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## 9 Public hospitals

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

A profile of public hospitals is provided in section 9.1. A framework of performance indicators for public hospitals is outlined in section 9.2. Section 9.3 contains the key performance indicator results for public hospitals. A profile of maternity services provided by public hospitals is outlined in section 9.4. Section 9.5 presents the performance indicator framework for public hospital maternity services and section 9.6 reports the key performance indicator results for these services. Future directions in reporting are discussed in section 9.7. Terms and definitions are summarised in section 9.8. Section 9.9 lists the supporting tables for this chapter. Section 9.10 lists references used in this chapter.

Reporting on public hospitals has been improved this year through the development of an indicator on ‘workforce sustainability’. The indicator reports the following measures for each of the nurse and medical practitioner workforces by region and over time:

- proportion of the workforce who are new entrants (aged under 30 years)
- proportion of the workforce who are near retirement (aged 55 years or over)

### 9.1 Profile of public hospitals

#### 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

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- sub-acute and non-acute services to admitted patients (for example, rehabilitation, palliative care, or long stay maintenance care)
  - emergency, outpatient and other services to non-admitted patients<sup>1</sup>
  - 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 included in this chapter, although their role is diminishing in accordance with the National Mental Health Strategy. Under the strategy, the provision of psychiatric treatment is shifting away from specialised psychiatric hospitals to mainstream public hospitals and the community sector. The performance of psychiatric hospitals and psychiatric units of public hospitals is examined more closely in ‘Health management issues’ (see chapter 11).

Some common health terms relating to hospitals are defined in box 9.1. Other terms and definitions are included in section 9.8.

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

***Patients***

**admitted patient:** a patient who has undergone a formal 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.

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<sup>1</sup> Other services to non-admitted patients include community health services such as baby clinics and immunisation units, district nursing services and other outreach services (AIHW 2001a).

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Box 9.1 (Continued)

**Types of care**

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

**acute care:** clinical services provided to admitted or non-admitted 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.

**sub-acute and non-acute care:** clinical services provided to patients suffering from chronic illnesses or recovering from such illnesses. Services 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 non-acute.

**Hospital outputs**

**separation:** an episode of care for an admitted patient, which can be a total hospital stay (from admission to discharge, transfer or death), or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute to rehabilitation). Admitted patients who receive same day procedures (for example, renal dialysis) are included 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.

**non-admitted occasion of service:** occasion of examination, consultation, treatment or other service provided to a non-admitted patient in a functional unit of a health service establishment. 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**

**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 version 5.1 is based on the ICD-10-AM classification.

**ICD-10-AM (the Australian modification of the International Standard Classification of Diseases and Related Health Problems):** the current classification of diagnoses and procedures, replacing the earlier ICD-9-CM.

Source: AIHW (2006a); NCCH (1998); NHDC (2001, 2003).

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## Funding

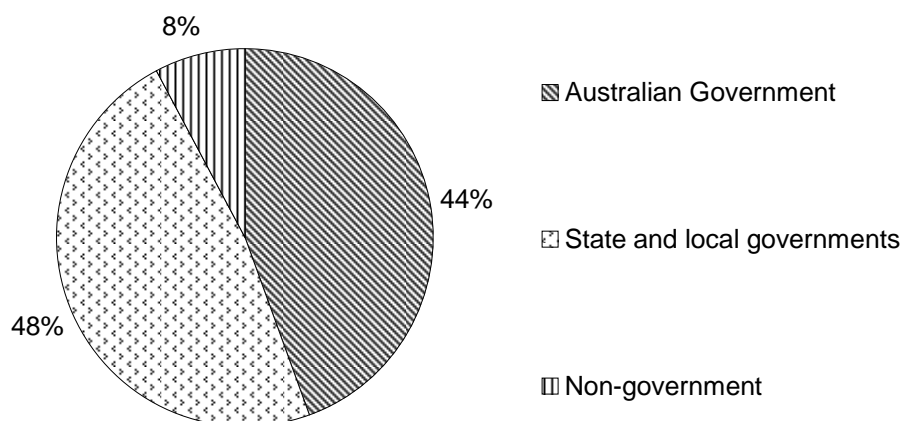
Total recurrent expenditure on public hospitals (excluding depreciation) was \$21.8 billion in 2004-05 (table 9A.1). In real terms, expenditure increased by 4.9 per cent between 2003-04 and 2004-05 (AIHW 2006a).

The majority of total public hospital recurrent expenditure is spent on admitted patients. Non-admitted patients account for a much smaller share. For selected public hospitals, in 2004-05, the proportion of total public hospital recurrent expenditure that related to the care of admitted patients (based on the admitted patient cost proportion) ranged from 69.1 per cent to 77.5 per cent across jurisdictions (AIHW 2006a).

Funding 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 contribute to expenditure on public hospitals. Governments contributed about 92.2 per cent of funding for public (non-psychiatric) hospitals in 2004-05 (figure 9.1). Public (non-psychiatric) hospitals accounted for 35.4 per cent of government recurrent expenditure on health services in 2004-05 (AIHW 2006b).

Figure 9.1 **Recurrent expenditure, public (non-psychiatric) hospitals, by source of funds, 2004-05**

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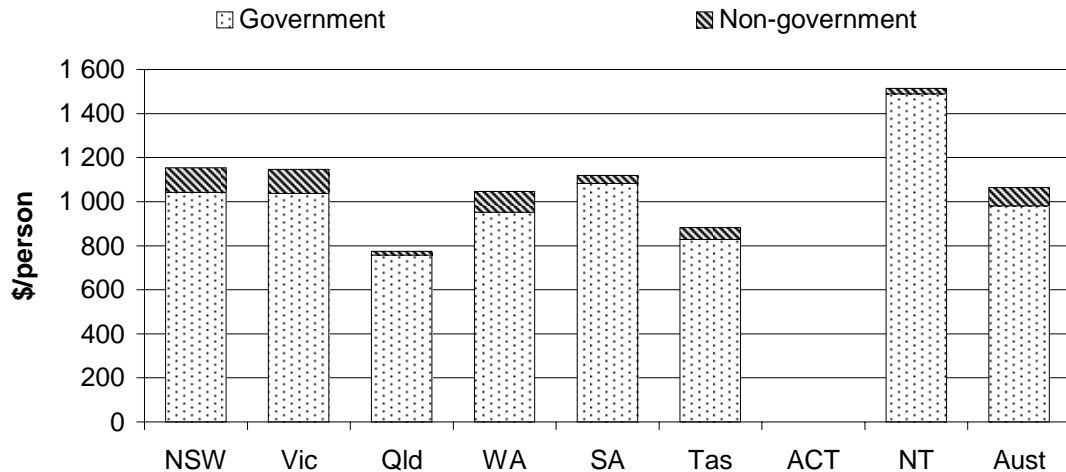
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Source: AIHW (2006b).

In 2004-05, public hospitals (non-psychiatric hospitals) received \$1.7 billion from non-government sources — an amount that accounted for 7.8 per cent of all recurrent expenditure (AIHW 2006b). Non-government expenditure in each jurisdiction comprised revenue from health insurance funds, individuals and

workers' compensation and compulsory third-party motor vehicle insurers as well as other sources. The proportion of hospital revenue per person funded from non-government sources varied across jurisdictions in 2004-05 (figure 9.2).

Figure 9.2 **Source of public (non-psychiatric) hospital recurrent expenditure, 2004-05<sup>a, b, c</sup>**



<sup>a</sup> Government expenditure excludes depreciation. Non-government expenditure on depreciation is included in recurrent expenditure. <sup>b</sup> Non-government expenditure includes expenditure by health insurance funds, individuals, workers' compensation, compulsory third-party motor vehicle insurers and other sources. <sup>c</sup> ACT per person figures are not calculated, as the expenditure numbers for the ACT include substantial expenditures for NSW residents. Thus the ACT population is not the appropriate denominator.

Source: AIHW (2006b); ABS Australian Demographic Statistics (unpublished); table 9A.2.

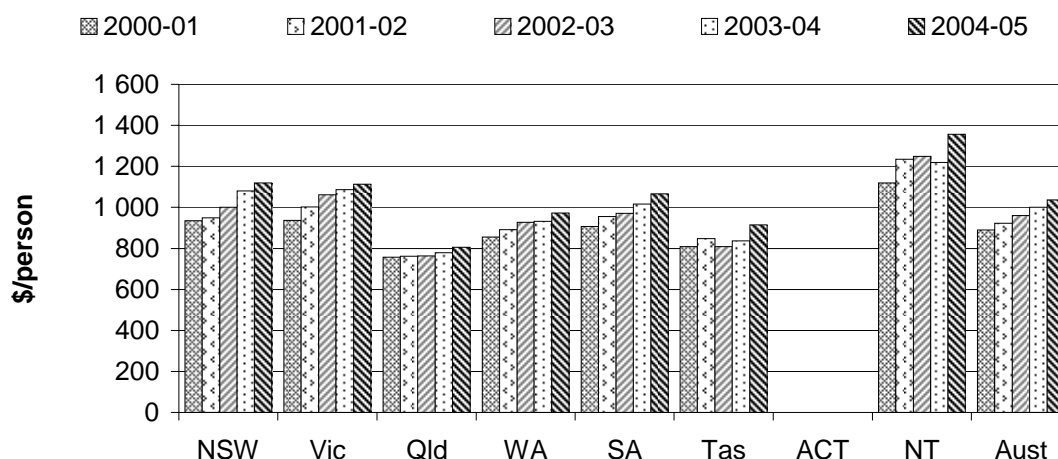
Expenditure data in figures 9.1 and 9.2 are from *Health Expenditure Australia* (AIHW 2006b) and are not directly comparable with other expenditure data used in this chapter, which are drawn from *Australian Hospital Statistics* (AIHW 2006a). The data in *Health Expenditure Australia* have a broader scope than the data in *Australian Hospital Statistics* and include some additional expenditures (such as those relating to blood transfusion services) (Australian Institute of Health and Welfare (AIHW) unpublished).

In 2004-05, government real recurrent expenditure on public hospitals (in 2003-04 dollars) was \$1037 per person for Australia, up from \$891 in 2000-01 (figure 9.3). It is difficult to make comparisons between jurisdictions based on these recurrent expenditure data due to differences in the coverage of the data. Some of the differences are:

- the inclusion by some jurisdictions of expenditure on community health services as well as public hospital services

- the exclusion by some jurisdictions of expenditure on privately owned or privately operated hospitals that have been contracted to provide public hospital services.

**Figure 9.3 Real recurrent expenditure per person, public hospitals (including psychiatric) (2003-04 dollars)<sup>a, b, c, d, e, f, g</sup>**



<sup>a</sup> Expenditure data exclude depreciation and interest payments. <sup>b</sup> Recurrent expenditure on purchase of public hospital services at the State, or area health service-level, from privately owned and/or operated hospitals is excluded. <sup>c</sup> Expenditure data are deflated using the hospital/nursing home care price index from AIHW (2006b). <sup>d</sup> NSW expenditure against primary and community care programs is included from 2000-01. For 2003-04 and 2004-05, hospital expenditure recorded against special purposes and trust funds is excluded. <sup>e</sup> Queensland pathology services were purchased from a statewide pathology service rather than being provided by hospital employees. <sup>f</sup> For 2000-01, data for six small Tasmanian hospitals are incomplete. For 2001-02, data for two small hospitals are not included and data for one small hospital are incomplete. For 2002-03, data for one small hospital are not included and data for five other small hospitals are incomplete. For 2003-04, data for five small hospitals are not included. For 2004-05, data for one hospital are not included. <sup>g</sup> ACT per person figures are not calculated, as the expenditure numbers for the ACT include substantial expenditures for NSW residents. Thus the ACT population is not the appropriate denominator.

Source: AIHW (2002, 2003, 2004, 2005a, 2006a, 2006b); ABS Australian Demographic Statistics (unpublished); table 9A.3.

## Size and scope of sector

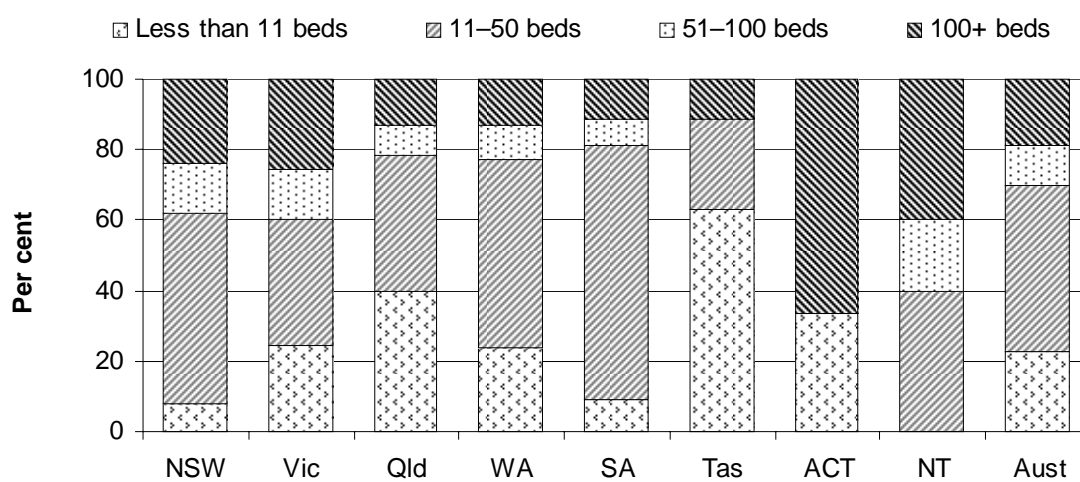
There are several ways to measure the size and scope of Australia's public hospital sector. This Review reports on: the number and size of hospitals; the number and location of public hospital beds; the number and types of public hospital separations; the proportion of separations by age group; the number of separations by Indigenous status; the number of hospital staff; and the number and types of public hospital activity.

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## Hospitals

In 2004-05, Australia had 759 public hospitals (including 20 psychiatric hospitals) (AIHW 2006a). Although 70.1 per cent of hospitals had 50 or fewer beds, these smaller hospitals represented only 17.9 per cent of total available beds (figure 9.4 and table 9A.4).

Figure 9.4 **Public hospitals, by size, 2004-05<sup>a, b, c, d</sup>**



<sup>a</sup> The number of hospitals reported can be affected by administrative and/or reporting arrangements and is not necessarily a measure of the number of hospital buildings or campuses. <sup>b</sup> Size is based on the average number of available beds. <sup>c</sup> The comparability of bed numbers can be affected by the casemix of hospitals including the extent to which hospitals provide same day admitted services and other specialised services. <sup>d</sup> The count of hospitals in Victoria is a count of the campuses that report data separately to the National Hospital Morbidity Database.

Source: AIHW (2006a); table 9A.4.

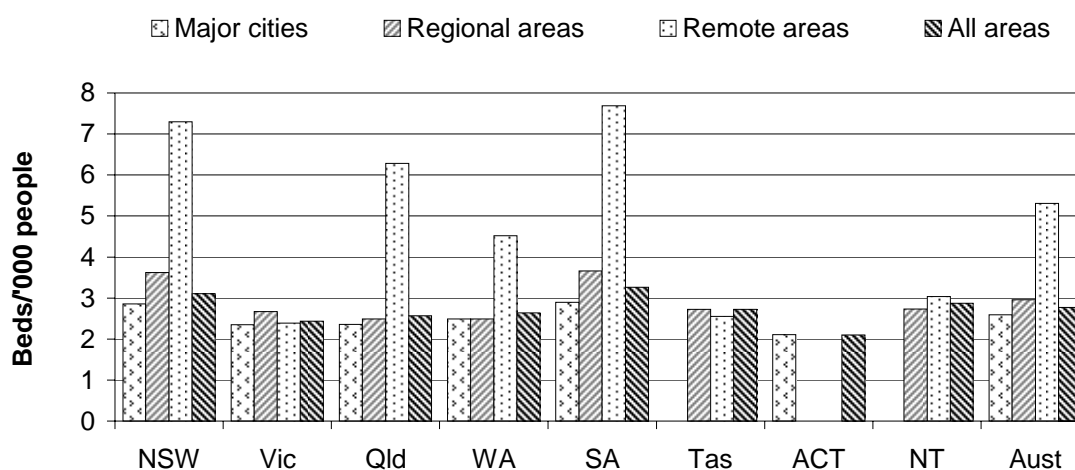
## Beds

There were 55 112 available beds in public hospitals in 2004-05 (table 9A.4). The concept of an available bed (the definition of which is under review) 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 2006a).

The comparability of bed numbers can be affected by the casemix of hospitals, including the extent to which hospitals provide same day admitted services and other specialised services. There are also differences in how available beds are counted, both across jurisdictions and over time.

Nationally, more beds were available per 1000 people in remote areas (figure 9.5), although this finding does not indicate access in remote areas to particular types of service or the distance required to travel to these services. The patterns of bed availability may also reflect a number of factors including patterns of availability of other health care services, patterns of disease and injury and the relatively poor health of Indigenous people, who have higher population concentrations in remote areas (AIHW 2006a). These data also need to be viewed in the context of the age and sex structure (see appendix A) and the morbidity and mortality (see 'Health preface') of the population in each State and Territory.

Figure 9.5 Available beds, public hospitals, by location, 2004-05<sup>a, b, c, d</sup>



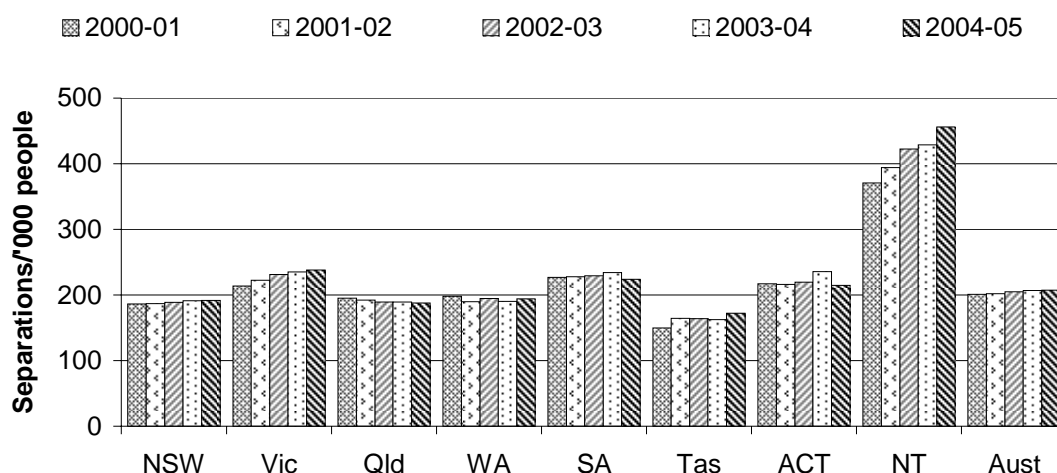
<sup>a</sup> An 'available bed' is one that is immediately available to be used by an admitted patient. A bed is immediately available for use if it is located in a suitable place for care, with nursing and auxiliary staff available within a reasonable period. Both occupied and unoccupied beds are included. 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 for beds/wards staffed and available on weekends only) are also excluded (NHDC 2003). <sup>b</sup> Analysis by remoteness area is of less relevance to geographically smaller jurisdictions and those jurisdictions with small populations residing in remote areas (such as Victoria) (AIHW 2006a). <sup>c</sup> Tasmania and the NT do not have major cities and the ACT does not have remote areas. <sup>d</sup> There were no available beds in regional areas in the ACT.

Source: AIHW (2006a); table 9A.5.

### Total separation rates

There were approximately 4.3 million separations from public (non-psychiatric) hospitals in 2004-05 (table 9A.6). Nationally, this translates into 207.3 separations per 1000 people (figure 9.6).

Figure 9.6 Separation rates in public (non-psychiatric) hospitals<sup>a, b</sup>



<sup>a</sup> Excludes separations for which the care type was reported as 'newborn with no qualified days' and records for hospital boarders and posthumous organ procurement. <sup>b</sup> Data are directly age standardised to the Australian population at 30 June 2001.

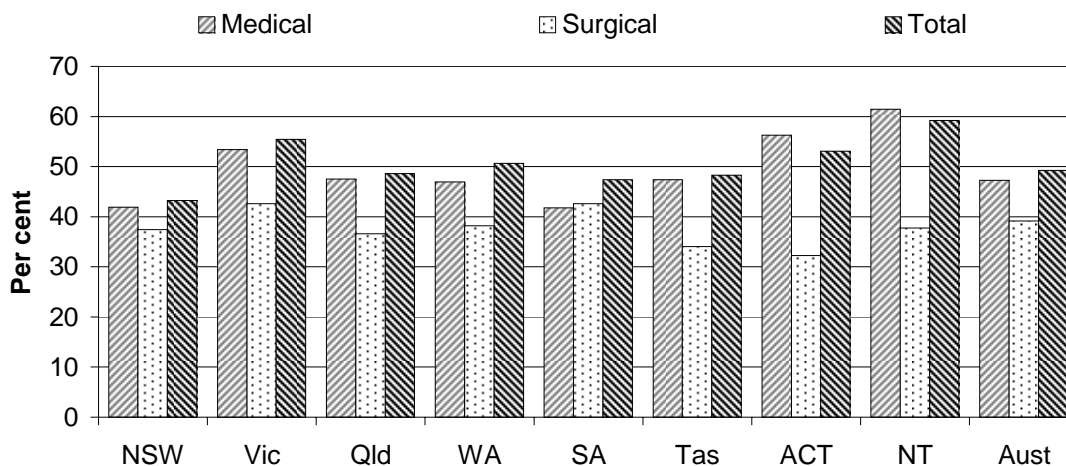
Source: AIHW (2002, 2003, 2004, 2005a, 2006a); table 9A.7.

Same day separations in public (non-psychiatric) hospitals increased by 2.1 per cent between 2003-04 and 2004-05, although same day separations as a proportion of total separations remained relatively constant over this period. Overnight separations in public (non-psychiatric) hospitals increased by 1.6 per cent between 2003-04 and 2004-05 (table 9A.7).

Differences across jurisdictions in separation rates reflect variations in the health profiles of the people living in each State and Territory, the decisions made by medical staff about the type of care required and people's access to services other than public hospitals (for example, primary care and private hospitals).

Variations in admission rates can reflect different practices in classifying patients as either admitted same day patients or outpatients. The extent of differences in classification practices 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 admitting patients rather than treating them as outpatients. This is particularly true of medical separations. Significant variation across jurisdictions in the proportion of same day medical separations was evident in 2004-05 (figure 9.7). Lower jurisdictional variation is likely in admission practices for surgical procedures, as reflected by the lower variability in the proportion of same day surgical separations.

**Figure 9.7 Proportion of medical, surgical and total separations that were same day, public (non-psychiatric) hospitals, 2004-05<sup>a</sup>**



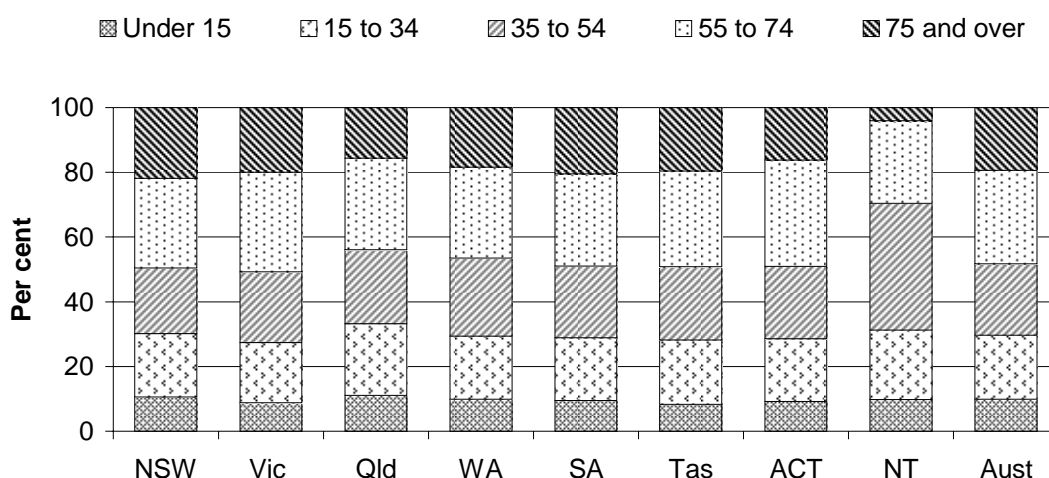
<sup>a</sup> 'Total' includes medical, surgical, chemotherapy, radiotherapy and 'other' separations based on AR-DRG version 5.1 categories.

