Reviewer’s report

Title: "Stool frequency recording in Severe Acute Malnutrition ('StoolSAM'): An agreement study comparing maternal recall versus direct observation using diapers."

Version: 0 Date: 20 Nov 2016

Reviewer: Kelsey Jones

Reviewer's report:

This is an interesting study that raises an important question pertinent to all who care for inpatients with severe acute malnutrition, and (especially) to researchers in the field.

The design and methods are robust. The inclusion of a randomized non-intervention group is particularly helpful in refuting what could have been a major source of bias.

I have a few small comments that could be addressed:

1. P5 line 80; this prevalence is for children requiring admission for complicated SAM, not all SAM. The el Samani et al reference (6) is not (so far as I can see) pertinent to this point

2. Results - please provide a formal trial flow diagram, it is not immediately clear why so many children admitted to Moyo were not in the study - were they ineligible? Did they refuse consent?

3. Results: Table 1 and various - because the presence of oedema fluid affects both WHZ and MUAC (to a lesser extent), it would be best to avoid the term 'marasmic kwashiorkor' unless there are specific justifications. It would be better to include all with oedema under 'kwashiorkor' - there is an argument to provide MUAC data for such children, but inclusion of WHZ is not justifiable.

4. P11 line 187: Statistics on differences between these groups should be provided in the main body of the paper, not just in the supplementary appendix - these are the results of the randomised trial aspect of the study and are very important

5. P13 line 226: While this is an interesting finding, its significance should not be overplayed. I would remove Figure 2, or move it to supplementary - and it should only be presented alongside the same plot for d2 as well.
6. The discussion is sound, but the findings must be put into context. My interpretation of the paper is that in routine clinical practice (where surely universal use of diapers/nappies is currently unlikely to be a realistic proposition in the vast majority of programmes), clinicians should recognize the constraints around using a simple cut-off of three reported stools, and should perhaps pay more attention to the trend in frequency and other parameters in making clinical decisions (could this be investigated in your data? Are some individual mothers systematic over/under/accurate-reporters?). If the authors believe that accurate measurement of stool frequency is as important a direction for investment (including research investment) as, say, assured dietetic care and provision of F-75 overnight, then they should state that clearly and justify their opinion. For clinical trials, that there is no systematic difference in reporting versus measuring is reassuring, though for certain study designs e.g. where measurement of stool frequency is particularly critical - nappies/diapers are likely to be essential, and this may be the most important and unambiguous lesson from this study.

7. The cross-tabulation tab represent important data, but I wonder if a single B-A plot equivalent with data from both days might be a more visually informative option? (It might well look too messy!)

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

Yes

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

Yes

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

Yes

**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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