Author's response to reviews

Title: New Birth Weight Reference Standards Customised to Maternal BMI and Sex of babies from South India

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Author's response to reviews: see over
Response to Reviewer’s Comments:

Title: New Birth Weight Reference Standards for Indian Babies

Date : 11 Aug 2012

Reviewer : Mathews Mathai

Comments:

Major Compulsory Revisions:

Comment 1:

1. The current draft includes two sets of birth weight centiles based on sex of infant and birth order. Having two separate sets of tables (Tables 1 and 2) to classify an infant is unlikely to be useful in clinical practice. Instead the four sets of birth weight centiles would be more useful – first born male, first born female, later born male and later born female and the authors should reanalyze their data along these lines.

Response 1:

Now we have revised the analyses based on the above comment and also based on the comment 3. That is, we have produced four tables of reference (first born male, first born female, later born male and later born female) and centile graphs. Also based on the same suggestions, these centile graphs were generated for maternal BMI classifications (Underweight, normal, Over weight and Obese). Thus there are sixteen more centile graphs generated.

Comment 2:

The Birth weight of later born infants is on average less than that of first born infants. This is contrary to other published reports on birth weight and needs clarification.

Response 2:

Based on the revised analyses the mean (sd) of the first and later born infants was 2784 (564)g and 2907 (569)g respectively. The later born is over 100g more.
Comment 3:

Have the authors studied the effect of other factors e.g., maternal height and weight on birth weight? Corrections for maternal size are usually required when using adjusted birthweight centiles.

Response 3:

Based on the above suggestion, now we have stratified the BMI into 4 categories (Under weight, Normal, Over weight and Obese) and the centile graphs were generated separately for each (first born male, first born female, later born male and later born female). Thus the effect of BMI has been adjusted through stratum specific approach. These centile graphs will be made available in the web environment.

Comment 4:

Less than 3% of births were excluded because of maternal risk factors likely to affect birthweight. This seems small for a referral institution and should be clarified.

Response 4:

Now inclusion and exclusion criterion has been revised and reanalyzed.

Maternal risk factors such as (Hypertension, Diabetes and others) = 3718 (19%)
Age exclusion = 1135 (5.8%)
Gestational Age exclusion = 774 (4.0%)
Outliers in weight = 289 (1.5%)

Comment 5:

The authors suggest that birthweights are expected to increase because of the economic changes over the last two decades. The data for this report span a 15 year period. What have been the changes in birthweight and change in gestation at birth over this time period?

Response 5:

We did not find a significant change in Birthweight and Gestational Age over time. The flowing table presents the mean (SD) of Birthweight and Gestational Age. This was not included in the manuscript as the focus was on Birthweight standards. Now we have included this.
Table 1: Mean (SD) Birthweight and Gestational Age by every 5 years.

<table>
<thead>
<tr>
<th>Year of Delivery</th>
<th>Birthweight (g) Mean</th>
<th>SD</th>
<th>Gestational Age (weeks) Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>2846</td>
<td>562</td>
<td>38.5</td>
<td>2.3</td>
</tr>
<tr>
<td>2000</td>
<td>2903</td>
<td>551</td>
<td>38.5</td>
<td>2.2</td>
</tr>
<tr>
<td>2005</td>
<td>2925</td>
<td>573</td>
<td>38.4</td>
<td>2.3</td>
</tr>
<tr>
<td>2010</td>
<td>2907</td>
<td>571</td>
<td>38.1</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Minor essential revision:

1. Table 3 assesses the potential for misclassification of birthweights when unadjusted birthweight centiles are used. For purposes of clinical management, it would be more meaningful to look at misclassification at extremes of birthweight distribution, say below the 5th and/or 10th centile and above the 90th and/or 95th centiles.

Response:

Now this has been incorporated in Table 3. That is, the misclassification rate below 5th and 95th percentile has been included.
Title: New Birth Weight Reference Standards for Indian Babies

Date: 11 Aug 2012

Reviewer 2: Dr. Selina Khatun

Comments:

Comment 1:

1. Is the question posed by the authors well defined?

One thing is that this study had been done on a very complicated statistical platform which is difficult to understand by the medical scientist without straightening by the statisticians. There was an unexpressed hypothesis in the study that ‘this estimation must be better than that of WHO estimation which did not pointed on some of the very vital predictors like parity and socio-demographic indicators’. Then, it is difficult to understand that whether this become different from that or what was expressed in unadjusted and adjusted values, which needs to be explained for the non-statistical readers.

Response 1:

Many thanks for the comment. As the study has been to develop standards for Indian New Born children, the modelling has to be done using sound statistical methods. Therefore, we had to use some statistical jargons. However, based on the advice, now this has been modified extensively.

Regarding comparing these standards with WHO standards, literature has suggested building standards using their own country data, which is expected to be better than WHO standards.

Regarding vital predictors like parity and socio-demographic indicators and also based on the First Reviewer’s suggestion, we have reviewed the manuscript extensively. That is, now nomograms have been developed for Male first born, Male latter born, Female first born and Female latter born and the tables accordingly. Moreover, we have developed nomograms of the above classification separately for (based on BMI) Underweight, Normal weight, Over weight and Obese mothers separately. Thus we have additional 16 nomograms.
Comment 2:

2. Are the methods appropriate and well described?

Method is appropriate but not well described. Please explain this results and analysis for easy understanding.

Response 2:

Now we have made this write up simple and easy to understand.

Comment 3:

3. Are the data sound?

Yes, the data is quite okay other than it should not be from the record and for a shorter period.

Response 3:

This manuscript is based on 15 years data.

Comment 4:

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

It needs to be rephrased to be standardized for reporting this very important outcome. Manuscript seems very hastily written or a very small part of a bigger study. It happens to be so small that it lost its essence.

Response 4:

This paper has been written based on the international paper “A New and Improved Population Based Canadian Reference for Birthweight for Gestational Age” Karmer et al. Pediatrics; 2001;108: e 35 and Indian Paper “Birthweight standards for south Indian babies” Mathai et al. 1996; 33: 203-209.

The sampling strategy was based on. Eckler AR: Rotation sampling. *The annals of mathematical statistics* 1955:664–685.
**Comment 5:**

5. Are the discussion and conclusions well balanced and adequately supported by the data?
No, not well balanced, actually explanations are not well clear.

**Response 5:**

Now the manuscript has been rewritten extensively based on your and other Reviewer suggestions. Now the interpretation has been well written.

**Comment 6:**

6. Are limitations of the work clearly stated?

Limitations are described well.

**Response 6:**

Thank you very much.

**Comment 7:**

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

There must have some more work that needs to be explained as the study design and results used in other studies.

**Response 7:**

Now the results section and the discussion sections have been rewritten based on your suggestions. We are confident that this manuscript is better.

**Comment 8:**

Do the title and abstract accurately convey what has been found?
Can title and abstract reflect the basis of creating new standard?

Abstract has been rewritten and it reflects in the title as well.
Comment 9:

Is the writing acceptable?

Well this is acceptable but with a change of description of the statistical method and interpretation like say what the result is- interpret statistics for the reader, don’t just report them.

Response 9:

Now the manuscript has been rewritten extensively with lots of clarity and therefore the interpretation is readable.