Reviewer’s report

Title: Differences in Gram-positive bacterial colonization and antimicrobial resistance among children in a high income inequality setting

Version: 0 Date: 09 Apr 2019

Reviewer: Cezar Riche

Reviewer's report:

The article presents epidemiological data of children colonized with S. aureus and BHS in a city with "high income inequality", in Southeastern Brazil, and discusses the influence that different socioeconomic status could have on it. The design is appropriate, the proper references were included and the data is original. However, it has two major concerns that must be reviewed. First, it must be made clear whether the written consent of the child's legal guardian was obtained. Second, the paper focuses on colonized patients, and there are patients with symptoms and/or illness in the analysis. These patients have to be excluded and the necessary corrections should be made.

Abstract: no comments.

Background: no comments.

Methods:

In line 93: "part of the Greater Rio de Janeiro Metropolitan Area, in the state of Rio de Janeiro" correct for "in Rio de Janeiro metropolitan area, Rio de Janeiro state, Brazil".

In line 100: "The clinic is part of a public health post" did you mean Primary care facility? In must be corrected.

In line 106: "except from June 12th to June 24th due to logistical constraints during the 2014 World Cup, which took place in Rio de Janeiro." Should be suppressed.

In line 111: Was the child's legal guardian written consent obtained? If yes, it must be stated.

Lines 112-113: "A mobile questionnaire… by a trained interviewer." Should be rephrased for "A questionnaire for socioeconomic data was completed by child's legal guardian."

In line 118: "mecA gene via PCR" correct for "mecA gene via polymerase chain reaction (PCR)".
In line 120: What did you mean with "In turn"? Please, make it clear.

Lines 133-137: "For this analysis, we classified pediatric patients into three SES groups…" this criteria implies a high chance of misclassification, since the "residence location / attendance clinic" does not assure the socioeconomic status. This must be discussed as a possible limitation.

Results:

In line 159: "public clinics" correct it for singular.

Lines 175-188: "Differences in BHS serogroups and S. aureus SCCmec types" The text repeats the same information presented in table 2, I suggest present the relevant information and suppress the second paragraph.

In table 2: Correct serotype for "Lancefield Group" to make the information presented unambiguous. A single isolate is either Lancefield group C or G, it cannot present both antigens. Please clarify this in the table.

Lines 209-212: This is the major concern of this article. Why were considered as colonized, children with "symptoms/illness"? This should have been considered an exclusion criterion. It becomes even more relevant once BHS are among the main causes of throat and upper respiratory tract infections in children. These patients must be excluded from the analysis - note that this implies the review and possible removal of tables 2 and 4, and corrections in relevant paragraphs should be made.

Discussion:

In line 220: Correct for "Bacterial isolates…"

In line 224: "Geographically, they often form the barrier between these two groups." It must rewrite or suppressed.

Lines 224-228: This part of the discussion must be reconsidered. How could it be that staying within in a region without infrastructure (slum) a factor for less exposure to microorganisms?

In line 240: "MRSA colonization among all SES groups (6%)…" Please, confirm the frequency. (8.1%?)

Lines 256-266: "Differences in antibiotic use… treatment regimen by SES groups." This information shouldn't be discussed once the data wasn't presented/evaluated neither referenced from a previous paper. Consider suppressing this paragraph.
Lines 267-271: As previously stated, this population must be excluded from the analysis.

Conclusion: no comments.

**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.

Yes

**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 recommend additional statistical review

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Needs some language corrections before being published

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