Reviewer’s report

Title: How many general and inflammatory criteria need to be fulfilled when defining sepsis due to the 2003 SCCM/ESICM/ACCP/ATS/SIS definitions in critically ill surgical patients: a retrospective observational study

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Reviewer: H. Bryant Bryant Nguyen

Reviewer’s report:

In this paper, the authors examined how many of the 2003 Sepsis Definitions “general” and “inflammatory” variables are needed to identify patients with shock. The paper is very interesting and would help us better clarify which variables are needed to identify those patients requiring aggressive therapies.

While the idea is good, I find the writing, data analysis and discussion quite confusing.

MAJOR REVISIONS:

1) The authors note that this was retrospective, but the Methods section suggests a prospective approach, “Charts were checked and corrected by the staff physicians before demission of the patients from the ICU and before final evaluation.” Please clarify.

2) The authors should only use “sepsis”, “severe sepsis”, and “septic shock” to classify patients. Patients should be classified into these 3 groups only. The use of terminologies “SIRS/sepsis”, “SIRS/septic shock” is confusing and unnecessary. Table 3 makes it even worse, using the sepsis classifications, “infection, SIRS, sepsis, severe SIRS/sepsis, SIRS/septic shock”. These can simply be stated, “sepsis, severe sepsis, septic shock”. I assume that this study only includes patients with at least infection and SIRS, or sepsis. To note SIRS only means that patients may not have infection? Again, the authors need to be concise about what types of patients are being included?

3) Table 2 – I would expect the OR for death to increase with increasing mortality when applying increasing number of criteria; e.g. why would a mortality of 18% have OR 5.5 for death when using 1/8 cutoff, but a 6/8 cutoff having mortality of 28% only have OR 3.7 for death? Please clarify

4) Table 3 – To make this paper more clear, I would delete Table 3. Knowing the agreement for all sepsis classifications is not helpful. The authors should only focus on the idea of how many variables are needed to identify the most number of patients with “septic shock” in order to avoid missing patients who may benefit for optimal treatments.

5) Table 4 - Why did Kappa decrease when the %no agreement decreased for cutoffs 6/8 vs 7/8 and 7/8 vs 8/8? Please clarify.

6) Figure 1 - Authors should present percentage mortality in the graph (or
mortality rate as noted in legend), instead of no. cases of non-survivors. This can be achieved by having two y-axes. The left Y-axis can be no. cases with shock. The right Y-axis can be %mortality. Currently, it is not obvious that there is increasing mortality with higher number of general/inflammatory criteria.

MINOR ESSENTIAL REVISIONS:
The authors should consult a medical writer to improve the clarity of the overall text in the manuscript.

Level of interest: An article of limited interest

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

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