Reviewer's report

Title: Human Infection and Environment Contamination with Avian Influenza A(H7N9) Virus in Zhejiang Province, China: Risk Trend Across the Three Waves

Version: 2 Date: 24 July 2015

Reviewer: Sirenda VONG

Reviewer's report:

Major compulsory revisions

I. General Comments:
In general the findings of this paper are useful in its area of work as it adds to a body of evidence that supports the urgency to reach high level of biosecurity in poultry trading in China. However, Lab and sampling methods are unclear and lack accuracy (see specific comments). In addition, their limitations are nowhere discussed. Finally recommendations following these findings should be thought over more seriously, rather than just stating the obvious. Besides, the paper should be revised by a native English speaker. Major language issues need to be fixed.

II. Specific comments:
1) Abstract/methods: please provide key points about surveillance, i.e. (1) system for virus detection in humans, environments and poultry, (2) antibodies are for humans and not animals.

2) Abstract/results section:
   a. The first sentence and the last sentence seem to express the same thing, unless positive rates of H7 stated in the last sentence refers to something else than in humans.
   b. Please rewrite the second sentence: wording like positive rates in towns in an abstract is not clear for the readers
   c. Serology is said to be used in the methods while there’s no mention of such kind of results. So no need to evoke it here

3) Abstract/conclusions. The recommendation is a bit weak and needs to be beefed up: evidently who’s against not stopping illegal trading; also please be more specific about the kind of control measures that the authors are referring to in both rural and urban areas?

4) Line 68, please tell us how many cases occurred after market closures during the second wave.

5) Line 68-69: I don’t understand the relationship between “H7N9 virus changed” and “the first 14 cases occurred in rural LPMs in the third wave”?

6) Methods:
a. As it was mentioned in the abstract that all data are based on a surveillance program, please tell us a bit about surveillance in animals
b. Case definition includes pneumonia. Does this mean that surveillance does not capture positive patients with ILI for instance?
c. In the paragraph about surveillance in poultry and environments, please expand on the sampling methods, the sample collection methods. E.g. How were premises selected? how many birds are sampled per premise, how many samples and what samples are collected from each bird. In addition, how are samples collected and transported to the lab. Which lab performed the testing between human, animal and environmental samples? How are they validated in the National system
d. Please expand on the environmental sample collection methods. What methods to concentrate the environmental samples before testing? Reference the techniques.
e. Any changes in surveillance and lab methods from one year to another?
f. What does serology surveillance mean? Shouldn’t it be called cross sectional seroprevalence surveys among healthy poultry workers? How were the workers selected? Was it throughout the outbreak periods? Were they healthy?
g. How were defined towns in urban or rural areas? (line 109)
h. What does it mean when workers are directly in contact with poultry? (line 100)
i. Line 122: if genetic analysis results are not showed, there is no need to mention virus isolation in the methods section
7) Line 133: please indicate the numbers of counties and prefectures with positive samples by wave
8) Line 50-51: when the town closed the LPMs, was it for all LPMs? How compliant were these LPMs with closure measures? What is the difference between wholesale market and LPM? How many cases were detected following market closure during the second wave?
9) Line 152: the sentence sounds like all markets were closed for good. Is this correct?
10) Please provide values and comparisons (+p values) for sentence in line 177-178; it is easier for the readers
11) I don’t understand this sentence in Line 227-230. What do the authors mean? What is the relationship between virus re-assortment and increased environmental contamination? How about just increased shedding or low compliance to biosecurity?
12) Discussion section: Please address in the discussion the limitations (sensitivity/specificity) of surveillance and sampling methods. Were there changes in methods from year to another that may alter the findings?
13) Discussion section: recommendations that are actually useful (feasible and practical) for decision makers and program managers should be further expanded
Level of interest: An article of importance in its field

Quality of written English: Not suitable for publication unless extensively edited

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

Declaration of competing interests:

I declare that I have no competing interests