

Appendix 1: Technical notes

Definitions

If not otherwise indicated, data elements were defined according to the 2005–06 definitions in the *National health data dictionary* versions 12, 12 supplement and 13 (NHDC 2003, AIHW 2004b, HDSC 2006) (summarised in the Glossary).

Data presented by state or territory refer to the state or territory of the hospital, not to the state or territory of the usual residence of the patient. The exceptions are Tables 4.5 4.6, 4.7, 8.11, 9.19 and A5.1, which are based on data on the state or territory of usual residence. In addition, the state or territory of usual residence of the patient is reported against the state or territory of hospitalisation in Tables 7.7, 7.8, 7.9 and 7.10.

Data presentation

Except as noted below, the totals in tables include data only for those states and territories for which data were available, as indicated in the tables. For example, for some tables and figures dealing with Indigenous status, data have been presented only for selected states and territories, and the totals in these tables do not include the data for the other states and territories (Tables 8.9, 9.22 and 10.20, and Figures 9 and 8.1).

Other exceptions relate to tables in which data were not published for confidentiality reasons (for private hospitals in Tasmania, the Australian Capital Territory and the Northern Territory), or because only one public hospital was represented in the cell, or because a proportion related to a small number of events and was therefore not very meaningful.

Private hospital data are suppressed for a particular diagnosis, procedure or AR-DRG where there are fewer than three reporting units, or there are three or more reporting units and one contributed more than 85% of the total separations, or there are three or more reporting units and two contributed more than 90% of the total separations.

Data on the length of stay have been suppressed if there were fewer than 10 separations in the category being presented (50 separations in Table 4.11). Data on elective surgery waiting times were suppressed if there were fewer than 10 elective surgery admissions in the category being presented. The abbreviation 'n.p.' has been used in these tables to denote these suppressions. For these tables, the totals include the suppressed information.

Throughout the publication, percentages may not add up to 100.0 because of rounding. Percentages and population rates printed as 0.0 or 0 may denote less than 0.05 or 0.5, respectively.

Population rates

Population rates presented in Chapters 2, 4, 7 and 8 are age-standardised, calculated using the direct standardisation method and 5-year age groups. The total Australian population for 30 June 2001 was used as the population for which expected rates were calculated. The Australian Bureau of Statistics population estimates for 31 December 2005 were used for the

observed rates (see Table A1.1 accompanying this report on the Internet). The exceptions were Tables 4.5, 4.8, 4.9, 8.7, 8.8, 8.11, 8.12, 8.13, 9.20, 9.21, 9.22, A5.2 and A5.3 and Figures 9, 10 and 8.1, for which the 30 June 2005 population estimates (by Indigenous status, Remoteness Areas and quintile of socioeconomic advantage/disadvantage, as appropriate) were used for the observed rates (see Tables A1.2, A1.3 and A1.4 accompanying this report on the Internet). For Table 8.10 the 30 June 2004 population estimates (by selected countries or regions of birth) were used for the observed rates. Crude population rates in Chapters 2, 3, 6, 9, 10 and 12 were calculated using the population estimates for 31 December 2005.

Standardised separation rate ratios

For some tables reporting comparative separation rates (Tables 4.7 to 4.9, 8.7, 8.8, 8.11 to 8.13, 9.19 to 9.22 and A5.1 to A5.3), standardised separation rate ratios (SRRs) are presented. The ratios are calculated by dividing the age-standardised separation rate for a population of interest (an observed rate) by the age-standardised separation rate for a comparison population (the expected rate). In these tables a 95% confidence interval for the SRR has also been presented. The calculations are as follows:

Standardised separation rate ratio = observed rate/expected rate

Standard error (SRR) = $\sqrt{\text{observed rate/expected rate}}$

95% confidence interval (SRR) = $\text{SRR} \pm 1.96 \times \text{Standard error (SRR)}$

A confidence interval for the separation rate can be obtained by multiplying the upper and lower 95% confidence levels for the SRR by the crude rate for the population.

Thus a standardised separation ratio of 1 indicates that the population of interest (for example, Indigenous peoples) had a separation rate similar to that of the comparison group (for example, other Australians). An SRR of 1.2 indicates that the population of interest had a rate that was 20% greater than that of the comparison population and an SRR of 0.8 indicates a rate 20% smaller. If the 95% confidence interval of the SRR contains 1, the rate for the population of interest is not significantly different (at the 95% confidence level) from that of the comparison population. Similarly, if the 95% confidence interval does not contain 1, then there is a significant difference (at the 95% confidence level).

Newborn episodes of care

The *Newborn* care type was introduced in 1998–99 for the hospital morbidity data to report a single episode of care for all patients aged 9 days or less at admission, regardless of their qualification status and whether they changed qualification status during their hospital stay. Thus these episodes can include qualified days only, a mixture of qualified days and unqualified days, or only unqualified days. Qualified days are considered to be the equivalent of acute care days and *Newborn* episodes with qualified days only are considered to be equivalent to *Acute care* episodes. In this report, *Newborn* episodes with at least one qualified day have been included in all the tables reporting separations. Records for *Newborn* episodes with no qualified days do not meet admission criteria for all purposes, so they have been excluded from this report, except as specified in Chapter 7. The number of patient days reported in this publication for *Newborn* episodes is equal to the number of qualified days, so for newborns with a mixture of qualified and unqualified days the number of patient days reported is less than the actual length of stay for the episode.

Hospitals in Tasmania and the Northern Territory and private hospitals in South Australia did not report any *Newborn* episodes with a mixture of qualified and unqualified days (Table 7.11), and private hospitals in Victoria did not report most *Newborn* episodes with no qualified days. In South Australia, qualified and unqualified newborn care are defined as separate episodes of care but for the purpose of supplying data to the National Hospital Morbidity Database separate episodes occurring within a single stay in hospital are bundled together. The practice of generating a new episode on a care change within a single stay in hospital is followed by public but not private hospitals in South Australia. For Tasmania, where a newborn's qualification status was considered qualified at any point during the episode of care, the entire episode was reported as qualified days. As a consequence of the reporting method used, the number of *Newborn* episodes with qualified days only includes those who may have had an unqualified component in their stay. For this reason the average length of stay for *Newborn* episodes with qualified days only in Tasmanian public hospitals is not directly comparable to that in other states.

Information on reporting practices for *Newborn* episodes before 2005–06 is available in previous *Australian hospital statistics* publications (AIHW 2002, 2003, 2004a, 2005a, 2006a).

Hospital boarders and posthumous organ procurement

For some states and territories, the data provided to the National Hospital Morbidity Database included records for *Hospital boarders* and for *Posthumous organ procurement* activity (see Glossary). These records were provided on an optional basis as they do not represent admitted patient care.

The records for *Hospital boarders* were excluded from this report. There were 34,384 records for *Hospital boarders* reported to the National Hospital Morbidity Database in 2005–06, mainly from Western Australia, Queensland and the Northern Territory.

Records for *Posthumous organ procurement* activity were also excluded from this report. There were 64 records of *Posthumous organ procurement* reported to the National Hospital Morbidity Database in 2005–06. Most of these records were from Queensland and Western Australia, with small numbers from New South Wales, the Northern Territory and Tasmania.

Quality of ICD-10-AM coded data

Diagnosis, procedure and external cause data for 2005–06 were reported to the National Hospital Morbidity Database by all states and territories using the fourth edition of the *International statistical classification of diseases and related health problems, 10th revision, Australian modification* (ICD-10-AM) (NCCH 2004).

The quality of coded diagnosis, procedure and external cause data can be assessed using coding audits in which, in general terms, selected records are independently recoded, and the resulting codes compared with the codes originally assigned for the separation. There are no national standards for this auditing, so it is not possible to use information on coding audits to make quantitative assessments of data quality on a national basis.

The quality and comparability of the coded data can, however, be gauged by information provided by the states and territories on the quality of the data, by the numbers of diagnosis

and procedure codes reported and by assessment of apparent variation in the reporting of additional diagnoses. The comparability of the data can also be influenced by state-specific coding standards.

State and territory comments on the quality of the data

The following information has been provided by the states and territories to provide some insight into the quality of the coded data in the National Hospital Morbidity Database.

No statewide audit was performed on New South Wales data in 2005–06. Hospitals perform formal audits on ICD-10-AM coded data at a local level. Data edits are monitored regularly and consistent errors are identified and rectified by individual hospitals.

