4 Public hospitals

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

A profile of public hospital systems is contained in section 4.1. A framework of performance indicators is outlined in section 4.2. Key results are discussed in section 4.3 and future directions in reporting are covered in section 4.4. The interactions of different health service delivery mechanisms are examined for particular health issues in chapter 6. The performance of public hospitals also interacts with that of general practice (chapter 5) and other government services, including aged care (see chapter 11), police (see chapter 7) and emergency management (see chapter 10).

Improvements have been made this year in reporting elective surgery and emergency department waiting times, and providing additional data on unit costs. An initial proxy measure for equity of access is also reported for the first time.

4.1 Profile of public hospital systems

The data presented in this chapter largely relate to acute care services provided to admitted patients (which comprise the bulk of public hospital services). The data also relate to some sub- and non-acute care services because most jurisdictions are unable to identify all acute and non-acute care services separately. 'Mainstreaming' of psychiatric patients into acute hospitals varies across jurisdictions and has also blurred the distinction between acute and non-acute care providers. The level of other non-acute services provided by public acute care hospitals also varies across jurisdictions (some common health terms are in box 4.1).

Box 4.1 **Some common health terms**

Acute care episodes: a phase of treatment in which the principal clinical intent includes performing surgery, relieving symptoms and/or reducing the severity of illness or injury, and performing diagnostic and therapeutic procedures. Most episodes involve a relatively short stay in hospital, although acute care services may also be provided to non-admitted patients.

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

Admission: the process by which a patient commences an episode of care

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

Case mix adjustment: adjustment of data on treated cases to account for the number and type of cases. Cases are sorted into diagnosis related groups (AN-DRGs) which represent a class of patients with similar clinical conditions requiring similar hospital services.

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

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

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

Separation: the discharge, transfer, death or change in episode of care of a patient admitted to hospital

Sub- and non-acute episodes: 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 delivered by designated psychiatric or psychogeriatric units, designated rehabilitation units, and mothercraft and dental services are also considered to be non-acute.

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

- acute care services to admitted patients;
- emergency and outpatient services to non-admitted patients;

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

Changes to some variables reduce the comparability of data presented here with data presented in previous Reports. The data for all jurisdictions include varying proportions of some sub- and non-acute separations.

Public hospital expenditure

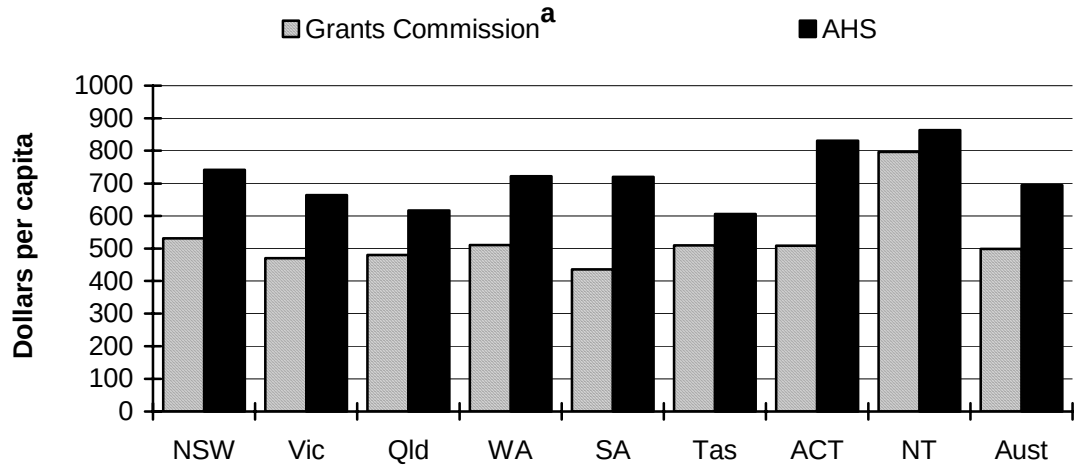
This year, both Commonwealth Grants Commission and Australian Institute of Health and Welfare (AIHW) hospital expenditure data are reported. The Grants Commission hospital expenditure differs from the AIHW data in that it:

- is based on ABS' Government Financial Statistics data that is collected at the State or Territory Government level from Treasuries (rather than directly from hospitals), and thus more closely measures the cost to government (rather than hospital expenditure which may be partly financed by donations or revenue generating activity);
- excludes expenditure on mental health, emergency department and outpatient activity in public acute hospitals (which are categorised as mental health and community health expenditure); and
- does not include expenditure relating to inter-jurisdictional patient flows.

Inter-jurisdictional patient flows most affect the ACT and NT expenditure data. Twenty-five per cent of the patients treated in the ACT's hospitals were NSW residents, while South Australian hospitals accounted for over 3 per cent of the separations of NT residents in 1997-98 (AIHW 1999a).

Recurrent expenditure by public hospitals was $13 billion in 1997-98, according to AIHW data (table 4A.5): equivalent to $695 per capita. Across jurisdictions, per capita recurrent expenditure ranged from $605 in Tasmania to $851 in the NT (figure 4.1). Government recurrent expenditure for acute and non-acute admitted patient public hospital services was $9 billion in 1997-98, according to Grants Commission data, after netting out patient fees (table 4A.5). This was equivalent to $499 per capita. Across jurisdictions, per capita recurrent expenditure (netting-out patient fees) ranged from $436 in SA to $796 in the NT (figure 4.1).

Figure 4.1 **Recurrent expenditure per person — public hospitals, 1997-98**



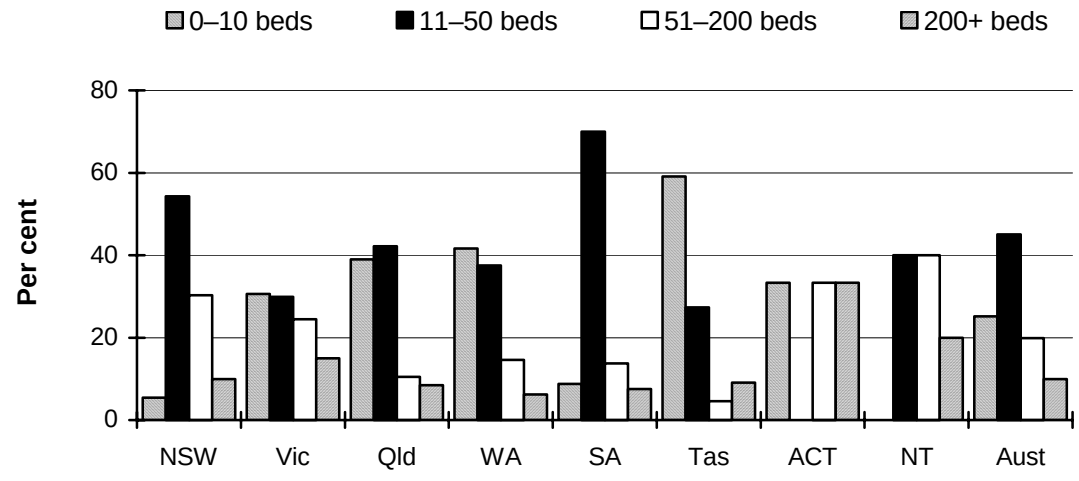
a Net expenditure has been derived using Commonwealth Grants Commission data which excludes expenditure on non-admitted patient services. Revenue from patient fees has also been deducted.

Source: table 4A.5.

The structure of public hospital systems

Australia has 764 public hospitals (734 public acute care hospitals and 30 public psychiatric hospitals) (table 4A.1). Approximately 70 per cent of public hospitals had up to 50 beds, and only 2.5 per cent had more than 500 beds. There were smaller hospitals across all jurisdictions, particularly in States that cover large geographic areas. Over 75 per cent of hospitals in Queensland and WA had fewer than 50 beds (figure 4.2).

Figure 4.2 **Public acute care and psychiatric hospitals, by size, 1997-98[a]**



a Changes in the number and distribution of hospitals by size over time can reflect changes in reporting arrangements, rather than in the number of physical buildings or campuses.

Source: table 4A.4.

There were 175 000 full time equivalent staff employed in Australian public acute care and psychiatric hospitals in 1997-98. Nurses comprised 44.7 per cent of staff, while the remainder were salaried medical officers (8.8 per cent), diagnostic and allied health professionals (14.0 per cent), other personal care staff (2.6 per cent), administrative and clerical staff (14.2 per cent), and domestic and other staff (16.7 per cent) (table 4A.3).

Separations

There were over 3.7 million separations from public acute care hospitals in 1997-98, of which 43.3 per cent were same day separations. Public acute hospitals also handled 32.6 million non-admitted occasions of service in that year (table 4A.6).

The six most common types of admitted patient treatment in public hospitals (by Australian National Diagnosis Related Group [AN-DRG]) in 1997-98 (including same day cases) were:

- renal dialysis (10.2 per cent);
- chemotherapy (3.6 per cent);
- vaginal delivery without complications (3.0 per cent);
- other gastroscopy for non-major digestive disease without complications and co-morbidities (2.0 per cent);
- other colonoscopy without complications and co-morbidities (1.4 per cent); and
- abortion with dilatation and curettage, aspiration curettage or hysterectomy (1.0 per cent) (table 4A.7).

Excluding same day separations, the six most common types of public hospital treatment between 1995-96 and 1997-98 are summarised in table 4.1. 'Vaginal delivery without complications' had the highest number of separations in each year between 1995-96 and 1997-98 inclusive. 'Bronchitis/asthma in admitted patients aged 50 years and under without complications', 'heart failure and shock' and 'chronic obstructive airways disease' consistently accounted for the highest numbers of separations.

Table 4.1 **Top six AN-DRGs (excluding same day cases) in public hospitals, by volume[a]**

AN-DRGs	*1995-96 separations*		*1996-97 separations*		*1997-98 separations*	
	no.	%[b]	no.	%[b]	no.	%[b]
Vaginal delivery without complicating diagnosis	109 695	5.0	107 817	5.1	105 106	5.1
Chronic obstructive airways disease	28 485	1.3	33 146	1.6	34 621	1.7
Bronchitis/asthma in admitted patients aged 50 years and under without complications and comorbidities	38 840	1.8	35 369	1.7	31 873	1.5
Heart failure and shock	30 776	1.4	29 892	1.5	29 746	1.4
Cholecystectomy without common bile duct exploration	na	na	22 594	1.1	23 538	1.1
Tonsillectomy and/or adenoidectomy	21 960	1.0	20 112	1.0	20 764	1.0

a Data for all separations in public hospitals where the episode of care was reported as acute or was not reported. **b** Proportion of total non-same day separations. **na** Not available.

Sources: AIHW (1997a, 1998b, 1999a).

