Author’s response to reviews

Title: Maternity service organisational interventions that aim to reduce caesarean section: A systematic review and meta-analyses

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Helen Haines, PhD, MPH, RM, RN
BMC Pregnancy and Childbirth
https://bmcpregnancychildbirth.biomedcentral.com/

Dear Dr Haines,

Thank you for the opportunity to resubmit our revised manuscript entitled “Maternity service organisational interventions that aim to reduce caesarean section: A systematic review and meta-analyses (PRCH-D-18-00984)”.

On behalf of my fellow authors, I would like to thank both reviewers for their valuable and constructive comments on our manuscript. Below, we have provided our point by point response to each comment and recommendation. The changes are tracked in the revised manuscript. We believe the manuscript has been strengthened as a result of these revisions.

Additionally, we have noted the editorial policies and can confirm that our manuscript adheres to all requirements.
We hope that our manuscript is now acceptable for publication and we look forward to your response.

Yours sincerely,

Prof Alison Hutchinson

Reviewer 1: Jenny Gamble

1. Comment: An excellent paper on an important topic.
Response: Thank you.

2. Comment: The evidence does not suggest that maternity services should consider adopting midwife-led models for "particularly for low-risk women" or that effect size would be more pronounced in this group. I suggest that the data suggests that maternity services should consider adopting midwife-led models (for any risk women) and the paper revised to reflect this.
Response: Thank you for this suggestion. Table 1 describes participants in the 15 studies included in this review. Of the 8 studies utilising midwife led models, 4 studies specifically included low-risk women; 2 studies included pregnant women that could be classified as low-risk; 1 study included pregnant women (risk status not specified); and 1 study included both low and high risk sub-samples of women. Only 1 study included a sub-sample of pregnant women at high risk. On the basis that the majority of studies utilising midwife-led models (n=6) included women either specified as low-risk or that can be classified as low-risk, we do not feel a statement about women at ‘any risk’ can be substantiated. Hence, we have made a considered decision not to revise the text.

3. Comment: Definition of different models of maternity care remains somewhat vexed. I suggest that when referring to "continuous midwifery care" that it is clearly, and all occasions, stated that it continuous intrapartum care by the same midwife with back up midwife (if this is indeed the case). Furthermore, it may be worthwhile spelling out "midwife-led" and caseload/continuity of midwife carer (caseload), and small teams. "Midwife-led" care is sometimes midwife 'delivered' care and sometimes "midwife-led" ... but I appreciate this issue is fraught and it is wordy to be precise. The authors may consider acknowledging definitions need to be standardised and perhaps referring to the Maternity Care Classification System (MaCCS).
Response: We agree with Professor Gamble that these definitions can be vexed and that the issue is fraught. Upon critical review of these terms within the manuscript, we are satisfied that the
terms are used appropriately and are faithful to the original references. To address the reviewers concerns, we have inserted the following sentence into the discussion (page 24, paragraph 1):

…and enable publication bias to be adequately investigated. “Standardisation of terminology related to models of care such as midwife-led, caseload and continuity of midwife carer will provide clarification of future analysis and interpretation of results”.

4. Comment: Some OECD countries have CS below 20% (e.g Sweden and Iceland). The discussion could include the organisation of care in these countries (particularly community based midwife led AN care) even though there may be no published studies from these countries.

Response: The discussion has been revised to absorb this commentary (page 24, last sentence of paragraph 1):

…facilitate the quantification of intervention effects. “It may also be beneficial to study maternity care in OECD countries with low CS rates to identify and study innovations and interventions related to the organisation of care.”

5. Comment: The authors note that "primary studies are now required to utilise either of these approaches ... perhaps a combination of caseload and audit would be valuable.

Response: Thank you for this observation, the text has been revised accordingly (page 24, 2nd last sentence of paragraph 1):

“To enable the quantification of intervention effects, additional primary studies that utilise these approaches alone or in combination are required.”

6. Comment: A question - In writing about heterogeneity, the terms "moderate", "substantial" and at one point it is described as "considerable" (labour augmentation)... is this terminology generally accepted?

Response: We confirm that these terms are accepted as descriptors of degree of heterogeneity ($I^2$ statistic), as specified within the Cochrane Handbook

https://handbook-5-1.cochrane.org/chapter_9/9_5_2_identifying_and_measuring_heterogeneity.htm

The classification criteria for the $I^2$ statistic are stated in the methods section to assist readers (page 10, 3rd sentence of 3rd paragraph).
7. Comment: This is a strong paper and contributes significantly to the body of knowledge. It was interesting to read the phrasing around "benefits of planned vaginal birth", which I think is an ongoing and important conversation.

Response: Thank you.

Reviewer 2: Michelle Newton

1. Comment: Thank you for the opportunity to review this manuscript which was a pleasure to read and very easy to follow. You have presented a clear and coherent description of the procedures that have been undertaken to identify and review the literature on the topic and the justification for the papers included. The approach to analysis is clearly explained in both the methods and the results for each intervention. The discussion brings together the findings in a structured and coherent manner, which again is easy for the reader to follow.

Response: Thank you.

2. Comment: There is one result that is mentioned (p 20 - Hospital protocols for pregnancy complications) that resulted in an increase in c/s - I think it worthy of including some discussion as to why this might have been the case as it is such an outlier to the other findings and analyses of the study.

Response: We have inserted a paragraph into the discussion to make reference to this finding (Page 23, last paragraph).

“A surprising result highlighted within one included study was the significant increase in CS rate observed following the implementation of Iranian Ministry of Health and Medical Education pregnancy complication protocols. The authors of this study acknowledged that the introduction of new protocols may have increased visibility of CS indications among health professionals. However, the authors also acknowledged that the developed protocols were not based on national evidence, but rather extracted from text books, and were therefore unlikely to reflect contemporary recommendations. Additionally, the researchers used a quasi-experimental design with a non-concurrent control group which limits the strength of the findings.”

3. Comment: I have no other suggestions for improvement of this manuscript and would like to congratulate the team on the conduct and preparation of a rigorous piece of work.

Response: Thank you.