

Changing to Masimo SET Improves Patient Outcome and Staff Satisfaction

Bogy AT, Martinez D. *Respiratory Care* 2001;46(10):1140

Introduction

“The high incidence of false alarms with standard-type pulse oximetry (SPO) is well documented.¹ In a hospital setting, the use of advanced pulse oximetry (APO) in children has been associated with a reduction of false alarms.² APO has claims of resistance to motion and low perfusion but the impact upon the patient and staff in a sub-acute care setting is uncertain.” All pulse oximeters in a sub-acute care facility were changed from the Novametrix models 515B and 520A (SPO) to the Quartz Medical model Q-400 containing Masimo SET (APO). The other change was from use of a semi-reusable pulse oximeter sensor (Novametrix SuperBight Y-sensor) to Masimo LNOP adhesive sensors. The authors evaluated the impact of these changes.

Methods

The primary use of pulse oximetry was in ventilator dependent children and most were on oxygen. Outcomes in 39 patients were compared for matched time periods (18 patients pre and 21 post-change to Masimo). Patient outcomes and measures of staff satisfaction were compared.

Results

Skin breakdown (including burns) was reduced from 6 pre to none post-change. The staff perceived a > 85% reduction in false alarms and all had greater confidence using Masimo SET pulse oximetry during acute procedures (e.g., pulmonary toilet) and sprinting periods (unassisted ventilation endurance challenges). Clinicians noted that sprinting was commonly accompanied by significant patient motion. Previously, this caused the Novametrix pulse oximeter to display suspiciously low SpO₂ values causing the caregiver to shorten the sprinting period, thereby increasing the time for weaning from assisted ventilation and supplemental oxygen. Nurses also commented that since converting to Masimo SET pulse oximetry that there were fewer calls to MDs related to questionable SpO₂ values and to RTs for troubleshooting of pulse oximeters.

	CPO	Masimo SET
Skin Injury	6	0

Authors' Discussion and Conclusion

“The use of advanced pulse oximetry (Quartz model Q-400 with Masimo SET algorithms and LNOP adhesive sensors) resulted in improved patient outcomes and resulted in greater staff satisfaction compared to use of a standard pulse oximeter (Novametrix models 515B and 520A using the SuperBight Y-sensor).” Specifically, there were fewer false alarms, less staff stress, a zero incidence of skin injury, and greater reliance on pulse oximetry for weaning of oxygen and ventilation. “Masimo SET pulse oximetry reduced the time for weaning from mechanical ventilation, need for supplemental oxygen and frequency of unnecessary airway suctioning procedures in most of our patients.”

1. Barker SJ, Shah NK. The effects of motion on the performance of pulse oximeters in volunteers. *Anesthesiology* 1997;86(1):101-8

2. Malviya S, Reynolds PI, Voepel-Lewis T, Siewert M, Watson D, Tait AR, Tremper KK. False alarms and sensitivity of conventional pulse oximetry versus the Masimo SET technology in the pediatric postanesthesia care unit. *Anesthesia and Analgesia* 2000;90(6):1336-40