Reviewer’s report

Title: Bacterial meningitis in children under 15 years of age in Nepal

Version: 2 Date: 2 March 2015

Reviewer: Linda Hoang

Reviewer’s report:

This manuscript attempts to provide unique information on the prevalence of bacterial meningitis identified in a hospital in Nepal. This adds value to the limited body of information of descriptive epidemiology from developing countries, let alone Nepal.

Overall, I recommend this manuscript to be accepted, but with the following revisions:

Major Compulsory Revisions

1. The authors seem to want to present a prospective descriptive epidemiology paper on the prevalence of bacterial meningitis seen at their institution. Although it is important to recognize that the ability to identify confirmed cases is influenced by the epidemiology, it is not clear in the manuscript whether the authors are simultaneously evaluating a latex agglutination assay against conventional gram stain and culture methods. If the latter is the case, the authors need to identify this as a separate objective and report the validation results appropriately.

2. It would be valuable if this manuscript is focused on and details the situation at this institution in Nepal and the community it serves. Any background trends or lack of surveillance trends of bacterial meningitis or any of the associated pathogens should be mentioned. Are any of these reportable to public health? What is the vaccination rate in this community? What are the vaccines that are recommended and to whom—ie describe the vaccination program offered to the community this centre serves.

3. Case definitions are recommended to account for confirmed, presumptive positive and suspected cases. This would potentially account for lab test negative cases of bacterial meningitis.

4. There is no mention of CSF profiles (glucose, proteins, WBC count) which are strong indicators for bacterial meningitis.

5. The interpretation that mortality rate of H. influenzae being greater than the other bacterial organisms is incorrect based on the data presented. The majority of identified cases were due to H. Influenzae as per the authors results but the 3/7 cases died compared to 1/2 (50%) of cases with Neisseria spp. Please review and correct results interpretation for mortality.
6. Was Neisseria species further serotyped? If so, please provide serotype results.

There was mention that serotyping was performed for Neisseria species and H. Influenzae. Please provide results.

7. Lines 194-5 Under "Antibiotic susceptibility pattern of isolates" in Results is not a typical way to present susceptibility data. Organism specific susceptibility profiles are more helpful. It would be of value to compare what was found against background antibiogram data if available and if not, against similar species from other developing countries vs developed countries.

8. Line 206: the statement "viral meningitis...are similar to the common flu" is incorrect.

9. Line 207-8: this statement refers to trends in western countries. Again, it would be of greater value to the reader to have reference to local trends in Nepal.

10. Lines 211-213.again it would be of value to clarify that CSF culture, etc is the available methods available at this centre. The standard of practice in most developed countries for the diagnosis of bacterial meningitis is PCR, but this may not be possible in many parts of the world. The statement in lines214-6 should be stated up front in the background .

11. Line 234 is incorrect.

12. Line 309 is incorrect.

13. What is the mortality rate of culture negative case?

Minor Essential Revisions

1. Briefly describe the information collected in the questionnaire.

2. Spell out commercial product details. Eg. Latex agglutination kits, serotyping assays, etc

3. Section Antibiotic Susceptibility test: was appropriate CSF breakpoints used?

4. Ethics section can be moved up towards beginning of methods when the population and patient selection protocol was discussed.

5. Line 160. Not clear which screening method is referred to here.

6. Data analysis section. There is mention of Chi-square analysis in the methods, no analysis was identified in the results section.

Discretionary Revisions

1. Line 62-4: suggest instead recognizing that molecular methods is the gold standard, however, under resource limited environment, gram stain followed by culture has a sensitivity and specificity of ......
2. Line 65: "the current standard in Nepal...."

3. If the focus of this manuscript is to do a prospective descriptive epidemiology of bacterial meningitis, detailing laboratory methods, particular methods that are standard is not necessary. Lines 110-126 can be reduced.

4. Line146-50: suggest summarize as " as per manufacturers instructions). But a manufacturer needs to be provided.

5. In results, suggest being consistent when reporting numbers. Eg: Use one decimal point throughout.

6. Discussion is too long.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

No to all