Reviewer’s report

Title: Comparative bench study evaluation of different infant interfaces for Non-Invasive Ventilation.

Version: 0 Date: 09 Feb 2018

Reviewer: Nadir Yehya

Reviewer’s report:

This is a bench study comparing mannequin-ventilator interactions between 2 non-invasive interfaces, and an endotracheal tube, in a test lung. The study is direct, the results explained in a straightforward manner, and the authors acknowledge their limitations. The overall interest matter is very niche, but I feel important, as we lack data on many of these devices. I have a few thoughts.

1) The authors used non-parametric statistics to compare results, but chose to present their data as mean +/- SD. Do the authors need to do a Wilcoxon? Their data look reasonably tightly distributed, as is common in bench studies. Parametric statistics are generally better powered.

2) How is exhalation handled on the Respireo (exhalation holes on mask, at the Y piece)? Does this affect any measurements when comparing across interfaces.

3) I am intrigued by the improved SwingTrigger and PTP for the Respireo, compared to the endotracheal tube. I would like for the authors to speak more about why this might be. They mention resistance of the ET. One of the issues with bench models is that they poorly capture the airflow dynamics at the pharynx (especially dynamic collapse), and may make the Respireo seem better. This can be added as a limitation.

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.

Yes
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

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Needs some language corrections before being published

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