Reviewer's report

Title: Smoking during Pregnancy and Risk of Abnormal Glucose Tolerance: A Prospective Cohort Study

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Reviewer: Emily Oken

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Overall:

This is a well-written paper examining associations of smoking before & during pregnancy with risk for GDM. Exposures and outcome are measured reasonably well, though not via gold standard techniques (e.g. cotinine, fasting GTT). Power is a major issue with this study, as the wide confidence intervals include effect sizes that could be important. In addition, the authors need to justify better why and how smoking might lead to glucose intolerance.

Major compulsory revisions

1. Page 7: “those factors that changed the association between smoking and preterm birth by 10%”. I assume the authors meant AGT, not preterm birth?

2. In the introduction the authors should provide some justification or potential mechanism for why smoking should predispose a woman to develop AGT or GDM. Is the interesting period of exposure before pregnancy or during pregnancy? If both, why? A statement of hypothesis would be extremely useful.

3. In the analysis of quitters, adjustment for gestational weight gain mainly resulted in a widening of the confidence limits, but not much of a change in the point estimate. The effect may be real, but obscured by the low power. Overall, most of the confidence limits are quite broad and inclusive of effects that may be important. I am not convinced this is an informative null study. The authors should discuss the issue of power/sample size.

4. Given this issue of power, which appears to be a major limitation, did the authors consider using the outcome as a continuous variable?

Minor essential revisions

5. The beginning of the introduction is somewhat misleading, as it is written as though AGT and GDM are two distinct conditions; for example the statement ‘ranging from abnormal glucose tolerance (AGT) to gestational diabetes mellitus’. I suggest the authors clearly define AGT from the start and make it clearer that AGT includes GDM as well as milder degrees of glucose intolerance.

6. “Women who quit smoking gained significantly more weight up to the time of
GDM screen as compared to continued smokers (p=0.02).” Please provide the amounts of weight gain in each group, or the difference, not just the p value.

7. Although the authors state that they included 1006 women in this analysis, Table 2 suggests that a smaller number was included in each analysis. Please report somewhere the total N available for each exposure.

Minor discretionary revisions

8. It would be helpful if the authors would clarify throughout what is the reference group. That information appears in the table but should also appear in the text.

9. Please include the sample size in the abstract.

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.