



NSW Health Services Comparison Data 1999-2000

Volume 2 Casemix Measures



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INTRODUCTION

The *NSW Health Services Comparison Data Book 1999-2000* has two volumes. Volume one contains comparative activity, staffing and financial data at an Area Health Service and hospital level, and Volume 2 (this volume) contains Casemix Measures. This is the third version of Casemix Measures to be published as a supplement to Volume 1.

This supplement is produced in response to the requirements of various stakeholders for more detailed cost information using data from the NSW Hospital Cost Data Collection. This version of the publication uses cost data from the 1999-2000 Hospital Cost Data Collection. There is no change to the table structure for this edition.

One limitation of the data for the 1999-2000 Hospital Cost Data Collection was that data from five major hospitals: Westmead, Royal Prince Alfred Hospital, Concord, Newcastle Mater and Canterbury were unavailable to be included in the cost data collection, and hence the Casemix Measures volume. To this end, the overall number of separations and average costs should not be directly compared between years.

Cost data are displayed by Peer Hospital Group, Area Health Service and hospital, by AR-DRG, SRG and cost groups. Costs are also described by cost group and broad peer category.

Classifications Used

Australian Refined Diagnosis Related Group (AR-DRGs) Version 4.1 (Commonwealth Department of Health and Aged Care, 1998)

The AR-DRG classification is a classification of acute inpatient services. The version of the classification used in this publication is Version 4.1, which was released in 1998. The classification has 661 classes. For the purposes of this publication, 'error' (four classes) and rehabilitation AR-DRGs (three classes) have been excluded from the list of AR-DRGs presented. A new class for unqualified neonates has also been added. These additions/exclusions are in line with the *NSW Costs of Care Standards* (NSW Health, 2000b). See section 'Preparing the Data' below for further information.

Service Related Groups (SRGs) (NSW Health, 2000d)

The SRG classification is a method of grouping hospital inpatient records into categories corresponding to clinical divisions of hospital activity. The classification was developed to assist with the planning of health services. The basis of the classification is the AR-DRG (Version 4.1) classification; although there are categories in the classification that rely on the diagnoses and procedure codes of records rather than an AR-DRG to be allocated to a class. The classification is used extensively in NSW for activity analyses, cross-Area flow patterns and projections of hospital use. The advantages of presenting information using SRGs over DRGs is that SRGs summarise clinical categories and they reflect services rather than body systems. This means that where a pattern or problem is occurring with a particular service stream, it can be identified at the outset using the SRG classification rather than a DRG-by-DRG analysis. The classification has 45 classes.

Peer Hospital Groups 1998/99 Version (NSW Health, 1999a)

The NSW Peer Hospital Classification is a classification of NSW hospitals into groups of hospitals based on size, role, and acuity. The grouping is used as the basis for activity and cost comparisons among hospitals. The version used in this publication is the 2000 revision, which is also used in Volume 1 of the *NSW Health Services Comparison Data Book* (NSW Health, 2000a). The analyses in this report are confined to acute hospitals, District level or above (ie 2,000 or greater separations), including specialist acute and paediatric hospitals. The seven groups are the groups in the scope of the NSW HCDC.

The NSW Hospital Cost Data Collection (HCDC) (NSW Health, 2000c)

The HCDC is an annual study of the costs of acute care services in NSW public hospitals. The collection closed with cost data received from 78 hospitals out of the 84 in scope. The hospitals in the scope of the collection are district level and larger using the NSW Peer Group classification.

Rigorous standards are applied to the collection of cost data in NSW. A Costing Standards Manual (NSW Health, 2000c) containing minimum standards for the collection of cost data is released to support each year's collection. Further guidelines and clarification of standards are also provided during the costing process through a group Email that is subscribed to by costing coordinators.

Upon submission to NSW Health, the data are further checked for completion and accuracy. The checks involve logical checks such as the absence of intensive care costs for a hospital with intensive care services. They also involve comparisons with peers to assess the plausibility of the costs reported.

It is expected that the publication of the results of the collection in publications such as the present one will assist in improving data quality. Hospitals will have an opportunity to explore whether any differences in costs are genuine and not due to differences in the costing process.