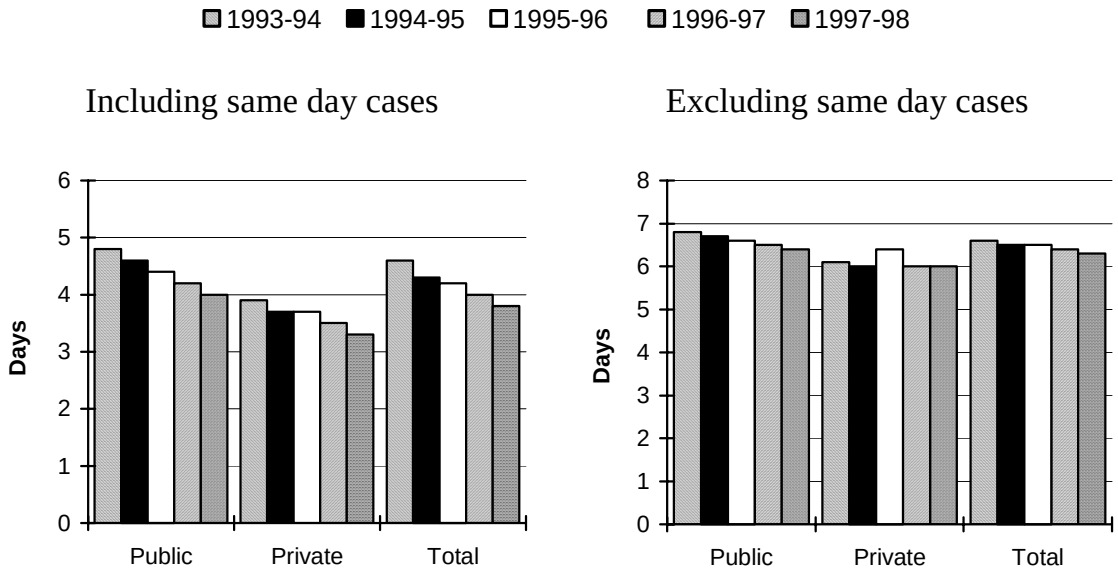
Average length of stay

Including same day cases, the average length of stay in 1997-98 was higher in public acute care hospitals (4.0 days) than in private hospitals (3.3 days). The average length of stay declined for both public acute care and private hospitals between 1993-94 and 1997-98 — down from 4.8 days and 3.9 days respectively. This represented an average annual fall of 4.5 per cent and 0.4 per cent respectively.

Excluding same day cases, the average length of stay in 1997-98 was higher in public acute care hospitals (6.4 days) than in private hospitals (6.0 days). The average length of stay declined for public acute care and private hospitals between 1993-94 and 1997-98 — down from 6.8 days and 6.1 days respectively. This represented an average annual fall of 1.5 per cent and 0.4 per cent respectively (figure 4.3).

The longer average length of stay in public acute care hospitals, compared to private hospitals, reflects the greater complexity of patients treated in public hospitals. The average cost weight for patients treated in private hospitals is 0.96 compared to 1.00 for public hospitals. The higher average cost weight for private compared to public patients in public hospitals is also consistent with public hospitals treating, on average, a more complex mix of patients (AIHW 1999a).

Figure 4.3 **Average length of stay in public acute care and private hospitals**



a Public acute care hospitals. **b** Private psychiatric and private free-standing day hospital facilities. **c** Public acute care and private hospitals only.

Source: table 4A.19.

4.2 Framework of performance indicators

The primary focus of the framework of performance indicators is on public acute care hospitals (that is, excluding stand-alone psychiatric hospitals) and is based on the shared government objectives for public acute care hospitals (box 4.2).

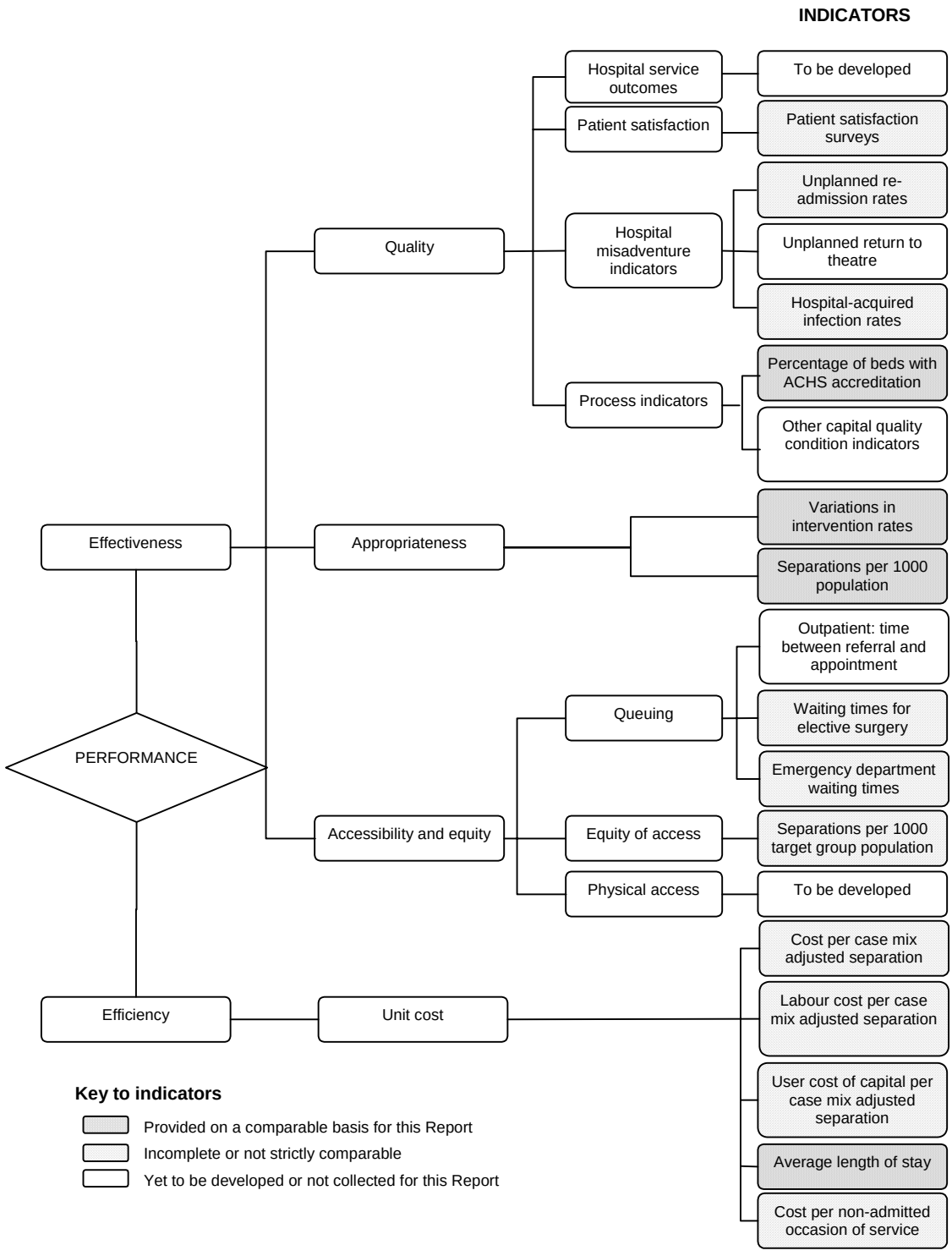
Box 4.2 **Objectives for public acute care hospitals**

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

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

The framework captures general aspects of the performance of public acute care hospitals in providing health care services (figure 4.4).

Figure 4.4 **Performance indicators for public acute care hospitals**



The effectiveness of services provided is reflected in terms of quality (as indicated by patient satisfaction, misadventures and accreditation), appropriateness (as indicated by the total separation rate and the rate for certain procedures) and access (emergency department waiting times). Efficiency indicators include the cost per

case mix adjusted separation, average length of stay, and the cost per non-admitted occasion of service.

The number of separations per 1000 persons in target group populations was added to the framework for this Report, following its adoption as an indicator of access for Indigenous people by the Australian Health Ministers' Conference. Some data, albeit imperfect, are available for this indicator this year. In addition, all jurisdictions have provided elective surgery waiting times data for the first time since 1997, although again the data are not yet comparable. All jurisdictions except the NT provided data on emergency department waiting times.

4.3 Key performance indicator results

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

As discussed in section 4.1, public hospitals provide a range of services to admitted patients, some of which may be non-acute services such as rehabilitation and palliative care. The extent to which these non-acute treatments can be identified and excluded from the analysis differs across jurisdictions.

Quality

All Australian governments and the users of health care services are interested in assessing and improving quality of care. The definition of quality in health care is a source of continuing debate. The Institute of Medicine in the United States defines quality as 'the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge' (Lohr and Shroeder 1990). No single indicator can measure quality across all providers. An alternative strategy is to identify and report on *components* of quality of care.

There has been considerable debate and research to develop suitable indicators of the quality of health care, both in Australia and overseas. The Steering Committee reports data on accreditation of public hospital beds, patient satisfaction, and hospital misadventures (unplanned re-admission rates and hospital acquired infection rates) (table 4.2).

The value of clinical indicators, such as hospital misadventures, was evaluated in research projects undertaken in 1998 and 1999 (box 4.3). The Steering Committee acknowledges the limits of the current indicators, particularly given the differences in the scope and measurement of the indicators, and agrees with the project's recommendations for improving these indicators in the future. Until such data are available, the Steering Committee has decided to continue to report collected data on these indicators at the jurisdiction level, on the understanding that doing so is no worse than reporting nothing at all. These indicators are also reported elsewhere, including in the annual reports of the WA and Tasmanian health departments (HDWA 1998, TDCHS 1998).

Table 4.2 **Quality of care data provided by jurisdictions, by Report editions**

	Patient satisfaction			*Unplanned re-admission to hospital*			*Hospital-acquired infection rates*		
	1995	*1999*	*2000*	*1995*	*1999*	*2000*	*1995*	*1999*	*2000*
NSW	✓	×	✓	×	×	×	×	×	×
Vic	✓	✓	✓	✓	✓	×	×	×	×
Qld	✓	×	✓	×	×	×	×	×	×
WA	✓	✓	✓	×	✓	✓	×	✓	✓
SA	×	×	×	✓	✓	✓	×	✓	✓
Tas	×	✓	✓	✓	✓	✓	✓	✓	✓
ACT	✓	✓	✓	✓	✓	✓	✓	✓	✓
NT	×	✓	×	✓	✓	✓	✓	✓	✓

Accreditation

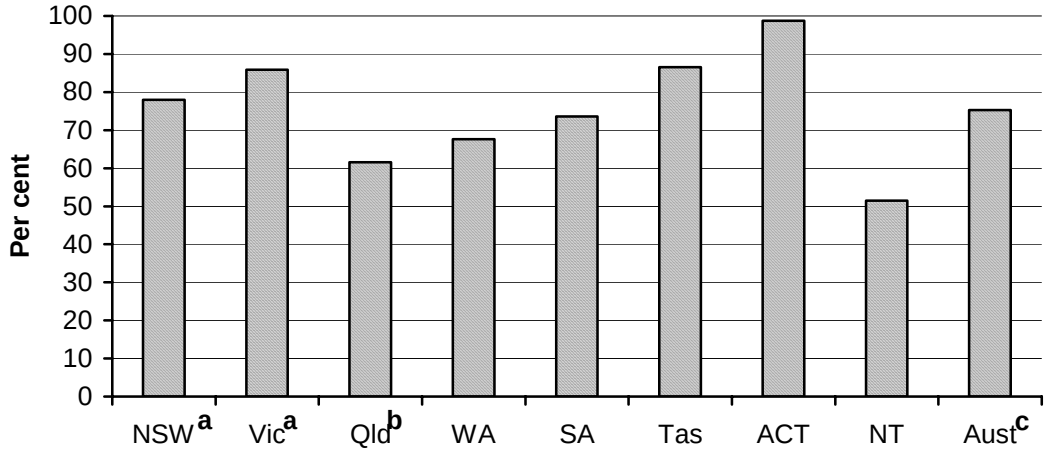
Hospitals may seek accreditation through the Australian Council on Healthcare Standards (ACHS) Evaluation and Quality Improvement Program, ISO 9000 Quality Management System or other equivalent programs. Jurisdictions apply specific criteria to determine which accreditation programs are suitable. The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

Accreditation is an imperfect indicator of quality for several reasons. While it indicates that accredited parties have passed a series of quality tests, it is not possible to draw strong conclusions about the quality of care in those that do not have accreditation. Hospital accreditation is voluntary in all jurisdictions except Victoria, where it will be mandatory from 2000. The costs of preparing a hospital

for accreditation are significant, so a low level of accreditation at the jurisdiction level may reflect a relatively low value placed on achieving accreditation as opposed to poor quality. Also, the cost of accreditation may not rise proportionally with hospital size. This would be consistent with larger hospitals being more active in seeking ACHS accreditation (because it is relatively less costly for them) than actually offering superior care. That said, accreditation provides some information about the proportion of hospital beds in institutions that have been subject to some independent evaluation.

