GUIDELINES FOR PATIENT-CONTROLLED ANALGESIA (PCA) AND PATIENT-CONTROLLED EPIDURAL ANALGESIA (PCEA) FOR ACUTE PAIN MANAGEMENT

1. PURPOSE: To assure the safe and effective use of patient controlled analgesia (PCA) and patient controlled epidural analgesia (PCEA) for the intravenous and epidural administration of opioids and anesthetics. PCEA administration of opioids and local anesthetics is also guided by MCM 125-2, Epidural Analgesia.

2. POLICY: PCA or PCEA will be used for the treatment of patients in moderate to severe pain when oral or intermittent parenteral opioids and analgesics are contraindicated or considered to be less efficacious. Only the patient can push the PCA button. A patient must be able to physically push the PCA button, no nurse, family member, or healthcare provider is authorized to push the patient's button (no PCA by proxy) at any time. If a patient requires supplemental doses to achieve analgesia, the nurse will administer the dose through the pump as ordered.

3. DEFINITIONS:
   a. **PCA or PCEA Dose**: A dose of medication ordered by the provider, programmed into an infusion pump by the RN and activated by the patient when s/he pushes the PCA button.
   
   b. **Bolus Dose**: A dose of medication ordered by the provider, programmed and activated by the nurse, and delivered via an infusion pump during an active PCA infusion to maintain or reestablish analgesia.
   
   c. **Loading Dose**: Individualized dose given via an infusion pump at the initiation of PCA to achieve analgesia in a timely manner.
   
   d. **Lockout Interval**: The period during which the PCA or PCEA dose cannot be delivered more than one time (range 5-45 minutes, typical interval 8 minutes for PCA and 20-30 minutes for PCEA).
   
   e. **Continuous Infusion (also known as basal rate)**: Low dose constant infusion used to augment PCA in patients who are not well controlled on PCA alone. A continuous infusion will always be used with PCEA.
   
   f. **Guardrails Limit**: Built-in programmed safety parameters of medication dosing for medications in the PCA profile or in the Epidural profile. Minimum and maximum dosing ranges considered safe for the majority of patients have been pre-programmed in the infusion pump.
g. **Pain Intensity Scale**: A visual intensity scale where “0” is no pain and “10” is the worst pain possible.

h. **Opioid Tolerant**: A patient who has been taking opioids pre-operatively or has developed a physical tolerance to opioids.

i. **Opioid Naïve**: A patient who has little to no experience with opioid medications or has not recently taken opioids.

j. **Sedation Scale**: The modified Pasero Sedation Scale is used to assess and reassess a patient during PCA and PCEA therapy to avoid opioid induced over sedation.

k. **EtCO2 Monitoring**: Capnography or end-tidal (exhaled) carbon dioxide (CO2) monitoring. Provides non-invasive, continuous measurement of respiratory rate and exhaled CO2 concentration over time and is measured at peak expiration. Safety feature to be used with all patient receiving PCA and PCEA infusions (exception: mechanically ventilated and end of life comfort care patients).

l. **SpO2 Monitoring**: Selected patients will require SpO2 monitoring during PCA and PCEA infusions.

4. **RESPONSIBILITIES**:

   a. **Provider**: The provider will approve initiation of PCA and order PCA with supplemental doses using the electronic order set. They will review and rewrite all other analgesics, sedatives and anxiolytics at the time PCA is indicated. The provider will document the effectiveness of PCA and any side effects in the daily progress notes.

   b. **Anesthesia Provider**: Anesthesia service will initiate all PCEA orders and make all order modifications. The Anesthesia Pain Service will document the effectiveness of PCEA and any side effects noted in the daily progress notes. Anesthesia Service will assess the patient and give all supplemental doses.

   c. **Nursing**: Nursing will instruct each patient selected for PCA or PCEA on the correct method of use, how pain will be assessed, and monitoring expectations. Upon initiation of PCA/PCEA and every four hours nursing will assess and document BP, pulse, RR, pain score, sedation score and EtCO2 on the PCA/ Epidural flow sheet (Attachment A). Nursing will provide the same assessment and documentation for patients receiving continuous epidural infusions and/or PCEA plus an assessment of motor/sensory function per policy 125-2.
d. Respiratory Therapist: The respiratory therapist will be available to consult with the nursing regarding respiratory status, EtCO2 monitoring, accuracy and proper functioning of the EtCO2s module on all patients receiving PCA and PCEA.

e. Pharmacists: The pharmacist will consult with the physician regarding initiation of PCA when needed. Consultation includes a thorough chart review to assess patient history, appropriateness of PCA, expected duration of infusion and allergies to all opioids. The pharmacist will deliver the tubing set, and medication to the patient care area.

