Reviewer's report

**Title:** Construction of the influenza A virus transmission tree in a college-based population: co-transmission and interactions between influenza A viruses

**Version:** 2  
**Date:** 18 July 2015

**Reviewer:** Niel Hens

**Reviewer's report:**

Summary

In this short report the authors extend the methodology by Hens et al. (AJE, 2012) to construct an influenza A transmission tree while acknowledging co-transmission and interactions between influenza A/H1N1 and A/H3N2 viruses. This is a well written short report. I have a limited number of remarks.

**Major essential revisions**
- Why did the authors assume one common generation interval distribution for both viruses? Is the empirical evidence in the database consistent with this assumption? This can easily be tested and added to the manuscript.
- The method by Hens et al. (AJE, 2012) relies on assumptions which are outlined in the discussion of that paper. More particularly the assumption about a stationary generation interval distribution should be mentioned here.
- Another interesting aspect that has not been studied here and given the limited amount of information is impossible to study is the order in which co-infected individuals were infected by both viruses. Some discussion is welcome.

**Minor essential revisions**
- lines 79-80: Do the numbers 235 and 191 refer to the wider community or to the two buildings?
- line 85: Please define clinical patterns more explicitly.
- lines 93-96: Significant in what way? What is the null hypothesis tested here?
- line 115: It’s best to use the same phi throughout equation (1) and the rest of the text.
- line 119: Weibull distribution: Is there any impact of the choice of distribution on results? Why the choice for a Weibull distribution?
- line 125: characteristics
- line 135: is
- line 149-150: Best to add that p=1 here.
- What happens with ties in dates of symptom onset? Maybe I missed it, but it’s best to explicitly indicate how you tackled that issue.
- lines 221-237: It would help to calculate the variance of the different estimates of Re to quantify variability.
- line 229: ‘can cause’ is best rephrased to specify what was found here.
- line 237: delete ‘obviously’
- line 359: should be a non-bold number

**Level of interest:** An article whose findings are important to those with closely related research interests

**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