Seventy-five per cent of public hospital beds were in ACHS accredited hospitals at 30 June 1998. Across jurisdictions, the proportion ranged from 51 per cent in the NT to 99 per cent in the ACT (figure 4.5).

Figure 4.5 **Proportion of ACHS accredited public hospital beds, June 1998**

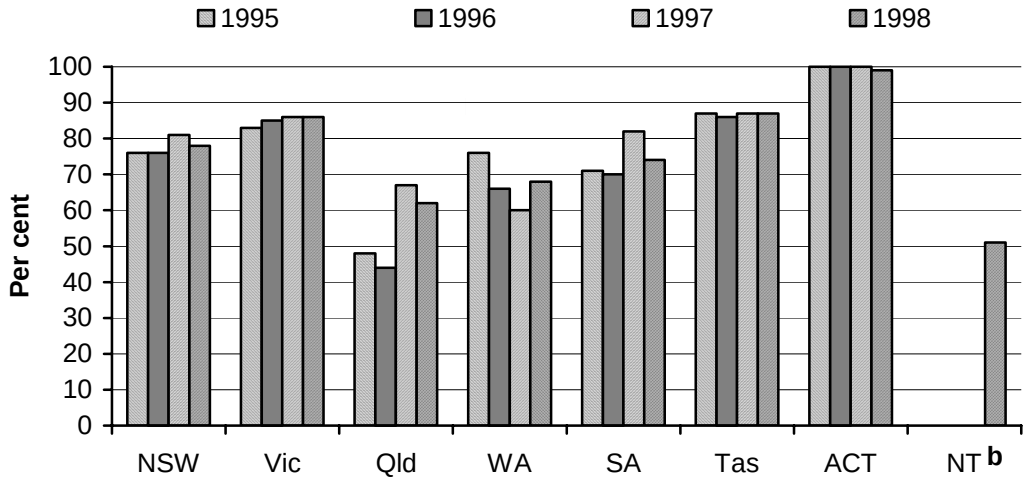


a Amended data provided by NSW and Victoria and agreed by AIHW. Additional accredited hospitals were identified after publication of *Australian Hospital Statistics 1997-98*. **b** Some Queensland hospitals are pursuing other forms of accreditation and certification. **c** Adjusted to reflect changes in NSW and Victoria's data.

Source: table 4A.2.

The trends in the proportion of public hospitals beds accredited by the ACHS differed among jurisdictions over the four years to 1998 (figure 4.6). The proportion decreased in NSW, Queensland and SA between 1997 and 1998, while all hospitals in the ACT were accredited for the same period. The NT only commenced hospital accreditation in September 1997, and reported that 51 per cent of hospital beds were accredited. The proportion of public hospital beds with ACHS accreditation increased overall in all jurisdictions for which data were available between 1994 and 1998.

Figure 4.6 **Proportion of ACHS accredited public hospital beds[a]**



a At 30 June for each year. **b** NT commenced accreditation in September 1997.

Source: table 4A.8.

Patient satisfaction results

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

Jurisdictions reported the following results.

- In New South Wales, a statewide population health survey was conducted in 1997. More than 24 000 households were contacted, with a response rate of 71 per cent. Of those that responded, 11 per cent of males and 15 per cent of females reported having an overnight stay in hospital in the last 12 months. The standard of admitted patient care received within the previous 12 months was rated either as excellent, very good or good by 90 per cent of both male and female respondents using public hospital services. For 80 per cent of both male and female respondents, emergency department care received a rating of either excellent, very good or good. The percentage of respondents who would prefer to return to the same hospital was 74 per cent for males and 70 per cent for females. The adequacy of information provided on discharge from hospital was rated very adequate or adequate by 79 per cent of both male and female respondents (table 4A.23).
- In Victoria, 96 per cent of respondents to a survey of 9918 admitted patients in 1997 reported being either overall ‘very satisfied’ or ‘fairly satisfied’ (as opposed to ‘satisfied’ or ‘not too satisfied’) with their hospital. Ninety-six per

cent of respondents would recommend the hospital to their family or friends. Eighty-seven per cent of patients rated the quality of care as either 'excellent' or 'very good', and a further 10 per cent rated it as 'good' (table 4A.30).

- In Queensland, there is no State-based survey, but hospitals use a variety of standard and self developed survey instruments, with various frequencies of administration, depending on the health care setting.
- In Western Australia, State-based patient satisfaction surveys of hospital services were conducted over the past three years, with a standard set of satisfaction indicators being developed. The number of people surveyed steadily increased from 3412 people in 1996-97 to 16 074 in 1998-99. The response rate was 40 per cent in 1998-99. The Patient Evaluation of Hospital Services survey was conducted as a self completion postal questionnaire from April to July 1998. Two measures were used to assess patient satisfaction — an outcome score and an overall indicator of satisfaction. The State outcome score for all admitted patients was 88 out of 100 in 1998-99. The score indicates that most hospital patients perceived their hospital stay as being beneficial to their health. The outcome score was consistent across hospital type, location and function (HDWA 1997-98). The overall indicator of satisfaction for 1998-99 was 83 out of 100, indicating a generally high level of satisfaction with most categories of hospital services. Scores on two of the eight major scales were below the average of 80 (tables 4A.36 and 4A.37).
- In Tasmania, a 1998 patient satisfaction survey of 600 patients was conducted in each of the major hospitals, with a response rate of 66 per cent. Consistent with most hospital satisfaction surveys, patients rated treatment and care provided by public hospitals highly. The results indicated that 93 per cent of respondents advised that they would definitely or probably recommend the hospital to family or friends, while 96 per cent of respondents reported that they were either very satisfied or mostly satisfied that their needs were met during their hospital stay. The Tasmanian Health Department is examining results of the survey in greater depth, including the use of statistical modelling tools to identify key areas of patients' perspectives of hospital care that should be incorporated into service improvement activities. The patient satisfaction survey tool will also be evaluated (table 4A.50).
- In the ACT, there is no Territory-based survey and the results of two hospital based surveys have not yet been released. The Calvary Hospital conducted a satisfaction survey of 1960 public hospital patients in May 1999, with a response rate of 37 per cent. The survey indicated a high degree of satisfaction overall. The Canberra Hospital conducted the Hospital-wide Patient Satisfaction Survey in October 1999, the results of which were still being collated in December 1999. Areas surveyed include admitted patients (excluding mental health),

outpatients and emergency and day surgery areas. The hospital surveyed 10 patients from each ward/unit over an eight week period.

- The NT uses a variety of methods to gain feedback on consumers' experiences with hospital services. These range from the structured patient satisfaction survey tool to community-based interviews with ex-patients.

Unplanned re-admission rates

The unplanned re-admission rate is the total number of unplanned re-admissions for the same condition within 28 days of discharge (during the period under study) divided by the total number of separations (excluding deaths) for the same period. According to the Australian Council on Healthcare Standards, a re-admission occurs through the emergency department and can be defined as:

- an unexpected admission for further treatment of the same condition for which the patient was hospitalised in the previous 28 days;
- an unexpected admission for treatment of a condition related to the one for which the patient was hospitalised in the previous 28 days; and
- an unexpected admission for a complication related to the one for which the patient was hospitalised in the previous 28 days (ACHS 1998).

This definition is applied differently in each jurisdiction, so the reported results are not used to make comparisons across jurisdictions. Care should be taken therefore in interpreting these data.

Jurisdictions reported the following results.

- In WA, the unplanned emergency re-admission rate was 3 per cent for rural non-teaching hospitals and nearly 1 per cent for all public hospitals (table 4A.39).
- In SA, the unplanned emergency re-admission rate was 4 per cent for 24 hospitals in 1998, compared with 4.6 per cent for 30 hospitals in 1997 (table 4A.43; SCRCSSP 1999a).
- In Tasmania, the unplanned emergency re-admission rate was 1 per cent for the three major hospitals in 1997-98 (table 4A.47).
- In the ACT, the unplanned emergency re-admission rate was 3.4 per cent in 1997-98 compared with 2.7 per cent for all hospitals in 1996-97 and 4.2 per cent in 1995-96 (table 4A.51; SCRCSSP 1999a).
- In the NT, the unplanned emergency re-admission rate was 6.3 per cent across five hospitals in 1997-98 (table 4A.55).

Box 4.3 The Pilot Hospital-wide Clinical Indicators Project

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

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

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

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

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

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

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

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

Hospital-acquired infection rates

Three measures of hospital-acquired infection rates are reported here. 'Rates of post-operative wound infection' are defined for both clean and contaminated surgery. They are derived by dividing the number of patients with evidence of wound infection on or after the fifth post-operative day following clean (or contaminated) surgery, by the number of patients undergoing clean (or contaminated) surgery with a post-operative stay of at least five days. The 'rate of hospital-acquired bacteraemia' is the number of patients who acquired bacteraemia during a hospital stay, divided by the number of separations with a length of stay equal to or greater than two days.

Jurisdictions reported the following results.

- *Rate of post-operative wound infection following clean surgery*
  - WA supplied data for combined post-operative wound infections. The rate was 0.6 per cent for teaching hospitals, 0.4 per cent for metropolitan non-teaching hospitals and 0.4 per cent for rural non-teaching hospitals. The rate for total public hospitals was 0.5 per cent (table 4A.39).
  - In SA, the rate was 2.0 per cent across 11 hospitals in 1998 (table 4A.43).
  - In the ACT, the rate was 1.1 per cent for The Canberra Hospital in 1997-98. The Calvary Hospital will commence reporting on this indicator in 1999-2000 (table 4A.51).
  - In the NT, the rate across all hospitals was 3.1 per cent in 1997-98 (table 4A.55).
- *Rate* of *post-operative wound infection following contaminated surgery*
  - In SA, the rate was 2.1 per cent for 12 hospitals in 1998 (table 4A.43).
  - In the ACT, the rate was 0.7 per cent for The Canberra Hospital only in 1997-98. The Calvary Hospital will commence reporting on this indicator in 1999-2000 (table 4A.51).
  - In the NT, the rate across all hospitals was 7.8 per cent in 1997-98 (table 4A.55).
- *Rate of hospital-acquired bacteraemia*
  - In WA, the rate was nearly 0.1 per cent for all public hospitals in 1997-98 (table 4A.39).
  - In SA, the rate was 0.3 per cent for 14 hospitals for the calendar year 1998 (table 4A.43).

– In Tasmania, the rate was 0.2 per cent for the three major hospitals in 1997-98 (table 4A.47).
– In the ACT, the rate was 0.6 per cent for The Canberra Hospital in 1997-98 (table 4A.51).
– In the NT, the rate across all hospitals was 0.5 per cent 1997-98 (table 4A.55).