5. PROCEDURES:

a. Patients must be mentally capable and able to understand and physically perform PCA or PCEA. The patient will be instructed by the RN prior to the initiation of PCA or PCEA. Instruction will include teaching the patient that only s/he can push the PCA button. This education will be documented on the PCA flow sheet or in the patient’s progress notes as an education clinical reminder.

b. Physicians will use computerized order sets for ordering PCA and PCEA. PCA orders will include bolus doses to reestablish analgesia or treat painful treatments. All previous orders for opioids will be discontinued by a physician’s order prior to initiation of PCA and rewritten if necessary. All orders for sedatives, analgesics, and anxiolytics will be reviewed and rewritten.

c. The Admitting Service can order oral opioids along with PCA without a continuous infusion. When starting an oral opioid the PCA continuous infusion must be discontinued in both opioid tolerant and naïve patient.

d. All continuous infusion rates will be reevaluated every 24-hours and reordered by the Primary Care Physician (PCP) in accordance with MCM 11-08.

e. If the patient’s pain is poorly controlled at the time PCA is started, a loading dose (to be given via the PCA pump) is recommended. Before initiating a continuous infusion, the patient’s clinical status will be evaluated for treatable causes of uncontrolled pain (wound infection, acute abdomen, pulmonary complications, etc.).

f. No other opioids or other routes of administration will be used in conjunction with PCEA, unless ordered by the Anesthesia Pain Service.
g. Nursing will notify the Provider if a patient is unwilling to wear EtCO2 during rest periods and sleep. Provider will determine whether to continue PCA/PCEA and write orders for altered monitoring requirements as needed.

h. Escort Service will deliver the PCA infusion pump and EtCO2 pump module to the unit and the Pharmacist will deliver the medication and tubing set to the unit. The RN will connect the PCA or PCEA tubing to a patent IV or epidural line and start the pump (see Nursing Procedure for pain management)

i. A Registered Nurse (RN) will program the pump. Two nurses (one must be an RN) will double verify the PCA/PCEA orders with the pump settings at the time of pump setup, with program changes, at change of shift (with the outgoing and the incoming nurse), with syringe changes, with transfer to another care area and when a patient goes for an invasive procedure or surgery.

j. Nursing will assess the patient's BP, pulse, RR, pain score, EtCO2 and sedation score at the initiation of PCA/PCEA and within one hour after any of the following: initiation of PCA/PCEA, increase in PCA or PCEA dose; decrease in the lockout interval; addition of a continuous infusion; administration of a bolus dose; change in medication being delivered, administration of an additional analgesics. The frequency of these parameters may be modified in the presence of a physician's order placing that patient on "comfort care" status. Palliative/hospice patients on the CLC will have only the pain and sedation score assessed and documented.

k. Nursing will provide the same assessment and documentation for patients receiving continuous epidural infusions and/or PCEA plus an assessment of motor/sensory function.

l. RNs may give bolus doses of medications through the infusion pump as ordered for patients on PCA. Before giving bolus doses, the nurse will insure a patent intravenous line and evaluate the patient for a change in status (e.g., wound dehiscence, acute abdomen, and pulmonary complications). RNs are not authorized to give bolus doses to patients with an epidural or PCEA.

m. Nursing will monitor the patient for the following and notify the responsible provider if a problem arises with: respiratory status; EtCO2 elevation; over sedation; unrelieved pain; nausea and vomiting; constipation, or pruritus. A nurse will monitor the effectiveness of ventilation and have naloxone available in the event of respiratory depression and notify provider immediately. In the case of a respiratory or cardiac arrest or in a patient who is deteriorating rapidly, a Code Blue will be called.
n. At completion of PCA, the pump in will be placed in a designated area for pick up and cleaning.

6. REFERENCES:


   b. Anesthesia Service Memorandum, 125-02, 01/2009 Epidural Analgesia located in Docushare.

   c. Medical Center Memorandum 11-54, 06/2007 Pain Management.

   d. VHA Pain Management Home Page.


7. REVIEW DATE: November 5, 2016

8. FOLLOW-UP RESPONSIBILITY: Associate Director PCS


10. DATE APPROVED BY MEC: September 4, 2013

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