Author's response to reviews

Title: Protective measures and H5N1-seroprevalence among personnel tasked with bird collection during an outbreak of avian influenza A/H5N1 in wild birds, Ruegen, Germany, 2006

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Version: 2 Date: 7 August 2009

Author's response to reviews: see over
Dear Editors,

Please find attached our revised manuscript entitled “Protective measures and H5N1-seroprevalence among personnel tasked with bird collection during an outbreak of avian influenza A/H5N1 in wild birds, Ruegen, Germany, 2006”.

We appreciate the editors’ and reviewers’ comments and helpful suggestions for improvement, and have enclosed a detailed response to each concern below.

Yours sincerely,

Walter Haas, MD
Editors’ comment:

Informed consent: In your revised manuscript, please clarify if participants for the study gave their informed consent for the study? A statement to this effect must be included in the methods section of the manuscript.

We have included this information in the methods (page 5).
Reviewer's report
Version: 1 Date: 25 May 2009
Reviewer: Tania Winzenberg
Reviewer's report:
This is a well-written paper in an area of high topical interest. My comments are minor in nature only.

Methods
1. Page 4. Study participants – can the authors provide any estimate of the number of soldiers, out of area firemen who were excluded from the study?

Yes, we have stated the estimated number of soldiers and professional firemen in the methods (page 4). However, among whom, how many actually participated in the collection of wild birds is unknown.

2. Page 5. Data collection – more detail is required of the questions asked / items of information elicited by the questionnaire. These in part emerge in the results section but should be given in the methods explicitly.

We have included the asked items in the questionnaire in the methods (page 5).

3. Page 5 PPE use. Please justify the choice of weighting of PPE use items with supporting evidence.

The score of PPE items was defined by considering the transmission mode of A/H5N1 infection although the exact transmission mode is still incompletely understood. Generally, masks, protective clothing, gloves and protective goggles are reported to be most effective PPE-devices against influenza virus (please see reference 13 and 14). However, we considered goggles less effective against A/H5N1 infection as in contrast to other avian influenza subtypes (e.g. A/H7) conjunctivitis was rarely reported as clinic manifestation of A/H5N1 infection. Therefore, the three PPE-devices: masks, protective clothing and gloves received higher scores in the analysis of PPE use.

We have included the rationality for assigning different scores for PPE use in the methods (page 5).

4. Did the questionnaire include any assessment of training given to the participants? This would have been useful.

No, the questionnaire did not include assessment of training given to the participants. We got only indirect information on training of PPE use among participants based on their occupation.

In the discussion, we have emphasised that the estimation (the firemen had more previous experience in the use of PPE owing to their occupation) should be approved by further investigations (page 10).
Results

6. The % of participants who were male is very high. Does this reflect the exclusions made or just the reality of the demographics of the workforce involved?

The percentage of male study participants is identical with that of male eligible personnel tasked with bird collection. We have included the percentage (96%) in the results (page 7).

7. What is meant by government workers eg office staff or outdoor workers etc?

They were office staff (administrative staff). We have included this information in the background (page 3).

8. Page 7 Conditions of wild bird collection – this could be reported entirely as text, and omit the table 2. As it stands, the reporting is repetitious.

We have omitted the Table 2.

9. I note the low response rate of the fireman compared to other groups as well as their high PPE use. Could response bias explain this finding? Perhaps fireman taking aprt in the study were more highly motivated and interested and used PPE more intensively than their non-responding colleagues? This should be addressed specifically in the limitations in the discussion

Yes, we have added this point in the limitations in the discussion (page 12).

10. Page 8 Results for problems using PPE are given but this is not mentioned in the methods. Again, a clear and detailed description of the questionnaire items should be given in the methods.

We have included this item in the methods (see also comment Nr. 2) (page 5).

11. Is there data on how many participants were offered but did not accept seasonal influenza vaccination in Feb 2006, and if so any data on why they chose to accept or not accept this offer?

According to the Ruegen Health Office, all participants had been offered an influenza vaccination. In the results, we stated 47% participants had received an influenza vaccination. Therefore, 53% had been offered but not accepted the vaccination. We have included this information in the discussion (page 11).

However we have no information on why they chose to accept or not accept the offer.
Version: 1 Date: 19 July 2009
Reviewer: Christian Sandrock
Reviewer’s report:
Overall, this manuscript is a straightforward and well written study evaluating the PPE compliance rate among wild bird handlers during the H5N1 outbreak in Northern Germany. Most handlers wore some form of PPE and this level varied among fireman (highest) and government workers (lowest). Upon confirmation, no handlers had H5+ serology although 5 individuals did have PN+ results that were confirmed negative with MN, suggesting a N-1 cross-reactivity with seasonal H1N1.

