Author's response to reviews

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

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Author's response to reviews: see over
Cover Letter

Honorable Editor
BMC Public Health

We are pleased to submit the revision for our article MS: 6047041952935262 Evaluation of coverage and quality of service delivery during national immunization days: a LQAS study in a district of Pakistan's Punjab province. As suggested by you we have merged the manuscript regarding routine immunization services in this article and it is now titled “Are we doing enough? Evaluation of Polio Eradication Initiative in a district of Pakistan’s Punjab province: a LQAS study.”

We have tried our best to address the points raised by the reviewers. We hope you will find the revised version worth publishing.

Please let us know about further changes that are required.

Sincerely
Authors

Response to editor’s comments

We are indebted to you for your valuable comments to improve the article.

As suggested by you, the manuscript regarding evaluation routine services has been merged with this article. We hope that you will find the article much clear and organized now – as it now includes the complete results of the project (both routine services and NIDs). And we hope you will find the article much more significant.

The article is thoroughly revised. Background content is added in manuscript.

Approvals for study were granted by Ethical Review Board of Allama Iqbal Medical College, Lahore, Pakistan and Department of Health, District Government Nankana Sahib, Punjab, Pakistan. (also updated in manuscript)

Questionnaires used in study have been included as annexes (Annex 6).

All the reviewer’s comments have been taken into consideration and we have tried to clarify all. Please let us know if any further changes are required. Since the article has been entirely updated now, many ambiguities may have been clarified. We have tried our best that we adhere to your guidelines in newly added sections in manuscript.

Response to reviewer’s comments: Jeffrey Partridge

We are indebted to you for your valuable comments to improve the article.
The article has been thoroughly updated. On editor’s suggestion, manuscript regarding evaluation of routine services that was the part of this project and was submitted to BMC Public Health as separate article has been merged with this article and it is now titled “Are we doing enough? Evaluation of Polio Eradication Initiative in a district of Pakistan’s Punjab province: a LQAS study.” We hope that you will find the article much clear and organized now – as it now includes the complete results of the project (both routine services and NIDs). And we hope you will find the article much more significant.

All the comments made by you have been taken into consideration and we have tried to clarify all. Please let us know if any further changes are required. Since the article has been entirely updated now, many ambiguities may have been clarified. We have tried our best that we adhere to your guidelines in newly added sections in manuscript.

**Major compulsory revisions:**

**From the Methods section**

Methods section has been thoroughly revised according to your comments, and we hope it is much clear now:

Sample was separately taken for assessment of routine and NIDs coverage, logistics management and quality of monitoring system, and quality of NIDs service delivery.

*Sample for routine and NIDs coverage*

For routine and NIDs coverage, 20 lots of the catchment areas of 20 primary health centers (PHCs) were randomly selected - having a population of 516,918 and approximate population in each lot was 20,000-30,000.

Study subjects for assessment of routine OPV coverage and characteristics of child’s immunization status included 1080 children aged 12-23 months from 20 lots. Statistical parameters included accuracy level of ±3, confidence level of 95%, total sample size of 1080, target population of 58,906 (children aged 12-23 months in district), sampling fraction of 1.8%, number of lots of 20 (randomly selected PHCs from district), minimum lot sample size of 54, low threshold level of 80%, high threshold level of 99% and decision value for lot rejection >3 unimmunized children (P:99%=100%, P:80%=100%, Error=0%).

Subjects for NIDs coverage assessment were all children under-five present in 420 households in 20 lots. Statistical parameters included accuracy level of ±3, confidence level of 95%, total sample size of 420 households, number of lots of 20 (randomly selected PHCs from district), minimum lot sample size of 21 households, low threshold level of 90%, high threshold level of 99% and decision value for lot rejection >0 household having one or more unimmunized children (P:99%=81%, P:90%=89%, Error=30%).

*Sample for logistics management and quality of monitoring system*
Out of 70 primary health centers (PHCs) in District Nankana Sahib, 20 PHCs were evaluated for logistics management and quality of monitoring system in health facilities. Decision value for lot rejection was >0 (P:99%=82%, P:80%=99%, Error=19%) and based on compliance score for logistics management (scale=0-9) and quality of monitoring system (scale=0-6).

Sample for quality of NIDs service delivery

Static center at each of 20 PHCs and one randomly selected mobile team from their catchment area was evaluated for quality of NIDs service delivery. Decision value for lot rejection was >0 (P:99%=82%, P:90%=88%, Error=30%) and based on compliance score for quality of NIDs service delivery (scale=0-14).

One of your concerns was why not all PHCs selected. Since the PHCs are scattered over a large area and it is not feasible to sample all PHCs. And wherever LQAS has been exercised in Pakistan for example for MCH services evaluation by PAIMAN (a USAID-sponsored project), 19 lot design was followed i.e. they selected randomly 19 lots from a district.

