Reviewer's report

**Title:** Modeling the progression of swine-origin influenza A(H1N1) epidemic in Vietnam and opportunities for reassortment with other influenza viruses

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**Reviewer:** Gerardo Chowell

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In this paper a spatio-temporal model of the transmission dynamics of influenza that incorporates an age structured population is used to explore the potential impact of the novel swine origin influenza virus A(H1N1) in Vietnam in terms of numbers of cases and hospitalizations. The model is calibrated using demographic and transportation data from Vietnam and epidemiological characteristics reported thus far for this new virus. This is an interesting and timely paper. Overall the manuscript is clearly written and presented and recommend it for publication in BMC Medicine. I only have a few comments that need to be addressed before publication could proceed.

1. The authors use age-specific contact rates from a survey of social contact patterns conducted in 2007 in 865 members of a community in one semi-rural district of north Vietnam. Please provide the contact rate matrix in a Table in the supplement. Is these data in line with the datasets reported by Mossong et al. 2008 [Ref 8 in Supplement], Wallinga et al. 2006, Del Valle et al. Social networks. ?

2. The authors mention that influenza transmission trends in Vietnam is quite irregular with more than one peak of incidence per year. An interesting question is whether these historical trends could be useful in validating the spatial patterns realized by their model. In particular, the long tail epidemics produced by the model could be due to spatial factors and levels of rurality as explained by the authors. In summary, i suggest to take another look at the historical data or justify using appropriate literature if available.

3. Although the movies illustrating the spatial spread of the epidemics are useful to understand the spatio-temporal spread, a plot of the peak timing as a function of distance to the the most connected provinces could be useful in clarifying the spatial spread pattern.

4. Table 1 summarizes their simulation results. Bar plots might be easier to read for some of the results (age specific morbidity). Please consider presenting some of data in this table as graphs to ease readability.
References:

REF 8 (supp)


Del valle et al. Social networks.

Which journal?: Appropriate or potentially appropriate for BMC Medicine: an article of importance in its field

What next?: Accept for publication in BMC Medicine after minor essential revisions

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests