Reviewer’s report

Title: Seroprevalence for dengue virus in a hyperendemic area and associated socioeconomic and demographic factors using a cross-sectional design and a geostatistical approach, state of São Paulo, Brazil.

Version: 0 Date: 19 Jun 2018

Reviewer: Wenbiao Hu

Reviewer's report:

The study aims to estimate dengue sero-prevalence and identify the effect of social economic factors were associated with dengue sero-positivity in São José do Rio Preto. The research used a Bayesian geostatistical model with logistic link to model the sero-prevalence with social factors. The research results showed that older people, non-white and living in a house were positively associated with dengue sero-positivity. This is a well-written and clear paper that addresses important issues related to the dengue sero-prevalence. Both the research aim and results in the study were important and interesting. However, I have a few comments and suggestion about the presentation of the results as well as the methodology issue.

1) Vila Toninho was selected as study site in the research. It would be better to provide more details of Vila Toninho such as population density, historic reported dengue incidence rates and economic index. More justification for selecting Vial Tonijho from São José do Rio Preto as a the research site is needed.

2) These authors used a variance inflation factor (VIF) to detect the collinearity among these predictors. However the VIF and its criteria in the model was not presented in results section. I have some consideration for the correlations among the social factors. Any interactive effect among these factors were considered in the Geo-statistical model? A classification tree model may be useful to detect the primary key predictors and high order combination among the factors.

3) A multivariate imputation by chained equation methods was used to replace the miss values. More details for the method need to add in the method section. For example, the details for how to get five imputed databases need to be clarified in text.

4) The authors suggested to use the four models in the research (line 21). Why did these authors not include a model with the intercept and covariates (without spatial component) for non-imputed dataset? Did these authors consider to add unstructured component in the model? Please see the article: Basile Chaix et al. American Journal of Epidemiology, Volume 162, Issue 2, 15 July 2005, https://doi.org/10.1093/aje/kwi175
5) More details for how using Runin 's rules (line 43) to in combine the estimates into the final ones are needed. These authors may missed the reference.

6) I would suggest that authors include the codes of the Geostatistical model as appendices or Supplementary Information. It would be an effective way to communicate models among researchers.

7) "We also considered the standardized continuous covariates age and income as predictors" in line 24. More details are needed for how the Standardized age and income has been done.

8) I would suggest adding Crude ORs in Table 2.

9) Remove the vertical lines in Tables.

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

Yes

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 am able to assess the statistics

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