Source: AIHW (unpublished); table 9A.8.

### *Separations by age group*

Persons aged 55 years and over accounted for almost half of the separations in public hospitals (48.2 per cent) in 2004–05, even though they accounted for only 23.7 per cent of the estimated resident population at 31 December 2004 (figure 9.8 and AIHW 2006a). The proportion of hospital separations for this and other age groups varies across states and territories (figure 9.8). This variation largely reflects differences in the age profiles of jurisdictions (see table AA.1).

Figure 9.8 Separations by age group, public hospitals, 2004-05<sup>a</sup>



<sup>a</sup> Excludes separations for which the care type was reported as 'newborn with no qualified days' and records for hospital boarders and posthumous organ procurement.

Source: AIHW (2006a); table 9A.9.

### Separation rates for Indigenous patients

Data on Indigenous patients are limited by the accuracy and extent to which Indigenous people are identified in hospital records. Identification varies across states and territories. The report prepared by the AIHW and endorsed by relevant Australian Health Ministers' Advisory Council committees titled *Improving the Data Quality of Indigenous Identification in Hospital Separations Data* recommends the following:

- Only data from Queensland, WA, SA and the NT should be used for analytical purposes (either at the individual or aggregate level).
- Analyses based on data for Queensland, WA, SA and the NT in aggregate are limited by jurisdictional differences in data quality and the data are not necessarily representative of the jurisdictions excluded.
- Caution should be exercised in using Queensland, WA, SA and the NT time series data for analysis (either individually or in aggregate). Changes in hospitalisation rates for Indigenous people may be a result of changes in the ascertainment of Indigenous status for Indigenous patients (AIHW 2005b).

In 2004-05, separations for Indigenous people accounted for around 6.3 per cent of total separations and 10.2 per cent of separations in public hospitals in Queensland, WA, SA and the NT (table 9.1), but the Indigenous population made up only around 3.5 per cent of the population in these jurisdictions (table AA.4). Most Indigenous

separations (91.6 per cent) in these jurisdictions occurred in public hospitals. 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 their lower use of private hospitals.

**Table 9.1 Separations, by Indigenous status and hospital sector, 2004-05**  
a, b

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust	Total <sup>c</sup>
Public hospital separations ('000)										
Indigenous	np	np	56.2	38.6	14.3	np	np	50.3	np	159.4
Non-Indigenous	np	np	664.4	344.7	342.2	np	np	25.5	np	1 376.7
Not reported	np	np	13.2	–	9.1	np	np	0.1	np	22.4
<b>Total</b>	np	np	733.8	383.3	365.6	np	np	75.9	np	1 558.5
Private hospital separations ('000)										
Indigenous	np	np	3.7	9.0	0.3	np	np	np	np	14.7
Non-Indigenous	np	np	513.0	299.7	208.6	np	np	np	np	1 021.3
Not reported	np	np	160.1	–	3.0	np	np	np	np	163.0
<b>Total</b>	np	np	676.8	308.7	211.8	np	np	np	np	1 197.4
Indigenous separations as proportion of total separations (%)										
Public hospitals	np	np	7.7	10.1	3.9	np	np	66.3	np	10.2
Private hospitals	np	np	0.6	2.9	0.1	np	np	np	np	1.2
All hospitals	np	np	4.2	6.9	2.5	np	np	np	np	6.3
Separations in public hospitals as a proportion of separations in all hospitals (%)										
Indigenous	np	np	93.8	81.1	98.3	np	np	np	np	91.6
Non-Indigenous	np	np	56.4	53.5	62.1	np	np	np	np	57.4

<sup>a</sup> Excludes separations for which the care type was reported as 'newborn with no qualified days' and records for hospital boarders and posthumous organ procurement. <sup>b</sup> Identification of Indigenous patients is not considered complete and completeness varies across jurisdictions. The AIHW advised that only data for Queensland, WA, SA and the NT are considered to be acceptable for the purpose of analysis (AIHW 2005b). Nevertheless, data for these jurisdictions should be interpreted with caution as there are jurisdictional differences in data quality. In addition, these jurisdictions are not necessarily representative of the excluded jurisdictions. <sup>c</sup> The total rates include data only for Queensland, WA, SA, and the NT. – Nil or rounded to zero. **np** Not published.

Source: AIHW (2006a); table 9A.10.

In 2004-05, on an age standardised basis, 907.0 public hospitals separations (including same day separations) for Indigenous patients were reported per 1000 Indigenous people in Queensland, WA, SA and the NT (table 9.2). This rate was markedly higher than the corresponding rate for these jurisdictions' total population of 205.2 per 1000 (table 9.2). Incomplete identification of Indigenous people limits the validity of comparisons over time, as well as across jurisdictions.

**Table 9.2 Estimates of public hospital separations per 1000 people, by reported Indigenous status<sup>a, b</sup>**

	<i>NSW</i>	<i>Vic</i>	<i>Qld<sup>c</sup></i>	<i>WA<sup>c</sup></i>	<i>SA<sup>c</sup></i>	<i>Tas</i>	<i>ACT</i>	<i>NT<sup>c</sup></i>	<i>Aust</i>	<i>Total<sup>d</sup></i>
2000-01										
Indigenous	np	np	671.6	852.2	772.6	np	np	1 031.6	np	np
Total population	np	np	195.5	199.7	228.8	np	np	370.9	np	np
2001-02										
Indigenous	np	np	676.5	752.7	743.6	np	np	1 129.6	np	np
Total population	np	np	192.5	190.7	229.7	np	np	394.3	np	np
2002-03										
Indigenous	np	np	685.2	809.4	788.1	np	np	1 223.3	np	np
Total population	np	np	189.4	195.4	231.0	np	np	422.5	np	np
2003-04										
Indigenous	np	np	710.9	789.3	853.9	np	np	1 286.2	np	np
Total population	np	np	189.3	191.0	235.9	np	np	428.9	np	np
2004-05										
Indigenous	np	np	733.6	821.5	822.2	np	np	1 441.0	np	907.0
Total population	np	np	188.1	195.2	225.3	np	np	456.2	np	205.2

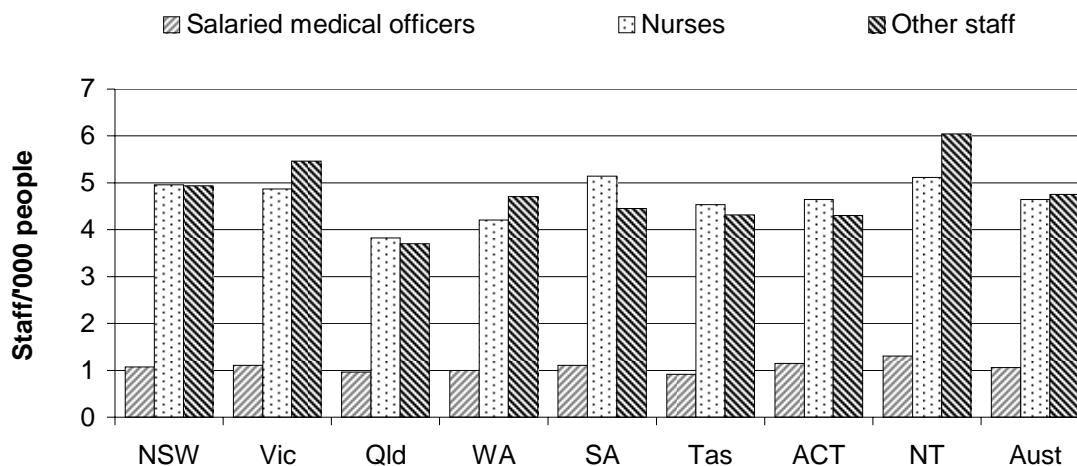
<sup>a</sup> The rates are directly age standardised to the Australian population at 30 June 2001. <sup>b</sup> Identification of Indigenous patients is not considered complete and completeness varies across jurisdictions and time. <sup>c</sup> The AIHW advised that only data for Queensland, WA, SA and the NT are of acceptable quality. Nevertheless, data for these jurisdictions should be interpreted with caution as there are jurisdictional differences in data quality and changes in hospitalisation rates for Indigenous people over time might be the result of improved identification. In addition, these jurisdictions are not necessarily representative of the excluded jurisdictions (AIHW 2005b). <sup>d</sup> For 2004-05, total rates include data only for Queensland, WA, SA, and the NT. **np** Not published.

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

### Staff

In 2004-05, nurses comprised the single largest group of full time equivalent (FTE) staff employed in public hospitals (4.6 per 1000 people in Australia) (figure 9.9). Comparing data on FTE staff across jurisdictions needs to be undertaken with care because these data are affected by differences across jurisdictions in the recording and classifying of staff. The outsourcing of services with a large labour related component (for example, food services and domestic services) can have a large impact on hospital staffing figures. Differences in outsourcing may explain some of the differences in FTE staff in some staffing categories and across jurisdictions (AIHW 2006a).

Figure 9.9 Average FTE staff per 1000 people, public hospitals, 2004-05<sup>a, b, c, d, e, f</sup>



<sup>a</sup> 'Other staff' include diagnostic and allied health professionals, other personal care staff, administrative and clerical staff, and domestic and other staff. <sup>b</sup> Where average FTE staff numbers were not available, staff numbers at 30 June 2005 were used. Staff contracted to provide products (rather than labour) are not included. <sup>c</sup> Staff per 1000 people are calculated from ABS population data at 31 December 2004 (table AA.2). <sup>d</sup> For Victoria, FTEs may be slightly understated. <sup>e</sup> Queensland pathology services staff employed by the State pathology service are not included. <sup>f</sup> Data for five small Tasmanian hospitals are not included.

Source: AIHW (2006a); ABS Australian Demographic Statistics (unpublished); tables 9A.12 and AA.2.

### Activity — admitted patient care

There were around 4.3 million acute, sub-acute and non-acute separations in public hospitals in 2004-05. Of these, acute separations accounted for 95.9 per cent, newborns with some qualified days<sup>2</sup> accounted for 1.0 per cent and rehabilitation care accounted for 1.5 per cent (table 9A.13). (Palliative care, non-acute care and other care made up the residual.) Public psychiatric hospitals accounted for around 0.4 per cent of total separations in public hospitals in 2004-05. Of the total number of separations in public (non-psychiatric) hospitals, 49.2 per cent were for same day patients (table 9A.6).

Table 9.3 shows the 10 AR-DRGs with the highest number of overnight acute separations in public hospitals for 2004-05. These 10 AR-DRGs accounted for 17.0 per cent of all overnight acute separations.

<sup>2</sup> All babies born in hospital are admitted patients, but only qualified days for newborns are included in the patient day count under the Australian Health Care Agreements.

**Table 9.3 Ten AR-DRGs (version 5.1) with the most overnight acute separations, public hospitals, 2004-05<sup>a, b, c</sup>**

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Aust</i>
Separations for AR-DRGs as a proportion of all overnight acute separations (%)									
Vaginal Delivery W/O Cat/Severe CC	4.5	4.6	4.4	4.1	3.2	4.1	5.2	3.8	4.3
Chest Pain	2.3	1.9	2.5	1.4	2.0	1.4	1.4	2.0	2.1
Oesophagitis, Gastroent & Misc Digestive Systm Disorders Age>9 W/O Cat/Severe CC	1.8	1.6	1.8	1.8	2.0	1.7	1.3	1.0	1.7
Caesarean Delivery W/O Cat/Severe CC	1.6	1.7	2.0	1.5	1.3	1.6	1.9	1.5	1.7
Antenatal and other Obstetric Admission	1.6	1.5	1.8	1.9	1.4	1.4	1.5	3.0	1.6
Cellulitis (Age >59 W/O Cat/Severe CC) or Age <60	1.2	1.3	1.6	1.7	1.0	1.1	1.6	4.9	1.4
Vaginal Delivery Single Uncomplicated W/O Other Condition	1.1	0.7	1.8	0.9	0.8	1.0	1.3	1.4	1.1
Respiratory Infections/Inflammations W/O CC	1.1	1.0	1.1	1.2	1.0	1.0	1.1	1.8	1.1
Bronchitis and Asthma Age <50 W/O CC	1.1	1.0	0.9	1.1	1.2	0.6	0.7	0.6	1.0
Chronic Obstructive Airways Disease W Cat/Severe CC	1.1	1.0	0.8	0.8	1.0	1.0	0.4	1.3	1.0
<b>Ten AR-DRGs with the most overnight acute separations (%)</b>	<b>17.5</b>	<b>16.2</b>	<b>18.6</b>	<b>16.4</b>	<b>15.0</b>	<b>15.0</b>	<b>16.4</b>	<b>21.2</b>	<b>17.0</b>
<b>Total overnight acute separations ('000)</b>	<b>729</b>	<b>510</b>	<b>361</b>	<b>182</b>	<b>181</b>	<b>43</b>	<b>28</b>	<b>31</b>	<b>2 065</b>

cat = catastrophic. cc = complications and co-morbidities. sev = severe. w/o = without. w = with. <sup>a</sup> Includes separations for which the care type was reported as 'acute' or 'newborn with qualified days', or was not reported. <sup>b</sup> Totals may not add as a result of rounding. <sup>c</sup> Excludes same day separations and separations where patients stayed over 366 days.

Source: AIHW (unpublished); table 9A.14.

Table 9.4 lists the 10 AR-DRGs that accounted for the most patient days (18.1 per cent of all patient days recorded) in 2004-05. Schizophrenic disorders associated with mental health legal status accounted for the largest number of patient days, followed by vaginal delivery without complicating diagnosis.

**Table 9.4 Ten AR-DRGs (version 5.1) with the most patient days, public hospitals, 2004-05<sup>a, b</sup>**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Patient days for AR-DRGs as a proportion of all patient days (%)									
Schizophrenia Disorders W Mental Health Legal Status	3.2	3.4	4.4	4.1	3.9	2.5	2.0	1.0	3.5
Vaginal Delivery W/O Cat/Sev CC	2.5	2.6	2.3	2.5	1.8	2.1	2.5	2.4	2.4
Tracheostomy or Ventilation >95 hours	2.3	2.4	2.2	2.4	2.5	2.1	2.5	2.3	2.3
Major Affective Disorders Age <70 W/O Cat/Sev CC	2.0	1.8	2.2	2.8	2.5	2.3	2.6	1.3	2.1
Schizophrenia Disorders W/O Mental Health Legal Status	1.7	1.4	1.1	1.9	1.4	3.2	0.9	2.0	1.6
Chronic Obstructive Airways Disease W Cat/Sev CC	1.7	1.4	1.3	1.3	1.3	1.6	0.7	1.6	1.5
Caesarean Delivery W/O Cat/Sev CC	1.3	1.5	1.5	1.3	1.1	1.1	1.5	1.4	1.4
Cellulitis (Age >59 W/O Cat/Sev CC) or Age <60	1.0	1.3	1.3	1.1	0.7	0.8	1.2	3.4	1.1
Respiratory Infections/Inflammations W Cat CC	1.3	1.3	0.7	0.8	1.1	0.6	0.8	0.9	1.1
Respiratory Infections/Inflammations W Sev or Moderate CC	1.1	1.1	0.9	0.9	1.0	1.0	1.1	2.5	1.1
<b>Ten AR-DRGs with the most patient days (%)</b>	<b>18.0</b>	<b>18.1</b>	<b>18.0</b>	<b>19.1</b>	<b>17.5</b>	<b>17.4</b>	<b>15.8</b>	<b>18.7</b>	<b>18.1</b>
<b>Total patient days ('000)</b>	<b>4 153</b>	<b>2 692</b>	<b>1 793</b>	<b>1 000</b>	<b>985</b>	<b>265</b>	<b>164</b>	<b>171</b>	<b>11 223</b>

cat = catastrophic. cc = complications and co-morbidities. sev = severe. w/o = without. w = with. <sup>a</sup> Includes separations for which the care type was reported as 'acute' or 'newborn with qualified days', or was not reported. <sup>b</sup> Excludes same day separations and separations where patients stayed over 366 days.

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

### *Activity — 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 in which data are collected, differing admission practices lead to variation in the services reported across jurisdictions. In addition, states and territories may differ in the extent to which these types of service are provided in non-hospital settings (such as community health centres) (AIHW 2006a). Services to non-admitted patients are measured in terms of occasions of service. Differences in the complexity of the occasion of service are 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).

A total of 42.6 million individual occasions of service were provided to non-admitted patients in public hospitals in 2004-05 (table 9.5). In addition, public hospitals also delivered 396 498 group sessions during this time (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.16). In public hospitals in 2004-05, accident and emergency services comprised 14.1 per cent of all occasions of service to non-admitted patients. 'Other medical, surgical and obstetric services', 'pathology services' and 'allied health' were the most common types of outpatient care (table 9.5).

**Table 9.5 Ten most common types of individual non-admitted patient care, public hospitals, 2004-05<sup>a</sup>**

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT<sup>b</sup></i>	<i>Aust</i>
Occasions of service for the most common types of non-admitted patient care as a proportion of all occasions of service for non-admitted patients (%)									
Accident and emergency	10.8	19.2	14.4	13.2	22.1	13.9	19.2	27.9	14.1
Outpatient services									
Other medical/surgical/obstetric	21.8	22.5	24.9	13.2	38.5	29.8	44.1	23.1	22.9
Allied health	8.2	15.1	5.8	20.1	10.5	11.0	8.9	3.3	10.2
Pathology	12.3	10.0	29.5	14.9	..	23.9	7.3	20.9	15.4
Radiology and organ imaging	3.8	7.9	8.9	8.2	12.7	8.6	13.5	17.3	6.8
Pharmacy	4.7	5.9	6.7	3.9	–	7.7	0.1	7.5	5.0
Mental health	4.9	10.2	1.0	0.8	1.1	0.2	0.9	–	4.1
Dental	4.0	2.5	3.9	0.3	0.3	0.2	–	–	3.0
Other non-admitted services									
Community health	10.7	3.9	1.9	18.2	–	0.1	2.1	–	7.6
District nursing <sup>c</sup>	11.2	2.4	0.8	4.0	–	–	–	–	5.8
<b>Ten most common types of non-admitted patient care (%)</b>	<b>92.4</b>	<b>99.6</b>	<b>97.8</b>	<b>96.7</b>	<b>85.2</b>	<b>95.3</b>	<b>96.3</b>	<b>100.0</b>	<b>94.9</b>
<b>Total occasions of service for non-admitted patients ('000)</b>	<b>18 525</b>	<b>6 863</b>	<b>8 885</b>	<b>4 496</b>	<b>2 141</b>	<b>875</b>	<b>487</b>	<b>371</b>	<b>42 643</b>

<sup>a</sup> Individual non-admitted patient care services. Excludes group sessions. Reporting arrangements vary significantly across jurisdictions. <sup>b</sup> Radiology figures for the NT are underestimated and pathology figures relate to only three of the five hospitals. <sup>c</sup> Justice Health (formerly known as Corrections Health) in NSW reported 996 917 district nursing occasions of service. Their services may not be typical of district nursing. .. Not applicable. – Nil or rounded to zero.

Source: AIHW (2006a); table 9A.16.

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## 9.2 Framework of performance indicators for public hospitals

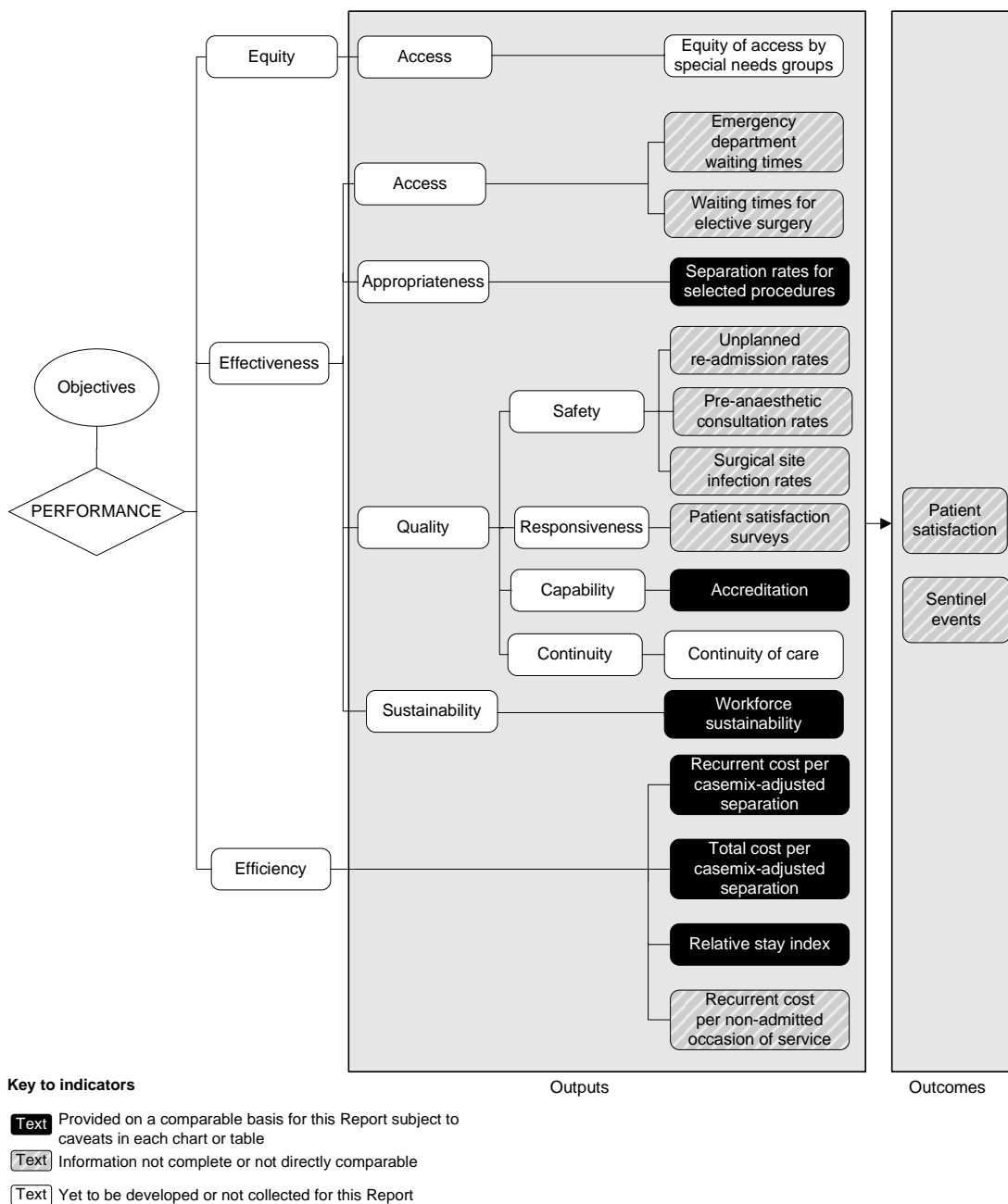
The performance indicator framework is based on the shared government objectives for public hospitals (box 9.2). The performance indicator framework shows which data are comparable in the 2007 Report (figure 9.10). For data that are not considered directly comparable, the text includes relevant caveats and supporting commentary. Chapter 1 discusses data comparability from a Report-wide perspective. The 'Health preface' explains the performance indicator framework for health services as a whole, including the subdimensions of quality and sustainability that have been added to the standard Review framework for health services.

### 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 9.10 Performance indicators for public hospitals



### 9.3 Key performance indicator results for public hospitals

Different delivery contexts, locations and types of client may affect the equity, effectiveness 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.

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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 as desired from the analysis of some data differs across jurisdictions. Similarly, psychiatric treatments are provided in public (non-psychiatric) hospitals at different rates across jurisdictions.

### **Outputs — equity — access**

Equity indicators measure how well a service is meeting the needs of certain groups in society (see chapter 1). Public hospitals have a significant influence on the equity of the overall healthcare system. While access to public hospital services is important to the community in general, it is particularly so for people of low socioeconomic status (and others) who may have difficulty in accessing alternative services, such as those provided by private hospitals.

#### *Equity of access by special needs groups*

The Steering Committee has identified ‘equity of access by special needs groups’ as an indicator of equity of access to public hospitals. This indicator is for development in future reports (box 9.3).

#### **Box 9.3 Equity of access by special needs groups**

‘Equity of access by special needs groups’ is a output-equity indicator of governments’ objective to provide accessible services. This indicator has been identified for development and reporting in future. Data, however, were not available for the 2007 Report.

### **Outputs — effectiveness — access**

#### *Emergency department waiting times*

‘Emergency department waiting times’ are an indicator of effectiveness of access to public hospitals (box 9.4).

