Reviewer's report

Title: Prevalence of birth defects and risk-factor analysis from a population-based study in Inner Mongolia

Version: 4 Date: 11 June 2012

Reviewer: Analee Etheredge

Reviewer's report:

This manuscript is clearly a result of a lot of hard, valuable work. The authors have done a nice job responding to most of the comments, but there is still quite a bit of polishing to do. There are problems with completeness of methodology, interpretation of results, and spelling and grammar issues. All of these things can be worked on, but it will require further revisions.

The re-review is organized by the numbering of my original comments, the author's response, and then my reply. New comments are at the end of these numbered replies.

Major Compulsory Revisions

2. Discussion. I had hoped the authors would talk about some of the seemingly contradictory prevalence estimates. Specifically, I am interested to know what they think about the very high prevalence in third (or later) pregnancies but also a very high prevalence in women under 20 years of age. Given what we know about reproductive habits in very young women and the age cutoffs selected by the authors, it doesn’t seem likely that women are on their third pregnancy before they hit 20. What do the authors make of this? This seems like one of the most interesting results in the study, but it is not discussed at all.

2. Discussion. I reselect the age cutoffs (example, under 25 years of age), then analyze the results.

Reply: Although the age cutoffs have been modified and the referent category has been changed to &ge; 35, this does not address the original comment.

7. The categories in Table 4 do not appear to be complete or accurately labeled. Please include in the table or the text (or both) what variables were included in the multivariate models used to calculate the adjusted estimates.

7. The Poisson regression takes place of the logistic regression in Table 4 and the text.

Reply: Neither the text nor Table 4 indicate what variables were included in the model. Is Table 4 crude or adjusted? Also, the “b” column is not necessary, and do you mean pregnancy frequency instead of “Time of Pregnancy?”
17. Methods. Were cases classified as syndromic vs. non-syndromic?
17. Yes, cases can be classified as syndromic vs. non-syndromic.
Reply: How were they dealt with in your analyses? Please put this in the text.

18. Methods. How were chromosomal anomalies classified?
18. Methods. Chromosomal anomalies were classified as Down’s syndrome, trisomy 13 syndrome, trisomy 18 syndrome, and so on.
Reply: The goal of comments 17 and 18 was to obtain further clarify how syndromic defects (frequently associated with a chromosomal anomaly) contribute to prevalence compared to non-syndromic defects. The epidemiology of syndromic vs. non-syndromic defects can vary significantly, and it is important to evaluate how they differ. These comments have been upgraded to compulsory.

Discretionary Revisions
12. Methods. Please provide more detail on ascertainment and surveillance.
12. provided more sampling size and sampling units on detail.
Reply: The little information given in the original manuscript about the controls was deleted. Please provide details about the controls. Also, what does “certain percentage” mean?

13. Methods, paragraph 1. Please define stillbirths and abortions. Do stillbirths include spontaneous fetal deaths < 20 weeks gestational age? Are abortions inclusive of those spontaneous and induced?
13. Stillbirths refer to the birth of a dead baby, don’t include spontaneous fetal deaths < 20 weeks gestational age. Abortions include spontaneous fetal deaths < 28 weeks gestational age and induced fetus.
Reply: Please put this in the text.

15. Methods, paragraph 1. Please clarify how cases were counted. If a child had multiple malformations, were they counted separately for each defect?
15. Methods. A child might have multiple malformations, but they were counted as a case.
Reply: Do you mean that they were counted separately as a case for each malformation they have? Please put this in the text.

24. Discussion, paragraph 2, second sentence, the authors reference 2 studies but mention one.
24. The 2 studies both suggest the chemical factors in maternal agricultural work are risk to birth defects.
Reply: Since the references still point to 2 different studies (different investigators, different populations), it would be more accurate to say “The results of two studies…”

New comments:
A) This reference is more than a decade old and not properly referenced. The authors perhaps mean that the prevalence is 53 per 1000 or 0.053? In addition to the updated numbers, the below references contain further explication of the differences behind prevalence rates in developed vs. developing nations. This is something that the authors should take into account when contextualizing their findings.
B) Table 1, Time of pregnancy. Are the cases in the wrong column? Also, the “Delivery” column needs a more informative heading.
C) Risk factors analysis: This paragraph describes methods, not results.

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

Quality of written English: Not suitable for publication unless extensively edited

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

Declaration of competing interests:
I declare that I have no competing interests