This paper is important since it adds to the base literature on exposure and seroconversion among avian influenza, particularly in a western country where appropriate training and equipment is readily available (lower risk country). It is well written with few grammatical errors. The statistical and methodological approaches are good. Depending on the editors comments, I think this manuscript would add to the body of work currently available. I have 2 additional points:

1. The compliance for PPE with mask based on the scoring system was lowest for masks, one of the 3 most important items along with gloves and gown. What kind of mask was used? Did this score appear to differ when looking at various brands of mask (e.g. N-95 vs surgical)? If you do not have this data, what do you make of this lower compliance and what would you recommend governmental or response agencies do?

- Multilayer surgical, FFP1, FFP2 and FFP3 masks were used. No differences among the kinds of applied masks regarding mean score of masks were found. Based on our study no change of official German recommendations (reference 5-7) regarding the kind of masks used could be recommended.

- We have included the information on the kind of used masks in the results (page 8).

2. Your overall H5 rate was 8.4% among about 1880 birds tested. That is only about 160 birds in total with H5, with many responders probably never having been in contact with H5. How does that effect your study? If you screened for H5 plus other low path AI viruses, would that have enhanced your study? Plus, what condition were the birds when they were handled (deceased?). This biggest exposure comes with live handling unless you are consuming a dead bird, so how does that effect your low rate. Please comment.

- About 2200 birds were sent to the laboratory, of those 1881 were tested. We don’t have the information on how many birds were collected but not sent to the laboratory. Therefore, it can be assumed that more than 160 birds were H5 positive.

- Furthermore, the most commonly affected birds were swans (90%) and according to the reports given by participants, the most common species of collected birds were swans (86%), as well. This supports that participants had a high risk of potential exposure.

- In this study, we focused on use of protective measures to prevent exposure by potentially A/H5 infected birds and on the risk of human A/H5 infection. Information
on low path AI viruses among wild birds was not available. Therefore, exposure to low path AI viruses could not be analysed.

As we presented in the results (conditions of wild bird collection, page 7), a large proportion of collected birds were still alive and collection was carried out under difficult environmental conditions. This, in our opinion, is an additional reason that the risk of exposure to A/H5 for study participants can be estimated to be high.
Reviewer's report:

One year after an influenza A/H5N1 outbreak among wild birds, a retrospective survey was held among staff involved in culling activities to assess adherence to recommended protective measures, and to explore associations with clinical and serological markers of infections.

This study is of interest to evaluate and improve future similar activities, but could also be of relevance to explore issues related to potential promotion of personal protective measures by the general public.

There are just a few issues to address still:

- The authors should modify their conclusion that compliance among firemen was significantly better than among government employees. As only 55% of invited firemen responded versus 88% of government employees, it cannot be excluded that selection bias among firemen was responsible for this difference.

  We have included this point in the discussion (page 12).

- It is unclear how and how many people were approached and were recruited to participate in the culling. Was this approach and participation the same among all groups studied? How large a sample has been included in this study, and how characteristic are they of the group they represent? Again, this can have introduced bias in the comparison between the professional groups.

  We don’t know how or how many people were approached to participate in culling. However, we identified 159 personnel tasked with bird collection that fulfilled the inclusion criteria of our study. We have no information on whether the approach to participate in culling was the same among all groups. However, the participation rate of these groups was different.

  Of the 159 eligible people, 97 (61%) participated in our study. Information on non-responders was not available except gender. The percentage of male study participants is identical with that of male eligible personnel tasked with bird collection.

  We have included the percentage (96%) in the results (page 7).

- What risk factor data were collected in the questionnaire except profession, age and sex?

  PPE use (PPE-score), species of collected birds, finding situation, status of collected birds, Influenza vaccination status and acute respiratory symptoms were all considered as possible influencing factors to A/H5N1 seroreactivity and were collected in the questionnaire.

  We have included these items in the methods (page 5).
It is unclear why only the association between occupation and adherence is reported. Eg was this modified by age, or other variables?

We tested association between adherence and other variables but only the association between occupation and adherence was significant. We have added non-significant results in the results (page 8, 9).

Stratified analysis of the data by age and sex is not informative because of the specific characteristics of age and sex among the participants.

Minor comments:
- Maybe the discussion could include a paragraph on whether any lessons can be learned regarding the preparation, impact and follow up of an advice to the general public to use personal protective measures, such as social distancing, hand washing, mask wearing?

Yes, it’s an important point. We included it in the conclusions advice based on our results, especially training of PPE (masks) use (page 12-13).

Since we did not investigate social distancing or hand washing in our study, we could not mention those in our manuscript.

-I would suggest to use the more active ‘adherence’, rather than the passive ‘compliance’.

Thanks for this suggestion. We have changed the word.