Reviewer’s report

Title: Sensitivity and specificity of an algorithm based on medico-administrative data to identify hospitalized patients with major bleeding presenting to an emergency department

Version: 0 Date: 25 Jun 2019

Reviewer: Katerina Marcoulides

Reviewer's report:

This study attempts to validate an ICD-10-based algorithm to identify major bleeding events. This is an interesting paper that is in need of some specific revisions. These suggested changes are provided below.

1. The description of study population is unclear. It is not clear how the 16,012 hospital stays were selected from the 49,792 eligible emergency ward records and out of 22,400 eligible hospital stays. Were the 1,959 records selected from the automated step selected from the 16,000 or the 49,000? Does the algorithm perform better if it is selecting from the 1,959 records rather than the 16,000?

2. The authors reference a "previously published algorithm [5]" on page 6, though it is unclear what the algorithm for selecting the bleeding cases is. While I understand not going into great detail what the specifics of this algorithm entail, a brief description would have been helpful (and in my opinion necessary).

3. It is unclear whether the issue (i.e. why you're seeing low accuracy & specificity) is with the codes themselves, or whether it is with the algorithm using the codes for selection of major bleeding events. If the algorithm had been described, it would have made it easier for readers to propose ways to improve the algorithm to increase the sensitivity/accuracy, etc.

4. "As regards…" at the bottom of page 3 should likely be changed to "With regard to…"

5. While the attempt to validate the list of codes previously used in another study is of course useful, given that this study indicates a failure to validate this list (i.e. they were not successful in their sensitivity & accuracy), it would have been helpful if the researchers had given some additional guidance or suggestions for the future. The authors just give a one sentence suggestion, "The results therefore provide support for specific data collection and a medical validation approach rather than an ICD-10-based algorithm." However, I question whether the list does not include some codes that could have been useful in more accurately identifying major bleeding events, or whether the codes simply are not enough and more information (e.g. for specific data collection and a medical validation) is needed. Without information on the algorithm for selection of a major bleeding event, there is no real evidence to support this recommendation.

6. Typo on page 12 "…considerable inconsistency s a result of a lack of standardization".

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No
Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

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