

# 8. Australian National Diagnosis Related Groups of admitted patients

## Introduction

Australian National Diagnosis Related Groups (AN-DRGs) are an Australian patient classification system which provide a means of summarising and relating the number and type of patients treated in a hospital (that is, its casemix), to the resources required by the hospital (Department of Human Services and Health & 3M Health Information Systems 1993). The classification categorises episodes into groups with similar conditions and similar usage of hospital resources, using information in the hospital morbidity record such as the diagnoses, procedures and demographic characteristics. The classification was adapted from United States classifications to reflect Australian clinical standards and practice and was first released in 1992 (Department of Health and Family Services 1996). This report uses version 3.0 released in July 1995.

AN-DRGs can be examined either individually or grouped by Major Diagnostic Category (MDC). This chapter presents data categorised by MDC (Figures 8.1 and 8.2; Tables 8.1 to 8.8) and for the 30 AN-DRGs that accounted for the highest numbers of separations in the public and private sectors (Tables 8.9 to 8.16). In addition, selected national data for all the AN-DRGs are included in Tables D5 and D6 on the diskette accompanying this report.

Tables for both MDCs and AN-DRGs are presented with summary national separation, patient day, length of stay and cost statistics for public and private hospitals. In addition, the data are presented by State and Territory and, for AN-DRGs, by age group and sex.

The average length of stay figures were calculated using all separations for which lengths of stay were provided. That is, the data were not trimmed of separations with unusually long or short lengths of stay.

## Major Diagnostic Categories and Diagnosis Related Groups

The AN-DRG classification is based on a description of body systems, a separation of medical and surgical procedures, and a description of a hierarchy of procedures, medical problems and other factors that differentiate processes of care. Episodes are generally assigned to one of the 23 MDCs and also to one of the 667 individual AN-DRGs.

The 23 MDCs are mostly defined by body system or disease type, and correspond with a particular medical speciality (Department of Health and Family Services 1996). In general, episodes are assigned to MDCs on the basis of the principal diagnosis. Some episodes involving procedures that are particularly resource intensive can also be assigned to the Pre-MDC category, irrespective of the MDC assigned on the basis of principal diagnosis. Records for these episodes have been categorised separately in tables and figures based on MDCs in this chapter. Episodes with Edit-DRGs have been similarly categorised separately, even if they were assigned to an MDC.

Once an episode has been linked to an MDC, it is assigned to a surgical or medical AN-DRG within the MDC. The AN-DRG is assigned primarily on the basis of the procedure codes (in the surgical partition) or the diagnosis codes (in the medical partition). When more than one

AN-DRG is associated with a cluster of closely-related procedures or diagnoses, other variables, such as the patient's age, the presence of complications or comorbidities, and the mode of separation, are used for AN-DRG assignment (Department of Health and Family Services 1996).

For the assignment of AN-DRGs, the principal procedure is defined as the one with the highest resource intensity. This definition differs from the definition of principal procedure in the *National Health Data Dictionary* and used in chapter 6.

## Costs

The cost figures in this chapter are estimates only, intended for use as a guide to the approximate relative costs of hospital services during 1995–96. They should be used only with caution in any comparisons of the States and Territories or the public and private sectors.

The cost by volume figures were derived for each AN-DRG by multiplying the number of separations for each AN-DRG by the version 3.0 cost weight for the AN-DRG and by the estimated average cost for the AN-DRGs. The cost weights represent the costliness of an AN-DRG relative to all other AN-DRGs, such that the average cost weight is 1.00.

Separate cost weights were used for the public and private sectors (Department of Human Services and Health 1995); these cost weights are produced separately because of the significant differences in the range of costs recorded in public and private hospitals (Department of Health and Family Services 1996). For 110 private sector separations in 15 DRGs in 8 MDC groups (Pre-MDC and MDCs 1, 4, 11, 15, 18, 21 and 22), no cost weights were available. For these separations, the public sector costs weights were used; the costs by volume for these MDCs (and DRGs, as indicated in Table D6) should be interpreted taking this into account.

