Author’s response to reviews

Title: Overcoming barriers to evidence-based patient blood management: a restricted review

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Author’s response to reviews:

Dear Review Team,

Thank you very much for reviewing the manuscript and providing positive and constructive feedback. We sincerely appreciate the time you took to consider the work and your valuable comments, which have helped improve the paper.

We have provided a response to your suggestions below but would also like to highlight an additional change to the manuscript. Between submission and receiving the reports, it became apparent that the term “intervention” was incorrectly used. The ERIC reports implementation strategies that can help, as opposed to interventions. We have therefore changed all instances where the word “intervention” was used to “implementation strategy”. This is highlighted in the tracked changes.

The distinction between intervention and implementation strategy is an important one as it permits conceptualisation of, and reporting, of improvement projects both in terms of the actual product delivered, and the way it was delivered.
Reviewer One

1. Line 136: Search syntax is specific to one of the databases. The authors should find a generic way of rephrasing this.

   We have now provided a more general phrasing at line 144.

2. Line 169: For the uninitiated, it's not obvious what "agreement with the ERIC tool recommendations means" and why it's important. This could be unpacked better.

   We have added some commentary to our purpose in line 130 to help explain this more clearly.

3. Line 178: Expert consensus will make some people think you're looking at Nominal Group exercises. I think that whatever's going on here needs unpacking for the non-expert reader.

   The ERIC tool is named the Expert Recommendations for Implementing Change, and the study reports that they used expert consensus over Delphi rounds to generate the strategies. We feel that finding an alternative term would be in disagreement with the term used in the original paper.

4. Line 233: "This paper is the first to investigate and report barriers to implementation of the PBM guidelines." What about the systematic review published in 2018 (line 89)?

   Thank you for raising this query. The review quoted looked only at interventions and their effectiveness, they did not report on the barriers. Please see line 342 where this is explained further.

5. Line 254: "The absence of a reported methodological approach presents a missed opportunity to demonstrate the success of implementation attempts rigorously."

   Suggest "test the effectiveness" - we should not assume success.
Thank you for this suggestion, we have rephrased this as per your suggestion, which is more accurate. Please see line 274.

6. Line 256: "Future research should utilise available implementation methodologies to advance the science."

I find this formulation - prevalent among social scientists - troubling. It makes it sound like "advancing the science", rather than maximising population health, is the highest good. We are trying to improve people's lives and getting evidence into practice is an intermediate step. Additionally, the history of science shows us that we won't know which ideas are approximately true until epistemologically ideal conditions; we are nowhere near this state while there are multiple competing frameworks and there will be many false starts along the way.

Thank you for reminding us of the real reason for our work – the patients. We have reframed this sentence to be more focused on translating evidence into practice in line 275.

Reviewer Two

Methods

1. In line 127, the methodology of this review is described. The author mentioned that this is a relatively new methodology. As a reader, I wonder why the author chose this methodology in the first place. What are the benefits, and what the drawbacks?

Thank you for this query, this is stated at line 128 where we say “in the context of limited resources” and note the flexibility that the framework offers. The limitations of this design are outlined in the limitations section.

2. When was the literature search conducted? I cannot find the indication of the date, which is important to time stamp the literature review.
We have now provided the dates. The initial search was undertaken in March 2018, and a subsequent search for new articles was undertaken in June 2019, and none were revealed. Please see line 150.

3. Grey literature was not consulted. Please report the reasoning behind this decision. Grey literature might be a valuable source for this study.

The inclusion of grey literature was an optional enhancement to reduce bias according to the methodology of the restricted review. We have now acknowledged the absence of it in the limitations section. Please see line 370.

4. Barrier to implementation and interventions to overcome those barriers where extracted from the data guided by the CFIR framework and the ERIC recommendations. It might benefit this review to also make an indication whether these frames (CFIR and ERIC) were sufficient to cover the barriers and interventions experiences/used in the field of PBM. This could be done by extracting all barriers to PBM implementation and map them onto CHIR and ERIC. If CHIR and ERIC cover barriers and interventions in the field, a strong recommendation could be made in the conclusion to use these framework during the implementation of PBM.

