Reviewer’s report

Title: Quality Medicines in maternal health: Results of Oxytocin, Misoprostol, Magnesium Sulfate and Calcium Gluconate Quality Audits

Version: 0 Date: 25 Aug 2017

Reviewer: Hans Hogerzeil

Reviewer's report:

General comments
It is good to record the quality of essential medicines in such a systematic way - this gives interesting reading; there are not so many such studies with a general sampling frame (not focusing on suspected sample only).
I think the introduction is too long; there is too much lecturing on the use of these medicines. The research questions are not very well described.
All in all, the paper is rather long and sometimes a little repetitive (e.g. epidemiological data repeated in the discussion)

Specific comments
3/34: Is strengthening the supply chain the best solution? Or just better procurement? Is it initial quality or deterioration in the supply chain that has caused the problems? (see also below)

Methods: The description of the sampling method is rather long; can be shortened or referred to an appendix
11/35: All samples were registered. But how do you know these were not falsified medicines? They may have been fakes
19/4 When the overall level of failures is low, there is not much point in presenting the regional- or facility differences (as there are none)
20/8 Did you measure availability? I did not see any results.
20/31 I think the highest failure rate was 87%, not 25%? (figure 2)
You cannot conclude that the reason is degradation, as you did not do a longitudinal study. Other studies have concluded that the initial quality was often more of a problem than the degradation as such (see below). In any case, they can both be problematic. I personally should recommend to procure better products, properly assessed by regulators; then the initial quality is good and the resilience against high temperatures is also better. See also:
See also the latest report of the Lancet Commission on Essential Medicines Policies (Wirtz et al) (2016 online; Jan 2017 printed) - contains a detailed graph with quality results for misoprostol.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.
Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.
Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.
No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.
I recommend additional statistical review

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