Reviewer’s report

Title: Comparison of different comorbidity measures for use with administrative data in predicting short- and long-term mortality

Version: 1 Date: 31 August 2009

Reviewer: Uzor C. Ogbaru

Reviewer’s report:

The authors compare the relative performance of three case mix performance measures in the Asian population using an acute, and a chronic condition. They use well known tools to identify their cases and adapting a previously published methodology in order to compare the different measures.

Major Compulsory Revisions

1. General
   The authors build their introduction on a lack of evidence of the validity of the case-mix adjustment measures in the Asian population and go on to state that it is widely used. They then proceed to state a research question aimed identifying the best of the three methods. The build up and question do not seem to match.

2. Data Sources
   The authors list their data sources but do not provide specific references relating to the validity of the data and its suitability for research.

3. Study population
   a) The authors used CCS from AHRQ but do not specifically list the ICD codes they include. In the CCS classification the code for Bronchietasis is included with COPD. Do the authors also include bronchietasis in their study population?
   b) The authors do not describe the process of excluding patients or make any mention of missing data in the dataset. They also do not describe the range of hospitals included in the study.
   c) Is there any effect of including patients admitted but not discharged before the end of the study? It would appear their disposition at one year should be available with the death certificates.
   d) Did the authors examine the cause of death?

4. Comorbidity measures
   The authors description of the approach they used to overcome the lack of a scoring system with Elixhauser comorbidity measures is not clear as they have written it. The reference does have a clearer explanation. The authors may want to refer to a paper by van Walraven et al titled "A Modification of the Elixhauser Comorbidity Measures Into a Point System for Hospital Death Using Administrative Data", Medical Care 2009;47:626-633 as an alternative, or addition.
5. Analysis
a) The authors use of the term "data periods" is confusing, making it difficult to understand their description of the three models used. The authors may want to use the more conventional phrase of a lookback period.
b) The authors include ethnicity (aborigine or non-aborigine) but do not define these groups or provide a reference.

6. Discussion
Given the cited preference superiority of the Elixhauser adjustments, can the authors theorize as to why the Charlson based methods are preferred by researchers?

7. Conclusions
The authors should narrow the scope of the conclusions as the measures have been shown to perform differently with patient populations. They may consider exploiting their large dataset by extending the study period beyond one year adding a number of other conditions to their study to show its robustness.

Minor Essential Revisions
1. Study population
The authors should clarify which patient populations they refer to in the last sentence of this section.

2. Results
In the first paragraph, as currently written it is unclear to which study population the percentages refer to.

3. Results
The results are a little difficult to follow. The authors may want to restructure this section either along the lines of diagnosis or lookback period used.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.