

OKLAHOMA BOARD OF NURSING
2915 N. Classen Boulevard, Suite 524
Oklahoma City, OK 73106
(405) 962-1800

Registered Nurse Monitoring **Obstetrical** Patients Receiving Analgesia/Anesthesia by Catheter Techniques (Epidural, PCEA and Intrathecal Catheters) Guidelines

I. Rationale:

Registered Nurses who are not licensed anesthesia care providers should monitor, not manage, the care of pregnant patients receiving analgesia/anesthesia by catheter techniques. Whenever regional analgesia/anesthesia is administered, a qualified, credentialed, licensed anesthesia provider should be readily available as defined by institutional policy. Physiologic and anatomic changes of pregnancy increase the risk of regional analgesia/anesthesia complications. These guidelines address the RN monitoring the obstetrical patient receiving medications by catheter techniques for the protection of the health, safety and welfare of the pregnant woman and fetus. The Registered Nurse responsible for monitoring regional labor analgesia/anesthesia must be prepared to handle both patients' complications, some of which may be life-threatening.

II. Definitions:

A. **Analgesia/Anesthesia by Catheter Techniques:** Administration of medication for analgesia/anesthesia via epidural, including patient-controlled epidural analgesia (PCEA), or intrathecal catheters:

1. **Analgesia:** Insensibility to pain without loss of consciousness. ¹
2. **Anesthesia:** Partial or complete loss of sensation, with or without loss of consciousness, as a result of disease, injury, or administration of an anesthetic agent, usually by injection or inhalation. ²
3. **Epidural Analgesia:** Anesthesia produced by injection of a local anesthetic into the peridural space of the spinal cord beneath the ligamentum flavum -- called also peridural anesthesia. ²
4. **Epidural Space:** The space over or on the coverings of the brain or spinal cord. ²
5. **Intrathecal:** Within the spinal canal; within a sheath. ²
6. **Intrathecal [Spinal] Anesthesia:** Anesthesia produced by injection of anesthetic into the subarachnoid space of the spinal cord. ²
7. **Intrathecal Space (or Subarachnoid Space):** The space within the spinal canal. ²

8. **Patient-Controlled Epidural Analgesia (PCEA):** A system that allows the patient to administer a fixed dose of medication [in the epidural space] by pushing a button.³
- B. **Dermatome:** A band or region of skin in which sensory nerves derive from a single spinal nerve root.³
- C. **Initial Injection:** The first medication administered by a qualified anesthesia provider.

III. Education/Training:

The registered nurse providing care for the woman during labor must have documented education with documented competency and ensure her/his practice is guided by agency policies and procedures. The education must include, but is not limited to:

- A. Anatomy and physiology, of the spinal cord and column, dermatomes and location of catheter placement;
- B. Pharmacology and complications related to the analgesia/anesthesia technique and medication;
- C. Assessment of the patient's dermatome levels and total care needs during analgesia/anesthesia, including patient's vital signs, motor function, level of consciousness and perception of pain;
- D. Knowledge of appropriate infection prevention and control procedures related to catheter insertion, maintenance and removal.
- E. Utilization of monitoring modalities, interpretation of physiological responses and initiation of nursing interventions to ensure optimal patient care;
- F. Anticipation and recognition of potential complications of the analgesia/anesthesia in relationship to the type of catheter/infusion device and medication being utilized;
- G. Recognition of emergency situations and implementation of nursing interventions in compliance with the anesthesia provider's or attending physician's guidelines and orders;
- H. The cognitive and psychomotor skills necessary for use of mechanical infusion devices; and
- I. Knowledge and skills required for catheter removal.

IV. Policies and Procedures:

The following policies and procedures developed in conjunction with the anesthesia/analgesia provider must be available in writing within the employing facility and must be available to the Registered Nurse monitoring the obstetrical patient receiving analgesia/anesthesia by catheter technique:

- A. Patient monitoring, including dermatome levels, patient's vital signs, motor function, level of consciousness, and perception of pain;
- B. Protocols for handling potential complications and emergency situations;
- C. Patient-controlled analgesia;

