Reviewer's report

Title: Audit-identified avoidable factors in maternal and perinatal deaths in low resource settings: a systematic review

Version: 2
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Reviewer: Eckhart Buchmann

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This systematic review of clinical audit for avoidable factors in maternal and perinatal deaths focuses on low- and low-middle-income countries. The review has some value useful and provides composite information on what is commonly found in audits of this kind, with a focus on health-worker related avoidable factors. Some areas need some attention:

Major compulsory revisions:

1. There must be an acknowledgment of selection bias: only, or mostly, published audits are presented; the audits combine Asian and African data effectively weighted according to what was found in the review and not on population size or population at risk. The sample of deaths audited is not random.

2. I was surprised that maternal and perinatal death audits were lumped in one review. Wouldn’t it have made more sense to have done separate reviews? However, maternal and perinatal audits have a lot in common in terms of avoidable factors. What I find unworkable, however, is that the perinatal and maternal audits are placed together in the same meta-analysis. Effectively, a maternal death is given the same weight as a perinatal death, with the further assumption that the avoidable factors are the same for both. The maternal death-specific avoidable factors, such as postpartum maternal care, therefore have an upper limit for their ranking as they cannot appear in audits of perinatal deaths. Similarly, and more so, given the relatively small numbers of perinatal death audits reviewed, avoidable factors related to neonatal resuscitation and fetal monitoring, for example, do not appear in maternal death audits and therefore will be under-reported in this combined systematic review. I suggest the authors split the meta-analysis into two parts: one for maternal and one for perinatal death reviews. The common factors can emerge in the discussion. The specific avoidable factors for each will then be more correctly ranked.

3. What happened to references 12, 13 and 14 in the text?

Discretionary revisions:

4. Some more detail on the methods would be welcome in ‘Statistical Analysis and Reporting’ on page 6. Also, how did the authors decide on the wording for each avoidable factor in Table 2?

5. Over and above the problem of mixing maternal and perinatal deaths, the quantitative value of the numbers of attributable deaths is little more than a guide
to what avoidable factor is important and what is not. The avoidable factors that
don’t relate to the health care worker have been collapsed into a few large
groupings, while the health worker-related avoidable factors are many, each
reflecting a particular facet of failed clinical care, showing the hospital clinical
bias of the authors. Very different groupings may have been found if the
systematic review had been done by social scientists or emergency and transport
medicine practitioners. The non-random nature of the audited deaths has already
been mentioned. The systematic review by Pirkle et al, cited by the authors, has
pointed out the serious deficiencies in perinatal audit reports, and the potential
for selection and information bias. The authors should perhaps acknowledge that
the data has only qualitative value, with a hospital clinician focus, and that the
quantitative estimates are seriously suspect.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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