Reviewer's report

Title: Factors associated with postpartum hemorrhage maternal death in referral hospitals in Senegal and Mali: a cross-sectional epidemiological survey.

Version: 2 Date: 22 December 2014

Reviewer: Elizabeth Butrick

Reviewer's report:

This was an interesting and well-written report and I have no Major Compulsory Revisions to recommend.

There are a number of Minor Essential Recommendations that should be made:

Abstract:
line 31: recommend changing among to including
line 48: change clinician to clinicians
line 49: change More particularly to In particular; delete the word the before anemia

Background:
line 72: change are concentrated over %05 of maternal deaths to over 50% of maternal deaths are concentrated
line 75: change and are related to uterine atony in 80% of cases to and 80% of cases are related to uterine atony
line 80: add the word care after obstetric and change contribute to contributes
line 87: drop the word the and change more to More

MATERIAL AND METHODS:

Setting
line 99: change referral public hospitals to public referral hospitals
line 100: change were enrolled to participated (use of enrolled implies enrollment happened over 4 years whereas I think in fact all hospitals were enrolled in 2007 and participated over the 4 year period mentioned)
line 102-104: Delete the last sentence of this paragraph which begins with Between pre- and post- intervention periods,... This is a result of the overall study and does not belong in the setting description and is not important to the reporting of these results as it is only an analysis of the deaths in the first year.
line 107: change referral public health system to public health referral system
line 108: change referral public health system to public health referral system

Population
line 124: change to the visually estimation to to visual estimation
Study variables
line 146-147: if there are 4 categories I think there should be a semicolon after women in line 147
line 151: place a period after >35 years and begin the next line with a new sentence beginning Aspects of pregnancy, labor and delivery include:
line 159: including does not need a capital I
Statistical analysis
line 181: change within hospital to within hospitals
line 190: change missing value to missing values
RESULTS
Components of PPH management
line 212: change Women to women
line 216: change admission in to admission to
Organizational characteristics of hospitals
line 221: delete the word a between bank. skilled staff
line 232: change the word factors to components, delete the word the before PPH management
DISCUSSION
line 263: delete the word the before transfers, change the word selection to identification, and change the words before the to who require
line 270: change the words too less to insufficient
line 278: delete the word to before increase and change decision to decision-making
line 280: insert the word than after hospitals and delete the word the
line 283: add the words care providers after the word qualified
line 284-286: Revise sentence to read: The QUARITE trial showed that increasing the knowledge of clinicians by implementing training in emergency obstetric care led to a significant reduction in maternal mortality in the district hospitals.
CONCLUSIONS
line 310: change clinician to clinicians
line 313: change decision to decision-making
line 315: change transport security to transport availability and change suggest also to also suggest
line 316: change If it allows to response to It may respond to
line 317: add the word but after difficult, change allow that all to allow for all and add the word care after the word quality.
line 318: delete the word the before the word knowledge, consider adding the word gaps after the word knowledge

Discretionary Revisions:
The authors may want to consider the following discretionary revisions:

BACKGROUND:

line 75: your reference stating 80% of postpartum hemorrhages are related to uterine atony is based on high-resource settings. The work I have been involved in looking at obstetric hemorrhage in Africa found only about 30% of all hemorrhages were from uterine atony. while our studies included antepartum hemorrhages, there were also a significant proportion of hemorrhages from retained placenta and genital lacerations. I am not sure that changing this would make much of an impact or is important for this paper, but if you are trying to relate this work specifically to uterine atony you might want to consider the etiology and with such a large sample size you perhaps missed an opportunity by not breaking your data down by etiology, although perhaps it wasn't reliably available.

MATERIALS AND METHODS

Setting

In line 110 you say that all participating hospitals offered CEmOC (comprehensive Emergency Obstetric Care) but yet transfusions were frequently unavailable - hospitals that cannot do cesarean section or give a blood transfusion are considered to have only Basic Emergency Obstetric Care (BEmOC) and it sounds as if some of the facilities in your sample might actually have been functioning at that level (as is common for district hospitals in many SSA countries). IF that is so, you might want to break that down and explain it.

line 124: you describe women being included if they had excessive blood loss based on visual estimation - was there a specific threshold used? Typical diagnostic criteria for PPH is 500ml estimated blood loss following a vaginal delivery and 1000mL following a cesarian delivery. IF all of your facilities use that specific criteria you should say so. Equally if the diagnosis as just base on clinical assessment which included blood loss and patient status, but did not include a specific threshold that may explain some of the differences you saw between countries. Did your data collectors record PPh only if the clinician noted it, or did they include all patents with more than 50ml f blood loss as PPH? Explaining more clearly the criteria used may be helpful here.

Study variables

line 145: you don't clarify here how the outcomes were tracked fro transfers although you report results among transfers so you must have tracked them. Also it would be interesting to know the proportion of transfers that were transferred within the network of participating hospitals.

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.