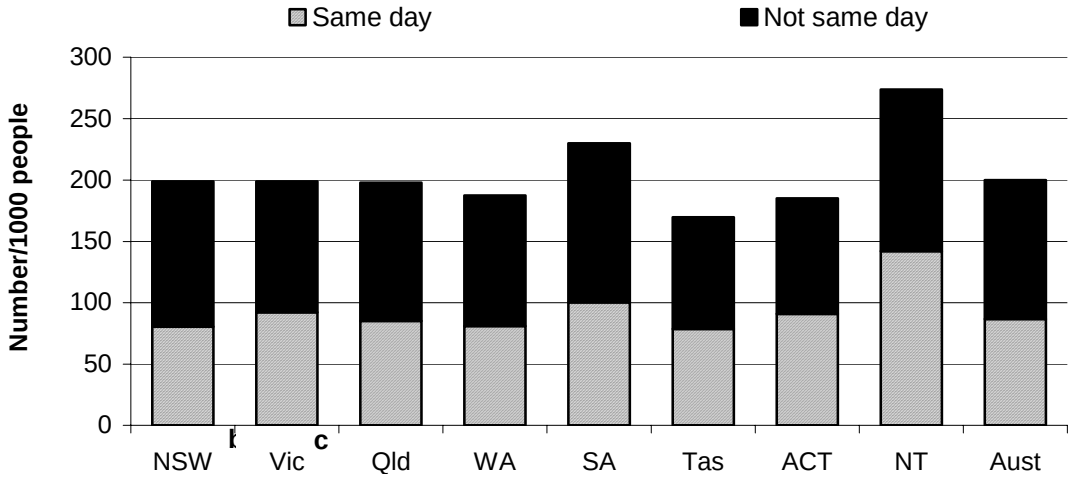
Appropriateness

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

Total separation rates

There were approximately 3.7 million separations from public acute care hospitals in 1997-98 (table 4A.6). Nationally this translated into nearly 200 separations per 1000 persons, ranging from 169.5 in Tasmania to 273.7 in the NT (figure 4.7).

Figure 4.7 **Separations from public acute care hospitals, 1997-98[a]**

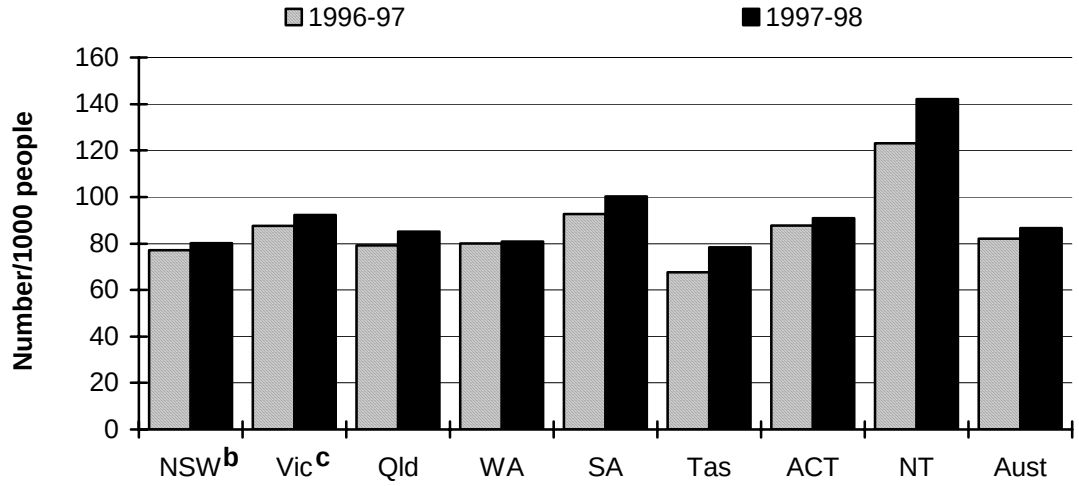


[a] Includes psychiatric and sub-acute separations from acute hospitals. [b] Data includes separations from Department of Veterans Affairs hospitals. [c] Victorian data in last year's Report excluded psychiatric and sub-acute separations and should not be compared with that reported this year, which includes all separations.

Source: table 4A.9.

Nationally, 86.5 of a total of 199.9 separations per 1000 persons were same day separations in 1997-98. Tasmania had the overall lowest rate of same day separations (78.4), largely reflecting its low rate of all separations (the proportion of Tasmanian separations that were same day was the same as the national average). The NT had the highest rate of same day separations (142.1). Between 1996-97 and 1997-98, the number of same day separations rose significantly in Tasmania (16.0 per cent) and the NT (15.5 per cent) (figure 4.8).

Figure 4.8 **Same day separations from public acute care hospitals [a]**



[a] Includes psychiatric and sub-acute separations from acute hospitals. [b] Data includes separations from Department of Veterans Affairs hospitals. [c] Victorian data in last year's Report excluded psychiatric and sub-acute separations and should not be compared with that reported this year, which includes all separations.

Source: table 4A.9.

Separation rates for certain procedures

Separation rates for certain procedures are also used to indicate the appropriateness of hospital care. The data available are for all hospitals and so also reflect the activities of the private health system. The procedures were selected for their frequency and for being elective and discretionary procedures (given the availability of alternative treatments).

Nationally, endoscopy had the highest number of separations — 24.4 per 1000 persons (standardised for age and sex differences across jurisdictions) — among the selected identified procedures in 1997-98 (table 4.3). It was followed by lens insertion and arthroscopy (5.4 and 5.1 separations per 1000 persons respectively). Separation rates for all procedures varied across jurisdictions.

The number of separations per 1000 persons in 1997-98 differed most widely for:

- endoscopy (from 13.3 in the ACT to 26.3 in Queensland);
- arthroscopy (from 3.2 in the NT to 8.4 in SA); and
- myringotomy (from 0.9 in the NT to 3.7 in SA).[1]

Some of the selected procedures, such as angioplasty and coronary artery bypass graft, are alternative treatment options for people diagnosed with similar conditions. Statistically significant and material differences in the separation rates for these procedures may highlight variations in treatment methods across jurisdictions. NSW, WA and the ACT recorded statistically significant differences from the average rates for these procedures in all other jurisdictions, whereas there were no significant differences in Victoria, SA, Tasmania and the NT (table 4A.10).

Table 4.3 **Separations per 1000 persons, public and private hospitals, by selected procedure, 1997-98[a, b, c]**

	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*	*Aust*
A relatively high rate may indicate more appropriate care[d]									
Angioplasty	0.93	1.06	0.59	0.92	0.88	0.85	0.64	0.53	0.89
Coronary artery bypass	1.00	0.93	0.85	0.68	0.74	0.76	0.82	0.64	0.89
Hip replacement	0.99	1.14	0.91	1.05	1.17	1.41	1.34	0.66	1.05
Lens insertion	5.55	5.19	6.78	4.93	3.86	3.63	2.34	4.65	5.38
A relatively high rate may indicate over reliance on procedures[d]									
Hysterectomy	1.67	1.65	1.83	1.78	2.10	2.10	1.78	0.94	1.75
Tonsillectomy[e]	1.74	2.15	1.89	1.67	2.73	1.50	1.56	0.55	1.91
Myringotomy[e]	1.76	2.48	1.96	2.07	3.68	1.88	1.54	0.88	2.14
Caesarean section	2.72	2.78	3.27	3.06	3.20	2.99	2.38	2.58	2.90
Implications of a high or low rate are unclear[d]									
Appendicectomy	1.38	1.50	1.48	1.59	1.32	1.38	1.40	1.00	1.44
Cholecystectomy	2.33	2.20	2.30	1.80	2.32	2.05	1.86	1.24	2.22
Arthroscopy	4.62	5.43	4.13	5.39	8.37	4.70	4.93	3.20	5.10
Endoscopy	24.91	25.59	26.31	21.87	20.92	22.04	13.33	13.67	24.39

a Rates standardised for age and sex of the Australian population at 30 June 1991. **b** Excludes private hospitals in the NT and private free-standing day facilities in the ACT. Some private free-standing day facilities in Tasmania are also excluded. **c** Table 4A.10 provides data on the statistical significance of differences between jurisdictions. **d** Caution should be taken in interpreting the differences in the separation rates of the selected procedures. Variations in rates may be attributed to variations in the prevalence of the conditions being treated, or differences in clinical practice between States and Territories. Higher/lower rates are not associated necessarily with inappropriate care. **e** Separation rates for these procedures may reflect the performance of general practice at the primary care level (see chapter 5).

Source: table 4A.10.

[1] Endoscopy enables internal examinations to be carried out using a fine tube; arthroscopy is a technique for the diagnosis and treatment of knee problems; myringotomy is a surgical procedure where short tubes (grommets) are inserted in the ear to ventilate the middle ear.

Accessibility and equity

Waiting times for elective surgery

The proportion of elective surgery patients waiting longer than the accepted standards is one nationally recognised indicator of access to public acute care hospitals (HDWA 1998). Waiting time data is also collected for internal management purposes by hospitals. Elective surgery admissions account for an average of 16 per cent of all acute admissions across jurisdictions for which data is available, but the proportion varies significantly (table 4.4).

The *Report on Government Service Provision 1997* contained 1994 data on elective surgery waiting times for public acute care hospitals for all States and Territories. The AIHW has compiled but not released data for 1995-96 and 1996-97. The delay in release is partly a result of concerns relating to inconsistent data definitions and collection processes (AIHW 1999b).

Under the 1993-98 Medicare Agreements, all States and Territories agreed to report elective surgery waiting times from 1995-96. States and Territories started from different points, and while some States implemented reporting systems in 1995-96, other States were able to report against definitions which were not necessarily consistent. All States agreed to report against the same definitions by 1997-98. Elective surgery waiting time data provided by the States and Territories for the three years 1995-96 to 1997-98 have been published in the Commonwealth Department of Health and Family Services (Aged Care) Annual Reports in the following year (ie 1996-97 to 1998-99).

All States and Territories have also now provided the AIHW with detailed 1997-98 data for validation, but this process had not been completed in time for the data to be included in this year's Report.

As was the case last year, this Report includes elective surgery data that have been provided directly to the Review or the Commonwealth by States and Territories. There are three generally accepted urgency categories for elective surgery:

- category 1 where admission is desirable within 30 days;
- category 2 where admission is desirable within 90 days; and
- category 3 where admission in the future is acceptable (see Table 4A.68 for complete definitions).

Category 1 and category 2 patients waiting longer than desirable are usually described as 'overdue', while category 3 patients waiting longer than a year are

subject to an 'extended wait' (AIHW 1999c). For simplicity, the term 'extended wait' will also be used here to describe 'overdue' patients. There is no specified or agreed desirable wait for category 3 patients, so the term 'extended wait' is used for patients waiting for longer than 12 months as per Medicare Agreement targets.

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

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

In addition, a conceptual issue is how reported results are affected by differences in the proportion of patients that were recorded as emergency admissions, rather than from waiting lists. The available data focused on those patients subject to extended waits, as a proportion of those waiting (for census data) or as a proportion of those admitted (for throughput data). Clinical decisions on whether to admit a patient for surgery as an emergency patient or as a patient for elective surgery (albeit with no wait), affects the denominator of the indicator, and may vary systemically across jurisdictions (table 4.4).

