1. **Purpose**
   To describe the indications and processes associated with end tidal CO₂ monitoring in the acute care setting.

2. **Policy Statement**
   2.1 End tidal CO₂ (EtCO₂) is the measurement of exhaled carbon dioxide.
   2.2 When an order is provided for continuous End Tidal CO₂ monitoring or Patient Controlled Analgesia (PCA) Protocol is implemented, the patient will be placed on the Capnostream 20 and the Vital Sync system.
   2.3 This system is only available for the beds located on 2 Tower Medical Surgical Inpatient Unit. The patient will be assigned to this unit.

3. **Implementation Method**
   3.1 End tidal CO₂ is a valuable measure that provides the level of carbon dioxide at exhalation. Normal values at 4% to 6%, which is 35 to 45 mmHg. It is a non-invasive monitor.
   3.2 All patients receiving intravenous opioid analgesics via drip or patient controlled device shall be monitored using the End Tidal Carbon Dioxide (EtCO₂) Capnostream 20.
   3.1.1 Exceptions:
   3.1.1.1 Patients requiring end of life or comfort care only.
   3.1.1.2 Patient refusal: Notify responsible provider (prescriber of opioids) of patient refusal to wear EtCo2 monitor and
3.1.1.3 Patients on mechanical ventilation
3.1.1.4 An order to discontinue EtCO2 monitoring from primary physician managing the intravenous PCA analgesic infusion.

3.3 All adult patients receiving analgesia via pump/patient controlled device or patients at high risk for respiratory failure during opioid use should be considered for use of end tidal CO2 monitoring. Consideration for high risk includes:

3.3.1 Dosing of opioid by PCA
3.3.2 Diagnosed Obstructive Sleep Apnea (OSA) or High Risk for OSA.
3.3.3 Opioid Naïve: Patients who have taken less than the equivalent of 30 mg oral morphine/day in the last week (e.g. 6 Percocet-5/Tylenol #3/Lortab-5 per day or less than 20 mg Oxycodone per day)
3.3.4 Hepatic or renal insufficiency
3.3.5 Advanced Chronic Obstructive Pulmonary Disease
3.3.6 Neuromuscular Disease (Muscular Dystrophy, Multiple Sclerosis, Cerebral Palsy, etc.)

3.4 An order is required for patients to receive EtCO2 monitoring.

3.5 Initiation of EtCO2 monitoring:
3.6 Respiratory Therapy (RT) will initiate EtCO2 monitoring upon patients arrival to 2 Tower.
3.7 RT will admit the patient into the Vital Sync monitoring system.
3.8 RT will provide and document initial patient and family education.

3.9 Ongoing monitoring:
3.10 The following parameters will be assessed and documented by a Registered Nurse (RN) or RT every four (4) hours:
   3.10.1 SpO2 Oxygen Saturation
   3.10.2 EtCO2 End Tidal Carbon Dioxide level
   3.10.3 Heart Rate
   3.10.4 Respiratory Rate
   3.10.5 Integrated Pulmonary Index (IPI)

3.11 Response to alarms:
3.12 Nursing to call RT for the following alarms:
   3.12.1 EtO2 respiratory rate less than 6 or greater than 35
   3.12.2 IPI score of less than 6
   3.12.3 EtCO2 less than 20 or greater than 60
   3.12.4 Pulse oximeter reading less than 90%
   3.12.5 For any upward or downward trending of parameters

3.13 Discontinuation of monitoring:
   3.13.1 EtCO2 monitoring will be discontinued when the PCA pump is discontinued or upon written order.
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