Reviewer's report

Title: Model the impact of travel restriction via air, sea, and land for the influenza A H1N1 epidemic in Hong Kong

Version: 1 Date: 30 May 2012

Reviewer: Gianpaolo Scalia Tomba

Reviewer's report:

In general, a revision of grammar and use of idiomatic expressions is needed. The text is generally comprehensible, but small errors and "strange" turn of phrase distract from the meaning of many sentences.

One unclear point about the paper is the purpose of the modelling...

- If it is mainly about the qualitative effects of travel restrictions, there are too many details and this referee would suggest that the main conclusion, viz. delay in introduction can be obtained, but not much more, is already known;

- if the purpose is to show that antivirals and hospitalization (removal) can decrease the spread and and/or the peak incidence, then this referee would suggest that this is also known;

- if the purpose is indicating what would have happened in Hong Kong with the A(H1N1) spread in 2009/10 had certain measures been adopted, or how similar future outbreaks could be handled, then the question turns more towards degree of realism of the model, the parameters and the proposed measures:

-- the flow of travellers to Hong Kong must be composed of locals returning from somewhere and non-locals visiting HK. How can 90% or 99% "import restrictions" be practically implemented, in particular towards locals returning home? The returning locals are interesting also because their contact pattern and thus potential of spread should be more extensive than for visitors, although no data, as far as this referee knows, is available on the pattern of contact of visitors to a country...

-- what would one do with screened positive individuals at the border?

-- if there are uncertainties about several parameters, then the most reasonable choice is the vary them all together according to some experimental plan and to collect results (requires choosing some endpoints and, in the case of this stochastic model, maybe some summary statistics...) and then present results as ranges or clouds... This would be better than varying them one at the time, since choices of values may interact in various ways...

-- from a modelling point of view, why use a chain-binomial formulation instead of a continuous one (by the way, this referee found no information about the choice
of $\Delta t$; one could assume that it is 1 day, but then the discrete formulation, compared to the short time scale of E and I periods, might not be very appropriate...).

Another unclear point about the paper is what the conclusion of this work really is...

This referee found it quite difficult to interpret the results given in the Results section of the paper, probably because of the many combinations of parameter values and interventions (see previous point about presentation of results...).

Main points to be answered would be:
- Is the inclusion in the model of different external countries and various modes of entering the country useful? Does it make a difference, compared to a simpler modelling of incoming travellers?
- Since I presume that 99% limitation of incoming passengers is unrealistic, do lower levels make any difference?
- Antivirals and hospitalization are applied to a rather small percentage of infecteds, but the effect on final AR is quite large... How comes?
- Finally, in the rest of the world, the reason for wanting to delay spread was that vaccines were slow in arriving and being deployed... Why are there no vaccines in this scenario?

In conclusion, this referee does not find the paper presentable in its present state. In order to become so, the authors must decide on purpose of the paper, discuss the adequacy of assumptions in the light of the stated purpose and finally present results in a clear fashion, once again focussing on relevance for the stated purpose. Only then will it be possible to fairly judge the relevance of the paper to the disease spread modeling community and to health officials interested in countermeasure planning.

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

**Quality of written English:** Not suitable for publication unless extensively edited

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

**Declaration of competing interests:**

I declare that I have no competing interests