Reviewer's report

Title: Can hospital audit teams identify case management problems, analyse their causes, identify and implement improvements? A cross-sectional process evaluation of obstetric near-miss case reviews in Benin

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Reviewer: Patricia Bailey

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This article was delightful to read; I hope I speak for readers in general. Although the authors use the term "process evaluation" to describe their work, it seems like an excellent example of implementation science, where the emphasis is on how audits were conducted, rather than on how audit changed the quality of care or health outcomes. I suspect that this analysis has been instrumental to the design of the AUDOBEM trial, which the authors only mention in the last line of the paper. If I am correct, it would be interesting to know how.

The rate of documented solution implementation, however, was as the authors state worrisome. Perhaps the use of incentives should have been tied to implementation instead of meeting participation? It would be interesting to know if a different type of audit – criteria based audit as opposed to case review audit – would result in a higher rate of solution implementation. If conducted appropriately, analysis of CMP, action planning and implementation are sandwiched between two cycles of data collection, making it difficult to not follow through with recommendations.

The authors did a good job of describing a large number of results and showing even more in tables that were generally easy to read, and the discussion was very thoughtful. Congratulations.

Major Compulsory Revisions -- None

Minor Essential Revisions

1. Lines 87, 91, 94 refer to financial incentives and compensation for participating in the audit process. Ideally, we would like to see hospital management/clinical staff advocating for audit as an internal quality improvement technique, and conducting case reviews and audits because it is part of their job rather than being paid extra to do their job. One of the problems of audit is its lack of sustainability. While there is special funding, audits tend to be implemented but without that funding they are much less likely to happen. The issue of sustainability of the practice is not discussed by the authors but perhaps it should be, under the section on Limitations? Also, it would be interesting to know the size of these incentives.

2. Line 157 – the lowest incidence of maternal near-miss morbidity according to Table 1 is 7.6% (not 8.9%). To make it easier for the reader, I would re-write lines...
The incidence of maternal near-miss morbidity and maternal mortality did not vary much across Hospitals 1, 2, 4, and 5 (7.6% to 10.4%, 700 to 1200 per 100,000 live births, respectively). The exception was Hospital 3, a regional referral hospital where ….

3. Lines 172 and 173 – the authors refer to “interventions” and “type of interventions.” If in fact these are different, please clarify how. Line 172, what does it mean to have extracted information on “audit?”

4. Line 230 – according to Table 3, the statistic is 63%, not 67%.

5. Line 333 – do the authors mean “audit team” instead of “CMP?”

6. Table 3 – the term should be “live birth” not “life birth.”

7. Table 4 – what is CES? (Presence of: obstetrician/physician/CES; N=58). Line 586, instead of “participants” should this read “cases?”

Discretionary Revisions

8. The article could use some editing to make some things clearer. For example, under Methods in the abstract, I suggest rewriting lines 43-45 as follows: “…produced by the audit teams for 67 meetings in which each meeting focused on one woman with near-miss complications. We compared the number of CMPs identified by an external assessment team to the number found by the audit teams. For the latter, we described the CMP causes identified, solutions proposed and implemented by the audit teams.”

9. Line 90 – were invited to attend what? Audit meetings?

10. In the paragraph lines 104-111, please clarify that each hospital held its own monthly audit meetings.

11. The author might explain the professional qualifications of the 2 external assessors.

12. Line 208 – the phrase “We analysed the performance of audit teams on CMP and audit meeting level, ….” is not clear.

13. Line 292 – for the reader who refers to the table while reading the text, it would be helpful if the authors explained what they mean by “appropriately analysed.” They might add in parentheses the following: “(found to be plausible, profound and within reach)”.

14. Paragraph 298-306: lines 299-306 appear to refer to data not shown, or the solutions discussed in the text do not track with the categories in Table 8. Perhaps add “data not shown.”

15. Line 465 – who are the social scientists? Are they the social workers, or the researchers, or both?

16. The data are now 10-12 years old. Do the authors think that their results reflect how the audit process would unfold in these hospitals today?

17. Most audits succeed in improving the quality of data and improvements in documentation. Was this the experience in Benin? Some of the analyses were based on only half or so of the total cases due to missing data. (This certainly
slips into the area of quality of care, which is not the purpose of the study). But the lack of documentation is also discussed in the Discussion section as a possible factor contributing to the low rate of implementation. It seems to be a chronic problem.

18. Suggestions for labeling Table 1: first column – instead of “Midwives” consider “Midwives per 1000 hospital deliveries”; instead of “Deliveries” consider “Deliveries per year”.

19. Table 2: why is NM anaemia separated by a row line from the other types of near-miss complications?

20. Table 5: under the section “…interacting with the patient or her family,” to improve the mirroring of the text and the table my suggestions would be as follows: “insufficient provision of information to the patient;” “lack of friendliness and support for the patient,” “achieving compliance of the patient.”

21. Figure 1 uses the term “case management problem” while Figure 2 uses the term “case management deficiencies” – consistency recommended.

**Level of interest:** An article of outstanding merit and interest in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.