Reviewer's report

Title: Diagnostic Properties of an Electronic Alert Tool for screening Severe Sepsis and Septic Shock in the Emergency Department

Version: 2  Date: 16 March 2014

Reviewer: William Meurer

Reviewer's report:

Peer Review:
Reviewer's report

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1. Is the question posed by the authors well defined?
   Yes, how well does the sepsis screening tool operate as a diagnostic test.

2. Are the methods appropriate and well described?
   Partly, it is unclear whether the alert system was actually providing alerts to the physicians or nurses, or if the alert was applied retrospectively to the data. Since the reference gold standard was physician diagnosis, it would be inappropriate for the diagnostic test to influence the gold standard. (If I receive a page in the ED that someone might have severe sepsis, I am going to be more likely to diagnose severe sepsis.)

3. Are the data sound?
   Again, if the test influenced the reference gold standard: no. (If you could go back and look at the 4 months before the alert was implemented and see how well the alert performed in that cohort of patients and reported that, that would be valid.)

   In addition, it would be nice if more details regarding the demographics of the patients could be provided.

   Also, a figure that shows the various combinations of trigger elements and the odds of screening positive (similar to Figure 3 in Meurer, et al.) would give the reader more detailed inference into how the algorithm was performing.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   Partly, - please consult with the STARD statement which provides a framework and checklist for reporting on the results of studies of diagnostic tests.

5. Are the discussion and conclusions well balanced and adequately supported by the data?

6. Are limitations of the work clearly stated?
7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?  
Yes

8. Do the title and abstract accurately convey what has been found?  
Yes

9. Is the writing acceptable?  
Yes

Please number your comments and divide them into

- Major Compulsory Revisions

1. Potential for bias due to gold standard being affected by the test itself. It is unclear whether the alert system was actually providing alerts to the physicians or nurses, or if the alert was applied retrospectively to the data. Since the reference gold standard was physician diagnosis, it would be inappropriate for the diagnostic test to influence the gold standard. (If I receive a page in the ED that someone might have severe sepsis, I am going to be more likely to diagnose severe sepsis.) If you could go back and look at the 4 months before the alert was implemented and see how well the alert performed in that cohort of patients and reported that, that would be valid.

2. Checklist for diagnostic studies. Please consult with the STARD statement which provides a framework and checklist for reporting on the results of studies of diagnostic tests.

3. Demographics. Please provide more details regarding the demographics of the patients could be provided. If data is only available on the actual 220 with sepsis, that is adequate, although a cross tabulated demographics table with data on all sepsis + and sepsis – patients would be ideal.

4. More information on test performance. Also, a figure that shows the various combinations of trigger elements and the odds of screening positive (similar to Figure 3 in Meurer, et al.) would give the reader more detailed inference into how the algorithm was performing.

- Minor Essential Revisions

None identified.

- Discretionary Revisions

None identified.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.