Reviewer’s report

Title: Association between the Charlson Comorbidity Index and the risk of 30-day unplanned readmission in patients receiving maintenance dialysis

Version: 0 Date: 27 Jun 2019

Reviewer: Udayan Bhatt

Reviewer's report:

The manuscript entitled "Association between the Charlson Comorbidity Index and the risk of 30-day readmission in patient receiving maintenance dialysis" is a manuscript exploring the impact of patient chronic illness in ESRD patients on hospital readmission rates. The authors utilized a national administrative database. The database was derived from tertiary level hospitals only. The authors used time to event analysis to model variables associated with increased rates of 30-day re-admissions. The variables included demographic factors, clinical factors of the index hospitalization (ER admission, ICU stay, mechanical ventilation, etc.), and a stratified variable for escalating Charlson Comorbidity Index (CCI). The authors found that CCI was independently associated with risk of 30-day re-admissions in ESRD patients.

Overall, this study was well-done. The authors do acknowledge the inherent weakness of utilizing administrative data. That being said, the large cohort does limit the lack of patient-level data. In addition, the authors also mention that the patients and re-admissions examined were from tertiary level hospitals only. This does create a possible issue the applicability of the data to the all hospitalizations. That being said, this article explores hospital re-admissions for patients with ESRD, an important issue facing many physicians. Hospital re-admissions and frequent hospitalizations are an important way hospitals, physicians, and dialysis providers are assessed in many quality metrics. As such, characterizing potential confounding factors, such as comorbidity scores, may provide data to improve the way the quality metrics are utilized to more accurately reflect patient-specific variables. Because of the importance of this topic, I would accept this manuscript with minor discretionary revisions.

Please confirm that you have included your review in the ‘Comments to Author’ box?

As a minimum standard, please include a few sentences that outline what you think are the authors’ hypothesis/objectives, their main results, and the conclusions drawn. Your report should constructively instruct authors on how they can strengthen their paper to the point where it may be acceptable for publication, or provide detailed reasons as to why the manuscript does not fulfill our criteria for consideration. Please supply appropriate evidence using examples from the manuscript to substantiate your comments. Please break your comments into two bulleted or numbered sections: major and minor comments.
Please note that we may not be able to use your review if no comments are provided.

Please only upload as attachments annotated versions of manuscripts, graphs, supporting materials or other aspects of your report which cannot be included as text in the ‘Comments to Author’ box.

Yes

**Are the methods appropriate and well described to allow independent reproduction of experiments?**

Please state in the ‘Comments to Authors’ box below what you think are the strengths and weaknesses of the methods (study design, data collection, and data analysis), and what is required, if anything, to improve the quality of reporting.

Yes

**Does the work include the necessary controls?**

If not, please explain in the ‘Comments to Author’ box below.

Yes

**Are you able to assess the statistics?**

- Are the statistical test(s) used in this study appropriate and well described?
- Is the exact sample size (n) reported for each experimental group/condition (as a number, not a range)?
- Are the description of any error bars and probability values appropriate?
- Are all error bars defined in the corresponding figure legends?
- Has a sample size calculation been included, or a description and rationale about how sample sizes were chosen?

Please can you confirm which of the following statements apply to your statistical assessment of the manuscript (Please include details of what the authors need to address in the ‘Comments to Author’ box):

I have been able to assess all of the statistics in this manuscript (please refer to checklist above)

**Are the conclusions drawn adequately supported by the data shown?**

If not, please explain in the ‘Comments to Author’ box below.

Yes

**Quality of written English**

Please indicate the quality of language in the manuscript:

Acceptable
Should the manuscript be highlighted for promotional activity?
Articles that are deemed of interest to a broad audience can be promoted in a variety of ways. This could be through email updates, postings on the BioMed Central homepage, social media, blogs and/or press releases. Please indicate in the text box below whether you think this manuscript should be considered for promotional activity, indicating your reasons why (e.g. what is the most newsworthy aspect of the research).

Yes: This article explores hospital re-admissions for patients with ESRD, an important issue facing many physicians. Hospital re-admissions and frequent hospitalizations are an important way hospitals, physicians, and dialysis providers are assessed in many quality metrics. As such, characterizing potential confounding factors, such as comorbidity scores, may provide data to improve the way the quality metrics are utilized to more accurately reflect patient-specific variables.

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license.
I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal.