Author’s response to reviews

Title: Understanding the influences on successful quality improvement in emergency general surgery: learning from the RCS Chole-QuIC project

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Author’s response to reviews:

Reviewer reports:

Reviewer #1: Thank you for asking me to review this interesting paper. It is well written, but I have the following suggestions for the authors to address to improve the paper before accepting for publication.

Abstract

Overall this is clear. In the methods 'ethnographic observation' should be plural. In terms of NPT it would be clearer that the authors rephrase that 'NPT informed the data collection and analysis of the study' or something similar.

- Thank you. We have adjusted these aspects as suggested. See Page 2.

Introduction

Overall clearly written
Methods

In the section 'The Chole-QuIC intervention' the authors would need to provide a concise description of the intervention here in the text to aid clarity.

- Thank you. To support the information already provided in Figure 3 a concise summary is now on Page 5.

In the data collection section, ethnographic observations should be plural (page 7, line 13), and could the authors please discuss what this involved? Do they mean participant observations?

- Thank you. We have made the changes as suggested on Page 6.

In the data analysis section:

Please could the authors first spell out here what was the 'main outcome measure for the collaborative' (page 7, line 49).

- Thank you, we have added clarification to this on Page 6.

Page 7, second paragraph, the authors would need to define and justify in the text the use of constructs from NPT rather than only placing these constructs in Table 1, particularly because the different constructs use quite technical language.

- Thank you, we have added definitions and explanation as suggested on Page 7 Lines.

Page 7, line 58- do the authors mean here 'inductive' rather than deductive approach?

- We mean deductive but hope the additional clarification on Page 7 also helps to clarify our initially inductive and subsequent deductive analysis process.

Results

Overall the findings are well presented but there would need to be more discussion throughout how the themes and related subthemes relate/can be understood through the constructs of NPT, so that the results are theoretically informed rather than only described. Currently NPT
constructs are only discussed on page 15 under the theme 'Creation of additional capacity for emergency cholecystectomies.' This is a key limitation of how the results are currently discussed.

- We have added significantly to the discussion to address this – see Page 17

Other specific points:

Page 9, line 60, when the authors discuss 'size of teams ranging from one to six' it would be clearer to add 'participants' or 'staff' after this.

- Thank you, we have added this on Page 8

Page 9, lines 60, please rephrase more clearly the sentence 'site visits were the activity with the poorest uptake'.

- Thank you we have rephrased this and added a little more detail on Page 9,

Page 10 when the authors present data extracts from 'ethnographic notes' what is meant by 'ethnographic notes'? Do they mean field notes of participant observations?

- Thank you, yes, we do mean that. We have decided to keep the term “ethnographic notes” to more clearly differentiate it from the data from “Field notes” that were written after site visits.

Page 13, lines 52-3 under the theme 'Turning ideas into action' can the authors define what the 'Model for Improvement approach' entails.

- Thank you, we have added clarification on Page 13

Discussion

Page 17, lines 11-21 this is a very long sentence- it would be better that the authors could make this into a couple of sentences.

- Agreed – Page 16.
Page 18, second paragraph, here the authors discuss their results in line with NPT constructs, but these need to be defined first earlier in the paper in the methods section.

- Thank you, this definition is now provided, in response to you above comment, on Page 7

Overall in the discussion, there is currently limited discussion of interpretation of the findings through the lens of the constructs of NPT.

- We have added significantly to the discussion to address this – see Page 17,

Page 18, lines 51-2, when the authors discuss that they would do more than skills training and coaching if they were to conduct this collaborative again, but could they spell out what specifically?

- Given the significant amount of additional text added in the discussion we have decided to remove this final point entirely rather than elaborate on it.

Conclusion

This is largely fine but quite brief as it currently stands.

- We have revised and added to this slightly – page 20

Reviewer #2: It is always challenging to conduct a large-scale quality improvement such as this project and more importantly be able to conduct a research project allied to this.

This is an important research, as it would inform further surgical multi-site QI projects.

- We thank the reviewer for the acknowledgment of the importance of this work and its value in informing future QI work in surgery.

It was a challenge to review this manuscript without any data on the quantitative results of the study, as that study is still not in the public domain. Thus some data is essential to enable the reader to see the differences between the 'successful' and 'challenging' units. The other alternative is to wait till the quantitative study is published before submitting this for review.
We appreciate the challenge reviewing one paper when the other, inter-related paper is not available. The quantitative data are summarised on P 8, but we have now added Table 2 to allow readers to review the summary data themselves.

