Reviewer’s report

Title: Potential for airborne transmission of infection in the waiting areas of healthcare premises: stochastic analysis using a Monte Carlo model

Version: 2 Date: 12 February 2010

Reviewer: Chris Settle

Reviewer’s report:

General assessment:

This is a well written paper which addresses the potential risk to patients from exposure in a waiting room to another patient with an infection that can transmit via the airborne route. It approaches the subject in a logical fashion and employs sensible methods to analyse the potential risk using a mathematical model and numerous simulations to determine how likely transmission of infection is from one source case in a waiting room where there may be variable numbers of people who wait for variable times and in variable ventilation conditions. The conclusions drawn appear to be entirely reasonable and the abstract accurately reflects the paper.

Major Compulsory Revisions:

• On page 4 the author states: The values of p, #, t, and S vary and are normally distributed. However, surely # (the quantum generation rate (quanta/h)) and t (the exposure time for susceptible individuals (h)) are not randomly variable in this setting and would not be normally distributed. The patients are waiting for a clinic and have an appointment time. This would lead to an expectation of similar times of exposure for a lot of the patients present. There is only one infected individual, so isn’t the quantum generation rate likely to be fairly constant and similar from one simulation to another?

• As far as potential weaknesses are concerned, it may be worth mentioning that the assumptions made about quantum generation rate are critical to the accuracy of the results here. Therefore elaboration about why the sources for the chosen figures have been selected and are deemed to be satisfactory would be very helpful.

Minor Compulsory Revisions:

None

Discretionary Revisions:

From an infection control in hospital perspective, it would be of interest to apply the methods used here to an exposure risk from an index case with chickenpox (Varicella zoster infection). If the quantum production rate for that infection could
be determined, running it through the model would be a useful addition as it is more commonly an Infection Control issue than measles.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I do not know of an expert in statistics, but the relevancey of the model used here and its execution should be commented on by an expert.

I declare that I have no competing interests