Preparing the Data

The following steps were undertaken to prepare the data for publication:

- *Step 1. Merge ISC and HCDC data sets.* This was undertaken as part of the process of developing cost weights for NSW. The merge of the cost results from the HCDC occurs at two levels: at an episode level for clinical costing hospital, and at a DRG level, separate for same day and longer stay patients, for cost modeling hospitals. Apart from costs, the HCDC also contributes to the program assignment of an episode (ie to differentiate between general acute patients and acute mental health patients).
- *Step 2. Exclude cases outside of the scope of the Acute Care Programs.* The NSW Program Structure assigns episodes to appropriate programs. The HCDC includes Acute Care Programs. The service category allows for the identification of the program type for clinical costing and cost modeling episodes of care. Service categories identified as acute (01) or unqualified (05), with no days recorded in a designated psychiatric ward for the episode of care are included in the Acute Care Programs. Where a program value was not available, the service category on admission and psychiatric flag were used to select the cases in scope for the HCDC. Cases that fall outside the above definition were excluded from the HCDC.
- *Step 3. Exclude mismatching records.* The data merge resulted in unmatched cases. These are usually due to data being captured at a different time and/or editing of records. The mismatched data are analysed for any large effects on any one hospital.

- *Step 4. Remove rehabilitation cases.* A clinical panel reviewing Version 4.1 AR-DRGs agreed that episodes grouped to the rehabilitation DRGs (Z60A, Z60B and Z60C) are not acute. These cases were also removed from the data set.
- *Step 5. Remove error cases.* Four AR-DRGs were identified as containing cases that should be re-coded and re-grouped. Activity grouped to these DRGs was also removed from the data set.
- *Step 6. Exclude same day (SD) Emergency Department (ED) cases for hospitals with an ED of Level 4 or higher role delineation.* The rules for admission to hospital are not consistently applied across hospitals. This results in many cases that are being treated on an ambulatory basis being grouped together with more complex cases requiring inpatient care. This was evidenced by the large variation of costs reported for episodes grouped to the same DRG. To eliminate this as a source of variation, SD ED cases were removed from the data set for all hospitals with a Level 4 or higher ED (see NSW Role Delineation Guidelines).

Notes on Tables

There are tables in this publication showing the 'Top 40 AR-DRGs'. The same 'Top 40' were selected for all peer groups, except for peer group, A2 – Paediatric Specialist Hospitals, where a different set was selected. For both groups, the Top 40 were based on the total expenditure for the DRG for the group (ie for the Paediatric Specialist Group combined and for the remainder combined).

This publication again uses the Average Absolute Peer Group Performance (AAPP) and the Population Average Peer Group Performance (PAPP). These measures show the performance of a hospital, Area Health Service, or peer group compared to a reference group. Further details on the construction and interpretation of these measures are given in the Glossary. Please note however that the AAPP and PAPP values reported for hospitals and peer groups are different in Tables 6 and 7. The measures in Tables 6b to 6i were constructed using DRGs as the basis. That is, the differences from the reference group are calculated at the DRG level. However, the differences in Tables 7b to 7i are calculated at an SRG level.

For instance, the Head and Neck SRG is made up of a group of DRGs, namely adjacent DRGs D02, D05, D07, D08, K05, K06 and K08. To calculate the AAPP and PAPP on the basis of DRGs, the difference between the hospital's average cost per separation and the average peer group cost per separation would need to be calculated separately for each DRG in the series. The totals are then averaged to get the hospital's average AAPP and summed to get the hospital's PAPP.

To calculate the AAPP and the PAPP on the basis of DRGs however, in the case of the Head and Neck Surgery SRG, the average cost across all the DRGs in the group for the hospital would be compared against the peer group average across all the DRGs. Therefore, the positive differences in some DRGs in the group may cancel out the negative differences (and vice versa), thereby giving a different picture of the comparative performance.

It is advised that where the hospital's overall performance is being assessed, the averages/totals in the DRG tables should be taken as more accurate measures because these tables maintain the precision of the DRG classification. If the objective was to review the performance of any one service however, the SRG AAPP and PAPP measures are better because they give an overall picture of the performance of the service. Individual DRGs can then be investigated if further analysis is required.

Note also that in Table 2 the PAPP values for each of the peer groups are zero. This is because the peer groups on this instance are being compared against themselves, therefore producing differences of zeros. The objective of the table is to actually examine the relative performance of each of the hospitals within the peer group against the peer group average rather than compare the peer group against the other groups. The later analysis is performed in Table 6b.

This publication again uses the same measures as the 1998/99 edition for deriving the averages for the cost groups, which affects Table 4a. Episodes where the cost is greater than zero in the denominator. To obtain the overall average cost, the total costs are divided by the total number of episodes reported in the peer group. To obtain the average of the cost group, the total costs are divided by the number of cases reporting a cost group. Table 4b shows the number of cases used to derive the averages in each of the cost groups by peer.

Please note that the numbers of separations reported for each service type may not comply with the number of separations reported having used these services. This is especially evident in the case of intensive care and emergency department services where the separations using these services are reported in Volume 1 of this publication are much lower than those reported in this volume in Table 4b.

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