Reviewer’s report

Title: Development and Validation of a Screening Tool for Early Identification of Bloodstream Infection in Older Patients

Version: 0 Date: 13 Nov 2019

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER ASSESSMENTS:

OBJECTIVE - Full research articles: is there a clear objective that addresses a testable research question(s) (brief or other article types: is there a clear objective)?

Yes - there is a clear objective

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?

Yes - the approach is appropriate

EXECUTION - Are the experiments and analyses performed with technical rigor to allow confidence in the results?

Yes - experiments and analyses were performed appropriately

STATISTICS - Is the use of statistics in the manuscript appropriate?

Yes - appropriate statistical analyses have been used in the study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?

Yes - the author’s interpretation is reasonable

OVERALL MANUSCRIPT POTENTIAL - Is the current version of this work technically sound? If not, can revisions be made to make the work technically sound?

Yes - current version is technically sound
PEER REVIEWER COMMENTS:

GENERAL COMMENTS: This is a sound study, well-described, with a diagnostic tool available online for clinical use.

The purpose of this study was to develop a screening tool based on a predictive model for bloodstream infections. A case-control study design was used that matched patients with BSI to similar patients without BSI. Both training and validation control cohorts were used. Several variables were identified as having significant associations with BSI, including temperature, neutrophil count, consciousness, BUN, albumin, and ALT. Thresholds for these variables were determined using CART models. Finally, these variable were included in a logistic regression model to predict BSI and produce a predictive model. The predictive model performed well, with an area under the ROC curve of 94.5%. The model also performed well in the validation cohort.

Overall this is an important topic, as late diagnosis of BSI can be devastating. A well-performing and simple predictive model could be useful to clinicians as they make decisions about whether and when to intervene for BSI. The website that the authors have provided is a nice platform for dissemination of this work and will enhance its impact. The manuscript is clear and well written. I have no additional suggestions for improvement.

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

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

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