Reviewer's report

Title: Development of a Validation Algorithm for 'Present on Admission' Flagging

Version: 2 Date: 28 March 2009

Reviewer: Hude Quan

Reviewer's report:

This study is to identify valid conditions that occur after admission. Three reviewers reviewed all ICD-10-AU diagnosis codes for determine whenever each code is a candidate for condition present after admission. They also applied these codes in Victoria administrative data for identifying codes that matches the reviewed codes.

Major concerns:

1. The contribution of this study is the list of diagnosis codes that have been evaluated as being valid, warning and invalid. However this study did not make these codes available for readers. Authors should consider to post these codes on a designated website or make it available based upon readers’ request. Without that, I did not see any practical value of this paper.

2. Application of the flag is various. One important application is to identify complication for quality of care assessment. I highly recommend authors to further review the codes and determine codes by possibility of flagging complication. They may consider using scale of 1 to 5 to categorize each code for the possibility. That is a very important work for promoting patient safety assessment using administrative data although this requires additional effort from these authors and reviewers. Without this work, this paper lacks scientific value in terms of application of the algorithm to research. Agency for Healthcare Research and Quality has conducted such a work for patient safety indicator.

3. This study tested ‘face validity’ of codes. Administrative data are highly under-coded potential ‘complications’. Quan et al. addressed this issue using Canadian study (see Assessing accuracy of diagnosis type indicators for flagging complication in Canadian administrative data. Journal of Clinical Epidemiology 2004;57;366-372). The authors missed to acknowledge this matter in the paper.

4. The title is likely to mislead readers – ‘development of validation algorithms for present on admission flagging’. The current study cannot validate the flag of hospital acquired conditions. Therefore authors should reconsider the title, reflecting objective of this study – more like classification of ICD-10 codes based on possibility of being present after hospital admission. For example, if 80% of codes in a database match codes in the algorithm, it may lead conclusion that the data are valid in coding hospital acquired conditions. Actually, the algorithm cannot tell how many cases with complication are missing and how many cases are misclassified as complications. In conclusion, the algorithm cannot tell validity of data in terms of ‘hospital acquired condition’.
5. They did not evaluate consistency among three reviewers on judgment before
formal study. Personal bias may also contribute to the algorithm face validity.
This should be addressed in the paper.

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.