Author's response to reviews

Title: A randomised clinical trial of intrapartum fetal monitoring with computer analysis and alerts versus previously available monitoring

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Author's response to reviews:

We thank the Reviewer and the Editor for their comments and suggestions. All of the points raised are addressed below.

Reviewer comment 1.

It is, in my view, a bad practice to choose a primary outcome (on which sample size calculations are based) that will not be available for all participants, therefore, not allowing an intention to treat analysis. This is not a double blind trial, therefore, it is quite possible that the clinicians who clearly have a vested interested to prove that this technology works may not try hard to get the adequate samples from cases in the intervention arm with suspected acidosis. Why not death or serious adverse neonatal outcome (encephalopathy) assessed by clinicians blinded to the type of monitoring used?

Answer: We thank the reviewer for his suggestions regarding global study design. Metabolic acidosis in umbilical artery blood has been used as the primary outcome in nearly all recent trials evaluating methodologies for intrapartum fetal monitoring. The present study is clearly underbudgeted to evaluate a primary outcome such as perinatal mortality. All meta-analyses and systematic reviews of trials comparing continuous cardiotocography with intermittent auscultation have failed to demonstrate significant differences in the incidence of this outcome, although more than 33 thousand patients were studied. The alternative of choosing neonatal encephalopathy also requires a very large sample size, and because of its different causes other than hypoxia, is a controversial outcome for the evaluation of intrapartum fetal monitoring.

The nature of the technology under evaluation does indeed prevent blinding of
participants to allocation, but the five centres where the trial will be run were not involved in the development or validation of the system, and none of the staff involved have a vested interest to prove that the technology works. Moreover, strategies have been delineated to overcome the problem of missing data for the primary outcome.

Reviewer comment 2.
Can the authors prespecify the planned subgroup analysis - by centre, by STAN availability etc etc.
Answer: subgroup analysis will indeed be conducted by centre and by STAN availability. This information has been added to the manuscript.

Reviewer comment 3.
It is quite possible that alerts may work for CTG, but not STAN or vice versa. By lumping them together the true effect of this technology may remain hidden. This should be a study of Omniview + CTG with use of STAN as a secondary outcome. Trying to answer to many questions with one study will answer none.

Answer: Some of the involved centres have access to the STAN technology while other do not. Therefore subgroup analysis should be able answer the question of whether the technology works for isolated CTG, STAN or both.

Reviewer comment 4.
Who will analyse the data after 1,500 cases and why 1,500? Any stopping rules? What if the authors who have vested interested in the results don't like the results after 1,500 cases? Why not conduct a separate feasibility study first?

Answer: Data analysis will be conducted at the co-ordinating centre and results will be made available in the preliminary evaluation and regularly thereafter to the independent Data Safety Monitoring Committee, who may decide to discontinue the study at any time.

Editorial comment 1:
- Please clarify whether ethical approval has been given and be sure to clarify this within the Methods section of your manuscript, including the name of the body which gave approval, with a reference number where appropriate.

Answer: Ethical approval was obtained from the Cambridgeshire 1 Research Ethics Committee, as this information has been added to the Methods section of the manuscript.

Editorial comment 2:
Please move the 'Competing interests' section between the Conclusions and Authors' contributions and move the Authors' contributions section before the Acknowledgements and Reference list.

Answer: these changes have been made. Some of the references were updated, as two of the studies have subsequently been published. Changes in the
document are marked with "track changes".