Reviewer's report

Title: Deciphering risk factors for blood stream infections, bacteria species and antimicrobial resistance profiles among children under five years of age in North-western Tanzania: a multicentre study in a cascade of referral health care system

Version: 0 Date: 24 Nov 2018

Reviewer: Colin Powell

Reviewer's report:

This is potentially an important paper describing the Tanzanian epidemiology of serious bacterial blood borne infections (BSI) in 950 children less than 5 years, highlighting the high prevalence (14.9%) and the drug resistance pattern. It is too long and needs to be focussed down to the important message, and needs clearer description of the patient group studied so adequate comparison can be made with other studies.

1) The methodology really needs focus on the key process of recruitment and define the patient group. What are the clinical signs and symptoms of BSI used in this study? what definitions were used to identify these children for recruitment and exclusion? were children with pneumonia, UTI, meningitis included or excluded? -if they were, how did they define BSI and differentiate from those presenting with sepsis from other causes?

2) What was the denominator? -how many children were excluded for having some signs and symptoms of BSI -this is usually a clinical decision -what made the clinicians decide to include and how many clinicians were involved in the study -how reproducible would this decision be amongst many clinicians? This is crucial in order to make a judgement about prevalence the denominator needs to be clearly defined. Any analysis and interpretation is affected by this data.

3) How many children were vaccinated immunised?

4) The abstract needs to describe and reflect comment 1

5) The introduction needs to be focussed into three sections. What is the problem, where is this work going to define things further and what is the aim?

6) Sample size needs to be spelled out further. what were they trying to estimate a sample size to show. What outcome were they exploring to define the sample size?
7) Were any other microbiology samples sent off?

8) the discussion needs to be focussed down. What have the team shown? How does this work add to the current knowledge? and most importantly what are the strengths and weaknesses of the study where is the possible sources of bias how could this have effected their conclusions? How has the microbiological techniques used used here compared to other studies? How did the recruitment process effect their conclusions and final estimate of prevalence and MDR

There are some important data here but lost in the size of the paper and methodological description lacks so any comparison with other work is hard.

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

No

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

No

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

No

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:

Needs some language corrections before being published
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