

*TITLE: Use of Risk of Mortality (ROM) and Condition Onset Flag to predict mortality risk in Queensland for admitted patient separations.*

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In this study we examine the use of the Condition Onset Flag in combination with risk of mortality predictors in routinely collected hospital data for enhanced monitoring of quality in documentation, coding and quality of care.

Acute Queensland public hospital separations in 2007 were processed with the 3M Health Information Systems International Refined Diagnostic Related Groups (IRDRG V2.2) in order to generate one of the three Risk of Mortality (ROM) subclasses for each separation. The risk of mortality is computed for each encounter using the highest level of risk of mortality from each secondary diagnosis: the risk is calibrated within each DRG.

Monotonic reduction is observed in the number of cases that did not change ROM subclass as we move from low risk of mortality subclass (1) to highest (3). There is also an associated increase in mortality rate by IRDRG ROM subclass from less than 1.0 % for subclass 1 to 11.3 % for subclass 3 ROM. A similar progression was observed for surgical and medical partitions.

Using the Condition Onset Flag to create an admission-ROM versus a discharge-ROM, we found that only 35 records changed DRG but 8155 cases moved from a lower to a higher ROM subclass. Of these later cases, the overall mortality rate is much higher (10.3 %) than the average mortality rate from the cases not changing subclass.

Higher mortality is also found for cases within each stratum of ROM subclass for medical and surgical DRG partitions, except for the surgical cases going from ROM 2 to 3, with a mortality rate of 10.0% vs 15.2% for the surgical cases with ROM 2 (only 98 deaths).

This study validates the potential of the Condition Onset Flag as helping predict mortality in Queensland. It also shows support for the introduction of Australian Coding Standard 0048 Condition Onset Flag within ICD-10-AM 6<sup>th</sup> Edition and is an excellent example of how routinely collected coded data may be used to manage risk within the healthcare sector.