Rapid Reviews COVID-19

Review 1: "Seroprevalence of SARS-COV-2 Antibodies in Scottish Healthcare Workers"

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**RR:C19 Evidence Scale** rating by reviewer:

- **Potentially informative.** The main claims made are not strongly justified by the methods and data, but may yield some insight. The results and conclusions of the study may resemble those from the hypothetical ideal study, but there is substantial room for doubt. Decision-makers should consider this evidence only with a thorough understanding of its weaknesses, alongside other evidence and theory. Decision-makers should not consider this actionable, unless the weaknesses are clearly understood and there is other theory and evidence to further support it.

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**Review:**

The Authors compare SARS-CoV-2 antibody prevalence of health care workers (HCWs) to that of a general population. They report an over 3-fold greater seroprevalence among HCWs. In addition, they find that several persons testing positive for antibodies showed an earlier negative RT-PCR test result.

Below I list my suggestions for improving the manuscript.

1. **Assess extent of potential HCW response bias**

   Recruitment of HCWs with knowledge that they would receive an antibody test likely biases the sample towards persons who think they would test positive. This is an important limitation, but one that could be alleviated somewhat if the Authors give the readers a sense of the potential magnitude of this response bias. (i.) Response rates to the survey, (ii.) sociodemographics of non-respondents, and (iii.) RT-PCR data on non-respondent HCWs would assist with assessment of this potential bias.

2. **Describe in more detail the selection of the control (comparison) population**

   The Authors devote scant text to describing the comparison (i.e., non-HCW) population. Also, when they do, they note “randomly selected” but then describe age- and sex- matching. These procedures are inconsistent with each other. How were the clinic-based blood samples retrieved? Would anyone argue that persons getting surgery at NHS Tayside are representative of the broader Scottish population?
Also, if age- and sex- matching were performed, conditional regression models (rather than unconditional logistic regression models) would seem appropriate. Furthermore, the Authors introduce a second control population with even less description (Scottish surveillance data), which makes it very challenging to interpret any odds ratio.

3. **Figure 2: compares OR only within HCWs?**

Figure 2 appears to compare SARS-CoV-2 antibody positivity by symptom (yes/no), among only HCWs, since I do not believe that the Authors have symptom data on comparison populations. If this is the case, I am unclear of the utility of p-values for hypotheses that were not stated *a priori*. At a minimum, for this exploration (and for the exploration about HCW type) I would include a false discovery rate correction for multiple testing.

**Minor points:**

- Data are plural. So Data were analyzed, not “Data was analyzed.”
- Prevalence is a proportion, not a rate. Avoid the term “seroprevalence rate.”