Reviewer’s report

Title: Assessing fetal growth impairments based on family data - A tool to identify babies at risk?

Version: 1 Date: 26 July 2007

Reviewer: Robert Platt

Reviewer’s report:

General

This is an interesting paper looking at the use of earlier siblings' birth weights to predict weight and outcome in later siblings. It is a useful study, as it is important to recognize that “normal” size, ie >2500g, is not necessarily evidence of normal growth. If a fetus doesn’t realize his/her potential, he/she may be normal-sized but suffer fetal growth restriction.

To me, the key weakness of the method is one that is recognized and well-discussed by the authors. If the earlier sibling represents a pathologic case, eg growth restriction, the method will “normalize” the pathology – that is, the second sibling will be expected to be similarly growth restricted and a healthy size may represent over-growth. This is a limitation, but the authors have done a good job of discussing this issue. Other pathologies may similarly track within women, and affect the outcome as well.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Page 9, describing the model for second-born birth weight: It is not clear how the model works, and in particular where the variance component comes in. The box on page 10 describes an ordinary regression model. I assume that the variance component is included to deal with gestational age, but it needs to be explained more clearly.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Page 7, line 6: Newton-Raphson

Page 8: “Expected birth weight” is used here, but not explicitly defined until the results section. I think a sentence in the methods describing the modeling strategy to compute expected birth weight is essential.

Page 8: log-linear Poisson regression implies that you are estimating a rate ratio rather than a relative risk. Clarification would help.
increased risk of neonatal death relative to those between 90 and 110% of predicted.

Discretionary Revisions (which the author can choose to ignore)

Throughout the paper – I think it would be clarifying to decide on either “expected” or “predicted” weight for the second born and to use this consistently. The simultaneous use of both terms can be confusing.

Page 6-7: Some additional references on inconsistencies in gestational age might be useful.

Page 7, bottom: what percentage of the total population is the cohort – is there some way to describe how representative the first borns, for example, are of the total population of first borns?

Page 9: to what extent is there regression to the mean important in the prediction of second born birth weight? That is, a very large first born would give a large expected weight for the second born, and it is likely that these babies would be smaller than expected due to RTM.

Page 10: why is the gestational age categorization different for first vs. second borns?

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests