Reviewer’s report

Title: Prehospital characteristics among patients with sepsis. A comparison between patients with or without adverse outcome

Version: 0 Date: 21 May 2019

Reviewer: Jeffrey Pellegrino

Reviewer's report:

Dear Authors,

Thank you for the opportunity to read your work on prehospital recognition of sepsis. This topic is relevant to both EMS and lay first aid providers.

I understand the limitations for this retrospective inquiry into EMR data but appreciate the exploratory of the study. Of significant issue is the statistical outcomes presented. The Figures 1-3 show box plots that have overlap and medians that overlap the inter-quartile boxes that generally mean there are not significant differences, and median lines that overlap the boxes leaving even less certainty that they are different. This needs to be better explained to then make the argument that they are characteristic of adverse outcomes. Statistically, identifying odds ratios might give the reader a better illustration of risk. Neither specificity or sensitivity were explored, which might again be helpful. This may make the abstract and conclusions read differently.

Additional information or citations as to the critical time period/ rationale for antibiotics would add to the rationale of why EMS could add to the systematic care of sepsis patients (near line 76).

Line 80- Despite the prehospital screening tools and treatment guidelines that are available, there is still extensive patient morbidity and mortality due to sepsis [13].-- some more details as to what "extensive" means for morbidity and mortality would help from an EMS context.

Ln 111- Population- For clarity, only people with the retrospective diagnosis were identified. Who did this original work? Ljungstrom? Then there was a filter for adult; specific hospital, and IV. Why was population limited to these months and year and hospital? Would a larger sample be more representative statistically? Or was this a convenience element?

Ln 128- Data collection- it is unclear if the current authors collected the data or are describing how the data was collected for a previous study, if the later then it should be cited this way.
For consistency if you have a frequency then put percentage for all. Ex Ln 164, 166, 167, 168

Ln 168 "Of those 36 . . " needs rephrasing or made into a complete sentence and consider ordering them in terms of severity.

Ln 169 "There were no . . " -- there are 3 groups mentioned in the previous sentence.

Ln 171 "When comparing . . ."-- how did this compare to the ED diagnosis and action? Are we expecting EMS to do a better or equal job as physicians?

Ln 179 is this with any level of sepsis

Ln 182- why doesn't shivering come out as a counter sign in any of the discussion on conclusion or used in the logistic regression

Tables 3 & 4-- Max serum glucose appears to be measured in mmol/l not mg/dL

In the discussion there is little attention to the reasons as to why EMS might not be identifying these patients, which might be more social/training, tools like EMRs not asking or combining these S/S into sepsis differential, etc.

No connection between those who EMS identified and subsequent treatment. Nor, any look at those who might have been identified by EMS but who didn't ultimately have sepsis.

The use of the "parameters" should be reconsidered as there are no limits or thresholds measured and validated. Perhaps characteristics, signs/symptoms, or vital signs would suffice.

The discussion of hyperthermia as a sign of sepsis and not the findings of this inquiry might be associated with the statistics used and interpretation.

Ln 268- Hyper?

I wish you good work in furthering these ideas and encourage you to remember the audience and encouraging future studies to establish parameters and tools for identifying sepsis early and in a way that allows for EMS interventions.

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.

No
Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

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 recommend additional statistical review

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