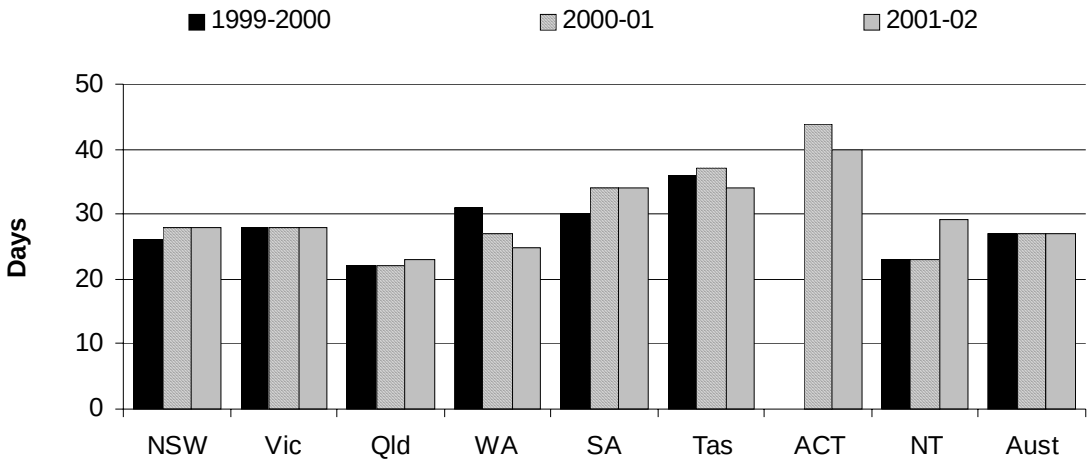
	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*	*Aust*
Days waited at 50th percentile	28	28	23	25	34	34	40	29	27
Days waited at 90th percentile	220	210	132	217	203	339	268	230	203
Proportion who waited more than 365 days (%)	5.0	4.4	3.6	4.1	3.6	9.0	6.8	4.4	4.5
Estimated coverage of surgical separations (%)[a]	100	70	98	72	61	99	100	100	84

[a] The separations with a surgical procedure for hospitals reporting to the National Elective Surgery Waiting Times Data Collection as a proportion of the separations with a surgical procedure for all public hospitals.

Source: AIHW (2003a); table 9A.18.

Figure 9.11 shows the number of days waited at the 50th percentile for the years 1999-2000 to 2001-02. Nationally, the number of days waited remained constant over the three years, although, there were variations for individual jurisdictions.

Figure 9.11 **Days waited for elective surgery at the 50th percentile, public hospitals**



Source: AIHW (2003a), (2002a), (2002c); table 9A.18

Attachment 9A includes more information on elective surgery waiting times based on the new method of reporting. Data on elective surgery waiting times by hospital peer group, specialty of surgeon and indicator procedure, are contained in tables 9A.18, 9A.19 and 9A.20 respectively.

Reporting of elective surgery waiting times by clinical urgency category shows both the time waited for surgery by patients on waiting lists at particular census dates, as well as time waited to admission. Census data reflect the proportion of patients waiting on the date of the census who had been waiting an extended period. Census data do not represent the completed waiting time of patients.

The three generally accepted urgency categories for elective surgery are:

- category 1 — admission is desirable within 30 days
- category 2 — admission is desirable within 90 days
- category 3 — admission at some time in the future is acceptable.

There is no specified or agreed desirable wait for category 3 patients, so the term 'extended wait' is used for patients waiting longer than 12 months for elective surgery.

As stated earlier, these data are not comparable across jurisdictions because clinicians have systematically different approaches to categorisation by urgency. Figures 5.12 and 5.13 of the 2002 Report illustrate differences across jurisdictions in the classification of patients to urgency categories for 1999. States and Territories with large proportions of patients in category 1 were also the States and Territories that had relatively large proportions of patients 'not seen on time'. Thus, the apparent variation in performance is related to the classification practices employed (SCRCSSP 2002). Differences across jurisdictions in classification of patients in urgency categories for 2001-02 are shown in table 9.16.

Table 9.16 **Classification of patients to clinical urgency categories, 2001-02 (per cent)**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Patients on waiting lists								
Category 1	na	1.7	6.6	na	5.7	na	3.9	6.3
Category 2	na	35.6	31.6	na	15.9	na	39.4	26.9
Category 3	na	62.7	61.9	na	78.4	na	56.6	66.8
Total	na	100.0	100.0	na	100.0	na	100.0	100.0
Patients admitted from waiting lists								
Category 1	na	20.7	33.8	na	27.0	na	30.7	34.6
Category 2	na	46.0	45.8	na	20.4	na	41.4	33.0
Category 3	na	33.3	20.4	na	52.6	na	27.9	32.4
Total	na	100.0	100.0	na	100.0	na	100.0	100.0

Source: State and Territory governments (unpublished)

For this year's Report only Victoria, Queensland, SA, the ACT and the NT have supplied elective surgery waiting times data by clinical urgency category. NSW, WA and Tasmania did not provide data.

For those jurisdictions that provided data:

- Census data for Victoria at 30 June 2002 suggest that 0.0 per cent of category 1 patients on the waiting list were subject to extended waits, along with 42.8 per cent of category 2 patients, 29.6 per cent of category 3 patients and 33.8 per cent of all patients. Of patients admitted to hospital from waiting lists in 2001-02, 0.0 per cent of category 1 patients were subject to extended waits, along with 21.0 per cent of category 2 patients, 9.7 per cent of category 3 patients and 12.9 per cent of all patients (table 9A.64).
- Census data for Queensland at 30 June 2002 suggest that 3.4 per cent of category 1 patients on the waiting list were subject to extended waits, along with 10.6 per cent of category 2 patients, 37.6 per cent of category 3 patients and 26.8 per cent of all patients. Of patients admitted from waiting lists in 2001-02, 7.4 per cent of category 1 patients were subject to extended waits, along with 11.4 per cent of category 2 patients, 16.1 per cent of category 3 patients and 11.0 per cent of all patients (table 9A.70).
- Census data for SA at 30 June 2002 suggest that 17.7 per cent of category 1 patients on the waiting list were subject to extended waits, along with 17.2 per cent of category 2 patients, 14.4 per cent of category 3 patients and 15.0 per cent of all patients were subject to extended waits. Of patients admitted from waiting lists in 2001-02, 10.9 per cent of category 1 patients were subject to extended waits, along with 12.7 per cent of category two patients, 5.2 per cent of category 3 patients and 8.3 per cent of all patients (table 9A.78).

- Census data for the ACT at 30 June 2002 suggest that 1.4 per cent of category 1 patients on the waiting list were subject to extended waits, along with 54.9 per cent of category 2 patients, 43.7 per cent of category 3 patients and 37.8 per cent of all patients. Of patients admitted from waiting lists in 2001-02, 7.2 per cent of category 1 patients were subject to extended waits, along with 68.7 per cent of category 2 patients, 24.1 per cent of category 3 patients and 22.2 per cent of all patients (table 9A.85).
- Census data for the NT at 30 June 2002 suggest that 64.4 per cent of category 1 patients on the waiting list were subject to extended waits, along with 53.0 per cent of category 2 patients, 28.7 per cent of category 3 patients and 37.5 per cent of all patients. Of patients admitted from waiting lists in 2001-02, 13.6 per cent of category 1 patients were subject to extended waits, along with 23.8 per cent of category 2 patients, 8.7 per cent of category 3 patients and 15.4 per cent of all patients (table 9A.87).

Victoria, Queensland, SA and the NT also provided data on waiting times by clinical specialty and urgency category for 2001-02 (tables 9A.65, 9A.71, 9A.79 and 9A.88).

Separation rates by target group

Without appropriate access to hospital services, the consequences of any injury or illness are more likely to be either permanent disability or premature death for a patient. Equity of access has been measured using data on Indigenous and non-Indigenous separations. Data on Indigenous people are limited by the accuracy and extent to which Indigenous people are identified in hospital records and this varies across States and Territories. In 1998, a pilot study in 11 hospitals found that the accuracy with which a person's Indigenous status was recorded varied greatly from hospital to hospital, ranging from 55 per cent to 100 per cent (ATSIHWIU 1999). The quality of data improved from 2000-01 because all jurisdictions used consistent categories and definitions for Indigenous status from that year. Despite this, it is considered that for 2001-02 the quality of data was acceptable only in the NT, SA and WA (ABS/AIHW 2003). In addition, difficulties in estimating the size of the Indigenous population limit the comparability of data over time.

Descriptive data on Indigenous and non-Indigenous separations in public hospitals in 2001-02 are provided in table 9.17. Indigenous separations accounted for around 3.0 per cent of total separations in 2001-02 (and 4.7 per cent of separations in public hospitals), although Indigenous people represented around 2.4 per cent of the total population in 2001-02. Most Indigenous separations occurred in public hospitals (97.2 per cent). The low proportion of private hospital separations for Indigenous people may be due partly to a lower proportion of Indigenous patients being

correctly identified in private hospitals and partly to a lower use of private hospitals (ABS 2000). Data in table 9.17 need to be interpreted with care. The AIHW advised that only data from WA, SA and the NT are considered to be of acceptable quality (AIHW 2003a).

Table 9.17 **Separations by Indigenous status, 2001-02[a]**

	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT* [b]	*NT* [c]	*Aust*
Number of public hospital separations ('000)									
Indigenous	34.7	8.0	53.2	34.6	12.7	1.5	1.4	39.6	185.7
Non-Indigenous	1224.3	1081.9	630.0	318.1	340.4	73.0	58.4	23.6	3749.7
Not reported	4.7	0.0	11.6	0.0	9.3	4.9	2.2	0.3	32.9
Total	**1263.7**	**1089.9**	**694.7**	**352.8**	**362.3**	**79.5**	**61.9**	**63.5**	**3968.3**
Number of private hospital separations ('000)									
Indigenous	0.5	0.4	1.4	2.7	0.2	0.1	0.0	na	5.4
Non-Indigenous	691.2	579.5	462.0	262.4	192.4	23.2	25.6	na	2236.2
Not reported	0.8	0.0	129.7	0.0	5.2	47.4	1.6	na	184.6
Total	**692.5**	**579.8**	**593.1**	**265.1**	**197.8**	**70.6**	**27.2**	**na**	**2426.2**
Separations in public hospitals as a proportion of separations in all hospitals (%)									
Indigenous	99	95	97	93	98	91	97	na	97
Non-Indigenous	64	65	58	55	64	76	70	na	63

a Identification of Indigenous patients is not considered complete and completeness varies across jurisdictions. The AIHW advised that only data from WA, SA and the NT are of acceptable quality. **b** Separations reported for Indigenous people in the ACT are subject to variability due to the small Indigenous population in the jurisdiction. A high proportion of separations are for maintenance renal dialysis episodes attributable to a small number of people. **c** Data for the private hospital in the NT are not available. **na** Not available.

Source: AIHW (2003a); table 9A.21.

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 for all public hospitals are presented in table 9.18. Data regarding private hospital separation rates are contained in table 9A.22.

In 2001-02, on an age standardised basis, 614.3 separations (including same day separations) for Indigenous patients were reported per 1000 Indigenous people in public hospitals. This rate was markedly higher than the corresponding rate for the total population of 202.8 per 1000. Indigenous separation rates for public hospitals were highest in the NT (1129.6 separations per 1000 Indigenous people) (table 9.18). The AIHW advised that only data from WA, SA and the NT are considered to be of acceptable quality. Incomplete identification of Indigenous people limits the validity of comparisons over time, as well as across jurisdictions.