The estimated average costs for the public and private sectors were based on the estimates for December 1994 for the public and private sectors (Department of Human Services and Health 1995), updated to reflect the 2.67% increase in the Hospital and Clinical Price Index from December 1994 to December 1995 (Australian Bureau of Statistics, unpublished data). Each separation for an AN-DRG with a cost weight of 1.00 was therefore estimated to cost \$2,519 in the public sector and \$1,716 in the private sector.

## Highlights

### Major Diagnostic Categories

#### National

The MDCs with the highest numbers of separations in 1995–96 were *Digestive system* (MDC 06), *Kidney and urinary tract* (MDC 11) and *Musculoskeletal system and connective tissue* (MDC 08). In the public sector *Kidney and urinary tract* was the leading MDC followed by *Digestive system* (Table 8.1, Figure 8.1), while in the private sector *Digestive system* was the most prominent, followed by *Musculoskeletal system and connective tissue* (Table 8.2, Figure 8.2). *Nervous system* (MDC 01) recorded the highest number of patient days, followed by *Musculoskeletal system and connective tissue* and *Factors influencing health status, other contacts* (MDC 23). Again this pattern varied by hospital sector. *Nervous system*, for example, ranked highest in terms of patient days in the public sector, but sixth in the private sector.

The average lengths of stay varied by MDC and hospital sector. The most notable differences between hospital sectors were for *Nervous system*, where the average length of stay was 27% higher for public hospitals than private hospitals, *Mental diseases and disorders* (MDC 19), where the average length of stay was 32% higher for public hospitals than private hospitals,

and *Alcohol/drug use and disorders* (MDC 20), where the average length of stay was 80% higher for private hospitals than public hospitals. A variety of factors could be responsible for such discrepancies, for example different patient populations, patterns of service provision, facilities available, treatment regimes and reporting practices.

## States and Territories

The distributions of separations and patient days by MDC among the States and Territories (Tables 8.3 to 8.6) were broadly consistent with those at the national level. Notable exceptions in the public sector included *Neoplastic disorders* (MDC 17) in the Northern Territory (0.2% of separations compared with a national average of 4.3%) and *Alcohol/drug use and disorders* in the Australian Capital Territory (0.1% compared with 0.7%). In the private sector, the Australian Capital Territory reported relatively more separations for *Newborns and other neonates* (MDC 15) (8.7% of separations compared with 1.1% nationally), and fewer separations for both *Mental diseases and disorders* and *Alcohol/drug use and disorders* (0.2% and less than 0.1% compared with 2.5% and 0.4% respectively). Again these differences could be attributed to a number of factors, which for the Australian Capital Territory would include the nature of facilities available, cross-border patient flows and the omission of private same day facilities from the National Hospital Morbidity Database.

## Australian National Diagnosis Related Groups

### National

In the public sector in 1995–96 *Admit for renal dialysis* (AN-DRG 572) was the most prominent AN-DRG, accounting for 8.6% of total separations (Table 8.9). Other leading AN-DRGs included *Chemotherapy* (AN-DRG 780) with 3.4%, and *Vaginal delivery without complicating diagnosis* (AN-DRG 674) with 3.1% of total public sector separations. The corresponding top three AN-DRGs in the private sector were *Other gastroscopy for non-major digestive disease without complications and comorbidities* (AN-DRG 332), with 5.8% of total separations, *Other colonoscopy without complications and comorbidities* (AN-DRG 335), with 5.3%, and *Lens procedures without vitrectomy and without complications and comorbidities* (AN-DRG 099), with 3.3% (Table 8.10).

Of the ten AN-DRGs with the most separations for the public sector, only three were not included in the top 30 for the private sector, namely *Bronchitis and asthma age <50 without complications and comorbidities* (AN-DRG 187), *Other antenatal admission with moderate or no complicating disorder* (AN-DRG 686), and *Heart failure and shock* (AN-DRG 252). On the other hand, only one of the leading 10 AN-DRGs in the private sector, *Knee procedures* (AN-DRG 421), was missing from the top 30 for the public sector.

Among the 30 AN-DRGs with the most separations for the public sector, there were nine which were among the top 10 in terms of the most patient days. Similarly, for the private sector, there were six AN-DRGs among the 30 AN-DRGs with the most separations that were also in the top 10 AN-DRGs in terms of patient days.

