Reviewer's report

Title: Measuring newborn foot length to identify small babies in need of extra care: a cross sectional hospital based study in Tanzania

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Reviewer: Chandrashekhar Sreeramareddy

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'Measuring newborn foot length to identify small babies in need of extra care: a cross sectional hospital based study in Tanzania'

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Reviewer: Dr. Chandrashekhar T Sreeramareddy

1. Is the question posed by the authors well defined?
Yes, it is and is important for Afro-Asian countries in the context of newborn survival and MDGs.

I feel it would be better to indicate the main aim i.e. utility of measuring foot length as a screening tool (in home delivery setting) to refer low birth weight or premature (small babies) for extra care.

2. Are the methods appropriate and well described?
Yes, necessary details are and appropriate and well written. I have a few suggestions detailed further down in my comments.

3. Are the data sound?
Yes, they are.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
Yes, overall manuscript flow and content are generally good. There are a few suggestions though.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
Have a few suggestions described below.

6. Are limitations of the work clearly stated?
Authors have stated most of them clearly. Have a few comments and given them below.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
Yes, they do. However authors do not write about aim of their TRIAL ‘INSIST’ in methods.

8. Do the title and abstract accurately convey what has been found?
Authors report about data collection in both hospital on first day and fifth day follow up at home on subset of their sample. The title reads as cross-sectional hospital based study. Can the authors modify the title to convey these two components of their design? This is because measuring foot length up to fifth day has been shown to be useful.

9. Is the writing acceptable?
Yes, acceptable.

- Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)
Better to spell out the numbers when less than 10.

- Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct).

Introduction paragraph 3: last sentence.....if the authors are referring to weighing scales then there is a study from Nepal and its citation as follows: “Mullany LC, Darmstadt GL, Coffey P, Khatry SK, LeClerq SC, Tielsch JM: A low cost, colour coded, hand held spring scale accurately categorises birth weight in low resource settings. Arch Dis Child 2006, 91:410-13.”

Addition of this into your introduction would make literature review on this topic comprehensive in addition other anthropometric surrogates for birth weight. See below

“Simple anthropometric alternatives to measuring birth weight have been investigated in various Settings”. Authors may cite reference/s here.

“Moreover, despite having different aims and objectives, five out of six of the studies concluded that for high risk babies born at home, measuring foot length in the community may have advantages over other methods, such as measuring chest circumference, because of the relative lack of training required, and the lack of disturbance to the infant that undressing might introduce”.

I find this statement too long. Authors may consider breaking this into two.

METHODS:
Study Design: We conducted a cross-sectional study of newborn babies born in hospital, with a non-random subset followed up at home on the fifth day of life.

The remaining two sentences of this paragraph better fit into section Anthropometric data collection to maintain the flow of the article.

“.........Mtwara Regional hospital, “Ligula hospital”,.........” Are these two different hospitals?

Data analysis:

Chi square test for heterogeneity was done to check if the difference between two samples were with respect some variables was due to chance. I see both continuous and categorical variables here. However in table 1 the authors have categorised birth weight and gestational age into low birth weight normal birth weight etc. To be consistent authors should mention categories here in this section on data analysis.

I would also suggest that Table 1 show some summary statistics, mean/median including measures of variation. I see some this data in first paragraph on results but not about gestational age and birth weight (both day one and day five).

Did the authors use AUC area under curve to estimate the utility of foot length as screening tool? In literature (similar studies) different methods have been reported. It would be better to show Sn and Sp and PPV for different cut-off values which can be done with STATA. It would be better if the authors present this information in table 2 or in a separate table.

Moreover another method defining an optimum cut off is based on average of Sn +Sp where there is lowest misclassification rate. I read the following from Mullany et. al article “The chest circumference value that maximized the average of sensitivity and specificity was 30.2 cm.” In our study, from Nepal Sreeramareddy et. al “We choose as "optimum" the cut-point with the highest [(sensitivity + specificity)/2] ratio, i.e. the lowest total misclassification error rate”. Of course there is a trade-off between Sn and Sp.

From table 2 i see some very wide confidence intervals and low PPVs. One reason for this could be is low prevalence of for instance Very LBW (<1500 grams) in your sample. It would be better to discuss these under discussion first paragraph or in limitations.

Qualitative observations: 4 mothers who refused measurements at hospital and 8 fathers who refuse at home are Reasons for refusal.

How well do these findings concur or (otherwise) with results of findings from other studies on ‘foot-length’ should be interesting the first section of the manuscript. Also a mention about utility of other anthropometric surrogates for birth weight compared with ‘foot length’ will be useful for reader or policy maker. How is foot length superior to chest/head circumference? This could be explained. Panel 1 could be incorporated into the main manuscript.
Conclusion: The first sentence does not seem to be based on your results. Also this was not one of your objectives.

- Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached).

I did not find any major issues. So I have included my comments/suggestions under minor essential revisions.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

'I declare that I have no competing interests'