A statewide external audit of 2005–06 data was conducted in Victoria. Although final figures are not available at the time of writing, preliminary results indicate further improvement of ICD coded data quality over the results of 2000–01 audit.

Coding quality checks are conducted regularly by source hospitals in Queensland, and ICD-10-AM validations are automatically conducted as part of the general processing of morbidity data. A Clinical Classification Management Project was initiated in October 2005 with the goal of improving the quality of coded morbidity data and of standardising coding practices within Queensland Health. The project ran until May 2007 when the work was taken over by a permanent new unit created specifically to continue the work. The new unit, known as the Coding Auditing and Education Unit (CAEU), has two full-time clinical classification auditors/educators. The CAEU continues to offer individually structured audits for hospitals. Additionally, there is a focus on statewide coding consistency, with the CAEU conducting coding audits in areas of corporate interest. The CAEU works, in partnership with other stakeholders, to create and support a statewide coding website. The website allows all Queensland Health coders to access standardised advice, information and support.

For Western Australia, results of coding audits by the Department of Health, on random samples of 2004–05 admitted patient cases from teaching and non-teaching hospitals indicate that the quality of the coded data is good to very good. The National Centre for Classification in Health's Performance Indicators for Coding Quality (PICQ) software and in-house quality activities were also applied to all cases received by the department.

The Department of Health, South Australia, performed a major audit of coding practices in major metropolitan hospitals on random samples of 2004–05 data. The purpose of the audit was to ascertain the level of coding accuracy and the impact on DRG assignment. The audit found that coding practices in major metropolitan hospitals had improved significantly since the last major audit (conducted in 2002), with almost all hospitals reporting a reduction in their DRG error rate.

In Tasmania, hospitals continue to conduct coding quality improvement activities using the Australian Coding Benchmark Audit tool and PICQ. Validation of ICD-10-AM data also occurs routinely as the data are processed from the hospitals. A Statewide Recoding Study Working Group was formed to implement recommendations from a previous statewide recoding study and a coding audit was conducted in 2006.

The quality of coding in the Australian Capital Territory remains within nationally accepted standards. The Australian Capital Territory continues to use PICQ as a tool in improving the overall coding quality of medical records.

The Northern Territory maintained coding quality activities through the Coders' Forum and application of the PICQ tool.

Number of diagnosis codes

The National Hospital Morbidity Database contains data on principal diagnoses and additional diagnoses. Additional diagnoses include comorbidities (coexisting conditions) and/or complications which may contribute to longer lengths of stay, more intensive treatment or the use of greater resources. Ideally, the number of additional diagnoses recorded for a patient should be related to the person's clinical condition, and not be restricted by administrative or technical limitations. The AIHW requested that the states and territories report a maximum of 50 diagnosis codes.

Table A1.5 presents information on the number of diagnosis codes (principal and additional) reported to the National Hospital Morbidity Database. There are differences between the states and territories in the maximum number of diagnoses reported; for example, in the public sector, 63 for Queensland and 25 for South Australia. For both public and private sectors, the average number of diagnosis codes per separation varied little among the jurisdictions, but there was some variation in the reporting of additional diagnoses as discussed below.

Overall, the average number of codes reported for the public sector was slightly higher than for the private sector. In the public sector 19.1% of records had five or more diagnosis codes (854,536), but in the private sector only 10.7% of records fell into this category (305,679). It may be that more complicated cases were treated in public hospitals, or there may have been differences in coding practices.

Number of procedure codes

Table A1.6 presents information on the number of procedure codes reported to the National Hospital Morbidity Database. Ideally, the number of procedures recorded for a patient should reflect the procedures undertaken, and not be restricted by administrative or technical limitations. There were marked differences between the states and territories in the maximum number of procedures reported, ranging from 25 for South Australia to 87 for Western Australia. However, with the exception of the Northern Territory, the average number of procedure codes per separation in the public sector varied little among the jurisdictions, as was the case in the private sector. The AIHW requested a maximum of 50 codes, so this may have restricted the number of codes reported by New South Wales, Queensland and Tasmania. The proportion of separations for which no procedures were reported was higher in the public sector (25.5%) than in the private sector (7.5%).

In recent years the reporting of five or more procedure codes for a separation has increased in both sectors. In the public sector, 7.8% of records had five or more procedure codes in 2005–06 compared with 7.9% in 2004–05 and 7.2% in 2003–04 (AIHW 2005a, 2006a). In the private sector, 8.9% of records had five or more procedure codes in 2005–06 compared with 8.6% in 2004–05 and 8.2% in 2003–04. The higher rate of recording five or more procedures in the private sector than in the public sector may be due to differences in coding practices between the sectors.

Apparent variation in reporting of additional diagnoses

A measure of apparent variation among Australian states and territories in the reporting and coding of additional diagnoses is the proportion of separations in the lowest resource split for adjacent AR-DRGs, standardised to the national distribution of adjacent AR-DRGs to take into account differing casemixes (Coory & Cornes 2005).

An adjacent AR-DRG is a set of AR-DRGs that is split on a basis supplementary to the principal diagnoses and procedures that are used to define the adjacent AR-DRG grouping, for example on the basis of the inclusion of significant additional diagnoses, also known as complications or co-morbidities (CCs). Adjacent AR-DRGs are signified in the AR-DRG classification by having the first three characters in common. For example, A08A *Autologous bone marrow transplant W catastrophic CC* and A08B *Autologous bone marrow transplant W/O catastrophic CC* are considered adjacent and the adjacent AR-DRG can be referred to as A08 *Autologous bone marrow transplant*. The allocation of a fourth character code is hierarchical with the highest resource use level being assigned an A and the lowest resource use level being assigned the lowest letter in the sequence.

The underlying assumption in the method is that variation in the proportions of AR-DRGs within an adjacent AR-DRG is caused by variation in the reporting and coding of additional diagnoses relevant to the split of the adjacent AR-DRG into individual AR-DRGs. A corollary of this assumption is that any variation seen was not caused by age, diagnosis, socioeconomic or other effects. This assumption is less likely to be valid when comparing hospital sectors which have differing casemixes or the smaller jurisdictions because of differing population profiles and the limitations of the standardisation method used.

The data were directly standardised by scaling the distribution of adjacent AR-DRGs in each jurisdiction/sector to the same distribution as the national total. The resulting proportions of separations in the lowest resource AR-DRG within the adjacent AR-DRG are therefore comparable.

Because the analysis concentrates on differences in reporting additional diagnoses that are significant in AR-DRG assignment within the adjacent AR-DRG groupings, adjacent AR-DRGs where the partitioning involved factors other than or in addition to additional diagnoses were excluded from the analysis. This included adjacent AR-DRGs with splits involving age, malignancy, mental health legal status, birthweight, discharge status (including transfers, left against medical advice and death) or procedures (for example, common duct exploration).

Five groups of adjacent AR-DRGs are covered:

1. all applicable adjacent AR-DRGs (that is, excluding adjacent AR-DRGs with other factors affecting partitioning as detailed above)
2. adjacent DRGs where the lowest split was without CCs
3. adjacent DRGs where the lowest split was without severe or catastrophic CCs
4. major medical conditions: adjacent AR-DRGs E61 *Pulmonary embolism*, F62 *Heart failure and shock*, T60 *Septicaemia* – these adjacent AR-DRGs are selected because admission for these conditions is seen to be relatively non-discretionary and less likely than for other AR-DRGs to be influenced by variation in admission practices
5. vaginal and caesarean deliveries.

The above categories overlap; in particular, *Vaginal and caesarean deliveries* is a subset of the second category, and *Major medical conditions* is a subset of the third category.

Table A1.7 shows that there is variation among jurisdictions in the proportion of separations that are grouped to the lowest resource split for adjacent AR-DRGs. In the private sector there was slightly less variation between the highest and the lowest proportions than in the public sector.

For the Northern Territory, data for *All adjacent AR-DRGs* and for *Adjacent AR-DRGs with a severe or catastrophic complication as the lowest resource level AR-DRG* were suppressed because of limitations with direct standardisation for groups that report a limited range of AR-DRGs (see the discussion of relative stay indexes below).

See Table A1.8 (accompanying this report on the Internet) for the list of AR-DRGs included.

State-specific coding standards

The Australian Coding Standards were developed for use in both public and private hospitals with the aim of satisfying sound coding convention according to ICD-10-AM. Although all states and territories instruct their coders to follow the Australian Coding Standards, some jurisdictions also apply state-specific coding standards to deal with state-specific reporting requirements. These standards may be in addition to or instead of the relevant Australian Coding Standard, and may affect the comparability of ICD-10-AM coded data.