Table 9.18 **Estimates of separations per 1000 people by reported Indigenous status, public hospitals[a, b]**

	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*[c]	*NT*	*Aust*
1997-98									
Indigenous people	324.2	369.3	512.6	753.8	633.7	128.1	347.6	871.6	522.6
Total population	202.2	201.7	205.8	201.4	228.5	170.7	211.3	351.0	205.3
1998-99									
Indigenous people	337.3	344.0	594.6	809.8	673.1	22.9	27.3	920.5	557.1
Total population	199.5	207.7	209.1	204.0	232.3	170.5	212.8	359.6	207.1
1999-2000									
Indigenous people	363.4	413.1	708.3	868.9	875.5	132.2	1461.7	1105.0	652.4
Total population	192.1	211.7	205.0	202.0	232.6	160.1	219.2	372.9	204.6
2000-01									
Indigenous people	403.8	461.4	671.6	852.2	772.6	110.6	858.0	1031.6	637.5
Total population	187.9	213.6	195.5	199.7	228.8	150.5	217.0	370.9	201.1
2001-02									
Indigenous people	361.1	416.0	676.5	752.7	743.6	139.4	982.8	1129.6	614.3
Total population	188.6	222.5	192.5	190.7	229.7	165.0	216.3	394.3	202.8

a The rates are directly age standardised to the Australian population at 30 June 2001. **b** Identification of Aboriginal and Torres Strait Islander patients is not considered complete and completeness varies across jurisdictions. The AIHW advised that only data from WA, SA and the NT are of acceptable quality. **c** Rates reported for Indigenous people in the ACT are subject to variability due to the small Indigenous population in the jurisdiction. A high proportion of separations are for maintenance renal dialysis episodes attributable to a small number of people.

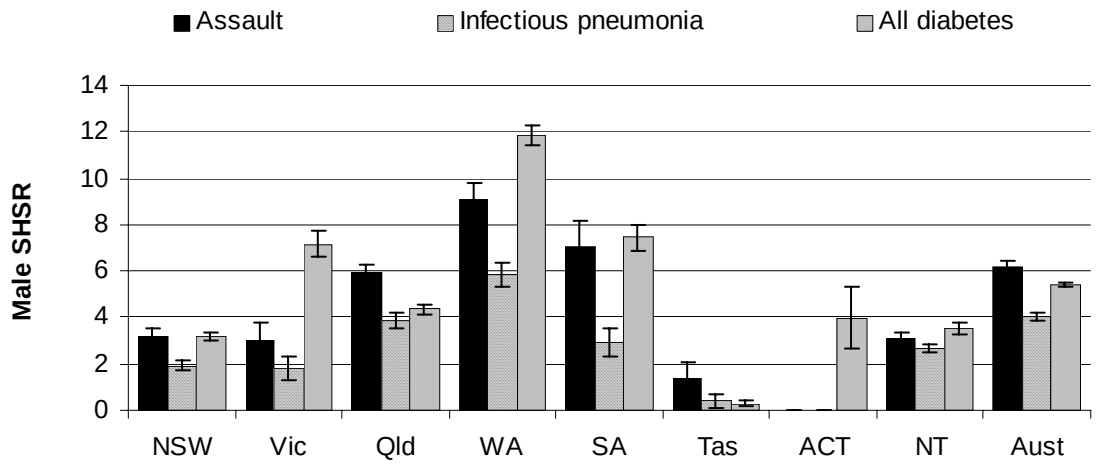
Source: AIHW (unpublished); table 9A.22.

Data on Indigenous separations for selected conditions are included in this chapter for descriptive purposes only. The data do not signal the performance of hospitals, but reflect a range of factors, such as: the spectrum of public, primary care and post-hospital care available; Indigenous access to these as well as hospital services; social and physical infrastructure services for Indigenous people; and differences in the complexity, incidence and prevalence of disease between the Indigenous and non-Indigenous populations.

Standardised hospital separation ratios are calculated by dividing Indigenous separations by 'expected' separations. Expected separations are calculated as the product of the all Australian separation rates and the Indigenous population. They illustrate differences between the rates of Indigenous hospital admissions and those of the total Australian population, taking into account differences in age distributions. Ratios are presented for six major conditions: circulatory diseases, injury and poisoning, respiratory diseases and lung cancer, diabetes, tympanoplasty associated with otitis media, and mental health conditions and selected associated ICD-9 and ICD-10 codes (tables 9A.23 and 9A.24).

For males in 2001-02, there was a marked difference between the Indigenous separation rates and those of the total population for assault (with the Indigenous separation rates being 6.2 times higher than for all Australians), all diabetes[6] (with the Indigenous separation rates being 5.4 times higher than for all Australians), and infectious pneumonia (with the Indigenous separation rates being 4.0 times higher than for all Australians) (figure 9.12). While the 2001-02 standardised rates for rheumatic heart disease and tympanoplasty associated with otitis media for Indigenous males also appeared to be markedly higher than for the Australian male population, the number of separations for these conditions was very small (table 9A.23).

Figure 9.12 **Standardised hospital separation ratios for selected conditions: Indigenous males to all males, 2001-02[a, b, c, d, e, f]**



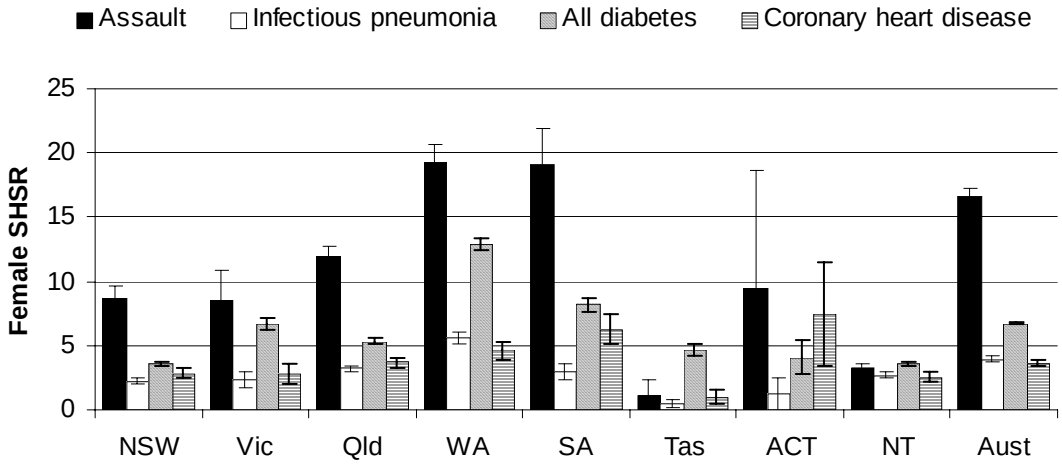
a The ratios are indirectly age standardised using the Census based estimated resident population of Indigenous males at 30 June 2001, the hospital separation rates for Australian males aged 0–74 years for 2000-01 and the male population at 30 June 2001. **b** Identification of Aboriginal and Torres Strait Islander patients is not considered to be complete and completeness varies among jurisdictions. The variation in the number of Indigenous separations per 1000 Indigenous population among the States and Territories suggests variation in the proportion of Indigenous persons who were identified as such in the hospital morbidity data collections and/or in the total population. **c** The quality of the data provided for Indigenous status in 2001-02 has continued to improve due to the use of the National Health Data Dictionary definitions by all jurisdictions, however it is still in need of improvement, being considered acceptable for only SA, WA and the NT. Data on Indigenous status should, therefore, be interpreted cautiously. **d** The ACT data are not considered reliable due to the small size of the Indigenous population in that jurisdiction. **e** 'All diabetes' refers to separations with either a principal or additional diagnosis of diabetes. **f** These data do not signal the performance of hospitals, but reflect a range of factors such as: the spectrum of public, primary care and post hospital care available; Indigenous access to these as well as hospital services; social and physical infrastructure services for Indigenous people; and differences in the complexity, incidence and prevalence of disease between the Indigenous and non-Indigenous populations. Information on the Indigenous population in each jurisdiction is contained in the appendix A.

Source: AIHW (unpublished); table 9A.23.

6 'All diabetes' refers to separations with either a principal or additional diagnosis of diabetes.

In 2001-02, separation rates were markedly higher for Indigenous females than those for all females for assault (16.6 times higher), all diabetes (6.7 times higher), infectious pneumonia (4.0 times higher) and coronary heart disease (3.6 times higher) (figure 9.13). While the standardised rates for rheumatic heart disease and tympanoplasty associated with otitis media for Indigenous females also appeared markedly higher than for the Australian female population, the number of separations for these conditions was very small (table 9A.24).

Figure 9.13 **Standardised hospital separation ratios for selected conditions: Indigenous females to all females, 2001-02[a, b, c, d, e, f]**



a The ratios are indirectly age standardised using the Census based estimated resident population of Indigenous females at 30 June 2001, the hospital separation rates for Australian females aged 0–74 years for 2000-01 and the female population at 30 June 2001. **b** Identification of Aboriginal and Torres Strait Islander patients is not considered to be complete and completeness varies among jurisdictions. The variation in the number of Indigenous separations per 1000 Indigenous population among the States and Territories suggests variation in the proportion of Indigenous persons who were identified as such in the hospital morbidity data collections and/or in the total population. **c** The quality of the data provided for Indigenous status in 2001-02 has continued to improve due to the use of the National Health Data Dictionary definitions by all jurisdictions, however it is still in need of improvement, being considered acceptable for only SA, WA and the NT. Data on Indigenous status should, therefore, be interpreted cautiously. **d** The ACT data are not considered reliable due to the small size of the Indigenous population in that jurisdiction. **e** 'All diabetes' refers to separations with either a principal or additional diagnosis of diabetes. **f** These data do not signal the performance of hospitals, but reflect a range of factors such as: the spectrum of public, primary care and post hospital care available; Indigenous access to these as well as hospital services; social and physical infrastructure services for Indigenous people; and differences in the complexity, incidence and prevalence of disease between the Indigenous and non-Indigenous populations. Information on the Indigenous population in each jurisdiction is contained in the appendix A.

Source: AIHW (unpublished); table 9A.24.

Physical access

An indicator of physical access to public hospitals is yet to be developed.

Efficiency

Two approaches to measuring the efficiency of public hospital services are used in this Report: the cost per casemix-adjusted unit of output (the unit cost) and the casemix-adjusted relative length of stay index. The latter is used because costs are correlated with the length of stay at aggregate levels of reporting.

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 accurately measured, the Review seeks to report estimated costs that are comparable. Where differences in comparability remain, the differences are documented. The Review has identified financial reporting issues that have 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 associated with buildings and equipment. A number of issues remain to further improve the quality of these estimates.

Costs associated with non-current physical assets (such as depreciation and the user cost of capital) are potentially important components of the total costs of many services delivered by government agencies. Differences in the techniques for measuring non-current physical assets (such as valuation methods) may reduce the comparability of cost estimates across jurisdictions. In response to concerns regarding data comparability, the Steering Committee initiated a study, *Asset Measurement in the Costing of Government Services* (SCRCSSP 2001b). The aim of the study was to examine the extent to which differences in asset measurement techniques applied by participating agencies affect the comparability of reported unit costs.

The results reported in the study for public hospitals indicate that different methods of asset measurement could lead to quite large variations in reported capital costs. Considered in the context of total unit costs, however, the differences created by these asset measurement effects were relatively small because capital costs represent a relatively small proportion of total cost, although the differences may affect cost rankings between jurisdictions. A key message from the study was that the adoption of national uniform accounting standards across all service areas would be a desirable outcome from the perspective of the Review. The results are discussed in more detail in chapter 2.

Care needs to be taken, therefore, in 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 such comparisons. In addition, differences in the use of salary packaging may allow hospitals to lower their wage

bills (and thus State or Territory government expenditure) while maintaining the after-tax income of their staff. 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 cost per casemix-adjusted separation

The recurrent cost per casemix-adjusted hospital separation is an indicator of efficiency in treating 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 2000a).

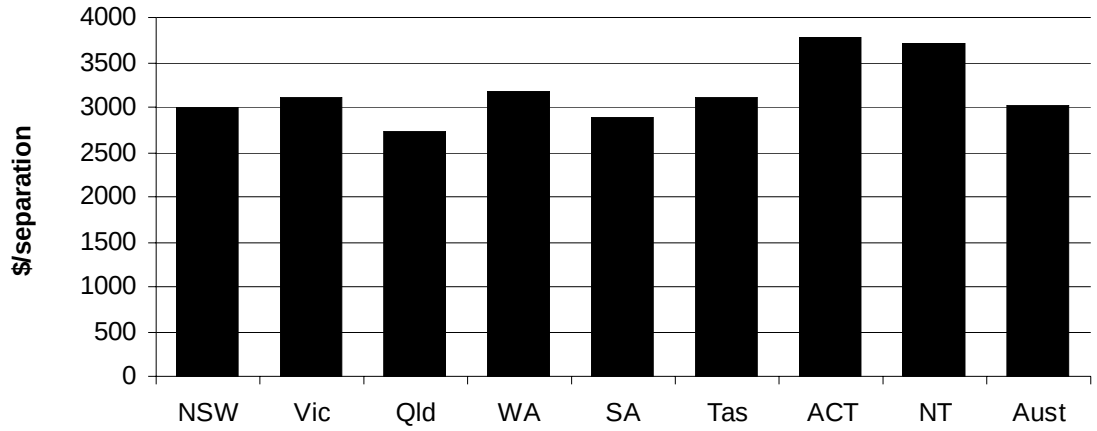
While all admitted patient separations and their costs are included in the calculations, cost weights are not available for non-acute admitted patients which comprised approximately 2.7 per cent of total admitted patient episodes in 2001-02. An approximation of the cost per separation for the acute separations is therefore applied to the non-acute patients. Average cost weights for acute patients typically underestimate the costs of non-acute separations, however, because these patients typically have very long lengths of stay (AIHW 2001b).

