Author’s response to reviews

Title: The incorporation of focused history in Checklist for Early Recognition and Treatment of Acute Illness and Injury

Authors:
Namita Jayaprakash (Namita.Jayaprakash@gmail.com)
Rashid Ali (ali.rashid@mayo.edu)
Rahul Kashyap (kashyap.rahul@mayo.edu)
Courtney Bennett (bennett.courtney@mayo.edu)
Alexander Kogan (kogan.alexander@mayo.edu)
Ognjen Gajic (gajic.ognjen@mayo.edu)

Version: 3 Date: 12 Aug 2016

Author’s response to reviews:

Reviewer #1 comments:

Comment: Sensemaking (diagnosis) in a patient who is acutely deteriorating is a critical activity that seeks to understand why the patient's condition has changed and what should be done to either further understand the situation, or begin addressing it. As advocates for using a standardized approach to conduct this evaluation, these authors have created their own web-based tool to assist in evaluating these patients, the CERTAIN checklist, which is reported to "combine relevant clinical information with evidence based knowledge and best clinical practices", and is modeled after the standardized evaluations used in ATLS (advanced trauma life support) and PALS (pediatric advanced life support) approaches. This paper reports a study to measure whether some of the CERTAIN elements (here designated as the SAMPLE) elements if I understand the methods correctly, are better asked DURING the primary evaluation of a deteriorating patient, or AFTER this evaluation.

Response: We thank the reviewer for his detailed review that has led to an improved manuscript. The reviewer is correct in the understanding that we are advocates for using a standardized approach to conduct efficient and error-free evaluation of deteriorating patients, assisted by
clinical decision support tools (web-based or paper) that can provide prompts for critical actions. Current standardized approaches (ATLS, ACLS, and PALS) do not include the majority of critically ill adult patients who present with sepsis, bleeding, coma and shock.

The key elements that contributed to a focused history are grouped using a SAMPLE acronym in this simulation study and the purpose was to optimize efficient and error-free history taking (in parallel with or after a structured primary survey).

Comment: The writing used in this paper is in some places careless or confusing. There are more than a couple typos. For example the first sentence in the background section suggests that diagnostic errors are attributed to avoidable illness and death. (did the authors mean that diagnostic errors can cause avoidable illness and death?).

Response: Thank you. We have reviewed the manuscript to correct any sentences that may come across as confusing. The first sentence of the manuscript has been updated with the intent to convey a clearer message. Further changes, specifically, the order of the paragraphs in the background section and other sentences throughout the manuscript has been made (highlighted by tracked changes) such that it reads with a clearer message.

Comment: The repeated mentions of their CERTAIN checklist, in which they have a financial interest, is confusing because CERTAIN was not evaluated in this paper, and the relationship between SAMPLE and CERTAIN is never clearly stated or shown using a figure. The paper in many areas conveys a sense of bias in regard to CERTAIN.

Response: Thank you. In addition to clear disclosure of the conflict of interest the paper is revised to minimize potential bias. This paper is focused on the process of obtaining a focused history during the primary survey assisted or NOT with CERTAIN (or any other) clinical decision tool.

Comment: One would have liked to see a more formal measure of satisfaction, a measurement of whether any items were inadvertently admitted in one or the other approach, as well as some measure of whether the facts obtained actually led to the appropriate level of understanding of the deterioration. Just measuring how long it takes to ask questions is not the same thing and is of marginal interest compared to the question of whether the interview was effective in promoting awareness.

Response: Agree, this limitation is explicitly stated in the discussion. This study was designed to answer the question of whether a series or parallel choreography is more feasible in this process.
of the evaluation. Further studies are needed to better understand the importance of the other elements raised by the reviewer.

Comment: The data show that several of the scales show higher cognitive load for the DURING arm, which does not jibe with the perceptions of the study subjects. This discrepancy should have been explained. The perceptions, however, were not formally measured, and are only briefly captured in an appendix summary.

Response: Thank you. It is difficult to understand this discrepancy without more formal measurement of subjects perceptions and we have acknowledged this in the revisions made in the limitations section of the manuscript.

