Reviewer’s report

Title: Implementation and acceptability of a heart attack quality improvement intervention in India: a mixed methods analysis of the ACS QUIK trial

Version: 0 Date: 13 Nov 2018

Reviewer: Hueiming Liu

Reviewer's report:

Overall comments:

Thank you for an interesting paper that describes the journey of the ACS QUIK trial in Kerala India. It describes the development of a quality improvement intervention for the diagnosis and management of ACS trialled in 63 hospitals in Kerala, and the mixed methods process evaluation informed by the MRC process evaluation framework. I enjoyed reading the paper and appreciated the transparency and thoroughness of the methods and the findings, and the issues raised (in the discussion) about conducting such research in India resonated with me.

However, the paper was at times difficult to follow in some parts and I have some suggestions/clarification for your kind consideration. Overall, I think a tighter triangulation of your results and signposting your key findings would make your suggestions and conclusions in your discussion more apparent to the reader.

Specific comments for your consideration:

1) Minor comment-Abstract: There is slight disconnect between the focus of the abstract and the main text. For example, in the methods- the brief description of the development of the intervention was not included, and the conclusion of the abstract and main text in terms of considering the baseline quality of care of the hospital.

2) Minor comment- Introduction: clear and presented the rationale for the study based on the data from the Kerala ACS registry. It may be helpful to include the potential relevance of your work to other hospitals in LMIC, i.e. in exploring whether implementing of guideline-based treatments shown to be effective in HIC, could be adapted in a LMIC setting given the contextual differences and challenges.

3) Minor comment- Methods: As your methods span 2012 till 2016- It may be helpful to include a succinct timeline of when each part was done to enhance the readability.
4) Major and minor comments- Results: Overall, this section was at times difficult to follow.

Online survey- I would suggest condensing this by only referring onto the tables, and summarising the key points from the survey. E.g. the low implementation of the establishing the code blue team.

Physician in-depth interview results- Suggest leaving the overall summary for the discussion and present the 4 themes directly. I liked Table 2 with its illustrative quotes. For consistency and to enhance readability, I would suggest that for theme 4: recommendations, that you include less direct quotes.

Facilitators and barriers-

* There seemed to be some overlap with the previous section. (ie. Physician in-depth interview results: implementation and acceptability of the toolkit)

* I wonder if it would be possible to merge these findings (e.g. facilitator of physicians believed in the tool kit, and usefulness of checklist fits with your first theme of usefulness/acceptability of the ACS QUIK toolkit). And to expand on your interpretation in the text.

* It may also help to split them to individual, organisational and policy level barriers or just across the components.

Integrating results of the process evaluation with ACS QUIK trial outcomes-

pg 19 ln 41-54. Could you clarify whether you are triangulating your findings with the ACS QUIK trial results? (ln 49 seems to suggest you are not?)

pg 19 ln 24-34.- this link between the use of the tool kit components and the rates of process measures seems to be one of your key findings but could be emphasized more clearly either in the main text of in Table 4.

5) Minor and major comments- Discussion: I found this interesting and insightful, but have some further areas for clarification.
* Summary: pg 20 ln20- the statement 'a relatively high-level of care at baseline in the control group hospitals' was not apparent to me from the findings.

'favourable temporal trend'- what does this mean?

* Pg 20 ln 32-49: I liked this paragraph but it does not seem to be natural fit under 'summary of findings' and access to life-saving reperfusion therapy was not clearly mentioned in your results. Is the 'formative qualitative evaluation' part of the focus groups in your development of the intervention, if so, perhaps some of these findings i.e. ln 39-49 could be in your results.

* Explanation of results: ln pg 21 ln 2-3, 'catalysing, doing and reviewing' in this relation to the physicians' work or the researchers. It is not clear to me what this meant.

* Pg 21 ln 21-36: seems to fit better under the strengths and limitations of the study. Could you comment in line with this, whether there is a role of follow up interviews etc. after knowing the results of the trial outcomes?

* Pg 21 ln 41: This paragraph about implications i.e. about the need for 'concurrent investigation in improving the structural capacity of hospitals' seemed to be the take-home message to me for future work in this area. However, the results do not clearly point to this implication. Could you comment on with the benefit of hindsight, how this could have been further investigated or potentially accounted for during the set-up of the trial in terms of variation of the ACS QUIK trial hospitals?

In line, with this- could you comment on the potential next steps for this network of hospitals? For example the sustainability of the intervention, or components of it e.g. educational materials, which maybe more readily embedded into the system?

* Results in context: suggest tightening these paragraphs for to enhance the readability of the paper.

* Strengths and limitations: pg 24 ln 2, this does not seem to be a limitation of the study.

Pg 24 ln 24: could you comment on your reasons for not sampling across health provider roles?

Pg 24 ln 27-21: this statement is not clear to me.

* Conclusions: pg 24 ln 51: 'quality of care of the ACS QUIK hospitals'- could this be more explicit in the results? As it reads currently, the variation in quality of care of the hospitals is not apparent to me.
List of Tables and Figures:

Table 1: overall clear. Clarification- Is the online survey of N=22 from 22 different hospitals?

Overall I think Table 2 and 3 could potentially be merged together. Or perhaps move one or the other as supplementary tables.

Table 2: I like the illustrative quotes.

Table 3: I like your statements on 'context, conditions and consequences.'

Table 4: I do not understand the outcome: observed, implied or anticipated… what does this mean? I think incorporating the contextual barriers may be helpful in helping explain your outcomes.

Figure 1: a nice diagram to summarise the formative work. It may be helpful to elaborate briefly in the main text why the phrases in red were identified as the potential targets. Was this through consensus in the focus groups?

Figure 2: I think this summarises table 3 quite nicely but the adaptation and sustainability boxes could be improved with further headings perhaps of the individual components.

Thank you again for all your work in this area. It was great to read about the formative work and the in-depth mixed methods process evaluation in the area of quality improvement in such an important area of need. All the best.

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An article of importance in its field

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Please indicate the quality of language in the manuscript:

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