The AIHW (2001c) showed that hospital recurrent expenditures on Indigenous and non-Indigenous people may differ (box 9.5). This difference may also influence unit cost outcomes.

Recurrent cost per casemix-adjusted separation for each jurisdiction in 2001-02 is presented in figure 9.14. The data exclude spending on non-admitted patient care, the user cost of capital and depreciation, research costs and payroll tax. Overnight stays, same day separations, private patient separations in public hospitals and private patient recurrent costs are included. The scope is hospitals that mainly provide acute care — that is, principal referral and specialist women's and children's hospitals, large hospitals, medium hospitals and small acute hospitals. Excluded are psychiatric hospitals, drug and alcohol services, mothercraft hospitals, unpeered and other hospitals, hospices, rehabilitation facilities, small non-acute hospitals and multipurpose services. Also excluded are hospitals that cannot be classified due to atypical events such as being opened or closed mid-year. Separations in the excluded hospitals comprised 4.5 per cent of separations in 2001-02 (AIHW 2003a).

The recurrent cost per casemix-adjusted separation nationally in 2001-02 was $3017. Across jurisdictions it was highest in the ACT ($3769) and lowest in Queensland ($2741) (figure 9.14).

Figure 9.14 **Recurrent cost per casemix-adjusted separation, 2001-02[a, b, c, d, e, f, g, h]**



a Excludes depreciation and the user cost of capital, spending on non-admitted patient care, research costs and payroll tax. **b** Excludes psychiatric hospitals, drug and alcohol services, mothercraft hospitals, unpeered and other hospitals, hospices, rehabilitation facilities, small non-acute hospitals and multipurpose services. **c** Separations from the National Hospital Morbidity Database where the type of episode of care is acute, newborn with qualified days or unspecified. **d** Average cost weights from the National Hospital Morbidity Database, based on acute and unspecified separations and newborn episodes of care with qualified days, using the 2000-01 AR-DRG v4.1 cost weights (DHA, unpublished) applied to version 4.2 AR-DRGs. **e** Casemix-adjusted separations are the product of total separations and average cost weight. **f** Estimated private patient medical costs calculated as 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. This is a notional estimate of the medical costs for all non-public patients. **g** Queensland pathology services are now being purchased from the Statewide pathology service rather than being provided by each hospitals' employees. **h** These figures need to be interpreted in conjunction with the consideration of cost disabilities associated with hospital service delivery in the NT.

Source: AIHW (2003a); table 9A.4.

Box 9.5 **Admitted patient costs for Indigenous people, 1998-99**

The AIHW (2001c) noted that a number of factors drive differences in the admitted patient expenditures for Indigenous people and non-Indigenous people.

- The average AR-DRG cost weight is lower for Indigenous patients than for non-Indigenous patients due to the Indigenous population's higher numbers of low cost AR-DRGs (such as dialysis) and lower numbers of high cost surgical AR-DRGs.
- The average length of hospital stay tends to be longer for Indigenous people than for non-Indigenous people within the same AR-DRG. This leads to higher costs per episode and can be attributed to case complexity, hospital and regional cost variations, differences in clinical practice and post-discharge support.
- A high proportion of Indigenous people live in areas where the hospitals are relatively high cost, such as those in remote parts of Australia. On the other hand, in some cases, a high proportion of Indigenous people live in the vicinity of lower cost hospitals, such as small non-remote rural hospitals and remote Queensland hospitals.[7]
- In addition, there is evidence that cost per separation for Indigenous people is higher due to the higher costs of caring for patients with greater co-morbidities. These costs are in addition to those associated with longer lengths of stay. The AIHW (2001c) added a 5 per cent cost loading for Indigenous admitted patients to account for this effect.

Overall, after adjusting for length of stay and differences in hospital costs due to locational factors, costs per separation within AR-DRGs for Indigenous patients were 6 per cent higher than for non-Indigenous patients in 1998-99. This gap varied across jurisdictions. Costs per separation for Indigenous patients were 4 per cent lower in NSW and 6 per cent lower in Queensland, whereas WA, SA and NT costs per separation for Indigenous patients were 5 per cent, 13 per cent and 6 per cent higher respectively. Higher costs in SA in 1998-99 were the result of treatment of Indigenous patients many hundreds of kilometres from home. Many of the high cost NT patients are treated in SA hospitals.

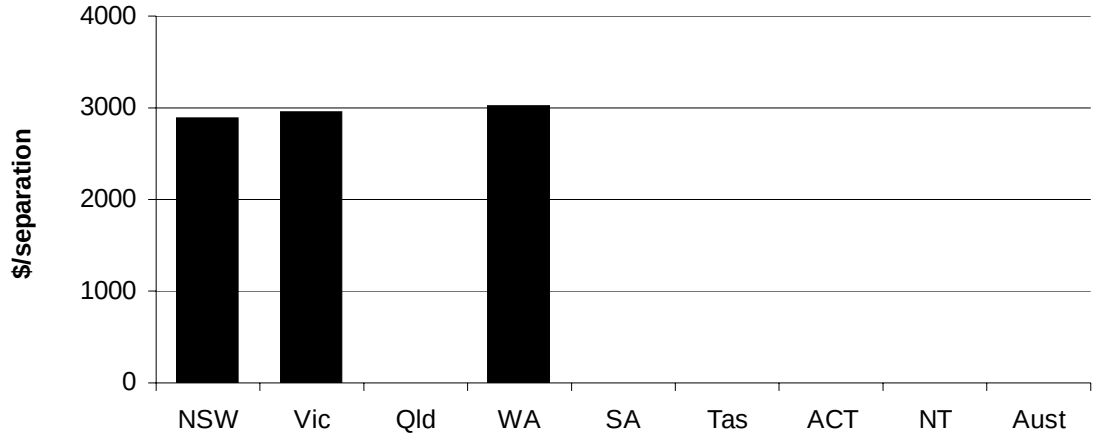
Source: AIHW (2001c).

To address the lack of cost weights for non-acute admitted patients, Victoria, NSW and WA also report recurrent cost per casemix-adjusted separation for acute patients only. These calculations also exclude separations relating to psychiatric acute care patients because AR-DRG cost weights are recognised to be a poor predictor of the cost of psychiatric separations. Capital costs (the user cost of capital and depreciation expenses), research costs and payroll tax are excluded from these

[7] In 1998-99, over one quarter of the Indigenous population (27.5 per cent) lived in remote areas, compared with only 2.6 per cent of the total Australian population (AIHW 2001c).

estimates of unit costs. The 2001-02 recurrent cost per acute non-psychiatric casemix-adjusted separation was $2887 in NSW, $2962 in Victoria and $3028 in WA (figure 9.15). It is anticipated that jurisdictions will be better able to isolate acute care costs for non-psychiatric separations in the near future.

Figure 9.15 **Recurrent cost per acute non-psychiatric casemix-adjusted separation, 2001-02** [a, b, c, d, e]



[a] Excludes psychiatric, mothercraft, hospices, small non-acute, unpeered and other hospitals, rehabilitation facilities, and multipurpose services. This subset excludes hospitals where the inpatient fraction was equal to the acute inpatient fraction and more than 1200 acute separation patient days were recorded. [b] From the National Hospital Morbidity Database. [c] Acute separations are separations where the care type is acute, newborn with qualified days, or unspecified. Psychiatric separations are those with psychiatric care days. [d] Average cost weight from the National Hospital Morbidity Database, based on acute and unspecified separations and episodes of newborn care with qualified days, using the 2000-01 AR-DRG version 4.1 cost weights. [e] Includes adjustment for private patient medical costs: $131 for NSW, $81 for Victoria and $80 for WA.

Source: AIHW (2003a)

Comparisons across jurisdictions are affected by differences in the mix of outputs (or admitted patient services) produced by hospitals in each jurisdiction. Hospitals have been categorised, therefore, according to 'peer groups' to enable hospitals with similar activities to be compared. The data by peer group are presented in detail in table 9A.25. The dominant peer classification is the principal referral and specialist women's and children's category. In 2001-02, these hospitals accounted for 66.4 per cent of public acute and psychiatric hospital expenditure and 64.4 per cent of separations (AIHW 2003a). The data for principal referral hospitals (excluding specialist women's and children's hospitals) are presented in table 9.19. Nationally, the recurrent cost per casemix-adjusted separation for principal referral hospitals in 2001-02 was $3049. For those jurisdictions with data available to be published, the recurrent cost per casemix-adjusted separation for principal referral hospitals was highest in Victoria ($3132) and lowest in Queensland ($2800).

Table 9.19 **Recurrent cost per casemix-adjusted separation, principal referral hospitals (public), 2001-02[a, b, c]**

	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*	*Aust*
Hospitals (no.)	18	15	11	3	3	2	1	1	54
Average beds per hospital	403	530	430	519	471	382	498	297	453
Separations per hospital	36 966	52 769	36 693	53 263	56 403	33 158	48 632	32 829	43 284
Average cost weight	1.10	0.99	1.05	1.07	1.07	1.05	0.95	0.81	1.04
Cost per casemix-adjusted separation ($)	**3 096**	**3 132**	**2 800**	**np**	**np**	**3 009**	**np**	**np**	**3 049**
Expenditure on principal referral hospitals ($m)	3 207	3 299	1 542	np	np	285	np	np	10 070
Total expenditure on all public hospitals ($m)	**5 857**	**4 517**	**2 608**	**1 606**	**1 354**	**374**	**305**	**228**	**16 848**

a Principal referral hospitals are classified as metropolitan hospitals with more than 20 000 acute casemix-adjusted separations and rural hospitals with more than 16 000 acute casemix-adjusted separations per year. **b** Expenditure data exclude depreciation and the user cost of capital, spending on non-admitted patient care, research costs and payroll tax. **c** Average cost weight from the National Hospital Morbidity Database, based on acute and unspecified separations, and newborn episodes of care with qualified days, using the 2000-01 AR-DRG v4.1 cost weights (DHAC, unpublished) applied to AR-DRGs v4.2. **np** Not published.

Source: AIHW (2003a); table 9A.25.

Labour cost per casemix-adjusted separation

Labour costs account for the majority of hospital costs. The labour cost per casemix-adjusted separation in 2001-02 was highest in the NT ($2621) and lowest in Queensland ($1979) (figure 9.16).

Total cost per casemix-adjusted separation

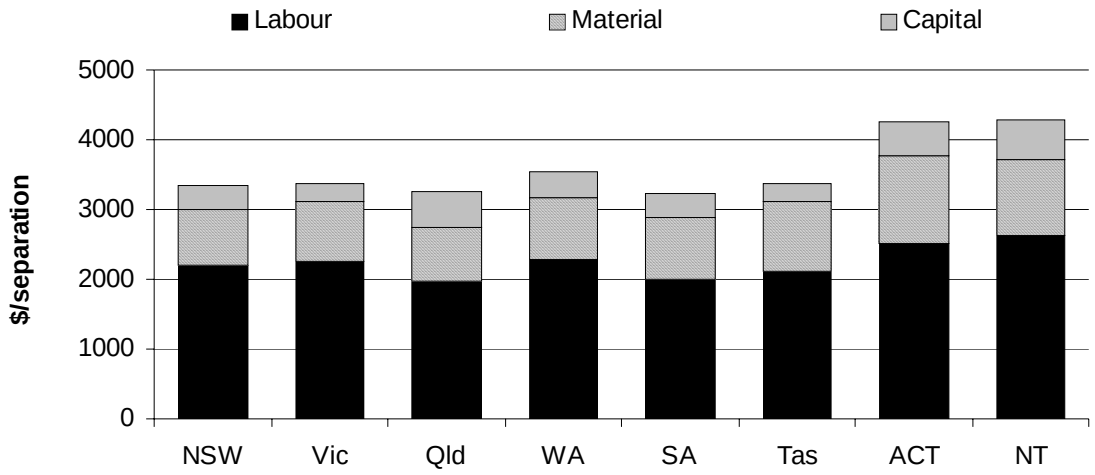
The estimated unit cost of admitted care services inclusive of capital costs is reported below. Total cost per casemix-adjusted separation is defined as the recurrent cost per casemix-adjusted separation plus the capital costs (depreciation and the user cost of capital of buildings and equipment) per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

Depreciation is defined as the cost of consuming an asset's services. It 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 forgone from not using the funds to deliver other government services or to retire debt. Interest payments represent a user cost of capital, so are excluded from recurrent expenditure where user costs of capital are calculated separately and added to recurrent costs. Interest expenses were deducted directly from capital costs in all jurisdictions to avoid double counting.

