Reviewer's report

Title: Agent-based simulation for weekend-extension strategies to mitigate influenza outbreaks

Version: 2 Date: 12 May 2011

Reviewer: Erin Elizabeth Rees

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Major Compulsory Revisions

1. Confidence intervals should be used to show whether the levels of the different weekend extension strategies are within range of achieving an attack rate of #10. This is necessary to demonstrate the potential of an intervention strategy to be effective.

2. An ANOVA design can be used to determine if the different weekend extension scenarios, and their levels of compliance, statistically differ from each other. This is necessary to illustrate how the efficacy of the strategies depends on the compliance level.

3. For the CBD, define the proportion of residents, service oriented businesses and non-service oriented business causing the highest human density in this part of the study area. These proportions would be expected to influence the flu transmission dynamics. For example, if the human density is largely attributed to non-service oriented businesses, than during a weekend extension scenario the flu incidence would be expected to be lower in the CBD, rather than highest relative to other parts of the study area, as reported in this study. The author should comment on whether it is necessary to tease out the effects of these 3 types of human density categories and report in the Discussion how they may be influencing the flu incidence in the CBD.

4. The Discussion needs to include an explanation of the factors causing the spatial variation (i.e., clustering) of flu incidence in the study area; also include how these factors may a) influence the ability to implement the weekend strategies, and/or b) affect the efficacy of the strategies.

Minor Essential Revisions

1. Background/2nd paragraph: State who is responsible for the latest “framework of influenza prevention and control” (and their jurisdiction, if applicable).

2. Figure 1: the arrow and labels with Weekend or Weekday average values are unnecessary and slightly misleading. The author could include a vertical line to define the average value for each distribution and note the numeric value alongside, or simply note the average contact values in the figure description. Retain the legend denoting the symbolization of the weekend and weekday distributions.
3. Table and figure captions should allow the table and figure to be self-explanatory. As applicable, this includes describing the variables displayed, the duration of simulation (for the intensity maps). Also, for the intensity maps, indicate that the data are the total infectivity over the duration of simulation.

4. Presentation of the research methods and results should be written in the past tense. Please correct within.

5. Provide reader with more information to characterize the differences between a seasonal and pandemic flu. This is necessary given that the effectiveness of the weekend-extension strategies differed relative to these 2 types of flu. Then, in the Discussion elaborate more precisely on how the characteristics of the 2 flu types affect the efficacy of the weekend-extension strategies.


7. Simulation Results/Baseline.../1st paragraph: First 2 sentences are methods and should be moved to that section.

Discretionary Revisions

1. Abstract/Conclusion: the author should find a better description for economically limited (or ill-prepared) countries than “poor countries”; also make this correction in the Discussion section.

Minor issues not for publication

1. The paper is mostly well written, but there are still many typo’s and grammatical errors within the manuscript (I have documented a few below). Also, please consider have additional people review the paper to help improve the flow.

2. Abstract/Results: “...if extension last more...” change to “...if extensions last more...”

3. Abstract/Results: “...produces a few mitigation....” to “...produces few mitigation...”

4. Background/2nd paragraph: change to “... on the compliance of the population...”

5. Background/3rd paragraph: change to “...2-4 times less...”

6. Background/4th paragraph: the model “simulates” the strategies but you “evaluate” their effectiveness

7. Background/4th paragraph: remove “(the fifth)”

8. Agent-based influenza model/2nd paragraph: It is poor English to start a sentence with “Such a...”

9. Background/2nd paragraph: “The ultimate goals of these strategies are to...”

10. Background/3rd paragraph: Remove “/” since this refers to “or” and replace with “and”; Correct for other instances.
11. Background/3rd paragraph: “2-4 times less”; Correct for other instances.
12. Methods/1st paragraph: “the additional weekend days...”; Remove “(s)” and correct for other instances.
13. Methods/Measures of control effectiveness/2nd paragraph: Remove sentence “The density values are...”; Also change to introduction sentence, e.g., “To display the overall... converted from point locations of infection to grid cells of infection density per km2 in infection intensity maps”
14. Simulation results/Discontinuous.../1st paragraph: “Only a three-day... attach rate under 10% if the compliance level is #90%”. Is this what the author means?
15. Simulation results/Discontinuous.../1st paragraph: Last sentence is awkward, please reword.
16. Consider labelling x-axis values with a more vertically orientation for figures 1, 3 and 5 for a clearer display of the data values, avoiding the tendency that they look all blended together.
17. Check the journal convention, but usually Figures and Tables are not directly indicated in the sentence as “Figure 6 shows...” or “...as seen in Table 1”, but are indicated indirectly in parentheses (e.g., “.... (Figure 6).”).

Level of interest: An article of importance in its field

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