Reviewer’s report

Title: Calculating the potential for within-flight transmission of influenza A (H1N1)

Version: 1 Date: 19 October 2009

Reviewer: Rafael T Mikolajczyk

Reviewer’s report:

The content of the paper is very interesting. The description is quite condensed and its current form might not be easy to understand by non-experts. There is no real discussion and the conclusions are too far away from their own findings – both aspects need substantial correction.

Major compulsory revisions

1. Although H1N1 is droplet infection, it is here treated as airborne – assuming a volumetric equilibrium in the available space; this might not be true, even with ventilation diffusion time might be needed and equivolumetric predictions might not be correct. This should be discussed in the limitations.

2. Page 4. upper section equations – please clarify why you are using different q1 to q4.

If I am correct authors assume only the contribution of the initial primary case. This should be clearly stated – in discussion it could be mentioned that with new cases evolving q might increase. On the other side, authors should discuss the issue if q is the same for symptomatic and asymptomatic cases (and what would happen if precautions would be used in the case of symptomatic patients). Are the quanta values obtained for seasonal influenza related to the airborne transmission or including droplets transmission?

3. p. 6, ... proximity of seats ... - this parameter is not used in the model, only the occupants and size of the cabin.

4. Conclusions – should be build more around the own results which show first what happens during the flight and not how it would contribute to the global epidemics. Authors recommend estimating infectivity, clearly this is what one wants, but it is not easy, so if authors have new recommendations it would be good to hear them. In second para further contribution by developing hierarchical multi-scale networks is requested – this was neither mentioned before nor the need for them demonstrated.

5. page 6, last sentence – First Class can have different location in other aircrafts – thus the general statement that first class is protected might not be supported by the data – authors should be more specific that it is for the studied aircraft and might not be valid in other cases, current conclusion is too general and overstated
6. The presented calculations are valid only for a full loaded aircraft – this should be mentioned, too. At half loaded economy class can be as good (or better?) as first class.

7. Figure 1 – what are the business class compartments and why there is no direct link between c1 and c3 for example – in other aircrafts might be different.

8. The abstract should be correspondingly adapted

**What next?:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

**Declaration of competing interests:**
I have no competing interests