Reviewer's report

Title:A Spatial Simulation Model for Dengue Virus Infection in Urban Areas

Version:1 Date:26 June 2014

Reviewer:Krisztian Magori

Reviewer's report:

Dear Authors,

Thank you very much for the opportunity to review your manuscript. I believe that the work you have done is a great contribution towards developing decision support systems for dengue control. It goes way beyond any other similar software that I'm aware of, with the inclusion of dengue transmission, human movement, and mosquito control method. I don't have any major criticism of the model as is. I do hope that the model will be used in the future to help the authorities in Queensland to optimize mosquito and dengue control. As you mentioned in the Discussion, extending the model to areas with endemic transmission, for other similar systems, such as chikungunya, and potential alternative control methods, such as Wolbachia, would be a logical next step.

Minor Essential Revisions

The only things I was missing from the article was a statement on the availability of this software package for other researchers or public health professionals. I believe in open source software, e.g. Skeeter Buster is freely available, and I would be thrilled to try your software for other locations/scenarios if it was available. However, I also understand if this is a proprietary software that has to be licensed. If you haven't thought about distribution of the software until now, I believe it would be important, because there would be a lot of interest from other researchers. If you could detail your plans towards that in the Discussion, that would be useful for the interested reader. Also, it was somewhat unclear to me how difficult it would be to apply the model to a different location. I understand that the model, in comparison to CIMSIM/Skeeter Buster needs a lot less parametrization, but I don't have a good grasp after reading the manuscript how much that would be. Perhaps if you could have an additional table, in the Supplementary Materials, that would list the necessary datasets, that would again help the reader evaluate the overall needs of the model.

Minor typos:

Line 113: focussed
Line 360 and 361: P_HM and P_MH didn't render properly

Discreationary Revisions:

From Line 504, you talk about the effect of increased interventions on the
magnitude of the dengue outbreak in Cairns. Specifically, you compare the results of expanded control measures with an earlier onset of interventions. I was wondering which of these costs more, and whether you could derive a cost-effectiveness ratio. How many cases are averted in one scenario vs the other at what cost? Does that justify choosing one intervention over the other?

Overall, I can tell the immense amount of work that has gone into this work, and I seriously hope that it will be used to guide decision making in the future!

Krisztian Magori
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**Level of interest:** An article of outstanding merit and interest 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