Reviewer's report

Title: Early Warning Signal for Dengue Outbreaks and Identification of High Risk Areas for Dengue Fever in Colombia using climate and non-climate datasets

Version: 0 Date: 04 Feb 2017

Reviewer: Jean-Claude Desenclos

Reviewer's report:

Nice and well conducted study and analysis. However, this is not the first one on this issue of attempting to predict dengue outbreaks using such data to predict the occurrence of dengue epidemic for preparedness and response.

The reviewer has the following comments.

1) Would be useful to give actual Se, Sp, PPV, and NPV of the EWS in the validation sample (83.3, 100, 100 and 83.3 percents, respectively

2) The sentence in the discussion page 12 "Among the total of 24 observed outbreaks, EWS successfully detected 18 outbreaks (75%) 314 1~5 months ahead of time, three outbreaks (12.5%) in the same month, and missed three outbreaks (12.5%)" is a result and shall be in the result section (as it is indicated in the abstract).

3) Supplementary data/tables 6 and 7 give information on the temporal relationship between EWS, DIP and outbreak peak for the 11 departments included in the study. However, it is extremely difficult to read and catch the essential information out of it. All this information can be easily be summarized in a much readable way by calculating Se, Sp, PPV and NPV as mentioned for the validation sample above. In addition there might be enough data to have these values for different timing of occurrence of the EWS.

4) Regarding the production of EWS during the study period it is said page 11 "Excluding 2015, a number of false alarms where EWS sends out the medium or high level signs but DIP remains low were only observed twice in Cauca (April and December 2014) during the study period." Not clear why excluding 2015?
5) What is the judgment of the authors on the external validity for departments that could not be included because data were judged not appropriate (only 13 of 31)

For public health practice at the local level, how would this system being organized to be used and useful for public health practice in routine? At the central or regional level? Are the conditions required to do so? What resources would be needed to implement it routinely.

6) More generally, interactions between climate and Dengue outbreaks have been studied worldwide. The findings suggest that the effects of climate on the incidence of dengue can vary widely from one study site to another and that they depend largely on local context and epidemiological patterns. In particular in South America, the impact of climate on dengue epidemics have suggested a role for El Niño events as triggers for epidemics. Would be useful that the authors comment on how much the CRF indicator capture the local context sufficiently. What about the El Nino influence for Columbia?

7) Following on the previous comment, a recent study (not cited by authors) has indicated the influence of summer Equatorial Pacific Ocean sea surface temperatures and Azores High sea-level pressure in predicting dengue outbreaks in French Guiana (Adde A et al. Predicting Dengue Fever Outbreaks in French Guiana Using Climate Indicators. PLoS Negl Trop Dis. 2016 Apr 29;10(4):e0004681. doi: 10.1371/journal.pntd.0004681.). How this study and type of results reconcile or not with this study in Columbia?

8) There are a few typos in the manuscript that need to be corrected
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?
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