Total costs per casemix-adjusted separation by jurisdiction (including capital costs) are presented in figure 9.16. These data exclude the user cost of capital associated with land. The total cost per casemix-adjusted separation ranged from $4289 in the NT to $3224 in SA.

Figure 9.16 **Total cost per casemix-adjusted separation, 2001-02[a, b, c]**



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 hospitals described in the data for recurrent cost per casemix-adjusted separation. **b** Excludes the user cost of capital associated with land (reported in table 9A.26). **c** Variation across jurisdictions in the collection of capital related data suggests the data should be treated as indicative.

Source: AIHW (2003a); State and Territory governments; table 9A.4 and table 9A.26.

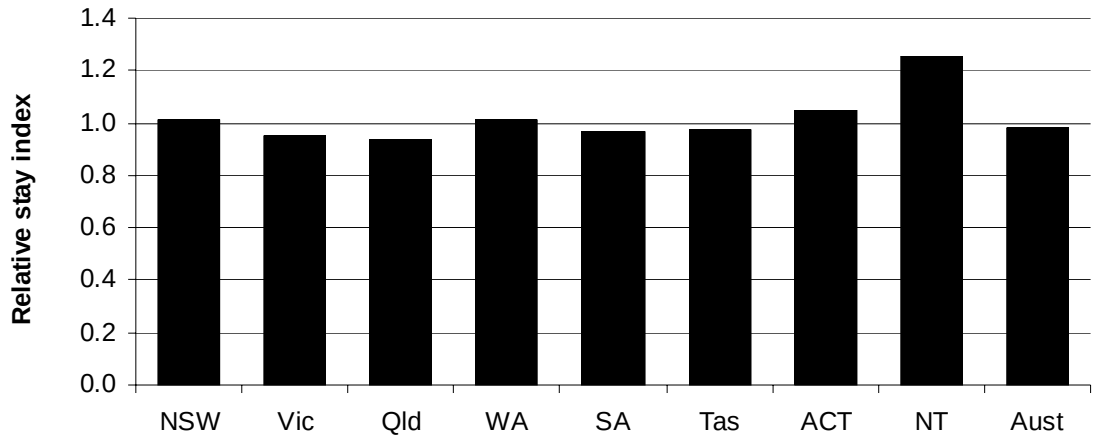
Relative stay index

The relative stay index (previously termed the casemix-adjusted length of stay) is an efficiency indicator defined as the actual number of acute bed days divided by the expected number of acute bed days adjusted for casemix. Casemix-adjustment allows hospitals to be compared across jurisdictions regardless of the complexity of patients treated. The method used for adjustment for 2001-02 has been altered. As indicated, States and Territories vary in the thresholds applied for classifying

patients as either same day admitted patients or outpatients. These variations affect this indicator.

The relative stay index for Australia for all hospitals is 1. A relative stay index greater than 1 indicates that a patient's average length of stay is higher than would be expected given the jurisdiction's casemix distribution. A relative stay index of less than 1 indicates that the number of bed days used was less than would have been expected. Separations for renal dialysis and chemotherapy are excluded from the calculations for this indicator because they are overwhelmingly same day. The relative stay index for acute patients in public hospitals in 2001-02 was highest in the NT (1.25) and lowest in Queensland (0.93) (figure 9.17). The relative stay index by accommodation status and by medical, surgical and other AR-DRGs is reported in tables 9A.27 and 9A.28.

Figure 9.17 **Relative stay index, public hospitals, 2001-02[a, b]**



a Relative stay index based on all hospitals using the indirect method. The indirectly standardised relative stay index is not technically comparable across jurisdictions but compares the hospitals in a jurisdiction with the national average based on the casemix for that jurisdiction. **b** In the NT, issues associated with discharging clients to remote communities impact on the relative stay index.

Source: AIHW (2003a); table 9A.27.

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 in public hospitals. Occasions of service include examinations, consultations, treatments or other services provided to patients in each functional unit of a hospital.

These data are not comparable across jurisdictions because, to date, there is no agreed non-admitted patient classification system. Reporting categories vary across jurisdictions, and further inconsistencies arise as a result of differences in outsourcing practices. (In some cases, for example, outsourced occasions of service may be included in expenditure on non-admitted services, but not in the count of occasions of service.) In addition, this indicator does not adjust for the complexity of service — for example, a simple urine glucose test is treated equally with a complete biochemical analysis of all body fluids (AIHW 2000b).

Jurisdictions able to supply 2001-02 data for this indicator reported the following results.

- In NSW, the emergency department cost per occasion of service was $142 for 2.0 million occasions, the outpatient cost per occasion of service was $95 for 11.1 million occasions and the overall, cost per occasion of service was $87 for 17.2 million occasions (table 9A.60).
- In WA, the emergency department cost per occasion of service was $137 for 560 857 occasions, the outpatient cost per occasion of service was $89 for 2.7 million occasions and the overall, cost per occasion of service was $91 for 4.3 million occasions (table 9A.75).
- In SA, the emergency department cost per occasion of service was $242 for 463 606 occasions, the outpatient cost per occasion of service was $156 for 1.3 million occasions and the overall cost per occasion of service was $179 for 1.7 million occasions (table 9A.80).
- In Tasmania, the emergency department cost per occasion of service was $268 for 101 424 occasions and the outpatient cost per occasion of service was $143 for 360 155 occasions and the overall cost per occasion of service was $170 for 461 579 occasions (table 9A.83).
- In the ACT, the emergency department cost per occasion of service was $260 for 94 763 occasions, the outpatient cost per occasion of service was $51 for 477 820 occasions and the overall cost per occasion of service was $85 for 572 583 occasions (table 9A.86).
- In the NT, the emergency department cost per occasion of service was $302 for 101 595 occasions and the outpatient cost per occasion of service was $190 for 132 704 occasions (table 9A.89).

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. Based on cost data from 13 major hospitals, the average cost per encounter was $116 in 2001-02, compared with $114 in 2000-01, $109 in

1999-2000, and $104 in 1998-99. Based on cost data from nine major hospitals, the average cost per encounter was $105 in 1997-98 (table 9A.66).

In light of the lack of a nationally consistent non-admitted patient classification system, the Review has included national data from the Australian Government Department of Health and Ageing's, National Hospital Cost Data Collection (NHCDC) for cost per occasion of service for emergency departments (table 9.20) and cost per occasion of service for outpatients (table 9.21). The NHCDC collects data on a consistent basis across a sample of hospitals that is expanding over time. The samples for each jurisdiction are not necessarily representative, however, because hospitals contribute data on a voluntary basis. In addition, the purpose of the NHCDC is to calculate between-DRG cost weights, not to compare the efficiency of hospitals. The emergency department data are based on figures provided by 153 public hospitals across Australia, whereas the outpatient (tier 1) data are based on figures provided by 85 public hospitals. (Outpatient tier 0 data are included in the attachment and were contributed by 174 public hospitals [table 9A.30]. These data suggest that cost per occasion of service for the public sector in 2001-02 was $108.) The NHCDC data are affected by differences in costing and admission practices across jurisdictions and hospitals.

Table 9.20 Emergency department average cost per occasion of service by triage class, public sector, Australia, 2001-02[a, b, c, d, e]

Triage category	*Population estimated — average cost per occasion of service ($)*[f]	*Actual — average cost per occasion of service ($)*
Admitted triage 1	791	831
Admitted triage 2	393	409
Admitted triage 3	317	334
Admitted triage 4	275	296
Admitted triage 5	158	174
Non-admitted triage 1	702	697
Non-admitted triage 2	371	380
Non-admitted triage 3	245	246
Non-admitted triage 4	172	171
Non-admitted triage 5	111	115
Did not wait[g]	111	112
Total	**212**	**218**

[a] Not all hospitals that submit data to the NHCDC submit emergency department data. The emergency department national database contains only acute hospitals with emergency department cost and activity. [b] Based on data from 153 public sector hospitals across Australia out of the 203 hospitals participating in the round 6 collection. [c] Cost and activity emergency department data for Victoria was captured for only some cost modelled sites representing approximately 12 per cent of the available emergency department data for that State. [d] Costing and admission practices vary across jurisdictions and hospitals. [e] Depreciation costs are included. [f] Estimated population costs are obtained by weighting the sample results according to the known characteristics of the population. [g] 'Did not wait' means those presentations to an emergency department who were triaged but did not wait until the completion of their treatment, at which time they would have been either admitted to hospital or discharged home.

Source: Australian Government Department of Health and Ageing, NHCDC, round 6; table 9A.29.

Table 9.21 Non-admitted clinic occasions of service for tier 1 clinics, actual results, public sector, 2001-02[a, b]

Tier 1 clinic	*Occasions of service (no.)*	*Average cost per occasion of service ($)*
Allied health and/or clinical nurse specialist	1 476 996	66
Dental	436 967	42
Medical	3 959 583	95
Obstetrics and gynaecology	802 043	77
Paediatric	455 162	78
Psychiatric	2 877 717	43
Surgical	980 346	97
Total	**10 988 813**	**73**

[a] Depreciation costs are included. [b] Tier 1 results incorporate tier 2 results rolled into tier 1 clinic data. Data based on 85 public sector hospitals.

Source: Australian Government Department of Health and Ageing, NHCDC, round 6; table 9A.31.

Outcomes

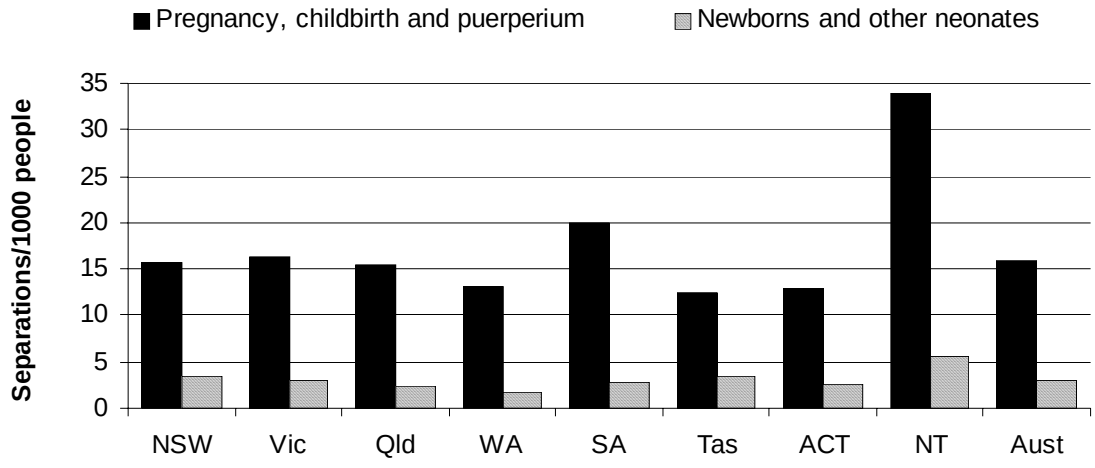
No outcome indicators are included for public hospitals in this Report. Refer to section 9.4 for future directions with respect to outcome indicators.

9.3 Maternity services

Profile

Maternity services (defined as AR-DRGs relating to pregnancy, childbirth and the puerperium, and newborns and other neonates) accounted for 9.6 per cent of total acute separations in public hospitals (table 9A.33) and contributed around 10.3 per cent to the total cost of all acute separations in public hospitals in 2001-02 (table 9A.32). Figure 9.18 shows that the NT had the highest number of acute separations per 1000 people for maternity services (39.4) in 2001-02 and WA had the lowest (14.6).