For example, there are variations in coding standards between jurisdictions with regard to the reporting of external cause codes and place of occurrence codes. The Australian Coding Standard requires a 'place of occurrence' code to be reported if an external cause code in the range V00–Y89 has been reported, and requires an 'activity when injured' code to be recorded if the external cause code is in the range V00–Y34. The Western Australian coding standard requires the mandatory recording of a 'place of occurrence' and 'activity when injured' code for all records with a diagnosis code in the range S00–T98, regardless of the external cause code reported. The Victorian coding standard does not require the recording of external cause, place of occurrence or activity when injured if the care type is *Rehabilitation*.

ICD-10-AM codes used for selected analyses

A number of tables in this report use ICD-10-AM codes to define diagnoses and procedures. The codes are presented in Table A1.9 (accompanying this report on the Internet) and relate to:

- Figures 13, 14, 15 and 16 in the 'Hospitals at a glance' section
- Tables 4.7, 4.8 and 4.9, which present statistics on selected procedures
- Tables 4.5, 4.6, A5.1, A5.2 and A5.3, which present statistics on selected potentially preventable hospitalisations
- Table 4.14 which presents statistics indicating adverse events associated with hospitalisations
- Tables 9.19, 9.20 and 9.21, which present statistics on renal failure hospitalisations.

AR-DRG versions, cost weights and cost estimates

Information based on AR-DRGs is presented in Chapters 2, 4, 7, 12 and in this appendix.

AR-DRG-based analyses included separations only if the care type was reported as *Acute*, or was *Not reported*, or if the care type was *Newborn* and the separation had at least one qualified day. Thus separations for *Rehabilitation*, *Palliative care*, *Geriatric evaluation and management*, *Psychogeriatric care*, *Maintenance care*, *Other admitted patient care*, and *Newborn care* with no qualified days were excluded.

AR-DRG versions

For 2005–06 each separation in the National Hospital Morbidity Database was classified to AR-DRG version 4.2 (DHAC 2000) and AR-DRG version 5.0 (DoHA 2002) or AR-DRG version 5.1 (DoHA 2004b) on the basis of demographic and clinical characteristics of the patient.

Each AR-DRG version is based on a specific edition of ICD-10-AM. The ICD coded data for 1998–99 and 1999–2000 were reported using the first edition of ICD-10-AM to which AR-DRG version 4.1 applies. For 2000–01 and 2001–02 the data were reported using the second edition of ICD-10-AM to which AR-DRG version 4.2 applies. For 2002–03 and 2003–04 the data were reported using the third edition of ICD-10-AM to which AR-DRG version 5.0 applies, and version 5.1 was the relevant AR-DRG version for the 2004–05 and 2005–06 data which were reported using the fourth edition of ICD-10-AM.

For time series comparisons, AR-DRG-based data in Tables 12.5 and 12.6 use AR-DRG version 5.0 for 2001–02 to 2005–06. For the purpose of this analysis, the ICD coded data for 2001–02 (provided as second edition of ICD-10-AM codes) were mapped forward to the third edition of ICD-10-AM and then grouped to AR-DRG version 5.0. As AR-DRG version 5.0 was developed to be generated from the third edition ICD-10-AM codes, the data presented in these tables for 2001–02 may not be comparable for a small number of AR-DRGs.

Similarly, the AIHW's AR-DRG online data cubes (<www.aihw.gov.au>) present AR-DRG versions 4.0, 4.1 and 4.2 based on the relevant AR-DRG versions for 1997–98 to 2001–02, and for the years 2002–03 to 2004–05 the supplied third and fourth edition ICD-10-AM codes were mapped backwards to second edition ICD-10-AM codes to group the data for those years to AR-DRG version 4.2. Similarly, for the AR-DRG version 5.0/5.1 cube, which covers the years 1998–99 to 2005–06, the data for 1998–99 to 2001–02 based on earlier editions of ICD-10-AM were mapped forwards to the third edition ICD-10-AM codes and then grouped to AR-DRG version 5.0.

AR-DRG cost weights and cost estimates

Cost weights and cost estimates are prepared each year by the Department of Health and Ageing through the National Hospital Cost Data Collection (NHCCDC) (DoHA 2006a). The average cost weight information provides a guide to the expected resource use for separations, with a value of 1.00 representing the theoretical average for all separations. The NHCCDC essentially estimates the average cost of each AR-DRG each year and the cost weight is the average cost for that AR-DRG divided by the average cost across all AR-DRGs (\$3,332 for the public sector in 2004–05). Separate cost weights are usually estimated for the public and private sectors because of the differences in the range of costs recorded in public and private hospitals.

The latest available cost weights (at the time of publication of this report) were for version 5.0 AR-DRGs for 2004–05 for public hospitals (DoHA 2006a), and version 4.2 AR-DRGs for 2002–03 for private hospitals (DoHA 2004a). When the NHCDC 2005–06 results become available updated information using those data will be provided in the tables accompanying this report on the Internet at <www.aihw.gov.au>.

In Tables 2.3, 2.4, 4.1a–d, 4.2a–f, 4.3 7.10, Chapter 12 and in this appendix, average cost weights using public cost weights are based on the AR-DRG version 5.0 2004–05 national public sector estimated cost weights. These were applied to AR-DRG version 5.0 DRGs for 2001–02 to 2005–06. In Tables 2.3 and 2.4, average cost weights for the private sector are presented based on AR-DRG version 5.0 2004–05 national public sector estimated cost weights.

The cost by volume estimates for public hospitals presented in Table 7.10, Chapter 12 and the supplementary Chapter 12 tables (accompanying this report on the Internet) are calculated by applying the AR-DRG version 5.0 2004–05 national public sector estimated average costs to the AR-DRG version 5.0 data for 2005–06. Cost by volume estimates have not been presented for the private sector as the most recent AR-DRG cost estimates available for private hospitals were for 2002–03.

Cost per casemix-adjusted separation

The cost per casemix-adjusted separation (Tables 4.1a–d, 4.2a–f and 4.3) is an indicator of the efficiency of public acute care hospitals. It is a measure of the average recurrent expenditure for each admitted patient, adjusted using AR-DRG cost weights for the resources expected to be used for the separation. A synopsis of the methods used in this analysis is presented below, and more detail is available in *Australian hospital statistics 2000–01* (AIHW 2002).

Definition

The formula used to calculate the cost per casemix-adjusted separation is:

$$\frac{\text{Recurrent expenditure} \times \text{IFRAC}}{\text{Total separations} \times \text{Average cost weight}}$$

where:

- recurrent expenditure is as defined by the recurrent expenditure data elements in the *National health data dictionary* (NHDC 2003)
- IFRAC (admitted patient cost proportion) is the estimated proportion of total hospital expenditure that relates to admitted patients
- total separations excludes *Newborns* with no qualified days and records that do not relate to admitted patients (*Hospital boarders* and *Posthumous organ procurement*)
- average cost weight is a single number representing the relative expected resource use for the separations.

Recurrent expenditure

For the medical labour cost category, data are available only for public patients, as private patients are charged directly by their doctor for medical services, and these charges are not included in the recurrent expenditure figures. The proportion of patients other than public

patients can vary; therefore, medical costs for these patients are estimated, and the expenditure is increased to resemble what it would be if all patients had been public patients. The estimate is based on the salary/sessional and VMO expenditure per patient day for public patients, applied to all patients.

Costs per casemix-adjusted separation for states and territories were calculated excluding depreciation, as previously, and also including depreciation (for those jurisdictions for which depreciation was available).

Admitted patient cost proportion

To determine the costs associated with admitted patients, an admitted patient cost proportion (or inpatient fraction, IFRAC) is used. The IFRAC was provided to the AIHW for most hospitals by the states and territories and is the proportion of total hospital expenditure that related to the provision of care for admitted patients. For a few small hospitals where the IFRAC was not available, the admitted patient costs were estimated using the Health and Allied Services Advisory Council (HASAC) ratio.

Total separations

The formula used to calculate the cost per casemix-adjusted separation includes all admitted patient separations and their associated costs. It is appropriate to include the acute care separations, which comprise almost 98% of the total for the hospitals included in the analysis (Table A1.10), as cost weights are available for them. However, the 2% of separations that are not acute care are also included and, as there are no cost weights for these separations, the average cost weight for the acute separations for each hospital is used. This method may affect the estimates of cost-weighted separations (see below) for each state and territory, depending on the proportion of non-acute separations for the state or territory. The non-acute admitted patients (including rehabilitation care patients) generally have higher costs per separation than acute care patients because, although their daily costs are lower, these patients typically have longer lengths of stay.

