Reviewer’s report

Title: Lesser and lesser - the impact of volume on quality of hand coverage and antimicrobial efficacy in hand disinfection

Version: 1 Date: 22 July 2013

Reviewer: Jean-Yves Maillard

Reviewer’s report:

This is a practical study reporting on the effect of decreasing volume of AHR on deposition on hand and bactericidal activity. The manuscript is well written and will make a very good contribution to this field.

There is however a number of issues that need to be addressed (major compulsory revisions):

- The authors need to add more information on “responsible application”
- The authors need to provide a much better legend to the figures and to the scale applied. The reader needs to guess what colour is what and there seems to be some discrepancy between the level of coverage described in the text and between figure 1 and 2. The only difference between figure 1 and 4 (according to the legend) is 2 s contact time. I do not believe such a small difference in contact time has such a profound effect on hand coverage with AHRs. If the legend is correct then there is likely to be an issue with the reproducibility of the method, which will casts serious doubt as to the validity of the data.
- The manuscript would benefit from a more detailed explanation of the analysis of the hand coverage by AHRs
- Concerning the bacterial inoculated on hands, different volumes (no concentration mentioned) were used. How do these different volumes affect the results?
- Surprisingly, the authors do not want to make a correlation between smaller volume and decrease in contact time on the hand. This is clearly indicated in Table 1 and I believe a decrease >10sec contact time will make a profound difference in activity. This is indeed highlighted in another study by Cheeseman et al. (2009), J Hosp Infect 2009, Vol.72(4), 319-325

Minor essential revisions:

Page 6, first paragraph: it is unclear here and elsewhere in the manuscript (notably in Table 1) the volume dispensed by the dispensers. Here the authors use different volume and 1 or 2 dispenser pushes. There needs to be a more information provided even if the volume dispensed from the dispenser is not accurate.

Page 6, paragraph 2, line 7: delete “on” after “with”: with standard hand drawing

Page 7, line 6: it is unclear why different volumes of Serratia marcescens were
dispensed. This is not mentioned in the text. In addition the preparation of the bacterium and the concentration inoculated to the hand are not mentioned.

Page 9, paragraph 3, line 2: should read: “…as described in [4].”

Table 1: Note tested should be added to the blank cell (these can be merged)

Table 1: the volume dispensed by the dispensers should be mentioned.

Table 1: how many times the experiments were conducted. Add the number of repeats – the title mentions “Mean duration…”

Table 2: add the number of repeats

Table 3: the data coming from this study should be indicated

The tables should not be a supplementary file.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

none to declare