The 20 lots were randomly selected and in calculating overall estimates, the total and target population of these 20 lots was considered, also stated now in methods.

The detailed statistical parameters for sample estimation have been included in methods section.

Hope your concerns regarding sample estimation, ambiguities in decision values and households are clarified.

The compliance score was calculated for each lot considering present/maintained characteristics. For example, if in a lot 5 out of 6 characteristics were present/maintained the compliance score for that lot was 5 and the lot was rejected/accepted according to decision value. The denominators for logistics management, quality of monitoring system and NIDs service delivery were different and three different compliance scores for these were calculated. Since one static center and mobile team was evaluated in a lot, so the lot was accepted/rejected considering the compliance score computed for NIDs service delivery that accounted 11 characters from static centers and 5 characters from mobile team.

Subjective nature of data is stated in limitations section.

From the Results section

The unadjusted figures have been removed from tables, results and discussion.

Minor essential revisions:

From the Background
The background section has been revised according to your comments:

There are 120 districts in Pakistan. Yes the number of infected districts also increased in 2008, from 18 in 2007 to 49 in 2008. And regarding WPV type 1 and type 3 cases, there was no change in one or another genotype and it is updated in manuscript as: “By 2007, number of cases remarkably decreased to 32, including 19 WPV type 1 and 13 WPV type 3 cases, and polio eradication was very near with virus contained in only 18 of 120 districts in Pakistan; but polio resurged in 2008 involving 49 districts with 118 reported cases, including 81 WPV type 1 and 37 WPV type 3 cases – higher than in any of previous six years.”

The sentence regarding GPEI targets has been changed to: “Pakistan reportedly achieved all targets set in GPEI strategic plan but virus transmission could not be interrupted.” And data on routine coverage is now the part of manuscript.

From the Discussion section

According to your comments, the statement suggested by you is included. Since the results and discussion of routine services is now included in article, statement about generalization may be appropriate.

From ANNEX 1

How a household will be considered unimmunized is explained in footnotes (and also in methodology).

Unadjusted figures have been removed.

The columns regarding calculation of a weighted average have been removed.

ANNEX 2

Actually the questionnaire included 26 characteristics and we excluded less important characters. We have now removed the characters not included. However, questionnaires used in study have been annexed.

Discretionary revisions:

From the Background

We agree with you that big picture data is essential. But we have included this statement to stress importance of small scale studies providing a more in-depth analysis that are lacking especially in this part of world.

From the Conclusions section:
We agree with your statement. Perhaps after reading the newly included sections, you may find this justified.

**Figure 1 (Map of Punjab)**

This map is a bit busy and may not be necessary but it gives an idea about exact location of the district where the study was conducted.

**ANNEX 3**

It was included to indicate the originality of study; however, we agree with you and removing annex 3. However, editor has asked to provide study instruments so that would be annexed.

**Response to reviewer’s comments: Kathryn Alberti**

We are indebted to you for your valuable comments to improve the article.

The article has been thoroughly updated. On editor’s suggestion, manuscript regarding evaluation of routine services that was the part of this project and was submitted to BMC Public Health as separate article has been merged with this article and it is now titled “Are we doing enough? Evaluation of Polio Eradication Initiative in a district of Pakistan’s Punjab province: a LQAS study.” We hope that you will find the article much clear and organized now – as it now includes the complete results of the project (both routine services and NIDs). And we hope you will find the article much more significant.

All the comments made by you have been taken into consideration and we have tried to clarify all. Please let us know if any further changes are required. Since the article has been entirely updated now, many ambiguities may have been clarified. We have tried our best that we adhere to your guidelines in newly added sections in manuscript.

**Major compulsory revisions**

A list of all the villages/wards was obtained from the District Department of Health and three villages/wards in each lot were randomly selected as sampling point areas, using EPI Info 6. It has been stated in manuscript and details included in annexes (annex 5).

The detailed statistical parameters for sample estimation have been included in methods section.

Sample was separately taken for assessment of routine and NIDs coverage, logistics management and quality of monitoring system, and quality of NIDs service delivery.

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Hope your concerns regarding sample estimation, ambiguities in decision values and households are clarified.

Since the article is entirely revised and two manuscripts were merged, the qualitative part is excluded for clarity.

Minor essential revisions

Dates of the study have been included.
Total population of the catchment areas included in the survey was 516,918 and approximate population in each catchment area was 20,000-30,000. It is stated in manuscript now, and details are in annexes.

Confidence intervals have been included for both routine and NIDs coverage estimates.

Approvals for study were granted by Ethical Review Board of Allama Iqbal Medical College, Lahore, Pakistan and Department of Health, District Government Nankana Sahib, Punjab, Pakistan. (also updated in manuscript)

Data was entered and analyzed using SPSS version 17 [SPSS Inc. Chicago IL, United States: 2008]. (also stated in manuscript)

Use of decimals is now consistent throughout the article.