Dear Editors,

Thank you very much for the opportunity to review this paper. It was an interesting read. I agree with the authors that measuring maternal mortality in low income countries with inadequate civil registration systems is challenging but essential to track MDG5.

I will characterize most of my comments below as Minor Essential Revisions.

Page 4 paragraph 1 – Omit ‘clinical audit’ as it is not one of the methods for identifying maternal mortality. It is defined as ‘Clinical audit is a quality-improvement process that seeks to improve patient care and outcomes through systematic review of aspects of the structure…’ (see World Health Organization. 2004. Beyond the numbers: reviewing maternal deaths and complications to make pregnancy safer. ISBN 92 4 159183 8). Additionally, change ‘auditing clinical practice’ to ‘maternal death audit’ or ‘facility-based maternal deaths review’.

Page 5 methods– if possible provide the ICD-10 definitions for maternal deaths and pregnancy-related deaths.


How were the deaths outside the health facilities with no history classified as maternal deaths? How did the two obstetricians ascertain these deaths outside health facilities as maternal deaths? Where postmortem exams done at Korle-Bu teaching hospital?... The more detailed the methods section, the better. The authors should not assume the readership are already familiar with the subject. The authors may also want to describe the limitation of the approach they used.

Page 6 paragraph 1 results – change ‘RAMOS deaths’. What is this referring to? Use deaths among females in reproductive age, number of women in reproductive age group...

‘Active reporting system’ was mentioned here. What is the active reporting systems? The authors are better off if they describe the methods in detail so that the readership can follow the results/findings.
Page 6 paragraph 2 results – I will not advice the authors to estimate maternal mortality ratio using this technique. One of the main limitations of RAMOS is that although it identifies more maternal deaths than routine data collection systems, it does not provide accurate information on live births. Note that the percentage of supervised deliveries in the city is expected to be higher than the Greater Accra region as a whole since typically more births in rural areas are unsupervised.

Page 7 paragraph 1 – Note that of the 179 pregnancy related deaths, 174 were maternal deaths. The % of maternal deaths due to obstetric hemorrhage is 57/174 * 100 = 32.7% and not the 31.3% stated. Note that the pregnancy related deaths of 5 as indicated in Table 3 (page 17) is an error. I will encourage the authors to define these terms – pregnancy related deaths, maternal deaths, direct obstetric deaths, indirect obstetric deaths etc in the methods section and apply them accordingly in the results section.

Page 8 paragraph 3 – Using the ICD-10 definition, the number of maternal deaths is not 179. The maternal mortality ratio in Accra is not 198/105. Sorry I keep on emphasizing this – use ICD-10 definitions.

Page 9 penultimate sentence – ‘Our study included all the main public reference maternity units...’ – again describe this in the methods section.

Page 10 paragraph 1 – ‘RAMOS deaths’. As indicated earlier, avoid use of this term.

Page 10 first sentence – This is a costly proposition. The are only a handful of pathologists in Korle-Bu and perhaps in Komfo Anokye teaching hospitals. The rest of the regions in Ghana might not have pathologists. In Ghana, one could recommend maternal death audits in the health facilities and when this is fully functional, encourage community members to report deaths at home. Ultimately, the solution is strengthening the civil registration system with certification of cause of deaths.

Page 15 Table 1 – revise table. Number of maternal deaths appears to be 9,248.

In conclusion, I hope the authors will be able to provide more information on the methods and clarify the ICD-10 definitions noted earlier so that the paper can be published.

I hope this helps.

Thank you

Samuel Mills

Level of interest: An article of importance 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