Another data issue is how differences in the recording of waiting times affect the comparability of reported results. This is a particular issue when recording waiting times for patients who experience a change in their clinical condition, leading to a review of their urgency category. From 1999-2000, all jurisdictions will record waiting times as the period in the most recent urgency category, and in any previous more urgent categories. This was the method used for NSW and Queensland in 1997-98. Other jurisdictions used slightly different methods that would have decreased the reported waiting time for some patients in WA, SA and the NT, and increased it for Victoria and Tasmania. The two ACT hospitals used different methods so there was no way of assessing the likely net effect. It was not possible to assess the significance of these definitional differences, in part because the number of patients whose category was revised was not recorded. Comparisons across

jurisdictions may also be affected by differences in the scope of the collections (including the proportion of hospitals and elective admissions covered).

The proportion of patients waiting for elective surgery at public hospitals subject to extended waits, for each urgency category, is reported in table 4.4. This indicator needs to be interpreted carefully. It indicates the proportion of those patients waiting on that date, who have been waiting an extended time. Thus it captures, in the numerator and denominator, those patients who may never be admitted (for a variety of reasons, see below). However, generally it will overstate the likelihood of extended wait, because those waiting an extended time (the numerator) are more likely to be recorded on any census date, than those who are treated in a timely manner (and thus understate the denominator) (Don *et al.* 1987).

An alternative indicator based on admissions data — the proportion of patients admitted with extended waits — also has some shortcomings. Not counted are those patients who waited an extended time but were not admitted as a waiting list patient to a public hospital because they became emergency cases, decided to be treated in a private hospital, or died (Nicholl 1988). In addition, some patients waiting may not be admitted because their condition improved sufficiently to make treatment unnecessary, or they declined treatment for other reasons (Lee *et al.* 1987).

NSW, WA, SA, the ACT and the NT provided data on patients on waiting lists by clinical speciality for 1997-98. Queensland and Tasmania provided data only for all clinical specialities aggregated (see attachment 4A).

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

- At 30 June 1998, 189 category 1 patients were on the waiting list for elective surgery but no category 1 patients were overdue for surgery.
- There were over 1800 category 2 patients overdue for surgery, comprising 28 per cent of the 6364 category 2 patients on the waiting list.
- There were over 22 000 patients on the category 3 waiting list (table 4A.31).

Table 4.4 **Proportion of elective surgery patients with extended waits**

Urgency category[a]	*Unit*	*NSW*	*Vic*[b]	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*
Proportion of patients on waiting lists with extended waits, 30 June 1998									
1 – Admit ≤ 30 days	%	14		1	16	15	33	35	38
2 – Admit ≤ 90 days	%	9		11	22	13	47	45	34
3 – Non-urgent[c]	%	6		29	11	8	35	23	14
Proportion of patients admitted from waiting lists with extended waits, 1997-98									
1 – Admit ≤ 30 days	%	14	np	5	10	10	15	np	10
2 – Admit ≤ 90 days	%	10	np	15	12	10	35	np	18
3 – Non-urgent[c]	%	5	np	9	9	3	13	np	3
Waiting list admissions, 1997-98									
Number	no.	232 916	na	114 691	22 357	36 239	14 523	9 288	na
As a proportion of acute admissions	%	19	na	17	7	10	19	na	na
Data coverage[d]									
Coverage of elective admissions	%	100	na	95	68	73	88	100	na
Number of hospitals	no.	na	23	33	5	7	3	2	na

a The categories are defined in the text above. **b** Data not included; see text below. **c** There is no specified or agreed desirable maximum wait for category 3 patients, so the data relate to patients waiting longer than 12 months as per Medicare Agreement targets. **d** Not all hospitals that undertook elective surgery provided data. **na** Not available. **np** These data were not available for inclusion in the Commonwealth Department of Health and Aged Care Annual Report and were not requested for this Report from the relevant agency early enough to allow it to be included.

Sources: tables 4A.26; 4A.31; 4A.34; 4A.35; 4A.46; 4A.48; 4A.54; 4A.56; derived from DHAC (1999b); State and Territory governments (unpublished).

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

Emergency department waiting times

This indicator measures the proportion of patients seen from presentation to the emergency department to commencement of service by a treating medical officer or nurse, within the time limits set according to the urgency of treatment required (AIHW 1999c). A 1997 study recommended two emergency department waiting time indicators for national reporting (Whitby *et al*. 1997). One of these indicators relates waiting times to the urgency of treatment required (triage category):

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

Data for all jurisdictions are presented in table 4.5. There are nationally agreed definitions, but as with the elective surgery data, differences in how the data are collected may exist, and great care should be taken in interpreting these data. Data issues to be investigated include any differences in when the elapsed time commences (for example, when the patient arrives at the triage desk, or when a triage category is allocated) and the precision with which the time treatment starts is recorded. Other issues arise with the use of benchmarks. For example, a patient in triage category 2 who waits 11 minutes is recorded the same as one waiting 18 minutes, even though the later event may be of much greater concern. There are also some differences in the periods for which data were collected. Consequently, the reported results are not used to make comparisons across jurisdictions.

Table 4.5 **Emergency department waiting time to service delivery, 1997-98 (percentage of patients seen within triage category)[a]**

Triage category	*NSW*[b, c]	*Vic*	*Qld*[d]	*WA*[e]	*SA*	*Tas*	*ACT*[f]	*NT*
1 – Resuscitation	96	100	95	89	95	94	100	na
2 – Emergency	76	81	64	70	63	76	83	na
3 – Urgent	63	75	60	68	58	67	71	na
4 – Semi-urgent	68	na	68	69	61	77	63	na
5 – Non-urgent	89	na	88	88	93	96	81	na
Data coverage								
Estimated proportion of emergency visits	79	na	61	na	55	96	70	na
Number of hospitals.	51	19	20	na	6	3	2	na

a Nationally agreed definitions exist but differences in how data are collected may exist and care should be taken in interpreting these data. **b** Excludes non-emergency visits, that is, planned visits, privately referred non-admitted patients, pre-arranged admissions (non-medical), patients in transit and dead on arrival are not classified as triage 1. **c** 1998-99 data. **d** January to June 1999 data for hospitals with an emergency department role delineation of 4 or greater. **e** Derived from teaching hospital emergency department systems. One hospital has a real time reporting system and it reported seeing 100 per cent of triage category 1 patient within the specified time. The other hospitals estimated the time when information was logged after the event. **f** The period reported for the Calvary Hospital was July 1997 to June 1998 and, for The Canberra Hospital, the period was January to June 1998. **na** Not available.

Sources: tables 4A.23; 4A.28; 4A.33; 4A.41; 4A.44; 4A.49; 4A.52; State and Territory governments (unpublished).

Separations by target group

Access to hospital services is one measure of the effectiveness of the health sector. Without appropriate access to hospital services, the consequences of any injury or illness are more likely to result in either permanent disability or premature death.

Data on separation rates for Indigenous people and all people by State and Territory for all hospitals (both public and private) are presented in table 4.6. The variation in the number of Indigenous separations per 1000 Indigenous population could be due to one of two factors.

First, the completeness of the data varies between States and Territories. Some Indigenous people may not be identified in the morbidity data collections and/or the total population. Some jurisdictions have only recently begun collecting data on Indigenous status (table 4.6). A 1999 study found the proportion of people living in a hospital's catchment area was a major factor associated with the accuracy of recording of Indigenous status. More accurate records were collected by hospitals with more Indigenous people in their primary catchment area. The completeness of identification of Indigenous people ranged from 55 per cent to 100 per cent results across the 12 hospitals participating in the study (ABS & AIHW 1999). The Aboriginal and Torres Strait Islander Health and Welfare Unit is working with Health Departments and hospitals to improve the completeness of data about Indigenous status and all jurisdictions will be assessing the completeness of their hospital data collections by the end of 2001 (ABS & AIHW 1999).

Second, the true hospitalisation rates for Indigenous persons may vary across jurisdictions. But given the shortcomings of the data, it is likely differences may, in part, reflect variations in the completeness of the data, rather than access to services.

Table 4.6 **Indicative estimates of separations per 1000 persons from all hospitals, by reported Indigenous status, 1997-98** [a, b, c]

	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*	*Aust*
Indigenous people	398	367	543	785	703	139	392	904	540
Total population	277	293	311	283	313	268	266	341	291
Year of first collection of Indigenous data [d]	1979	1986	1993	1984	1981	1997	1976	1981	..

[a] Includes same day procedures and repeat admissions for services such as dialysis [b] There are no estimates of the completeness of identification of Indigenous patients for most jurisdictions. [c] Rates age-standardised for the Australian population at 30 June 1991. [d] Less established data collections may be incomplete.

Sources: AIHW (1999a); ABS & AIHW (1999).

Overall, on an age-standardised basis, 540 separations for Indigenous patients (including same day procedures and repeat admissions) were reported per 1000 Indigenous population in Australia. This was markedly higher than the corresponding overall population figure of 291 per 1000 (table 4.6). Indigenous data for private hospitals were not available for Victoria or the NT. Even without private separations data, the NT reported the highest rate of Indigenous separations (904 per 1000). WA and SA reported the next highest rates (785 and 703 per 1000 respectively), ahead of Queensland and NSW (543 and 398 per 1000 respectively).

The ratios of hospital separations of Indigenous males and females, for selected diseases, were markedly higher than those for the whole population, in all age groups over 34 years. The most striking difference in separation ratios between Indigenous people and the remaining population was for diabetes. In WA, SA and the NT, Indigenous women were between 10 and 18 times more likely to have been hospitalised for diabetes than other women in the same jurisdictions. Similarly, Indigenous men were between three and 13 times more likely to have been hospitalised for diabetes than other men in the same jurisdictions. Hospital separation ratios for tympanoplasty were very high for the NT (10.8 for males and 15.6 for females), and quite high for SA (3.7 for males and 3.8 for females) (table 4.7).

Efficiency

Care should be taken when comparing the available indicators of efficiency across jurisdictions. Differences in counting rules, treatment of various expenditure items (for example, superannuation), and allocation of overhead costs have the potential to hinder comparisons across jurisdictions. Differences in the scope of services being measured may also reduce the comparability of efficiency measures, particularly where counts of services to sub-acute and non-acute patients are included with counts of services to acute care patients. Further, there are differences in the extent to which jurisdictions include psychiatric services provided in public acute care hospitals (box 4.4).

Three approaches to measuring the efficiency of public hospital acute care services are used in this Report. One is the level of expenditure per unit of output (the unit cost). An alternative indicator is the average length of stay, because costs are correlated with the length of stay at aggregate levels of reporting.

This year, the Report uses two sources of data for both unit cost indicators and average length of stay. The two sources are the AIHW's *Australian Hospital Statistics* (AHS) and the Commonwealth Department of Health and Aged Care's *National Hospital Cost Data Collection* (NHCDC). Both data sources have strengths and weaknesses which are discussed in box 4.4.

