Reviewer's report

Title: Space-time cluster analysis of indigenous and imported dengue fever cases in Guangdong province, China

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Reviewer: Benjamin M. Althouse

Reviewer's report:

In the study by Li et al. the authors attempt to describe the variation in the spatial and temporal trends of imported and indigenous dengue virus cases in Guangdong province over the time period 2005-2010. They employ data from the Chinese CDC and census and use spatial statistics to identity clusters of dengue cases. They find two significant clusters and give possible reasons for the observed patterns. They conclude the clusters are good targets for future in-depth research and that control methods should be targeted to these clusters.

The large problem I have with the manuscript is that it is too terse. It is short on justification for the statistical methods employed, details regarding the statistics and the interpretation of the results of analyses. I have trouble seeing the utility of the Kulldorf scan statistic here when a simple plot of cumulative incidence identifies the relevant clusters. The authors need to justify carefully this choice of statistic. They also need to do a better job of interpreting the results. What does a RR of 7.52 actually mean for the “most likely cluster of imported cases”? Confidence intervals need to be added throughout the manuscript. A statement of “P<0.001” is not informative.

Additionally, I’m worried about potential surveillance biases. Are the majority of cases from hospitals or doctors offices? Are you more likely to detect cases in areas of high population density merely due to the fact that there are more hospitals or doctor’s offices? This should be acknowledged in the manuscript.

Finally, the conclusion that control measures should be targeted at the clusters, while correct, is obvious based on the cumulative incidence and population density. If the authors wish to use the Kulldorf statistic, they should say what about it justifies the conclusion above and beyond cumulative incidence and population density.

Besides from these points, I feel the manuscript will make a good addition to the dengue surveillance literature.

- Major Compulsory Revisions

1. Add justification for the use of the Kulldorf scan statistic as well as more details about the assumptions involved and the actual analysis done. What statistical software was used?
2. Add more detail about the linear regression model used to assess geographic spread. What was the model form?
3. Add interpretation of the RR from the Kulldorf analysis.
4. Add 95% confidence intervals to all reported statistics.

- Minor Essential Revisions
1. P. 7: Wrong citation? “with a rainy season from April to September [1]”
2. There are spelling and grammatical errors throughout the manuscript.
3. P.13: Where is the evidence for this sentence: “A large number of people have moved from poor areas of inland China to this region to seek job opportunities and better living conditions, and this group has increased the susceptible population in this region.”? How do we know those moving into the area are susceptible? Are they a large enough group compared to the existing population to change disease dynamics?
4. There’s no reason on a full-page figure (number 4) for the labels to be “0”, “1”, “2” and force the reader to look at the caption. They should be something along the lines of “Non-affected”, “Ever affected” and “Newly affected”.

- Discretionary Revisions
1. P. 13: I would rearrange this paragraph to have the sentence “Traditionally, residents have had the habit … benefitting mosquito breeding.” Come just after the sentence ending “…having a favorable natural climate for mosquito breeding [3, 4, 22].”

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

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.