Reviewer's report

Title: Are measures of wasting affected by hydration status in hospitalized children? A repeated measures study

Version: 1 Date: 27 June 2011

Reviewer: Nicholas Connor

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Preface: This question is of great operational importance to feeding programs which use MUAC as a filter and/or criterion for entry into supplemental or therapeutic feeding regimens. I have personally discussed the importance of this issue with experts in the field as far back as 2008. After a very brief literature review it seems that no one has actually performed this simple and logical piece of important research to date, so thanks.

- The foresight to perform inter-rater analysis of observers (especially for MUAC) is the major strength here, otherwise it would be easy for me to fault it.

- Major Compulsory Revisions

None

- Minor Essential Revisions

1. Abstract: Results paragraph, last sentence, double spacing between “admission” and “by” - delete.
2. Body: Introduction, last sentence – add space between “circumference” your parenthesis.
3. Please use “F-75” or “Formula 75” instead of “F75” to be consistent with literature

- Discretionary Revisions

1. I would like to see some gesture towards the programmatic implications of these findings, if close to 1/5 of children are wrongly classified at a district hospital level. Some researchers will note that correcting this will lower admission numbers (at least into the SAM category) and thus marshall less resources, other researchers will argue that the children who need treatment can be better cared for with properly allocated resources. Etc.

2. I would also like to see something which acknowledges your context, a hospital, in contrast to the community/villages. Sometimes during the conducting of nutrition clinics in African villages mothers will walk with their children in heat
for hours and the children become dehydrated by virtue of their travel distance alone to some extent, not (only) gastroenteritis or other illnesses. This is my observation and it has been echoed by others in the field. The thing here is the synergistic nature of malnutrition and illnesses (Scrimshaw, 1970, 1997, 2003), so if the poor nutrition caused or exacerbated the gastroenteritis/illnesses which in turn caused the dehydration… which got him into the treatment program then perhaps the measure is sound as-is.

3. Body, Introduction 3rd paragraph: First sentence: MUAC actually “directly” measures the circumference of the upper arm which is comprised of mostly lean muscle and some adipose tissue, as well as a considerable cross section of bone and blood vessels. It is a proxy measure of protein and lipid reserves/storage, and as such, a proxy measure of nutrition status. The use of the word directly struck me as inaccurate.

4. F-75 is not “aimed” at growth, but it does contain high levels of macronutrients which tissues are craving even in early stages of therapy, you might want to spell that out a little more.

5. Discussion paragraph 5: Children who lose weight even on treatment are sometimes suspected of having HIV this is not mentioned here. I imagine you would have some of this disease burden in your region. Likely not a quarter though. Interesting. Were these numbers omitted from analysis?

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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