**Reviewer’s report**

**Title:** Bacterial Contamination of Home Nebulizers in Children with Cystic Fibrosis and Clinical Implication on the Number of Pulmonary Exacerbations

**Version:** 0  **Date:** 02 Mar 2019

**Reviewer:** John David Aubert

**Reviewer's report:**

This study compares the bacterial contamination of 61 home nebulizers with the sputum of the 61 CF children under treatment with these nebulizers. The authors found a high rate of bacterial contamination and a strong correlation between nebulizers and sputum for Ps aeruginosa and St aureus. There was also a correlation between the number of exacerbations and the presence of nebulizer contamination.

More information is needed regarding the types of nebulizer used (all with an air compressor? Jet or mesh nebulizer?) . We need also to know if these nebulizers were all used for inhaled antibiotics or were some children only under bronchodilators or saline?

The authors acknowledge in the discussion that the correlation found between sputum microbiology and nebulizer contamination does not allow to identify the primary source of infection. Indeed it is likely to be a bidirectional process. Genetic identification of the bacterial strains was beyond the aim and the tools available for this study. However it would strengthen the relevance of the correlation if the antibiogram of the bacteria found in sputum and in the nebulizer was available and showed similarity.

On the clinical side, an important piece of information is the prior recommendation made to the patients and their parents for the use and cleaning of the nebulizers, both prior to this study and now according to the present results.

The last paragraph on limitations of the study is not comprehensible: what do you mean by "many confounding factors that may cause mistakes in interpretation"?

Figure 1 & 2: the acronym CONS should be explained (presumably coagulase neg staph?). Coli and Albicans should be written with small caps
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?
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Yes

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