

## Reviewer's report

**Title:** ICD-10 Coding Algorithms for Defining Comorbidities of Acute Myocardial Infarction

**Version:** 1 **Date:** 6 November 2006

**Reviewer:** Eric Boersma

### Reviewer's report:

#### General

This paper is well-written. It contains a relevant message. There are no major flaws in the research design.

#### Specific comments

1. The abstract should contain information on the comorbidities that were studied, as well as on the numbers of patients that were included.
2. The authors applied logistic regression to study the relation between ICD-coded comorbidities and 1-year mortality. Why didn't they choose Cox' regression, which accounts for events occurring over a longer period of time, as well as for decreasing numbers of patients at risk?
3. It is unclear if (and which) model-building strategy was applied. How should the ORs in table 4 be interpreted? Are these adjusted for all comorbidities?
4. The authors study the predictive models in terms of discrimination. They should also study the performance of their models in terms of calibration: how well were mortality rates predicted?
5. The reader should be informed on the completeness of follow-up.
6. Table 3 presents the relation between ICD-9/ICD-10 data and chart review among 193 patients. This is a small sample. Furthermore, several of the comorbidities are rare (e.g. shock N=5; cancer N=10). Therefore, the table will greatly improve if the authors also present 95% CIs around the point estimates of sensitivity, specificity, PPV, NPV. The authors should comment (discussion section) the (high) level of uncertainty of the point estimates. This might be the reason why ICD-9 and ICD-10 datasets poorly matched to chart review data for cerebrovascular disease, pulmonary edema and cardiac dysrhythmia.
7. Table 3 presents an indirect comparison between the ICD-9 and ICD-10 coding algorithms. This reviewer would like to see a direct comparison (so: cross-tables for each of the 9 comorbidities).

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

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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)

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Discretionary Revisions (which the author can choose to ignore)