Reviewer's report

**Title:** Community-based infant hearing screening in a developing country: parental uptake of follow-up services

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**Reviewer:** Karl White

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The article appropriately points out that “universal newborn hearing screening is now considered an essential public health care for the early detection of disabling life-long childhood hearing impairment globally.”

The stated purpose of the study was to “determine factors that may inhibit effective maternal/infant participation in community-based infant hearing screening programmes in a developing country.” The study was a good first step in addressing these issues, but much more work is needed. Consequently, it would be better to reword the goal of the study so that it is clear that the study was only designed to begin addressing this goal by examining whether there were differences between those that completed and those that did not complete follow-up screening and diagnostic services with regard to the following 10 demographic variables and 5 variables related to the newborn:

1. Maternal Age
2. Ethnicity of the mother
3. Marital Status
4. Parity
5. Religion of the mother
6. Religion of the spouse
7. Education of the mother
8. Education of the spouse
9. Occupation of the mother
11. Chronological age of the baby at time of first screening
12. Gestational Age
13. Sex of the baby
14. Place of delivery
15. Whether there was a subsequent hospital admission during the first 28 days of life.

These variables are important and the data need to be reported. But it is
important that the reader understand that these are not a comprehensive set of variables related to “characteristics of mothers” and some were measured quite superficially. For example, we don’t know anything about income, or health of the mother, or number of children in the family, or how far away from the screening site the family lived, or whether they had transportation, or how they felt about the important of detecting hearing loss. Some of the variables that were measured had so little variance that they were not very useful (e.g., maternal age and ethnicity) and occupation of the mother and the spouse was measured in a way that it was not very useful for the purposes of the study.

Given the limited set of variables that were measured, it cannot be said that the study has successfully compared the “characteristics of mothers who did not complete the screening process with those who completed to identify factors that may help to improve prescreening parental education and counseling towards minimizing loss to follow-up….“ Instead it would be better to say that the study began to investigate these variables, found very few differences on these variables, and now it is important to explore other variables that may be related to loss to follow-up.

The authors reported that the only variable for which there was a difference between those that completed subsequent hearing testing and those that did not, was that those born outside of the hospital were more likely to complete subsequent testing than those that were born in a hospital. It would be good to have more discussion about the reasons as to why this variable may have differentiated between those who completed and those who did not. In further discussion, the authors concluded that an “elaborate public awareness initiative” was needed, that using cell phones to remind families about follow-up appointments reminding families to return would be useful, that spouses had a lot of influence on whether the mother returned for recommended followup, and that hearing screening follow-up should be linked to immunization clinics. Although these are interesting hypotheses that should be explored further, it should be made clear in the discussion that they are only hypotheses and there is no empirical support in the data collected for this study that would support those hypotheses. That doesn’t mean that it is inappropriate to present these hypotheses, because they are plausible and they need to be tested. But as it is currently written, the article offers no empirical support for these hypotheses.

There are several other statements made in the article that should be adjusted or clarified. For example,

“This study also suggests that the reasons for this practice are less likely to be associated with low education or low literacy levels as only a few of mothers had little or no formal education”

Literacy was not reported in the article, and the fact that so few mothers had low education levels means that the variable could not be tested adequately. Therefore, it would be appropriate to say that this is an important variable that needs further investigation, but the conclusion as stated is unwarranted.

“…some health professionals still doubt that infants can be reliably tested until
they are older.”
I don’t doubt that this is true, but no evidence is given in this study and no reference is made to other studies that have investigated this.

"It was also unlikely that poverty was a significant barrier as all the services under this programme were offered free of charge.”

Nothing in this study examined whether poverty was associated with whether mothers were likely to return for follow-up testing. The fact that services were offered free of charge, does not address this question. There are many factors associated with poverty that could have interfered with returning for follow-up testing. For example, poorer mothers may have less time to come for what they view as optional health care appointments or they may not have money for transportation.

“A significant finding in this study was the better return rate among the population of infants attending BCG immunisation.”
This is a very important variable, but was not addressed in the data that were presented.

In the conclusion to the article, the authors note that “factors other than those examined in this study could have accounted for these poor return rates” Factors noted include unfavorable attitude and superstitious beliefs toward deafness, support of the spouse, whether they are participating in an immunization clinic and whether the mother uses a cell phone. These are interesting ideas and should be examined in further research, but it should be made very clear in this article that these variables were not tested (based at least on the data now presented).

In summary, the questions posed by the authors are important and the study makes a valuable contribution. The methods are appropriate and well described and the data are sound. My major concern is that the authors are not a clear as they could have been on which conclusions are supported by the data in the study and which are conjecture or hypotheses for further research based on their judgment and experience. It is important that they make it clear that this study is just the first step to investigate why there is such a big problem with loss to follow-up in this newborn hearing screening program. As such, it provides important information about the variables that were investigated. Based on their experience and other reports in the literature, the authors suggest a number of other variables that could be accounting for loss to follow-up, but it is not always clear that these variable were not investigated as a part of this study and several of the recommended “solutions” for the problem (e.g., a media campaign, linking newborn hearing screening with immunization clinics, using cell phones to remind parents of appointments) were not tested as a part of this study (although they are sensible)

It is an important article and deserves to be published, but addressing the issues
noted above would significantly strengthen it. The attached WORD document with comments gives a number of other suggestions that could be considered.