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#### Box 9.4      **Emergency department waiting times**

‘Emergency department waiting times’ is a output–equity indicator of governments’ objective to provide accessible services. It measures the proportion of patients seen within the benchmarks set according to the urgency of treatment required.

The nationally agreed method of calculation for 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 triaged<sup>a</sup>, whichever occurs earlier) from the time of commencement of service by a treating medical officer or nurse. Patients who do not wait for care after being triaged or clerically registered are excluded from the data.

The benchmarks set according to triage category, are 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 (NHDC 2003).

It is desirable that a high proportion of patients are seen within the benchmarks set for each triage category. Non-urgent patients who wait longer are likely to suffer discomfort and inconvenience, and more urgent patients may experience poor health outcomes as a result of extended waits.

<sup>a</sup> The triage category indicates the urgency of the patient’s need for medical and nursing care.

The comparability of emergency department waiting times data across jurisdictions may be influenced by differences in data coverage (table 9.6) and clinical practices — in particular, the allocation of cases to urgency categories. The proportion of patients in each triage category who were subsequently admitted may indicate the comparability of triage categorisations across jurisdictions and thus the comparability of the waiting times data (table 9A.17).

Nationally, in 2004-05, 100 per cent of patients were seen within the triage category 1 timeframe and 76 per cent of patients were seen within the triage category 2 timeframe. For all triage categories, 69 per cent of patients were seen within triage category timeframes (table 9.6).

**Table 9.6 Emergency department patients seen within triage category timeframes, public hospitals, 2004-05 (per cent)**

<i>Triage category</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Aust</i>
1 — Resuscitation <sup>a</sup>	100	100	100	98	99	96	100	100	100
2 — Emergency	75	86	71	75	72	76	70	61	76
3 — Urgent	60	81	54	67	58	67	50	61	64
4 — Semi-urgent	66	73	57	65	62	64	52	55	65
5 — Non-urgent	87	89	85	91	89	91	83	86	88
<b>Total</b>	<b>68</b>	<b>79</b>	<b>59</b>	<b>70</b>	<b>63</b>	<b>68</b>	<b>58</b>	<b>62</b>	<b>69</b>
Data coverage <sup>b</sup>	76	88	64	68	68	84	100	100	76

<sup>a</sup> Resuscitation patients whose waiting time for treatment was less than or equal to two minutes are considered to have been seen on time. <sup>b</sup> Data coverage is estimated as the number of occasions of service with waiting times data divided by the number of accident and emergency department occasions of service expressed as a percentage. This may underestimate coverage because some occasions of service are for other than emergency presentations, for which waiting times data are applicable. For 2004–05 data (unlike previous years), the occasions of service with waiting times data is the number of occasions of service reported with episode-level data. For some jurisdictions, the number of emergency department occasions of service reported to the Non-admitted Patient Emergency Department Care Database exceeded the number of accident and emergency occasions of service reported to the National Public Hospital Establishments Database. For these jurisdictions the coverage has been estimated as 100 per cent.

Source: AIHW (2006a); table 9A.17.

### *Waiting times for elective surgery*

‘Waiting times for elective surgery’ is an indicator of effectiveness of access to public hospitals (box 9.5).

#### **Box 9.5 Waiting times for elective surgery**

‘Waiting times for elective surgery’ is an output–equity indicator of governments’ objective to provide accessible services. Two measures are reported:

- ‘overall elective surgery waiting times’
- ‘elective surgery waiting times by clinical urgency category’.

‘Overall elective surgery waiting times’ are calculated by comparing the date on which patients are added to a waiting list with the date on which they are admitted. Days on which the patient was not ready for care are excluded. ‘Overall waiting times’ are presented as the number of days within which 50 per cent of patients are admitted and the number of days within which 90 per cent of patients are admitted. The proportion of patients who waited more than one year is also shown.

Fewer days waited at the 50th and 90th percentile and a smaller proportion of people waiting more than 365 days are desirable.

(Continued on next page)

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**Box 9.5 (Continued)**

'Elective surgery waiting times by clinical urgency category' reports the proportion of patients who have:

- had extended waits (waited longer than the clinically desirable time) at a particular census date
- been admitted from waiting lists after an extended wait.

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, but the term 'extended wait' is used for patients waiting longer than 12 months for elective surgery, as well as for category 1 and 2 patients waiting more than the agreed desirable waiting times of 30 days and 90 days respectively.

A smaller proportion of patients who have experienced extended waits at a particular census date and at admission is desirable.

Not all elective surgery is covered by these measures. The measures do not fully cover all the in-scope procedures (87 per cent in 2004-05) (table 9.7), and the in-scope procedures are defined as excluding a range of procedures that may be regarded as surgery, such as elective procedures involving the insertion of a stent.

Patients on waiting lists who were not subsequently admitted to hospital are excluded from both measures (box 9.5). Patients may be removed from waiting lists because they are admitted as emergency patients for the relevant procedure, no longer need the surgery, die, are treated at another location, decline to have the surgery, or cannot be contacted by the hospital (AIHW 2006a). In 2004-05, 14.8 per cent of patients were removed from waiting lists for reasons other than elective admission (AIHW 2006a).

The two measures are affected by variations across jurisdictions in the method used to calculate waiting times for patients who transferred from a waiting list managed by one hospital to a waiting list managed by a different hospital (AIHW 2006a). For patients who were transferred from a waiting list managed by one hospital to that managed by another, the time waited on the first list is included in the waiting time reported for some but not all states and territories (AIHW 2006a). NSW, Victoria, Queensland, WA and the ACT reported the total time waited on all waiting lists. This approach may have the effect of increasing the apparent waiting times for admissions in these jurisdictions compared with other jurisdictions. SA and

Queensland have indicated that patients do not commonly switch between waiting lists managed by different hospitals in their jurisdictions (AIHW 2006a).

Nationally, in 2004-05, 90 per cent of patients were admitted within 217 days and 50 per cent were admitted within 29 days (table 9.7). The proportion of patients that waited more than a year was 4.8 per cent. Nationally, waiting times at the 50th percentile changed little between 2000-01 and 2004-05. In 2000-01, 27 days were waited at the 50th percentile, this increased to 29 days by 2004-05. However, there were different trends in different jurisdictions and for different sized hospitals over that period (figure 9.11 and table 9A.18).

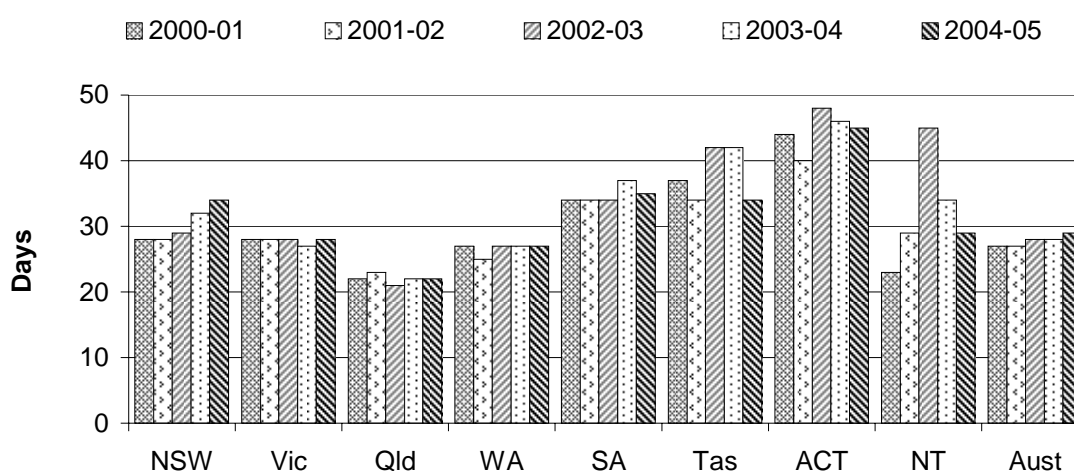
**Table 9.7 Elective surgery waiting times, public hospitals, 2004-05**

	Unit	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Number of days waited at:										
50th percentile	no.	34	28	22	27	35	34	45	29	29
90th percentile	no.	294	200	105	197	201	352	368	266	217
Proportion who waited more than 365 days										
	%	6.9	4.0	1.8	3.8	4.0	9.5	10.1	5.9	4.8
Estimated coverage of elective surgery separations <sup>a</sup>										
	%	100	79	96	72	62	90	100	100	87

<sup>a</sup> The number of separations with urgency of admission reported as 'elective' and a surgical procedure for public hospitals reporting to the National Elective Surgery Waiting Times Data Collection as a proportion of the number of separations with urgency of admission of 'elective' and a surgical procedure for all public hospitals.

Source: AIHW (2006a); table 9A.18.

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



Source: AIHW (2002, 2003, 2004, 2005a, 2006a); table 9A.18.

‘Elective surgery waiting times by urgency category’ are not comparable across jurisdictions because clinicians have systematically different approaches to categorisation by urgency. States and territories with lower proportions of patients in category 1 were also the states and territories that had relatively smaller proportions of patients in this category that were ‘not seen on time’. Victoria and the ACT, for example, had the lowest proportions of patients in category 1 and also had the lowest proportions of patients in category 1 that had extended waits (tables 9.8, 9A.23 and 9A.32). The apparent variation in performance thus appears to be related to the classification practices employed. Jurisdictional differences in the classification of patients by urgency category in 2004-05 are shown in table 9.8

While ‘elective surgery waiting times by urgency category’ are not comparable across jurisdictions, this measure has the advantage, over ‘overall elective surgery waiting times’, of aligning with the objective of providing hospital services within a clinically desirable period.

**Table 9.8 Classification of elective surgery patients, by clinical urgency category, 2004-05 (per cent)<sup>a</sup>**

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>
Patients on waiting lists								
Category 1	10.9	1.7	7.1	8.0	7.2	na	2.7	8.0
Category 2	30.6	43.4	33.9	29.3	21.9	na	45.0	34.6
Category 3	58.6	54.9	59.0	62.7	70.9	na	52.3	57.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>na</b>	<b>100.0</b>	<b>100.0</b>
Patients admitted from waiting lists								
Category 1	42.5	21.3	35.2	35.6	35.0	na	37.7	42.1
Category 2	29.7	46.2	44.4	25.3	24.7	na	40.0	35.8
Category 3	27.9	32.6	20.4	39.1	40.3	na	22.2	22.1
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>na</b>	<b>100.0</b>	<b>100.0</b>

<sup>a</sup> Categories may not add to 100 per cent due to rounding. **na** not available.

Source: State and Territory governments (unpublished).

Reporting of ‘elective surgery waiting times by clinical urgency category’ includes the proportion of patients waiting on the date of the census who had been waiting an extended period, as well as the proportion of patients with extended waits at admission. Census data do not represent the completed waiting time of patients (unlike patients with extended waits at admission).

Data were available from all jurisdictions (except Tasmania) for ‘elective surgery waiting times by clinical urgency category’ for this Report.

- Public hospital census data for NSW at 30 June 2005 suggest that 38.9 per cent of category 1 patients on the waiting list were subject to extended waits, as were 40.2 per cent of category 2 patients and 10.6 per cent of category 3 patients,

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resulting in an overall rate of 22.7 per cent for all patients. Of patients admitted to hospital from waiting lists in 2004-05, 21.7 per cent of category 1 patients were subject to extended waits, 28.8 per cent of category 2 patients and 20.8 per cent of category 3 patients were subject to extended waits, resulting in an overall rate of 23.6 per cent for all patients (table 9A.21).

- Public hospital census data for Victoria at 30 June 2005 suggest that 0.7 per cent of category 1 patients on the waiting list were subject to extended waits, as were 42.3 per cent of category 2 patients and 20.8 per cent of category 3 patients, resulting in an overall rate of 29.7 per cent for all patients. Of patients admitted to hospital from waiting lists in 2004-05, no category 1 patients were subject to extended waits, 23.6 per cent of category 2 patients and 8.7 per cent of category 3 patients were subject to extended waits, resulting in an overall rate of 13.7 per cent for all patients (table 9A.23).
- Public hospital census data for Queensland at 1 July 2005 suggest that 5.4 per cent of category 1 patients on the waiting list were subject to extended waits, as were 11.3 per cent of category 2 patients and 30.5 per cent of category 3 patients, resulting in an overall rate of 22.2 per cent for all patients. Of patients admitted to hospital from waiting lists in 2004-05, 10.4 per cent of category 1 patients were subject to extended waits, as were 9.4 per cent of category 2 patients and 8.5 per cent of category 3 patients, resulting in an overall rate of 9.6 per cent for all patients (table 9A.25).
- Public hospital census data for WA at 30 June 2005 suggest that 40.9 per cent of category 1 patients on the waiting list were subject to extended waits, as were 52.4 per cent of category 2 patients and 24.9 per cent of category 3 patients, resulting in an overall rate of 34.2 per cent for all patients. Of patients admitted to hospital from waiting lists in 2004-05, 17.8 per cent of category 1 patients were subject to extended waits, as were 31.8 per cent of category 2 patients and 7.6 per cent of category 3 patients, resulting in an overall rate of 17.3 per cent for all patients (table 9A.27).
- Public hospital census data for SA at 30 June 2005 suggest that 19.8 per cent of category 1 patients on the waiting list were subject to extended waits, as were 27.9 per cent of category 2 patients and 13.5 per cent of category 3 patients, resulting in an overall rate of 17.1 per cent for all patients. Of patients admitted to hospital from waiting lists in 2004-05, 20.0 per cent of category 1 patients were subject to extended waits, as were 24.9 per cent of category 2 patients and 9.4 per cent of category 3 patients, resulting in an overall rate of 16.9 per cent for all patients (table 9A.29).
- Public hospital census data for the ACT at 30 June 2005 suggest that no category 1 patients on the waiting list were subject to extended waits, whereas 60.5 per cent of category 2 patients and 39.4 per cent of category 3 patients were

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subject to extended waits, resulting in an overall rate of 45.3 per cent for all patients. Of patients admitted from waiting lists in 2004-05, 10.7 per cent of category 1 patients were subject to extended waits, as were 68.6 per cent of category 2 patients and 20.7 per cent of category 3 patients, resulting in an overall rate of 32.5 per cent for all patients (table 9A.32).

- Public hospital census data for the NT at 30 June 2005 suggest that 61.4 per cent of category 1 patients on the waiting list were subject to extended waits, as were 64.2 per cent of category 2 patients and 42.2 per cent of category 3 patients resulting in an overall rate of 55.9 per cent for all patients. Of patients admitted from waiting lists in 2004-05, 17.2 per cent of category 1 patients were subject to extended waits, as were 30.5 per cent of category 2 patients and 14.9 per cent of category 3 patients, resulting in an overall rate of 21.5 per cent for all patients (table 9A.34).

Attachment 9A includes data on 'elective surgery waiting times' by hospital peer group, specialty of surgeon and indicator procedure (tables 9A.18, 9A.19 and 9A.20). Tasmanian data for 2000-01 are reported in table 9A.31. All jurisdictions (except Tasmania) also provided data on urgency category waiting times by clinical specialty for 2004-05 (tables 9A.22, 9A.24, 9A.26, 9A.28, 9A.30, 9A.33 and 9A.35).

## **Outputs — effectiveness — appropriateness**

### *Separation rates for selected procedures*

'Separation rates for selected procedures' is an indicator of the appropriateness of public hospital services (box 9.6).

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**Box 9.6 Separation rates for selected procedures**

The purpose of this indicator is to help determine whether 'hospital separation rates for selected procedures' are appropriate. The procedures are selected for their frequency, for being elective and discretionary, and because alternative treatments are sometimes available.

'Separation rates for selected procedures' are defined as separations per 1000 people for certain procedures, and for caesarean section separations per 100 in-hospital births.

Higher/lower rates are not necessarily associated with inappropriate care. Large jurisdictional variations in rates for particular procedures, however, may require investigation to determine whether underservicing or overservicing is occurring.

Care needs to be taken when interpreting the differences in the separation rates of the selected procedures. Variations in rates may be attributable to variations in the prevalence of the conditions being treated, or to differences in clinical practice across states and territories. 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 over-reliance on procedures. 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 'separation rates for selected procedures' reported here include all hospitals and reflect the activities of both public and private health systems.<sup>3</sup> The most common procedures in 2004-05 were endoscopies, lens insertions, arthroscopic procedures and caesarean sections (table 9.9). For all procedures, separation rates varied across jurisdictions. Statistically significant and material differences in the separation rates for these procedures may highlight variations in treatment methods across jurisdictions. Table 9A.36 presents standardised separation rate ratios — comparing the separation rate in each jurisdiction with the national rate — along with confidence intervals for each ratio.

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<sup>3</sup> Data include public acute, public psychiatric, private acute, private psychiatric and private free-standing day hospital facilities. Some private hospitals are not included, which may result in undercounting of some procedures, particularly procedures more likely to be performed in private hospitals (AIHW 2006a).

**Table 9.9 Separations for selected procedures or diagnoses per 1000 people, all hospitals, by patient's usual residence, 2004-05<sup>a, b, c, d</sup>**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total <sup>e</sup>
<i>Procedure/diagnosis</i>									
Appendectomy	1.3	1.3	1.5	1.6	1.4	1.3	1.4	1.6	1.4
Coronary artery bypass	0.7	0.7	0.8	0.4	0.6	0.5	0.5	0.9	0.7
Coronary angioplasty	1.7	1.7	1.3	1.5	1.5	1.3	1.8	1.2	1.6
Caesarean section: separation rate	3.7	3.8	4.4	4.3	4.0	3.3	3.3	4.2	4.0
separations per 100 in-hospital births <sup>f</sup>	28.1	30.5	32.3	33.2	32.4	25.9	27.8	29.5	30.3
Cholecystectomy	2.2	2.3	2.3	2.2	2.4	2.1	1.9	1.6	2.3
Diagnostic gastrointestinal endoscopy	25.4	32.7	28.6	26.8	24.5	15.7	11.1	19.0	27.5
Hip replacement	1.3	1.4	1.2	1.5	1.4	1.4	1.6	0.8	1.3
Revision of hip replacement	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.2
Hysterectomy <sup>g</sup>	1.3	1.3	1.4	1.6	1.7	1.3	1.3	1.2	1.4
Lens insertion	8.2	7.5	9.0	8.3	7.1	3.0	6.4	7.0	7.9
Tonsillectomy	1.7	1.8	1.6	1.7	2.3	0.8	1.2	0.8	1.7
Myringotomy	1.3	1.8	1.4	2.0	3.1	1.1	1.1	0.7	1.6
Knee replacement	1.6	1.2	1.4	1.5	1.5	1.1	2.0	0.9	1.4
Prostatectomy	1.3	1.5	1.2	1.3	1.1	1.2	1.1	1.6	1.3
Arthroscopic procedures <sup>h</sup>	5.0	6.0	4.8	7.3	8.6	4.0	6.2	8.1	5.8

<sup>a</sup> Excludes separations for which the care type was reported as 'newborn with no qualified days' and records for hospital boarders and posthumous organ procurement. Excludes multiple procedures/diagnoses for the same separation within the same group. <sup>b</sup> The procedures and diagnoses are defined using ICD-10-AM codes. <sup>c</sup> Some hospitals are not included. <sup>d</sup> Rates per 1000 people were directly age standardised to the Australian population at 30 June 2001. <sup>e</sup> Includes other territories. Excludes non-residents and unknown State or Territory of residence. <sup>f</sup> 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 because births out of hospital are not included. <sup>g</sup> Includes hysterectomies for females aged 15-69 years only. Rate is determined using total population for State or Territory. <sup>h</sup> Includes arthroscopies.

Source: AIHW (2006a); table 9A.36.

## Outputs — effectiveness — quality

There is no single definition of quality in healthcare, but the Australian Commission on Safety and Quality in Healthcare (ACSQHC) has defined quality as 'the extent to which the properties of a service or product produces a desired outcome' (Runicman 2006). 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, capability and continuity. Data are reported against all of these aspects except continuity.

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There has been considerable debate and research to develop suitable indicators of the quality of healthcare both in Australia and overseas. Data are reported for clinical indicators of safety ('unplanned re-admission rates', 'pre-anaesthetic consultation rates' and 'surgical site infection rates'), patient satisfaction and the accreditation of public hospital beds.

All Australian health ministers agreed to the establishment of the Australian Council for Safety and Quality in Health Care in January 2000, with a view to taking a systematic approach to assessing and improving the quality of healthcare. The Australian Council for Safety and Quality in Health Care was replaced in January 2006 by the ACSQHC. A key objective of the ACSQHC is to achieve safe, effective and responsive care for consumers. The ACSQHC will continue to maintain the Council's focus on improving the safety of hospitals and will also seek to improve the quality of primary health care and the private health sector.

Various states and territories publicly report performance indicators for public hospital quality. Some have adopted the same indicators as reported here. In NSW, for example, reporting of Australian Council on Health Care Standards (ACHS) 'surgical site infection rates' is mandatory for public hospitals. Both the WA and Tasmanian health department annual reports include information on 'unplanned re-admission rates'. All Victorian hospitals are required to publish annual quality care reports that include safety and quality indicators for infection control, medication errors, falls monitoring and prevention, and pressure wound monitoring and prevention.

### *Safety*

Improving patient safety is an important issue for all hospitals. Studies on medical errors have indicated that adverse healthcare related events occur in public hospitals in Australia and internationally, and that their incidence is potentially high (for example, Wilson *et al.* 1995; Thomas *et al.* 2000; Runciman and Moller 2001, Runciman *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).

Data for the 'safety' indicators come from the ACHS Comparative Report Service (Clinical Indicators). The ACHS data are collected for 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 the hospitals that achieve 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 because participation by

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public hospitals in the Comparative Report Service (Clinical Indicators) is generally voluntary, so the data are not necessarily drawn from representative samples of hospitals (box 9.7).

**Box 9.7 Reporting of ACHS clinical indicators**

The data for the clinical indicators of 'unplanned re-admissions to hospital', 'pre-anaesthetic consultation rates' and 'surgical site infection rates' come from the ACHS. The ACHS's method 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. Where a lower rate implies better quality, national performance at the 20th centile represents the rate at, or below which, the best performing 20 per cent of ACHS reporting hospitals performed. Where a higher rate implies better quality, national performance at the 80th centile represents the rate at, or above which, the best performing 20 per cent of ACHS reporting hospitals performed. This method is designed to allow hospitals to determine whether their performance is above or below average, and what scope may exist for improvement.

Particular attention is paid to systematic variation between hospitals and between different categories of hospital (including different jurisdictions), and to individual hospitals that vary significantly from the average for all 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/80th centile are obtained by calculating the change in the occurrence of the event measured if the mean were equal to performance at the 20th/80th centile.

Shrunken rates are used rather than actual rates because actual rates of zero 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 obtain 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. 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.

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**Box 9.7 (Continued)**

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).

Source: ACHS (unpublished, 2003).

**Safety — unplanned re-admission rates**

‘Unplanned re-admission rates’ are an indicator of hospital safety (box 9.8). These estimates should be viewed in the context of the statistical (standard) errors. High standard errors signal that data are potentially unreliable. The statistical terms used to describe this indicator are explained in box 9.9.

**Box 9.8 Unplanned re-admission rates**

‘Unplanned re-admission rates’ show the rate at which patients unexpectedly return to hospital within 28 days for further treatment of the same condition or a condition related to the initial admission. The aim of this indicator is to measure unintentional additional hospital care. Patients might be re-admitted unexpectedly if the initial care or treatment was ineffective or unsatisfactory, if post-discharge planning was inadequate, or for other reasons outside the control of the hospital, for example poor post-discharge care.

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). High rates for this indicator suggest the quality of care provided by hospitals, or post-discharge care or planning, should be examined because there may be scope for improvement.

There are some difficulties in identifying re-admissions that were unplanned. A re-admission is considered unplanned if there is no documentation to verify that the re-admission was planned and/or if the re-admission occurred through the accident and emergency department of a hospital.

This indicator identifies only those patients re-admitted to the same hospital, so there is some under-reporting (for example, where patients go to another hospital). Unplanned re-admission rates are not adjusted for casemix or patient risk factors, which may vary across hospitals and across jurisdictions.

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### Box 9.9 Definition of terms for ACHS clinical indicators

**centile:** value separating one 100th parts of a distribution in order of size. Where a lower rate implies better quality, national performance at the 20th centile represents the rate at, or below which, the best performing 20 per cent of ACHS reporting hospitals performed. Where a higher rate implies better quality, national performance at the 80th centile represents the rate at, or above which, the best performing 20 per cent of ACHS reporting hospitals performed.

**centile gains:** the potential gains from shifting mean (average) hospitals to the performance at the 20th/80th centile (depending on whether a high or low rate is desirable), is obtained by calculating the change in the occurrence of an event if the mean were equal to performance at the 20th/80th 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, for example, the denominator is the total number of admissions in the participating hospital.

**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 numerator is the total number of unplanned re-admissions in the participating hospital; for the infections indicators, the numerator is the number of infections for the selected procedure in the participating hospital.

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

**rate:** the sum of the numerators divided by the sum of the denominators, which is also the weighted mean of the individual rates of the ACHS reporting hospitals. This mean may not be the same as the unweighted mean of the rates, especially if a few ACHS reporting hospitals with large denominators have different rates (extremely high or low) from the other ACHS reporting hospitals.

**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).

Nationally, among all public hospitals participating in the ACHS Comparative Report Service in 2005, the mean rate of ‘unplanned re-admissions’ was 2.8 per 100 admissions (table 9.10). The ACHS estimated that if the performance of all ACHS reporting public hospitals in Australia matched national performance at the 20th

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centile, there would be 1.8 per cent (or 21 917) fewer re-admissions to these public hospitals (ACHS unpublished). National performance at the 20th centile shows the rate at, or below which, the best performing 20 per cent of ACHS reporting hospitals performed.

These national results are based on approximately one quarter of total public hospital separations. The number of ACHS reporting hospital separations used to derive this indicator was 1.2 million in 2005 (ACHS unpublished), whereas the total number of separations in 2004-05 (excluding patient deaths) was 4.2 million (AIHW 2006a).

For jurisdictions with more than five hospitals reporting 'unplanned re-admissions' to the ACHS Comparative Report Service, the mean rates of unplanned re-admissions in 2005 are shown in table 9.10. The coverage of the ACHS data may differ across these states. Data for Tasmania, the ACT and the NT are not reported separately because fewer than five hospitals reported 'unplanned re-admissions' in each of those jurisdictions.

Table 9.10 **Unplanned re-admissions, ACHS reporting public hospitals, 2005<sup>a</sup>**

	<i>Unit</i>	<i>Results</i>
National rate	%	2.8
National performance at 80th centile (rate)	(%)	5.0
National performance at 20th centile (rate)	(%)	0.9
<b>NSW</b>		
Numerator (re-admissions)	no.	15 791
Denominator (separations)	no.	451 498
Rate	%	3.5
Standard error (±)		0.2
ACHS reporting hospitals	no.	63
<b>Victoria</b>		
Numerator (re-admissions)	no.	6 742
Denominator (separations)	no.	277 856
Rate	%	2.4
Standard error (±)		0.3
ACHS reporting hospitals	no.	33
<b>Queensland</b>		
Numerator (re-admissions)	no.	3 162
Denominator (separations)	no.	125 852
Rate	%	2.5
Standard error (±)		0.4
ACHS reporting hospitals	no.	13
<b>WA</b>		
Numerator (re-admissions)	no.	1 944
Denominator (separations)	no.	148 147
Rate	%	1.3
Standard error (±)		0.4
ACHS reporting hospitals	no.	31
<b>SA</b>		
Numerator (re-admissions)	no.	3 855
Denominator (separations)	no.	80 099
Rate	%	4.8
Standard error (±)		0.5
ACHS reporting hospitals	no.	11

<sup>a</sup> The ACHS data are not designed to measure the performance of states and territories, but for internal clinical review by individual hospitals. In addition, health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction. As a result, statewide comparisons and conclusions regarding the performance of individual states cannot be drawn.

Source: ACHS (unpublished); tables 9A.37; 9A.38, 9A.39; 9A.40 and 9A.41.

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## *Safety — pre-anaesthetic consultation rates*

'Pre-anaesthetic consultation rates' are an indicator of hospital safety (box 9.10). Due to a redevelopment of the ACHS's anaesthetic indicators between their 2004 and 2005 data collection there has been a significant reduction in the number of hospitals providing data for this indicator for this year's Report. Pre-anaesthetic consultation rate estimates should be viewed in the context of the statistical (standard) errors. High standard errors signal that data are potentially unreliable. The statistical terms used to describe this indicator are explained in box 9.9.

### **Box 9.10 Pre-anaesthetic consultation rates**

'Pre-anaesthetic consultation rates' are an indicator of safety because consultation by an anaesthetist is essential for the medical assessment of a patient before anaesthesia for surgery (or another procedure), to ensure that the patient is in an optimal state for anaesthesia and surgery.

The 'pre-anaesthetic consultation rate' is the number of procedures where there is documented evidence that the patient has seen an anaesthetist before entering the operating theatre suite, anaesthetic room, or procedure room as a percentage of the total number of procedures with an anaesthetist in attendance. Low rates for this indicator suggest the quality of pre-anaesthetic care provided by hospitals should be examined because there may be scope for improvement.

This indicator identifies only pre-anaesthetic consultations for which there are documented evidence, so there may be some under-reporting due to some consultations not being documented. In addition, the data include some pre-anaesthetic consultations not conducted by the attending anaesthetist but by one of the medical members of the same anaesthetic department or group. Consultations by the attending anaesthetist are preferable.

*Source:* ACHS (2004).

Nationally, among all public hospitals participating in the ACHS Comparative Report Service in 2005, the mean rate of 'pre-anaesthetic consultations' was 87.3 per 100 procedures (table 9.11). The ACHS estimated that if the performance of all ACHS reporting public hospitals in Australia matched national performance at the 80th centile, there would be 12.5 per cent (or 659) more pre-anaesthetic consultations in these public hospitals (ACHS unpublished). National performance at the 80th centile shows the rate at, or above which, the best performing 20 per cent of ACHS reporting hospitals performed.

These national results are based on approximately 0.4 per cent of total public acute hospital anaesthetic procedures. The number of ACHS reporting hospital procedures used to derive this indicator was 5250 in 2005 (ACHS unpublished).

Whereas the estimated total number of anaesthetic procedures in 2004-05 was 1.3 million (AIHW 2006a).

NSW was the only jurisdiction with five or more hospitals reporting 'pre anaesthetic consultations' to the ACHS Comparative Report Service in 2005 (table 9.11). Data for 2005 for other jurisdictions are not reported separately because fewer than five hospitals reported 'pre-anaesthetic consultations' in each of those jurisdictions. Data for previous years are reported for Victoria, Queensland and SA in tables 13A.43, 13A.44 and 13A.45 respectively.

Table 9.11 **Pre-anaesthetic consultation rates, ACHS reporting public hospitals, 2005<sup>a</sup>**

	<i>Unit</i>	<i>Results</i>
National rate	%	87.3
National performance at 80th centile (rate)	(%)	99.8
National performance at 20th centile (rate)	(%)	84.8
<b><i>New South Wales</i></b>		
Numerator (pre-anaesthetic consultations)	no.	1 794
Denominator (procedures)	no.	1 949
Rate	%	92.0
Standard error ( $\pm$ )		9.5
ACHS reporting hospitals	no.	5

<sup>a</sup> The ACHS data are not designed to measure the performance of states and territories, but for internal clinical review by individual hospitals. In addition, health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction. As a result, statewide comparisons and conclusions regarding the performance of individual states cannot be drawn.

Source: ACHS (unpublished); table 9A.42.

### *Safety — surgical site infection rates*

'Surgical site infection rates' are reported for four frequently performed procedures — hip prosthesis, knee prosthesis, lower segment caesarean section and abdominal hysterectomy (box 9.11). These estimates should be viewed in the context of the statistical (standard) errors. High standard errors signal that the data may be potentially unreliable. The statistical terms used to describe this indicator are explained in box 9.9.

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**Box 9.11 Surgical site infection rates**

‘Surgical site infection rates’ are an indicator of safety because they can result in serious consequences for individual patients, place a significant burden on the health system and are influenced by the safety of hospital practices and procedures.

This indicator is calculated as the average (that is, mean) rate of post-operative in-hospital occurrence of surgical site infection rates for selected surgical procedures (see section 9.8 for definitions). Rates are reported for hip and knee prosthesis, lower segment caesarean section and abdominal hysterectomy. Low ‘surgical site infection rates’ are consistent with the quality standards required in the public hospital sector.

Reporting by procedure reduces the potential for casemix to influence the rates of infection, but some cases are more susceptible to infection than others. Reporting is also affected by the time period during which infections are recorded — for example, some surgical infections do not present until after discharge from hospital. Surgical infection rates are not reported for each procedure where fewer than five hospitals are included in the data.

Nationally, among all public hospitals participating in the ACHS Comparative Report Service in 2005, the mean ‘surgical site infection rate’ for hip prosthesis surgery was 2.1 per 100 separations. The ACHS estimated that if the performance of all ACHS reporting public hospitals in Australia matched national performance at the 20th centile, there would be 0.4 per cent (or 14) fewer infections after hip prosthesis surgery in these public hospitals (ACHS unpublished). National performance at the 20th centile shows the rate at, or below which, the best performing 20 per cent of ACHS reporting hospitals performed.

The mean ‘surgical site infection rate’ following knee prosthesis surgery was 1.5 per 100 separations. The ACHS estimated that if the performance of all ACHS reporting public hospitals in Australia matched national performance at the 20th centile, there would be 0.5 per cent (or 15) fewer infections following knee prosthesis surgery in these public hospitals (ACHS unpublished).

The mean ‘surgical site infection rate’ following lower segment caesarean section surgery was 1.3 per 100 separations. The ACHS estimated that if the performance of all ACHS reporting public hospitals in Australia matched national performance at the 20th centile, there would be 0.7 per cent (or 74) fewer infections following lower segment caesarean section surgery in these public hospitals (ACHS unpublished).

The mean ‘surgical site infection rate’ following abdominal hysterectomy surgery was 1.6 per 100 separations. The ACHS estimated that if the performance of all Australian public hospitals matched national performance at the 20th centile, there

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would be 1.1 per cent (or 9) fewer infections following abdominal hysterectomy surgery (ACHS unpublished).

These national results are based on approximately 25 per cent of hip prosthesis, 30 per cent of knee prosthesis, 20 per cent of lower segment caesarean section and 10 per cent of abdominal hysterectomy surgical procedures. The number of ACHS reporting hospital surgical procedures in 2005 used to derive this indicator was 3217 for hip prosthesis, 3257 for knee prosthesis, 10 156 for lower segment caesarean section and 769 for abdominal hysterectomy, whereas the total number of these surgical procedures in 2004-05 was around 13 200 for hip prosthesis, 9700 for knee prosthesis, 47 400 for lower segment caesarean section and 8200 for abdominal hysterectomy surgical procedures (AIHW 2006a).

For jurisdictions with more than five hospitals reporting 'surgical site infections' to the ACHS Comparative Report Service, the mean rates in 2005 are shown in table 9.12. The coverage of the ACHS data may differ across these states. 'Surgical site infection rates' for Tasmania, the ACT and the NT are not reported separately because fewer than five hospitals participated in the ACHS Comparative Report Service.

**Table 9.12 Surgical site infections, ACHS reporting public hospitals, by selected procedure, 2005<sup>a, b</sup>**

	Unit	Hip prosthesis	Knee prosthesis	Lower segment caesarean section	Abdominal hysterectomy
National rate	%	2.1	1.5	1.3	1.6
National performance at 80th centile (rate)	(%)	2.5	2.3	3.3	1.2
National performance at 20th centile (rate)	(%)	1.7	1.1	0.6	0.4
<b>NSW</b>					
Numerator (infections)	no.	9	3	10	np
Denominator (procedures)	no.	575	657	1 253	np
Infection rate	%	1.6	0.5	0.8	np
Standard error (±)		0.2	0.2	0.3	np
ACHS reporting hospitals	no.	10	9	9	np
<b>Victoria</b>					
Numerator (infections)	no.	25	11	np	np
Denominator (procedures)	no.	554	453	np	np
Infection rate	%	4.5	2.4	np	np
Standard error (±)		0.2	0.2	np	np
ACHS reporting hospitals	no.	5	5	np	np
<b>Queensland</b>					
Numerator (infections)	no.	14	13	32	5
Denominator (procedures)	no.	820	938	4 627	477
Infection rate	%	1.7	1.4	0.7	1.0
Standard error (±)		0.2	0.2	0.2	0.6
ACHS reporting hospitals	no.	11	11	10	7
<b>WA</b>					
Numerator (infections)	no.	8	13	31	np
Denominator (procedures)	no.	609	705	1 629	np
Infection rate	%	1.3	1.8	1.9	np
Standard error (±)		0.2	0.2	0.3	np
ACHS reporting hospitals	no.	7	7	10	np

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Table 9.12 (Continued)

	<i>Unit</i>	<i>Hip prosthesis</i>	<i>Knee prosthesis</i>	<i>Lower segment caesarean section</i>	<i>Abdominal hysterectomy</i>
<b>SA</b>					
Numerator (infections)	no.	np	np	31	np
Denominator (procedures)	no.	np	np	1 667	np
Infection rate	%	np	np	1.9	np
Standard error (±)		np	np	0.3	np
ACHS reporting hospitals	no.	np	np	6	np

<sup>a</sup> The ACHS data are not designed to measure the performance of states and territories, but for internal clinical review by individual hospitals. In addition, health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction. As a result, statewide comparisons and conclusions regarding the performance of individual states cannot be drawn. <sup>b</sup> Since 2003, the ACHS surgical site infection indicators have been collected in pairs, one for each of superficial and deep/organ space surgical site infections. An indirectly standardised rate was derived for each pair. The rate for each combined pair was estimated as the sum of the two rates (deep and superficial). The final rate for each State was calculated as the sum of observed infections divided by the sum of expected infections, multiplied by the rate for the combined pair. **np** Not published.

Source: ACHS (unpublished); tables 9A.46, 9A.47, 9A.48, 9A.49, 9A.50.

### *Responsiveness — patient satisfaction surveys*

The use of ‘patient satisfaction surveys’ is an indicator of responsiveness in public hospitals (box 9.12). In previous editions of this Report, this indicator provided information on whether, and when, jurisdictions have conducted patient satisfaction surveys in recent years. This section now reports how jurisdictions *use* patient satisfaction surveys to improve the quality of public hospital services.

#### **Box 9.12 Patient satisfaction surveys**

‘Patient satisfaction surveys’ is an output–quality indicator that provides a proxy measure of governments’ objective to deliver services that are high quality and responsive to individual patient needs. Surveys can be useful for obtaining information on patient views of both clinical and non-clinical hospital care (such as whether patients feel they were treated with respect and provided with appropriate information regarding their treatment). If public hospitals respond to patient views and modify services, service quality can be improved to better meet patients’ needs.

This indicator provides information on how jurisdictions used patient satisfaction surveys to improve public hospital quality in recent years. The more public hospitals use patient satisfaction surveys the greater the potential for increasing the quality of public hospital services to better meet patients’ needs.

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This is the second edition of this Report to present information on how patient satisfaction surveys are used to improve the quality of public hospital services. Some jurisdictions have provided general information. Over time this information will be refined to identify more specific examples of how public hospital quality has improved. Jurisdictions provided the following information in relation to their most recent survey (the most recent surveys conducted in NSW and the NT were 2004 and 2004-05 respectively, and are reported in the 2006 Report).

- In Victoria, survey findings were used by hospitals to inform quality improvement initiatives, including professional development programs (table 9A.69).
- In Queensland, individual hospital reports were disseminated to District and General Managers of Area Health Services for analysis. These managers identify low performance areas and develop action plans for improvement (table 9A.70).
- In WA, each participating hospital receives detailed information from the survey that is used to inform service improvement. Hospitals can also request a workshop to assist in the interpretation of the survey results. In addition many hospitals use patient satisfaction scores as hospital-based performance indicators. Some more specific examples of how hospitals have used the survey to improve public hospital quality include:
  - development of display posters and pamphlets that are given to patients to inform them of their rights and responsibilities and the complaint procedure
  - implementation of a fast track system to reduce waiting time in the Emergency Department
  - introduction of a pictorial booklet and pre-operation unit tours for paediatric patients to reduce anxiety and improve communication
  - movement of patient care plans from the nurse station to patient bedside in order to encourage communication (table 9A.71).
- In SA, each hospital was asked to formulate action plans in response to the survey. These action plans were to target specific service and/or care areas. While it is too early to report on changes made as a result of the 2005 Survey, for those hospitals that submitted action plans in response to the 2003 Survey substantial improvements in satisfaction scores were made in the service and care areas targeted (table 9A.72).
- In Tasmania, the results of the surveys were used to make a number of recommendations, including that there should be:
  - additional training provided to staff regarding the new electronic beds

- 
- improved facilities for patients utilising psychiatric care (including increased diversional therapy)
  - increased use of the services provided by volunteers (table 9A.73).
  - In the ACT, the results of one survey (focussing on emergency departments) were used to improve training for junior medical officers and nurses. Junior medical officers now receive training to help them communicate better with patients, such as when explaining diagnoses and post-care and the reasons for time delays. Nurses received similar assistance regarding explaining emergency department process and time delays. Education was also provided to junior and senior medical officers regarding patient satisfaction scores and feedback (table 9A.74).

### *Capability — hospital accreditation*

‘Hospital accreditation’ is an indicator of capability in public hospitals (box 9.13). Data for this indicator are shown in figure 9.12.

#### **Box 9.13 Accreditation**

‘Accreditation’ signifies professional and national recognition awarded to hospitals and other healthcare facilities that meet defined industry standards. Public hospitals may seek accreditation through the ACHS Evaluation and Quality Improvement Program, Business Excellence Australia (previously known as the Australian Quality Council), the Quality Improvement Council, and through certification as compliant with the International Organization for Standardization’s (ISO) 9000 quality family or other equivalent programs. Jurisdictions apply specific criteria to determine which accreditation programs are suitable. Quality programs require hospitals to demonstrate continual adherence to quality improvement standards to gain and retain accreditation.

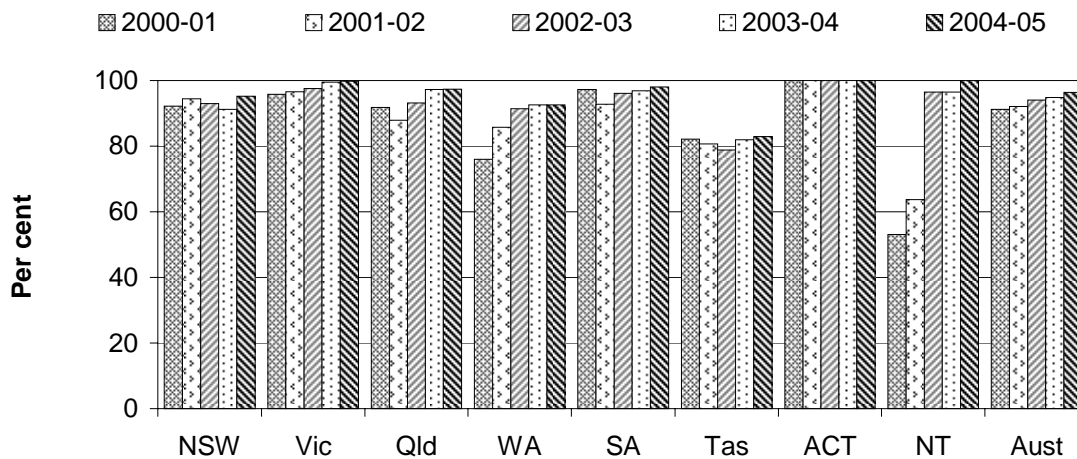
‘Accreditation’ is reported as the ratio of accredited beds to all beds in public hospitals, because the number of beds indicates the level of hospital capacity or activity. Accreditation of healthcare facilities has contributed significantly to quality practices and system wide awareness of quality issues, although accreditation processes could be improved (ACSQHC 2002). High levels of accreditation amongst hospitals are associated with high quality standards in the public hospital sector.

(Continued on next page)

**Box 9.13 (Continued)**

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 that 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 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).

**Figure 9.12 Proportion of accredited beds, public hospitals<sup>a, b</sup>**



<sup>a</sup> Where average available beds for the year were not available, bed numbers at 30 June were used.  
<sup>b</sup> Includes psychiatric hospitals.

Source: AIHW (2006a and various issues); table 9A.51.

*Continuity — continuity of care*

The Steering Committee has identified ‘continuity of care’ as an indicator of the continuity aspect of public hospital quality. This indicator is for development in future reports (box 9.14).

**Box 9.14 Continuity of care**

The Steering Committee has agreed to develop an indicator of the continuity of care — that is, the provision of uninterrupted, timely, coordinated healthcare, interventions and actions across programs, practitioners and organisations.

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## Outputs — effectiveness — sustainability

### *Workforce sustainability*

‘Workforce sustainability’ is an indicator of public hospital sustainability and is reported for the first time this year (box 9.15).

#### **Box 9.15 Workforce sustainability**

The ‘workforce sustainability’ indicator helps determine whether sustainability problems might arise in the delivery of current/future public hospitals services. Labour is the most significant and costly resource used in providing public hospital services (figure 9.17). Nurses and medical practitioners are the most significant groups of skilled professionals employed in public hospitals (figure 9.9). The sustainability of ‘public hospital’ services is affected by a number of factors relating to these groups, in particular, whether the number of new entrants (those aged under 30 years are used as a proxy measure) are sufficient to maintain the existing workforce, and the proportion of the workforce who are close to retirement (those aged 55 years and over are used as a proxy measure).

Two measures are reported for the nurse and medical practitioner workforces. The proportion of each workforce who are:

- new entrants (aged under 30 years)
- close to retirement (aged 55 years and over).

These measures are reported by region and over time.

The smaller the proportion of the workforce who are new entrants and/or the larger the proportion of the workforce who are close to retirement, the more likely sustainability problems might arise in the coming decade as the older age group starts to retire.

Limitations exist with using the sustainability of the whole nurse and medical practitioner workforce to indicate sustainability of public hospitals services. The limitations are that it assumes:

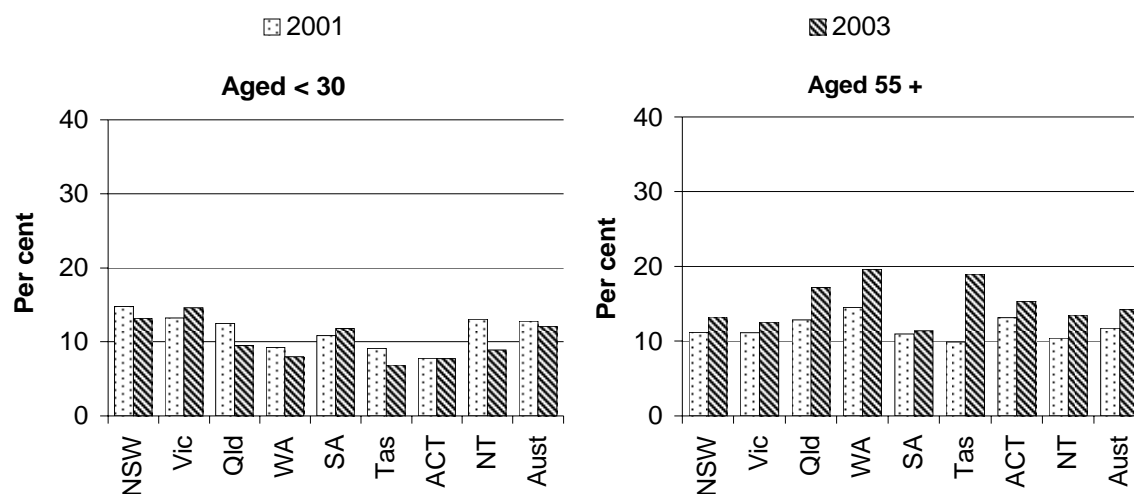
- all nurses and medical practitioners are in the potential workforce for public hospitals
- the proportions of new entrants and those close to retirement are the same for the public hospital workforce as the total nurse and medical practitioner workforce.

These indicators cannot substitute for a full workforce analysis that allows for migration, trends in full-time work and expected demand increases. They can, however, indicate that further attention should be given to the issue.

*Source:* National Health Performance Committee (2004).

The proportions of the nursing workforce (which includes midwives) who are new entrants or potential retirees are shown in figure 9.13. Nursing workforce data by region are shown in table 9A.52.

**Figure 9.13 New entrants to and potential retirees from the nursing workforce (per cent)<sup>a</sup>**

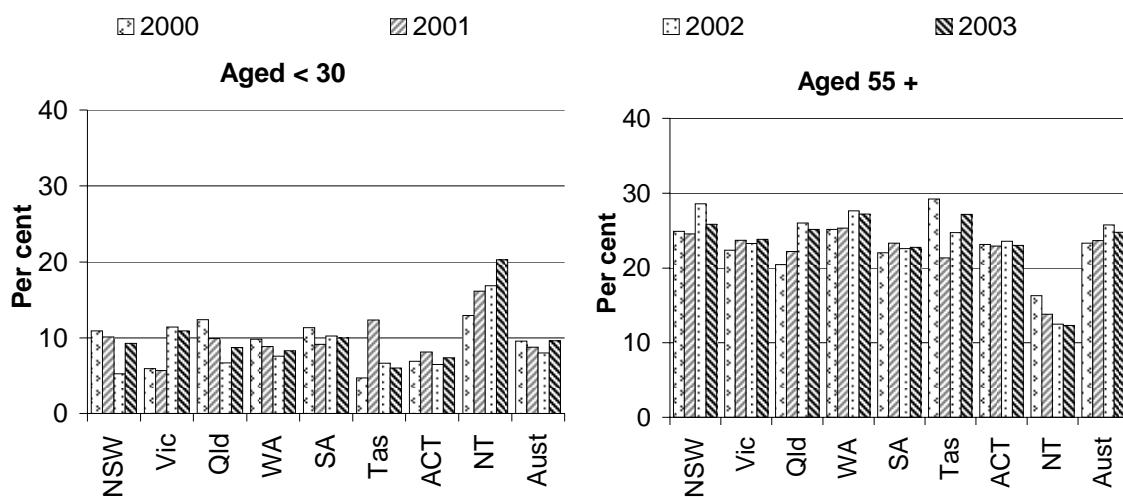


<sup>a</sup> The following are included in the count of registered and enrolled nurses (including midwives) in the workforce: those who are employed in nursing, on extended leave and looking for work in nursing.

Source: AIHW (unpublished); table 9A.52.

The proportions of the medical practitioner workforce who are new entrants or potential retirees are shown in figure 9.14. Medical practitioner workforce data by region are shown in table 9A.53.

Figure 9.14 **New entrants to and potential retirees from the medical practitioner workforce (per cent)<sup>a</sup>**



<sup>a</sup> The following are included in the count of medical practitioners in the workforce: those who are employed as a medical practitioner, on extended leave and looking for work as a medical practitioner.

Source: AIHW (unpublished); table 9A.53.

## Outputs — 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 Steering Committee'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 Steering Committee seeks to report estimated costs that are comparable. Where differences in comparability remain, the differences are documented. The Steering Committee 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

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regarding data comparability, the Steering Committee initiated a study, reported in *Asset Measurement in the Costing of Government Services* (SCRCSSP 2001). The aim of the study was to examine the extent to which differences in asset measurement techniques applied by participating agencies may 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 small proportion of total cost, although the differences may affect cost rankings across jurisdictions. A key message from the study was that the adoption of nationally uniform accounting standards across all service areas would be a desirable outcome. 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 affect 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 2000).

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

‘Recurrent cost per casemix-adjusted separation’ is an indicator of the efficiency of public hospitals (box 9.16). ‘Recurrent cost per casemix-adjusted separation’ data are presented in figure 9.15.

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**Box 9.16 Recurrent cost per casemix-adjusted separation**

'Recurrent cost per casemix-adjusted separation' is a output–efficiency indicator of governments' objective to deliver services in a cost effective manner. It measures the average cost of providing care for an admitted patient (overnight stay or same day) adjusted with AR-DRG cost weights for the relative complexity of the patient's clinical condition and of the hospital services provided (AIHW 2000).

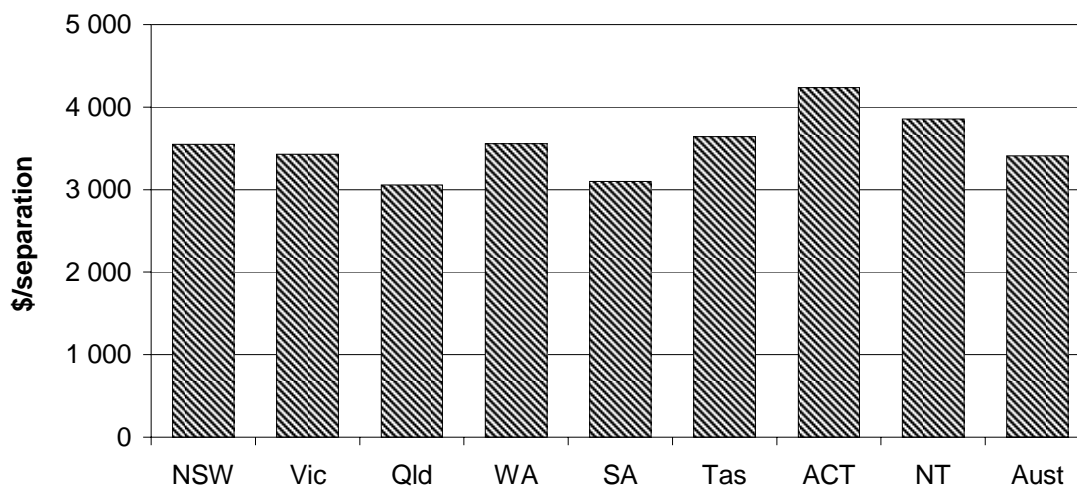
This measure includes overnight stays, same day separations, private patient separations in public hospitals and private patient recurrent costs. It excludes non-acute hospitals, mothercraft hospitals, multipurpose hospitals, multipurpose services, hospices, rehabilitation hospitals, psychiatric hospitals and hospitals in the 'unpeered and other' peer groups. The data exclude expenditure on non-admitted patient care, the user cost of capital and depreciation, and research costs.

All admitted patient separations and their costs are included, and most separations are for acute care. Cost weights are not available for admitted patients who received non-acute care (about 3 per cent of total admitted patient episodes in 2004-05), so the cost weights for acute care are applied to non-acute separations also. The admitted patient cost proportion is an estimate only.

Some jurisdictions have developed experimental cost estimates for non-psychiatric acute patients which are also reported here. Separations for non-acute patients and psychiatric acute care patients are excluded from these estimates because AR-DRG cost weights are a poor predictor of these separations.

Lower 'recurrent cost per casemix-adjusted separation' may reflect more efficient service delivery in public hospitals. This indicator needs to be viewed, however, in the context of the set of performance indicators as a whole. A hospital may be a low cost provider of services, yet provide services ineffectively — for example, relatively low unit costs may be associated with inferior service quality.

**Figure 9.15 Recurrent cost per casemix-adjusted separation, 2004-05<sup>a, b, c, d, e, f, g</sup>**

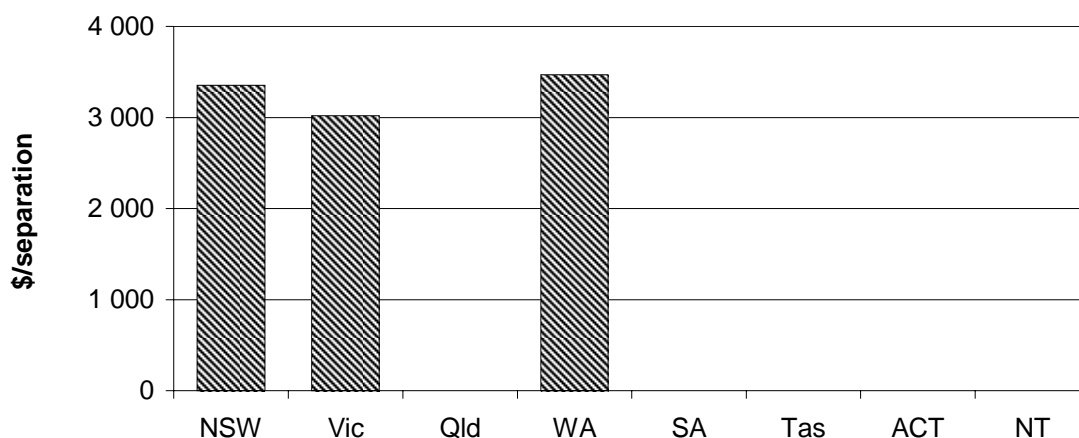


<sup>a</sup> Excludes depreciation and the user cost of capital, spending on non-admitted patient care and research costs. <sup>b</sup> Casemix-adjusted separations are the product of total separations and average cost weight. Average cost weights are from the National Hospital Morbidity Database, based on acute and unspecified separations and newborn episodes of care with qualified days, using the 2003-04 AR-DRG v 5.0 cost weights (DHA 2005). <sup>c</sup> Excludes separations for which the care type was reported as 'newborn with no qualified days', and records for hospital boarders and posthumous organ procurement. <sup>d</sup> Psychiatric hospitals, drug and alcohol services, mothercraft hospitals, unpeered and other hospitals, hospices, rehabilitation facilities, small non-acute hospitals and multi-purpose services are excluded from these data. The data are based on hospital establishments for which expenditure data were provided, including networks of hospitals in some jurisdictions. Some small hospitals with incomplete expenditure data were not included. <sup>e</sup> Of the selected hospitals, three small hospitals had their admitted patient cost proportion estimated by the Health and Allied Services Advisory Council ratio. Admitted patient cost proportion was previously called the inpatient fraction. <sup>f</sup> Hospital recurrent expenditures on Indigenous and non-Indigenous people may differ (AIHW 2001b). These differences may influence jurisdictional variation in unit costs. <sup>g</sup> NT data need to be interpreted in conjunction with the cost disabilities associated with hospital service delivery in the NT.

Source: AIHW (2006a); table 9A.54.

Experimental estimates of 'recurrent cost per casemix-adjusted separation' for acute non-psychiatric patients are reported for NSW, Victoria and WA (figure 9.16). (These estimates relate to a subset of the selected public hospitals reported in figure 9.15 and are not available for other jurisdictions.) The experimental estimates aim to overcome the need to apply cost weights for acute care to non-acute care separations (box 9.16). The effect of restricting the analysis to acute non-psychiatric admitted patients was to decrease the estimated recurrent cost per casemix-adjusted separation for the subset of hospitals (figure 9.16) by 4.2 per cent for NSW, 10.7 per cent for Victoria and 2.4 per cent for WA (AIHW 2006a).

Figure 9.16 Recurrent cost per acute non-psychiatric casemix-adjusted separation, subset of hospitals, 2004-05<sup>a, b, c, d, e, f</sup>



<sup>a</sup> Excludes psychiatric hospitals, mothercraft hospitals, hospices, small non-acute, un-peered and other hospitals, rehabilitation facilities, and multi-purpose services. This subset excludes hospitals where the inpatient fraction was equal to the acute inpatient fraction and more than 1000 non-acute patient days were recorded. Also excludes hospitals where the apparent cost of not acute patients exceeded \$1000 per day and more than \$1 000 000 of apparent expenditure on non-acute patients days was reported. <sup>b</sup> Acute separations are those where the care type is acute, newborn with qualified days, or not reported. Psychiatric separations are those with psychiatric care days. <sup>c</sup> 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 2003-04 AR-DRG version 5.0 cost weights (DHA 2005). <sup>d</sup> Cost estimates include adjustment for private patient medical costs: \$154 for New South Wales, \$76 for Victoria and \$88 for Western Australia. <sup>e</sup> These estimates are not available for Queensland, SA, Tasmania, the ACT and the NT. <sup>f</sup> Data are from table A3.13 in AIHW (2006a).

Source: AIHW (2006a); table 9A.54.

'Recurrent cost per casemix-adjusted separation' is affected by differences in the mix of admitted patient services produced by hospitals in each jurisdiction. Hospitals have been categorised by 'peer groups' to enable those with similar activities to be compared. The dominant peer classification is the 'principal referral and specialist women's and children's' category. This category includes:

- metropolitan hospitals with more than 20 000 acute casemix-adjusted separations per year
- rural hospitals with more than 16 000 acute casemix-adjusted separations per year
- acute women's and children's hospitals with more than 10 000 acute casemix-adjusted separations per year.

In 2004-05, these hospitals accounted for 69.9 per cent of public acute and psychiatric hospital expenditure and 68.7 per cent of separations (AIHW 2006a). The data for principal referral hospitals (excluding specialist women's and

children's hospitals) are presented in table 9.13. Detailed data for all peer groups are presented in table 9A.55.

**Table 9.13 Recurrent cost per casemix-adjusted separation, principal referral public hospitals, 2004-05<sup>a, b, c</sup>**

	<i>Unit</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Aust</i>
Hospitals	no.	23	15	14	3	4	2	1	2	64
Average beds per hospital	no.	411	563	390	552	404	405	495	230	444
Average separations per hospital	no.	33 298	60 158	35 917	58 857	48 206	34 602	47 496	32 258	42 526
Average cost weight	no.	1.18	0.98	1.06	1.09	1.12	1.07	1.09	0.78	1.07
<b>Cost per casemix-adjusted separation</b>	<b>\$</b>	<b>3 622</b>	<b>3 368</b>	<b>3 102</b>	<b>np</b>	<b>np</b>	<b>3 490</b>	<b>np</b>	<b>3 739</b>	<b>3 401</b>
Recurrent expenditure on principal referral hospitals	\$m	4 593	4 248	2 263	np	np	333	np	238	13 835
<b>Recurrent expenditure on all public hospitals</b>	<b>\$m</b>	<b>7 850</b>	<b>5 774</b>	<b>3 274</b>	<b>2 033</b>	<b>1 701</b>	<b>459</b>	<b>389</b>	<b>282</b>	<b>21 762</b>

<sup>a</sup> Principal referral hospitals are classified as metropolitan hospitals with more than 20 000 acute casemix-adjusted separations per year and rural hospitals with more than 16 000 acute casemix-adjusted separations per year. <sup>b</sup> Expenditure data exclude depreciation and the user cost of capital, spending on non-admitted patient care and research costs. <sup>c</sup> 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 2003-04 AR-DRG version 5.0 cost weights (DHA 2005). **np** Not published.

Source: AIHW (2006a); table 9A.55.

### *Total cost per casemix-adjusted separation*

'Total cost per casemix-adjusted separation' is an indicator of the efficiency of public hospitals (box 9.17). Total cost includes both the recurrent costs (as discussed above) and the capital costs associated with hospitals services. Results for this indicator in 2004-05 are reported in figure 9.17. Labour costs accounted for the majority of costs per casemix-adjusted separation in all jurisdictions.

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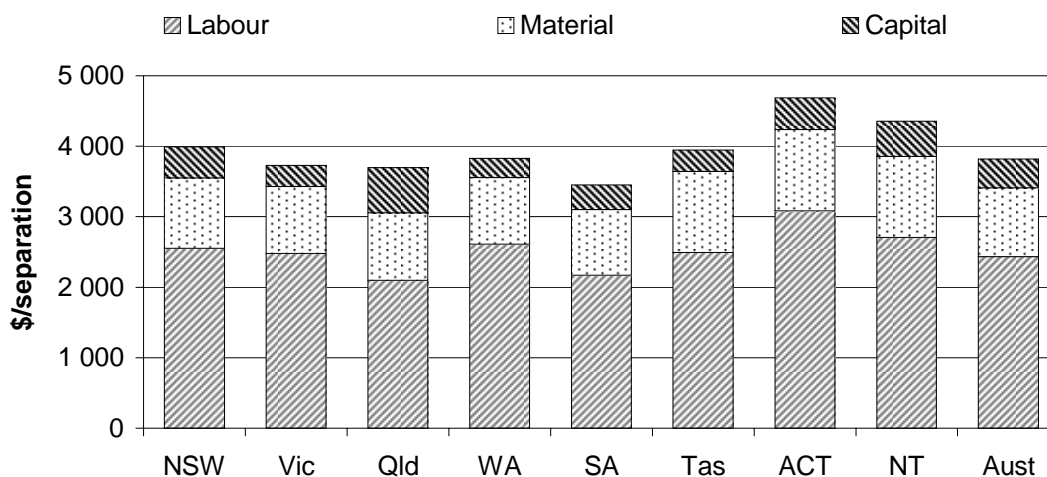
**Box 9.17 Total cost per casemix-adjusted separation**

‘Total cost per casemix-adjusted separation’ is a output–efficiency indicator of governments’ objective to deliver services in a cost effective manner. This indicator is defined as the recurrent cost per casemix-adjusted separation plus the capital costs per casemix-adjusted separation. Recurrent costs include labour and material costs, and capital costs include depreciation and the user cost of capital for buildings and equipment. The indicator is included because it allows the full cost of hospital services to be considered in a single measure. The hospitals included in this measure are the same as for recurrent cost per casemix-adjusted separation (box 9.16).

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 invested in an asset, and is equivalent to the return foregone from not using the funds to deliver other government services or to retire debt. Interest payments represent a user cost of capital, so are deducted from capital costs in all jurisdictions to avoid double counting.

A lower ‘total cost per casemix-adjusted separation’ may reflect more efficient service delivery in public hospitals. This indicator needs to be viewed, however, in the context of the set of performance indicators as a whole because a hospital may be a low cost provider of services yet provide services ineffectively — for example, relatively low unit costs may be associated with inferior service quality.

Figure 9.17 **Total cost per casemix-adjusted separation, public hospitals, 2004-05<sup>a, b, c</sup>**



<sup>a</sup> 'Labour' includes medical and non-medical labour costs. 'Material' includes other non-labour recurrent costs, such as repairs and maintenance (table 9A.54). <sup>b</sup> 'Capital cost' includes depreciation and the user cost of capital for buildings and equipment that is associated with the delivery of admitted patient services in the public hospitals as described in the data for recurrent cost per casemix-adjusted separation. 'Capital cost' excludes the user cost of capital associated with land (reported in table 9A.56). <sup>c</sup> Variation across jurisdictions in the collection of capital related data suggests the data are only indicative. The capital cost per casemix-adjusted separation is equal to the capital cost adjusted by the inpatient fraction, divided by the number of casemix-adjusted separations.

Source: AIHW (2006a); State and Territory governments (unpublished); tables 9A.54 and 9A.56.

### Relative stay index

The 'relative stay index' is an indicator of the efficiency of public hospitals (box 9.18). Data for this indicator are reported in figure 9.18. The 'relative stay index' is reported by patient election status and by medical, surgical and other AR-DRGs in tables 9A.57 and 9A.58 respectively.

#### Box 9.18 Relative stay index

'Relative stay index' is a output–efficiency indicator of governments' objective to deliver services efficiently. The 'relative stay index' is defined as the actual number of acute care patient days divided by the expected number of acute care patient days adjusted for casemix. Casemix adjustment allows comparisons to take account of variation in types of service provided but not other influences on length of stay, such as Indigenous status. Acute care separations only are included. Section 9.8 contains a more detailed definition outlining exclusions from the analysis.

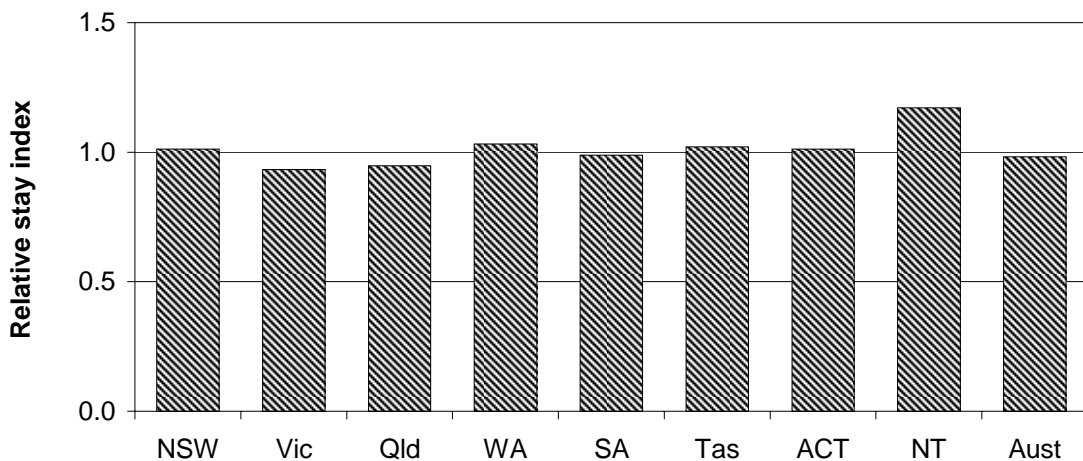
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**Box 9.18 (Continued)**

The 'relative stay index' for Australia for all hospitals (public and private) is one. A 'relative stay index' greater than one indicates that average length of patient stay is higher than expected given the jurisdiction's casemix distribution. A 'relative stay index' of less than one indicates that the number of bed days used was less than expected. A low 'relative stay index' is desirable if it is not associated with poorer health outcomes or significant extra costs outside the hospital systems (for example, in home care).

States and territories vary in their thresholds for classifying patients as either same day admitted patients or outpatients. These variations affect the 'relative stay index'.

**Figure 9.18 Relative stay index, public hospitals, 2004-05<sup>a, b</sup>**



<sup>a</sup> Includes separations for which the care type was reported as 'acute' or 'newborn with qualified days', or was not reported. <sup>b</sup> The relative stay index is based on all hospitals and is estimated using the indirect standardisation method and AR-DRG version 5.1. The indirectly standardised relative stay index is not strictly comparable between jurisdictions but is a comparison of the jurisdiction with the national average based on the casemix of the jurisdiction.

Source: AIHW (2006a); table 9A.57.

*Recurrent cost per non-admitted occasion of service*

'Recurrent cost per non-admitted occasion of service' is an indicator of the efficiency of public hospitals (box 9.19).

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**Box 9.19 Recurrent cost per non-admitted occasion of service**

'Recurrent cost per non-admitted occasion of service' is a output–efficiency indicator of governments' objective to deliver services in a cost effective manner. Non-admitted occasions of service (including emergency department presentations and outpatient services) account for a significant proportion of hospital expenditure.

The recurrent cost per non-admitted occasion of service is the proportion of recurrent 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.

Lower recurrent cost per non-admitted occasion of service may reflect more efficient service delivery in public hospitals. This indicator needs to be viewed, however, in the context of the set of performance indicators as a whole because a hospital may be a low cost provider of services yet provide services ineffectively — for example, relatively low unit costs may be associated with inferior service quality. 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 2000).

These data are not comparable across jurisdictions, given differences in practice. 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. Jurisdictions able to supply 2004-05 data for this indicator reported the following results for non-admitted patient services:

- In NSW, the emergency department cost per occasion of service was \$210 for 1.9 million occasions, the outpatient cost per occasion of service was \$82 for 14.5 million occasions and the overall cost per occasion of service (emergency plus outpatient plus other) was \$94 for 19.5 million occasions (table 9A.59).
- In WA, the emergency department cost per occasion of service was \$348 for 591 257 occasions, the outpatient cost per occasion of service was \$126 for 3.3 million occasions and the overall cost per occasion of service (emergency plus outpatient plus other) was \$117 for 5.0 million occasions (table 9A.61).
- In SA, the emergency department cost per occasion of service was \$308 for 468 827 occasions, the outpatient cost per occasion of service was \$185 for 1.3 million occasions and the overall cost per occasion of service (emergency plus outpatient) was \$215 for 1.8 million occasions (table 9A.62).
- In Tasmania, the emergency department cost per occasion of service was \$332 for 104 752 occasions and the outpatient cost per occasion of service was \$103

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for 442 990 occasions. An overall cost per occasion of service was not available (table 9A.63).

- In the ACT, the emergency department cost per occasion of service was \$448 for 93 779 occasions, the outpatient cost per occasion of service was \$87 for 529 491 occasions and the overall cost per occasion of service (emergency plus outpatient) was \$141 for 623 270 occasions (table 9A.64).

Victoria collects data on the basis of cost per non-admitted patient 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 nine hospitals, the average cost per encounter was \$140 for 1.1 million encounters in 2004-05 (table 9A.60).

Given the lack of a nationally consistent non-admitted patient classification system, this Report includes national data from the Australian Government Department of Health and Ageing's National Hospital Cost Data Collection (NHCDC). The NHCDC collects data across a sample of hospitals that is expanding over time. The sample for each jurisdiction is not necessarily representative, however, because hospitals contribute data on a voluntary basis. The NHCDC data are affected by differences in costing and admission practices across jurisdictions and hospitals. Therefore, an estimation process has been carried out to create representative national activity figures from the sample data. In addition, the purpose of the NHCDC is to calculate between-DRG cost weights, not to compare the efficiency of hospitals.

Outpatient data were contributed by 162 public hospitals for all types of public hospital outpatient clinics (tier 0) (table 9A.65). These data suggest that 'cost per non-admitted clinic occasions of service' for the public hospitals sector in 2004-05 was \$136 for 12.8 million occasions (table 9A.65). 'Cost per non-admitted clinic occasions of service' data are also shown for seven categories of outpatient clinics (tier 1) (table 9.14). These tier 1 outpatient clinics data were provided by 49 public hospitals. Emergency department data, provided by 159 public hospitals, show the 'cost per occasion of service for emergency departments' by triage class (table 9.15).