We have mapped the barriers from CFIR to the ERIC and subsequently attempted to demonstrate this in table three, where we note that many implementation strategies used were not recommended in the ERIC framework for the barriers identified. We comment on possible reasons for this not just in relation to PBM, but also more widely at line 265.

Results

5. In line 195, the term 'units per patient' is used. It is not entirely clear to the reader to what 'unit' refers.

Thank you, this has now been corrected at line 211.

6. In line 199, it is mentioned that studies with low quality have not been excluded. Could you explain the reason for this decision?

We have now provided an explanation for why we did not exclude studies of low quality at line 216. We were providing a description of research in the field including studies of poor quality. We also address the problem of the quality in the discussion section in line 270 and acknowledge the limitation in line 367.
7. This review reports on barriers to implementation and intervention how to overcome them in a descriptive manner. However, it would be beneficial for this study to report on the effectiveness of the reported implementation interventions. An indication for the effectiveness is included in Table 3 (right column). Including a description of these results would add to the relationship between utilised interventions and recommended interventions by indicating their actual effectiveness (= impact in practice).

We have now provided additional commentary in line 170 explaining that the effect of interventions and implementation strategies has been previously explored other systematic reviews, and we felt it would be of limited value to undertake a complex analysis in the context of this paper. It was therefore included only as a matter of interest.

Discussion

8. In line 239, the authors make the statement that the ERIC tool can be used to provide guidance but requires further work to ascertain strong consensus for recommended interventions across barriers. For the reader, it is not clear how this conclusion could have been drawn. If the ERIC tool is an applicable tool for recommending implementation interventions for PBM, the facilitation of the use of the ERIC would be important to subsequently reach greater consensus between utilised implementation interventions and ERIC.

Yes, this is correct. We have made this recommendation in line 358.

9. In line 269, 'tailored implementation' is mentioned. This could be discussed in more depth (see for example Wensing (2007) or Baker et al. (2015). It might also be interesting for the reader to describe what the implication of this result ("half of the included…", line 269) for PBM is.

We have now provided some further explanation of how tailoring is important, in the context of blood management at line 289. The intent of the sentence was to highlight that local consensus processes are a conduit for tailoring strategies, rather than exploring the theory behind tailoring.
In different parts of the discussion it is described that certain ERIC interventions have not been utilised. Might there be a field specific explanation why certain interventions has not been used? That might give insight in the context specific field of PBM, and the importance of tailoring implementation strategies.

In line 265 we explain the wider problem for implementation science, which is a lack of understanding of the theory and a lack of knowledge of its existence. This awareness extends to tools that might be helpful.

10. The authors mention the tailoring of implementation interventions to specific settings. For this review, it might be interesting to elaborate this on the example of PBM. What are the context specific factors and consequences of such in the field of PBM?

We have now provided some further explanation of how tailoring is important, in the context of blood management in line 289.

Conclusion

11. In line 349, it is mentioned that this article will provide further guidance in directing other facilities to identify tailored solutions to address local barriers. For the reader it is not clear how this study is doing this. The article would benefit from a description of hands-on recommendations for facilities who want to implement PBM guidelines and improve their practices. One example would be to explicitly recommend frameworks for use in practice. In other words, it would be great to include some concrete implications this review will/can have.

Thank you for highlighting this. We have provided a concluding statement that also covers the common barriers and implementation strategies used to overcome them in line 377.

Tables

12. In Table 1 in the right column, it says 'outcome measure'. As you actually indicating an outcome, I suggest to change the column heading to 'outcome'.

We have amended this as per your suggestion.

13. Table 1 misses the explanation on what 'NiL' and 'QI' stands for.

Thank you, we have added a legend underneath to explain the meaning.
Readability

14. In line 145, please check this sentence for readability and grammar.

We have split this into two sentences so it is not so long. Please see line 156.

15. Line 250 to 253 are difficult to understand. Please consider to rephrase.

Thank you, yes it does read poorly. We have tried to be clearer about the point that was being made. Please see line 269.

16. Typos

line 119: the 'but' is abundant.
Corrected. Please see line 123.

17. line 145: the 'patient' is abundant.
Corrected. Please see line 157.

18. line 158: the '(' is missing.
Corrected. Please see line 167.