Reviewer’s report

Title: An exploration of mortality risk factors in children with non-severe pneumonia using clinical data from Kenya

Version: 0 Date: 25 Jul 2017

Reviewer: Helena Hildenwall

Reviewer's report:

This is an interesting piece of work on the important matter on whether a WHO guideline on pneumonia appropriately identifies children at risk of dying in SSA. It is overall a well-written piece with some interesting findings. The analysis uses a variety of advanced statistical methods that, regretfully, I am not able to assess the adequacy of and I thus strongly recommend to have a statistician review the manuscript.

These are my comments:

Definitions

I suggest to help the reader by clarifying some of the key concepts in the paper, for example it is sometimes confusing what is meant by pneumonia - I believe it would be easier to follow what has been done if stating whether referring to WHO 2013 definition, earlier WHO definition, clinician's diagnosis etc throughout the manuscript. Also, please clarify that mortality refers to in hospital mortality (line 33 and others).

Comorbidities

Abstract background talks about malaria, diarrhoea and malnutrition as dangerous comorbidities but in analysis you are focusing on malaria, diarrhoea/dehydration and anaemia. Pls provide explanation or rephrase.

How is "pallor" defined? Was there any assessment of Hematocrit?

What is the reason for clustering different comorbidities into one single variable? My understanding is that pallor causes the significance of this variable since dehydration and malaria were insignificant?
In table 2, why have malaria and diarrhoea not been presented separately? Or was dehydration used as a proxy for diarrhoea?

Sampling

Since children were only included if born after 2011 there could not have been any 4 and 5 years old in the beginning of the study. This should have increased the proportion of younger children, which in turn could contribute to the fact that younger children seemed to be at higher risk of death. I think this needs to be highlighted in the discussion of results.

Also, as a potential limitation is that enrolment of children was only done from hospitals and that this group may be different from children with pneumonia that are treated at health centres or even at home. While they may be less severely sick also other factors could have influence such as tendencies to seek earlier for younger children, better socioeconomics etc. Pls discuss.

Age and respiratory rate is presumably linked and thus it would be interesting to see how the raised respiratory rate of >70bpm relates to mortality in children older and younger than 12 months. Could separate analysis for different age groups be considered?

Minor issues:

The abstract seems to be more than 350 words?

Line 29: I am not a native English speaker but to me the word "provided" seem unnecessary? Pls revise.

Line 83: the word "are" should be removed

Line 80: sub-Saharan Africa - please include abbreviation in brackets to be used later on at line 84

Line 120: the word "also" seem unnecessary

Figures need more explanation for the reader to understand them and the resolution may be inadequate (they turn out quite blurred on my printouts)
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 recommend additional statistical review

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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