Reviewer’s report

Title: Factors associated with Human West Nile Virus Infection in Ontario: A Generalized Linear Mixed Modeling Approach

Version: 0 Date: 05 Dec 2017

Reviewer: Shannon Ronca

Reviewer's report:

The data presented in this manuscript are interesting and enhance what is known about WNV in southern Ontario. However, it is unclear exactly how these data will be applied and there are some flaws with communicating the work. There are several items that should be addressed:

1) The wording of the manuscript can be confusing. The use of passive voice, repetitive phrasing (especially in the environmental data section of the methods), and run-on sentences in conjunction with missing commas make it necessary to reread sentences to understand the message. The authors are not consistent with the capitalization of certain words/phrases, switch between "modeling" and "modelling", and alternate between using "PHU" and public health units after the acronym is defined. The wording should be streamlined and the grammar checked again by the authors.

2) The introduction is choppy and, with minor adjustments, could be improved to make it easier to follow.

3) The methods lack valuable information such as: A) what is being measured with mean monthly precipitation. It was unclear until reading the results that this refers to amount of precipitation in mm. Was data also available for frequency of precipitation? (days per month, for example) B) what the land cover classes are. They are named in the tables, but the definitions of the categories are not available. This is especially important for the land cover categories that were combined. C) In statistical modelling, the last sentence indicates "a separate model including only variables available prior to the WNV season was similarly constructed". It would be helpful to be more specific as to what these variable are in this section instead of leaving us to guess and very briefly touching on it in the results.

4) The tables are not consistent with capitalization of headings/subheading/variables

5) It would help to see more discussion about the pre-season prediction models beyond stating that specific factors are not significant predictors.
6) It is generally unclear how the predictors from any model will be used in public health practice other than statements like "variables identified...may be useful for public health planning" followed by a list of items discussed in the introduction. A few sentences to address how the information generated from this study directly applies would greatly improve the quality of the discussion and increase the value of the data presented.

Overall, this was an interesting paper and, with modifications, would be suitable for publication.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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