Table 4.7 **Hospital separation ratios for selected causes, by sex and jurisdiction (age standardised)[a]**

Disease/sex	*NSW[b]*	*Vic[b]*	*Qld[b, c, d]*	*Qld[b, c, e]*	*WA*	*SA*	*Tas[b]*	*ACT[b]*	*NT*
Acute myocardial infarction									
Male	1.6	na	3.2	1.4	2.2	2.0	np+	*	1.8
Female	2.2	na	3.9	2.3	2.6	3.6	np+	*	1.3
Injury and poisoning									
Male	1.4	1.8	4.3	1.3	3.4	2.5	np+	1.0	2.3
Female	1.5	2.1	6.7	1.5	4.3	3.1	np+	1.2	2.9
Respiratory diseases									
Male	2.4	2.1	5.7	1.4	4.7	2.8	np+	*	3.5
Female	2.8	2.8	6.1	1.3	5.4	2.6	np+	*	5.5
Diabetes									
Male	4.2	na	13.2	5.6	12.6	7.3	np+	6.6	3.2
Female		na	18.2	10.5	10.4	10.6	np+	2.6	17.5
Tympanoplasty									
Male	0.7	na	1.1	0.5	np	3.7	np+	0.0	10.8
Female	2.1	na	1.5	0.0	np	3.8	np+	0.0	15.6

a Ratios of Aboriginal and Torres Strait Islander to non-Aboriginal and Torres Strait Islander public hospital separations. Data are for 1996-97 in NSW; 1997-98 in Victoria; 1995-96 and 1996-97 in Queensland; 1996-97 in WA; 1997-98 in SA, 1996-97 in the ACT, 1997 in the NT (where it is unknown whether the data are for public and private hospitals or public hospitals only). Ratios for NSW, Vic, WA, SA and the NT are based on direct standardisation, and those for Queensland and the ACT are based on indirect standardisation. **b** The Australian Bureau of Statistics regards the mortality and hospitalisation data from these jurisdictions to be under reported for Aboriginal and Torres Strait peoples, and unable to be meaningfully interpreted at this time. **c** Queensland separation ratios were calculated using data from the Deed of Grant in Trust (DOGIT) communities. The Torres Strait Islander ratios were calculated using the Torres statistical local area data (20 per cent of the population are not Aboriginal or Torres Strait Islander). **d** Data for Aboriginal people. **e** Data for Torres Strait Islander people. **na** Not available. **np** Data not provided because of poor data quality. **np+** Jurisdiction is seeking to improve data quality. ***** Numbers are too small for reporting.

Source: NHIMG (1999).

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

The Review has identified a range of financial reporting issues that have also affected the accuracy and comparability of unit costs for acute care services. These include the treatment of:

- payroll tax;
- superannuation;
- depreciation; and
- the user cost of capital.

Box 4.4 **Differences in the methods of deriving unit costs**

The three methods of deriving unit costs presented in this Report each have a number of strengths and weaknesses for cost comparisons. All are intended to measure the costs incurred at the hospital level, except the cost to government where hospitals have their own revenues (for example, patient fees) or receive donations.

1. *Australian Hospitals Statistics* (AHS) estimated the cost of *admitted patient* separations in public acute hospitals, adjusted for acute case mix. All separations and expenditure for institutions that primarily provide non-acute services are excluded, but non-acute admitted patients in primarily acute hospitals are included. This method:

- has a more clearly based criteria for inclusion of institutions;
- includes more complete coverage of acute hospitals and expenditure;
- publishes data 12 months after the end of the reference year (compared to 16 months for the NHCDC); and
- is reconcilable to each hospital's audited financial statements.

2. Victoria argued that it has more non-acute, sub-acute and psychiatric separations delivered in its public acute care hospitals than some jurisdictions, and has excluded these separations, and the associated expenditure. Thus it is able to more accurately show costs per case mix adjusted *acute* separation, distinguished from other services. Victoria was able to do this because its expenditure data are extracted from a detailed financial reporting system which requires hospitals to distinguish between expenditure on these different types of services, and to reconcile the expenditure with that reported in their audited annual reports to the Victorian Parliament.

3. The primary role of the annual *National Hospital Cost Data Collection* (NHCDC) is to derive the cost weights for *acute* separations (by AN-DRG), while a stated secondary role is to produce comparative data across jurisdictions. It collects data from a sample of hospitals. This method of deriving comparative data:

- only includes acute admitted patient separations and related costs;
- excludes research and teaching expenditure;
- includes depreciation (albeit imperfectly); and
- provides greater incentives for the participating sample of hospitals to refine their allocation of costs between different cost components, as well as between acute and sub-acute services, and between acute DRGs. This is because the data are based on the management accounting or costing systems of the respective hospitals, which in turn receive feedback useful for internal management purposes. Nearly 29 per cent of hospitals participated in the 1997-98 study, compared to 19 per cent in the previous year.

The selected hospitals are those that volunteer to participate in this exercise. Consequently, the representativeness of the sample of hospitals could vary across jurisdictions. The proportion participating is indicated in table 4.8.

Sources: Pearse (1999); AIHW (1999a).

A number of bodies, including the Steering Committee, have been seeking to improve the comparability of cost data. Last year, work by the Steering Committee identified Tasmanian public hospitals as the only government acute care service providers to include payroll tax in their costs. The Tasmanian Department of Human and Health Services then adjusted their cost estimates to exclude this cost element. This adjustment has subsequently been adopted in the AIHW's estimates of public acute care costs. The superannuation expense for 1997-98 for the NT was estimated using the average for other jurisdictions. Research by the Steering Committee suggested that this may understate the expense for the NT (SCRCSSP 1998b).

Another possible source of differences in cost is variation in the use of salary packaging. This may allow hospitals to lower their wage bills (and thus State or Territory Government expenditure) while maintaining their staffs' after-tax income. No data were available for reporting on the effect of salary packaging and any variation in its use across jurisdictions.

Depreciation and the user cost of capital associated with buildings and equipment are included with estimates of unit costs for the first time this year (figure 4.10). A number of issues remain to further improve the quality of these estimates. The inclusion of these capital costs improves the accuracy of the unit costs of acute care services.

Recurrent costs per case mix adjusted separation

The recurrent cost per case mix adjusted separation is an indicator of hospitals' cost performance for acute care services. This indicator measures the average cost of providing care for an admitted patient, adjusted for the relative complexity of the mix of patients' clinical conditions and of the hospital services provided (AIHW 1999a).

As noted above, there are three sources of comparative data on cost per case mix adjusted separation. The AIHW's estimates of the cost per case mix adjusted separation has been reported in *Australian Hospital Statistics* (AIHW 1999a), previous editions of this Report and the reports of the National Health Ministers Benchmarking Working Group (NHMBWG 1999).

The AIHW method is based on unit record data for all admitted patient separations and aggregated financial data for their associated costs, from selected public acute care hospitals (AIHW 1999a). Expenditure associated with non-admitted patient care is estimated and excluded. The AIHW has continued to work with the health sector to refine the scope of the services that are included in these cost estimates.

The AIHW collects data from all hospitals, but then excludes institutions that are psychiatric hospitals, drug and alcohol services, rehabilitation, dental, mothercraft hospitals, hospices and hospitals that satisfy the NSW definition of community non-acute hospitals. The 1997-98 data exclude hospitals that account for 3.5 per cent of total separations across Australia, although the proportion of separations excluded varies across jurisdictions (table 4.8). This has led to some concerns about the comparability of these data when used to assess efficiency.

Table 4.8 **Coverage of data collections (per cent)**

	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*	*Aust*
Share of separations excluded in AHS	5.9	1.9	3.0	1.3	4.8	7.7	1.2	na	3.5
Share of hospitals sampled in NHCDC	29.9	36.1	27.2	15.6	28.6	23.1	100.0	80.0	28.6
Share of separations sampled in NHCDC	58.5	73.0	63.9	50.6	59.7	93.5	100.0	94.1	64.4

na Not available.

Sources: AIHW (1999a); DHAC (1999a).

Refinements to the basis of excluding institutions mean that the public hospitals included in the AIHW's calculation of the recurrent cost estimates for 1997-98 differ from those reported for 1996-97. They are also different from those reported in *Australian Hospital Statistics 1995-96* (AIHW 1998a) and in the *Report on Government Services 1999* (SCRCSSP 1999a). Such refinements have meant that comparisons over time of recurrent cost per case mix adjusted separation should be treated with caution.

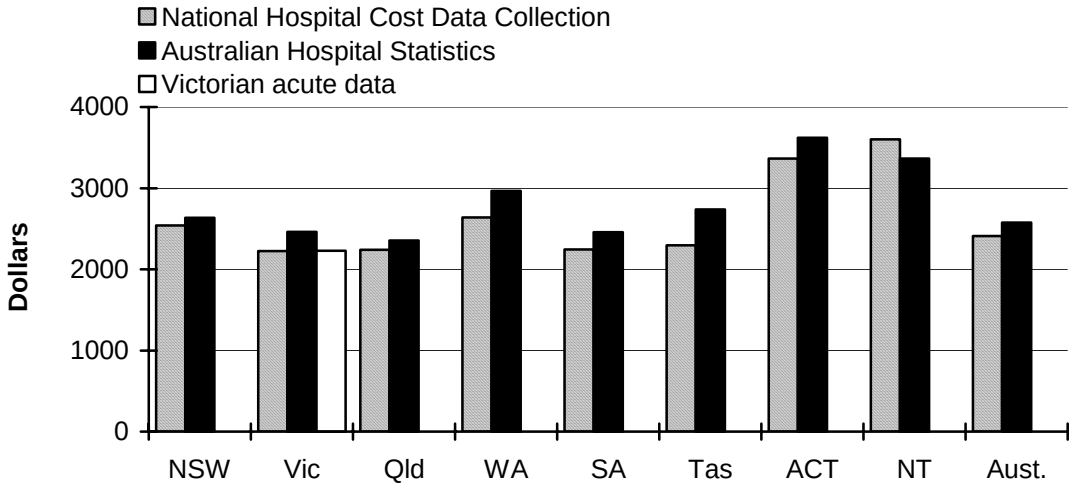
The National Hospital Cost Data Collection (NHCDC) is an alternative source of data available by State and Territory. Data have been collected annually since 1996-97, primarily to develop the cost weights used to adjust output by Australian National Diagnosis Related Group (AN-DRG). Nearly 30 per cent of Australia's hospitals submitted data on their acute admitted patient activity for the 1997-98 collection, representing about 64 per cent of separations nationally. The level of participation was similar for most jurisdictions. Fewer hospitals were involved from WA (only 16 per cent of hospitals, accounting for 51 per cent of separations) and more from the ACT and NT (100 per cent and 80 per cent of hospitals accounting for 100 per cent and 94 per cent of separations respectively).

The main weakness of the NHCDC as a source of unit cost data is that it is based on only a sample of hospitals, which may change yearly, and tends to be biased towards the larger hospitals with more sophisticated cost allocation systems. However, it does have the advantage of giving an opportunity to better distinguish

between acute and sub-acute services, and to match expenditure for those services. Indeed, the aim of the NHCDC is to identify costs for individual DRGs for that sample of hospitals.

According to the AHS data, Queensland had the lowest recurrent cost per case mix adjusted separation ($2354) in 1997-98 and the ACT the highest ($3623) (figure 4.9). The average for Australia was $2572 in 1997-98. The estimated cost per case mix adjusted *acute* separation for Victoria, based on an adjustment of the AIHW's method, was $2227. (This is 10.6 per cent lower than the estimate given in the *Australian Hospital Statistics 1997-98,* which includes more non-acute services and associated expenditure.) According to the NHCDC data, Victoria had the lowest cost ($2226) and NT the highest ($3603). The national average was $2412.

Figure 4.9 **Costs per case mix adjusted separation in public hospitals, 1997-98[a, b, c]**



a *Australian Hospital Statistics 1997-98* (AHS) data exclude psychiatric hospitals, drug and alcohol services, mothercraft hospitals, dental hospitals, hospices, rehabilitation facilities, and multipurpose services where these are reported separately from acute care hospitals. Hospitals satisfying the NSW definition of community non-acute hospitals have also been excluded **b** *National Hospital Cost Data Collection 1997-98* (NHCDC) and Victorian acute data exclude psychiatric and sub-acute separations and related expenditure reported by acute care hospitals. In contrast, AHS data include psychiatric and sub-acute services delivered in included acute care hospitals. **c** AHS and Victorian acute data exclude depreciation and user cost of capital (this is included in figure 4.10). NHCDC data exclude teaching and research expenditure, and the user cost of capital.

