Reviewer’s report

Title: Contact among healthcare workers in the hospital setting: Developing the evidence base for innovative approaches to infection control

Version: 0 Date: 16 Nov 2017

Reviewer: Pietro Coletti

Reviewer’s report:

This study presents a large scale survey on co-location and social contacts run in three different hospitals. The principal novelty of this study is to present data taken at more than one hospital, allowing to assess to which extent single hospital survey are generalizable. The methods are explained clearly, with the (few) statistical analysis that are adequately performed. The results' presentation is quite clear, with just some minor addition that could help in improve the value of the data presented.

Nevertheless I think that the overall quality of the paper could benefit from some changes in the terminology and some added citations. The foremost concern is about the use of the term "contact" when discussing the co-presence network. In this study the spatial unit considered for the co-presence network is a hospital floor. The dimension of such floor could be anything, from small floors implying close proximity of two participants up to large and divided floors that do not imply such a proximity. Using the term "contact" for the presence of two participants in the same floor, on average, during a week is somehow misleading. Also, the comparison to the term "direct contact", in which close proximity for more than two minutes is assured, could lead to misunderstandings. I would use a milder term, that stresses co-presence more than direct interaction or close proximity.

Some other minor issues that could be addressed:

1) Table 2: Could it be possible to show also the size of the hospitals individually? (it can be inferred that they sum up to >9000 workers from the general participation rate).

2) Figure 1: I think this bipartite network is not very clear. The individual level approach is a bit messy, without adding any true information. I would change this plot into a bipartite network of HCW categories vs floors, with a link between a given category and a floor that is stronger if there are more components of that category that are connected to a given floor.

3) General comments on figures: could it be possible to change the color palette, avoiding red and purple together?

4) General comments on figures: adding a label for the floors could help in interpreting the results. Maybe the more connected floors correspond to the ground floor or the administrative floor? Labeling the floors would clarify that.
5) The paragraph on page 8 from line 24 to line 31 is referring to Table 3. It should be moved accordingly (the previous paragraph is about Table 4).

6) On line 34 of page 8 is mentioned "The heterogeneity in the duration of time spent by HCW in a spatial unit". In the tables are shown only average value, that do not help appreciating this heterogeneity. A plot of the distribution of this quantity is better, in my opinion, than the weighted links in Figure 2 to show this heterogeneity.

As a final remarks, i would like to point out two references that should be included in the bibliograby:


Once these issues has been taken care of, I support for the pubblication on BMC Infectious Diseases.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
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Yes

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