Comparisons between the states and territories should therefore take into consideration the uncertainty introduced by these episodes for which the cost weights were unavailable. There is variation in the number and length of stay for the non-acute care separations between jurisdictions (Table A1.10).

To refine the method to remove this anomaly would require estimates of expenditure for acute care for admitted patients (acute care IFRACs). For 2005–06, such estimates were available for some jurisdictions, as presented below.

There is also some variation between states and territories in the ways in which periods of hospitalisation are split into episodes of care (for example, *Newborn* care). In states or territories where there is a clear delineation in funding arrangements between acute and non-acute services, splitting episodes into acute and other components may be different from where there is no such funding delineation.

Average cost weights

Admitted patient data provided to the National Hospital Morbidity Database were used to estimate average cost weights for the hospitals reported in this analysis.

The average cost weight for a hospital or group of hospitals (Tables 4.2a–f, for example) is calculated as the number of casemix-adjusted separations divided by the number of

separations. It represents in a single number the overall relative expected use of resources by a hospital. For example, a hospital with an average cost weight of 1.08 has an 8% more costly casemix than the national average (by design equal to 1.00).

The average cost weight for a group of hospitals is multiplied by the total number of separations for that group to produce the number of casemix-adjusted separations (the denominator). The term 'cost per casemix-adjusted separation' derives from this use of the number of separations adjusted by relative costliness.

The validity of comparisons of average cost weights is limited by differences in the extent to which each jurisdiction's psychiatric care services are integrated into its public hospital system. For example, in Victoria, almost all public psychiatric hospitals are mainstreamed into acute hospital services and psychiatric patient data are therefore included in the acute hospital reports. Cost weights are not as useful as measures of resource requirements for acute psychiatric care because the relevant AR-DRGs are less homogeneous than for other acute care.

Cost per acute care and non-psychiatric acute care casemix-adjusted separation

Because cost weights are available only for acute care separations, the cost per casemix-adjusted separation analysis applies these cost weights to all separations. The methodology would be refined if cost weights became available for other care types, or if the analysis were to be restricted to acute care activity and expenditure. As AR-DRG cost weights are likely to be less useful as measures of resource requirements for psychiatric acute care than for other acute care, a further refinement would be to restrict the analysis to non-psychiatric acute care activity and expenditure.

Restriction to acute care activity requires the states and territories to make estimates of expenditure on acute care admitted patients (supplied as acute care IFRACs), and for separations relating to non-acute care patients to be excluded from the analysis. Restriction to non-psychiatric acute care activity requires the states and territories to make estimates of expenditure on non-psychiatric acute care admitted patients (supplied as non-psychiatric acute care IFRACs), and for separations relating to non-acute care patients and to psychiatric acute care patients to be excluded from the analysis. Psychiatric acute care activity is excluded from the admitted patient data by excluding separations if one or more psychiatric care days were reported for the separation (indicating that care was provided in a specialised psychiatric unit). This methodology is still under development.

New South Wales, Victoria and Western Australia provided estimates of expenditure on acute care admitted patients, so estimates of the cost per casemix-adjusted acute care separation are presented for these jurisdictions (Table A1.11). Separations were included only if their care type was *Acute, Newborn* with at least one qualified day or for which the care type was *Not reported*.

The reported acute care and non-psychiatric acute care IFRACs were the same as the IFRACs for all care types for some hospitals that had reported non-acute admitted patient care activity. Those hospitals were excluded from the analysis if they reported more than 1,000 patient days for non-acute separations. Several hospitals reported acute care IFRACs that gave an estimated cost per day of over \$1,000, which was considered an unreasonably high estimate for non-acute care types.

For New South Wales, 48 hospitals were excluded from the analysis and 6 hospitals were omitted for both Victoria and Western Australia.

The estimated cost per acute care casemix-adjusted separation for the hospitals included was \$3,937 in New South Wales, \$3,356 in Victoria and \$3,664 in Western Australia. The cost per casemix-adjusted separation for all separations in these hospitals was \$3,928, \$3,662 and \$3,752 respectively (Table A1.11), so the effect of restricting the analysis to acute care admitted patients was to increase the estimated cost by 0.2% in New South Wales and to decrease the estimated cost by 8.4% in Victoria and 2.3% in Western Australia.

The estimated cost per acute non-psychiatric casemix-adjusted separation for the selected hospitals was \$4,062 in New South Wales, \$3,306 in Victoria and \$3,713 in Western Australia. The effect of restricting the analysis to acute non-psychiatric admitted patients was to increase the estimated cost by 3.4% in New South Wales and to decrease the estimated cost by 9.7% in Victoria and 1.0% in Western Australia (Table A1.12).

The estimated cost per acute care casemix-adjusted separation, including depreciation for the selected hospitals was \$4,099 in New South Wales, \$3,485 in Victoria and \$3,779 in Western Australia (Table A1.11). The estimated cost per acute non-psychiatric casemix-adjusted separation, including depreciation for the selected hospitals was \$4,228 in New South Wales, \$3,432 in Victoria and \$3,830 in Western Australia (Table A1.12).

These analyses would be further improved if all jurisdictions increased their capacity to separate costs for psychiatric services, other acute services, sub-acute services (for example, rehabilitation) and non-acute services.

Cost per casemix-adjusted separation, including capital

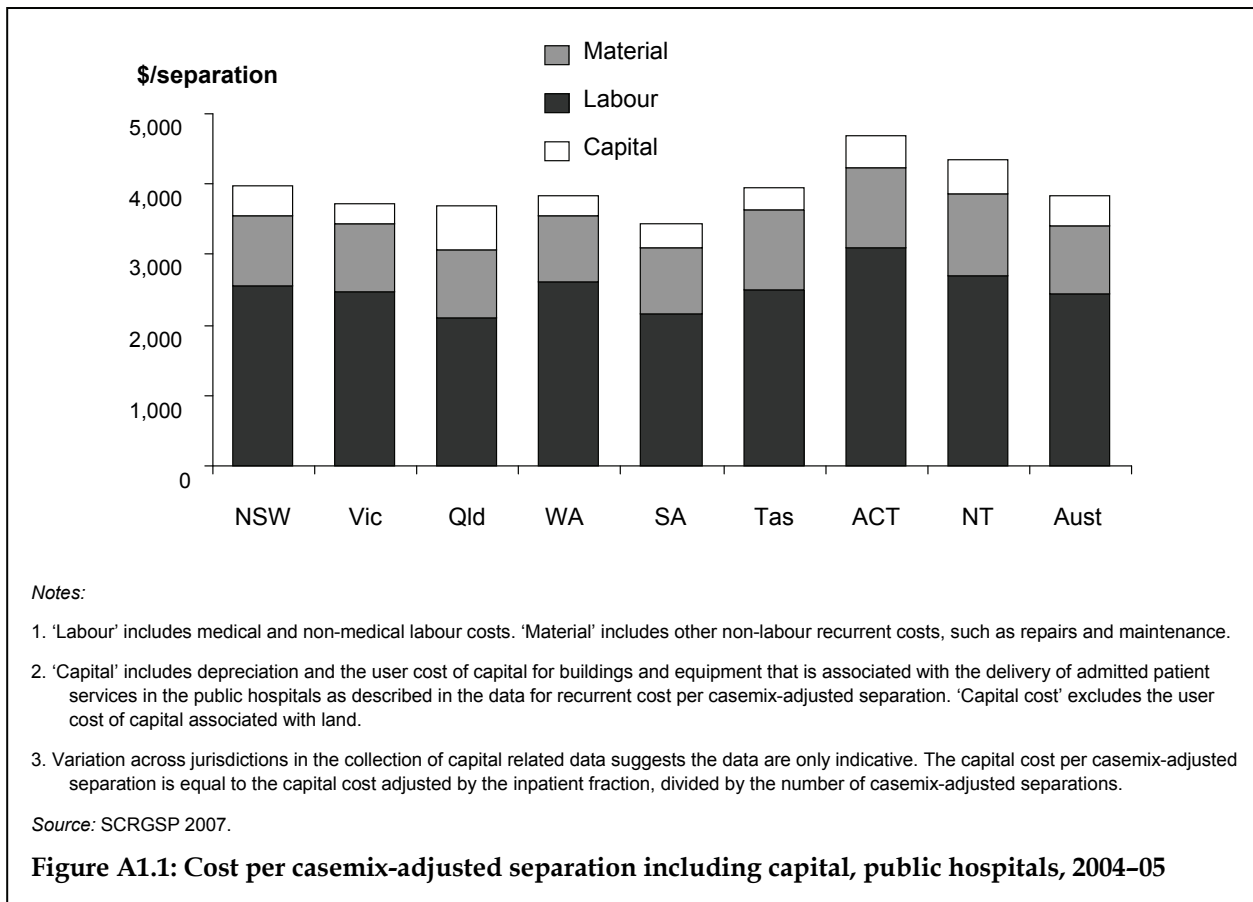
The cost per casemix-adjusted separation analysis includes recurrent expenditure and depreciation for those states that reported it (see above, and Chapter 4).

