ICU MANAGEMENT & PRACTICE

New Study Assesses the Effects of Masimo Patient SafetyNet™ on Nursing Workflows in the General Ward

Researchers Found That Use of Patient SafetyNet with Masimo SET® Pulse Oximetry and Acoustic Repsiratory Rate (RRa®) Monitoring Reduced Nursing Workload Related to Postoperative Respiratory Assessment by More Than 60%

NEUCHATEL, Switzerland--(BUSINESS WIRE)-- Masimo (NASDAQ: MASI) announced today the findings of a study published in the Journal of PeriAnesthesia Nursingin which Drs. Mashasi Ishikawa and Atsuhiro Sakamoto at Nippon Medical School in Tokyo evaluated the utility and impact of Masimo Patient SafetyNet™ by surveying nurses before and after implementation.[1] The researchers found that use of the remote monitoring and clinical notification system decreased the number of physical assessments needed, resulting in a reduction in the nursing workload, and also recommended the use of continuous respiratory rate and oxygen saturation monitoring (which was implemented as part of the system) after general anesthesia for patients' safety.

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Noting the importance of frequent postoperative respiratory assessment, especially for patients on opioids, the researchers hypothesized that use of Patient SafetyNet, which displays near real-time information from connected bedside patient monitors at central/remote surveillance stations, could facilitate such evaluations "without major patient complications." To study the effects of adopting such a solution, they implemented Masimo Hospital Automation™ with Patient SafetyNet and Masimo Radical-7® Pulse CO-Oximeters® at the bedside, on all general floors. After implementation, patients' oxygen saturation (SpO2) and acoustic respiration rate (RRa®) were continuously monitored at the bedside, with the data relayed to the central Patient SafetyNet View Stations. Remote alarm notifications were programmed for the following conditions: SpO2: < 90% for > 10 seconds; bradypnea: < 8 breaths/minute for > 2 minutes; tachypnea: > 30 breaths/minute for > 2 minutes. When any of these physiological limits was violated, nurses performed a manual respiratory check (which typically involved use of a stethoscope and a pulse oximeter).

To measure the impact of the Patient SafetyNet system with continuous acoustic respiration rate monitoring, the researchers surveyed 75 nurses 3 months before and 1 month after implementation, asking about a variety of methods and problems related to postoperative respiratory monitoring before/after use of the system; the usefulness of a central/remote monitoring system; and the effects of Patient SafetyNet on their workload. Among other results, the percentage of nurses who found central remote monitoring to be useful increased from 78.7% pre-implementation to 89.3% post-implementation, and the percentage who found continuous monitoring useful increased from 88.0% to 98.7%. 96% of nurses reported that they were able to attend patient bedsides within one minute of alarm occurrence. Problems recorded in the surveys included false alarms related to tachypnea, triggered by the patient's speaking, and a tendency to avoid early ambulation because of being continuous monitored.

In addition, the researchers collected retrospective data from patient records about the number of postoperative respiratory checks each patient received for 3 months before and 3 months after system implementation. They found that the average frequency of clinical examination was reduced from 11.0 ± 2.3 to 5.1 ± 1.3, representing a reduction of 61.3% in nursing workload related to postoperative respiratory assessment.

The researchers concluded, "The merits of the Patient SafetyNet system were that it could be useful for early detection when the respiratory condition gets worse and evaluation of the causes for deterioration of respiratory status using numerical values and waveforms. Therefore, the Patient SafetyNet system is suitable for cases requiring continuous sedative or opioid infusions, with poor general condition or depressed levels of consciousness. Continuous monitoring of respiratory rate and SpO2 after general anesthesia is recommended for patients' safety. Moreover, the Patient SafetyNet system can decrease the number of respiratory assessments of postoperative patients in the general wards, resulting in reduction of nurse's workload."

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