Reviewer's report

**Title:** Prognostic factors affecting outcome in bacteremia - a historical cohort study with a focus on age and age-related clinical presentation

**Version:** 2  **Date:** 13 May 2013

**Reviewer:** Mette Søgaard

**Reviewer's report:**

- **Major Compulsory Revisions**

  1) **Title:** The title is quite long and could be improved

  2) **Page 2: Introduction:** The objective stated in the introduction is not really the same as in the title. The title indicates that this study describe prognostic factors associated with bacteremia whereas the objective in the abstract concern with the risk of contracting a severe infection. Please revise this. A review by a native English speaker could be very helpful.

  3) **Page 2: Methods.** Please describe which statistical analyses that were used, and whether the estimates were adjusted for potential confounders.

  4) **Page 2 results:** How many patients had E. coli and S. pneumonia bacteremia, respectively? From Table 1 it appears that 72 (10%) and not 92 (14%) died within 14 days of admission. Please revise. Actually, throughout the paper it is a bit unclear to me whether you have follow-up for 14-day mortality for all patients or only for those who are still admitted? Moreover, what is the rationale for reporting 3-day, 14-day and in-hospital mortality? I am skeptical about the value in-hospital mortality since you do not have uniform follow-up for these patients. Therefore, I would recommend that you drop in-hospital mortality and focus on 3-day, 14-day and 1-year mortality.

  5) **Page 2: I am not entirely sure what is meant by the concluding remark “reproduction of other risk factors underlines the validity of these findings”?**

  6) **Page 3: Both in the title, abstract, introduction and discussion as well as key messages, the authors are recommended to be more specific regarding the aims of the study. It appears from the title of the paper that the aim is to examine prognostic factors and age-related clinical presentation. However, the abstract gives an entirely different impression. A lot of the results section is focused on identifying predictors of organ failure, but this do not really appear from the aims.**

  7) **Page 4 Comorbid illnesses:** From the description I am not sure whether you used a list of prespecified comorbid illnesses or whether you simply recorded whatever was stated in the medical record? Table 2 would convey much more information if you could provide data on the distribution of separate comorbid conditions (e.g. number and proportion of patients with diabetes, COPD, CHF) rather than providing the median number of comorbid conditions.

  8) **Page 5: Criteria for organ failure:** I suggest that you move Table 1 to the
9) Page 7: Statistics: Please specify which survival analyses that you used. Was it Cox regression analysis? The authors are also recommended to provide further description about what is meant by “sensitivities of CRP and SIRS...”. Sensitivities related to what? By reading the results section it appears that it is for identifying #1 organ failures. Is that correct? Please, also see my next comment regarding this analysis and Figure 1.

10) Figure 1. I am very confused about Figure 1 and do not really understand the rationale behind this figure. Shouldn’t the sensitivities be specified on the Y-axis or perhaps it is just me who haven’t seen this kind of Figure before? I also suggest that you specify the three age categories in the Figure. Regarding the interpretation of the Figure (at the top of page 9), the authors comment that there was a significant difference between the middle group and the youngest age-group. Looking at the Figure I would also conclude that the sensitivity for the oldest patients are different from the youngest patients. This estimate is just not statistically significant because the estimate is very imprecise (wide confidence interval). I suggest that the authors put less emphasis on statistical significance.

- Minor Essential Revisions
  11) Abstract line 10: please change morality to mortality
  12) Abstract + introduction: Please write the whole genus and species name the first time the name of the bacteria is presented.

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

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

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