The Steering Committee for the Review of Government Service Provision (SCRGSP) reported 'total costs per casemix-adjusted separation' by state and territory for 2004–05 (SCRGSP 2007). It was defined as the recurrent cost per casemix-adjusted separation plus the capital costs (depreciation and the user cost of capital of buildings and equipment) per casemix-adjusted separation.

'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 forgone from not using the funds to deliver other government services or to retire debt. Interest payments represent a user cost of capital and so should be excluded from recurrent expenditure where user costs of capital are calculated separately and added to recurrent costs. Interest expenses were deducted directly from capital costs in all jurisdictions to avoid double counting' (SCRGSP 2006).

The total cost per casemix-adjusted separation by jurisdiction (including capital costs), as published by SCRGSP for 2004–05, is presented in Figure A1.1. The data exclude the user cost of capital associated with land. Excluding the user cost of capital for land, the total cost per casemix-adjusted separation ranged from \$4,684 in the Australian Capital Territory to \$3,450 in South Australia (SCRGSP 2007).

Further details about the SCRGSP calculation of total cost per casemix-adjusted separation are available in the *Report on government services 2006* (SCRGSP 2007).



Relative stay index

Relative stay indexes (RSIs) have been identified as indicators of efficiency and are presented in Tables 2.3, 2.4, 4.1a-d, 4.2a-f, 4.12, 4.13, 12.1 and 12.2. They are calculated as the actual number of patient days for separations in selected AR-DRGs, divided by the number of patient days expected (based on national figures) standardised for casemix. An RSI greater than 1 indicates that an average patient's length of stay is higher than expected given the casemix for the group of separations of interest. An RSI of less than 1 indicates that the length of stay was less than expected.

The standardisation for casemix (based on AR-DRG version 5.0 and age of the patient for each separation) allows comparisons to be made that take into account variation in types of services provided, but does not take into account other influences on length of stay, such as Indigenous status.

The RSI method includes acute care separations only, and excludes separations for patients who died or were transferred within 2 days of admission, or with length of stay greater than 120 days. Excluded from the analysis were AR-DRGs which are for 'rehabilitation', which are predominantly same-day (such as R63Z *Chemotherapy* and L61Z *Admit for renal dialysis*), which have a length of stay component in the definition (see Table A1.13 accompanying this report on the Internet), and Error AR-DRGs.

This publication is different from previous *Australian hospital statistics* publications in that the RSI methodology has been updated from AR-DRG version 4 to AR-DRG version 5.0.

The analysis using AR-DRG version 5.0 results in the exclusion of a greater number of AR-DRGs with a length of stay component in the definition than in AR-DRG version 4. In addition, some AR-DRGs no longer exist (for example, G41B *Complex therapeutic gastroscopy for non-major digestive diseases, sameday* and 962Z *Unacceptable obstetric diagnosis combination*) and for some AR-DRGs which are named identically in both versions there are notable differences in the number of separations that are assigned to the AR-DRG when the data are grouped to both versions. For example in 2005–06, 269,705 separations were assigned to G44C *Other colonoscopy, same day* in AR-DRG version 4.2 and 194,937 separations were assigned to G44C *Other colonoscopy, sameday* in AR-DRG version 5.0.

The result is that more separations are excluded from the RSI analysis when using AR-DRG version 5.0 than when using AR-DRG version 4.2.

Comparisons with *Australian hospital statistics 2003–04* (and earlier reports) should be made with caution, because (in general) the exclusion of additional AR-DRGs with a length of stay in the definition results in ratios slightly further from 1 than were produced by the AR-DRG version 4-based method. This results, for example, in slight increases in private hospital RSIs (0.5% overall) and slight decreases in public hospital RSIs (-0.1% overall).

The AR-DRG version 5-based methodology was also used for the RSI time series in Table 2.3. For the purpose of this analysis, data based on earlier editions of ICD-10-AM (from 2001–02) were mapped forward to the third edition of ICD-10-AM and then grouped to AR-DRG version 5.0.

Standardisation methods

Two methods are used for standardisation of the length of stay data, and are analogous to direct and indirect age-standardisation methods. The method used generally in this report is analogous to indirect standardisation where the national rates (ALOS) for each AR-DRG (version 5.0) are applied to the relevant population of interest (number of separations for each AR-DRG in the hospital group) to derive the expected number of patient days. Indirect standardisation methods are generally used when rate information for the population of interest (ALOS for each AR-DRG in this analysis) is unknown or subject to fluctuation because of small population sizes. This method provides a measure of efficiency for a hospital, or group of hospitals, based on their actual activity. However, an indirectly standardised rate compares a group with a 'standard population rate' so, using this method, rates for different groups are not strictly comparable because each group has a different casemix to which the national ALOS data have been applied. Therefore, the indirectly standardised data for hospital groups should be compared with the national average of 1.00.

The second method is analogous to direct standardisation where the rate (ALOS) of each AR-DRG for the group of interest is multiplied by the national population (total number of separations in each AR-DRG) to derive the expected number of patient days. This method provides a measure of efficiency for a hospital, or group of hospitals, and is suitable if all or most AR-DRGs are represented in a hospital group. Direct standardisation methods are generally used where the populations and their characteristics are stable and reasonably similar, for example for total separations for New South Wales and Victoria.

Groups can be compared using directly standardised rates as the activity of each group is weighted using the same set of weights, namely the national casemix. However, the ALOS

data for AR-DRGs which are not represented in a group need to be estimated. The method in this report uses an assumption that the missing AR-DRGs for the hospital group had a relative length of stay that was the same as that for the reported AR-DRGs for the hospital group, weighted by the national distribution of the reported AR-DRGs in the group. Another weakness of direct standardisation is that this method can scale up AR-DRGs to have an impact that does not reflect their relative volume in a hospital group. This weakness can be particularly problematic if the low-volume AR-DRGs are atypical.

The indirect standardised method has been mainly used in this report because of the weaknesses of the direct standardised method. However, the direct standardised method has been used (in addition to the indirect standardisation) in Table 2.3 as a time series and in Table 4.13 by state and territory. This allows comparison between the two methods and more direct comparison for those jurisdictions and sectors for which the data are presented. Data for the direct standardised method in the public sector in the Northern Territory are suppressed in Table 4.13, because of problems with using the direct standardisation for hospital groups that reported a limited range of AR-DRGs. For public hospitals in the Northern Territory and private hospitals in South Australia, fewer than 600 of the 632 DRGs used in the national RSI analysis are represented, so results are likely to have been affected by estimation of the missing ALOS data.

Table A1.14 shows the number of AR-DRGs represented in each cell in Table 4.13, so that the number of AR-DRGs for which ALOS was estimated can be derived. For those jurisdictions and sectors for which RSI statistics are presented in Table 4.13, there were between 608 and 632 AR-DRGs represented, meaning that ALOS data was estimated for up to 24 AR-DRGs.

Data on geographical location

Data on geographical location are collected on hospitals in the National Public Hospital Establishments Database and on the area of usual residence of patients in the National Hospital Morbidity Database. These data have been provided as state or territory and Statistical local area (SLA, a small area unit within the Australian Bureau of Statistics Australian Standard Geographic Classification, ASGC) and/or postcode, and have been aggregated to Remoteness Areas.

The ASGC's remoteness structure categorises geographical areas in Australia into Remoteness Areas, described in detail on the ABS website www.abs.gov.au.

The classification is as follows:

- major cities
- inner regional
- outer regional
- remote
- very remote.

