Reviewer’s report

Title: Absent otoacoustic emissions predict otitis media in young Aboriginal children: a birth cohort study in Aboriginal and non-Aboriginal children in an arid zone of Western Australia

Version: 2 Date: 27 May 2008

Reviewer: Mark Haggard

Reviewer’s report:

The presentation of this work has been considerably improved and it would have some value in published form.

I am still unimpressed by the lack of clear conceptualisation and expression of the argument. This is fundamentally a routine service audit but with some new instrumentation tacked on rather than thoroughly designed new research. It is not to be criticised for that as in the present funding environment this is the only way that many people can push knowledge forward. However, criteria do then have to be set in terms of novelty, sample size, tightness of argument and general quality.

I sympathise with the dilemma that there are are two stories in here, somewhat conflicting in terms of message and audience: the population need and the technological possibility.

For very young children it is already known that only high-frequency variants of conventional tympanometry give reliable results, so standard tympanometry here can be seen only as a follow up marker. I am not saying that the authors mislead, only that the these truths that the reader needs are fudged to bolster the apparent adequacy of the work rather than being starkly stated at the start to educate the non-specialist reader. The article does not refer to these high-frequency variants as the appropriate comparator for judging whether or not the additional early prediction of OM histories from OAE is specifically strong. The authors cannot be blamed for not having that other instrumentation to hand, but in terms of conclusiveness it would be better to represent the present findings as somewhat preliminary. The recommendations for further research logically therefore should divide into two phases: (a) replication of the present result and direct comparison with high-frequency tympanometry as the comparator, including an analysis of metric problems: whether, given that the fundamental physical reason for the “problem” response is the same, the advantage of OAE may be due to a more continuously graded or wide-range response ; (b) later health economic evaluation of a whole programme of early intervention based on the more predictive of the two types of instrumentation. The present manuscript refers to the advantages of early detection and we must consider this further but ultimately the thing needing real-world evaluation is not so much the fine issues of accuracy of the screen technique which (a) ought largely to have addressed,
but the net health gain, in relation to its cost, from identifying and intervening. Vaccines are mentioned but so far with these vaccinations the evidence points more to a policy of universal vaccination, and not of screening to find an at-risk sub-population, because the individuals with the early histories do not produce a good immune response anyway to some of these vaccines.

The reason for doing the study (or at least for adding the OAE technique to the field service) is not as clearly stated as it could be. Isolated facts are stated but not framed into an intelligible argument. Put simply, the results of citations 16 and 17 do not agree at an overall level therefore there is a justification to acquire further information.

In relation to this information need the study's less conclusive than made out. Table 4 does not contain an interaction test for the cross-over in magnitude of hazard ratio with age as between Aboriginal and non-Aboriginal groups to justify the discussion of sub-groups as legitimate. In other words it is not clear that the disaggregation by age or by ethnic group or both is really justified. The CIs rather suggest that it may not be and that a fair description of all the data might be a hazard ratio of about 1.5 for all sub-groups. It could be stated that the first 3 months is not a sensible time to do this screen anyway, but that merely makes those into background data and the above general comment still applies. Alternatively only one figure is of real application interest the 2.64 for the older Aboriginal children and the discussion should move to (a) how the conflict with one of the previous two studies is to be best resolved, and if this estimate is to be taken as good enough for projecting whether it is high enough to base a screen on.

Small points

Throughout: Indigenous is not a particular name so should not receive a capital letter.

P5 It is OK to impute when one ear data is missing as this is inevitable in a field study. However some indication should be given of the prevalence of missings and the reasons for them: also whether; they are even-handed or biased (falling in a particular group).