Reviewer's report

Title: Seasonal influenza risk in hospital healthcare workers is determined by household rather than occupational exposures: results from a prospective cohort study in Berlin, Germany.

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Reviewer: Sirenda Vong

Reviewer's report:

The authors posed an interesting question that is well addressed through a sound methodology. The methodology is clear and the discussion is well balanced and adequately supported by the data. However there are some essential clarifications that need to be provided by the authors.

- Major Compulsory Revisions

1) The whole basis of the study is the selection on controls. It was unclear to me as to who these controls were. Little information was provided by the authors. Could they expand? Age, gender, occupation, methods of selection ..etc. Were all of them selected among non-health care personnel working in the selected sites or among people attending these sites during the time when the study was enrolling?

2) In the laboratory investigations section: the rational for SCII case definition is unclear. I can understand why titer of 5 and 10 could be considered alike. However, what is the reason why the authors would assume this? Does this mean that a titer of 20 could be considered positive assuming a four fold rise from a baseline titer of 5? I would advice the authors to show the data regarding the titer levels in goeometric means, median and range among cases and controls.

- Minor Essential Revisions

1) The definitions of SCII in the abstract and the methods section don’t match

2) Again in the abstract, the authors stated logistic regression model to perform multivariate analysis while it was not clear to me what the authors used when reading the stat analysis section. Was it a fixed or random effect model or a log regression model accounting for clusters?

3) In the multivariate analysis paragraph of the results, the authors stated rho and Chi2 test for p value while the methods section reads the use of the log-likelihood ratio test.
4) It’d be useful to tell us which statistical software and which generalized linear model was used for the analysis particularly for the two-level multivariate analysis

- Discretionary Revisions

1) The assumption that health care workers are at higher risk of being infected by influenza viruses in hospitals are commonly heard; before this study I have never heard of any national advisory boards that recommended vaccination among health care workers based on higher risks in health care settings. Apart from Germany, could the authors expand on this and name other EU countries that recommend vaccination also relying on this basis?

2) Please provide references on kinetics of antibodies to explain persistancy titers of >40 at 2-3 months after point of infection

3) Sorry to be picky but I’m used to having sentences in English beginning with letters, not numbers

4) A table displaying serological results by type of infections (ARI, ILI..) and cases/controls would help

Level of interest: An article of importance in its field

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