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

Version: 2 Date: 18 December 2009

Reviewer: Frank Bloos

Reviewer's report:

Major Compulsory Revisions

* The study population needs to be better described. Did you collect patients with sepsis only or with SIRS or sepsis? How was this defined and what did you really wanted to diagnose by application of the new sepsis criteria?

* Your study goal was to describe the prevalence (better frequency) of the sepsis stages. However staging, which would be the PIRO concept, were not part of your study. You may want to compare your study to Rubulotta et al. Crit Care Med 2009; 37: 1329 –1335. How do you know that the new criteria correctly diagnose sepsis in your patient population?

* In the manuscript, you write about SIRS/septic shock and SIRS/sepsis when talking about the cut-offs of the new parameters. This is misleading. SIRS is a concept of the SCCM-ACCP-consensus criteria but not of the new diagnostic criteria which only refer to the diagnosis of sepsis. It seems to me that you have applied the new parameters to clearly non-septic patients as well.

* It would be interesting how the new criteria perform in comparison to the old SCCM-ACCP-consensus criteria. Do the new criteria diagnose sepsis similar than the old criteria? Where are differences in sepsis classification?

* The authors have altered the published criteria which need to be discussed. Especially the lack of procalcitonin is a limitation since many – including the International Sepsis Forum – are considering this parameter as the most interesting biomarker in this field. Thus, a statistical model, which would have included PCT, might have come to a very different result.

* The Methods are vaguely described in some aspects. It is described that physicians received results and checked and corrected classifications. What does this mean? Please, be more specific. You stated also that cases where selected for before entering them into the database. Were there additional selection criteria than stated before?

* Discussion (page 9): The discussion of impact of the chosen cut-off on sepsis-research is important but too long since impact on research was not the subject of the study. Please, shorten considerably

Minor Essential Revisions
* I assume that this was a retrospective study (as stated in the title) by chart analysis. Please state this in the Methods
* Table 1: Did you perform a differential WBC regularly? You should set ‘>10% immature’ to ‘n.a.’ if you did not.
* Give frequencies for the causes of infection.
* Which parameters of the criteria were fulfilled most frequently?
* The data shown in table 3 and table 4 are unclear for me. What is the purpose of this analysis?

Discretionary Revisions

* Results (3rd paragraph): The risk of death for the different cut-offs may be better visualized by a forest-plot like graph instead of table 2.

**Level of interest:** An article whose findings are important to those with closely related research interests

**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