Author's response to reviews

Title: Reproductive Age Mortality Survey (RAMOS) in Accra Ghana

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Answers to Reviewer`s (Samuel Mills) comments

Page 4 paragraph 1 – clinical audit has been omitted.
– ‘auditing clinical practice’ has been changed to ‘maternal death audit’

Page 5 methods – ICD-10 definitions for maternal deaths and pregnancy-related deaths have been provided. Below are the definitions:
Ans:
● "A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes" ICD 10 definition of a maternal includes pregnancy related deaths* and late maternal deaths**.

● **Pregnancy-related Death:** The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death (ICD-10)

● **Late maternal death:** The death of a women from direct or indirect obstetric cause more than 42 days but less than one year after termination of pregnancy

● Direct maternal death: Is the death of a woman as result of a complication of the pregnancy, delivery, or their management

● Indirect maternal death: Those resulting from previous existing disease or disease that developed during pregnancy and that was not due to direct obstetric cause but was aggravated by the physiological effects of pregnancy

● Incidental deaths: Other fatalities during but unrelated to a pregnancy. They are also termed non obstetrical deaths”


Ans: The methods section has been explained further

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.
Ans: In Korle-Bu and 37 Military Hospitals there are Pathologists who carry out post mortem examinations and when a death takes place outside any health facility from natural or unnatural causes, or deaths that occur less than 24 hours of reaching a health facility post mortem examination are carried out especially in Accra where such facilities exist in order to identify the cause of death before permit for burial is obtained to bury the body. The Pathologist enters the findings into the mortuary log books which contain information about deaths taking place within and outside hospital environment in Accra. They also contain diagnosis and Post mortem report on these deaths which serves as a source of data for research activities.

Ans: The two obstetricians ascertained these deaths outside health facilities with no history as maternal deaths used information from mortuary log books to classify the deaths

The authors may also want to describe the limitation of the approach they used.

**Ans: Limitations of our approach**

- There is a possibility that ascertainment still is incomplete because of possible omission of pregnancy status or child birth mortuary logbooks which qualifies it to be classified as maternal death

- The other limitation is that our approach relied on the fact that (virtually all) women in Accra are buried, and need a death certificate. A similar study in rural areas would be very difficult to set up

Page 6 paragraph 1 results – change ‘RAMOS deaths’. What is this referring to?

Ans: Deaths among females in reproductive age has been used in place of RAMOS deaths

‘Active reporting system’ was mentioned here. What is the active reporting systems?

Ans: The active reporting system refers to prospective reporting of maternal deaths as soon as they occurred. The method has further been described.
Page 6 paragraph 2 results – I will not advice the authors to estimate maternal mortality ratio using this technique.

Ans: The estimate of maternal mortality ratio has been excluded from the article.

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 \( \times \) 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.

Ans: Using ICD 10 definitions, 4 of the 5 pregnancy related deaths have been included into indirect maternal deaths since all identified deaths occurred within 42 days of termination of pregnancy fall within the definition and the due to road road traffic accident classified as non maternal death. Table 2 therefore contains information on the 178 cases of maternal deaths and the percentage of maternal deaths due to obstetric hemorrhage has been estimated at 57/178 \( \times \) 100 = 32\%.

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.

Ans: The maternal mortality ratio has been deleted from the article because of the problems associated with the recorded live births which is not a true reflection of live births in the city.

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

Ans: The methods section has been explained further
Page 10 paragraph 1 – ‘RAMOS deaths’. As indicated earlier, avoid use of this term.

Ans: RAMOS death has been changed to female deaths in their reproductive age.

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.

Ans: The above recommendation has included in the recommendations.

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

Ans: The row containing that information has been deleted.

Thank you Sir for your constructive comments.