Reviewer’s report

Title: Longitudinal analysis of ear infection and hearing impairment: findings from 6-year prospective cohorts of Australian children

Version: 1 Date: 12 November 2012

Reviewer: Hasantha Gunasekera

Reviewer’s report:

Minor Essential Revisions:

Abstract: The terms "ear infection" and "hearing problems" need to be defined as parent report.

Methods: The statement about ear infections needs to be corrected. Parental reported ear infections will include acute otitis media, otitis media with effusion (glue ear), chronic suppurative otitis media or dry perforation of the tympanic membrane. It might also include other ear diseases but these will be much less frequent than the above conditions.

Results:

Table 1: There is a mix of parent and child characteristics here. The presentation of this table could be tidied up to make it easier for the reader (the top section could all be parental factors and the bottom section all child factors). For example, rather than:

"Study child – sex Female
Study child – indigenous status Study child – yes"

...why not just have:

"Child characteristics:
Female % (n)
Indigenous % (n)" etc

Table 5: The first column could be made a little clearer "Number of ear infections reported between the questionnaire @ 0 to 1 year and 6 to 7 years"

Discretionary:

1. Is the question posed by the authors well defined?
   This is a study examining the relationship between parent reports of ear infection and later parental report of hearing problems.

2. Are the methods appropriate and well described?
   The limitation in the study is the parental reporting, rather than objective examination for ear disease and for hearing impairment. However, the study
provides valuable data on longitudinal associations between ear disease and hearing impairment. Cross sectional data clearly shows the association between ear disease and hearing impairment.

3. Are the data sound?

The data are presented as Adjusted ORs, which is appropriate and the factors included in the adjustment are appropriate given the feasibility of large scale cross-sectional study methodology. A History of ear disease/hearing impairment and a family history of ear disease and hearing impairment, smoking and many other factors might also be associated with ear disease prevalence. However, as this is a longitudinal analysis the important issue is whether there is an association between existing ear disease and subsequent hearing impairment (so the prevalence of risk factors causing the prevalence ear disease is less important).

It is appropriate that indigenous status was used when adjusted ORs were calculated. However, as Indigenous Australian children have the highest prevalence of OM in the world and non-Indigenous Australian children have among the lowest prevalence of OM in the world, there would be justification in a separate analysis of Indigenous versus non-Indigenous children.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?

Yes

5. Are the discussion and conclusions well balanced and adequately supported by the data?

The discussion needs to elaborate on the potential for recall bias (parents who are more likely to complain about ear disease being the same parents who complain about hearing impairment could result in associations). The fact that this study is based on parental report also makes prevalence estimates highly problematic.

6. Are limitations of the work clearly stated?

See above.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?

It would be appropriate to cite Amanda Leach’s study in the Top End showing early colonization and the association with long term otitis media would be appropriate.

8. Do the title and abstract accurately convey what has been found?

Yes

**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: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests