Reviewer's report

Title: Risk Adjustment Performance of Charlson and Elixhauser Comorbidities in ICD-9 and ICD-10 Administrative Databases

Version: 1 Date: 17 July 2007

Reviewer: Cashel D'Arcy James Holman

Reviewer's report:

General

The transition from ICD-9 to ICD-10 is the most significant change in international disease coding in decades. The authors have therefore identified this change as an issue for the application of comorbidity scoring systems using administrative health data. Their study shows that the transition has little effect on score performance in five different disease contexts. This is not surprising given that most of the predictive value of these comorbidity scores is concentrated within the effects of a relatively small number of frequent, major comorbidities (this point came out in J Clin Epidemiol 2005;58:1006), most of which will be ascertained readily using either ICD-9 or ICD-10. Nevertheless, empirical validation of the likely result is useful.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Nil.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Nil.

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Discretionary Revisions (which the author can choose to ignore)

1. Page 6, para 3: The method of matching identifiers the hospital data to the BC Vital Statistics register should be specified - was it deterministic, requiring an exact match on all identifiers; fuzzy, using an algorithm to include near-correctness; or based on probabilistic matching? Were any patients matched to two deaths (an indicator of specificity of the matching). What is believed to be the proportion of multiple personal health numbers for the same individual in the BC system?

2. Page 7, para 1: Could you please provide more information on the specification of the regression model? Was age specified as a linear continuous term or modelled using polynomials? Were the comorbidities included as binary indicator variables? 3. Page 9, para 1: J Clin Epidemiol 2006;59:940 is relevant
to your discussion of the influence of varying look-back period on the performance of comorbidity scores in different disease and treatment contexts.

**What next?**: Accept after discretionary revisions

**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.

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