Reviewer’s report

Title: Mortality after Inpatient Treatment for Diarrhea in Children: a Cohort Study

Version: 0 Date: 31 Aug 2018

Reviewer: Merlin L. Willcox

Reviewer's report:

Overall comments:

This is an interesting study which deserves to be published. The authors have conducted a comprehensive study and analysis. A few minor revisions are required (see below), especially

- In the conclusion (of the abstract) and the first sentence of the discussion, avoid making over-generalisations from this data on the effect of diarrhoea on post-discharge mortality. This was only analysed in a subset which is not representative of the general population. Although this is acknowledged in the small print of the discussion, the headline conclusion is misleading.

- The discussion would benefit from a slightly deeper consideration of implications for policy and clinical practice. As the authors state, the risk factors for inpatient death are probably already well recognised and so this may not change practice. However risk factors for post-discharge deaths are probably less widely known. Children who have malnutrition and HIV should be being followed up. However to what extent is this practice being implemented? Is further research needed on barriers to implementation of this policy (this is probably both on the patient and on the provider side). Also, should new follow-up procedures be trialled for patients who have had prior admissions, as these were at greater risk?

Specific minor comments and corrections:

Intro: ".. since that review (up to end of May 2018), 17 additional studies reporting outcomes of treatment of children with diarrhea in low and middle income countries have been published." - I find it hard to believe that 17 studies have been published on this subject in the last 3 months?? Please check date. Was it really May 2018?

Results: line 181-182: "Signs of some dehydration and severe dehydration were present in 1,117 (24%) 182 and 1,611 (35%) children respectively" - please check - is this the right way round? I would expect "severe dehydration" to be a subset of "some dehydration". Or are these 2 separate categories? Please clarify.
Table 1: categories of temperature do not make sense. 36-39 encompasses both afebrile and febrile children. I would recommend a standard cut-off - for example 37.5°C.

What is meant by "temperature gradient"?
Please add a section to show primary discharge diagnoses for the children in each group.

We also need a table showing primary cause of death, both in those who died as inpatients, and post-discharge.

Discussion sentence 1:

"Among children admitted to hospital, diarrhea was associated with increased inpatient mortality, but not post-discharge mortality." - this needs to be qualified by saying it is not possible to comment overall, but only for children resident within the DHSS. As risk of inpatient death was much higher in children resident outside the DHSS one might presume that the same is true for risk of post-discharge death. It is likely that children resident in the DHSS are not representative of the general population because (a) they live closer to the hospital and (b) in general there are more interventions and better follow-up in a DHSS than outside it. You do point out at the end of the paragraph that those living outside the DHSS are likely to have higher post-discharge mortality - so the first sentence needs to be re-written to avoid over-generalising your results.

Discussion line 262: "children admitted with SAM and HIV infection are linked to outpatient management of these conditions upon discharge." - is there any measure of uptake or compliance with follow-up? I would imagine this would be less in those outside the DHSS?

Figures are missing titles.

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?
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Yes
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