Figure 9.18 **Separation rates for maternity services in public hospitals, 2001-02[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 1 year with admission weight of less than 2500 grams. **c** Separations for which the type of episode of care was reported as acute or newborn with qualified patient days.

Source: AIHW (2003a); table 9A.33.

Vaginal deliveries without complicating diagnosis accounted for a substantial proportion of the separations for pregnancy, childbirth and the puerperium (31.1 per cent) in 2001-02. Excluding same day separations, vaginal deliveries

without complicating diagnosis accounted for the largest number of overnight acute separations, the second largest number of patient days in public hospitals (tables 9.1 and 9.2) and the second highest cost in 2001-02 ($241.1 million) (table 9A.34) (AIHW 2003a).

The complexity of cases across jurisdictions for maternity services is partly related to the mother's age at the time of giving birth. Data on the mean age of giving birth across jurisdictions for 2001 and 2002 are shown in table 9.22.

Table 9.22 **Mean age of mothers giving birth in public hospitals, by number of previous confinements (years)**

	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*
2001								
No previous confinement	27.1	28.3	25.0	25.6	26.0	26.6	27.1	25.6
One previous confinement	29.5	30.4	27.7	28.1	28.6	28.8	29.5	27.2
Two previous confinements	30.9	31.7	29.2	29.5	30.2	29.7	31.0	28.2
All births	29.1	30.0	27.4	27.7	28.2	31.9	29.0	27.2
2002								
No previous confinement	27.3	28.6	na	25.5	25.8	na	na	26.7
One previous confinement	29.6	30.6	na	28.0	28.6	na	na	27.1
Two previous confinements	30.9	31.8	na	29.3	30.3	na	na	28.1
All births	29.2	30.2	na	27.7	28.1	na	na	27.5

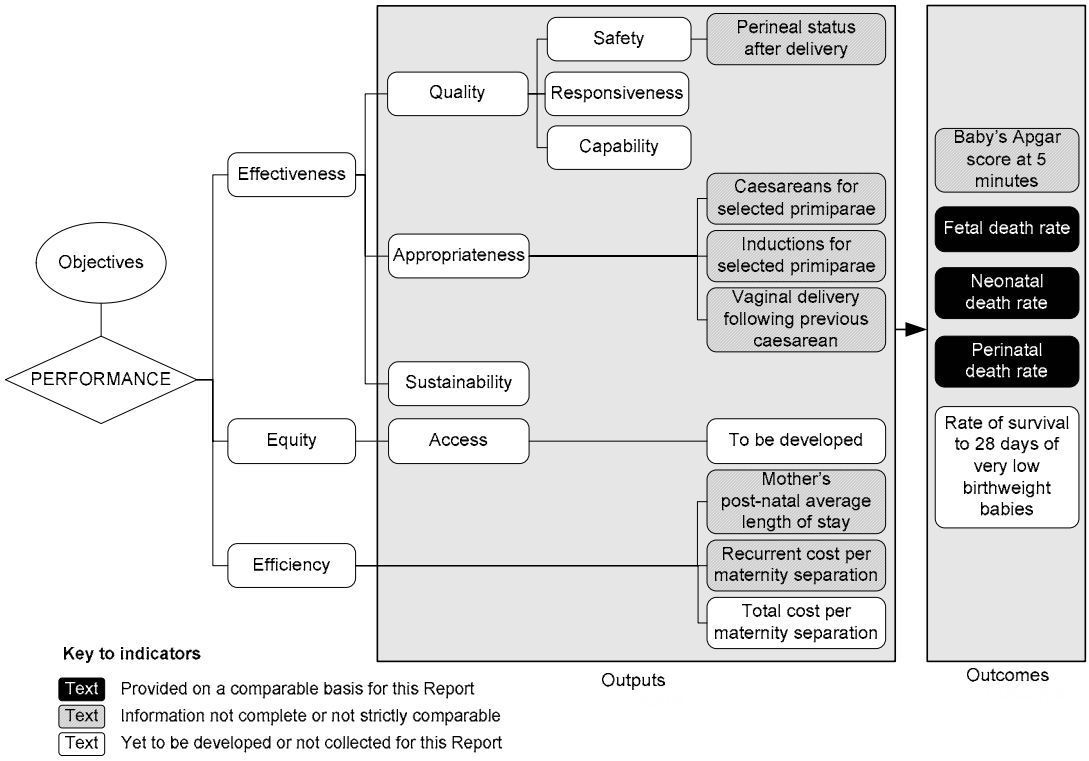
na Not available.

Source: State and Territory governments (unpublished).

Framework of performance indicators

The performance framework for maternity services is outlined in figure 9.19, and has the same objectives as those for public hospitals in general. The framework is under development by the Steering Committee and, as is the case with all the performance indicator frameworks, will be subject to regular review. The performance indicator framework shows which data are comparable in the 2004 Report (figure 9.19). For data that are not considered strictly comparable, the text includes relevant caveats and supporting commentary. Chapter 1 discusses data comparability from a Report-wide perspective (see section 1.6).

Figure 9.19 **Performance indicators for maternity services**



Key performance indicator results

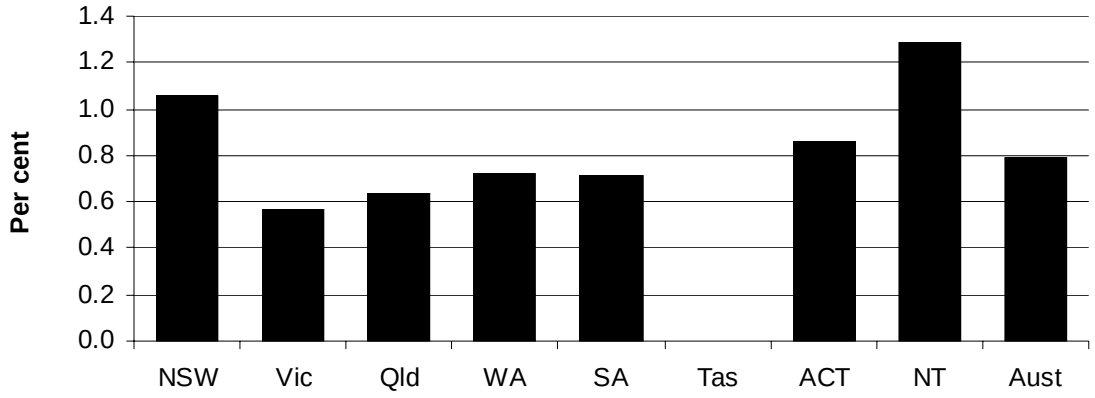
Effectiveness

Quality

Safety — perineal status after delivery

An indicator of safety for maternity services is perineal status after delivery. A third or fourth degree laceration (that is, a laceration extending to the anal sphincter) occurred in 0.8 per cent of mothers nationally. Across jurisdictions the proportion ranged from 1.3 per cent in the NT to around 0.6 per cent in Victoria in 2000 (figure 9.20). More information on perineal status after delivery (including episiotomy rates, lesser degree lacerations and definitions) is contained in attachment table 9A.35.

Figure 9.20 **Perineal status after delivery — mothers with third or fourth degree lacerations, all hospitals, 2000[a, b]**



a Data for Tasmania are unavailable. **b** Data include all confinements, regardless of the method of birth.

Source: AIHW NPSU, perinatal data collection (unpublished); table 9A.35.

Responsiveness

There is no specific indicator for the responsiveness of maternity services, but the patient satisfaction surveys reported on earlier in this chapter generally cover maternity patients.

Capability

There is currently no indicator for the capability of maternity services.

Appropriateness

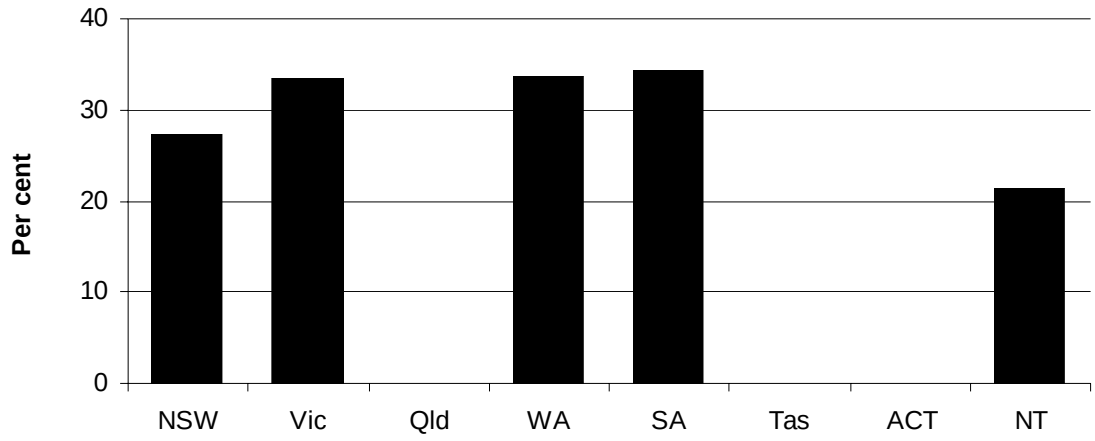
Caesarean and induction rates for selected primiparae have been developed as appropriateness indicators by the Review. The rate of vaginal delivery following primary caesarean is also included as an appropriateness indicator.

Intervention rates for selected primiparae

The definition used for selected primiparae is — mothers aged 25–29 years who have had no previous deliveries, with a vertex presentation[8] and gestation length of 37–41 weeks. Selected primiparae are considered low risk parturients.[9] Intervention (caesarean or induction) rates should therefore be low in this population. High intervention rates may indicate a need for investigation.

In those jurisdictions that provided data for 2002, the proportion of selected primiparae whose deliveries were induced was highest in SA (34.2 per cent) and lowest in the NT (21.5 per cent) (figure 9.21). Induction rates for private hospitals are shown in table 9A.36 for comparison. Data for Queensland, Tasmania and the ACT for earlier years are included in tables 9A.39, 9A.42 and 9A.43.

Figure 9.21 **Inductions for selected primiparae, public hospitals, 2002**



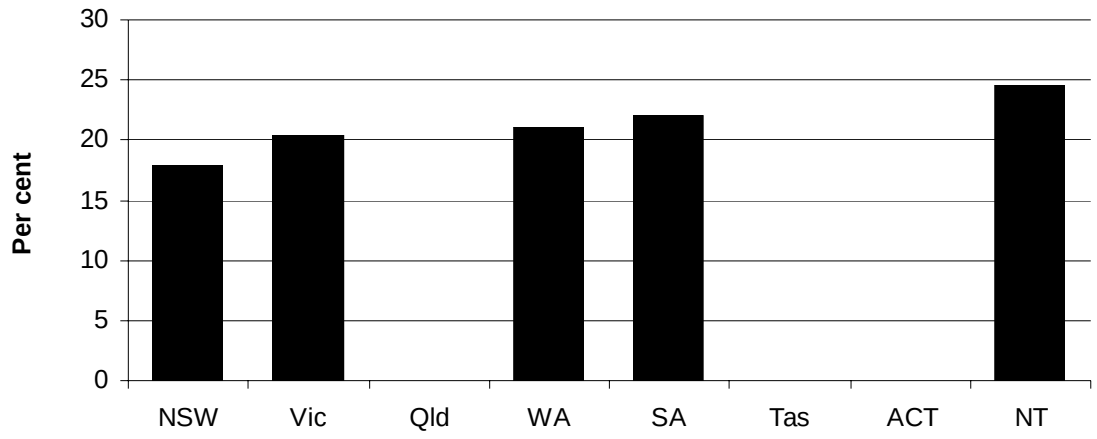
Source: State and Territory governments (unpublished); table 9A.36

In those jurisdictions that provided data for 2002, the proportion of selected primiparae whose deliveries were by caesarean section was highest in the NT (24.5 per cent) and lowest in NSW (17.9 per cent) (figure 9.22). Caesarean rates for private hospitals are shown in table 9A.36 for comparison. Data for Queensland, Tasmania and the ACT for earlier years are included in tables 9A.39, 9A.42 and 9A.43.

8 Vertex presentation means the crown of the baby's head is at the lower segment of the mother's uterus.

9 Parturient means 'about to give birth'. Primipara refers to a pregnant woman who has had no previous pregnancy resulting in a live birth or stillbirth (AIHW NPSU 2003).