Geographical location of hospital

The Remoteness Area of each public hospital was determined using geo-coded data (with latitude and longitude) for each hospital in 2001 or on the basis of its SLA, postcode or other location information as detailed in *Australian hospital statistics 2002-03* (AIHW 2004a).

Data on the Remoteness Area of hospitals are presented in Chapter 2 (Table 2.7) and Chapter 3 (Table 3.2).

Geographical location of usual residence

Data on the Remoteness Area of usual residence of admitted patients are presented in Figure 10 in the 'Hospitals at a glance' section and in Tables 4.9, 8.12, 9.21 and A5.2. Data on the state or territory of usual residence are reported in Chapter 4 (Tables 4.5, 4.6 and 4.7), Chapter 7 (Tables 7.7, 7.8, 7.9 and 7.10), Chapter 9 (Table 9.20) and Appendix 5 (Table A5.1).

The data used for these tables were derived from data supplied by the states and territories for the National Hospital Morbidity Database on the area of usual residence of the patients. The *National health data dictionary* specifies that these data should be provided as the state or territory and the SLA of usual residence. Although most separations included data on the state or territory of usual residence, not all states and territories were able to provide information on the area of usual residence in the form of an SLA code. New South Wales, Victoria, Western Australia, Tasmania, the Australian Capital Territory and the Northern Territory were able to provide SLA codes both for patients usually resident in the jurisdiction and for patients not usually resident in the jurisdiction. Queensland and South Australia provided SLA codes for patients usually resident in the jurisdiction and postcodes for patients not usually resident in the jurisdiction.

The AIHW mapped the supplied area of residence data for each separation to 2005 SLA codes and to Remoteness Area categories. This was undertaken on a probabilistic basis as necessary, using ABS concordance information describing the distribution of the population by postcode, Remoteness Areas and SLAs (2005 and previous years). The mapping process identified missing, invalid and superseded codes, but resulted in 99.6% of records being assigned 2005 SLA codes. The remainder of records had a usual residence of *Overseas/Not elsewhere classified* or *Not reported*. Because of the probabilistic nature of this mapping, the SLA and Remoteness Area data for individual separations may not be accurate; however, the overall distribution of separations by geographical areas is considered useful.

Socioeconomic advantage/disadvantage

The Socio-Economic Indexes For Areas 2001 (termed SEIFA 2001 (ABS 2004)) are generated by the ABS using a combination of 2001 Census data such as income, education, skill level of occupation/unemployment, wealth and living conditions, dwellings without motor vehicles, rent paid, mortgage repayments, and dwelling size. Composite scores are averaged across all people living in areas and defined for areas based on the Census collection districts. However, they are also compiled for higher levels of aggregation including SLA. The SEIFAs are described in detail on the ABS website www.abs.gov.au.

The SEIFA Index of Advantage/Disadvantage was generated by the ABS using a combination of Census data, including variables measuring both advantage and disadvantage. A higher score on the index indicates that an area has attributes that measure advantage, such as a relatively high proportion of people with high incomes or a skilled workforce. It also means an area has a low proportion of people with variables that measure disadvantage, such as low incomes and relatively few unskilled people in the workforce. Conversely, a low score on the index indicates that an area has a high proportion of individuals with variables that measure disadvantage, such as low incomes and more employees in unskilled occupations, and a low proportion of people with variables that

measure advantage, such as high incomes or people in skilled occupations. Hence, the index offsets any disadvantage in an area with advantage.

Separation rates by quintile of advantage/disadvantage were generated by the AIHW by using the SEIFA scores for this index for the SLA of usual residence of the patient reported for each separation. The most disadvantaged quintile represents the areas containing the 20% of the population with the least advantage/most disadvantage and the most advantaged quintile represents the areas containing the 20% of the population with the least disadvantage/most advantage.

Patient election status and funding source categories

For *Australian hospital statistics 2001–02* and subsequent publications, Tables 7.2 to 7.5 (previously Tables 6.1 to 6.4) were based on the data elements patient election status and Funding source for hospital patient. For the purpose of reporting these data from 2001–02 to 2005–06, the patient election status for patients whose funding source was reported as *Australian Health Care Agreements* and *Reciprocal health care agreements* was categorised as public. Public psychiatric hospital patients were also categorised as public unless another funding source was reported for them. The patient election status for patients whose funding source was reported as *Private health insurance*, *Self-funded*, *Workers compensation*, *Motor vehicle third party personal claim*, *Other compensation*, *Department of Veterans' Affairs*, *Department of Defence* or *Correctional facility* was categorised as private. Patients whose funding source was reported as *Other hospital or public authority*, *Other* or *Not reported* were categorised according to the reported 'Admitted patient election status'. For 2003–04, the patient election status for separations for patients whose funding source was reported as *Other hospital or public authority* in private hospitals in Tasmania was categorised as public, because the patients were contracted by a public hospital and the 'Admitted patient election status' was not reported. Tables in Chapters 9, 10 and 12 that present data for public patient separations used patient election status, as described above, as the basis for this category.

To facilitate time series comparisons and to provide some continuity between *Australian hospital statistics* reports for 1999–00 to 2004–05 and this publication, the presentation of information for 2001–02 to 2005–06 in Table 7.1 combines selected funding source categories and includes Medicare eligibility status data. In Table 7.1 for 2001–02 to 2005–06, the category *Compensable* includes patients whose funding source was *Workers compensation*, *Motor vehicle third party personal claim* and *Other compensation*, and the category *Other private* includes private patients whose funding source was not *Department of Veterans' Affairs* or *Compensable*. However, caution should be used when making comparisons over time (Tables 7.1, 9.6, 10.6 and 12.6) as the categories presented are not directly comparable. In previous years there was some variation between jurisdictions in the use of the data element 'Admitted patient election status', with some states and territories using this element to reflect the patient's choice of room or doctor and others to reflect the funding source. Hence, anomalies may exist because patients with the funding source reported as *Department of Defence* and *Correctional facility* have been categorised as 'private patients' for 2001–02 to 2005–06, whereas they may previously have been reported as 'public patients'.

Table A1.7: Separation^(a) statistics for selected adjacent AR-DRGs^(b), by hospital sector, states and territories, 2005-06

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT ^(c)	Total
All adjacent AR-DRGs split by complications only									
Public hospitals									
Separations	451,231	344,297	228,171	107,485	106,525	31,018	20,397	18,599	1,307,723
Raw proportion in lowest resource level AR-DRG	0.64	0.64	0.67	0.64	0.64	0.69	0.66	0.58	0.65
Standardised proportion in lowest resource level AR-DRG	0.65	0.64	0.68	0.65	0.64	0.69	0.67	n.p.	0.66
95% confidence interval of proportion	0.65-0.65	0.64-0.65	0.68-0.69	0.65-0.65	0.64-0.65	0.69-0.70	0.66-0.68	n.p.	0.66-0.66
Private hospitals									
Separations	137,424	135,816	140,024	62,265	46,533	n.p.	n.p.	n.p.	544,665
Raw proportion in lowest resource level AR-DRG	0.76	0.73	0.74	0.74	0.73	n.p.	n.p.	n.p.	0.74
Standardised proportion in lowest resource level AR-DRG	0.70	0.70	0.69	0.71	0.67	n.p.	n.p.	n.p.	0.70
95% confidence interval of proportion	0.70-0.71	0.69-0.70	0.69-0.70	0.70-0.71	0.67-0.68	n.p.	n.p.	n.p.	0.70-0.70
Adjacent AR-DRGs with a moderate complication as the lowest resource level AR-DRG									
Public hospitals									
Separations	172,014	123,280	90,539	39,923	37,467	10,960	7,891	7,770	489,844
Standardised proportion in lowest resource level AR-DRG	0.54	0.52	0.59	0.53	0.53	0.58	0.56	0.49	0.55
95% confidence interval of proportion	0.54-0.55	0.52-0.52	0.59-0.59	0.53-0.54	0.52-0.53	0.57-0.59	0.54-0.57	0.48-0.50	0.54-0.55
Private hospitals									
Separations	33,726	36,531	36,621	18,999	11,495	n.p.	n.p.	n.p.	144,104
Standardised proportion in lowest resource level AR-DRG	0.53	0.54	0.55	0.57	0.51	n.p.	n.p.	n.p.	0.54
95% confidence interval of proportion	0.53-0.54	0.53-0.54	0.54-0.55	0.56-0.57	0.50-0.52	n.p.	n.p.	n.p.	0.54-0.54
Adjacent DRGs with a severe or catastrophic complication as the lowest resource level AR-DRG									
Public hospitals									
Separations	279,217	221,017	137,632	67,562	69,058	20,058	12,506	10,829	817,879
Standardised proportion in lowest resource level AR-DRG	0.71	0.71	0.73	0.71	0.70	0.76	0.72	n.p.	0.71
95% confidence interval of proportion	0.71-0.71	0.70-0.71	0.73-0.74	0.71-0.72	0.70-0.71	0.75-0.77	0.71-0.74	n.p.	0.71-0.72
Private hospitals									
Separations	103,698	99,285	103,403	43,266	35,038	n.p.	n.p.	n.p.	400,561
Standardised proportion in lowest resource level AR-DRG	0.79	0.78	0.77	0.78	0.76	n.p.	n.p.	n.p.	0.78
95% confidence interval of proportion	0.79-0.80	0.78-0.79	0.76-0.77	0.77-0.79	0.75-0.76	n.p.	n.p.	n.p.	0.78-0.78

