Reviewer's report

Title: Tool for evaluating research implementation challenges: A sense-making protocol for addressing implementation challenges in complex research settings

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Reviewer: Katherine McGilton

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Tool for evaluating research implementation challenges: A sense-making protocol for addressing implementation challenges in complex research settings

The aim of the paper is to describe a protocol developed to address the research challenges arising during implementation of complex interventions in healthcare organizations. While the topic is somewhat important there is a need for more clarity throughout the manuscript and a need to highlight the unique contribution this manuscript makes to the implementation science literature. While the sense making protocol is novel, the constructs embedded in it and the recommendations for implementing research changes into practice are not new.

The following considerations should be taken into account to enhance the manuscript:

Minor Essential Revisions

1. How does this framework deal with just trying to get the research team members engaged? With 27 research team personnel how does the PI ensure that they are all involved in the sense making protocol?

2. More examples from the two studies would be helpful to understand how the concepts within the protocol were applied to the real world issues that arose.

3. How is this protocol going to be evaluated and modified? What are the future plans for evaluation of the protocol?

4. At the end of the study, did the protocol address research implementation challenges? Was one study better implemented than the other? How does one measure successful implementation?

5. If pilot work was completed prior to effectiveness studies, would we minimize the need for this type of protocol? What is the added bonus to having this protocol versus just doing a pilot study to learn of the issues and prepare for them in a larger trial?

6. Table 1 defines hallmarks of complex adaptive systems. How can these definitions be applied to the research team and to the staff working in the nursing home? How does this table influence the protocol?

7. Table 2 defines the challenge, example, threat to research integrity and strategies. Is the aim of the authors to come up with a detailed list and match the
strategy with the challenge or is the intent that the team come up with the strategies specific to each study? Many of these issues are common for most LTC studies.

8. It is interesting to note that the framework is best utilized when the teams embrace communication strategies such as trust. What happens if they do not have trust nor the ability to gather the whole team to make these decisions?

**Level of interest:** An article whose findings are important to those with closely related research interests

**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