

Continuous Pulse Oximetry Monitoring with Clinician Notification is Associated with Lower Patient Mortality in Post-Surgical/Medical Patients

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Background

Continuous pulse oximetry monitoring with clinician notification of clinically relevant events has been recommended by patient safety organizations to prevent adverse events and unrecognized deterioration in hospitalized patients but the contribution of continuous monitoring to patient outcomes requires validation. We sought to evaluate the effect of a continuous pulse oximetry patient surveillance system in a postsurgical/ medical unit by comparing patient outcomes before and after implementation.

Methods

After implementation, each patient in a 33 bed post-surgical/medical unit was continuously monitored with the Masimo SafetyNet System, version V4000, software 1405, which was comprised of pulse oximeters with radio transmitters (Rad-87 Pulse CO-Oximeter and ReSposable sensor, Masimo Corp, Irvine CA) for wireless notification of nurses via pagers connected to a central station for admissions, discharges and remote surveillance of all monitored beds. Prior to implementation, patient monitoring was conducted by nurse surveillance and intermittent manual recording (spot checking) of vital signs by protocol and physician order. Number of rapid response team activations, unplanned transfers to critical care and mortality during the 15 months before implementation was compared to 12 months following implementation, by testing for statistical significance with a t-test for 2 proportions and chi square analysis.

Results

Data were collected from 10856 patient days prior to and 8737 days following SafetyNet implementation. Comparisons of outcome measures pre and post implementation are shown in Table.

Conclusions

Preliminary data showed that continuous surveillance monitoring with clinician notification was associated with reduced mortality in post-surgical patients. The increase experienced in rapid response team activations was not statistically significant and the ICU transfers rate remained unchanged. A previous study¹ found that continuous surveillance monitoring detects unrecognized postoperative deterioration and prompts clinical interventions, improving patient safety. Our results expand these findings showing implementation of continuous pulse oximetry monitoring with clinician notification improved patient outcomes by reducing mortality in post-surgical/medical patients.

1. Taenzer et al. *Anesthesiology* 2010;112:282-287.