Reviewer’s report

Title: Injury coding in a national trauma registry: A one-year validation audit in a Level 1 trauma centre

Version: 0 Date: 28 Apr 2019

Reviewer: John Kortbeek

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Inaccurate injury coding in a national trauma registry: A one-year validation audit in a Level 1 trauma centre

The authors present a validation study comparing retrospective coding by experts to codes and ISS, NISS in a single hospital trauma registry.

The objectives are clear: "the primary aim of this study was to validate the injury codes and severities registered in a national trauma registry. Secondarily, we aimed to examine causes for lacking and incorrect codes, to guide improvement of registry data quality."

The methods, results and limitations are clear. The review was conducted by a select team of expert coders.

The discussion includes similar citations and is informative but not an exhaustive review.

The conclusion is supported by the presented methods and results.

Could the authors please clarify the following:

1. What was the timeframe of the review?

2. What was the justification for the sample size? (Convenience or other?)

3. The authors "included a second reassessment of diagnostic imaging in cases of discrepancies between the new radiological interpretations and the RIS." This introduces a potential confounder into the accuracy of registry coding - inter-observer variability of DI reporting?

   This process would not be available to regular operations of any trauma registry so why do it? What was the concordance/discordance vis a vis the initial and reassessed DI reports?

4. The authors suggest one solution for improving trauma database accuracy - "Routine audit by trauma responsible senior clinicians seems necessary to achieve satisfying injury coding quality"
It seems unlikely that this solution would be a feasible or generalizable solution in improving trauma registry data quality. Trauma registries were created to improve and standardize data coding and capture due to limitations in administrative discharge datasets based on unspecialized clerical personal using physician reports and records. Most trauma physicians are not familiar with the relevant data dictionaries and unless they have an interest in data driven QI & research are unlikely to invest the time and effort to drive data quality. Are the authors suggesting limited sampling and if so, how often, how much and by whom?

5. Do the authors have any other pragmatic solutions for improving the reliability of trauma databases? Given the heterogeneous nature of trauma care and the multitude of teams and providers involved what is good enough and achievable in the real world?

6. Not essential but an e.g. or two of differences in coding that were captured in the review may help illustrate the significance of the findings.

Thank you for the privilege of reviewing this paper.

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

Yes

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.

I am able to assess the statistics

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