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Comparison of 3M International Refined (IR)-DRG and Australian Refined (AR)-DRG

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Abstract The purpose of this study was to compare the 3M international Refined (IR)-DRG and Australian Refined (AR)-DRG classifications to assess the value of the surgical/procedural focus of IR-DRG classification for predicting resource use of patients waiting for elective surgery and for analysing the potential for ambulatory substitution for inpatient procedures.

Introduction

In 2002-2003, activity in NSW public hospitals showed a rise in separations of 1.2%, but more importantly a rise in bed days of 4.1%, after a sustained period of reducing length of stay because of technological and therapeutic improvements. This led to increased levels of access block, and analysis of the reasons suggests the ageing of the population combined with an inadequate supply of more appropriate care for the elderly services has significantly contributed to the problem. This access block also impacted on surgical waiting lists, which increased during this time period.

Interest in the status of surgical waiting lists, and the potential of substitution of inpatient surgical episodes of care with ambulatory, resulted in the need to analyse and evaluate hospital surgical performance and the potential use of severity adjustment.

Australia, including NSW, uses the AR-DRG classification, which was introduced in 1998. The classification uses the principal diagnosis as the primary axis of classification, with individual procedures being grouped to multiple DRGs. This is problematic for describing surgical activity, and it does not assist in the prediction of eventual resource use of patients on the waiting list.

Another important issue is that over time many procedures moved from requiring formal admission to hospital and overnight stay to being delivered on an ambulatory or outpatient basis. Clear delineation between care types is required to support evaluation for the further potential for substitution of inpatient care with other ambulatory models of care, including the use of 23 Hour Ward Model. The AR-DRG classification has only limited mechanisms to capture the admitted/non-admitted distinction in admissions and the changing nature of care provided by hospitals, and results in difficulties evaluating the potential for these changing models of care.

The 3M International Refined DRG classification system (IR-DRG) Version 2.0, was launched by 3M in 2004. It is able to classify patients across the continuum of care, from inpatient to outpatient, including emergency department, clinics and rehabilitation, and is a procedure-oriented classification. Procedure, and not diagnosis, is the primary axis of classification, although the classification is still structured around Major Diagnostic Categories.

This project concentrated on the comparison of AR- and IR-DRGs to:
•Examine predictability of inpatient services and costs of patients on the waiting list
•Examine the potential for substitution of inpatient care to an ambulatory or 23 Hour Ward Model.

Methods & Materials

NSW inpatient data for public hospitals for the years 1999-00 and 2003-04 grouped to AR-DRGs version 4.1 were also grouped to IR-DRG version 2.0. The grouping to IR-DRGs was enabled b backmapping ICD-10-AM diagnoses codes to ICD-10 (WHO) diagnosis codes. ICD-10-AM ACHI procedure codes were mapped to ICD-9-CM codes. Three variations of the IR-DRG grouper designation were used: the default 1 day LOS designation, inpatient designation and outpatient designation.

Verification and validation of IR-DRG v2.0 data output was performed using standard 3M methodologies. Error DRGs, coding inconsistencies and error types were analysed.

The spread of IR-DRGs and AR-DRGs was reviewed to show the spread within the DRGs. No trimming of data occurred.

The total datasets were grouped using each grouper designation and the spread of IPCs, IR-DRGs and AR-DRGs was reviewed to show the spread within the IPCs. The grouped data were reviewed analysing untrimmed and trimmed data. Trimmed data used the exclusion criteria of medical DRGs for records with an IPC and IPC/IR-DRG/AR-DRG combinations with less than 10 records.

The datasets were also analysed, to review the split between IR-DRG v2.0 grouped to the ambulatory groups at a state-wide level, and comparing costs when the same procedure has a length of stay of 1 day, or when the same procedure has a length of stay greater than one day and less than 4 days. Records included patients with LOS less than 4 days and who were discharged to home. Only procedural IR-DRG v2.0 groups were analysed. The data were trimmed using the criteria that the number of same day admissions for the specific IR-DRG had to be greater than 500. The Dialysis DRGs were excluded from the dataset.

A second ratio was also calculated using total "% Cases performed as ambulatory" for all ambulatory IR-DRGs for each hospital. A state-wide average was calculated and a ratio.

This analysis was performed for each year of data, 1999-2000 and 2003-2004, and the trends between the time periods shown.

Results

The analysis of the IPCs, IR-DRG v2.0 and AR-DRG v4.2 showed the closer alignment of the IR-DRG v2.0 to the clinical procedure, grouping to less DRGs than the AR-DRG v4.2. Specific procedures, such as cataract and total joint replacements, showed correlations with a single DRG, inclusive of severity levels, of greater than 90%. Non-complex procedures that were often performed with procedures of higher complexity, such as diagnostic laparoscopy and hysteroscopy, showed a much lower correlation. These procedures group to the more complex procedure.

The analysis of the IR-DRGs aligned with the IPCs provided a mechanism to analyse the procedure provided, including the severity level.

The IR-DRG classification system has a clear distinction between procedural and non-procedural DRGs, supporting an analysis of the potential to substitute to ambulatory care. Removing the non-procedural DRGs from the analysis provided a more accurate evaluation of the potential number of patient records and the associated DRGs. The different DRG types differentiated between outpatient major and outpatient significant and gave more detail of the possible DRGs to be included. Comparing the number of patient records with a same day length of stay and those with two and three days length of stay, showed the potential for substitution to ambulatory episodes of care at a hospital and DRG level.

The evaluation of the high volume DRGs, provided an indication of the specific DRGs, their volume, and associated costs, for the potential for substitution to ambulatory. This analysis showed a significant potential to substitute care to ambulatory models, such as the 23 Hour Ward model, as well as day stay. There were significant numbers and types of DRGs that had this potential. Further detailed analysis could be performed for specific procedures and hospitals to identify key sites for these models of care.

Conclusions

This study concentrated on practical applications of IR-DRGs versus AR-DRGs, addressing information needs for key challenges in the NSW health system.

It was found that IR-DRGs offer a more 'compact' and clinically meaningful descriptions for elective surgery, and are better equipped to predict resource requirements for treatment of patients on waiting lists.

IR-DRGs are also useful for assessing the potential for substitution to short stay and ambulatory treatment.