Reviewer’s report

Title: Validity of the CR-POSSUM model in surgery for colorectal cancer in Spain (CCR-CARESS Study) and comparison with other models to predict operative mortality

Version: 1 Date: 26 Jan 2017

Reviewer: Kate Walker

Reviewer's report:

I still recommend this paper for publication, subject to corrections. Most but not all of the specific comments that I made have been addressed very well. I made 4 major comments about the paper. The authors have responded to me clearly about these 4 issues but haven't made enough changes to the manuscript in response to these. I will address these 4 comments in order and state what I think needs changing within the manuscript to deal with them.

1. Justification needs to be made within the manuscript for the choice of the 4 models that are included, as they do not include all relevant models. The authors justified this in their response to me but not in the manuscript.

2. Justification needs to be made within the manuscript for the need to externally validate these models when external validations have already been published. The authors explained to me in their response that the intention is to re-calibrate these models for use in Spain, and to validate these for use in Spain. Therefore (i) this aim needs to be made clear in the introduction, and (ii) the re-calibrated model equations need to be presented.

3. The authors are not clear within the manuscript whether they are comparing a model for risk adjustment in order to make comparisons between healthcare providers or a prognostic model to guide clinical decision making. The introduction implies they are interested in risk adjustment but the discussion implies they are interested in clinical decision making, This needs to be clarified.

4. This relates back to point 2. If the intention is to validate the models for use in Spain then this aim needs to be made clear in the introduction.

The specific comments that I made that I do not feel have been adequately addressed within the manuscript are points 3 and 6 which relate to the methods used for missing data, and efforts made to investigate the impact of missing data. It needs to be stated in the methods section that a complete case analysis was used for each model (i.e. patients missing on any risk factor were excluded). It then needs to be stated in the results section that the number of patients included in validating each risk model differs and the numbers included need to be stated for each model.
This is important because up to half of patients are excluded due to missing data in some of the analyses. In addition, some explorations of the impact of the missing data needs to be explored. It is not enough to explain why the values were missing; the likely bias from excluding incomplete cases needs to be explored. To do this there needs to be a comparison of the characteristics of the patients excluded versus those included, in particular comparing the mortality in the complete and incomplete cases.

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.

I am able to assess the statistics

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

Acceptable

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