Reviewer's report

Title: Assessing the role of contact tracing in a suspected H7N2 influenza A outbreak in humans in Wales

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Reviewer: Cristiana Toscano

Reviewer's report:

This manuscript describes contact tracing activities which occurred in the context of an avian Influenza A H7N2 outbreak in poultry, with transmission to humans. The research question described by the authors is not well defined, although it is stated (in the abstract only) that the aim of the study was to examine the role of contact tracing in preventing an outbreak of possible avian human influenza in humans. Most importantly, the methods as described by the authors are not well described and as presented are not appropriate considering the objectives of the study.

Major Compulsory Revisions

1. Background as it is written is not adequate and present information about the outbreak and contact tracing which should be described in results. Relevant background to the study is not presented and the aims of the study are not clearly stated in this section. Reports of other avian influenza outbreaks and human transmission which occurred in recent years and its investigation should be included in this section.

2. The research question posed by the authors is not well defined. This study described contact tracing activities conducted during an outbreak of influenza A H7N2 initiated in a poultry flock which resulted in human cases. Despite being an important tool during outbreak investigation and control, contact tracing usually by itself cannot prevent an outbreak.

3. The end of the background section states that an analysis of the database of cases, and contacts in presented. This is different than what is indicated in the abstract, in which it is indicated that the objective of this study is to examine the role of contact tracing in preventing an outbreak of possible avian influenza in humans.

4. According to BMC instruction to authors, methods section should include the design of the study, the setting, the type of participants or materials involved, a clear description of all interventions and comparisons, and the type of analysis used, including a power calculation if appropriate. None of this was clearly described in the methods section.

5. The authors mention that this study was conducted to examine the role of contact tracing in preventing an outbreak, however it not clear what were the methods used to assess this, and the authors do not define clearly what are the
measures of outcome of this observational study. Was it number or cases, time between symptom onset and treatment/prophylaxis? This should be clearly stated.

6. Methods for the analysis of likelihood of transmission depending on type of contact (home, work and other) should be presented.

7. Social network analysis results are presented, but the authors did not describe its methods in any detail in the manuscript.

8. As the authors indicate in the results section, laboratory confirmation was only possible in 2 of the 14 suspected cases. This is a major flaw in the study. In addition, the authors do not inform whether this was not possible because testing was done, or whether testing was done but did not result positive.

9. Information presented on cases and contacts in the first paragraph of results section is difficult to relate to previous information described in the background section. This should be made clearer and all results of contact tracing should be presented in results section.

10. Second paragraph of results should be better described in methods section. The authors indicate that suspected cases and contacts were linked together through a network of social contacts and this plot allows for identification of individuals likely to be at increased risk of infection. As presented here, this is not an adequate risk measure and should not be used as a single method to identify high risk individuals. Furthermore, no measure of risk can be estimated and therefore it is not adequate to indicate that "home and workplace encounters were more likely to result in transmission".

11. Discussion and conclusions as are presented are not adequately supported by the data provided by this study. The authors indicate in the conclusion section that the setting of this study provides a natural experiment for interventions that have been envisaged in pandemic planning for early stages of pandemic flu. This cannot be concluded considering the results of this study and is therefore not appropriate to be stated.

Minor Essential Revisions

Background:

12. It is not clear whether contact tracing was conducted in Wales or also in North West England. Considered contacts from bird only or also contacts from human cases?

13. It is indicated that "Contact tracing overnight identified 6 suspected human cases and 13 contacts". Later in this paragraph, the authors mention that "contact histories were obtained from 12 suspected cases" - How to these 12 refer to the 6 suspected and 13 contacts described earlier? Likewise, how do the 142 contacts identified relate to the previous identified suspected cases, and contacts? Are these contacts either close birds or human contacts?

Methods-

14. First paragraph of "contact tracing" section in methods should go to
background or discussion section, as it refers to the literature and uses of contact tracing, but not methods.

15. Definitions:
- Suspected case potential case is used in the study but not defined in methods. It is not clear whether "suspected case" is the same as "potential case".
- Contact (general term) is used throughout the manuscript. In methods, only "close bird" and "close human contact" are defined. Does contact refer to any one of these?
- Definition of Home, work, and other contact should be described in this section.

**Level of interest:** An article of limited interest

**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