Reviewer's report

Title: A statistical model to assess the risk of communicable diseases associated with multiple exposures in healthcare settings

Version: 1 Date: 18 December 2012

Reviewer: Nanhua Zhang

Reviewer's report:

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This paper develops a statistical model for evaluating the risk of communicable diseases in health care setting. The authors used maximum likelihood and Bayesian inference for inference of the parameters.

Major Compulsory Revisions  
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1. It is not clear whether non-cases (those who didn’t contract CD during the study) were included in the model, and if yes, then how they were modeled. If not, then this is very problematic because those who didn’t contract CD also has a chance to contract CD.
2. Patients in the same wards or same hospitals are more likely to be not independent. The model proposed doesn’t seem to account for this.

Discretionary Revisions  
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3. The use of conception and intercourse as an example for multiple exposure is not appropriate, because conception can only happen during several days in a menstrual cycle, and modeling when it happens is not very meaningful.

Level of interest: An article of importance in its field

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