CHRISTIANA CARE HEALTH SERVICES
DEPARTMENT OF RESPIRATORY CARE

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<th>TITLE:</th>
<th>Capnography (EtCO2) Protocol</th>
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<td>Last Revision/Review Date:</td>
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<td>January, 2014</td>
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POLICY: Christiana Care is committed to monitoring safe ventilation of patients with post-operative sedation and acute respiratory failure.

PURPOSE: To define the roles and responsibilities for Respiratory Care staff to provide EtCO2 monitoring and define the protocol parameters for continuous use of the device.

SCOPE: All Respiratory Care patients who meet the criteria for capnography monitoring.

DESCRIPTION/DEFINITION:
- Refer to the CCHS Formulary for Indications, Contraindications, Side-Effects, and Hazards of each individual sedation drugs
- Refer to Pharmacy "ADVERSE DRUG REACTION REPORTING PROGRAM" for suspected adverse drug reactions
- Refer to "EWS Over-Sedation Trigger Design" for post op analgesia pathway
- Refer to the Christiana Care Health Services Policy for Pulse Oximetry
- Refer to the Department of Respiratory Care Oxygen Therapy policy
- STOPBANG - Refers to the questionnaire driven numeric screening tool used to evaluate the potential presence of obstructive sleep apnea in post-operative patients
- Pasero Opioid Sedation Scale (POSS) - Refers to the numeric assessment tool used to evaluate the level of patient sedation after the induction of a sedative

INFECTION CONTROL:
- Standard precautions will be followed at all times unless otherwise noted/required by CCHS infection control policies/procedures.

CAPNOGRAPHY DEVICE:
- The capnography device will be operated per manufacturer recommendations.

INDICATIONS FOR CAPNOGRAPHY
- The suggested patient populations for capnography monitoring include the following: Post-op analgesia, acute respiratory failure, neurologic critically ill, acute hypercarbic respiratory failure and nocturnal study

CAPNOGRAPHY PATHWAYS
I. Continuous Monitoring
   A. Verify physician order, review chart for documented STOPBANG score, POSS, home therapy and other information pertinent to the patients care

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B. Initial Assessment
   1. Observe last documented STOPBANG score (if available)
   2. Assess and document breath sounds, heart rate, respiratory rate, SpO2 and EtCO2
   3. Monitor remain on the patient for 24 hours

C. Subsequent Assessments
   1. Q4H assessments will be completed by Respiratory Care (Assess and document breath sounds, heart rate, respiratory rate, SpO2 and EtCO2)
   2. After 24 hours of monitoring the EtCO2 and SpO2 will be discontinued if Monitoring Discontinued criteria is met
   3. Monitoring will be continued if a physician writes an order for monitoring beyond the 24 time frame

D. Monitoring Discontinued Criteria
   1. Must meet all of the following:
      a) EtCO2 numeric value is less than 50mm Hg
      b) No observed or documented apnea periods within the last 24 hours (RCP communicates with bedside RN about possible events and documents conversation)
      c) SpO2 monitoring will be discontinued as per the Christiana Care Health Services Policy for Pulse Oxymetry
   2. Or an order is written to discontinue capnography monitoring

E. Monitor Alarm Settings
   1. EtCO2 Monitor Alarm Defaults
      a) High RR 30 breaths per minutes and Low RR 6 breaths per minutes
      b) High EtCO2 high 50mm Hg
      c) Apnea period 20 second delay
      d) RR and EtCO2 may be adjusted for patient baseline during initial assessment. Apnea period alarm will not be adjusted.
   2. SpO2 Monitor Alarm Defaults
      a) High SpO2 disabled and Low SpO2 set 5% below target SpO2
      b) High heart rate 120 beats per minute and Low 50 beats per minute
      c) SpO2 and HR alarms may be adjusted for patient baseline during the initial assessment only

F. Monitor will not be discontinued per protocol if used for invasive ventilation monitoring (physician order required)

G. Monitor will not be used while non-invasive positive pressure ventilation is actively in use

II. Nocturnal Monitoring Study
A. Verify physician order, review chart for initial diagnosis, home therapy and other information pertinent to the patient's care
B. Initial Assessment
   1. Assess and document breath sounds, heart rate, respiratory rate, SpO2 and EtCO2
   2. Assess patient comfort with monitors
C. Subsequent Assessment is required if alarm limits are breached and Respiratory Care is notified by a bedside clinician
D. Monitor is discontinued in the morning after adequate sleep monitoring has been established
E. Results from the study will be downloaded and placed in the patient's chart for physician review
RESPONSE FOR ALARMS
A. RCP will complete a full assessment, validate the alarm, and contact the physician about validated alarms
B. An RRT or Code Blue will be called if the criteria for an RRT or Code Blue have been met

ALARM VOLUME
• Audible alarm volume will be placed at the highest available decibel setting per the device manual

DOCUMENTATION
• Documentation per Respiratory Care Record Keeping standards

REFERENCES