Reviewer’s report

Title: Management and referral for high-risk conditions and complications during the antenatal period: Knowledge, practice and attitude survey of providers in rural public healthcare in two states of India

Version: 0 Date: 24 May 2019

Reviewer: Junice Lirza Melgar

Reviewer’s report:

Notes on the Review of ANC Paper

1. Management and referral for high-risk conditions and complications during the antenatal period. This paper breaks new ground especially on the matter of management of HR and complications during the antenatal period hence the need for sources on such standards

2. Cite source for: Maternal death as a "consequence of the poor quality of preventive and promotive antenatal care…," (Lines 14 to 21 p 5)

3. Please consider whether the WHO reference on management of obstetric complications cited (Cit. no. 7) is appropriate for PHC provision when it is designed for district level hospitals (Lines 33-37, P.5). More appropriate reference would be Integrated Management of Pregnancy and Childbirth (IMPAC)

4. In discussing India's Guidelines on SBA (Lines 1-4, P. 6), please elaborate current Scope of Practice of different providers in the antenatal period to improve readers' understanding of expected behavior.

5. Please correct inconsistency between Objectives (lines 15 -21, p.6) which focus on assessing providers' KAP for "screening and referral" with the English summary objective, which included assessing "pre-referral treatment" (Lines 8-14, P.4) and description of study results (Lines 14 - 39, P.4).

6. For research methods, please clarify what you mean by "cross-sectional survey." (Line 47, P. 6) Does this refer to the KAP semi-structured interview? (Lines 32-35, P.7) Is it valid to derive proportions or quantitative measures from semi-structured interviews—a qualitative method? If yes, please provide references. (Lines 43-46, P. 8)

7. For research method, please clarify if the facility survey/checklist (Lines 12-15, P.18) was answered by respondents from health facilities or by the researchers based on observations.

8. On methodology, please consider using different terminologies to refer to the semi-structured interview and the facility checklist, instead of using the common term
"survey." Semi-structured interviews are usually thought of as qualitative methods, while surveys are quantitative methods. The facility checklist method is also unclear if survey respondents provided data, or if data came from researchers observations.

9. Please clarify aspects of Table 2 on childbirth services available at the facilities (Lines 1-47, P.10):
   a) Are these direct observations of the researchers or responses of facility providers?
   b) Do these refer to the actual performance of services, such as specified for EmOC signal functions, or only to the availability of providers and resources?
   c) If performed, what is the timeframe? (e.g., EmOC assessment guidelines by WHO/UN agencies require performance in the last 3 months)

10. Please explain how findings from the semi-structured interview--including the "unprompted responses" mentioned in the KAP findings (Line 23, P11; Line 19, P. 12); pre-referral management scenarios (Pp. 13-14); and referrals, (esp. Lines 31-34, P.14) -- were converted into numbers. Please discuss this in appropriate length in the section on methodology.

11. Please see if Table 3 on referral of ANC problems etc. belongs more appropriately to the Findings section rather than the Discussion.

12. Please cite basis for the proportion ("a quarter") estimated for antenatal screening of high risk and early complications in the study (lines 41-43, P.17). Please cite the methodology for coming up with the one quarter estimate.

13. Please cite basis of statement that PHCs and CHC can well manage pre-eclampsia, gestational diabetes and previous caesarean section (Lines 43-46, P. 17)

14. Please clarify confusing statements in limitations, specifically that provider practice was derived from interviews (Line 52, P. 19); but that there was no planned qualitative aspect to the study (Line 58, P. 19 and Lines 1-4, P.20); and that the KAP findings were consistent with each other and with other qualitative findings (Lines 56-58, P. 19).

15. Please cite basis for statement that reluctance to manage complications at appropriate levels can lead to overreliance on tertiary facilities and poor health care outcomes (Lines 4-14, P. 19)

16. Please reconsider the use of the term "unjustified referrals" (line 23, p.19) to refer to referrals by lower to higher facilities because of the perception that they cannot manage basic emergency antenatal and delivery care.

Level of interest
Please indicate how interesting you found the manuscript:
An article of importance in its field

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

'I declare that I have no competing interests.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license ([http://creativecommons.org/licenses/by/4.0/](http://creativecommons.org/licenses/by/4.0/)). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal