Reviewer's report

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

Version: 1 Date: 27 July 2009

Reviewer: Sally M Blower

Reviewer's report:

This paper is excellent, very well written and extremely important.

There is some confusion throughout the text and in the Figure Legends regarding which Figure is being referred to – the authors should make any necessary edits to clarify this. The main text also needs to refer to the last 2 Figures & the 2 movies that are included as Supplementary Material.

I have a few minor comments regarding material that I wish the authors to include. These are all minor essential revisions.

Specifically:

1) The authors predict the number of cases that could occur in humans and the numbers of chickens, ducks and pigs that are likely to be exposed to infected humans. I would like the authors to include in their discussion a paragraph on the implications of their predictions for the opportunities for reassortment of H1N1 with other influenza viruses. For example, they should discuss/speculate how many of the exposed animals are likely to become infected, what viral strains are currently circulating in pigs, chickens and swine in Vietnam etc.

2) In the abstract the authors should include the total number of cases they are predicting in humans.

3) In the introduction (and abstract) the authors should clarify that they are modeling the introduction of H1N1 into humans and the subsequent spread/exposure to chicken, ducks and swine (due to the epidemic in humans), and they are not modeling the emergence of H1N1 from swine to human. Further they should clarify that they are not modeling the dynamics of influenza epidemics in chickens, ducks or pigs.

4) In the second paragraph of the introduction do the authors mean that 60% of the worlds human and poultry population live in Asia? Or are they referring to only the poultry population?

5) Can the authors briefly explain what they mean by a gravity model (first line in methods)?

6) SEIR needs to be defined when it is first used in the main text.
7) In the Supplementary Material the authors should show their calculations so that it may be seen how the R0 value was derived. It needs to be clarified how cross-province migration events were included in the calculations.

8) The authors need to explain how the relative amount of traffic on large roads to small roads was included in the model.

9) All of the parameters that are shown in the model equations in the Supplementary Material need to be defined.

10) The Blower and Dowlatabadi paper should be referenced in the supplementary material as well as in the main text.

Which journal?: Appropriate or potentially appropriate for BMC Medicine: an exceptionally interesting article

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

Quality of written English: Acceptable

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

Declaration of competing interests:

I declare I have no competing interests.