Enhanced Respiratory Monitoring: Use of Capnography in the PACU

Primary Investigators: Rose LaPlante MBA MSN RN NEA-BC, Jillian Sweeney BSN RN CPAN
Team Members: Kathleen Gould PhD RN, Christopher Malone MPH BSN RN CCRN CPAN, Erin Kelleher MSN MBA RN, Erica Babine MSN RN, Meigan Amaral MSN RN CCRN
Brigham and Women's Faulkner Hospital, Boston, MA

Introduction: Capnography has been used for decades to monitor critically ill patients and those receiving general anesthesia. There is evidence to support using this monitoring equipment in post-anesthesia care units (PACU) for patients who meet specific criteria. However, end tidal carbon dioxide (EtCO2) monitoring is often underutilized in many PACU settings.

Identification of the Problem: Nurses in the PACU identified that EtCO2 monitoring was underutilized for non-intubated patients during Phase I recovery. Although bedside capnography monitors were available and many patients met the clinical criteria for EtCO2 monitoring, EtCO2 monitoring was used infrequently. The team determined that the existing education required revision.

Purpose of the Study: This study aimed to realign nurse-led clinical decisions to implement EtCO2 monitoring. An educational intervention was designed to improve nurse knowledge, attitudes, and self-reported competence regarding their ability to assess and care for post-anesthesia, non-intubated patients requiring EtCO2 monitoring.

Methodology: This quasi-experimental observational intervention study was guided by Benner's (1984) Novice to Expert framework. The sample population included clinical nurses employed in the PACU. The research team developed a 1-hour session which included didactic instruction using slides, discussion and demonstration of equipment. Pre and post intervention surveys were developed by the research team and tested for validity.

Results: The results indicate that the intervention led to a change in nurse's perceptions of their ability to monitor and interpret EtCO2. Nurses' self-reported competence improved from 58% pre-intervention to 91% post-intervention. Additionally, in the 3-month post-intervention survey, 77% of participants reported the education intervention increased their confidence in utilizing EtCO2.

Discussion: Study findings indicate that nurse's knowledge, attitudes and self-reported competence and confidence all improved immediately after the educational intervention and have been sustained.

Conclusion: This intervention closed an educational gap and proved to be feasible and sustainable for continuing competency-based education.

Implications for perianesthesia nurses and future research: The data indicates that a well-targeted educational intervention may improve nurse's knowledge, attitude and confidence in implementing and monitoring EtCO2. EtCO2 is a real-time biomarker as an

early indicator of respiratory compromise not only in the PACU, but in other clinical settings. This educational intervention can be adapted to other practice settings.