Reviewer's report

Title: Improving the implementation of a hand hygiene intervention: Using psychological theory

Version: 2 Date: 25 November 2011

Reviewer: John McAteer

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This was an interesting paper - and a very interesting piece of technology from a hand-hygiene perspective - however, the methods, results and discussion section are confusing and need clarity. I suggest the following changes.

Minor essential revisions:

Background:

1. The background covers many key points. However, I found it difficult to follow at times due to lack of clarity and flow. My specific comments are below:

Second, third and fourth paragraphs:

2. I think the information in these paragraphs could be structured better. For example, there is talk of interventions to increase hand-hygiene behaviour in all three paragraphs, but it would be easier to follow if this was presented together. I recommend restructuring the existing content with i) a paragraph on the importance of hand-hygiene behaviour, sub-optimal hand-hygiene rates, and the need for interventions, followed by ii) a paragraph describing interventions, and why these may or may not have been effective.

Second paragraph:

3. What is referred to by ‘Nurses play a crucial role in models of HH awareness’? I think it is important to note that nurses ‘represent the largest proportion of healthcare staff who have direct contact with patients’, but I think this would be better placed when describing the rationale for the study, i.e. background, final paragraph.

Third paragraph:

4. The authors’ rationale for lack of sustained improvements in hand-hygiene behaviour as a result of previous interventions is unclear. Does the author mean, ‘This may be in part due to the failure of previous interventions to identify the factors influencing hand-hygiene behaviour and to incorporate these findings into intervention design’?

Fourth paragraph:

5. I would argue that targeting groups of staff at organizational and professional levels would be more sustainable than an intervention targeting only one member of staff. Individual level interventions are arguably more time-intensive than those
that deliver techniques on a group level. For example, providing performance feedback to every member of staff on an individual level is likely to take longer than providing performance feedback to a group of staff on a group level. Is this opening sentence referring solely to the Rosenthal study? If so, then this claim needs to be supported by more than just one study.

Fifth paragraph:
6. Nicely put. This technology sounds very interesting! I don't think you need to reference specifically ‘the knowledge-to-action cycle’, but if you do, then you need to explain what it is. I think it would read better as, ‘It is therefore important to understand the organisational constraints, etc, etc, etc’.

Sixth paragraph:
7. Remove the term ‘behaviour change perceptions’, as it is meaningless. Having used the TBII previously, I would refer to ‘barriers and facilitators’ as you do later in the paragraph. So, ‘The purpose of this study was to explore barriers and facilitators to implementation of an electronic monitoring system to improve HH practice’. Also, remove ‘(complex intervention)’. Then follow up with, ‘The findings of the study will be used to inform implementation of the electronic monitoring system’. Delete ‘thereby maximising the potential to observe a change in nurses’ HH compliance, etc, etc’.

Major compulsory revisions:
Methods:
General
8. This section is very confusing. As this is a qualitative study, there should be a specific section within the Methods detailing the ‘Interview guide’ (this information is currently within the text, but needs to be in a separate section), and the research ‘Procedure’. Some additional questions: How were participants recruited? What was the procedure for obtaining informed consent?

First paragraph (design)
9. What is a key informant? Terms like these need to be defined, or made explicitly clear. In the ‘Design’ section, it would be sufficient to say, ‘Semi-structured interviews using the Theory Based Implementation Interview (TBII), a framework to assess barriers and facilitators to implementation’.

Second paragraph (design)
10. The following sentence sounds like you are conducting a quantitative study, looking at relationships between variables: ‘The framework was used to explore relationships between changes in HH behaviours and to understand the change processes that might be potentially responsible for the hypothesized outcome, sustainable increase in HH compliance’. The design section of your Methods should only include a brief description of the design of your study – a semi-structured interview study. The information about Michie et al’s framework, the domains and TBII should be in a separate ‘Interview guide’ section, after
settings and participants.

Third paragraph (setting and participants)
11. I thought the aim of the study was to identify barriers and facilitators to implementation of the electronic monitoring system. The first sentence of this paragraph is very confusing as it seems to suggest that something else is being studies, specifically, beliefs, intentions, and behaviours and perceptions of the impact of the EMS on nurses’ behaviours and outcomes. There is a lot going on here!

Fifth and sixth paragraph (coding reliability)
12. The analytic strategy is very confusing, and unclear. This needs to be clearer.

Results:
13. I recommend that the authors clearly define their study aims and present their findings in relation to those aims. I am confused because I thought that the authors were using the TBII to examine barriers and facilitators to implementation of the EMS. However, the authors appear to have used it to examine both barriers and facilitators to hand-hygiene behaviour and the EMS. This is fine if so, but it needs to be clear and consistent throughout the text, from Introduction to Discussion.

Discussion:
14. I would advise that the authors return to the original aim of the study, and position both the results and discussion in relation to that aim.

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.