While it is extensively acknowledged that context plays a key role in the implementation of a multi-site quality improvement effort, I could see little evidence of this in the Results. It is highly probable that the details of the various units is a part of the other manuscript, but some details on the profile of the successful and challenged units would be important to understand the context. It is possible that there were some units in which complex surgery is prioritised over relatively straightforward 'routine' clinical conditions such as gall bladder disease and this could also have impacted on the success of the programme. Hospital size and complexity of their surgical workload could have impacted on this project in two disparate ways. On one hand, smaller district general hospitals that focus primarily on general surgery could have been the successful units as their surgeons, with support from their managers, could have focussed on improving 'routine' surgery.

However, on the other hand, 'complex' units could already have a culture of continuous improvement, and transferring this culture to another area of improvement would have been easier. It would have been really interesting to know which hypothesis was proven in such a project or if there were any such phenomena at play.

- We thank the reviewer for this salient point. Please see Table 2, which provides data on surgical volumes and an additional comment about this on Page 13. We have added some additional text to support what was already in the Results section and have added further discussion on this on Page 18-19

I would also request the authors to clarify the following issues:

From a methodological angle, I would be interested to if this was an independent evaluation of the project? This is important as bias can easily creep into qualitative research.

- This was a partnered evaluation. We have added extra clarification regarding this on Page 6 and discuss risks on the strengths and limitations section on Page 19

Just as there is quantitative data to validate the qualitative findings in terms of Q2- what impacted success, it would important and interesting to know how the qualitative data for Q1- collaborative success is supported by data. For example the level of engagement of the
individual sites at a collaborative level. While the qualitative findings are quite positive I get the impression that the level of engagement could have been better.

- Thank you for raising this issue. The level of engagement from sites was actually very good compared to that reported from other UK QI collaboratives. We have re-organised, and provide further specific data, to better clarify this point. Please see Pages 8-9

Just 5 focus groups across 12 sites when the intention was to conduct 2 focus groups per site seems quite low.

- This is incorrect. We convened 6 out of the 8 planned focus groups during the study. We have clarified this on Page 8.

Similarly 17 site visits across 12 sites over 2 years again seems quite low. What was the participation at the collaborative meetings? The findings are given as 1-6. What was the median number of people who attended from each site?

I would request that subjective terms such as 'good' are replaced with data. How many site calls were planned and how many were attended?

- Thank you for this observation. We have added the data as suggested on Pages 8-9.

The qualitative data for QI also seems quite meager. There has been so much published on the effectiveness of collaboratives to deliver improvement. This exhaustive literature review needs to be integrated into the current research. For example, it would be interesting and important to know how the collaborative methodology contributed to the improvements? How did discussions and cross-pollination of ideas help? Did sites form partnerships within the collaborative? Was there a sense of competition within the collaborative that contributed to the improvements? I am assuming some of this must have emerged during the data collection but has not been presented.

- Thank you for raising this point. As with any large scale evaluation, there is always a trade-off regarding what is to be included and excluded to fit within the confines of a journal article. We now discuss this issue in more depth on Page 10 and Page 17

One key aspect of both the Chole-Quic Theory of Change and thus the resultant emergent themes is the absence of any organizational support for change. Though organizational support or the
lack thereof is evident in most of the themes, I am surprised that this did not emerge as a significant theme. For example, not being able to integrate this project with individual job plans and lack of management support for resource allocation are largely reflective of the organizational challenges that clinicians face while desiring to implement micro-system changes.

This makes me wonder if the whole improvement effort was to focus on clinical leadership in the absence of organizational ownership of the project.

- While we do not consider organisational support as a theme in its own right, our use of NPT does enable us to examine key issues pertaining to organisational support such as the role of key senior surgical and managerial colleagues. This was already discussed on Pages 11 and 12 and we have added further discussion regarding this on Page 18

This also leads me ask if there was a high level of agreement in the thematic coding between the 3 data analysts. Was the coding done independently or was it done in a group?

- The coding was done independently by the 3 coders and then discussed and revised as a group. These findings were then presented to the whole team and external researchers to support validity. Data analysis was iterative over the evaluation period and this process was repeated several times. Overall there was a high level of agreement between the coders and no substantial changes were made to the themes at the main evaluation team meetings.