**Table 9.14 Non-admitted clinic occasions of service for tier 1 clinics, sample results, public sector, 2004-05<sup>a, b, c</sup>**

	<i>Occasions of service</i>	
	<i>no.</i>	<i>\$/occasion of service</i>
Allied health and/or clinical nurse specialist	880 565	89
Dental	14 571	229
Medical	970 851	242
Obstetrics and gynaecology	277 516	178
Paediatric	100 839	229
Psychiatric	62 586	207
Surgical	672 586	153
<b>Total</b>	<b>2 979 514</b>	<b>169</b>

<sup>a</sup> Includes depreciation costs. <sup>b</sup> Based on 49 public sector hospitals. <sup>c</sup> Excludes Victorian outpatient data.

Source: Australian Government Department of Health and Ageing, *NHCDC*, Round 9 (2004-05); table 9A.67.

**Table 9.15 Emergency department average cost per occasion of service, public hospitals, by triage class, 2004-05 (dollars)<sup>a, b, c, d, e</sup>**

<i>Triage category</i>	<i>Population estimated — average cost per occasion of service<sup>f</sup></i>	<i>Actual — average cost per occasion of service</i>
Admitted triage 1	969	1 000
Admitted triage 2	570	582
Admitted triage 3	505	513
Admitted triage 4	438	441
Admitted triage 5	358	354
Non-admitted triage 1	615	644
Non-admitted triage 2	422	427
Non-admitted triage 3	378	370
Non-admitted triage 4	293	279
Non-admitted triage 5	219	215
Did not wait <sup>g</sup>	92	99
<b>Total</b>	<b>357</b>	<b>356</b>

<sup>a</sup> 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.

<sup>b</sup> Based on data from 159 public sector hospitals. <sup>c</sup> Victorian emergency department data are not included. Victoria is working to rectify this problem. <sup>d</sup> Costing and admission practices vary across jurisdictions and hospitals. <sup>e</sup> Depreciation costs are included. <sup>f</sup> Estimated population costs are obtained by weighting the sample results according to the known characteristics of the population. <sup>g</sup> '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 9 (2004-05); table 9A.66.

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## Outcomes

### *Patient satisfaction*

‘Patient satisfaction’ is an outcome indicator of public hospital quality (box 9.20). In 2005, the Steering Committee engaged Health Policy Analysis Pty Ltd to undertake a study reviewing patient satisfaction and responsiveness surveys conducted in relation to public hospital services in Australia. The study identified and examined current patient satisfaction surveys conducted by State and Territory governments that are relevant to measuring ‘public hospital quality’. A major objective of the study was to identify points of commonality and difference between patient satisfaction surveys and their potential for concordance and/or for forming the basis of a minimum national data set on public hospital ‘patient satisfaction’ or ‘patient experience’.

The study found that, while there is some potential for harmonising approaches (as most surveys assess similar aspects of patient experience and satisfaction), different survey methodologies posed significant impediments to achieving comparable information. It suggested that a starting point for harmonising approaches would be to identify an auspicious body and create a forum through which jurisdictions can exchange ideas and develop joint approaches (Pearse 2005). A copy of this study can be found on the Review web page ([www.pc.gov.au/gsp](http://www.pc.gov.au/gsp)).

#### **Box 9.20 Patient satisfaction**

‘Patient satisfaction’ is an outcome indicator that provides a proxy measure of governments’ objective to deliver services that are high quality and responsive to individual patient needs. Patient satisfaction surveys are different from other sources of hospital quality data because they provide information on hospital quality from the patient’s perspective.

Overall patient satisfaction ratings taken from each jurisdiction’s patient surveys are reported. Results are expressed in percentage terms or as scale scores. A higher proportion of patients who were satisfied (or a higher score) is desirable because it suggests the hospital care received was of high quality and better met the expectations and needs of patients.

Given that ‘patient satisfaction surveys’ differ in content, timing and scope across jurisdictions, it is not possible to compare these results nationally. This indicator will be further developed over time as data become more comparable.

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Jurisdictions reported the following results from patient satisfaction surveys:

- The Victorian Patient Satisfaction Monitor was conducted from 2000 to 2006, using a mailout questionnaire of adult inpatients receiving acute care in Victorian public hospitals. For March 2005 to February 2006, 16 741 patients answered the questionnaire which represented a response rate of 40.5 per cent. The statewide Overall Care Index was 79. The statewide scores achieved for the six sub-indices of care ranged from 76.2 to 83.2 (table 9A.69).
- In Queensland, a mailout survey was conducted of admitted patients in public hospitals from March–August 2005. The survey sample was 16 705, with a response rate of 50 per cent. The statewide Overall Care Index was 67. The statewide scores achieved for the six sub-indices of care ranged from 63 to 71 (table 9A.70).
- In WA, a computer assisted telephone interview survey was conducted from February 2006–June 2006. The total sample was 7912, with an 84 per cent response rate. Three patient groups are reported on; child and adult patients admitted between 2 and 34 nights, and maternity patients. The patient-rated overall indicator of satisfaction scores for these child, adult and maternity patients were 87.3, 80.7 and 78.7 respectively. (These scores are weighted by the importance of each issue as ranked by the patient and scored from 0 to 100, where 100 is the highest possible overall satisfaction score, taking into account all of the satisfaction domains measured) (table 9A.71).
- In SA, a computer assisted telephone interview survey was conducted from April 2005–October 2005. Interviews were completed with 4440 patients, which represented a response rate of 84.7 per cent. The overall satisfaction score was 87.2 (scored from 0 to 100, being least to most satisfied). The scores achieved for the seven individual areas of care ranged from 79.1 to 92.8 (table 9A.72).
- In Tasmania, two hospital-specific questionnaire surveys were conducted in 2005-06. For survey 1, the sample was 360 with a response rate of 41 per cent. Of those who responded, 92.5 indicated they were very satisfied with the overall care provided. For survey 2, the sample was 400 with a response rate of 100 per cent. The results achieved for the seven individual aspects of the survey reported ranged from 70 to 97 per cent (table 9A.73).
- In the ACT, two hospital-specific surveys were conducted in 2005-06. For survey 1 (a mailout survey), the sample was 161 with a response rate of 33 per cent. The overall patient satisfaction score was 75.9. For survey 2 (a questionnaire survey), the sample was 444 with a response rate of 41 per cent. Overall, 93 per cent of patients were fairly or very satisfied with all aspects of their hospital stay and 87 per cent were helped quite a bit or a great deal by their hospital stay (table 9A.74).

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### *Sentinel events*

‘Sentinel events’ are an outcome indicator of public hospital quality and safety (box 9.21). Data for 2004-05 are available for NSW, Victoria and SA only (table 9.16). It is anticipated that data for all jurisdictions will be available for future reports.

Sentinel event programs have been implemented by all State and Territory governments. The purpose of these programs is to facilitate a safe environment for patients by reducing the frequency of these events (DHS 2004). The programs are not punitive, and are designed to facilitate self-reporting of errors so that the underlying causes of the events can be examined, and action taken to reduce the risk of these events re-occurring.

#### **Box 9.21 Sentinel events**

‘Sentinel events’ is an outcome indicator of governments’ objective to deliver public hospital services that are safe and of high quality. A sentinel event is an adverse event that occurs because of hospital system and process deficiencies and which results in the death of, or serious harm to, a patient. Sentinel events occur relatively infrequently and are independent of a patient’s condition (DHS 2004). Sentinel events have the potential to seriously undermine public confidence in the healthcare system.

Australian health ministers have agreed on a national core set of sentinel events for which all public hospitals are required to provide data. The 8 nationally agreed core sentinel events are:

1. Procedures involving the wrong patient or body part.
2. Suicide of a patient in an in-patient 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 the wrong family.

(Continued on next page)

**Box 9.21 (Continued)**

The indicator is defined as the number of reported sentinel events. A high number of sentinel events may indicate hospital system and process deficiencies that compromise the quality and safety of public hospitals.

Over time an increase in the number of sentinel events reported might reflect improvements in incident reporting mechanisms at a health service level and organisational cultural change, rather than an increase in the frequency of such events. However, trends need to be monitored to establish whether this is the underlying reason (DHS 2004).

Source: DHS (2004); NSW Department of Health (2005a).

**Table 9.16 Nationally agreed core sentinel events, 2004-05 (number)**

<i>Sentinel event</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Aust</i>
1. Procedures involving the wrong patient or body part <sup>a</sup>	14	25	na	na	10	na	na	na	na
2. Suicide of a patient in an in-patient unit <sup>b</sup>	8	4	na	na	4	na	na	na	na
3. Retained instruments or other material after surgery requiring re-operation or further surgical procedure	5	5	na	na	4	na	na	na	na
4. Intravascular gas embolism resulting in death or neurological damage	–	–	na	na	1	na	na	na	na
5. Haemolytic blood transfusion reaction resulting from ABO incompatibility	–	1	na	na	–	na	na	na	na
6. Medication error leading to the death of a patient reasonably believed to be due to incorrect administration of drugs	2	1	na	na	–	na	na	na	na
7. Maternal death or serious morbidity associated with labour or delivery <sup>c</sup>	3	9	na	na	1	na	na	na	na
8. Infant discharged to the wrong family	–	–	na	na	–	na	na	na	na
<b>Total</b>	<b>32</b>	<b>45</b>	<b>na</b>	<b>na</b>	<b>20</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>

<sup>a</sup> Includes non-invasive procedures; for example, a CT-scan or X-Ray to the incorrect part of the body or wrong patient, whilst not being 'invasive' still involves an unnecessary procedure for the patient.

<sup>b</sup> Suicides of patients 'under care' (as opposed to 'in care') are excluded. Patients who suicide whilst on leave or after absconding have not formally been discharged and are still 'in care' and therefore are included.

<sup>c</sup> Excludes maternal deaths that occur prior to the onset of labour or delivery. **na** Not available. – Nil or rounded to zero.

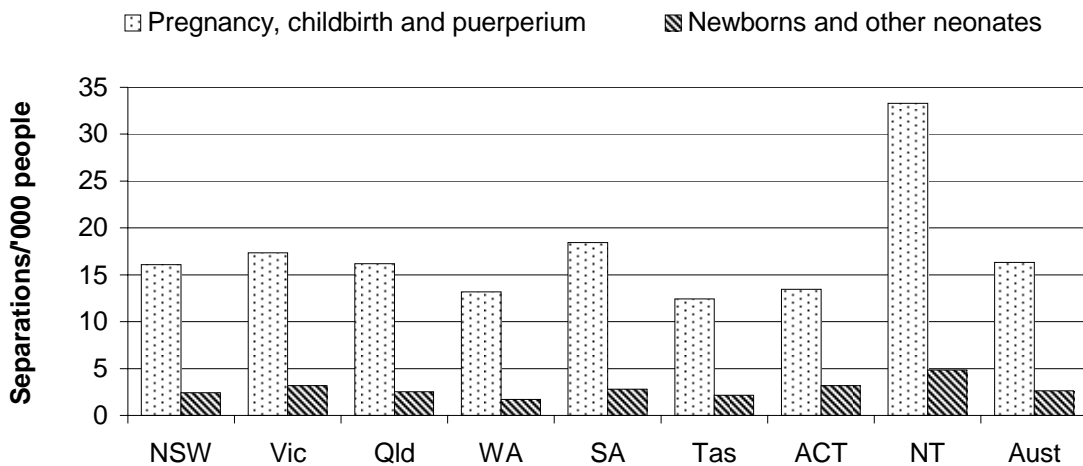
Source: DHS (2005); NSW Department of Health (2005b); SA Government (unpublished); table 9A.76.

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## 9.4 Profile of maternity services

Maternity services (defined as AR-DRGs relating to pregnancy, childbirth and the puerperium, and newborns and other neonates) accounted for 9.3 per cent of total acute separations in public hospitals (table 9A.78) and around 10.7 per cent of the total cost of all acute separations in public hospitals in 2004-05 (table 9A.77). Figure 9.19 shows the rate of acute separations per 1000 people for maternity services across jurisdictions in 2004-05.

Figure 9.19 **Separation rates for maternity services, public hospitals, 2004-05<sup>a, b</sup>**



<sup>a</sup> The puerperium refers to the period of confinement immediately after labour (around six weeks).

<sup>b</sup> Newborns and other neonates include babies aged less than 28 days or babies aged less than one year with admission weight of less than 2500 grams.

Source: AIHW (2006a); tables AA.2 and 9A.78.

In Australian public hospitals in 2004-05, vaginal deliveries without complicating diagnosis accounted for a substantial proportion of the separations for pregnancy, childbirth and the puerperium (27.8 per cent) (tables 9A.78 and 9A.79). In the context of all AR-DRGs in public hospitals, vaginal deliveries without complicating diagnosis comprised the largest number of overnight acute separations (4.3 per cent of all separations) (table 9.3) and the second highest cost (\$332.8 million) (table 9A.79).

The complexity of cases across jurisdictions for maternity services is partly related to the mother's age at the time of giving birth. The mean age of mothers giving birth varied across jurisdictions in 2003, 2004 and 2005 (table 9.17).

**Table 9.17 Mean age of mothers at time of giving birth, public hospitals**

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA<sup>a</sup></i>	<i>Tas</i>	<i>ACT<sup>b</sup></i>	<i>NT<sup>c</sup></i>
2003								
First birth	27.5	27.4	25.2	25.8	26.0	26.6	27.4	23.5
Second birth	29.8	29.7	27.8	28.3	28.8	29.1	29.6	26.0
Third birth	31.1	31.2	29.6	29.8	30.5	30.2	31.2	27.4
All births	29.4	29.3	27.6	28.0	28.3	29.0	29.2	26.1
2004								
First birth	27.7	28.1	25.3	25.9	26.8	25.2	27.6	23.9
Second birth	29.9	30.3	27.9	28.4	29.2	27.5	30.4	26.3
Third birth	31.3	31.8	29.6	29.7	30.8	28.8	31.2	27.7
All births	29.5	29.9	27.7	28.0	28.8	27.8	29.5	26.4
2005								
First birth	27.8	27.7	25.5	25.9	26.6	na	27.7	24.2
Second birth	29.9	29.9	28.0	28.6	29.4	na	29.5	26.3
Third birth	31.4	31.4	29.5	29.9	31.1	na	31.0	28.0
All births	29.6	29.5	27.8	28.1	28.9	na	29.3	26.5

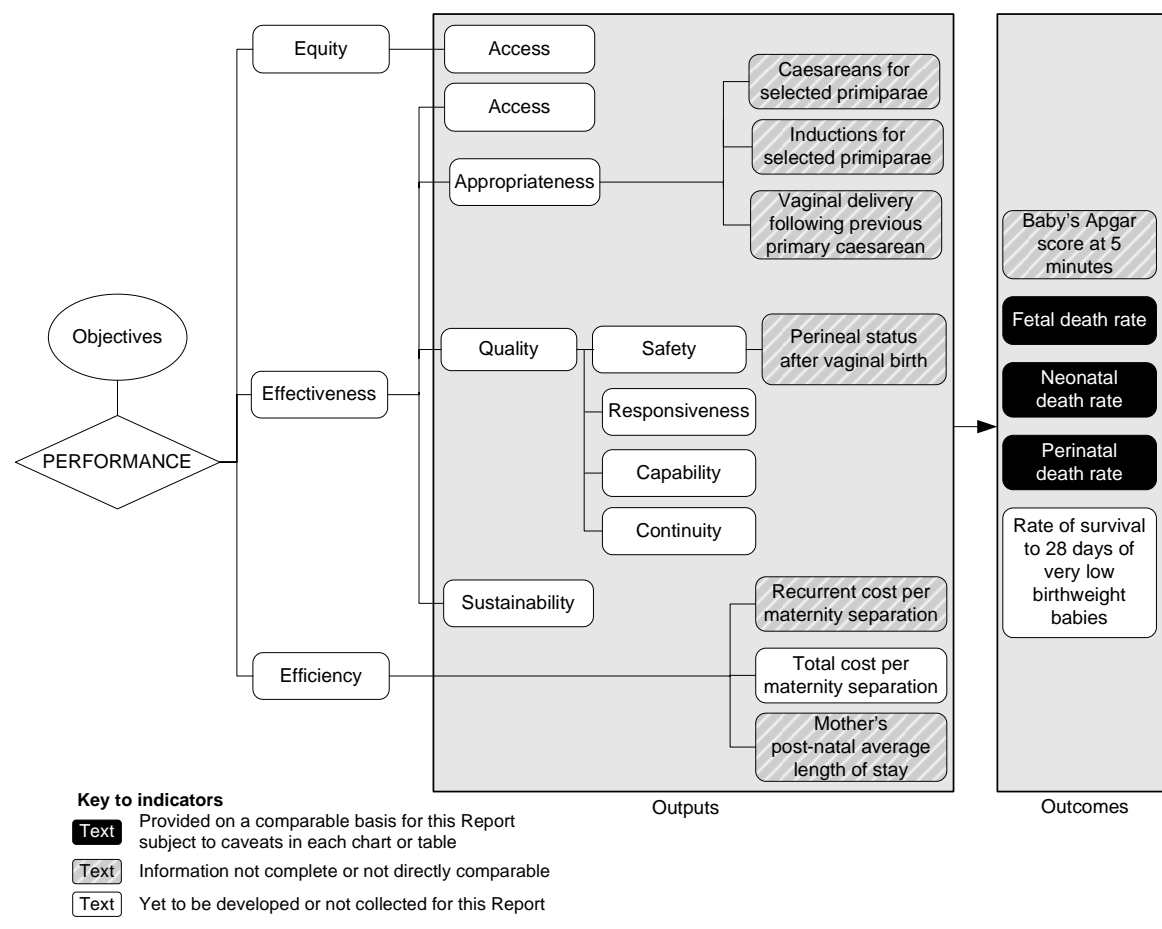
<sup>a</sup> Age in 2004 and 2005 is based on exact age (years) to 4 decimal places. In 2003, it was based on completed years. <sup>b</sup> ACT 2005 data are preliminary. <sup>c</sup> NT data for 2003 and 2004 have been revised. **na** Not available.

Source: State and Territory governments (unpublished).

## 9.5 Framework of performance indicators for maternity services

The performance framework for maternity services is outlined in figure 9.20, and has the same objectives as those for public hospitals in general. The framework is under development by the Steering Committee and, as with all the performance indicator frameworks, will be subject to regular review. The performance indicator framework shows which data are comparable in the 2007 Report. For data that are not considered directly comparable, the text includes relevant caveats and supporting commentary. Chapter 1 discusses data comparability from a Report-wide perspective (see section 1.6). The 'Health preface' explains the performance indicator framework for health services as a whole, including the subdimensions for quality and sustainability that have been added to the standard Review framework for health services.

Figure 9.20 Performance indicators for maternity services



## 9.6 Key performance indicator results for maternity services

### Outputs — equity — access

The Steering Committee has identified equity of access as an area for development in future reports. Equity of access indicators will measure access to maternity services by special needs groups such as Indigenous people or people in rural and remote areas.

### Outputs — effectiveness — access

The Steering Committee has identified the effectiveness of access to maternity services as an area for development in future reports. Effectiveness of access

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indicators will measure access to appropriate services for the population as a whole, particularly in terms of affordability and/or timeliness.

## **Outputs — effectiveness — appropriateness**

### *Caesareans and inductions for selected primiparae*

‘Caesarean and induction rates for selected primiparae’ are indicators of the appropriateness of maternity services in public hospitals (box 9.22).

#### **Box 9.22 Caesareans and inductions for selected primiparae**

Labour inductions and birth by caesarean section are interventions that are appropriate in some circumstances, depending on the health and wellbeing of mothers and babies.

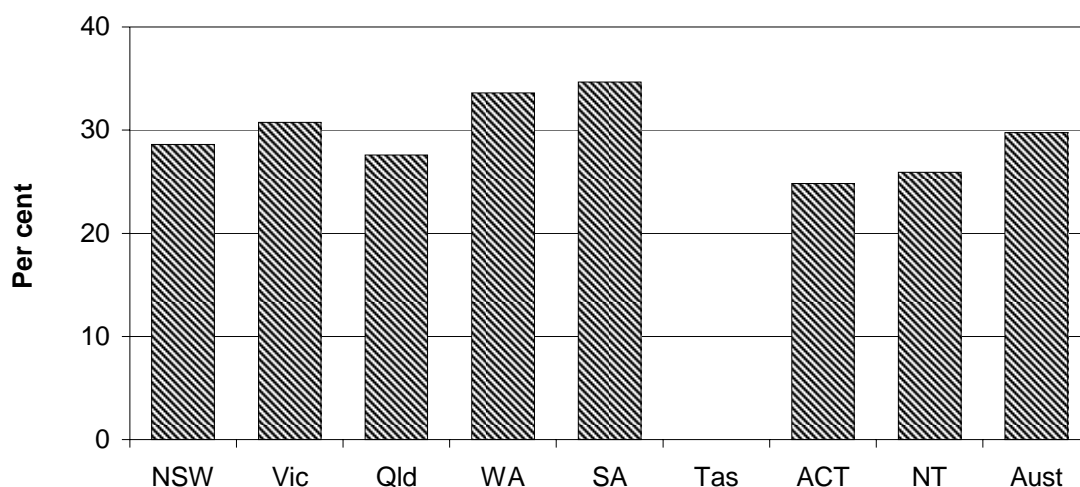
‘Caesareans and inductions for selected primiparae’ are reported for women aged between 25–29 years who have had no previous deliveries, with a vertex presentation (that is, the crown of the baby’s head is at the lower segment of the mother’s uterus) and a gestation length of 37–41 weeks. This group is considered to be low risk parturients,<sup>a</sup> so caesarean or induction rates should be low in their population.

The indicator is defined as the number of inductions or caesareans for the selected primiparae divided by the number of the selected primiparae who give birth. High intervention rates may indicate a need for investigation.

<sup>a</sup> Parturient means ‘about to give birth’. Primiparae refers to pregnant women who have had no previous pregnancy resulting in a live birth or stillbirth (Laws and Sullivan 2004).

Induction rates for selected primiparae in public hospitals are reported in figure 9.21. Induction rates for private hospitals are shown in table 9A.80 for comparison. They are higher than the rate for public hospitals in all jurisdictions for which data are available (except the ACT). Data for all jurisdictions for earlier years are included in tables 9A.81–88.

Figure 9.21 Inductions for selected primiparae, public hospitals, 2005<sup>a, b, c</sup>

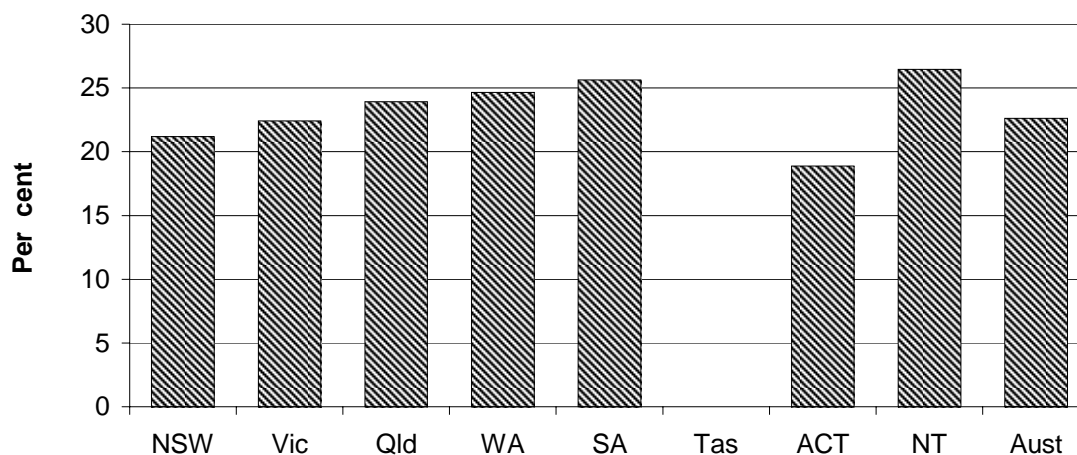


<sup>a</sup> Data for Tasmania are not available. <sup>b</sup> ACT data are preliminary. Care must be taken when interpreting percentages as these data include both ACT and non-ACT residents where the birth occurred in the ACT. In 2005, 15.0 per cent of women who gave birth in the ACT were not residents. <sup>c</sup> Rate for Australia includes only jurisdictions for which data are available.

Source: State and Territory governments (unpublished); table 9A.80.

Caesarean rates for selected primiparae in public hospitals are reported in figure 9.22. Caesarean rates for private hospitals are shown in table 9A.80 for comparison. They are higher than the rate for public hospitals in all jurisdictions for which data are available. Data for all jurisdictions for earlier years are included in tables 9A.81–88.

Figure 9.22 **Caesareans for selected primiparae, public hospitals, 2005<sup>a, b, c</sup>**



<sup>a</sup> Data for Tasmania are not available. <sup>b</sup> ACT data are preliminary. Care must be taken when interpreting percentages as these data include both ACT and non-ACT residents where the birth occurred in the ACT. In 2005, 15.0 per cent of women who gave birth in the ACT were not residents. <sup>c</sup> Rate for Australia includes only jurisdictions for which data are available.

Source: State and Territory governments (unpublished); table 9A.80.

### *Vaginal birth following previous primary caesarean*

‘Vaginal birth following previous primary caesarean’ is an indicator of the appropriateness of maternity services in public hospitals (box 9.23).

#### **Box 9.23 Vaginal birth following previous primary caesarean**

Birth by caesarean section is appropriate in some circumstances related to the health and wellbeing of mothers and babies. It may also be undertaken inappropriately, resulting in overmedicalisation of labour, poorer health outcomes and/or unnecessary costs.

The rate of ‘vaginal delivery following previous primary caesarean section’ is defined as the number of women delivering vaginally following a previous primary (first) caesarean section, as a proportion of the total number of women delivering who have had a previous primary caesarean section and no intervening pregnancies of longer than 20 weeks gestation (ACHS 2002).

Interpretation of this indicator is ambiguous. There is 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. Low rates of vaginal birth following a previous primary caesarean may warrant investigation, or on the other hand, they may indicate appropriate clinical caution. When interpreting this indicator, emphasis needs to be given to the potential for improvement.

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Data for ‘vaginal birth following a previous primary caesarean’ are sourced from the ACHS Comparative Report Service (Clinical Indicators) and 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. Statewide conclusions cannot be drawn from the data because healthcare organisations contribute to the ACHS on a voluntary basis, so the data are not necessarily drawn from representative samples (box 9.7). Estimated rates should be viewed in the context of the statistical (standard) errors. High standard errors signal that data are potentially unreliable. The statistical terms used to describe this indicator are explained in box 9.9.

Nationally, among all public hospitals participating in the ACHS Comparative Report Service in 2005, the mean rate of ‘vaginal birth following a previous primary caesarean’ was 17.6 per 100 deliveries (table 9.18). Given the uncertainty regarding whether high/low rates of vaginal birth following a previous primary caesarean are desirable, this Report does not include potential centile gains for this indicator.

The mean rates of ‘vaginal birth following a primary caesarean’ in 2005 are shown in table 9.18 for jurisdictions with more than five hospitals reporting to the ACHS Comparative Report Service. The coverage of the ACHS data may differ across these states. Data for Tasmania, the ACT and the NT are not reported separately because fewer than five hospitals reported ‘vaginal birth following a primary caesarean’ in each of those jurisdictions.

**Table 9.18 Vaginal births following previous primary caesarean, public hospitals, 2005<sup>a, b</sup>**

	<i>Unit</i>	<i>Results</i>
National rate	(%)	17.6
National performance at 80th centile (rate)	(%)	21.6
National performance at 20th centile (rate)	(%)	13.5
<b>NSW</b>		
Numerator (no. of VBACs)	no.	598
Denominator (no. of DACs)	no.	3 581
Rate	%	16.7
Standard error (±)		0.6
ACHS reporting hospitals	no.	35
<b>Victoria</b>		
Numerator (no. of VBACs)	no.	328
Denominator (no. of DACs)	no.	2 000
Rate	%	16.4
Standard error (±)		0.8
ACHS reporting hospitals	no.	22
<b>Queensland</b>		
Numerator (no. of VBACs)	no.	164
Denominator (no. of DACs)	no.	693
Rate	%	23.7
Standard error (±)		1.4
ACHS reporting hospitals	no.	8
<b>WA</b>		
Numerator (no. of VBACs)	no.	164
Denominator (no. of DACs)	no.	1 108
Rate	%	14.8
Standard error (±)		1.1
ACHS reporting hospitals	no.	12
<b>SA</b>		
Numerator (no. of VBACs)	no.	202
Denominator (no. of DACs)	no.	944
Rate	%	21.4
Standard error (±)		1.2
ACHS reporting hospitals	no.	10

VBAC = vaginal birth following primary caesarean. DAC = delivery following primary caesarean. <sup>a</sup> Defined as the number of patients delivering vaginally following a previous primary caesarean section divided by the total number of patients delivering who had a previous primary caesarean section and no intervening pregnancies of longer than 20 weeks gestation. <sup>b</sup> The ACHS data are not designed to measure the performance of states and territories, but for internal clinical review by individual hospitals. In addition, health organisations contribute data voluntarily to the ACHS, so the samples are not necessarily representative of all hospitals in each jurisdiction. As a result, statewide comparisons and conclusions regarding the performance of individual states cannot be drawn.

Source: ACHS (unpublished); tables 9A.89, 9A.90, 9A.91, 9A.92 and 9A.93.

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## Outputs — effectiveness — quality

The Steering Committee has identified four subdimensions of quality for health services: safety; responsiveness; capability; and continuity. For maternity services in this Report, data are reported against the subdimension of safety only. Other subdimensions of quality have been identified by the Steering Committee for future development.

### *Safety — perineal status after vaginal birth*

‘Perineal status after vaginal birth’ is an indicator of the safety of maternity services (box 9.24).

#### **Box 9.24 Perineal status after vaginal birth**

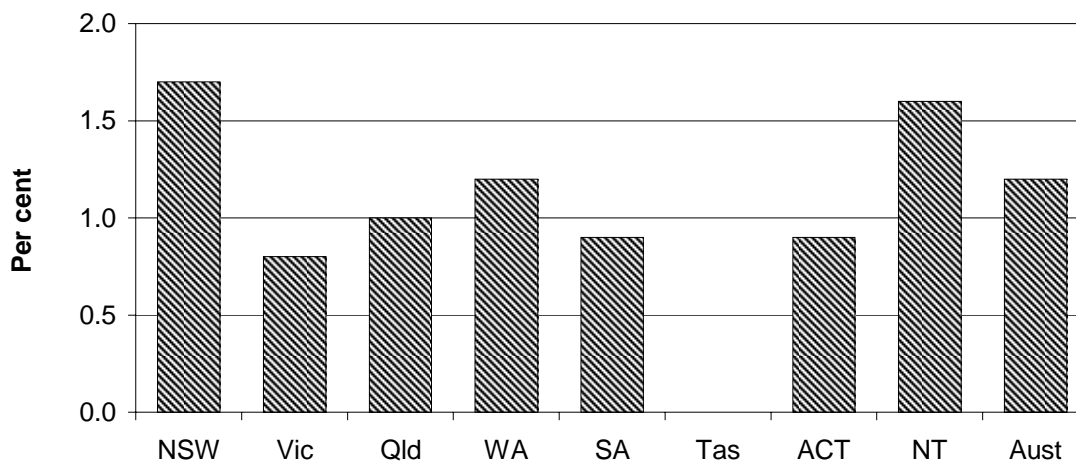
‘Perineal status after vaginal birth’ is a output–equity indicator of governments’ objective to provide safe and high quality services. Perineal lacerations caused by childbirth are painful, take time to heal and may result in ongoing discomfort and debilitating conditions such as faecal incontinence. Maternity services staff aim to minimise lacerations, particularly more severe lacerations (third and fourth degree), through labour management practices.

‘Perineal status after vaginal birth’ is the state of the perineum following a vaginal birth (NHDC 2003). A third or fourth degree laceration is a perineal laceration or rupture (or tear following episiotomy) extending to, or beyond, the anal sphincter (see section 9.8 for definitions) (NCCH 1998).

Severe lacerations (third and fourth degree laceration) of the perineum are not avoidable in all cases and so safe labour management is associated with a low (rather than zero) proportion of third or fourth degree lacerations.

The proportion of mothers with third or fourth degree lacerations to their perineum following vaginal births is shown in figure 9.23. More information on ‘perineal status after vaginal birth’ (including the proportion of mothers with intact perineum following vaginal births) is contained in attachment table 9A.94.

Figure 9.23 **Perineal status — mothers with third or fourth degree lacerations after vaginal births, 2003<sup>a, b, c</sup>**



<sup>a</sup> For multiple births, the perineal status after birth of the first child was used. <sup>b</sup> Data for Tasmania are not available in a form that are comparable with other jurisdictions. <sup>c</sup> Data include all women who gave birth vaginally, including births in public hospitals, private hospitals and outside of hospital, such as homebirths.

Source: Laws and Sullivan (2005); table 9A.94.

### *Responsiveness*

The Steering Committee has identified the responsiveness of maternity services as an area for development in future reports. While there is currently no indicator for the responsiveness of maternity services, the patient satisfaction surveys reported earlier in this chapter generally cover maternity patients.

### *Capability*

The Steering Committee has identified the capability of maternity services as an area for development in future reports.

### *Continuity*

The Steering Committee has identified the continuity of care provided by maternity services as an area for development in future reports.

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## Outputs — effectiveness — sustainability

The Steering Committee has identified the sustainability of maternity services as an area for development in future reports.

## Outputs — efficiency

### *Recurrent cost per maternity separation*

‘Recurrent cost per maternity separation’ is an indicator of the efficiency of maternity services in public hospitals (box 9.25).

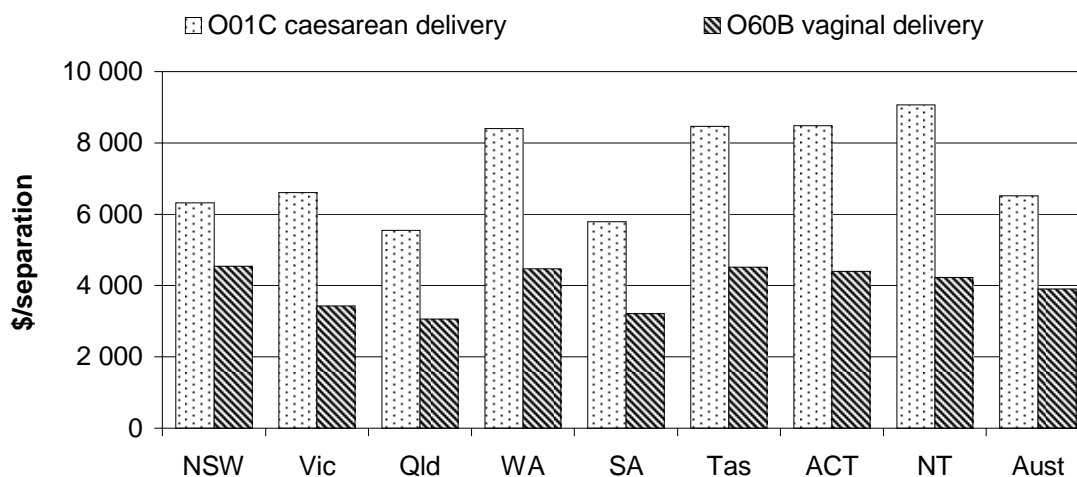
#### **Box 9.25 Recurrent cost per maternity separation**

‘Recurrent cost per maternity separation’ is a output–efficiency indicator of governments’ objective to deliver cost effective services. It is presented for the two AR-DRGs (version 5.0) that account for the largest number of maternity patient days: caesarean delivery without catastrophic or severe complications and co-morbidities; and vaginal delivery without catastrophic or severe complications and co-morbidities.

Lower ‘recurrent costs per maternity separation’ may reflect higher efficiency in providing maternity services to admitted patients. This is only likely to be the case however, where the low cost maternity services are provided at equal or superior effectiveness.

Data are reported for the two most common maternity AR-DRGs: caesarean delivery without catastrophic or severe complications and co-morbidities; and vaginal delivery without catastrophic or severe complications and co-morbidities (figure 9.24). Data for a number of other maternity related AR-DRGs are shown in table 9A.95. Data are sourced from the NHCDC. 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. Therefore, an estimation process has been carried out to create representative national activity figures from the sample data.

Figure 9.24 **Estimated average cost per separation for selected maternity-related AR-DRGs, public hospitals, 2004-05<sup>a, b</sup>**



<sup>a</sup> Includes AR-DRG O01C caesarean delivery without catastrophic or severe complications and co-morbidities and AR-DRG O60B vaginal delivery without catastrophic or severe complications and co-morbidities.

<sup>b</sup> Average cost is affected by a number of factors including admission practices, sample size, remoteness and the types of hospital contributing to the collection. Direct comparisons between jurisdictions are difficult because there are differences in hospital costing systems.

Source: Australian Government Department of Health and Ageing, *NHCDC*, Round 9 (2004-05); table 9A.95.

### *Total cost per maternity separation*

The Steering Committee has identified the ‘total cost per maternity separation’ (recurrent cost plus capital cost) as an indicator of the efficiency of public hospital maternity services, but no data are available for this Report (box 9.26).

#### **Box 9.26 Total cost per maternity separation**

The Steering Committee has agreed to develop an indicator of the ‘total cost per maternity separation’ as a measure of the efficiency of public hospital maternity services. A method for calculating the capital cost component of the ‘total cost per maternity separation’ indicator has not yet been determined, so no data can be reported.

### *Mothers average length of stay*

‘Mothers average length of stay in hospital’ is an indicator of the efficiency of maternity services in public hospitals (box 9.27). Data are reported for the two most common maternity AR-DRGs: caesarean delivery without catastrophic or severe

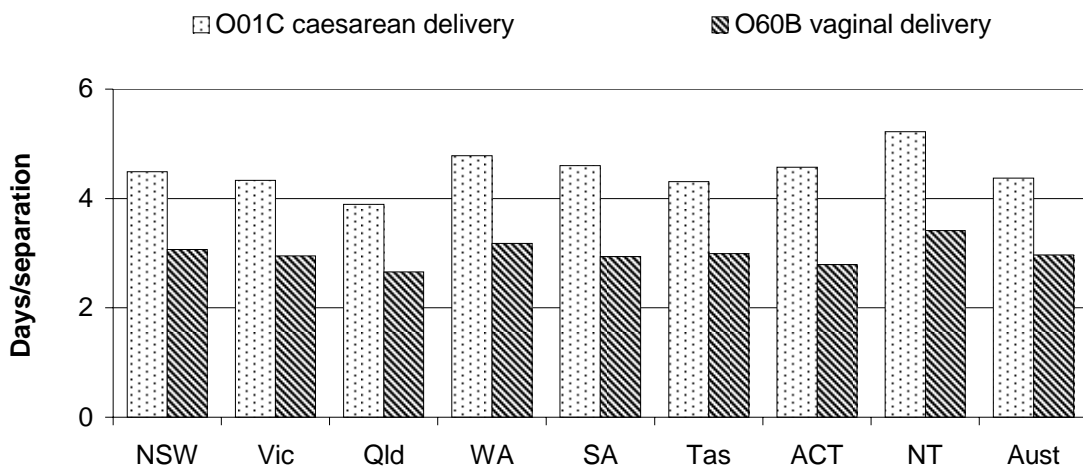
complications and co-morbidities; and vaginal delivery without catastrophic or severe complications and co-morbidities (figure 9.25).

**Box 9.27 Mothers average length of stay**

‘Mothers average length of stay’ is an output–equity indicator of governments’ objective to deliver services efficiently. Mother’s average length of stay is defined as the total number of patient days for the selected maternity AR-DRG (version 5.0), divided by the number of separations for that AR-DRG.

Shorter stays for mothers reduce hospital costs but whether they represent genuine efficiency improvements depends on a number of factors. Shorter stays may, for example, have an adverse effect on the health of some mothers and result in additional costs for in-home care. The indicator is not adjusted for multiple births born vaginally and without complications but requiring a longer stay to manage breastfeeding.

**Figure 9.25 Average length of stay for selected maternity-related AR-DRGs, public hospitals, 2004-05<sup>a</sup>**



<sup>a</sup> Includes AR-DRG O01C caesarean delivery without catastrophic or severe complications and co-morbidities and AR-DRG O60B vaginal delivery without catastrophic or severe complications and co-morbidities.

Source: Australian Government Department of Health and Ageing, *NHCDC*, Round 9 (2004-05); table 9A.95.

**Outcomes**

*Apgar score*

‘Apgar score of babies at five minutes after birth’ is an indicator of the outcomes of maternity services (box 9.28). ‘Low’ Apgar scores for babies by birthweight

category are contained in table 9.19. The range of Apgar scores for 2001 to 2005 are reported in table 9A.96.

#### Box 9.28 Apgar score at five minutes

'Apgar score at five minutes' is an outcome indicator of governments' objective to deliver maternity services that are safe and of high quality. The Apgar score is a numerical score that indicates a baby's condition shortly after birth. Apgar scores are 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 is between 0 and 10. The Apgar score is routinely assessed at one and five minutes after birth, and subsequently at five minute intervals if it is still low at five minutes (Day *et al.* 1999). The future health of babies with lower Apgar scores is often poorer than those with higher scores.

Low Apgar scores (defined as less than 4) are strongly associated with babies' birth weights being low. The management of labour in hospitals does not usually affect birth weights, but can affect the prevalence of low Apgar scores for babies with similar birth weights. Within birth weight categories therefore, Apgar scores may indicate relative performance.

This indicator is defined as the number of live births with an Apgar score of 3 or less, at five minutes post-delivery, as a proportion of the total number of live births by specified birth weight categories.

Factors other than hospital maternity services can influence Apgar scores within birth weight categories — for example antenatal care, multiple births and socioeconomic factors.

Table 9.19 Live births with an Apgar score of 3 or lower, five minutes post-delivery, public hospitals, 2005

Birthweight (grams)	Unit	NSW	Vic	Qld	WA	SA	Tas	ACT <sup>a</sup>	NT <sup>b</sup>
Less than 1500	no.	767	620	478	267	240	na	55	46
Low Apgar	%	18.4	19.2	14.4	10.1	15.4	na	9.1	23.9
1500–1999	no.	910	586	565	282	224	na	57	59
Low Apgar	%	1.4	0.9	0.7	1.4	–	na	1.8	–
2000–2499	no.	2 701	1 953	1 645	741	621	na	137	169
Low Apgar	%	0.6	0.6	0.4	0.3	0.3	na	1.5	1.2
2500 and over	no.	62 819	42 376	34 911	14 665	12 078	na	2 585	2 607
Low Apgar	%	0.2	0.1	0.1	0.1	0.1	na	0.2	0.4

<sup>a</sup> ACT data are preliminary. Care must be taken when interpreting percentages as these data include both ACT and non-ACT residents where the birth occurred in the ACT. In 2005, 15.0 per cent of women who gave birth in the ACT were not residents. <sup>b</sup> In the birthweight category less than 1500g, the data exclude one baby with an unknown Apgar score. **na** Not available. – Nil or rounded to zero.

Source: State and Territory governments (unpublished); table 9A.96.

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### *Fetal death rate*

The 'fetal death rate' is an indicator of the outcomes of maternity services (box 9.29).

#### **Box 9.29 Fetal death rate**

Fetal death (stillbirth) is the birth 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.

'Fetal death rate' is reported as an indicator because maternity services for admitted patients have some potential to reduce the likelihood of fetal deaths. This potential is limited, however, and other factors (such as the health of mothers and the progress of pregnancy before hospital admission) are also important.

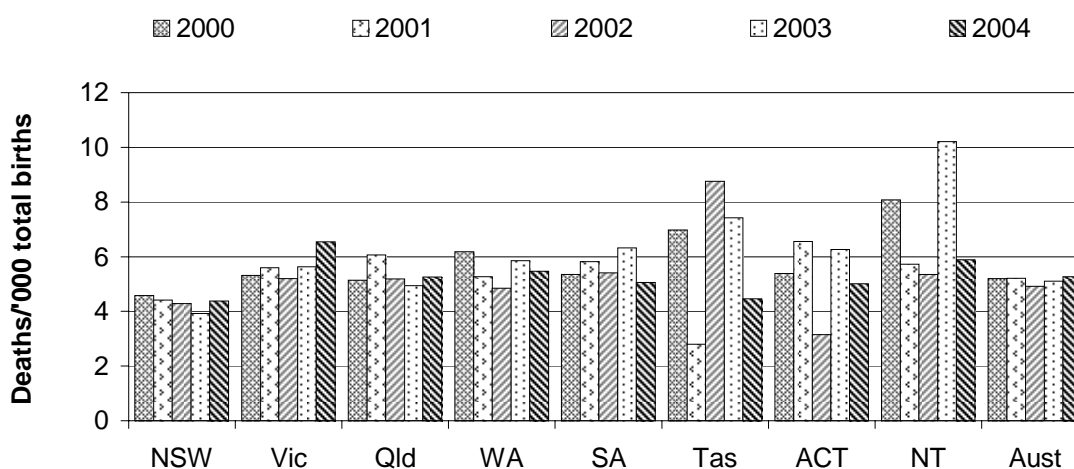
The 'fetal death rate' is calculated as the number of fetal deaths divided by the total number of births (live births and fetal deaths combined), by State or Territory of usual residence of the mother. The rate of fetal deaths is expressed per 1000 total births. This indicator is also reported by Indigenous status.

Low fetal death rates may indicate high quality maternity services. In jurisdictions where the number of fetal deaths is low, small annual fluctuations in the number affect the annual rate of fetal deaths.

Differences in the 'fetal death rate' between jurisdictions are likely to be due to factors outside the control of maternity services for admitted patients. To the extent that the health system influences fetal death rates, the health services that may have an influence include outpatient services, general practice services and maternity services.

Fetal death rates are reported in figure 9.26. Nationally, fetal death rates remained stable over the period 2000–2004 although there was variation over this period in some jurisdictions (these annual fluctuations are generally a result of the low incidence of fetal deaths and small populations). National time series for fetal death rates are included in table 9A.99. Fetal deaths rates by Indigenous status are shown in figure 9.29.

Figure 9.26 **Fetal death rate<sup>a, b</sup>**



<sup>a</sup> 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. These data may differ, therefore, from other published sources (such as AIHW or State and Territory government publications). <sup>b</sup> Annual rates fluctuate (in particular, for smaller jurisdictions) as a result of a low incidence of fetal deaths and small populations.

Source: ABS Deaths, Australia (unpublished); table 9A.97.

### Neonatal death rate

The ‘neonatal death rate’ is an indicator of the outcomes of maternity services (box 9.30).

#### Box 9.30 Neonatal death rate

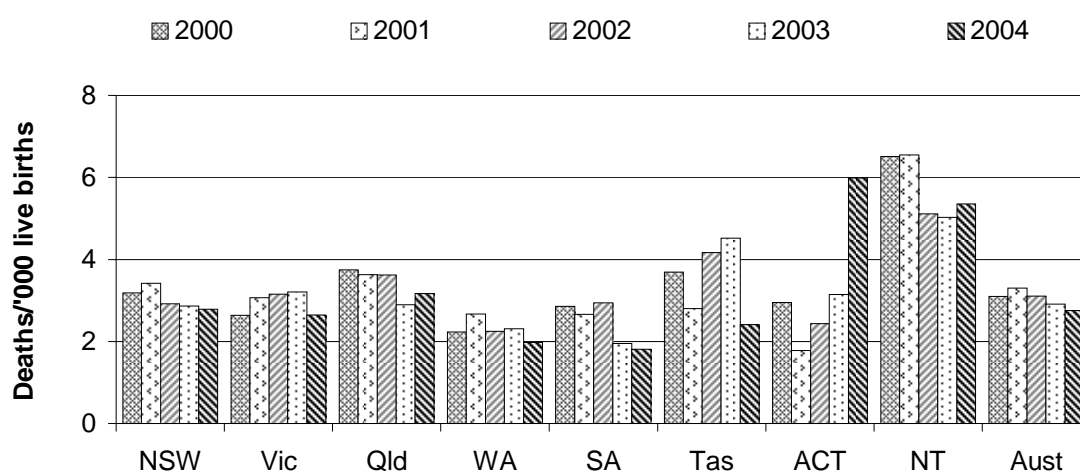
Neonatal death is the death of a live born infant within 28 days of birth (see section 9.8 for a definition of a live birth). As for fetal deaths, a range of factors contribute to neonatal deaths. The influence of maternity services for admitted patients, however, is greater for neonatal deaths than for fetal deaths, through the management of labour and the care of sick and premature babies.

The ‘neonatal death rate’ is calculated as the number of neonatal deaths divided by the number of live births registered. The rate of neonatal deaths is expressed per 1000 live births, by State or Territory of usual residence of the mother. This indicator is also reported by Indigenous status.

Low ‘neonatal death rates’ may indicate high quality maternity services. The rate tends to be higher among premature babies, so a lower neonatal death rate may also indicate a lower percentage of pre-term births.

