

Increasing the Utilization of End Tidal Carbon Dioxide (EtCO₂) Monitoring in PACU

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Background Information: Literature shows that monitoring end tidal carbon dioxide (EtCO₂) in at-risk patients can facilitate early detection of ventilatory compromise. Perceived lack of knowledge about how to identify patients in need for monitoring and how to interpret EtCO₂ data contributed to underutilization of this valuable monitoring tool by our PACU nurses.

Purpose and Objectives of Project: The purpose of this project was to increase EtCO₂ monitoring in patients who meet established criteria. Specific aims were to: a) Increase PACU nurses' awareness of value of capnography monitoring; b) Increase nurses confidence in their ability to interpret EtCO₂ waveforms and values; c) Increase the number of EtCO₂ monitored patients by at least 50% compared to 2019; and d) Document the number of ventilatory events detected by capnography, and were treated, before any changes in SpO₂ were detected

Process of Implementation: This was a two-phase project. In phase one, we collected baseline data from the electronic medical record (EMR) and documented the number of patients who were monitored using EtCO₂ over the past 12 months. We also documented the number of at-risk patients who did not receive EtCO₂ monitoring. Before implementation, all PACU nurses took a pretest to determine baseline knowledge. PACU nurses were educated on EtCO₂ monitoring criteria, identifying at-risk patients, interpreting and documenting EtCO₂ monitoring values/waveforms.

Phase two of the project included daily data collection on all patients monitored with EtCO₂. Results showed that EtCO₂ monitoring increased from 0.4% (n=30) of patients in 2019 to 5.4% (n= 203) of patients during the study period. In 95% of the reported respiratory events, the PACU RN intervened based on the EtCO₂ reading prior to any change in SpO₂.

Statement of Successful Practice: This practice change promotes safety by providing an evidence-based, objective tool to assist in early detection of post-operative ventilatory compromise. Monitoring EtCO₂ may reduce transfer to a higher level of care and may reduce PACU/hospital length of stay. PACU nurses were able to intervene earlier based on ETCO₂ readings/waveforms.

Implications for Advancing the Practice of Perianesthesia Nursing: EtCO₂ monitoring enables advanced assessment capabilities and assists the perianesthesia nurses to safely manage patient care while optimizing ventilatory status.