

**NORTH CAROLINA BAPTIST HOSPITAL  
DEPARTMENT OF NURSING  
POLICY & PROCEDURE BULLETIN**

PREPARED BY: Pain Policies Committee

**SUBJECT: Peripheral Neural Blockade Infusions, Continuous and Patient Controlled**

- I. **POLICY:**  
Nurses will manage patients receiving peripheral neural blockade infusions as outlined below.
- II. **PURPOSE:**  
To provide safe and effective pain control utilizing peripheral neural blockade infusions and catheters.
- III. **EQUIPMENT:**
  - A. NON-STANDARD Infusion Pump
  - B. Infusion Pump Tubing
  - C. Prescribed medication bag
  - D. CADD® pump key
- IV. **DEFINITIONS:**
  - A. PCPNB: Patient Controlled Peripheral Neural Blockade
  - B. Demand Dose: The amount in ml (mcg or mg) administered each time patient activates the CADD® pump.
  - C. Demand Dose Lockout: Time period between doses during which the CADD® pump cannot be activated. Allows time for the dose to take effect before patient can get another dose (minimum 3 minute delay between doses).
  - D. One Hour Limit: The maximum dose in ml (mcg or mg) of medication the patient can receive in one hour.
  - E. Clinician Bolus: Additional dose other than the prescribed PCNB dose that required programming by RN or MD.
  - F. Continuous Rate: Continuous infusion of medication (ml/hr) to provide continuous pain medication in addition to PCNB dose.
  - G. Reports: A review of the total ml's given and number of doses given hour by hour.

## V. PROCEDURE:

- A. The Regional Anesthesia and Acute Pain Management Service (RAAPM) will determine patients eligible for continuous or patient-controlled peripheral neural blockade. These physicians will write orders for medication/dosage according to, but not limited to, the attached dosing parameter table. All orders for peripheral neural blockade infusions must be written by the RAAPM Service with the exception of an **Emergency Stop** order. Only the RAAPM Service may remove the peripheral neural blockade catheter.
- B. Patients should be assessed for their appropriateness to receive PCPNB. Assessment should include age (infants and children under 5 are not appropriate candidates for PCPNB), mental status (confused, agitated or restless patients should not receive PCPNB), developmental level; patients must be able to understand how to use PCPNB. Additionally, patients with an altered level of consciousness, psychological instability or diminished intellectual capacity should not receive PCPNB.
- C. The Continuous Neural Blockade Order sheet should be used to initiate orders but dose changes may be written on a standard physician order sheet or entered electronically.
- D. See attached for neural blockade dosing parameters for Bupivacaine, Levobupivacaine, Ropivacaine and Clonidine.
- E. Continuous neural blockade infusions are to be administered via a NON-STANDARD CADD® infusion pump. See NCBH-PPB-NSG-097 (Intraspinal Analgesia) for procedure on pump operation.
- F. Additional pain medications, including narcotic or sedative/hypnotic, may be given by other routes of administration (IV, PCA, oral) as ordered by the RAAPM Service while continuous peripheral neural blockade is being administered.
- G. No other solutions may be given through the peripheral neural blockade infusion catheter unless ordered by the RAAPM Service. If other solutions are ordered, the RAAPM Service will administer.
- H. All patients receiving peripheral neural blockade analgesia must have patent IV access.
- I. Two RN's or an RN and a physician must verify correct infusion site and programming information prior to starting any peripheral neural blockade infusion or when any changes are made.
- J. Always trace the neural blockade tubing to the point of origin of connection before connecting the device. If the device is already in place verify point of origin of connection.

**K. Monitoring****Continuous Peripheral Neural Blockade Infusions:**

The RAAPM Service will perform peripheral neural blockade with an initial bolus dose of local anesthetic. The peripheral neural blockade will be initiated by the nursing staff following the directions of the Peripheral Neural Blockade infusion order sheet or electronic order.

**Monitoring:**

Document the following every 15 minutes for 1 hour upon dose initiation or repeat bolus injection by the RAAPM Service: Vital signs, SaO<sub>2</sub>, color, temperature, sensation and movement of all extremities. Document pain assessment and patient observations on back of the Analgesia Flowsheet. Follow-up monitoring will continue as outlined above every 4 hours for the duration of the peripheral neural blockade infusion. Pediatric patients will have continuous SaO<sub>2</sub> monitoring.

**Repeat Neural Blockade Local Anesthetic Injection**

If a patient in a general patient care area requires a repeat bolus injection, the RAAPM Service physician **must** administer and notify the RN to monitor according to monitoring guidelines above.

**Patient Controlled Neural Blockade Administration (PCNBA)**

If PCNBA is ordered, follow specific physician orders for administration.

