Reviewer's report

Title: Performance of capnometry in non-intubated infants in the Pediatric Intensive Care Unit

Version: 2 Date: 14 April 2014

Reviewer: Sotirios Fouzas

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Major Compulsory Revisions

1. Dead space ventilation, respiratory rate and tidal volume can equally affect capnographic measurements (Fouzas et al. J Pediatr 2014; 164:283-8). Using linear regression analysis, the authors have examined the relationship EtCO2-PaCO2 and EtCO2-PtcCO2 after adjusting for weight and respiratory rate. However, they do not provide any kind of results! In my opinion, such data should be reported as the main finding of that study. Therefore, I suggest to the authors to provide a table showing in a first column the separate effect (beta coefficients) of PaCO2, weight, and respiratory rate (predictive variables) on EtCO2 (dependent variable – preferably log-transformed), and in a second column the combined effect (i.e., adjusted beta coefficients). Then, if the addition of weight and respiratory rate does not change significantly the beta coefficient of PaCO2, the authors could conclude and highlight that the EtCO2-PaCO2 relationship is unaffected by weight and respiratory rate. The same should be also performed for EtCO2-PtcCO2. Perhaps a person familiar with this kind of statistics could be of great help.

2. The authors must expand their discussion, including findings from other studies on small infants using both side-stream (Lopez et al. Pediatr Pulmonol 2011; 46: 896-902) and main-stream capnography (Fouzas et al. J Pediatr 2014; 164:283-8).

Minor Essential Revisions

1. Introduction. Perhaps the authors should mention that pulse oximetry is unreliable in detecting hypoventilation, excepting extreme cases (Fouzas et al. Pediatrics 2011; 128: 740-752).

2. Figures. Correlation plots and Bland-Altman comparisons could be presented in one figure (i.e., Fig 1A and B), separately for EtCO2-PaCO2 and EtCO2-PtcCO2.

3. Table 1 needs a footnote to explain that those figures are means (median and range).

4. Results, first paragraph. The authors should not repeat the results that are included in Table 1 here.
5. Results. The results should be straight. The authors should just report their findings and avoid phrases such as “However, because correlation is expected….” or “One of the specific goals …”

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

**Quality of written English:** Needs some language corrections before being published

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

**Declaration of competing interests:**

I declare that I have no competing interests