Reviewer's report

Title: Determining an anthropometric surrogate measure for identifying low birth weight babies in Uganda: a hospital based cross sectional study

Version: 2 Date: 2 March 2013

Reviewer: Alan Horn

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Many of the revisions recommended in my previous review have been addressed but there are a number of outstanding issues.

Major compulsory revisions

General

Many of the grammatical errors persist.

1. The word cut-off is not uniformly hyphenated. It should either be one word, or hyphenated through-out the text.
2. “Context-specific” and “hospital-based” should be hyphenated.
3. “Grammes” should be “grams” or “g” – uniformity is needed.

Abstract

4. 2nd line: weighing should be “weighed”.
5. 4th - and 2nd - last line first page: The values for LR and sens/spec do not correspond with those in tables 3 and 4.

Introduction

6. 1st line: “..contributes 60 – 40% of infant and under 5 mortality..” – “of” should be “to”.
7. 4th line: “into” should be “in”.
8. 11th line from end of introduction: “measureis” should be “measure is”.

Results

Under descriptive characteristics:

9. “Three hundred eighty” should be “Three hundred and eighty”.
10. The % agreement between two observers is quoted as a range for “all” the measurements: Were the two observers the supervisor and the midwife? That should be stated. It is preferable to give the agreement rate for each of the 6 different measurement types and the number of paired values compared. Kappa should be given rather than just % agreement.
11. 2nd last line page 8: should describe the “values” as “Pearson correlation coefficients”.
12. 3rd line page 9: “Foot length was the best predictor” – this statement should be in the discussion and can only be made if statistical comparison was made.
You can infer significance at a basic level by referring to the degree of overlap between confidence intervals.

13. The last paragraph of the results: The line, Likelihood ratios show that all measure are good at screening for LBW. should be in the discussion.

14. The LR and odds ration values do not correspond with the values in table 4.

15. Table 1: As p-values have now been added in full, an asterix footnote is not required.

Discussion

16. Line 9: “…from the DOR only 58% of the variation can be explained…” DOR should be r^2.

17. Last line page 9: Foot length is described as the “best predictor” but no statistical comparison with the other measurements is discussed.

18. The authors state that false negatives should be minimized with this tool – in that case, a high sensitivity, a low negative LR (ie FN/TN), and a high AUC are most important.

Comparison of means and confidence intervals suggests:

i) The AUC of FL is significantly higher than HC and TL, but the CIs of the other measurements overlap. (Table 2)

ii) There is no significant difference between sensitivity or specificity of FL, MUAC, TC and CC, while the values for HC are significantly lower than at least some of the other measurements. (Table 3)

iii) CC has a significantly higher +LR than any other measurement. Although FL had the lowest \(-LR\), there is no significant difference between \(-LR\) of CC and FL. (Table 4)

The above data suggests that the two most appropriate measurements are FL and CC. With the concerns regarding difficulty of measurement of CC, it is appropriate to recommend the use of FL as the most appropriate.

The above factors should all be discussed under results/discussion as appropriate.


Limitations

20. The potential for bias by having a single investigator performing both index and gold standard tests should be stated. Further potential for bias exists when a reference measurement is derived rather than tested prospectively, this should also be mentioned.

Conclusions

21. The wording of the first line could be revised in light of above comments. The study suggests that FL is the most appropriate predictor for LBW due to a combination of high predictive values and ease of measurement.
**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