Figure 9.22 **Caesareans for selected primiparae, public hospitals, 2002**



Source: State and Territory governments (unpublished); table 9A.36

Vaginal delivery following previous caesarean

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 patients delivering who have had a previous primary caesarean section and no intervening pregnancies of longer than 20 weeks gestation (ACHS 2002). In interpreting results of this indicator note the ongoing debate about the relative risk to both mother and baby of a repeat caesarean section compared with a vaginal birth following a previous primary caesarean. The inclusion of this indicator reflects the prevailing view that low rates of vaginal birth following a previous primary caesarean may warrant investigation.

The data are sourced from the ACHS Comparative Report Service (Clinical Indicators) and are collected for internal clinical review by individual hospitals. The ACHS data are predominantly used to demonstrate the potential for improvement across Australian hospitals if all hospitals could achieve the same outcomes as those of hospitals with the best outcomes for patients. When interpreting this indicator, emphasis should be given to the potential for improvement. Statewide conclusions cannot be drawn from the data because health care organisations contribute to the ACHS on a voluntary basis, so the data are not necessarily drawn from representative samples. Estimated rates should be viewed in the context of the statistical (standard) errors. High standard errors signal that data are particularly unreliable. Box 9.3 explains the reporting of the clinical indicators sourced from the ACHS.

New South Wales

Among those NSW public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of vaginal delivery following a primary caesarean was 21.3 per 100 deliveries (subject to a standard error of 1.0). The ACHS estimated that if the performance of all NSW public hospitals matched the performance of those at the 80th centile nationally, the rate of vaginal delivery following a primary caesarean would be 5.5 per cent higher (table 9.23). The terms in table 9.23 are defined in box 9.4.

Table 9.23 **Rate of vaginal delivery following primary caesarean per 100 deliveries, public hospitals, NSW, 2002[a, b]**

No. hospitals	*No. reports*	*Numerator (no. of VBACs)*	*Denominator (no. of deliveries)*	*Rate*	*Standard error* (±)
39	67	731	3 429	21.32	1.01
National performance at 80th centile (rate)	*National performance at 20th centile (rate)*	*Potential centile gains (no. of VBACs)*	*Change represented by potential gains (%)*	*Potential outlier gains (no. of VBACs)*	*Potential stratum gains (no. of VBACs)*
26.83	13.31	189	5.52	79	984

VBAC = vaginal birth following primary caesarean. **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 longer than 20 weeks gestation. **b** Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction.

Source: ACHS (unpublished); table 9A.45.

Victoria

Among those Victorian public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of vaginal delivery following a primary caesarean was 12.2 per 100 deliveries (subject to a standard error of 1.3). The ACHS estimated that if the performance of all Victorian public hospitals matched the performance of those at the 80th centile nationally, the rate of vaginal delivery following a primary caesarean would be 14.7 per cent higher (table 9.24). The terms in table 9.24 are defined in box 9.4.

Table 9.24 **Rate of vaginal delivery following primary caesarean per 100 deliveries, public hospitals, Victoria, 2002[a, b]**

No. hospitals	*No. reports*	*Numerator (no. of VBACs)*	*Denominator (no. of deliveries)*	*Rate*	*Standard error* (±)
20	31	247	2 032	12.16	1.31
National performance at 80th centile (rate)	*National performance at 20th centile (rate)*	*Potential centile gains (no. of VBACs)*	*Change represented by potential gains (%)*	*Potential outlier gains (no. of VBACs)*	*Potential stratum gains (no. of VBACs)*
26.83	13.31	298	14.68	11	769

VBAC = vaginal birth following primary caesarean. **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 longer than 20 weeks gestation. **b** Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction.

Source: ACHS (unpublished); table 9A.46.

Queensland

Among those Queensland public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of vaginal delivery following a primary caesarean was 21.5 per 100 deliveries (subject to a standard error of 2.1 per cent). The ACHS estimated that if the performance of all Queensland public hospitals matched the performance of those at the 80th centile nationally, the rate of vaginal delivery following a primary caesarean would be 5.4 per cent higher (table 9.25). The terms in table 9.25 are defined in box 9.4.

Table 9.25 **Rate of vaginal delivery following primary caesarean per 100 deliveries, public hospitals, Queensland, 2002[a, b]**

No. hospitals	*No. reports*	*Numerator (no. of VBACs)*	*Denominator (no. of deliveries)*	*Rate*	*Standard error* (±)
9	15	174	811	21.45	2.07
National performance at 80th centile (rate)	*National performance at 20th centile (rate)*	*Potential centile gains (no. of VBACs)*	*Change represented by potential gains (%)*	*Potential outlier gains (no. of VBACs)*	*Potential stratum gains (no. of VBACs)*
26.83	13.31	44	5.38	4	232

VBAC = vaginal birth following primary caesarean. **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 longer than 20 weeks gestation. **b** Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction.

Source: ACHS (unpublished); table 9A.47.

Western Australia

Among those WA public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of vaginal delivery following a primary caesarean was 16.4 per 100 deliveries (subject to a standard error of 2.1 per cent). The ACHS estimated that if the performance of all WA public hospitals matched the performance of those at the 80th centile nationally, the rate of vaginal delivery following a primary caesarean would be 10.5 per cent higher (table 9.26). The terms in table 9.26 are defined in box 9.4.

Table 9.26 **Rate of vaginal delivery following primary caesarean per 100 deliveries, public hospitals, WA, 2002[a, b]**

No. hospitals	*No. reports*	*Numerator (no. of VBACs)*	*Denominator (no. of deliveries)*	*Rate*	*Standard error* (±)
9	13	125	763	16.38	2.14
National performance at 80th centile (rate)	*National performance at 20th centile (rate)*	*Potential centile gains (no. of VBACs)*	*Change represented by potential gains (%)*	*Potential outlier gains (no. of VBACs)*	*Potential stratum gains (no. of VBACs)*
26.83	13.31	80	10.45	3	257

VBAC = vaginal birth following primary caesarean. **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 longer than 20 weeks gestation. **b** Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction.

Source: ACHS (unpublished); table 9A.48.

South Australia

Among those SA public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of vaginal delivery following a primary caesarean was 19.0 per 100 deliveries (subject to a standard error of 2.3 per cent). The ACHS estimated that if the performance of all SA public hospitals matched the performance of those at the 80th centile nationally, the rate of vaginal delivery following a primary caesarean would be 7.8 per cent higher (table 9.27). The terms in table 9.27 are defined in box 9.4.

Table 9.27 **Rate of vaginal delivery following primary caesarean per 100 deliveries, public hospitals, SA, 2002[a, b]**

No. hospitals	*No. reports*	*Numerator (no. of VBACs)*	*Denominator (no. of deliveries)*	*Rate*	*Standard error* (±)
8	14	129	678	19.03	2.27

National performance at 80th centile (rate)	*National performance at 20th centile (rate)*	*Potential centile gains (no. of VBACs)*	*Change represented by potential gains (%)*	*Potential outlier gains (no. of VBACs)*	*Potential stratum gains (no. of VBACs)*
26.83	13.31	53	7.81	0	210

VBAC = vaginal birth following primary caesarean. **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 longer than 20 weeks gestation. **b** Health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction.

Source: ACHS (unpublished); table 9A.49.

Data for the ACT, the NT and Tasmania are not published because of the small number of hospitals that reported data in those jurisdictions. Nationally, among those public hospitals participating in the ACHS Comparative Report Service in 2002, the mean rate of vaginal delivery following a primary caesarean was 18.5 per 100 deliveries. The ACHS estimated that if the performance of all Australian public hospitals matched the performance of the top 20 per cent of public hospitals, the rate of vaginal delivery following a primary caesarean would be 8.3 per cent higher.

Outcomes

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 1 and 5 minutes after birth, and subsequently at 5 minute intervals if it is still low at 5 minutes (Day *et al.* 1999). Low Apgar scores of less than 4 are strongly associated with babies' birthweights.

Table 9.28 illustrates the relationship between low birth weight and a low Apgar score. In 2001, the NT had the highest proportion of babies weighing less than 1500 grams reporting an Apgar score of 3 or less 5 minutes after delivery (24.5 per cent), while Tasmania reported the smallest proportion (3.8 per cent). For

babies weighing 1500–1999 grams, the NT reported the highest proportion of babies with Apgar scores of 3 or lower (13.7 per cent) and the ACT reported the lowest (0.0 per cent). For other birthweights, Apgar scores of 3 or lower were relatively rare, and the proportion was fairly similar across all jurisdictions (less than 1 per cent), except the NT where the rate was considerably higher (5.9 per cent for babies of 2000-2499 grams and 3.0 per cent for babies weighing 2500 grams and over). NSW, Victoria, WA, SA and the NT were also able to provide data for 2002 (table 9A.50).

Table 9.28 **Number of live births and proportion of babies with an Apgar score of 3 or lower, 5 minutes post-delivery, public hospitals, 2001**

Birthweight (grams)	*Unit*	*NSW*	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT* [a]	*NT*	*Aust*
Less than 1500	no. live births	832	551	462	255	202	53	63	49	2 467
	%	15.5	12.5	14.5	10.6	13.4	3.8	9.5	24.5	13.7
1500–1999	no. live births	891	615	452	275	177	82	58	51	2 601
	%	0.9	0.3	1.5	1.1	0.6	1.2	–	13.7	1.1
2000–2499	no. live births	2 657	1 851	1 401	695	574	237	119	185	7719
	%	0.5	0.4	0.2	0.3	0.7	–	–	5.9	0.5
2500 and over	no. live births	61 351	40 208	32 052	13 943	12 112	5 270	2 668	2 751	170 355
	%	0.1	0.1	0.2	0.1	0.1	–	0.4	3.0	0.2

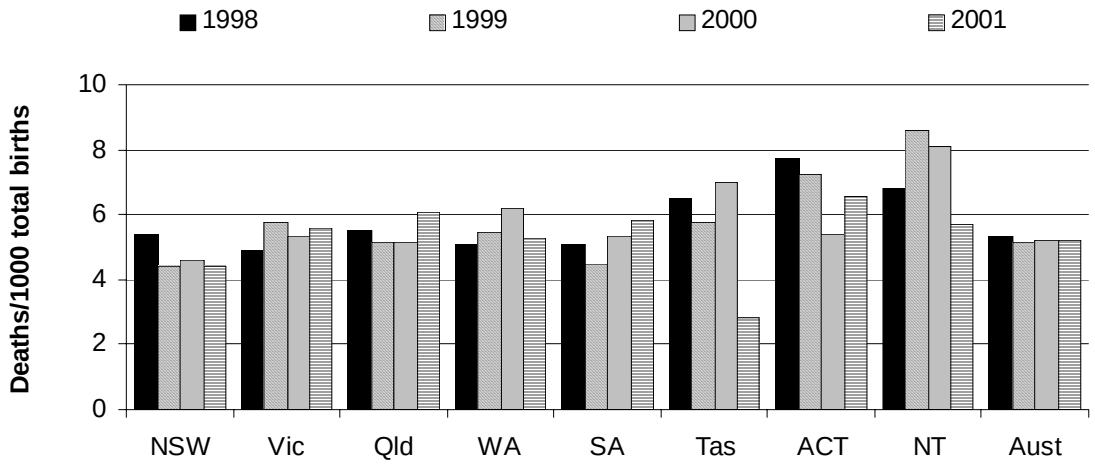
[a] For the ACT only minimum data verification has been done on the data. Birthweight was not stated for 1.6 per cent of records. Agpar scores were not stated for 1.5 per cent of records. – Nil or rounded to zero.

Source: State and Territory governments (unpublished); table 9A.50.

Fetal death rate

Fetal death (stillbirth) is the delivery of a child who did not at any time after delivery breathe or show any other evidence of life, such as a heartbeat. Fetal deaths by definition include only infants weighing at least 400 grams or of a gestational age of at least 20 weeks. The rate of fetal deaths is expressed per 1000 total births. In 2001, the national rate was 5.2 per 1000 births — the same as in 2000. In 2001, the fetal death rate was highest in the ACT (6.6 deaths per 1000 births) and lowest in Tasmania (2.8 deaths per 1000 births) (figure 9.23).

Figure 9.23 **Fetal death rate[a, b]**



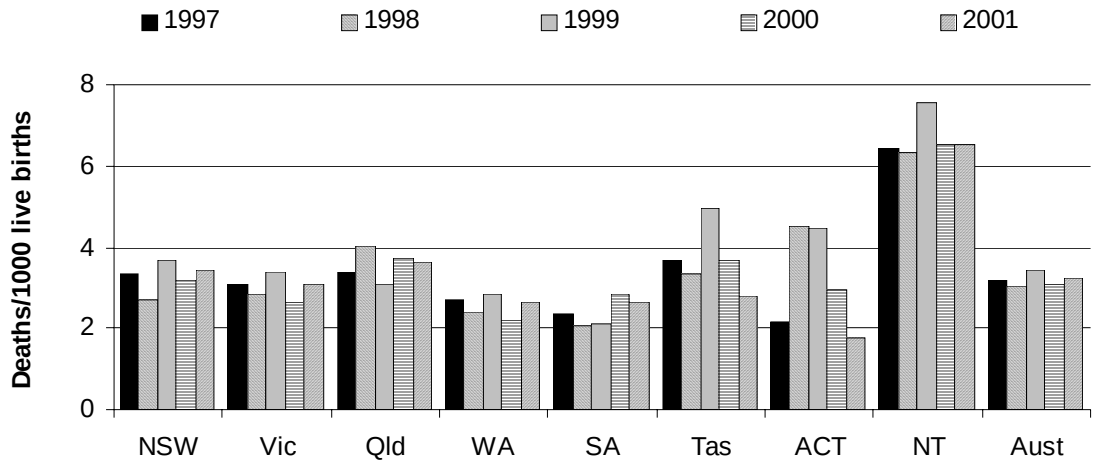
a Statistics relate to the number of deaths registered — not those that occurred — in the years shown. The ABS estimates that about 5–6 per cent of deaths occurring in one year are not registered until the following year or later. **b** Rates fluctuate as a result of a low incidence of fetal deaths.

Source: ABS (2002) and ABS unpublished; table 9A.51.

Neonatal death rate

Neonatal death is the death of a live born infant within 28 days of birth (see table 9.29 for a definition of a live birth). The rate of neonatal deaths is expressed per 1000 live births. In 2001, the national rate was 3.3 deaths per 1000 live births. Across jurisdictions, the rate was highest in the NT (6.5 deaths per 1000 live births) and lowest in the ACT (1.8 deaths per 1000 live births) (figure 9.24).

Figure 9.24 **Neonatal death rate[a, b]**



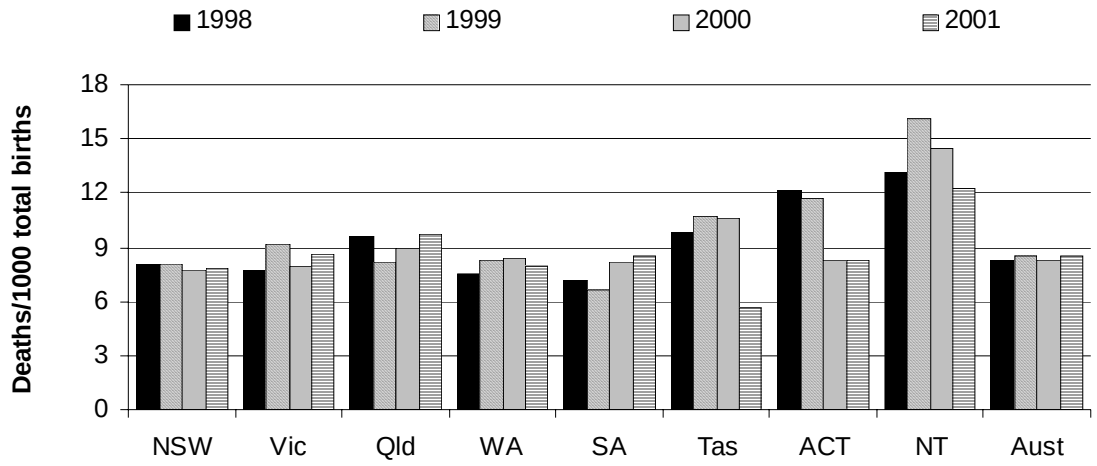
a Statistics relate to the number of deaths registered — not those that occurred — in the years shown. The ABS estimates that about 5–6 per cent of deaths occurring in one year are not registered until the following year or later. **b** Rates fluctuate as a result of a low incidence of neonatal deaths.

Source: ABS (2002) and ABS unpublished; table 9A.53.

Perinatal death rate

A perinatal death is a fetal death or neonatal death. The rate of perinatal deaths is expressed per 1000 total births. In 2001, the national perinatal death rate was 8.4 deaths per 1000 total births. Across jurisdictions, the rate was highest in the NT (12.2 deaths per 1000 total births) and lowest in Tasmania (5.6 deaths per 1000 total births) (figure 9.25). Time series data for neonatal, fetal and perinatal death rates are included in table 9A.52.

Figure 9.25 **Perinatal death rate[a, b]**



a Statistics relate to the number of deaths registered — not those that occurred — in the years shown. The ABS estimates that about 5–6 per cent of deaths occurring in one year are not registered until the following year or later. **b** Rates fluctuate as a result of a low incidence of perinatal deaths.

Source: ABS (2002); table 9A.54.

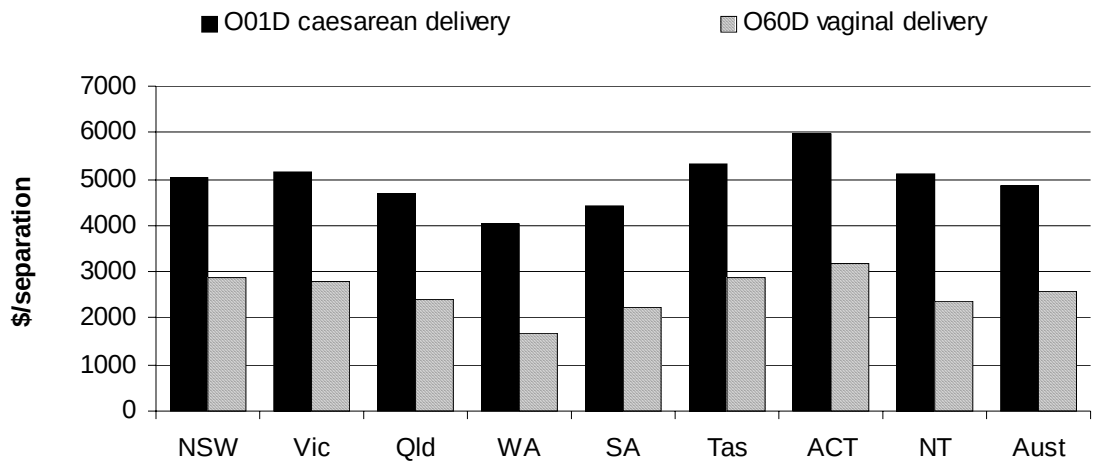
Efficiency

Recurrent cost per maternity separation

The two AR-DRGs that account for the largest number of maternity patient days are caesarean delivery without complicating diagnosis and vaginal delivery without complicating diagnosis. Recurrent cost per separation for these AR-DRGs are shown in figure 9.26. Data for a number of other maternity related AR-DRGs are shown in table 9A.55. Data are sourced from the NHCDC. As noted in section 9.2, the NHCDC is a voluntary annual collection the purpose of which is to calculate between-DRG cost weights. The samples are not necessarily representative of the set of hospitals in each jurisdiction.

The recurrent cost per separation for caesarean delivery without complications in public hospitals was $4858 for Australia in 2001-02 (figure 9.26). The highest average cost was in the ACT ($5965) and the lowest was in WA ($4048). The recurrent cost per separation for vaginal delivery without complications was $2589 for Australia. The highest average cost was in the ACT ($3193) and the lowest was in WA ($1655).

Figure 9.26 **Estimated average cost per separation for selected AR-DRGs in public hospitals, 2001-02[a, b]**



a Includes O01D caesarean delivery without complicating diagnosis and O60D vaginal delivery without complicating diagnosis. **b** Average cost is affected by a number of factors, some of which are admission practices, sample size, remoteness and the types of hospital contributing to the collection.

Source: Australian Government Department of Health and Ageing, NHCDC, round 6; table 9A.55.

Total cost per maternity separation

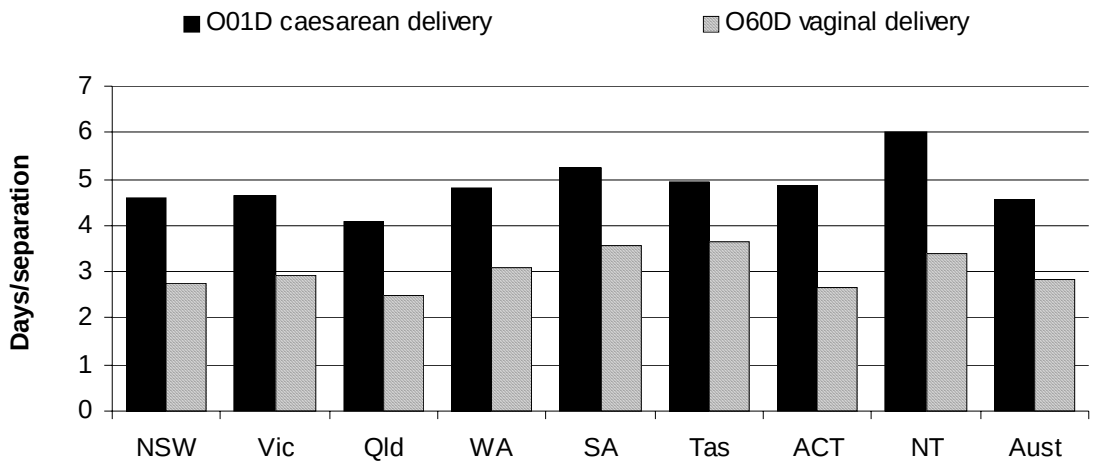
A method for calculating the capital cost component of the total cost per maternity separation indicator has not yet been determined, so no data are able to be reported.

Mother's post-natal average length of stay

Shorter post-natal stays for mothers reduce hospital costs but whether they represent genuine efficiency improvements depends on a number of factors. For example, shorter stays may have an adverse affect on the health of some mothers and may result in additional costs for in-home care.

The average length of stay for caesarean delivery without complications was 4.6 days for Australia. The longest average length of stay was in the NT (6.0 days) and the shortest was in Queensland (4.1 days). The average length of stay for vaginal delivery without complications was 2.8 days for Australia. The longest average length of stay was in Tasmania (3.7) and the shortest was in Queensland (2.5) (figure 9.27).

Figure 9.27 **Average length of stay for selected AR-DRGs in public hospitals, 2001-02[a]**



a Includes O01D caesarean delivery without complicating diagnosis and O60D vaginal delivery without complicating diagnosis.

Source: Australian Government Department of Health and Ageing, NHCDC, round 6; table 9A.55.

9.4 Future directions in performance reporting

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

- outcome related information
- hospital services (including maternity services) delivered to special needs groups, particularly Indigenous people
- indicators for public hospitals and maternity services where data are not complete or not strictly comparable
- reporting on hospital quality.

Quality

There is a real demand for information on public hospital quality across all dimensions of the Review's indicator framework, including both output and outcome related data. Information on hospital quality remains an important gap in reporting that the Steering Committee is keen to address, particularly given public hospitals' share of government spending and their contribution to the nation's health. As noted in *Performance Information in the Australian Health Care Agreements* (ANAO 2002), the Australian Health Care Agreements (which

specifically cover public hospitals) are the largest, in monetary terms, of all Australian Government Specific Purpose Payments to the States and Territories. In addition, performance reporting in the public sector can maintain pressure for quality improvements in the absence of competitive market forces. The Steering Committee considers that the health sector's response to demand for information about hospital quality has been relatively slow.

Safety

The paucity of information available on quality means the Review's reporting of safety has been limited to the clinical indicators published by the ACHS that are not comparable across jurisdictions, although the counting rules are the same. These data have improved over the past two years with the inclusion of estimates showing the potential for performance to improve (in last year's Report) and the introduction of new indicators in this Report that account for differences in the risk associated with given procedures. Reporting of the new procedure specific indicators will improve in future as more hospitals collect data.

