Reviewer's report

Title: Evaluating implementation of methicillin-resistant Staphylococcus aureus (MRSA) prevention guidelines in spinal cord injury centers using the PARIHS framework: a mixed-methods study

Version: 1 Date: 10 November 2014

Reviewer: Sam Pannick

Reviewer's report:

This is a well written and interesting article. I suggest it proceed to publication if the following major and minor revisions can be addressed:

Major compulsory revisions:

1. The time frame of data collection (2-3 years after implementation) should be specified precisely in the abstract, rather than characterising this as a survey of "early" experiences of implementation.

2. Although it is not the focus of the paper, the authors should comment not just on the perceived strength of evidence for each component of the bundle, but describe the ACTUAL strength of evidence for each component. If certain components are less supported by evidence, it is unsurprising that staff do not take them all equally seriously.

   This is particularly relevant here as the active component of the VA intervention has been questioned:
   - http://cid.oxfordjournals.org/content/54/11/1618.long
   - http://cid.oxfordjournals.org/content/54/11/1621.long
   - http://cid.oxfordjournals.org/content/55/7/1027.long

3. Please clarify LISTSERVs - not all readers will be familiar with the term, although they might guess at its meaning.

4. The absence of MPC survey data is striking, as the authors collected it but failed to report it. Why was this omitted? Was there a particularly low response rate? It would actually be informative to read it, to understand their (MPCs') perceptions of the success/ failure of the implementation, and whether those correlated with the views of frontline staff. If they differed widely, it would suggest that extra training for MPCs is warranted and might improve staff uptake.

5. The meaning of this sentence is quite opaque, although what the authors perhaps mean becomes clearer later in the Methods section: "Responses to a set of survey questions about current practices were determined by the research team to be critical to guideline implementation [23]."
6. Important correction: The chi square test in table 1 shows a significant difference between the frequency of staff groups' perceptions of fully implemented guidelines. The authors assert that nurses are significantly more likely to report full implementation: this is an incorrect interpretation. To properly assess the driver of the chi square p value, my understanding is that a brief post hoc analysis (e.g. with Bonferroni correction) would be required.

The same applies to the authors' contention that staff in inpatient settings are 'significantly more likely' to report full implementation.

7. The results should clearly specify the percentage of eligible providers who replied, of the total ELIGIBLE provider group. This would more accurately reflect the degree to which respondents represented the desired population.

8. The results should clearly specify the percentage of each provider type who responded.

9. The 'Qualitative themes' section (physical therapist) mentions a disconnect in guideline awareness between newer staff and more experienced staff. Was this supported by the quantitative evidence? This would guide reinforcement efforts - should new staff have a more comprehensive induction, or is it more important to reinforce the message to existing staff?

10. Other work suggests the level of nurse education (BSRN etc.) is important for patient safety. Was there any correlation between the level of nurse education and their perception of guideline implementation? Would investment in formal nurse education be appropriate, or supported by this data?

11. What was the final make-up of the interview sample in the second phase? How many of each provider participated?

12. "formal training organised and led by SCI chiefs and MPCs was an important contextual facilitator" - context & facilitation are two separate PARIHS categories, so if the authors wish to keep to the PARIHS structure, they should revise this. References to leadership support / training / education appear in both context and facilitation sections. They should be categorised and described under just one of these headings.

13. Do the results (qualitative or quantitative) support an emphasis on a leadership strategy, or a focus on education & training? Other institutions would want guidance on the most effective strategy, if one can be identified.

14. Some discussion of dissonant results would be helpful. E.g. there was no significant difference in beliefs that MRSA colonization / transmission could be prevented

15. Some discussion of what an MPC should be doing would be helpful (see earlier comment about their absence of their comments in the survey data). Close work with the MPC wasn't significantly different between groups, whereas having someone OTHER than the MPC responsible for guideline implementation
was significantly different.

16. Important addition: authors should try to correlate their data with patient outcomes. Is there any evidence that centres where staff feel guidelines are fully implemented have better MRSA outcomes?

13. Physician assistants and physical therapists generally reported in interviews that they didn't learn about the guidelines. Does this correlate with the survey data? These staff spend a lot of time in hands-on contact with patients - should they be a focus for training / guideline dissemination specifically?

Minor Essential Revisions:

14. Two full stops at end of sentence "Interview questions related to perceptions of early efforts to implement the SCI/D MRSA prevention guidelines and the range of facilitating or impeding factors influencing their implementation."

15. "we used the qualitative interview data to examine the PROVIDE perspective" (should be provider)

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:

I declare that I have no competing interests