(continued)

Table A1.7 (continued): Separation(a) statistics for selected adjacent AR-DRGs^(b), by hospital sector, states and territories, 2005-06

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT ^(c)	Total
Adjacent AR-DRGs classified as major medical conditions									
Public hospitals									
Separations	18,364	12,498	7,320	3,845	3,847	1,043	657	643	48,217
Standardised proportion in lowest resource level AR-DRG	0.62	0.60	0.65	0.62	0.62	0.69	0.61	0.65	0.62
95% confidence interval of proportion	0.61-0.63	0.59-0.61	0.64-0.67	0.60-0.64	0.60-0.63	0.65-0.74	0.57-0.66	0.60-0.70	0.62-0.63
Private hospitals									
Separations	1,813	3,532	3,339	1,348	1,244	n.p.	n.p.	n.p.	11,679
Standardised proportion in lowest resource level AR-DRG	0.69	0.69	0.64	0.64	0.63	n.p.	n.p.	n.p.	0.66
95% confidence interval of proportion	0.66-0.72	0.67-0.71	0.62-0.66	0.61-0.68	0.60-0.67	n.p.	n.p.	n.p.	0.65-0.68
Adjacent AR-DRGs for vaginal and caesarean delivery									
Public hospitals									
Separations	66,401	45,143	36,876	15,807	12,723	4,033	3,156	2,871	187,010
Standardised proportion in lowest resource level AR-DRG	0.37	0.30	0.43	0.34	0.35	0.37	0.36	0.37	0.36
95% confidence interval of proportion	0.37-0.38	0.30-0.31	0.42-0.43	0.33-0.34	0.34-0.36	0.36-0.39	0.35-0.38	0.36-0.39	0.36-0.36
Private hospitals									
Separations	21,097	19,423	16,708	10,550	4,755	n.p.	n.p.	n.p.	76,931
Standardised proportion in lowest resource level AR-DRG	0.34	0.32	0.37	0.36	0.32	n.p.	n.p.	n.p.	0.34
95% confidence interval of proportion	0.33-0.34	0.31-0.32	0.37-0.38	0.35-0.36	0.31-0.33	n.p.	n.p.	n.p.	0.34-0.35

(a) Separations for which the care type was reported as *Acute*, or *Newborn* with qualified days, or was *Not reported*.

(b) AR-DRG version 5.0, using AR-DRGs as detailed in the text of Appendix 1.

(c) Northern Territory data for some cells were suppressed due to limitations of the method when applied to cells with underrepresentation of some AR-DRGs.
n.p. Not published

Table A1.10: Summary of separations in public acute hospitals selected for the cost per casemix-adjusted separation analysis^(a) and data for excluded hospitals, states and territories, 2005–06

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Total separations ('000)	1,354	1,248	717	360	357	91	72	83	4,282
Total patient days ('000)	4,978	4,151	2,441	1,185	1,245	349	244	244	14,838
Acute separations^(b)									
Separations ('000)	1,331	1,218	693	352	349	89	70	82	4,184
Patient days ('000)	4,599	3,405	2,129	1,055	1,139	308	209	233	13,077
Acute care psychiatric separations^(c)									
Separations ('000)	25	15	20	6	7	3	1	1	78
Average cost weight ^(d)	1.55	2.27	1.77	1.86	1.83	1.43	1.94	1.69	1.79
Patient days ('000)	303	253	228	82	78	26	16	11	998
Acute care non-psychiatric separations									
Separations ('000)	1,305	1,202	673	346	343	86	69	81	4,106
Patient days ('000)	4,296	3,152	1,901	973	1,060	282	192	222	12,079
Separations other than acute									
Rehabilitation separations ('000)	13.2	15.6	15.7	4.8	5.1	0.9	1.6	0.5	57.4
Patient days ('000)	245.8	367.1	172.3	93.7	36.4	24.0	19.6	3.8	962.7
Palliative care separations ('000)	3.8	3.2	3.5	0.7	1.3	0.0	0.5	0.2	13.2
Patient days ('000)	40.0	45.8	29.9	6.3	16.4	0.3	7.1	2.2	148.0
Geriatric evaluation and management separations ('000)	1.1	7.5	0.5	0.6	0.0	0.0	0.1	0.1	9.9
Patient days ('000)	8.3	192.4	7.7	5.9	0.0	0.1	1.6	1.5	217.5
Psychogeriatric separations	0.3	1.8	0.6	0.0	0.0	0.2	0.0	0.0	2.9
Patient days ('000)	8.5	58.2	11.8	0.7	12.9	0.2	0.0	0.2	92.5
Maintenance separations ('000)	4.4	2.7	4.0	1.4	0.9	0.5	0.2	0.1	14.3
Patient days ('000)	76.6	82.8	87.7	24.1	41.0	15.7	7.3	3.5	338.7
Other separations ('000)	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.3
Patient days ('000)	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	1.9
Total separations other than acute									
Separations ('000)	22.8	30.9	24.5	7.6	7.4	1.6	2.4	0.9	98.0
Patient days	379.2	746.3	311.2	130.7	106.5	40.3	35.6	11.3	1,761.2
Psychiatric separations^(c)									
Separations ('000)	26	17	21	6	7	3	1	1	81
Patient days ('000)	318	311	270	83	103	26	16	11	1,138
Data for excluded hospitals^(e)									
Separations for excluded hospitals ('000) ^(b)	65	23	33	35	21	3	n.a.	0	180
Per cent of all separations	4.6	1.8	4.4	8.9	5.6	3.2	n.a.	0.0	4.0
Expenditure for excluded hospitals (\$m)	1,027	269	274	299	216	39	2	..	2,125
Inpatient fraction for excluded hospitals	0.62	0.47	0.70	0.75	0.44	0.53	1.00	..	0.61
Unadjusted cost per separation	9,781	5,609	5,820	6,383	4,460	6,866	n.a.	..	7,197

(a) Psychiatric hospitals, drug and alcohol services, mothercraft hospitals, unpeered and other hospitals, hospices, rehabilitation facilities, small non-acute and multipurpose services are excluded from this table, as are some small hospitals with incomplete expenditure information. See Appendix 2 for further information.

(b) Separations for which the care type was reported as *Acute*, *Newborn* with at least one qualified day, or *Not reported*. Includes same-day separations.

(c) Separations with total days of psychiatric care equal to the total length of stay.

(d) Average cost weight from the National Hospital Morbidity Database, based on separations with a care type of *Acute*, *Newborn* with at least one qualified day, or *Not reported*, using the 2004–05 AR-DRG v 5.0 cost weights (DoHA 2006). An updated version of this table based on 2005–06 AR-DRG v 5.0 cost weights will be made available on the website.

(e) Psychiatric hospitals, drug and alcohol services, mothercraft hospitals, unpeered and other hospitals, hospices, rehabilitation facilities, small non-acute and multipurpose services. See Appendix 2 for further information.

.. Not applicable.

n.a. Not available.

Table A1.11: Cost per acute casemix-adjusted separation, subset of selected public acute hospitals^(a), New South Wales, Victoria and Western Australia, 2005–06

	NSW	Vic	WA
Total separations ('000) ^(b)	722	1,182	248
Total patient days ('000) ^(b)	2,590	3,946	792
Acute separations ('000) ^(c)	715	1,152	243
Acute patient days ('000) ^(c)	2,505	3,219	711
Proportion of separations acute	99.0%	97.5%	98.0%
Proportion of patient days acute	96.7%	81.6%	89.8%
Total recurrent expenditure excluding depreciation (\$m)			
Subset hospitals	4,182	5,672	1,271
Hospitals in Tables 4.1a–d	7,551	5,920	1,894
Proportion	55%	96%	67%
Total recurrent expenditure including depreciation (\$m)			
Subset hospitals	4,362	5,895	1,312
Hospitals in Tables 4.1a–d	7,868	6,152	1,950
Proportion	55%	96%	67%
Total admitted patient expenditure including depreciation (\$m)			
Subset hospitals	3,050	4,178	906
Hospitals in Tables 4.1a–d	5,530	4,374	1,349
Proportion	55.2%	95.5%	67.2%
Total separations ('000)			
Subset hospitals	722	1,182	248
Hospitals in Tables 4.1a–d	1,354	1,248	360
Proportion	53.4%	94.7%	68.9%
Costs relating to acute care separations			
Average cost weight ^(d)	1.081	0.957	0.971
Casemix-adjusted acute separations ('000)	773	1,102	236
Acute IFRAC ^(e)	0.694	0.635	0.662
Total acute patient recurrent expenditure excluding depreciation (\$m)	2,903	3,604	841
Total acute patient recurrent expenditure including depreciation (\$m)	3,028	3,746	868
Cost per casemix-adjusted acute separation^(f)	3,937	3,356	3,664
Cost per casemix-adjusted acute separation including depreciation^(f)	4,099	3,485	3,779
Cost per casemix-adjusted separation excluding depreciation			
From Tables 4.1a–d	3,852	3,646	3,733
Subset of hospitals	3,928	3,662	3,752
Percentage this exceeds cost per acute separation for subset hospitals	-0.2%	8.4%	2.3%
Cost per casemix-adjusted separation including depreciation			
From Tables 4.1a–d	4,006	3,785	3,842
Subset of hospitals	4,090	3,802	3,869
Percentage this exceeds cost per acute separation for subset hospitals	4.0%	3.7%	3.0%
Cost of non-acute separations in subset excluding depreciation (\$m)	21	416	36
Per separation (\$)	2,918	13,835	7,368
Per patient day (\$)	252	573	447
Cost of non-acute separations in subset including depreciation (\$m)	22	433	37
Per separation (\$)	3,044	14,381	7,605
Per patient day (\$)	263	595	461

(a) Excludes psychiatric hospitals, sub-acute, non-acute and unpeered hospitals or services. This subset excludes hospitals where the IFRAC was equal to the acute IFRAC and more than 1,000 non-acute patient days were recorded. Also excludes hospitals where the apparent cost of non-acute patients exceeded \$1,000 per day and more than \$1,000,000 of expenditure on non-acute patient days was reported.

(b) Separations for which the care type was reported as *Newborn* with no qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded. Details of acute and non-acute separations and patient days are presented in Table A1.10.

(c) Separations where the care type is *Acute*, *Newborn* with qualified days, or *Not reported*. Psychiatric separations are those with psychiatric care days.

(d) Average cost weight from the National Hospital Morbidity Database, based on separations for which the care type was reported as *Acute*, *Newborn* with at least one qualified day, or *Not reported*, using the 2004–05 AR-DRG version 5.0 cost weights (DoHA 2006).

(e) The acute IFRAC is that portion of recurrent costs which is for acute admitted patients.

(f) Includes adjustment for private patient medical costs: \$177 for New South Wales, \$105 for Victoria and \$103 for Western Australia.

Table A1.12: Cost per acute non-psychiatric casemix-adjusted separation, subset of selected public acute hospitals^(a), New South Wales, Victoria and Western Australia, 2005–06

	NSW	Vic	WA
Total separations ('000) ^(b)	722	1,182	248
Total patient days ('000) ^(b)	2,590	3,946	792
Acute non-psychiatric separations ('000) ^(c)	702	1,137	240
Acute non-psychiatric patient days ('000) ^(c)	2,346	2,977	671
Proportion of separations acute	97.1%	96.2%	96.7%
Proportion of patient days acute	90.6%	75.5%	84.7%
Total recurrent expenditure excluding depreciation (\$m)			
Subset hospitals	4,182	5,672	1,271
Hospitals in Tables 4.1a–d	7,551	5,920	1,894
Proportion	55%	96%	67%
Total recurrent expenditure including depreciation (\$m)			
Subset hospitals	4,362	5,895	1,312
Hospitals in Tables 4.1a–d	7,868	6,152	1,950
Proportion	55%	96%	67%
Total separations ('000)			
Subset hospitals	722	1,182	248
Hospitals in Tables 4.1a–d	1,354	1,248	360
Proportion	53.4%	94.7%	68.9%
Costs relating to acute non-psychiatric separations			
Average cost weight ^(d)	1.081	0.957	0.971
Casemix-adjusted acute non-psychiatric separations ('000)	758	1,088	233
Acute non-psychiatric IFRAC ^(e)	0.694	0.606	0.653
Total acute non-psychiatric patient recurrent expenditure excluding depreciation (\$m)	2,903	3,437	830
Total acute non-psychiatric patient recurrent expenditure including depreciation (\$m)	3,028	3,573	857
Cost per casemix-adjusted acute non-psychiatric separation excluding depreciation^(f)	4,062	3,306	3,713
Cost per casemix-adjusted acute non-psychiatric separation including depreciation^(f)	4,228	3,432	3,830
Cost per casemix-adjusted separation excluding depreciation			
From Tables 4.1a–d	3,852	3,646	3,733
Subset of hospitals	3,928	3,662	3,752
Percentage this exceeds cost per acute separation for subset hospitals	-3.4%	9.7%	1.0%
Cost per casemix-adjusted separation including depreciation			
From Tables 4.1a–d	4,006	3,785	3,842
Subset of hospitals	4,090	3,802	3,869
Percentage this exceeds cost per acute separation for subset hospitals	5.8%	4.1%	3.5%
Cost of non-acute non-psychiatric separations in subset excluding depreciation (\$m)	21	583	47
Per separation (\$)	1,027	13,055	5,859
Per patient day (\$)	88	602	392
Cost of non-acute non-psychiatric separations in subset excluding depreciation (\$m)	22	606	49
Per separation (\$)	1,072	13,570	6,047
Per patient day (\$)	92	626	404

- (a) Excludes psychiatric hospitals, sub-acute, non-acute and unpeered hospitals or services. This subset excludes hospitals where the IFRAC was equal to the acute IFRAC and more than 1,000 non-acute patient days were recorded. Also excludes hospitals where the apparent cost of non-acute patients exceeded \$1,000 per day and more than \$1,000,000 of expenditure on non-acute patients days was reported.
- (b) Separations for which the care type was reported as *Newborn* with no qualified days, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded. Details of acute and non-acute separations and patient days are presented in Table A1.10.
- (c) Separations where the care type is *Acute*, *Newborn* with qualified days, or *Not reported*. Psychiatric separations are those with psychiatric care days.
- (d) Average cost weight from the National Hospital Morbidity Database, based on separations for which the care type was reported as *Acute*, *Newborn* with at least one qualified day, or *Not reported*, using the 2004–05 AR-DRG version 5.0 cost weights (DoHA 2006).
- (e) The acute non-psychiatric IFRAC is that portion of recurrent costs which is for acute non-psychiatric admitted patients.
- (f) Includes adjustment for private patient medical costs: \$199 for New South Wales, \$90 for Victoria and \$100 for Western Australia.

Table A1.14: Count of AR-DRGs version 5.0 contributing to the relative stay index, by sector, and medical/surgical/other type of AR-DRG, states and territories, 2005-06

Type of hospital	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Public hospitals	632	632	632	632	629	621	616	586	632
Medical	323	323	323	323	323	323	322	318	323
Surgical	278	278	278	278	276	267	264	241	278
Other	31	31	31	31	30	31	30	27	31
Private hospitals	614	616	623	608	599	n.p.	n.p.	n.p.	628
Medical	319	319	321	314	311	n.p.	n.p.	n.p.	323
Surgical	266	267	272	267	262	n.p.	n.p.	n.p.	274
Other	29	30	30	27	26	n.p.	n.p.	n.p.	31
All hospitals	632	632	632	632	629	n.p.	n.p.	n.p.	632
Medical	323	323	323	323	323	n.p.	n.p.	n.p.	323
Surgical	278	278	278	278	276	n.p.	n.p.	n.p.	278
Other	31	31	31	31	30	n.p.	n.p.	n.p.	31

n.p. Not published.