Source: table 4A.17.

The Victorian Department of Human Services has expressed concerns about the comparability of the *Australian Hospital Statistics'* estimated cost per case mix adjusted separation for Victoria with that of other jurisdictions (box 4.4). It has pointed out that costs, published in *Australian Hospital Statistics,* only exclude data for those psychiatric hospitals and rehabilitation services that are administered separately from public acute hospitals. In Victoria, however, most of these services

are now administered by metropolitan health care networks or, in rural areas, by public acute hospitals. These services would have been excluded if they had been delivered in the same way as some other jurisdictions.

In particular, a large number of mental health patients are now treated in Victorian public acute hospitals, as a consequence of the reforms to mainstream mental health services (see chapter 6). Equivalent psychiatric services are delivered in psychiatric hospitals in other jurisdictions, and are thus excluded from their data. However, because these are stand-alone and separately reporting institutions, their activity could be more readily excluded from the *Australian Hospital Statistics'* unit cost estimates. As a result, the mix of patients in those estimates may include more non-acute patients than some jurisdictions. Consequently, Victoria has provided revised data that exclude approximately 47 000 separations (and their associated costs) that were previously included in the data published in *Australian Hospital Statistics*.

The AIHW's data on the estimated labour cost per case mix adjusted separation are contained in the attachment tables.

Including capital costs

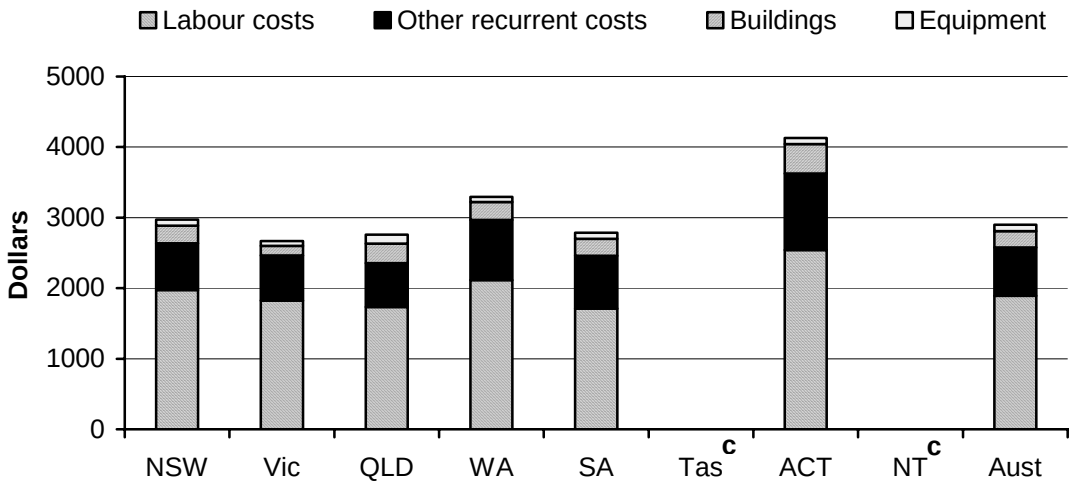
The AHS and NHCDC both exclude some costs. Neither includes the user cost of capital, and the NHCDC only partially includes depreciation (Pearse 1999). Depreciation is defined as the cost of consuming an asset's services and is measured by the reduction in value of an asset over the financial year. The user cost of capital is the opportunity cost of the capital and is equivalent to the return foregone from not using the funds to deliver other government services or to retire debt.

Recurrent costs should exclude interest payments if they are to be added to the user cost of capital to derive full costs. Interest payments have not been excluded in the analysis here. However, data separately reported on interest expenses showed that they varied from effectively zero for NSW, Victoria, ACT and NT, to 2 per cent of recurrent expenditure for WA. This issue will be addressed further in future Reports.

The estimated total unit cost of acute care services are reported for the first time. Total costs per case mix adjusted separation is defined to be the recurrent cost per case mix adjusted separation (based on AHS data) plus the capital costs (the depreciation and the user cost of capital of buildings and equipment) per acute care separation. Queensland did not provide estimates for depreciation and the user cost of capital. Tasmania was unable to provide these estimates because of changes to its financial reporting systems. The NT is still operating on a cash expenditure basis and was not able to identify its depreciation or asset values. From the remaining

jurisdictions, Victoria had the lowest total cost per case mix adjusted separation at $2668 and the ACT had the highest total cost per separation at $4128 (figure 4.10).

Figure 4.10 **Total cost per case mix adjusted separation, 1997-98[a, b, c]**



a Other recurrent costs and labour costs for all jurisdictions are based on the data reported in *Australian Hospital Statistics.* **b** NSW and Victoria provided estimates of the depreciation and asset values associated with acute care admitted patients. Other jurisdictions provided total depreciation and asset values for public hospitals. The capital costs attributable to acute admitted patients were then estimated using their inpatient fractions in table 4A.18. **c** Depreciation and asset values data were not available.

Sources: tables 4A.17 and 4A.18.

Average length of stay by jurisdiction

The average length of stay has a significant effect on the costs of treatment for admitted hospital patients. In particular, differences across jurisdictions in the proportions of same day separations for some AN-DRGs can affect costs. The data in this section relates to all public acute hospital separations (including psychiatric and sub-acute) except where noted.

The average length of stay for all patients in acute hospitals varies across jurisdictions. NSW reported the longest average length of stay for public hospital treatment in 1997-98 (4.4 days).[2] The NT reported the shortest average length of stay (3.6 days) (figure 4.11).

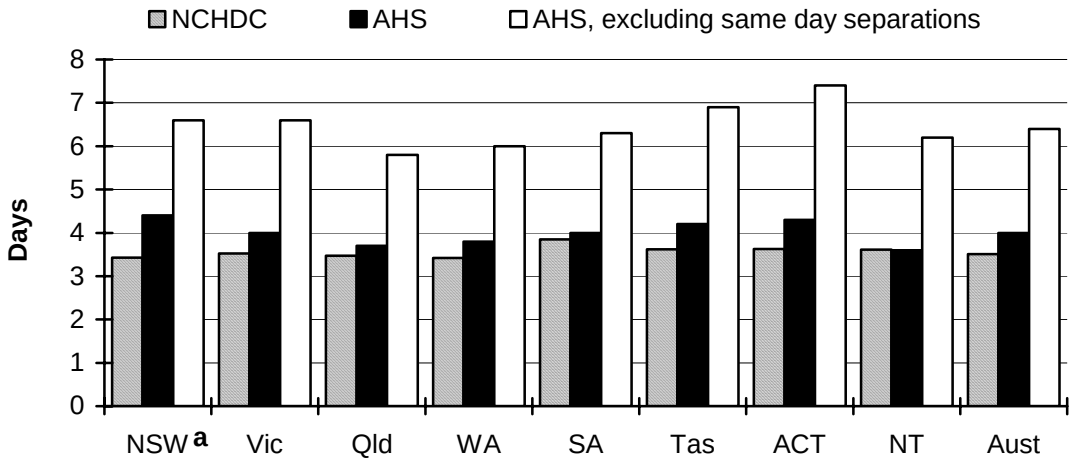
Across all jurisdictions, there was a decrease in the average length of stay between 1996-97 and 1997-98, with Tasmania experiencing the greatest fall (17.6 per cent).

[2] These data include non-acute hospitals. NSW estimates that the average length of stay was 3.9 days in the hospitals included in the AIHW's cost per case mix adjusted separation estimates reported in figures 4.8 and 4.9.

As with the comparison of public and private hospitals, one caveat of these comparisons is the relative case mix of patients treated in the different States and Territories. Public acute care hospitals in the NT have an average case mix weight of 0.76 for acute patients compared to NSW public hospitals with 1.02.

The average length of stay for acute patients in the hospitals reporting to the NHCDC also varied across jurisdictions, from 3.42 days for WA, to 3.85 days for SA (figure 4.11). Excluding same day procedures, the ACT reported the longest average length of stay for all patients (7.4 days) and Queensland reported the shortest average (5.8 days) (figure 4.11).

Figure 4.11 **Average length of stay in public acute care hospitals, 1997-98**



a Including a Department of Veterans Affairs hospital.

Source: table 4A.20.

Against the overall trend, the average length of stay between 1994-95 and 1997-98 rose for three of the five most common procedures, and fell for 'cholecystectomy without common duct exploration' and 'vaginal delivery without complications'. However, between 1996-97 and 1997-98, the average length of stay reverted to trend and decreased for most procedures. Only 'bronchitis and asthma in persons aged 50 years and younger without complications' recorded a longer average length of stay in 1997-98 (2.3 days) than in the previous year (2.2 days) (table 4.9).

Table 4.9 **Average length of stay in public hospitals for the five AN-DRGs with the highest number of separations (days)[a, b]**

	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*	*Aust*
Vaginal delivery without complications									
1994-95	3.5	3.8	3.4	3.7	3.6	3.9	3.4	3.7	3.6
1995-96	3.2	3.4	3.7	3.3	3.5	3.6	3.6	3.5	3.5
1996-97	3.3	3.5	3.2	3.5	3.4	3.3	3.0	3.6	3.4
1997-98	3.3	3.4	3.0	3.5	3.2	4.0	3.0	3.9	3.3
Chronic obstructive airways disease									
1994-95	7.2	5.8	6.6	6.5	6.8	7.6	7.2	5.7	6.7
1995-96	7.9	6.9	6.1	6.3	6.3	7.5	5.7	6.5	6.5
1996-97	8.5	7.1	7.8	8.3	7.6	9.7	10.2	6.5	8.0
1997-98	8.0	6.8	7.5	7.8	7.1	8.4	8.9	7.6	7.6
Bronchitis and asthma in persons aged 50 years and younger without complications									
1994-95	2.1	1.9	2.2	2.2	2.1	2.1	2.4	2.5	2.1
1995-96	2.3	2.1	2.5	2.1	2.2	2.1	1.9	2.1	2.1
1996-97	2.3	2.0	2.3	2.3	2.3	2.3	2.4	2.7	2.2
1997-98	2.3	2.1	2.3	2.3	2.4	2.2	2.6	2.9	2.3
Heart failure and shock									
1994-95	7.3	6.6	6.4	6.3	6.6	7.1	8.0	6.4	6.8
1995-96	7.2	6.8	5.9	6.2	6.0	7.6	6.3	6.2	6.5
1996-97	8.4	7.6	7.6	8.2	7.3	9.2	9.1	6.9	8.0
1997-98	8.0	7.2	7.2	7.5	7.3	9.3	10.1	8.0	7.6
Cholecystectomy without common duct exploration									
1994-95	3.6	3.3	2.9	3.3	3.9	3.3	3.7	3.8	3.4
1995-96	3.2	3.0	3.3	2.5	2.7	3.2	2.9	3.3	2.9
1996-97	3.9	3.4	2.9	4.0	3.5	3.7	3.9	4.5	3.6
1997-98	3.5	3.3	2.7	3.8	3.1	2.8	3.6	4.7	3.3

a Excludes same day cases. **b** Separations for which the type of episode of care was reported as either 'acute' or 'not reported'.

Sources: table 4A.21; SCRCSSP (1997, 1998a).

Cost per non-admitted occasion of service

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

- In SA, data for the cost per non-admitted occasion of service were derived from a sample of 15 hospitals. For metropolitan teaching hospitals, the cost per non-admitted occasion of service was $189 for emergency services and $124 for outpatient services, and for metropolitan non-teaching hospitals it was $135 and $66 respectively in 1997-98. For nonmetropolitan non-teaching hospitals, the cost was $76 for emergency services and $50 for outpatient services (table 4A.45).