**L. Registered Nurse General Responsibilities:**

1. Patient Assessment:
  - a) Obtain baseline vital signs and oxygen saturation.
  - b) Assess patient on initiation, admission to unit, bolus dose, and with any changes made.
  - c) Assess and document pulse, color, temperature, strength, sensation and movement of all extremities upon arrival to unit and q4h.
2. Dressing Maintenance:
  - a) The dressing should be evaluated for its integrity and cleanliness on admission to unit and every 8 hours. Assess skin integrity at catheter insertion site. If dressing becomes dislodged or soiled, consult the RAAPM Service.
  - b) Reinforce dressing as needed.
  - c) Only the RAAPM Service physician may change the op site or steri strips.
3. Patient Ambulation:
  - a) If ordered by the physician, patients with peripheral neural blockade catheters may ambulate with assistance. Patient should be observed for motor weakness.
4. Catheter Disconnects or Displacement:
  - a) Check for kinked tubing. Leaking on bandage or bed indicates catheter displacement. Notify the RAAPM Service of leaks.

- b) If the peripheral neural blockade catheter becomes disconnected, wipe the catheter tip with an alcohol wipe and cap the catheter with a Luerlock 3ml syringe and notify RAAPM Service.
5. Notify the RAAPM Service for any change in motor/sensory function or local anesthetic toxicity.

#### M. CADD® Pump Basics

1. Refer to NCBH-PPB-NSG-097 (Intraspinal Analgesia) for complete pump operations.
2. To start a Clinician Bolus:
  - a) A clinician bolus is an additional dose other than the prescribed PCA dose that requires programming by an RN or MD.
  - b) A clinician bolus may be delivered while the pump is running and the bolus can be stopped while in progress. A Clinician Bolus CANNOT be started while a Demand Dose is in progress). **(Bolus must be verified by two people, 2 RNs or an RN and MD).**
3. Discontinuing a Neural Blockade Infusion:
  - a) The neural blockade catheter will be removed by the RAAPM Service. A bandaid may be applied to the site.

#### N. Adverse Reactions

1. Patients receiving neural blockade analgesia should be monitored for potential adverse reactions including:
  - Respiratory rate <10 breaths per minute
  - Central nervous system depression
  - Convulsions
  - Agitation, confusion
  - Dizziness
  - Blurred vision
  - Tremors
  - Tinnitus
  - Numbness of the lips or tongue
  - Metallic taste
  - Hypo or hypertension
  - Decrease in sensory or motor function.
  - Numbness/tingling in extremities
2. Adverse reactions will be reported to the physician for appropriate medical interventions.

#### O. Patient/Family Education

1. Explain to patient and family the type of neural blockade analgesia they are receiving.

2. Instruct patient and family that ONLY the patient may press the patient controlled neural blockade button.
3. Instruct patient to press the button at the onset of pain and not to wait until the pain is severe.
4. Instruct patient that break through pain medication is available for pain that is not relieved by neural blockade infusion.
5. Instruct patient to report symptoms of adverse reactions (dizziness, blurred vision, tremors, tinnitus, redness or tingling in extremities or decrease in sensory motor function.
6. Instruct patient not to get up without assistance while receiving a neural blockade infusion.
7. Instruct patient/family to notify nurse immediately if neural blockade analgesia becomes disconnected.

P. Documentation

1. Document vital signs and patient assessment data in medical record.
2. Cumulative total dose of drug delivered every 8 hours on the Analgesia Infusion Flow Sheet.
3. Adverse reactions and events recorded in Progress Notes.
4. Document any education on the Interdisciplinary Patient/Family Education Sheet.

References:

Deltec, Inc. 2001, CADD Prizm® PCSII Ambulatory Infusion Pump Model 6101, Operator's Manual.

JCAHO, Computerized Accreditation Manual H2002. TX.3.3; 3,9

42 Code of Federal Regulations.482.23(c)(1)

10 North Carolina Administrative Code.3c.3801 (a) (5)

10 North Carolina Administrative Code.3c.4511 (a), (j)

Joint Commission (2006). Sentinel Event Alert, Issue 36.

NCBH-PPB-NSG-097

Pharmacia Deltec, Inc. New Manual

PPB-NCBH-68 Pain Management Policy

UHC Query, May, 1998.

Effective: 3/03  
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6/06

**Peripheral Neural Blockade Infusion Dosing Parameters\***

(Adults and Children greater than 8 years of age)

MEDICATION	CONCENTRATION
Bupivacaine/Levobupivacaine	0.1% (1.0 mg/ml) 0.2% (2.0 mg/ml)
Ropivacaine	0.1% (1.0 mg/ml) 0.2% (2.0 mg/ml)
Clonidine	0.0002% (2.0 mcg/ml) 0.0005% (0.5 mcg/ml)

\*These parameters should be used as guidelines only. Wide patient variability exists and doses must be titrated to account for patient's age, medical condition, surgical procedure. Infusions may contain local anesthetic or a combination of a local anesthetic and adjuvant analgesic. Other medications in addition to those above may be ordered by the anesthesiologist/pain service physician in certain situations.

Note: Usual starting rates of administration are 8-12 ml/h continuous rate, and 4-10 ml PCNBA dose with a 1-2 h lockout interval

The RAAPM Service should be consulted for dosing of children 5-8 years of age.