



Air Quality Alert

Kaitlin Ronning, DNP, RN, CPAN; Diane Fetterhoff, BSN, RN, CPAN; Meghan O'Brien BSN, RN; Anna Lee Carilo, DNP, RN, NE-BC, CPAN & Megan Juliano, MSN, RN, CPAN
Pennsylvania Hospital – Penn Medicine



Background

- Capnography, also known as End-Tidal CO₂ (EtCO₂) measures the partial expired tidal volume of carbon dioxide
- It is an indicator to assess respiratory function and ventilation status
- It can detect rapidly developing respiratory acidosis and can identify a patient in respiratory distress 2-3 minutes prior to a pulse oximetry
- EtCO₂ is a valuable underutilized tool for Perianesthesia Nurses to use post-operatively
- The American Society of PeriAnesthesia Nurses (ASPAN) does not currently have a practice recommendation requiring continuous monitoring of etCO₂ in the Phase I Post Anesthesia Care Unit (PACU). "Practice Recommendation 2, Components of Assessment and Management for the Perianesthesia Patient," states that vital signs are monitored, including "end-tidal CO₂ (capnography) monitoring if available and indicated"

Objectives

- Purpose: to educate 100% of the Perianesthesia Registered Nurses on capnography
- Understand the basics of capnography monitoring
- Recognize the difference between pulse oximetry and capnography
- Identify components of a normal end tidal waveform
- Interpret what EtCO₂ values
- Demonstrate proper set up of the EtCO₂ device

Process of Implementation



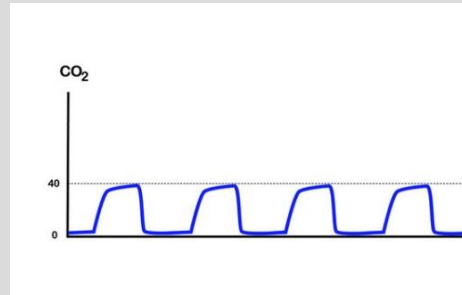
As part of the Perianesthesia Shared Governance Committee, clinical nurses requested to start utilizing ETCO₂ in the PACU. 2 volunteers conducted the education and participated in the leading each class



Created EtCO₂ Guidelines in partnership with Anesthesia & Regulatory to drive practice. An *EtCO₂ Monitoring* EMR order was created for the PACU order set



Clinical Engineering evaluated the patient monitors to ensure proper installment and connection of the EtCO₂ device. Reviewed inventory with Sterile Processing Department for ordering and stocking of supplies



Statement of Successful Practice

- 13 education sessions were offered during the 2023 Nursing Competency Cycle
- Each RN participated in the didactic, demonstrated proper set up of the device and monitor, and completed an ETCO₂ knowledge assessment
- 100% of the Perianesthesia RNs completed the competency
- Badge buddies of normal and abnormal waveforms and indications were created for quick reference
- Educational materials were posted to the Perianesthesia SharePoint as an available resource

Conclusion

- Implementing and installing EtCO₂ monitoring on the unit increases autonomy of Perianesthesia Nurses for the most vulnerable patients
- Feedback from the RNs revealed that the education was positively received and engaging in nature

References

- American Society of PeriAnesthesia Nurses. 2023-2024 Perianesthesia Nursing Standards, Practice Recommendations and Interpretative Statements. Cherry Hill, NJ: ASPAN; 2022.
- McNeill, M.M, & Tabet, C. Hardy (2021). The Effectiveness of Capnography vs Pulse Oximetry in Detecting Respiratory Adverse Events in the Post anesthesia Care Unit. Narrative Review and Synthesis. *Journal of PeriAnesthesia Nursing*, 37, 264-269