Reviewer’s report

Title: Are we doing enough? Evaluation of Polio Eradication Initiative in a district of Pakistan’s Punjab province: a LQAS study

Version: 2 Date: 29 September 2009

Reviewer: Kathryn Alberti

Reviewer’s report:

The changes made to this manuscript render it a more comprehensive and clearer article. Information is now provided on both standard immunization activities and the national immunization days for polio. The choice of LQAS as sampling method was appropriate and the additional information provided allows the reader to more clearly understand the method as applied to the vaccination coverage aspects. As suggested by the authors, it is of interest to provide data at the district level and to develop recommendations for local improvements.

However, more explanation is still needed in the use of LQAS in the evaluation of logistic management and service delivery and "acceptance" or "rejection" of whole areas. It is also questionable if the combined values are valid.

Major compulsory revisions

1. Please explain more clearly the decision making for accepting or rejecting lots for logistical management and NID service delivery. Was the acceptance or rejection based on the compliance score – acting therefore as a lot size of 15 and 14 respectively? Also please explain better the lower and upper thresholds as was done well in the methods section for vaccination coverage. Using Sample LQ with the explanation as given, I do not find the same cut-offs.

2. Although individual lots are frequently used to evaluate local vaccination programmes, combined data is usually done for a whole area and are not usually samples of the larger area. Additionally, the use of ‘rejection’ or ‘acceptance’ of whole areas is not usually given and it is unclear how these terms are applied here. Alternatively, the combined results could be viewed as a standard EPI survey, but individual children, not households would have to be considered for NID coverage.

3. For the non-vaccination coverage aspects the overall numbers are even less clear. If the overall score (see point 1) was used as the equivalent of the ‘sample size’, I am unclear how overall averages for characteristics are used and how the status would be calculated. I think tables 3 and 4, 6 and 7 should likely only show the equivalent of the first column.

Minor essential revisions

1. Please explain why a smaller sample size and therefore a higher level of error
was accepted for the NID coverage results and quality of service delivery (combined error of 19 - 30%) as compared to the routine vaccination coverage results (combined error 0%).

2. Please explain why the lower threshold of 80% was used for regular vaccination service delivery, but 90% NID service delivery.

3. On page 5 the reference to the WHO guidelines and the references of the manufacturers of Sample LQ and EpilInfo are missing (this referencing was done correctly later in the article for SPSS)

4. In the methods section (page 6), please confirm that the accuracy level of +/- 3 and 95% CI is for the overall vaccination coverage, whereas the figures in brackets refer to the producer and consumer errors per lot. If so, how are the sample sizes different for the regular and NID vaccination?

5. Can you please confirm that the PHCs for logistics management and quality of monitoring were selected randomly?

6. Can you please verify that it was always the central households of each village that were selected and that the random walk method was not followed? (page 7 in data collection section). If this is true, the central selection should be mentioned in the limitation section.

7. In the results section, when describing the characteristics of families, you use the word majority, while most of the characteristics presented are for less than 50% of families. Just removing the word majority would make this more consistent.

8. Based on the acceptance and rejection levels and the high overall error accepted for most of the factors evaluated, I believe that the reader would benefit from a description of the interpretation of the results. For example, all higher thresholds chosen were 99%, a very high level and rejection was in many cases based on a 90% threshold. For example, for NID coverage 15 lots were rejected – explaining that this means that they had below 90% coverage might help the reader.

9. The last parts of the paragraph on limitations are not limitations, but suggestion (use of LQAS for example).

Discretionary revisions

1. On page 4, what does ‘virus contained in only 18 of 120 districts mean? May I suggest with virus found in only 18 of 120 districts? Unfortunately virus in not easily contained by boundaries.

2. On page 5 what are ‘characteristics’ of child’s immunization status? Does this refer to characteristics of the families?

3. In the Discussion and Conclusion section, in the 4th paragraph, I do not believe that the comment on exposure to high temperature in Australia adds anything to the discussion; the point is well made without this addition.

4. In the Discussion and Conclusion section, there is a sentence about the linking of immunization databases in Pakistan with a comment that the feasibility has
been established. What does this mean – is it feasible and this would improve the data quality? How does this link to the next section? What are you suggesting should be done?

5. You mention that the goal of the NID is to reach non-vaccinated children. You clearly provide the NID vaccination coverage, do you have any information on the proportion of children vaccinated during NIDs who had not previously been vaccinated? This would be an additional interesting result.

6. Although interesting, in my view the recommendations made should be more strongly linked with the results of the survey. New subjects seem to be raised (such as re-evaluating zones and incentives for medical students) which are not linked to the survey results. The conclusion would be stronger if those elements clearly identified in the survey, such as lack of vaccines and poor information are more strongly highlighted.

**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:**

I declare that I have no competing interests.