Reviewer's report

Title: An intervention study to improve hand hygiene in the emergency department: getting to the point

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Reviewer: Trinidad Dierssen Sotos

Reviewer's report:

This study sought to evaluate the effect of an intervention based on the application of standard operating procedures to improve hand hygiene in an emergency department. This is an interesting and relevant topic, since HCWs perform the hand hygiene in less than half of the occasions that would be indicated, especially in services with high workload as the Emergency Services.

Major comments

However, the design used (a prospective tri-phase before after study) can be useful for generating hypotheses, but not for proofing those. An experimental design with a control group would be more appropriate to achieve that goal. Furthermore, the absence of masking or blind observation in this study determines a high probability of introducing bias.

Major compulsory reviews

Besides the paper presents some aspects that need to be improved before it can be accepted for publication:

1. There is insufficient detail in the methods section, thus precluding the possibility to replicating the study. The intervention carried out should be described clearly and in detail, including number of sessions, number of trained personnel, and so on. Although the main outcome measure (hand hygiene rate) is well defined, other variables such as the number of avoidable opportunities, used as surrogate parameters for the workflow is not. It should be clarified what is considered avoidable opportunity.

2. Although the overall sample size is large, it would be desirable to include in the methods section the calculated number of opportunities necessary to achieve statistically significant differences in the subgroups analysis.

3. The inclusion of repeated observations in individual patients rather than multiple observations in different patients may give rise to a lack of independence of observations that should be controlled in the analysis. The authors should thus consider whether they can control for non-independence derived from the inclusion of repeated observation in single patients instead of multiple observations in different patients.

4. In the results section, the authors only provide the results that were statistically
significant. They should also specify the non-significant results.

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I hereby declare no competing interests in relation to the paper I have reviewed.