Reviewer's report

Title: Increased Prevalence of Methicillin-Resistant Staphylococcus aureus Nasal Colonization in Household Contacts of Children with Community Acquired Disease

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Reviewer: Benjamin Mordmüller

Reviewer's report:

The manuscript 'Increased Prevalence of Methicillin-Resistant Staphylococcus aureus Nasal Colonization in Household Contacts of Children with Community Acquired Disease' by Rafee et al. reports the results of a cross-sectional study on Staphylococcus aureus colonization characteristics in affected children and their families.

The results look interesting are presented in a concise manner. Nevertheless, from the statistical point of view some major criticism remains.

Study design:
A cross-sectional design is appropriate for this kind of study. Anyhow, a general problem in observational studies is to obtain structurally similar groups. The authors should discuss the apparent differences between the groups and possible problems that may arise in much more detail. Points to consider shall include:

i) in the study group almost half the potential participants were excluded; if they would have been included it may have changed the findings at least for the colonization rates in the children (or not?),

ii) why is the control group so small? One could have matched much more individuals to the control group;

iii) is there a reason to use children from the hospital instead from the community?

Statistics:
Presentation of results is not satisfactory. This should be re-done. Specific points of criticism are:

i) details of sample size calculations (beyond naming of a software) should be presented and a reason given why less than one third of the intended sample size was actually recruited.

ii) The modeling strategy should follow the study design. A model that contains a random error term my be a good idea, since families are nested within 'cases' and 'controls'.

In conclusion, I think that the manuscript contains interesting and valuable
information, but presentation of the data, discussion and statistical modeling should be considerably improved before publishing in BMC Infectious Diseases.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests