Reviewer's report

Title: Epidemiology of Bacteremia caused by Uncommon Non-fermentative Gram-negative Bacteria

Version: 1 Date: 26 January 2013

Reviewer: Georgia Ntani

Reviewer's report:

The authors present an interesting and significant work in the area of infectious diseases. As they describe in the introduction, there is a gap in the knowledge around bacteremia caused by uncommon NFGNB. In the attempt to explore this, they compare a set of different potential risk factors between participants with uncommon and common NFGNB and they move on to explore inter-relationships using a stepwise method. Stepwise regression is a commonly used approach especially in areas that have not been investigated before (no a priori expectations) due to its exploratory nature. However, it would be very useful for the reader if the authors could describe more explicitly in the methods section the stepwise process. So, have the authors followed a stepwise process according to which in each successive step, all variables were examined separately and the variable with the highest statistical significance (and with a p<0.20) was entering the model and (in the same step) if any of the previously entered variables had a p-value>0.05 was exiting the model? Or have they included all predictors with a p-value <0.2 from the univariate analysis in a single model and then removed those with p>0.05? If the latter, the authors will need to reconsider their approach.

Other than the above comment, that is a more general concern on the analysis conducted here, there are some smaller concerns that the authors could take into consideration. Specifically, regarding the analysis that is presented in Table 3, I have the following comments:

1. The only two continuous measures reported here are age and length of hospital stay. They describe the distribution of these measures by medians and ranges. I think that presenting IQRs instead of ranges would be a more useful measure as that would give a better description of the distribution in contrast to the minimum and maximum values.

2. According to figures reported in the table, median length of hospital stay is shorter for the uncommon NFGNB than for common NFNGB with an OR [95% CI] = 0.996 [0.986-1.005]. Though the reported p-value for this association is <0.001. Could the authors correct either the CI or the p-value (depending on which of the two is incorrect)?

3. The authors describe in the statistical analysis part that categorical variables were compared by using chi-square or Fisher's exact test. It would be useful if
the authors could specify by notation in the table which of the 2 p-values is reported in the right-hand column (that of the Pearson’s chi2 or that of the Fisher’s exact test). Could the authors also re-check the p-values reported in the same table? In cases where the number of counts is less than 10 or 5, where one would expect to see a Fisher’s exact test (according to the common rule of thumb) the chi-square value is reported instead (ie. for chronic lung diseases, HIV infection etc).

4. Could the authors re-check the figures and particularly the p-values reported in the table? The significance of some of them should not be reported as <0.001 if the actual p-value is higher than that (for example p-value for cardio diseases is 0.008 (?)).

In the last section of the results (factors associated with uncommon NFGNB bacteremia), my comments are:

1. The authors report that the median length of hospital stay was significantly lower in the uncommon NFGNB group. However, the 95% CI does not support this (see comment 2 above).

2. The authors incorrectly report that patients in the uncommon NFGNB group were less likely to have cardiovascular diseases (51% in the uncommon vs 33% in the common NFGNB group).

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

Quality of written English: Acceptable

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

Declaration of competing interests:

I declare that I have no competing interests