Reviewer's report

Title: Quality of antenatal care in rural Tanzania: Counselling on danger signs of obstetric complications and adherence to referral criteria

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Reviewer: Diederike Geelhoed

Reviewer's report:

1. Is the question posed by the authors well defined?
1.1 In general, the question seems to be well defined at the end of the introduction.

1.2 In the beginning of the introduction the authors mention the high maternal mortality and high stillbirth rates in Sub-Saharan Africa, and then go on to state that the majority of maternal and newborn deaths are preventable. While not in disagreement, this does not seem logic to me. It would be better to mention the neonatal or perinatal mortality rate for Sub-Saharan Africa rather than the stillbirth rate. (Discretionary Revision)

2. Are the methods appropriate and well described?
2.1 The methods seem appropriate in general, but their description could be improved. Why was the sampling fraction for the dispensaries only 29%? Why was it decided that two days of data collection was enough? I understand from some of the references that the data here presented form part of data from a larger study, but the considerations on sampling could be summarized here (Discretionary Revision)

2.2 I also think that it would have been very useful to include an overall view of the providers’ daily workload in this study, to assess which part of their daily time is spent on the provision of antenatal care. Perhaps the authors have this information available? (Discretionary Revision)

2.3 Was the structured questionnaire for the exit interviews also pre-tested? (Minor Essential Revision)

2.4 In the ethical considerations, it is mentioned that written informed consent was obtained from all participants. Does that means, from all ANC clients observed and interviewed, or does it also include the providers? Was there any effort made to avoid negative effects the study results might have for the participating providers? (Minor Essential Revision)

3. Are the data sound?

3.1 Regarding the first part of the question, the counselling on danger signs, the data seem sound. For the second part, the adherence to referral criteria, I am less sure, as there are insufficient data presented in the article to address this
part of the question. (Discretionary Revision)

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?

4.1 In general, yes, but as stated under number 3, I feel that the reporting on the adherence of referral criteria could be improved. In its present state, the article does not describe how many women had referral criteria, which were these, and how many of those with criteria were actually referred by the providers. It is stated in the discussion that the reference examiners did not assess the quality of identification of the risk factors. Table 3 does talk of pregnancy complications and risks, but does not state how many women had these (this information was thus not collected?), only which proportion of women were informed on these complications and risks, and then recalled that. No further analysis on these data is presented, for example, to show which category provider adhered better to the referral guidelines. Furthermore, in the results, it is not clear how many women with a risk factor were not referred. On the one hand it is stated that two clients with risk factors were not referred, on the other hand, only 63% of grande multipara and 71% of women under 20 years of age were referred. So are these not counted as risk factors, though in table 4 they are included? Could the authors clarify this issue? (Major Compulsory Revision)

4.2 As it is stated in the discussion that the local population is less likely to be impressed with demographic and historical risk factors, is there any other counselling performance of the providers for the danger signs in the current pregnancy, in other words, for risk factors that are not demographic or historical? This analysis is not presented in the article. (Discretionary Revision)

5. Are the discussion and conclusions well balanced and adequately supported by the data?

5.1 Related to the lack of data presented in the results section, the conclusion in the discussion that clients with high risk pregnancies were not informed of need for referral to hospital seems not supported. (Discretionary Revision)

5.2 The lack of data on staffing and time available for ANC consults makes it difficult to assess whether lack of staff or lack of training is a more important factor in the poor performance of providers in counselling on danger signs. In view of habitual understaffing in rural health centres in many Sub-Saharan countries, it is highly unlikely that any provider in this setting is actually capable of allowing 46 minutes for a first ANC visit and 35 minutes for a follow-up visit, given the limit of 24 hours in the day. Though in this setting perhaps the staffing related to the workload is more adequate than elsewhere, certainly the number of facilities serving a population of 240,000 seems adequate (2 hospitals, 56 dispensaries and health centres). (Discretionary Revision)

5.3 There is no further discussion presented on the rather low percentage of women informed on danger signs who recall being informed. (Discretionary Revision)
6. Are limitations of the work clearly stated?

6.1 The limitations regarding the assessment of the quality of referral are stated in the discussion, however, I feel they could be more clearly described. Why did the reference examiners not assess the quality of identification of all risk factors? (Discretionary Revision)

6.2 In addition, why use only one reference to discount the observers’ effect upon provider performance? (Discretionary Revision)

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?

7.1 In general, yes, though I would like it made more clear how the data here presented are related to the other work the author(s) have done and published in the same region. (Discretionary Revision)

7.2 Unless it is an important general review or policy article, it does not seem appropriate to still use a 1984 publication as reference in 2010 (reference number 19). (Discretionary Revision)

7.3 There seem to be quite some other recent articles which are dealing with counselling skills of ANC providers in Sub-Saharan Africa, which are not mentioned in the reference list. Is this a conscious decision, or was the literature review too limited? (Discretionary Revision)

8. Do the title and abstract accurately convey what has been found?

8.1 I would recommend to not include the adherence to referral criteria, as it is not really addressed in this study (see other comments). (Discretionary Revision)

9. Is the writing acceptable?

9.1 The use of the English language needs to be improved in the entire article (perhaps a native speaker might review the text?), and there are also several spelling mistakes in the text. In table 1 and 4 the numbers representing percentages do not have the same number of decimals (Minor Essential Revision)

**Level of interest:** An article whose findings are important to those with closely related research interests

**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