Author's response to reviews

Title: Evaluation of a pulsed-xenon ultraviolet room disinfection device for impact on contamination levels of methicillin-resistant Staphylococcus aureus.

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Author's response to reviews: see over
Dear Prof. Orsi,

Thank you for the opportunity to revise the paper, “Evaluation of a Pulsed-Xenon Ultraviolet Room Disinfection Device for Impact on Contamination Levels of Methicillin-resistant Staphylococcus aureus” (MS: 4555114099752751). We are glad the reviewers deemed this study important. We have now addressed the issues raised by reviewers while clarifying a few points.

Below please find a point-by-point response to the reviewer critiques. We have revised the manuscript in response to the critiques and feel it is much improved as a result.

We look forward to hearing from you again.

Sincerely,

Chetan Jinadatha, MD, MPH
Point-By-Point Response to Reviews (our responses are preceded by “>>”)

I. Nancy Havill:

1. In the methods section, how long was the bleach allowed to dry before the samples were taken after rooms were manually cleaned.
>> The bleach was allowed to completely dry before any samples were taken. The PPX-UV cycles are 5 minutes long, which helped ensure that all the surfaces got adequate time to completely dry before samples were obtained. We have now clarified that in our manuscript.

2. Would the TSA with Lecithin and Tween 80 neutralize bleach?
>> Yes, TSA with Lecithin and Tween 80 neutralizes bleach. This has been incorporated in our manuscript.

3. In the discussion section, can you address whether the housekeepers were observed during the manual cleaning process as this would be a limitation of the study because the reduction in bacterial counts after cleaning would not reflect the efficacy of the manual cleaning process, but the lack of actual cleaning of the item. This may also affect the results of the PPX-UV arm, if it is not know what sites were wiped of visible soil, which could account for the lower bacterial counts
>> The housekeepers were observed during the cleaning process from a distance for the sake of timing the cleaning process. There was no collection of data on what surfaces were cleaned or not cleaned by the housekeepers. This observation process was consistent in both arms of the study. Hence, when the study team obtained samples, there was no bias as we were not aware of what surfaces were cleaned and what was not cleaned. We have now added this in our discussion that higher bacterial counts in the manual arm may be because of lack of actual cleaning not rather than lack of efficacy of the manual cleaning process.

II. Tim Boswell:

1. The only discretionary revision I would suggest is regarding Table 3. It would be useful if some indication could be given of the number of MRSA sites positive before and after the interventions for each room. I cannot tell from the table data whether the number of positive MRSA sites after manual cleaning was biased towards one or two rooms in particular. This is important because the variation in manual cleaning by room is likely to much greater than the variation after pulsed xenon UV-C.
>> The number of MRSA-positive sites per room after manual cleaning was 0 (4 rooms), 1 (4 rooms), or 2 (2 rooms), and the number of MRSA-positive sites per room after PX-UV cleaning was 0 (7 rooms), 1 (2 rooms), or 2 (1 room). We have added this information to our results section as we did not find a convenient way to present it in a table. As highlighted in our discussion, counts were higher for aerobic colony counts and MRSA in manual arm in bathroom surfaces more than patient’s living room.