Author's response to reviews

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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Author's response to reviews: see over
Dear Dr Aldcroft,

Regarding manuscript:

MS:  5768063674303998: Measuring newborn foot length to identify small babies in need of extra care: a cross sectional hospital based study in Tanzania
Tanya Marchant, Jennie Jaribu, Suzanne Penfold, Marcel Tanner and Joanna A Schellenberg

Thank you for your email with details of reviewer’s comments, sent 1st September 2010. Please find below our responses to each reviewer. In addition, the manuscript has now been revised using track changes to make clear any changes made.

We would like to draw your attention to two requests from Reviewer Chandrashekhar Sreeramareddy.
Point 8 to change the title – a suggestion has been made in the manuscript and we are happy with either the old or new version depending on journal preference.
Point 9i to fully integrate Panel 1 into the manuscript. We had intended that Panel 1 and Panel 2 appear to be fully integrated. To underline this we have now renamed them as Figure 1 (for panel 1) and Figure 4 (for panel 2).

Do not hesitate to contact me should you required any further clarification.

Yours sincerely

Tanya Marchant (on behalf of authors)

Reviewer: Amar Taksande

Dear Dr Taksande

Thank you for your report on our manuscript: “Measuring newborn foot length to identify small babies in need of extra care: a cross sectional hospital based study in Tanzania”. Please find our response to your comments below.

1. Please include the method of measuring foot length (from which point to which point on foot).
   We have now included this in the methods section as follows:
   “Each baby recruited in hospital for whom consent was given had their right foot measured from the heel to the tip of hallux (big) toe using a stiff transparent plastic metric ruler.”

2. Why only the right side foot length was measured.
   Both the day 1 and day 5 interviewers measured the right foot in order to be sure that they were measuring the same thing. Methods used in previous studies are mixed: Ho, and Daga do not state which foot was measured, Matur and James measured the left foot, Mullany and Hirve measured the right foot. To our knowledge, no previous reports exist of a systematic difference in length of right or left foot at birth and thus the choice of foot was not expected to have any significant impact on the association between foot length and birth weight or gestational age.
   No amendment has been made to the manuscript

Review: Chandrashekhar Sreeramareddy
Dear Dr Sreeramareddy

Thank you for your report on our manuscript: “Measuring newborn foot length to identify small babies in need of extra care: a cross sectional hospital based study in Tanzania”. Please find our response to your comments below.

1. “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.”

We have amended the final paragraph in the Background section to read:

“Here we report on the first African study of newborn foot length to identify low birth weight and premature babies and give the sensitivity and specificity estimates. The aim was to determine the utility of using foot length as a screening tool in home delivery settings to identify low birth weight or premature babies in need of extra care.”

Points 2-6. No comments addressed to authors

7. “...however authors do not write about aim of their Trial ‘INSIST’ in methods.”

This was a conscious decision by the authors in order to focus reader attention on the foot length sub study and not on the rather complex INSIST trial which implements a package of community and quality improvement interventions for newborns across 6 districts. The trial reference is given should the reader wish to know more. No amendment has been made to the manuscript.

8. 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.

Thank you for this suggestion. In the manuscript we have suggested an alternative title (below) but would ask the BMC Public Health editors to advise on its acceptability.

“Measuring newborn foot length to identify small babies in need of extra care: a cross sectional hospital based study with community follow-up in Tanzania”


a. Numbers less than 10 have been spelled out throughout. The exception to this is where the text includes foot length measures e.g. 7cm.

b. The interesting reference by Mullany et al (2006) which reports on a low-cost hand held scale to classify the birth weight of newborns has not been included in the background. Rather, we have focussed here on evidence concerning the utility of measuring foot length in different settings. Amongst that evidence is the important manuscript by Mullany et al (2007) reporting foot length, birth weight, and chest circumference.

c. The following sentence is reworded to form two sentences, rather than one sentence: “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. Unlike measuring chest circumference, for example, there is a relative lack of training required, and lack of disturbance to the infant that undressing might introduce.”
d. The Mtwara Regional hospital is the same as “Ligula hospital”. The sentence has been re-written to read: “… the Mtwara Regional hospital, known as “Ligula hospital”, ....

e. The data analysis section does include definition of birth weight and gestational age categories – apologies, but it is unclear what additional information is required in the section on data analysis.

f. Table 1 has not been changed but, as requested, additional background data has been included in the text. In the first paragraph of results, immediately before the statement that there was no difference in the characteristics of the day 1 only and day 1+5 babies, the following sentence has been added: The mean birth weight was 2.9 grammes (SD 0.4), and mean gestational age was 39.5 weeks (SD 2.4).

g. As part of the exploratory analysis the AUC was calculated. However, the authors chose to focus on findings that might be more readily interpreted by a broad public health audience, such as the readership of BMC Public Health. Currently, figures 2a, 2b, and 2c show the sensitivity and specificity values for each of the different foot lengths measured and these are useful for the purpose of identifying the point at which the sensitivity and specificity overlap (i.e. are maximised). We acknowledge that there are other approaches to defining the optimum cut-off, and that we do not include all possible approaches in this manuscript.

h. It is correct that the small sample size limited the analysis of data for very low birth weight babies. We have re-written a sentence in the Discussion, Study limitation section to refer to this: “We defined ‘small babies’ both by birth weight and by gestational age but had a small sample size for analysis of the relatively rare occurrence of very low birth weight (<1500g).

i. We agree with the suggestion that Panel 1 should be incorporated into the main manuscript. It has now been renamed as Figure 1 to recognise this.

Reviewer 3
Dear Dr Weng
Thank you for your report on our manuscript: “Measuring newborn foot length to identify small babies in need of extra care: a cross sectional hospital based study in Tanzania”. Please find our response to your comments below.

Major
1. How was foot length measured in this series?
We have now included this in the methods section as follows:
“Each baby recruited in hospital for whom consent was given had their right foot measured from the heel to the tip of hallux (big) toe using a stiff transparent plastic metric ruler.”

2. The inter-rater reliability of foot length measurement using a plastic ruler should be calculated.
Only one measure was taken on each of day 1 and day 5 interviewers. It would not seem appropriate to calculate the inter-rater reliability between these two measures since one of the objectives was to examine the extent to which the newborn foot had grown. Within the same project, however, a follow-up study is currently underway which will estimate the inter-rater reliability of foot length when measured by different community members. We hope that this will provide important data on the potential for implementing foot length in resource poor settings.

Minor
1. We agree that the correlation of foot length and birth weight could be calculated for further discussion. However, we have chosen not to present this data in this manuscript. As would be expected from previous findings in other settings, the two measures are highly correlated. Yet this knowledge adds very little to our public health understanding of the potential utility: for the purpose of developing a public health tool a cut-off must be defined. With this in mind we have selected to focus on the sensitivity, specificity, positive and negative predictive values of given foot length cut-offs.