Neonatal death rates are reported in figure 9.27. Nationally, neonatal death rates generally declined over the period 2000–2004, although there was variation over this period in some jurisdictions (these annual fluctuations are generally a result of the low incidence of neonatal deaths and small populations). National time series for neonatal death rates are included in table 9A.99. Neonatal death rates by Indigenous status are shown in figure 9.29.

Figure 9.27 Neonatal death rate<sup>a, b</sup>



<sup>a</sup> 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. These data may differ, therefore, from other published sources (such as AIHW or State and Territory government publications). <sup>b</sup> Annual rates fluctuate (in particular, for smaller jurisdictions) as a result of a low incidence of neonatal deaths and small populations.

Source: ABS Deaths, Australia (unpublished); table 9A.98.

### Perinatal death rate

The ‘perinatal death rate’ is an indicator of the outcomes of maternity services (box 9.31). Perinatal death rates are shown in figure 9.28. Perinatal death rates by Indigenous status are shown in figure 9.29. National time series for perinatal death rates are included in table 9A.99.

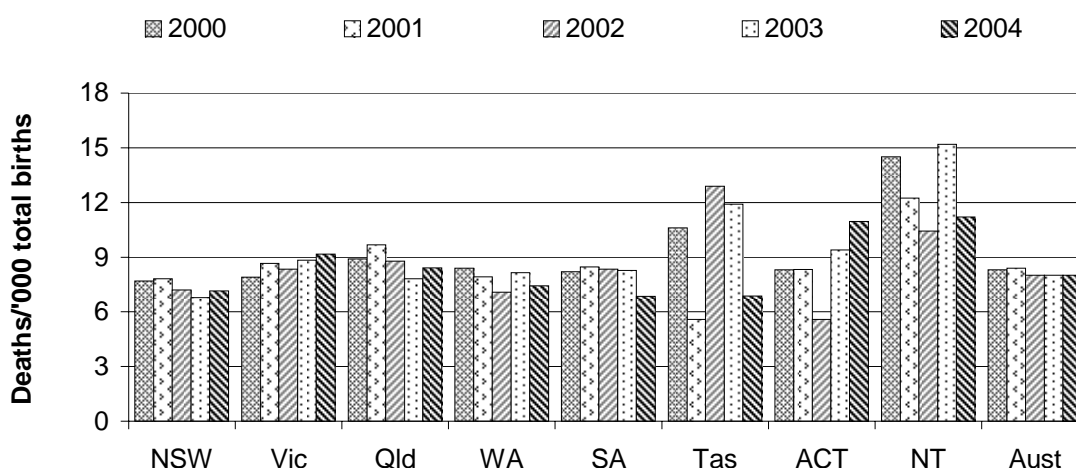
### Box 9.31 Perinatal death rate

A perinatal death is a fetal or neonatal death (boxes 9.29 and 9.30).

The 'perinatal death rate' is calculated as the number of perinatal deaths divided by the total number of births (live births registered and fetal deaths combined) in each jurisdiction. It is expressed per 1000 total births. This indicator is also reported by Indigenous status.

The caveats that apply to fetal and neonatal death rates also apply to perinatal death rates.

Figure 9.28 Perinatal death rate<sup>a, b</sup>



<sup>a</sup> 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. These data may differ, therefore, from other published sources (such as AIHW or State and Territory government publications). <sup>b</sup> Annual rates fluctuate (in particular, for smaller jurisdictions) as a result of a low incidence of perinatal deaths.

Source: ABS Deaths, Australia (unpublished); table 9A.100.

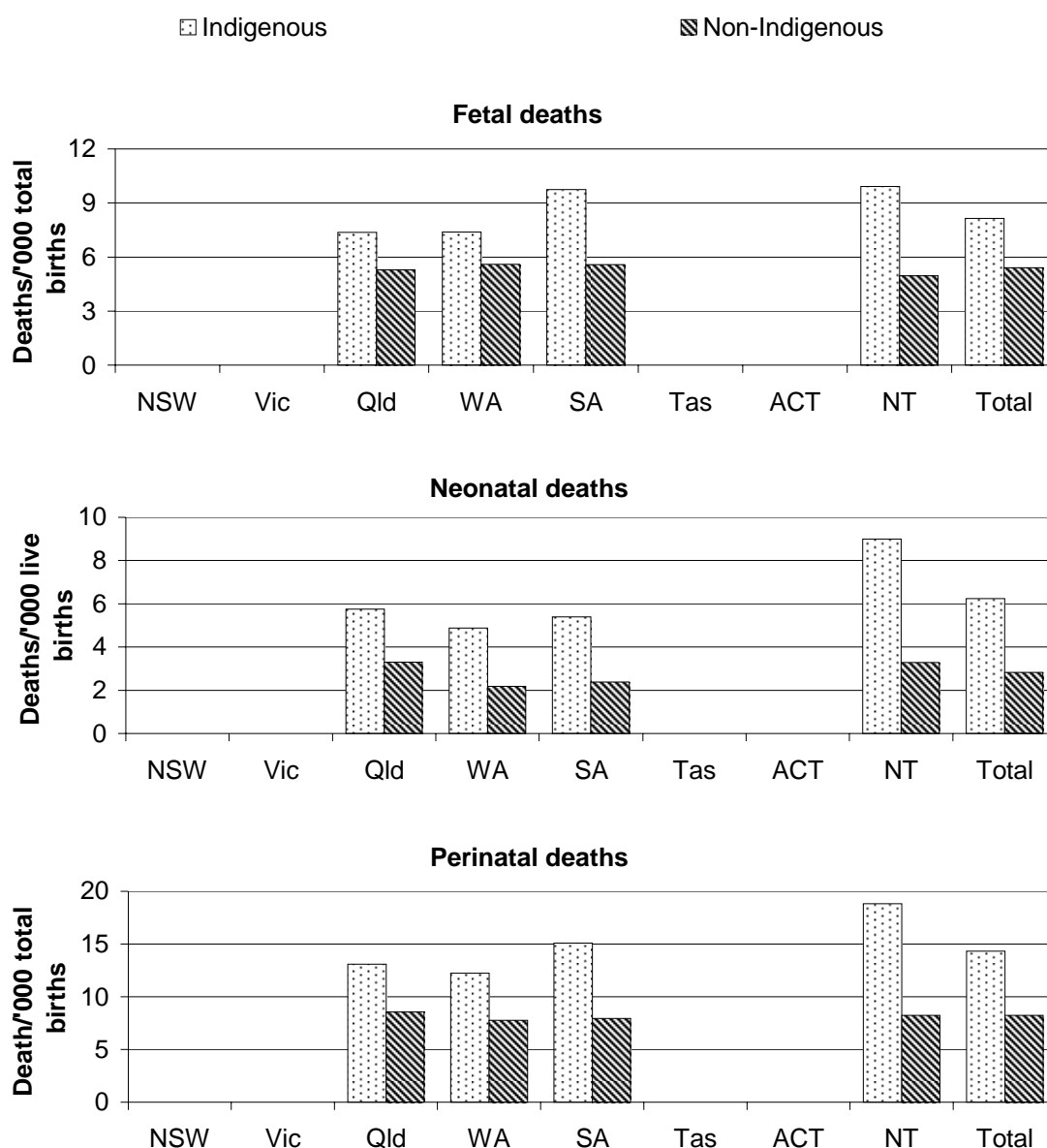
### Fetal, neonatal and perinatal deaths for Indigenous people

Fetal, neonatal and perinatal deaths data by Indigenous status are available for Queensland, WA, SA and the NT only. Data are for the period 2000–2004 combined. Data for other states and the ACT are not included due to small numbers or poor coverage rates (ABS 2004).<sup>4</sup> In those jurisdictions for which data are

<sup>4</sup> The implied coverage of Indigenous deaths, for the period 1999 to 2003, ranges from 95 per cent in the NT, to 45 per cent and 43 per cent in NSW and Victoria respectively (SCRGSP 2005).

available, the fetal, neonatal and perinatal death rates for Indigenous people are higher than these death rates for non-Indigenous people (figure 9.29).

Figure 9.29 **Fetal, neonatal and perinatal deaths, by Indigenous status, 2000–2004<sup>a</sup>**



<sup>a</sup> The total relates to those jurisdictions for which data are published. Data are not available for other jurisdictions.

Source: ABS Deaths, Australia (unpublished); table 9A.101.

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### *Rate of survival to 28 days of very low birthweight babies*

The Steering Committee has identified the ‘rate of survival to 28 days of very low birthweight babies’ as an indicator of the outcomes of maternity services (box 9.32). No data for this indicator are currently available.

#### **Box 9.32 Rate of survival to 28 days of very low birthweight babies**

‘Rate of survival to 28 days of very low birthweight babies’ is an outcome indicator of governments’ objective to provide high quality services. This indicator has been identified for development and reporting in future. Data were not available for the 2007 Report.

## **9.7 Future directions in performance reporting**

Priorities for future reporting on public hospitals and maternity services include the following:

- Improving the comprehensiveness of reporting by filling in gaps in the performance indicator frameworks. Important gaps in reporting for public hospitals include indicators of equity of access to services for special needs groups (particularly Indigenous people), and indicators of continuity of care. Gaps in the maternity services framework include equity of access, effectiveness of access, three aspects of quality — responsiveness, capability and continuity — and the effectiveness subdimension of sustainability.
- Improving currently reported indicators for public hospitals and maternity services where data are not complete or not directly comparable. There is scope to improve reporting of the quality and access dimensions of the public hospitals framework, and the output indicators for maternity services.

The Steering Committee is seeking to extend reporting on hospital accreditation. In addition to current reporting of the proportion of hospital beds that are accredited (section 9.3), future reports might include information on ‘how well’ hospitals meet accreditation standards. This would involve reporting, for example, whether hospitals exceed accreditation standards by a large or small margin, or whether they practice ‘continuous improvement’.

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## 9.8 Definitions of key terms and indicators

<b>Accreditation</b>	Professional recognition awarded to hospitals and other healthcare facilities that meet defined industry standards. Public hospitals may seek accreditation through the ACHS Evaluation and Quality Improvement Program, the Australian Quality Council (now known as Business Excellence Australia), the Quality Improvement Council, the International Organisation for Standardization 9000 Quality Management System or other equivalent programs.
<b>Acute care</b>	Clinical services provided to admitted or non-admitted 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.
<b>Admitted patient</b>	A patient who has undergone a formal admission process in a public hospital to begin an episode of care. Admitted patients may receive acute, sub-acute or non-acute care services.
<b>Admitted patient cost proportion</b>	The ratio of admitted patient costs to total hospital costs, also known as the inpatient fraction.
<b>Allied health (non-admitted)</b>	Occasions of service to non-admitted patients at units/clinics providing treatment/counselling to patients. These include units providing physiotherapy, speech therapy, family planning, dietary advice, optometry and occupational therapy.
<b>Apgar score</b>	Numerical score used to evaluate a baby's condition after birth. The definition of the reported 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. Excludes fetal deaths in utero before commencement of labour.
<b>AR-DRG</b>	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 version 5.1 is based on the ICD-10-AM classification.
<b>Average length of stay</b>	The mean length of stay for all patient episodes, calculated by dividing total occupied bed days by total episodes of care.
<b>Caesarean section</b>	Operative birth through an abdominal incision.
<b>Casemix adjusted</b>	Adjustment of data on cases treated to account for the number and type of cases. Cases are sorted by AR-DRG into categories of patients with similar clinical conditions and requiring similar hospital services. Casemix adjustment is an important step to achieving comparable measures of efficiency across hospitals and jurisdictions.
<b>Casemix-adjusted separations</b>	The number of separations adjusted to account for differences across hospitals in the complexity of episodes of care.
<b>Catastrophic</b>	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.
<b>Community health services</b>	Health services for individuals and groups delivered in a community setting, rather than via hospitals or private facilities.
<b>Cost of capital</b>	The return foregone on the next best investment, estimated at a rate of

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	8 per cent of the depreciated replacement value of buildings, equipment and land. Also called the 'opportunity cost' of capital.
<b>Cost per casemix-adjusted separation</b>	Recurrent expenditure multiplied by the inpatient fraction and divided by the total number of casemix-adjusted separations plus estimated private patient medical costs.
<b>Cost per non-admitted occasion of service</b>	Recurrent expenditure divided by the inpatient fraction and divided by the total number of non-admitted occasions of service.
<b>Elective surgery waiting times</b>	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.
<b>Emergency department waiting times to service delivery</b>	The time elapsed for each patient from presentation to the emergency department (that is, the time at which the patient is clerically registered or triaged, whichever occurs earlier) to the commencement of service by a treating medical officer or nurse.
<b>Emergency department waiting times to admission</b>	The time elapsed for each patient from presentation to the emergency department to admission to hospital.
<b>Episiotomy</b>	An obstetrics procedure. A surgical incision into the perineum and vagina to prevent traumatic tearing during delivery.
<b>Fetal death</b>	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 that weigh less than 400 grams or that are of a gestational age of less than 20 weeks.
<b>Fetal death rate</b>	The number of fetal deaths divided by the total number of births (that is, by live births registered and fetal deaths combined).
<b>General practice</b>	The organisational structure with one or more GPs and other staff such as practice nurses. A general practice provides and supervises healthcare for a 'population' of patients and may include services for specific populations, such as women's health or Indigenous health.
<b>ICD-10-AM</b>	The Australian modification of the International Standard Classification of Diseases and Related Health Problems. This is the current classification of diagnoses and procedures in Australia.
<b>Inpatient fraction</b>	The ratio of admitted patient costs to total hospital costs, also known as the admitted patient cost proportion.
<b>Labour cost per casemix-adjusted separations</b>	Salary and wages plus visiting medical officer payments, multiplied by the inpatient fraction, divided by the number of casemix-adjusted separations.
<b>Length of stay</b>	The period from admission to separation less any days spent away from the hospital (leave days).
<b>Live birth</b>	Birth of a child who, after delivery, breathes or shows any other evidence of life, such as a heartbeat. Includes all registered live births regardless of birthweight.
<b>Medicare</b>	Australian Government funding of private medical and optometrical services (under the Medicare Benefits Schedule). Sometimes defined to include other forms of Australian Government funding such as 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.

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<b>Mortality rate</b>	The number of deaths per 100 000 people.
<b>Neonatal death</b>	Death of a live born infant within 28 days of birth. Defined in Australia as the death of an infant that weighs at least 400 grams or that is of a gestational age of at least 20 weeks.
<b>Neonatal death rate</b>	Neonatal deaths divided by the number of live births registered.
<b>Nursing workforce</b>	Registered and enrolled nurses who are employed in nursing, on extended leave or looking for work in nursing.
<b>Medical practitioner workforce</b>	Registered medical practitioners who are employed as medical practitioners, on extended leave or looking for work as a medical practitioner.
<b>Non-acute episode of care</b>	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.
<b>Non-admitted occasions of service</b>	Occasion of examination, consultation, treatment or other service provided to a non-admitted patient in a functional unit of a health service establishment. 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.
<b>Non-admitted patient</b>	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.
<b>Perinatal death</b>	Fetal death or neonatal death of an infant that weighs at least 400 grams or that is of a gestational age of at least 20 weeks.
<b>Perinatal death rate</b>	Perinatal deaths divided by the total number of births (that is, live births registered and fetal deaths combined).
<b>Perineal laceration (third or fourth degree)</b>	A 'third degree' laceration or rupture during birth (or a tear following episiotomy) involves the anal sphincter, rectovaginal septum and sphincter NOS. A 'fourth degree' laceration, rupture or tear also involves the anal mucosa and rectal mucosa (NCCH 1998).
<b>Perineal status</b>	The state of the perineum following a birth.
<b>Pre-anaesthetic consultation rate</b>	The number of procedures where there is documented evidence that the patient has seen an anaesthetist before entering the operating theatre suite, anaesthetic room, or procedure room as a percentage of the total number of procedures with an anaesthetist in attendance. (ACHS 2004).
<b>Primary care</b>	Essential healthcare based on practical, scientifically sound and socially acceptable methods made universally accessible to individuals and families in the community.
<b>Primipara</b>	Pregnant woman who has had no previous pregnancy resulting in a live birth or a still birth.
<b>Public hospital</b>	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).
<b>Puerperium</b>	The period or state of confinement after labour.
<b>Real expenditure</b>	Actual expenditure adjusted for changes in prices.
<b>Relative stay index</b>	The actual number of patient days for acute care separations in selected AR-DRGs divided by the expected number of patient days adjusted for casemix. Includes acute care separations only. Excludes: patients who died or were transferred within 2 days of admission, or separations with length of stay greater than 120 days, AR-DRGs which are for 'rehabilitation', AR-DRGs which are predominantly same day (such as R63Z <i>chemotherapy</i> and L61Z <i>admit for renal dialysis</i> ), AR-DRGs which have a length of stay component in the definition, and error AR-DRGs.
<b>Same day patients</b>	A patient whose admission date is the same as the separation date.
<b>Sentinel events</b>	Adverse events that cause serious harm to patients and that have the potential to undermine public confidence in the healthcare system.
<b>Separation</b>	A total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change in the type of care for an admitted patient (for example, from acute to rehabilitation). Includes admitted patients who receive same day procedures (for example, renal dialysis).
<b>Separation rate</b>	Hospital separations per 1000 people or 100 000 people.
<b>Selected primiparae</b>	Primiparae with no previous deliveries, aged 25–29 years, singleton, vertex presentation and gestation of 37–41 weeks (inclusive).
<b>Sub-acute and non-acute care</b>	Clinical services provided to patients suffering from chronic illnesses or recovering from such illnesses. Services 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 non-acute.
<b>Surgical site infection rate for selected surgical procedures</b>	<p>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 procedures performed during the surveillance period.</p> <p>Since 2003, the ACHS surgical site infection indicators have been collected in pairs, one for each of superficial and deep/organ space surgical site infections.</p> <p>An indirectly standardized rate was derived for each pair. The rate for each combined pair was estimated as the sum of the two rates (deep and superficial). The indirectly standardized rate for each State was calculated as:</p> <p><b>State rate = (sum of observed infections in State/sum of expected infections for State)*rate for indicator pair</b></p> <p>Where</p> <p><b>rate of indicator pair = rate of superficial infection + rate of</b></p>

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	<b>deep/organ infection</b>
<b>Triage category</b>	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).
<b>Unplanned hospital re-admission</b>	An unexpected hospital admission for treatment of: the same condition for which the patient was previously hospitalised; a condition related to one for which the patient was previously hospitalised; or a complication of the condition for which the patient was previously hospitalised.
<b>Unplanned hospital re-admission rate</b>	The number of unplanned re-admissions to the same hospital 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, including day stay patients.
<b>Urgency category for elective surgery</b>	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.

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## 9.9 Supporting tables

Supporting tables are identified in references throughout this chapter by an 'A' suffix (for example, table 9A.3 is table 3 in the attachment). Supporting tables are provided on the CD-ROM enclosed with the Report. The files containing the supporting tables are provided in Microsoft Excel format as \Publications\Reports\2007\Attach9A.xls and in Adobe PDF format as \Publications\Reports\2007\Attach9A.pdf. The files containing the supporting tables can also be found on the Review web page ([www.pc.gov.au/gsp](http://www.pc.gov.au/gsp)). Users without access to the CD-ROM or Internet can contact the Secretariat to obtain the supporting tables (see contact details on the inside front cover of the Report).

<b>Table 9A.1</b>	Recurrent expenditure, public hospitals (including psychiatric hospitals), current prices, (\$ million)
<b>Table 9A.2</b>	Recurrent expenditure, public (non-psychiatric) hospitals, by source of funding, 2004-05
<b>Table 9A.3</b>	Recurrent expenditure per person, public hospitals (including psychiatric) (2003-04 dollars)
<b>Table 9A.4</b>	Public hospitals (including psychiatric hospitals) by hospital size, 2004-05
<b>Table 9A.5</b>	Available beds per 1000 people, by region, public hospitals (including psychiatric) (number)
<b>Table 9A.6</b>	Summary of separations, public hospitals 2004-05
<b>Table 9A.7</b>	Separations, public (non-psychiatric) hospitals
<b>Table 9A.8</b>	Separations, public (non-psychiatric) hospitals, 2004-05
<b>Table 9A.9</b>	Separations in public hospitals, by age group, 2004-05
<b>Table 9A.10</b>	Separations by hospital sector and by Indigenous status, 2004-05
<b>Table 9A.11</b>	Indicative estimates of separations per 1000 people, by reported Indigenous status (number)
<b>Table 9A.12</b>	Average full time equivalent (FTE) staff per 1000 persons, public hospitals (including psychiatric hospitals)
<b>Table 9A.13</b>	Separations, by type of episode of care, public hospitals (including psychiatric), 2004-05
<b>Table 9A.14</b>	Australian refined diagnosis related groups (AR-DRGs) version 5.1 with the highest number of overnight acute separations, public hospitals, 2004-05
<b>Table 9A.15</b>	Top 10 AR-DRGs (version 5.1) with the most patient days, excluding same day separations, public hospitals, 2004-05
<b>Table 9A.16</b>	Non-admitted patient occasions of service, by type of non-admitted patient care, public hospitals, 2004-05
<b>Table 9A.17</b>	Emergency department waiting times, by triage category, public hospitals, 2004-05

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<b>Table 9A.18</b>	Elective surgery waiting times for patients admitted from waiting lists, by hospital peer group, public hospitals
<b>Table 9A.19</b>	Elective surgery waiting times, by specialty of surgeon
<b>Table 9A.20</b>	Elective surgery waiting times, by indicator procedure
<b>Table 9A.21</b>	NSW elective surgery waiting times by clinical urgency category, public hospitals (per cent)
<b>Table 9A.22</b>	NSW elective surgery waiting times, public hospitals, by specialty, 2004-05
<b>Table 9A.23</b>	Victorian elective surgery waiting times by clinical urgency category, public hospitals (per cent)
<b>Table 9A.24</b>	Victorian elective surgery waiting times, public hospitals, by specialty, 2004-05
<b>Table 9A.25</b>	Queensland elective surgery waiting times, by clinical urgency category, public hospitals (per cent)
<b>Table 9A.26</b>	Queensland elective surgery waiting times, public hospitals, by specialty, 2004-05
<b>Table 9A.27</b>	WA elective surgery waiting times, by clinical urgency category, public hospitals (per cent)
<b>Table 9A.28</b>	WA elective surgery waiting times, public hospitals, by specialty, 2004-05
<b>Table 9A.29</b>	SA elective surgery waiting times, by clinical urgency category, public hospitals
<b>Table 9A.30</b>	SA elective surgery waiting times, public hospitals, by specialty, 2004-05
<b>Table 9A.31</b>	Tasmanian elective surgery waiting times, by clinical urgency category, public hospitals
<b>Table 9A.32</b>	ACT elective surgery waiting times, by clinical urgency category, public hospitals
<b>Table 9A.33</b>	ACT elective surgery waiting times, public hospitals, by specialty, 2004-05
<b>Table 9A.34</b>	NT elective surgery waiting times, by clinical urgency category, public hospitals
<b>Table 9A.35</b>	NT elective surgery waiting times, public hospitals, by specialty, 2004-05
<b>Table 9A.36</b>	Separations for selected procedures or diagnoses per 1000 people, all hospitals, by patient's usual residence 2004-05
<b>Table 9A.37</b>	Unplanned re-admissions, public hospitals, NSW
<b>Table 9A.38</b>	Unplanned re-admissions, public hospitals, Victoria
<b>Table 9A.39</b>	Unplanned re-admissions, public hospitals, Queensland
<b>Table 9A.40</b>	Unplanned re-admissions, public hospitals, WA
<b>Table 9A.41</b>	Unplanned re-admissions, public hospitals, SA
<b>Table 9A.42</b>	Pre-anaesthetic consultations, public hospitals, NSW
<b>Table 9A.43</b>	Pre-anaesthetic consultations, public hospitals, Victoria
<b>Table 9A.44</b>	Pre-anaesthetic consultations, public hospitals, Queensland
<b>Table 9A.45</b>	Pre-anaesthetic consultations, public hospitals, SA
<b>Table 9A.46</b>	Surgical site infections for selected procedures, NSW public hospitals, 2005
<b>Table 9A.47</b>	Surgical site infections for selected procedures, Victorian public hospitals, 2005

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<b>Table 9A.48</b>	Surgical site infections for selected procedures, Queensland public hospitals, 2005
<b>Table 9A.49</b>	Surgical site infections for selected procedures, WA public hospitals, 2005
<b>Table 9A.50</b>	Surgical site infections for selected procedures, SA public hospitals, 2005
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