Comment: 1."Training in the use of CERTAIN with a systematic approach to the focused history and evaluation of the critically ill patient will reduce diagnostic errors and improve patient outcomes." This is a bold assertion that we all hope is true but was not tested.

Response: The authors agree that this statement is an assertion that was not tested by our study. We agree with the reviewer and after review of the manuscript have elected to delete the statement.

Comment: 2."there is less mental demand and effort associated with a parallel choreography when the provider is prompted" There were no measurements made of prompted vs unprompted usage.

Response: We agree that no measurements were made of prompted versus unprompted usage. The reference of prompts was intended for the cards used during the study. For clarity is prompted has been deleted from the highlighted sentence. Further descriptions of how the prompt cards were used have been included and described to enhance clarity on this matter.

Comment: 3."Structured assessment and prompting for the key elements of focused history is necessary to minimize diagnostic error in critically ill patients." Not measured, and although this hypothesis sounds reasonable and correct, it is very disappointing that an article that supposedly is aimed at improving diagnosis in the setting of acute decompensation nowhere mentions the fact that a very thorough review of that patient and his\her history and current treatment are necessary to have the best chance of understanding the cause for the deterioration; an exercise that can completed in 2 minutes is just the start of what's needed.
Response: The authors agree that this study did not assess if prompting key elements of the focused history minimized diagnostic error. In further review this statement has been deleted. This study was focused on the history taking aspect of the primary survey and in which choreographed approach to take that history, in series or in parallel. The study was not designed to test improvement in diagnosis. We agree that a thorough review of the history and current treatment are necessary to have the best understanding for the causes of deterioration. The history is a component of this evaluation and is indeed the start of what is needed.

Reviewer #2

Comment: 1) Details on the subjects in regards to their duration of practice, prior experience with simulation training, background training.

Response: Additional details regarding the subjects have been added to the methods section of the manuscript.

Comment: 2) While the authors refer to the 'checklist for early recognition and treatment of acute illness and injury (CERTAIN)' tool in the title of the article, only elements of this tool were used. It is unclear how the tool was actually incorporated in the study, or how the elements used were selected. More details on how this tool was used in the actual test scenario would have been beneficial.

Response: Further details on how CERTAIN was incorporated into this study has been included in the background and study design section.

Comment: 3) No information is provided regarding what instructions were given to the participants prior to start of the simulation.

Response: Further details have been included in the study design section of the manuscript.

Comment: 4) How was the simulation timed?

Response: Details of the timing of the simulation has been added to the study design section.

Comment: 5) How were prompts provided? At the beginning of the scenario? At key points during the scenario?
Response: Further information regarding the prompts are now included in the study design section.

Additional editor comments following acceptance for publication are addressed here:

1. Please kindly indicate in the title page that who is the corresponding authors of this study.
Response: The title page now includes the corresponding author of the study.

2. Please kindly include all authors' emails on title page.
Response: All authors emails are now listed on the title page.

3. The individual contributions of authors to the manuscript should be specified in Authors' Contributions
Response: The individual authors contributions have been identified as part of the authors contributions section of the manuscript.

4. All figures and tables could be considered as normal figures and tables, while this depends on your choice.
Response: We have moved the Figure: Model for approach in evaluation of critically ill patients, from the supplement to a normal figure as Figure 1. All other figures remain as supplemental material.

5. Figure legends should be listed following the reference section under "Figure legends".
Response: Figure legends are now listed below the reference section.

6. Tables should be included in the main text following the Figure legends section.
Response: Table 1 has been moved such that it is included in the main text.
7. Each figure of a manuscript should be submitted as a single file that fits on a single page in portrait format.

Response: Each figure is now submitted as a separate file.

8. All supplementary figures should be properly cited in the main text, we noticed that Figure E4-6 are not cited.

Response: The supplemental Figures E4 E6 were originally cited in the results section, second paragraph (line 6). Following the conversion of supplemental figure E1 to normal figure 1, the supplemental figures E4 E6 are now E3 E5. E3 and E4 have multiple graphical representations of the same data and therefore have been listed under a single figure title.