Reviewer's report

Title: Classification of healthcare-associated infection: a systematic review 10 years after the first proposal

Version: 1 Date: 16 December 2013

Reviewer: Yardena Siegman-Igra

Reviewer's report:

• General
This is an important, interesting, exhaustive and timely review, although somewhat cumbersome, so that a more succinct writing may not harm the totality of the work. Healthcare associated infection is a relatively new entity, the recognition of which has been rapidly spread as is illustrated by the large volume of studies collected. There is definitely a need for a homogenous and widely accepted definition and it is suggested that, following this thorough review, the authors will come out with concrete recommendations.

• Major Compulsory Revisions
Table 1. There is an inconsistency between the first two parts of the table, concerning the column headed "Isolation rate by category". In the BLOODSTREAM INFECTION section the percents describe the relative part of each group among the total study population, whereas in the PNEUMONIA section the percents describe the proportion of bacterial isolation in each group. This should be appropriately clarified in the heading of each column.

• Minor Essential Revisions
Page 8, first para. The detailed list of MESH terms is tiring. It is suggested to mention only key words and possibly state "and alike" (unless it is an explicit requirement of the journal). Alternatively, it may be brought in an appendix, if eligible.

Page 10, line 9. I could not understand the term "attrition bias" even with the help of a dictionary. It should be explained.

Page 11. The first para of the RESULTS can be shortened on the basis of figure 1, to prevent duplication.

Page 25, first para. The exclusion of patients discharged within last 14 days is discussed twice in the same para and it should be merged into one discussion since the argument is always to avoid inclusion of hospital acquired cases, even if not explicitly mentioned.

Page 18. Under "Limitations" the authors enlist several of the strengths of the review. These are not limitations and they duplicate things that have already been said. So it is suggested to delete this section or to point out true limitations.

Table 1. Concerning endocarditis, there is another study that may be included in the review: CID 2004;38:843-50 (see the last para of the "Case definition" and
Table 1 in this publication.

Table 4 is redundant and may be omitted since the overall score for each study appears in tables 1&2, (it may be brought in an appendix, if eligible).

Refs 18, 22, 28 details of issue and/or pages are missing.

"Criteria" is used instead of "criterion" at least once.

• Discretionary Revisions

Following such a thorough review the authors are in a position to come out with concrete recommendations for the definition. I suggest that each para in the DISCUSSION be ended with a conclusion to include or exclude the criterion discussed, and, in the CONCLUSIONS AND RECOMMENDATIONS section final recommendations be suggested. The recommendations should be formulated in a simple and short format and without too many details.

For example, and in accordance with the authors’ statements:

Patients with an infection present at hospital admission or within 48 hours of admission that fulfill any of the following criteria should be considered as having HCAI:

1. Received invasive procedures in the 30 days before admission, including hemodialysis or intravenous therapy of any kind.

2. Were hospitalized in an acute care hospital for 2 or more days in the previous 90 days, unless the infection is considered hospital acquired from this previous hospitalization.

3. Resided in a nursing home or long-term care facility.

To the matter, I agree with most of the authors’ considerations including no need for extending the time distance from previous hospitalization to one year.

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.