Adverse event data discussed in previous reports remain unavailable. Jurisdictions broadly agreed on a proposed national core set of sentinel events — defined as those adverse events that cause serious harm to patients and that have the potential to seriously undermine public confidence in the health care system — as being potentially suitable for national aggregation and action in 2002 (box 9.6). While there are no plans for these data to be published at a national level, Victoria is planning to commence annual reporting on sentinel events in 2004.

Box 9.6 **Proposed national core set of sentinel events**

1. Procedures involving the wrong patient or body part
2. Suicide of a patient in an inpatient unit
3. Retained instruments or other material after surgery requiring re-operation or further surgical procedure
4. Intravascular gas embolism resulting in death or neurological damage
5. Haemolytic blood transfusion reaction resulting from ABO (blood group) incompatibility
6. Medication error leading to the death of a patient reasonably believed to be due to incorrect administration of drugs
7. Maternal death or serious morbidity associated with labour or delivery
8. Infant discharged to wrong family.

Source: ACSQHC (2002).

9.5 Definitions

Table 9.29 **Terms**

Term	*Definition*
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.
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 and 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. The definition of the indicator is the number of babies born with an Apgar score of 3 or lower at 5 minutes post-delivery as a proportion of the total number of babies born. Fetal death in utero before commencement of labour is excluded.
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 Australian 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 (AR-DRGs) that represent a category of patients with similar clinical conditions requiring similar hospital services.
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.
Case weight	The relative costliness of a particular AR-DRG, determined so the average case weight for all AR-DRGs is 1.00.

(Continued on next page)

Table 9.29 **(Continued)**

Term	*Definition*
Co-morbidity	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 and so on. 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.
Cost per casemix-adjusted separation	Recurrent expenditure multiplied by the inpatient fraction divided by the total number of casemix-adjusted separations plus estimated private patient medical costs.
Cost per non-admitted occasion of service	Recurrent expenditure multiplied by (1 minus the inpatient fraction) divided by the 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 on which he or she was added to the waiting list for a procedure to admission or a designated census date.
Emergency department waiting times to service delivery	The time elapsed for each patient from presentation to the emergency department (that is, the time at which the patient is clerically registered or at which they are triaged, whichever occurs earlier) to the 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.
Fetal death	Delivery of a child who did not at any time after delivery breathe or show any other evidence of life, such as a heartbeat. Excludes infants weighing less than 400 grams or of gestational age less than 20 weeks.
Fetal death rate	Fetal deaths by usual residence divided by the total number of births (that is, live births registered and fetal deaths combined).
General practice	The organisational structure in which one or more general practitioner 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 or Indigenous health.

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Table 9.29 **(Continued)**

Term	*Definition*
Inpatient fraction (IFRAC)	The ratio of inpatient costs to total hospital costs.
Labour cost per casemix-adjusted separations	(Salary and wages plus visiting medical officer payments) multiplied by the inpatient fraction divided by total number of casemix-adjusted separations.
Length of stay	The period from admission to separation less any days spent away from the hospital (leave days).
Live birth	Birth of a child who, after delivery, breathes or shows any other evidence of life, such as a heartbeat. All registered live births regardless of birthweight.
Medicare	The Australian Government funding of private medical and optometrical services (under the Medicare Benefits Schedule). Some users of the term include other forms of Australian Government funding — subsidisation of selected pharmaceuticals (under the Pharmaceutical Benefits Scheme) and public hospital funding (under the Australian Health Care Agreements), which provides public hospital services free of charge to public patients.
Mortality rate	The number of deaths per 100 000 people.
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.
Neonatal death	Death of a live born infant within 28 days of birth (defined in Australia as deaths of infants weighing at least 400 grams or of gestational age of at least 20 weeks).
Neonatal death rate	Neonatal deaths by usual residence, divided by the number of live births registered.
Newborn qualified days	Days in hospital for which newborns are eligible for health insurance benefits and to be counted as patient days under the Australian Health Care Agreements. In this context, newborn qualified days are equivalent to acute days and may be denoted as such.
Non-acute episode of care	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 *National Health Data Dictionary* version 10, 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 9.29 **(Continued)**

Term	*Definition*
Opportunity cost	The return forgone on the next best investment, calculated as 8 per cent of the 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.
Percentage of facilities accredited	The ratio of beds accredited by recognised accreditation programs to all hospital beds in the jurisdiction.
Perinatal death	Fetal death or neonatal death of infant weighing at least 400 grams or of gestational age of at least 20 weeks.
Perinatal death rate	Perinatal deaths by usual residence divided by the total number of births (that is, live births registered and fetal deaths combined).
Perineal status after delivery	The state of the perineum following a birth.
Primary care	Essential health care based on practical, scientifically sound and socially acceptable methods made universally accessible to individuals and families in the community.
Primipara	Pregnant woman who has had no previous pregnancy resulting in a live birth or a still birth.
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 (for example, aids and appliances).
Puerperium	The period or state of confinement after labour.
Qualified/unqualified newborn	*A qualified newborn patient day* — 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. *An unqualified newborn patient day* — 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.
Relative stay index	The actual number of acute bed days divided by the expected number of acute bed days adjusted for casemix.
Same day patients	A patient whose admission date is the same as the separation date.
Sentinel events	Adverse events that cause serious harm to patients and that have the potential to seriously undermine public confidence in the health care system.
Sentinel procedures	Procedures that are the most common surgical operations, provided by acute care hospitals during a given period.
Separation	The discharge, transfer or death of a patient admitted to hospital.

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Table 9.29 **(Continued)**

Term	*Definition*
Separations per 1000 people	The rates of hospital separations per 1000 people.
Spontaneous vertex	Vaginal birth without intervention in which the baby's head is the presenting part.
Selected primipara	Primipara with no previous deliveries, mother's age of 25–29 years (inclusive), singleton, vertex presentation and gestation of 37–41 weeks (inclusive).
Surgical site infection rate for selected surgical procedures	The number of surgical site infections for a selected procedure (hip and knee prosthesis, lower segment caesarean section or abdominal hysterectomy) performed during the surveillance period divided by the total number of the selected procedure performed during the surveillance period.
Triage category	The urgency of the patient's need for medical and nursing care: category 1 — resuscitation (immediate within seconds) category 2 — emergency (within 10 minutes) category 3 — urgent (within 30 minutes) category 4 — semi-urgent (within 60 minutes) category 5 — non-urgent (within 120 minutes).
Unplanned hospital re-admission rate	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 re-admitted to the same organisation.
Unreferred attendances	GP services, emergency attendances after hours, other prolonged attendances, group therapy and acupuncture.
Urgency category for elective surgery	Category 1 patients — admission is desirable within 30 days for a condition that has the potential to deteriorate quickly to the point that it may become an emergency. Category 2 patients — admission is desirable within 90 days for a condition that is 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 is 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.
User cost of capital per casemix-adjusted separation	(Depreciation plus opportunity cost) divided by 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 longer than 20 weeks gestation.

9.6 References

ATSIHWIU (Aboriginal and Torres Strait Islander Health and Welfare Information Unit) 1999, *Assessing the Quality of Identification of Aboriginal and Torres Strait Islander People in Hospital Data*, AHMAC, AIHW and ABS, Canberra.

ABS (Australian Bureau of Statistics) 2000, *Hospital statistics: Aboriginal and Torres Strait Islander Australians*, 1997-98, Occasional Paper, Cat. no. 4711.0, Canberra.

—— 2001, *Causes of Death, Australia 2000*, Cat. no. 3303.0, Canberra.

—— 2002, *Causes of Death, Australia 2001*, Cat. no. 3303.0, Canberra.

ABS/AIHW (Australian Institute of Health and Welfare) 2003, *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples, 2003*, ABS Cat. no. 4704.0, AusInfo, Canberra.

ACSQHC (Australian Council for Safety and Quality in Health Care) 2001a, *First National Report on Patient Safety*, Attachment to *Safety in Practice — Making Health Care Safer*, Second report to the Australian Health Ministers Conference, 1 August.

—— 2001b, *Safety in Numbers: A Technical Options Paper for a National Approach to the Use of Data for Safer Health Care, Work in Progress*, Attachment to *Safety in Practice — Making Health Care Safer*, Second report to the Australian Health Ministers Conference, 1 August.

—— 2002, *Safety Through Action: Improving Patient Safety in Australia*, Third report to the Australian Health Ministers Conference, 19 July.

ACHS (Australian Council for Healthcare Standards) 2000, *ACHS Clinical Indicators Report: 1998 and 1999 data: Hospital-wide Medical Indicators and Obstetrics and Gynaecological Medical Indicators*, (unpublished).

—— 2001, *Determining the Potential to Improve the Quality of Care in Australian Health Care Organisations: Results from the ACHS Clinical Indicator Data 1998-2000*, Ultimo, NSW.

—— 2002, *Clinical Indicator Users' Manual 2002*, Ultimo, NSW.

—— 2003, *Determining the Potential to Improve Quality of Care*, Ultimo, NSW.

AIHW (Australian Institute of Health and Welfare) 2000a, 2001b, 2002a, 2003a, *Australian Hospital Statistics*, Canberra.

—— 2000b, *National Health Data Dictionary, Version 9*, AIHW Cat. no. HWI 24, Canberra.

—— 2001a, *National Health Data Dictionary, Version 10*, AIHW Cat. no. HWI 30, Canberra.

—— 2001c, *Expenditures on Health Services for Aboriginal and Torres Strait Islander People 1998-99*, AIHW Cat. no. 7, Canberra.

—— 2002b, 2003b *Health Expenditure Australia*, Canberra.

—— 2002c *Waiting times for elective surgery in Australia 1999-00*, AIHW Cat. no. HSE 18, Health Services Series, No. 18, Canberra.

AIHW NPSU (National Perinatal Statistics Unit) 2003, *Australia's Mothers and Babies 2000*, AIHW Cat. No. PER 21, Sydney.

ANAO (Australian National Audit Office) 2002, *Performance Information in the Australian Health Care Agreements*, Audit Report no. 211, Canberra.

Brennan, T.A., Leape, L.L., Laird, N.M., *et al*., 1991, 'Incidence of adverse events and negligence in hospitalised patients: Results of the Harvard medical practice study I', *New England Journal of Medicine*, vol. 324, pp. 370–6.

Davis, P., Lay-Yee, R., Briant, R. et al. 2001, *Adverse Events in New Zealand Public Hospitals: Principal Findings from a National Survey*, NZ Ministry of Health, Wellington.

Day, P., Sullivan, E.A., Ford, J. and Lancaster, P. 1999, *Australia's Mothers and Babies 1997*, AIHW Cat. no. PER 12, AIHW NPSU, Sydney.

DHAC (Department of Health and Aged Care) 1998, *Australian Refined Diagnosis Related Groups, Version 4.1*, Canberra.

Ibrahim, J., Majoor, J., Boyce, N. and McNeil, J. 1998, *Pilot Hospital Wide Clinical Indicators Project, Final Report: a Study of the Reliability, Validity, and Risk Adjustment of the National Hospital Quality Management Program Pilot Set of Hospital-wide Clinical Indicators*, Health Service Outcomes Branch, Commonwealth Department of Health and Family Services, Canberra.

Kohn, L.T., Corrigan, J.M., and Donaldson, M.S. (eds) 1999, *To Err Is Human: Building a Safer Health System*, Committee on Quality of Health Care in America, Institute of Medicine, National Academy Press, Washington DC.

Lohr, K.N. and Shroeder, S.A. 1990, 'A strategy for quality assurance in Medicare', *New England Journal of Medicine*, vol. 322, pp. 707–12.

NCCH (National Centre for Classification in Health) 1998, *The International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM)*, Sydney.

SCRCSSP (Steering Committee for the Review of Commonwealth/State Service Provision 1995, *Report on Government Service Provision*, AusInfo, Canberra

—— 2001b, *Asset Measurement in the Costing of Government Services*, AusInfo, Canberra.

—— 1999, 2000, 2001a 2002, 2003, *Report on Government Services*, AusInfo, Canberra.

Thomas, E.J., Studdert, D.M., Burstin, H.R., *et al.*, 2000, 'Incidence and types of adverse events and negligent care in Utah and Colorado', *Medical Care*, vol. 38. pp. 261–71.

Wilson, R.M., Runciman, W.B., Gibberd, R.W., Harrison, B.T., Newby, L. and Hamilton, J.D. 1995, 'The quality in Australian health care study', *Medical Journal of Australia*, vol. 163, pp. 458–71.