Reviewer's report

Title: Automated FiO2-SpO2 Control System in Neonates Requiring Respiratory Support: a Comparison of a Standard to a Narrow SpO2 Control Range

Version: 2 Date: 16 March 2014

Reviewer: Christian Poets

Reviewer's report:

This study investigated the effect of narrowing the target range used with the AVEA FiO2 controller from 87-93% to 90-93% using a randomized crossover design in 21 infants. They found that the narrower range resulted in tighter FiO2 control and in less time with an SpO2 of 80-86%.

Compulsory Revisions:
1. This is a well-written manuscript on an important subject. However, I am somewhat confused by their terminology: they use the terms “target range” and “control range”, but do not specify unequivocally what is meant with each of these terms (while target range is defined as 87-93%, it remains unclear what is meant by control range)
2. Regarding their results, they should justify why they had only 2 manual FiO2 adjustments/12 h, compared to 10/24 h in Claure’s or 52/24 h in Hallenberger’s study, despite a narrower target range. How can this discrepancy be explained?
3. If the planned study duration was 3 days, infants completing only 2 days should be excluded.

Minor points
1. Methods, para 2: what is an evening effect?
2. Some spelling mistakes, e.g. “desaurations” or “difference manual control strategies”

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

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 hold rights to a competing FiO2 controller than used here.