### States and Territories

The distributions of separations by State and Territory for the 30 leading AN-DRGs (Tables 8.11 and 8.12) were broadly consistent. The major exceptions in the public sector were for the Australian Capital Territory, the Northern Territory and Tasmania. In the Australian Capital Territory, *Admit for renal dialysis* accounted for more than twice the proportion of separations compared with the national average (18.1% compared with 8.6%). In the Northern Territory this proportion was even higher; *Admit for renal dialysis* accounted for 26.9% of total separations. In Tasmania the proportion of separations for *Lens procedures without vitrectomy and without complications and comorbidities* was lower than the national average (0.1% compared to 0.8%).

In the private sector the major differences appeared in the Australian Capital Territory. *Other gastroscopy for non-major digestive disease without complications and comorbidities* represented a lower proportion of total separations than the national average (1.1% compared with 5.8%), as did *Other colonoscopy without complications and comorbidities* (1.6% compared with 5.3%) and *Major affective disorders* (AN-DRG 843) (0.1% compared with 1.0%).

The average lengths of stay for the leading AN-DRGs in the public sector were predominantly low. Notable exceptions were *Other factors influencing health status age >79 or with complications and comorbidities* (AN-DRG 942) and *Rehabilitation* (AN-DRG 941), where the average lengths of stay were 26.8 and 25.6 days, respectively (Table 8.13).

The patterns of average lengths of stay were largely consistent among the States and Territories, although *Other factors influencing health status age <80 without complications and comorbidities* and *Major affective disorders* had a markedly higher average length of stay in South Australia (19.1 days and 21.2 days respectively), as did *Intended same day rehabilitation* (AN-DRG 940) in Western Australia (6.8 days).

Short term stays also predominated in the top 30 in the private sector. The most notable exception was for *Major affective disorders*, especially in Western Australia and South Australia where the average lengths of stay were 17.7 and 19.2 days respectively (Table 8.14).

## Age group and sex

Tables 8.15 and 8.16 summarise separations by age group and sex for the 30 leading AN-DRGs. Half of the top 30 AN-DRGs were common to both sexes, while some others were more sex-specific (for example, *Vaginal delivery without complicating diagnosis. Admit for renal dialysis* was the most commonly reported AN-DRG for both sexes, with most separations in the 65 to 74 year age group. Among the other AN-DRGs reported in the top 30 for both sexes, those with the greatest divergence between ranking were *Knee procedures*, ranked 5th for males and 21st for females, *Bronchitis and asthma age <50 without complications and comorbidities*, ranked 10th for males and 25th for females, and *Major affective disorders*, ranked 29th for males and 16th for females.

## Costs

The cost by volume data for MDCs in Tables 8.1 and 8.2 show that the costliest MDC in the public sector was estimated to be *Circulatory system*. In the private sector it was *Musculoskeletal system and connective tissue*.

For the top 30 AN-DRGs, Tables 8.9 and 8.10 show that the highest costs in public hospitals were estimated to be for *Rehabilitation* followed by *Vaginal delivery without complicating diagnosis*. The high estimated cost of the *Rehabilitation* group reflects the large number of patient days recorded for it. In the private sector, the costliest AN-DRGs in the top 30 were *Lens procedures without vitrectomy and without complications and comorbidities* and *Vaginal delivery without complicating diagnosis*.

## Notes

1. A large number of separations were included in the Database as *Ungroupable* (AN-DRG 952). This mainly reflected about 30,000 records provided for some Queensland private hospitals which did not include sufficient information for grouping. This AN-DRG was suppressed in those instances where it appeared among the 30 leading AN-DRGs.
2. The Northern Territory provided records grouped to AN-DRG version 2.0, as agreed with the Institute. To maintain consistency with the other States and Territories, these data were

regrouped by the Institute to version 3.0. The Northern Territory was unable to check the results of this regrouping against their database.

3. Table D6 on the accompanying diskette provides national summary statistics for private hospitals by AN-DRG. Because some of these data could be considered sensitive, the statistics for 15 AN-DRGs have been suppressed. The information was suppressed if there were fewer than 100 private hospital separations reported for the AN-DRG and there were fewer than three reporting units (hospitals, or States where the hospitals were not individually identified), or there were three reporting units and one contributed more than 85% of the total separations, or two contributed more than 90% of the separations for the AN-DRG.



