Reviewer's report

Title: The Changing Enterovirus 71 Seroepidemiology and Solid Herd Immunity against Poliomyelitis among Children in Singapore: Nature versus Nurture?

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Reviewer: Holger F. F Rabenau

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Title: The Changing Enterovirus 71 Seroepidemiology and Solid Herd Immunity against Poliomyelitis among Children in Singapore: Nature versus Nurture?

Journal: BMC Infectious Diseases

Authors: Li Wei Ang et al

In the above mentioned manuscript Li et al. describes the seroprevalence of EV71 and poliovirus among Children in Singapore.

In general, the manuscript is of some interest but the combined description of the EV71 and Polio seroprevalence is not very useful.

1. Is the question posed by the authors well defined?
The question is adequate defined

2. Are the methods appropriate and well described?
The methods are not always described in an appropriate way.
Page 6 (EV-NA): what kinds of NA controls were used? Did you use a quantified (reproducibility) positive control?
Page 6 (Polio-ELISA): The ELISA just detects the presents of Polio antibodies but do not discriminate if antibodies to one or two of the three polio types are missing. So if an individual just have antibodies specific to Polio type 1 it might be susceptible to a Polio 2 or 3 infection. The assay used seems not to be an adequate marker for an seroprevalence survey to describe the Polio immunity in a population. Why didn´t you use a neutralization assay – which is the gold standard for polio immunity?

3. Results:
In Figure 1 and 4 the upper and lower bound of the 95% CI should be shown for each age group

4. Are the discussion and conclusions well balanced and adequately supported by the data?
No – the discussion is too long and do not really discuss the results (e.g. is there any explanation why the authors find different EV71 prevalences in different ethnic groups). Page 10 and parts of page 11 can be omitted. Furthermore it
should have been discussed why the authors didn`t include the CA16 in the survey. This would have been of interest because CA16 have also caused large HFMD epidemics.

5. Are limitations of the work clearly stated?
No limitations are stated (relevance of Polio data in respect to immunity to all three Polio types).

6. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
Yes

7. Do the title and abstract accurately convey what has been found?
Abstract: in the “results section” the correct numbers should be written (e.g. instead of 27% 26.5%

8. Is the writing acceptable?
The writing should be re-checked – in some parts it sounds clumsy.

The manuscript is recommended for publication after Major Compulsory Revisions of the above mentioned comments and clarification. Furthermore it is recommended that the authors focuses the manuscript to the EV71 seroprevalence and skip the Polio data (the data to Polio are only of very limited value, because they do not represent the seroprevalence of immunity (to all three Polio types).

The priority of the manuscript publication is medium.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**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'