Reviewer's report

Title: Burden of severe RSV disease among immunocompromised children and adults: a 10 year retrospective study.

Version: 0 **Date:** 03 Aug 2017

Reviewer: Philippe Noriel Pascua

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INFD-D-17-00952

Chatzis et al., 2017

BMC Infectious Disease

Chatzis and colleagues conducted a retrospective study on the burden of severe RSV disease among immunocompromised children and adults in a 10 year period from 2005-2014. Looking at data from patients in the University Hospitals of Lausanne and Geneva, Switzerland, they showed that 38% of the total immunocompromised patients required hospitalization. The investigators further highlighted the important strength of the study relying on the large variety of immunocompromised individuals categorized in 6 mutually exclusive subgrouping. The data presented in this manuscript can be considered at best for regional interest only and some conclusions drawn are not well supported. Moreover, there are several, analysis and interpretation problems with the study which must be corrected.

1. Abstract page 2, lines 28-32. Authors should state clearly in the manuscript text that inclusion of both outpatient and inpatient individuals in the study. To emphasize more on such category, consider re-segregation of Table 1 into outpatient and inpatient. Moreover, there are a lot of information in Table 1 that were not even described raising concerns on their importance/significance to the study (e.g. ANC, ALC).
2. Results from the virology studies seems to be under appreciated. Authors concluded that bacterial co-infection was a significant determinant of associated LRTI and pneumonia but failed to acknowledge the role of viral co-infection in such conditions or in the exacerbation

of the disease burden. Table 1 also shows that there are more viral than bacterial co-infections overall. Immunocompromised patients are also known for prolonged shedding of pathogens (e.g., virus shedding) requiring extended antibiotic treatments. Were these sought for in the patients?

3. The term RVS-attributable hospital admission or disease is also a misnomer in this study because of the presence of bacterial and viral co-infections in a number of their samples. The analysis of comparators should have been chosen amongst those without any other identifiable virus/pathogen to attribute disease burden solely to RSV. Whether or not the pathogens found is related to the burden of the disease cannot be determined. There should be adjustment in the analysis for other confounders like comorbidities

4. The authors should also make it clear why their analysis in Table 3 and 4 were only done for 215 patients compared to the 239 overall positive samples? Additionally, Table 1 and 2 are showing N=175 for adults but about 5 have missing values and were not included in calculations which makes the data presentation confusing to follow. Would weeding out the 5 samples from total N have a significant impact on the overall outcome/conclusions?

5. Page 9, lines 45-56. Would other underlying medical conditions (e.g., diabetes, obesity, etc) also be factors for the severe disease in adult patients (aged 42-64 y/o) compared to children?

Minor comments:

Title should be re-written as "Burden of severe RSV disease among immunocompromised children and adults: a 10-year retrospective study"

Page 3, lines 43-48. Consider revising this statement. It is unclear as it is written.

Page 8, lines 14-16. Requires revision for grammatical error.

Are the methods appropriate and well described?

If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?

If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?

If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?

If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English

Please indicate the quality of language in the manuscript:

Acceptable

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