Reviewer's report

Title: Factors Associated with Prolonged Length of Stay for Elective Hepatobiliary and Neurosurgery Patients: A Retrospective Medical Record Review

Version: 0 Date: 08 Apr 2017

Reviewer: Chung-Ying Lin

Reviewer's report:

Although this study investigate an important issue for healthcare providers to care patients with prolonged stay in the hospital, I hesitate to recommend publish as there are some substantial drawbacks in the work.

First, the writings are not clear throughout the manuscript, and a professional editor may be of help.

Second, I cannot see any rationale of studying such important issue in HPB and NS patients. Why did the authors want to investigate the two types of patients?

Third, I would like to know the details of how the current literature focuses only on the partial perioperative pathways. Do the authors mean that no literature looking at one of the pre-, intra-, or post-operative periods?

Based on the above statements, it looks like current literature has investigated in the intra- and post-operative periods.

Or, do the authors mean that the current literature only look into a certain period of the perioperative period? If this is the case, what makes the differences between three studies separately investigate pre-, intra-, and post-operative periods and one study investigates the entire perioperative period?

Fourth, the statistical analyses are quite confusing. It looks like that the authors group the participants into four groups based on the LOS duration: very long, long, short, and very short. Then, the authors compare long vs. short; very long vs. very short.

However, they did not mention this in the statistical analysis section, and I wonder why they did not compare the four groups but compared every two groups. The redundant comparisons may cause the inflation of Type I error.

Also, the Tables are not in good shapes, and I feel very difficult to read them.

Fifth, although this study is not theory-driven, I wonder how the authors define these risk factors, and why these risk factors are belonged to the pre-, intra-, or post-operative period. For example,
why only used lab data and assessments for fall risks in the preoperative period, but not for the postoperative period?

Lastly, because I feel that the statistical analyses and the rationale of classifying pre-, intra-, and post-operative factors are not clearly presented, please note that I did not review the Discussion. I would like to review the manuscript again if the authors revise it in a good shape, and I hope that my comments are of help.

Some specific comments are as follows:

1. In abstract, (1) I cannot understand what the authors said in "prolonged LOS was defined as above median LOS and above the 75th percentile LOS". Do the authors define two prolonged LOSs? If this is the case, do both prolonged LOSs have the same predictors in HPA and NS patients, respectively?

After I read the Methods in the main text, I understand that the authors defined very long, long, short, and very short LOS. However, this is not clear for those who only read the Abstract.

(2) I feel somewhat weird in the description of "Practices that enhanced prolonged LOS for both HPB and NS samples were longer intervals between admissions and surgery, longer intraoperative preparations, and longer operation durations after adjusting for surgical complexity."

If the patients have prolonged LOS, of course they may have all the above duration being longer. If not, why do the patients have longer stay?

The point is what makes these procedures longer (i.e., why these patients had longer interval between admissions and surgery, and so on.)

(3) I cannot understand "fall risks" in the sentence. Do the authors mean that risk for fall (e.g., inappropriate bed; slippery floor), or do the authors mean how many times a patient fell down?

I also cannot understand the number of fall risks should belong to pre-, intra-, or post-operative factors.

(4) Please keep using the defined abbreviations; that is, LOS, HPB and NS.

Please avoid using inconsistent word; e.g., intra-operative or intraoperative.

2. The first sentence in the Introduction, I do not think that scarce is a good word here because this may let the readers think that patients with LOS do not use any hospital resources at all.

3. It is weird to see the statement of "Our contribution is to the literature on surgical safety and quality of care that influence LOS" and with citations.
If this is the contribution of the study, the statement should be put in the Discussion section, and clearly indicate what contributions are. If the contribution belongs to other studies, why did the authors cite other references?

4. The second paragraph in the Introduction, the authors have mentioned something in patient-level factors, but they did not clearly indicate what the system-level factors are.

5. As the authors mentioned that they want to investigate their study in a major international academic center, I wonder how they justify that the tertiary academic hospital in Singapore is a major international academic center.

6. The authors should clearly define that very long LOS is above the 75th percentile; long LOS is above the median, short is below the median, and very short is below the 25th percentile.

7. Page 7, "smoking use" is somewhat weird. I think that "tobacco use" is better.

8. Page 7, what are the lab data? Virus testing, blood pressure, HbA1c, or anything?

9. Page 7, what are the fall risks? How did the authors measure this? Did the authors use any standardized instrument?

**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.

Unable to assess

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

Unable to assess

**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
Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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 that 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 (http://creativecommons.org/licenses/by/4.0/). 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

Do you want to get recognition for reviewing this manuscript? Add a record of this review to Publons to track and showcase your reviewing expertise across the world’s journals. Signing up is quick, easy and free!

Yes