Author's response to reviews

Title: A coarsened multinomial regression model for perinatal mother to child transmission of HIV

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Version: 3 Date: 11 June 2008

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Version: 3  Date: 10 June 2008

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Thank you for the opportunity to further revise our manuscript. We have addressed each of the reviewer’s comments, as outlined below:

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REVIEWER: Laurence S. Magder

Discretionary revisions

1. In the abstract, they say "allowing for imperfect sensitivity...". The word "allowing" usually is used to refer to the flexibility of the model (e.g., some models allow for misclassification, some don't), so since their model does not allow for misclassification I think this might be confusing to readers (it confused me at first). I think the authors should use a different word (e.g., "including imperfect sensitivity of the assay...").

This sentence has been re-worded to read “while including imperfect sensitivity of the assay ...” rather than “while allowing for imperfect sensitivity of the assay ...”

2. The last sentence of the Discussion section says "Further, unlike the current approach, it would require use of an EM-type algorithm". This is not true, and I suggest they delete the sentence. The more complex model could also be fit using numerical optimization just as they did for their simpler model. It is just a maximization problem, just like the simpler model. The EM happens to be a relatively nice way to maximize. In fact, they could have used the EM for their simpler model.

The sentence in question has been deleted.

3. The authors should consider citing other papers that dealt with the problem of coarsened data in this context (namely my paper mentioned in the last review, and Bertolli J, St. Louis ME, Simonds RJ, et al. J Infect Dis. 1996;174:722-726.) Also, they might consider adding my paper and the paper by Kuhn Kuhn L, Steketee RW, Weedon J, et al. J Infect Dis. 1999;179:52-58 to Table 1 since these papers are among the only papers that looked for distinct risk factors for in utero and intrapartum transmission as the authors are doing.

The following sentences have been added to the final paragraph of the Introduction:

“Bertolli et al. (J Infect Dis. 1996; 174:722-726) use a coarsened data approach to estimate unadjusted rates of in utero and intrapartum transmission based on the assumption that infants with missing test data are distributed among transmission groups in the same proportions as infants with non-missing test data. Magder et al. (J Acquir Immune Defic Syndr. 2005;38:87-95) expand on this approach, using logistic regression to estimate covariate-adjusted associations between various risk factors and presumed time of transmission, while allowing for misclassification.”

Table 1 has been revised to include Magder et al. (J Acquir Immune Defic Syndr. 2005;38:87-95) and Kuhn et al. (J Infect Dis. 1999; 179:52-58).

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In addition, per instructions from the Assistant Editor, we have added a “Competing interests” section, an “Authors’ contributions” section, and an “Acknowledgements” section.