Reviewer’s report

Title: How Variations Among States’ Plans and Statutes Alter the Impact of School Closure as an Influenza Control Strategy

Version: 2 Date: 20 July 2012

Reviewer: Marija Zivkovic-Gojovic

Reviewer’s report:

Dear Mr Dizon,

Thank you for the opportunity to review the paper titled:” How Variations Among States’ Plans and Statutes Alter the Impact of School Closure as an Influenza Control Strategy”. Here are my comments:

1. Is the question posed by the authors well defined?

I found that the questions posed by the authors are of significant interest for public health decision making process; however I also found that the work lacks of consistency in carrying and discussing the posed set of questions throughout the entire work.

2. Are the methods appropriate and well described?

I found that the methods are not well described in this work. Although the authors had provided references to the papers on which their work is built on, the work itself must stand alone, and the reader, in order to understand the work, shouldn’t be familiar with the previous work or obligated to read the papers that are referenced in the work. The model section should incorporate at least a short description of the model, the transmission dynamics and the validation of the parameters used in the model. Further, in order to accurately validate the models’ outcomes all parameters used in the model must be appropriately referenced or, if an assumption about the parameter is stated, the adequate sensitivity analysis must be performed. For example, the parameters representing the contact reductions during weekends (page 11) are not referenced. They are also not included in any sensitivity analysis or potentially validated during the calibration process.

Additionally, the model lacks the description on contact reduction/increase in school closure scenarios. Vaccine application is also poorly described. The “Additional file 1” clearly states the source on which the vaccine specifications are based, but the work itself contains absolutely no description on whether the model incorporates the vaccination or not.

3. Are the data sound?

Aside of the above mentioned model’s parameters I found that other data sources are sound.
4. Are the discussion and conclusions well balanced and adequately supported by the data?

5. Are limitations of the work clearly stated?
I found that limitations of the work are not clearly stated.

6. Do the title and abstract accurately convey what has been found?
I found that the title is appropriate to the questions posed. However, I found some mismatches in the abstract sections. For example, the background section clearly states four important questions:
1. Whether school should be closed
2. When the school closure should start (threshold)
3. How long the school should remain closed
4. Which agency should have legal authority over school closure

The results section should be able to provide the explicit answers to the posed questions. However, in results section we observe answers only to question #4 and partially to question #2. The results section also contains a statement: “School-level closure criteria appear to be important in disease control because influenza arrives in localities at different times, and commuting and mixing patterns vary locally.”, leaving it unclear to the reader whether this statement is a consequence of the results presented in this work.

I also found that the conclusion section is confusing to the reader and that recommendations described in that section are not well supported by previously presented results.

Here is the list of proposed revisions:

Major Compulsory Revisions:
1. Re-organize the results and conclusion section of the abstract part, in order to clearly answer questions posed in the background section.
2. In method section add model description (including transmission dynamics and model parameters).
3. Specify how school closure is implemented.
4. Clarify whether vaccination is incorporated in the model and explain how.
5. Add table that includes the list of model parameters, values and the references.
6. Clearly state all model parameters whose values are based on pure assumptions. Justify the assumptions or if impossible include them in the section with model limitations.
7. In results section, add references to the figures and tables relevant to the discussion.
8. Add sensitivity analysis or calibration section in order to discuss and validate the model’s outcomes.

Discretionary Revisions
1. Pages 14 and 15 should be excluded and in shorter version added as figure’s captioning.
2. Include Figure(s) representing results described in Type I
3. Exclude simulations representing 2 weeks and 1 week school closure in Type I and Type II as their results are of no relevance.
4. Exclude simulations in Type V. The presented results can be predicted by observing Type II scenarios: 4 weeks and 8 weeks.

General comments:
1. Results in Type II (5 cases per school) seem to be equivalent to simulations in Type I, 1% statewide prevalence. Is it possible that the epidemic is spreading uniformly through the population and that all schools reach the threshold at the same or similar time? If so, is it possible that the scenario Type II is equivalent to Type I – 1% statewide prevalence? If that is the case, then the model failed to capture the fact/assumption that “the influenza arrives in localities at different times” (page 3, page 17).

**Level of interest:** An article of importance in its field

**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