Reviewer’s report

Title: Errors in estimated gestational ages reduce the likelihood of health facility deliveries: results from an observational cohort study in Zanzibar

Version: 0 Date: 14 Mar 2019

Reviewer: José Georgia

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General Comments

The authors address a very important issue in developing countries with high maternal and infant mortality, such as Tanzania and neighboring countries.

Access to quality prenatal care is a key factor to address this challenge and trained community health workers (CHWs) are an important fill an important need as the country finds ways to expand access for prenatal care with trained health care providers such as trained midwives and physicians with appropriate obstetrical training.

This study in trying to address a key issue, gestational age as it is essential in planning the timing of visits during pregnancy at specific periods of gestational age.

The key aim is to investigate the magnitude and impact of errors in estimates delivery dates (EDD) on health facility delivery among women enrolled in the Safer Deliveries Program.

Categories of error in estimated delivery dates compared to actual delivery date (ADD) include (a) severe overestimate, defined as 36 days or more after actual delivery date; (b) moderate overestimate, when EDD was 15 to 35 days after ADD; (c) accurate, defines as 6 days before to 14 days after ADD; and (c) underestimate, defined as 7 days or more before ADD.
It is not clear to this reviewer the rationale for the definitions of overestimate, accurate, and underestimate. Studies that led to the adoption of best obstetrical estimate in the US showed that the LMP-based estimates were 0.8 days longer on average than ultrasound.


Another consideration is that this analysis does not take into account preterm births as a reason for moderate to severe overestimate. How do the authors discriminate between error in the EDD estimate and short gestational age because of preterm delivery? For example, if a woman delivers a gestational age 34 weeks and the EDD was 6 weeks later, then EDD would fall within the correct estimate for term, but according to the categories, it would be considered severe overestimate. What this suggest that in addition to looking at errors in EDD, there is a need to identify risk factors for early delivery, such as preterm births.

The authors need to explain the rationale for their categories of error and why preterm birth was not considered in this analysis.

Another aspect to consider to describe in the methods is what is the general approach for clinically recognizing a pregnancy? Is is based on missing two consecutive periods, a pregnancy test, clinical evidence of an enlarged uterus? This is an important aspect to describe.

The discussion should consider the issue of preterm births and the potential options of educating women about the early warning signs of a preterm births and the importance of seeking medical assistance at a medical facility.

Specific Comments

Page 3, line 33-38.
This sentence misses a very crucial point and is that there is great variation worldwide in the rate of preterm births as well as of post-term births. Suggest that authors consider the following references:

Lawn et al. BMC Pregnancy and Childbirth 2010, 10(Suppl 1):S1
http://www.biomedcentral.com/1471-2393/10/S1/S1

https://www.who.int/pmnch/media/news/2012/201204_borntoosoon-report.pdf

Both reference provide more comprehensive data on the distribution of preterm births around the world.

Page 5, lines 12-17.

The authors state the data on whether the EDD was based on LMP or ultrasound and then state that it was assumed that most were based on LMP and the assumption is made that all were LMP-based. On the other hand, the authors also state that Safer Deliveries was active in six out 11 districts Zanzibar on the islands if Unguja and Pemba. This reviewer wonders if the authors can at least determine which of the six areas had access to ultrasound and which did not and look at the distribution of categories of errors on EDD between those sites with access to ultrasound and those who did not.

Page 5: Categories of error in EDD estimate. There is no rationale described for the selected categories of severe underestimate and moderate underestimate. Moreover, there is apparent consideration to the fact of preterm births, something that can be assessed with birth weight and physical assessment. Not considering preterm births is a major flaw of this categories since it does not discriminate between the error in estimating EDD and the early delivery resulting in a preterm births. This becomes evident in figure 1 that reports 42% as preterm, which suggest that this estimate is a combination of error in EDD and preterm births. According to UNICEF and the Global report on Preterm births the preterm birth in Tanzania in 2010 was 11%, quite different for the 42% estimated in this study from EDD calculated from LMP.
To report that the preterm rate was 42% based on difference of LMP and date of birth may not be accurate without an independent assessment of birth weight and gestational age based on physical exam of the newborn.

Should include in the limitations the fact that preterm births was not considered in the assessment of errors in EDD.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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