Reviewer's report

Title: Oropharyngeal and nasal Staphylococcus aureus carriage by healthy children

Version: 1  Date: 18 November 2014

Reviewer: Michael David

Reviewer's report:

Thank you for the opportunity to review the manuscript “Oropharyngeal and nasal Staphylococcus aureus carriage by healthy children” by Susanna Esposito, et al.

The authors tested 497 healthy students at five schools in Milan, Italy for S. aureus carriage by PCR assay in the oropharynx and the nares; 53.1% had a positive test at one or both sites. They found that 25.9% carried S. aureus in the oropharynx, 39.2% carried it in the nares, and 12.1% carried it at both sites. 69/497 only carried S. aureus in the oropharynx and would not have been identified if only nares cultures were obtained; the use oropharyngeal swabs increased the measured prevalence by 13.8%. The authors found that oropharyngeal carriage was more common as the children were older and the opposite was true for nasal carriage. MRSA was only found in 3 children, a prevalence (0.6%) much lower than has been found in many other studies in other countries, where up to 15% of healthy children have been carriers of MRSA. The authors excluded children from their study with a chronic medical condition, those who had received an antibiotic in the previous three weeks, and apparently also those with a mild upper respiratory tract infection. The authors assessed a number of potential predictors of S. aureus colonization and found no associations with smoking among their parents, ethnicity, number of siblings, gestational age, birth weight, breastfeeding history, hospitalization in the previous three months, allergy history, or vaccination history.

The study is well designed overall. The manuscript is very clearly written and concise.

I have several comments and questions for the authors:

Major Compulsory Revisions

1. For identification of MSSA and MRSA, a commercial RT-PCR system was used. How do the results of this commercial assay compare with culture of the nares or oropharynx after broth enrichment? Are there references on this? Can the test yield a false-positive result, and if so, how often is this to be expected? Has this test been validated against culture for both of the tested anatomic sites?

2. Children who had received an antibiotic recently may have been more likely to be a carrier of MRSA although they may have been otherwise healthy. This should be added as a limitation to the study that may have led to a bias toward underestimating carriage of MRSA in this population.
3. If the authors have any information available, it would be helpful to know if the enrolled children were representative of all of the children in the schools from which they were drawn. Was the sample representative by age, ethnicity, and gender? If this information is not available, it should be noted as a limitation of the study.

Minor essential revisions

1. The lack of bacterial culture prevents the authors from presenting any genotyping or phenotyping data. Thus, they are not able to assess how often children with dual-site carriage had >1 strain type of S. aureus, which has been found to be a common phenomenon in children in previous studies. The authors may consider noting this as a limitation to their study.

Once again, I thank you for the opportunity to review this manuscript.

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

**Quality of written English:** Acceptable

**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.