- In the ACT, the cost per non-admitted occasion of service was $144 for emergency services and $63 for outpatient services for metropolitan teaching hospitals for 1997-98 (table 4A.53).

Victoria collects data on the basis of cost per encounter (which includes the clinic visit and all ancillary services provided within a 30-day period either side of the clinic visit). The average cost per encounter was $109 (based on cost data from nine major hospitals) in 1997-98. This compared with an average cost per encounter of $104 in 1996-97 (based on cost data from seven major hospitals) (table 4A.32).

4.4 Future directions in performance reporting

The key challenges for improving reporting on public acute care hospitals include:

- reporting on Aboriginal and Torres Strait Islander peoples' access to mainstream health services;
- improving the measurement of unit costs;
- filling gaps in reporting; and
- extending the coverage of the Review.

Aboriginal and Torres Strait Islander peoples' access to mainstream health services

In May 1997, the Prime Minister requested that the Steering Committee give priority to developing indicators that measured the performance of mainstream services in meeting the needs of Indigenous Australians. This is an important task, but large gaps remain. This is particularly true with health where the ABS noted 'the completeness with which Indigenous people are recorded is likely to vary from collection to collection and place to place and is often unknown' (ABS & AIHW 1999, p. 161). There also remain some variations in definitions of Indigenous persons.

The Health Ministers' Advisory Council approved a list of proposed indicators in March 1998. The national summary of the 1998 jurisdictional reports against the Aboriginal and Torres Strait Islander health performance indicators was finalised in July 1999. Work is progressing to increase the availability and coverage of nationally consistent data on the provision of services to Indigenous clients in future reports. Queensland Health has already endorsed the use of these performance indicators.

WA has developed an accessibility index which provides a measure of the ability of Indigenous people and of people living in different regions of the State to access hospital services. The goal of equity of access according to need is realised when the index has the value of one. The trend for Indigenous people compared to that for non-Indigenous people has fluctuated around unity between 1993 and 1996. The level of access for Indigenous people living in rural areas in 1996 was greater than for non-Indigenous people, but in metropolitan areas it was less (table 4A.38).

The comparison of the index of access between people living in metropolitan and rural areas suggests that rural residents have slightly better access to health services than that of their counterparts in the city. However, this measure does not allow for other social costs such as separation from families or distance travelled to receive hospital care (table 4A.38).

Filling other gaps in reporting

There has been considerable developmental work on non-financial hospital performance indicators over the past decade, both in Australia and overseas. In England the National Health Service has adopted a set of clinical performance indicators. However, in Australia little additional performance information is systematically and regularly published to assist comparisons across States and Territories or across hospitals.

The Victorian Department of Human Services has commissioned a major project to identify a concise set of clinical hospital indicators that apply at various levels across the acute sector. A timeline for implementation of the indicators will be determined in 2000 (DHS 1999).

Quality of care

Future Reports will continue to focus on the following two components of quality:

- client satisfaction with services; and
- patient safety monitoring.

Client satisfaction

Client satisfaction surveys have been used to report on the quality of services. They emphasise the relationship between the patient as consumer and the health service provider. Patient surveys can provide useful information about the acceptability of care delivery, reports of experiences with the processes of care, as well as health

status and quality of life. (Boyce *et al.* 1997, p.30) However, certain groups of people have difficulty expressing their views using conventional questionnaires. Eliciting the views of such people remains a challenge for researchers and policy makers (Draper and Hill 1995, p. 71). Efforts have been made recently to broaden the survey instruments used to collect feedback from consumers. Some suggestions include:

- conducting interviews rather than asking people to complete pre-coded questionnaires; and
- using discussion groups to develop questionnaires.

The Consumer Focus Collaboration (which involves consumers, professional groups, Commonwealth, States and Territories) has identified national priorities for this work and has overseen a number of initiatives that have aimed to identify good practice in consumer feedback and participation.

This year, information on patient satisfaction is reported for NSW, Victoria, Queensland, WA, Tasmania and the ACT. A study on quality and outcome indicators has shown that indicators of aggregate satisfaction generally reveal high levels of satisfaction with care provided in public acute care hospitals. However, these data offer few insights for policy makers and hospitals on areas requiring improvement.

Following reporting of a statewide survey in Victoria in 1997, the Department of Human Services commissioned additional work to derive composite indexes of satisfaction on specific aspects of hospital care, including access and discharge processes, provision of general and treatment information, and complaints mechanisms. A system for regular monitoring and reporting patient feedback will be progressively introduced during 2000, following consultation with networks and hospitals. This will enable valid indexes of care in Victorian public hospitals to be regularly 'reported and benchmarked' (DHS 1999).

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

Two indicators relating to the management of patient complaints will be piloted in Victoria in 1999-2000. The first is an indicator of the effectiveness of complaints management, based on those complaints that are resolved at the local level, and those that are externally referred for investigation and conciliation. The second

indicator relates to the provision of data to the Office of the Health Services Commissioner.

Patient safety monitoring

Identifying 'adverse events' and developing ways to prevent them is another strategy for improving the quality of care provided in public acute care hospitals and for reducing costs. The task is complicated by the difficulties in determining or attributing the risk associated with the individual medical or surgical procedures, and the risk attributable to the individual patient characteristics or disease status.

An adverse event can be broadly defined as 'an injury or complication which resulted in disability or prolongation of hospital stay, and was caused by the health care received rather than by the disease from which the patient suffered. The adverse event either occurred during the hospital admission, or during an earlier contact with health care services, and was responsible for all or part of the hospital admission' (Wilson *et al.* 1999).

The *Quality in Australian Health Care* study (Wilson *et al.* 1995) examined over 14 000 patient records in 1992 and estimated that 16.6 per cent of admissions were associated with an adverse event. The Commonwealth Department of Health and Aged Care commissioned a review by Thomas *et al.* 1999 of Harvard University that compared results of the *Quality in Australian Health Care Study* and the *Utah-Colorado Medical Practice Study* on adverse events. Preliminary results from this review suggest that when attempts were made to adopt the US definitions and methods an estimated 10.6 per cent of Australian admissions in 1992 may have been associated with an adverse event (Thomas *et al.* 1999). However, measuring adverse events is complicated by differing definitions and medical record practices, and the extent to which data is based on clinical judgements (McNeil 1999, unpublished). The results of the Thomas *et. al.* study are currently being peer reviewed and consequently may be revised. Publication is expected during 2000.

Data from the Wilson study were further analysed to develop a better understanding of the causes of the adverse events identified, and to assist in developing prevention strategies (Wilson *et al.* 1999). The major categories of human error, accounting for over 70 per cent of adverse events, were:

- failures in technical performance;
- failure to decide and/or act on available information;
- failure to investigate or consult; and
- a lack of care or failure to attend.

It is generally agreed that potential benefits (avoidance of costs) associated with adverse events are significant. The above study concluded that human error is the dominant cause of adverse events. It emphasised the need for designing safer systems of care which protect the patient from the inevitability of human error. The final report of the Taskforce on Quality in Australian Health Care (1996) estimated that the cost of preventable adverse events was more than $800 million per year.[3]

There has been work to improve the measurement and monitoring of patient safety by both governments and individual hospitals. However, a timetable remains to be indicated for the implementation of a national patient safety monitoring scheme that would provide data for reporting at the jurisdictional level. Over the past decade:

- various national bodies have been established to examine quality in the health care system —for example, the Taskforce on Quality in Australian Health Care in 1995, and the National Expert Advisory Group on Safety and Quality in Australian Health Care in 1997;
- working groups have been established by individual jurisdictions;
- individual hospitals and jurisdictions have trialed various incident (or near misses) monitoring and reporting systems. SA, some Victorian networks and the NT have implemented the Australian Incident Monitoring System (AIMS). Queensland is trialing this system in one metropolitan teaching hospital, and both major public hospitals in the ACT will trial AIMS in 2000. Other hospitals and jurisdictions are using a range of other systems;
- the various patient safety monitoring and reporting systems were reviewed by Professor John McNeil in June 1999 for the Commonwealth Department of Health and Aged Care. He argued that none of the existing monitoring schemes are capable of providing quantitative data with epidemiological rigour, or of providing valid national performance indicators for patient safety monitoring. He recommended that governments introduce several different approaches to measurement, including monitoring indicators of sentinel events, outcomes of key procedures, and selected clinical processes (McNeil 1999, unpublished).
- the establishment of the Australian Council for Safety and Quality in Health Care was endorsed by Health Ministers in August 1999. The Chair and membership of the Council has been announced and it will meet in early 2000. The Council's specific tasks and timetable are currently being developed. This will include consideration of what role it may take in relation to data support and analysis to underpin agreed national directions for safety and quality improvement.

[3] The cost was derived by multiplying the estimated number of bed days due to preventable adverse events by the average bed day cost.

Non-admitted patient classification

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

The Victorian Department of Human Services has developed a system for measuring outputs (and funding) non-admitted patient services. The activities of outpatient departments are classified into 45 categories grouped under nine headings: medical; surgical; dental; orthopaedic; psychiatric related; obstetric and gynaecology; paediatrics; emergency medicine; and allied health. The categories relate to major areas of clinical practice and achieve levels of resource homogeneity similar to those for AN-DRGs. A patient encounter can incorporate the clinic visit and associated ancillary services (pharmacy, pathology and radiology) provided to the patient 30 days either side of the visit. The 30 day window was chosen to capture the majority of services for a particular visit, and to enable a reasonable and practical period for reporting and funding. The Victorian Ambulatory Classification System (VACS) was implemented for 1999-2000, with the cost weights for the study being determined on the basis of a three year, rolling average cost.

The Queensland Ambulatory Casemix Classification System (QACS) for public hospitals is based on a costing study commissioned in 1996, which achieved a variance reduction of 30 per cent. Since implementation in 1996-97, some minor modifications have been made. The system has 64 clinic types which are amalgamated into seven broad areas for Commonwealth reporting purposes. The system incorporates new, repeat and age split variables. The counting unit is occasions of service. Where ancillary services, such as pathology, radiology, and pharmacy occur within a 14-day window, either side of the occasion of service, the case mix ancillary payment is bundled into the individual clinic visit payment. The system is now well established among Queensland facilities for which payment modelling is carried out.

The South Australian Health Commission (now part of the SA Department of Human Services) undertook a costing study, in conjunction with the then Commonwealth Department of Health and Family Services, in 30 hospitals in Australia, of which 15 were in South Australia. Cost, diagnosis, utilisation and demographic data were collected on approximately 250 000 patient encounters. The intent was to develop a non-admitted patient classification system from first principles and in the process, to test the Commonwealth Developmental Ambulatory Care Classification System (DACS). The explanatory powers of a range of variables collected in the study were tested to develop resource

homogeneous categories which were clinically meaningful. The resulting classification system has 11 emergency department categories based on triage score and disposition and 79 outpatient classes based on areas of clinical practice. A patient encounter can incorporate the clinic visit and associated ancillary services (pharmacy, pathology and radiology) provided to the patient 14 days either side of the visit.

The South Australian ambulatory classification system was implemented in metropolitan hospitals in 1989-99 and across all South Australian public hospitals in 1999-2000. The data have been used for a number of subsequent analyses, including the development of national service weights for application in the National Hospitals Cost Data Collection.

4.5 Jurisdictions' comments

Jurisdictions' comments on this chapter are contained at the end of chapter 6.