Reviewer's report

Title: Analysis of Neonatal Mortality: Is Standardizing for Relative Birth Weight Biased?

Version: 1 Date: 10 March 2004

Reviewer: Jennifer Parker

Reviewer's report:

The paper is well-written and addresses an on-going puzzle in perinatal epidemiology. The analysis is appropriate to the question.

- Minor Essential Revisions

1. Data. Is it appropriate to combine so many years of data for this analysis? Is it necessary? As mentioned in the first paragraph of the paper, infant mortality has decreased, low birth weight has, if anything, increased? Differential changes in these outcomes by race could introduce unnecessary bias. Please comment.

2. Additional short discussion of optimal birthweight is needed. It's used in this paper as a fixed number, for example, when it's likely more akin to a random variable.

3. Editorial suggestions.
   a. Methods. Since the paper is focused on race, it should be made clear throughout the paper and the tables that you are using mother’s race, not infant’s race. In fact, terms like “blacks” and “whites” could be changed to “white mothers” and ‘black mothers”, depending on journal style.
   b. Tables, Table 1 is a little confusing at first glance; it could be more clearly labeled with better horizontal line placement. Percent low birth weight could be added. Optimal birthweight should be defined in a footnote. Table 2 might be better as a graph. "As a function" might be a bit jargony for a pregnancy journal. Showing the overall count and percentage distributions instead of numbers of infants at each Z score might be more informative. Acronyms should be given in footnotes or spelled out (GA and SD). Units should be given when appropriate, such as in Table 3 for the mean difference in birth weights. Z-score should be defined in a footnote for non-statistician readers, with a clear tie to “relative birth weight” mentioned in the title.
   c. Figures. Similarly, units and definitions should be on the figure. For example, the title for Figure 2 is Neonatal mortality but the y-axis is log odds. Log odds, like z-score, should might need to be spelled out and clarified for some readers of this journal. Instead of a legend, the two groups could be labeled on the graph.

- Discretionary Revisions

1. I think that the question of comparing populations by relative birth weight is interesting without having the standardized measure set up as “the way” to compare populations, and having it come up short. The last sentence “Thus, relative birth weights should not be compared across populations” is quite strong. Summary and composite measures have always been limited to that which is controlled, the underlying reasons for the difference; in this case, the overall birth weight distribution differs between groups for different reasons. Age-adjustment for overall mortality is another one example. No specific revision is necessary, however, the authors could consider the tone of the paper.
What next?: Accept after minor essential revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:
None