

Masimo Radical and N-595 Clinical Use Evaluation in the NICU.

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Purpose

Motion artifact, low perfusion, high intensity light, and necessity of rapid response have confounded previous generations of pulse oximeters requiring introduction of newer devices. Masimo SET has been shown to be superior in trials tracking saturation changes, bradycardia, motion artifact, and low perfusion. The Nellcor N-595 has alarm management technologies with changes to the core algorithm designed to enhance performance. Of importance is the perception of how each performs relative to the expectation of nurses, respiratory therapists, and physicians using the technology.

Methods

Both manufacturers were invited to demonstrate their oximeters in a 40-bed level III NICU that had used Nellcor oximeters for over 15 years. Product representatives were permitted to give in-services to NICU staff, during a 7 day clinical evaluation, consecutively but non concurrently. The two physician groups were in serviced separately. Each company gave their own evaluation forms to NICU staff. A drawing for a prize was promised for respondents to the Nellcor survey.

Results

In total, 26 responses were obtained for the N-595; and 31, for the Masimo SET. Both the Masimo SET and N-595 elicited marks at the upper end of the checked inventories. In reliability and accuracy of display or correlation of oximeter, Masimo SET was judged superior ($p < 0.05$). Masimo SET was given unsolicited praise for its clinical feature set. Of the submitted written surveys, 75% praised Masimo SET for its improved performance with motion, low perfusion, transport, sensor durability, or day-to-day clinical use. In all, 12% of the staff indicated positive comments after filling out the Nellcor survey. After both evaluations, preference for purchase was elicited from all NICU staff ($n=28$). 93% preferred Masimo SET.

Conclusion

Despite improvement promised by the N-595, Masimo SET was selected for its clinical performance.