- D. Infusion pump functions;
 - E. Types of tubing and catheters used in the facility to minimize the opportunities for errors to occur, such as tubing misconnections and interconnectivity issues; and
 - F. Catheter maintenance and removal.
- V. Responsibilities of the Registered Nurse Assuming Monitoring of the Care of Obstetrical Patients Receiving Analgesia/Anesthesia by Catheter Techniques:
- A. Following stabilization of vital signs after the initial insertion, initial injection, bolus injection, rebolus injections, or initiation of continuous infusion by a licensed, credentialed anesthesia care provider, the non-anesthetist Registered Nurse in communication with the obstetric and anesthesia care providers **may**:
 1. Monitor the patient's vital signs, motor function, dermatome levels, level of consciousness, and perception of pain;
 2. Monitor the status of the fetus;
 3. Replace empty infusion syringes or infusion bags with new, pre-prepared solutions containing the same medication and concentration, according to orders provided by the anesthesia care provider;
 4. Stop the continuous infusion if there is a safety concern or the woman has given birth;
 5. Remove the catheter upon receipt of a specific order from a qualified anesthesia or physician provider, when educational criteria have been met and institutional policy allows;
 6. Initiate emergency therapeutic measure according to institutional policy and/or protocol if complications arise; and
 - B. The non-anesthetist Registered Nurse should communicate any nursing assessments or changes in patient status to the obstetric and anesthesia care providers as indicated by institutional policy.
 - C. The non-anesthetist Registered Nurse **may not**:
 1. Bolus or rebolus an epidural either by injecting medication into the catheter or increasing the rate of continuous infusion;
 2. Increase/decrease the rate of a continuous infusion;
 3. Re-initiate an infusion once it has been stopped;
 4. Manipulate PCEA doses or dosage intervals; and
 5. Be responsible for obtaining informed consent for analgesia/anesthesia procedures. (However, the Registered Nurse may witness the patient's signature for informed consent prior to analgesia/anesthesia administration.)
 6. Adjust the placement of the catheter, other than removal; (Correct placement of the catheter is the responsibility of a qualified anesthesia provider.)

VI. References:

1. *Medline Plus® Medical Dictionary* 2014 by Merriam-Webster, Incorporated, [On-line]. Retrieved May 10, 2018, from:
<https://www.merriam-webster.com/dictionary/analgesia>
2. Venes, D., MD, MSJ. (Ed.). (2013). *Taber's® Cyclopedic Medical Dictionary*, 22nd ed. Philadelphia: F.A. Davis Company.
3. Dermatomes Anatomy, Medscape (October 13, 2017) Retrieved May 17, 2018, from:
<https://emedicine.medscape.com/article/1878388-overview>

VII. Acknowledgement:

These guidelines are largely derived from the document: Association of Women's Health, Obstetric and Neonatal Nurses ("AWHONN") Position Statement. Title: *Role of the Registered Nurse in the Care of Pregnant Women Receiving Analgesia and Anesthesia by Catheter Techniques*. Approved by AWHONN Board of Directors 2002. Re-approved by the AWHONN Board of Directors in September 2005 and June 2007. Revised and re-approved November 2014 by the AWHONN Board of Directors. Retrieved May 10, 2018.

VIII. Selected Bibliography:

American Association of Nurse Anesthetists (AANA). Position Statement No. 2.8: Title: Provision of pain relief by medication administered via continuous epidural, intrathecal, intrapleural, peripheral nurse catheters, or other pain relief devices. Adopted by the AANA Board of Directors June 1989; Revised June 1990, 1995; Reaffirmed June 2003; Revised by AANA Board of Directors February 2017; Retrieved on May 10, 2018, from
[https://www.aana.com/docs/default-source/practice-aana-com-web-documents-\(all\)/care-of-patients-receiving-analgesia-by-catheter-techniques.pdf?sfvrsn=d30049b1_2](https://www.aana.com/docs/default-source/practice-aana-com-web-documents-(all)/care-of-patients-receiving-analgesia-by-catheter-techniques.pdf?sfvrsn=d30049b1_2)

Association of Women's Health, Obstetric and Neonatal Nursing Clinical Position Statement. Title: *Role of the Registered Nurse in the Care of Pregnant Women Receiving Analgesia and Anesthesia by Catheter Techniques*. Approved by AWHONN Board of Directors 2002. Re-approved by the AWHONN Board of Directors in September 2005 and June 2007. Revised and re-approved November 2014. Retrieved May 10, 2018.

Dermatome Chart. (n.d.) Retrieved May 10, 2018, from
<http://www.smartimagebase.com/dermatomes/view-item?ItemID=4941>

Halpern, S. & Carvalho, B. (2009, March). Patient-controlled epidural analgesia for labor. *Obstetric Anesthesiology*, 108(3), 921-927.

The Joint Commission. (2006, Apr 3). Tubing misconnections--a persistent and potentially deadly occurrence. *Sentinel Event Alert, Issue 36*: 1-3. Replaced August 20, 2014, Retrieved May 10, 2018, from https://www.jointcommission.org/assets/1/6/SEA_53_Connectors_8_19_14_final.pdf

Thyen, A., McAllister, R., & Councilman, L. (2010). Epidural pump programming error leading to inadvertent 10-fold dosing error during epidural labor analgesia with Ropivacaine. *Journal of Patient Safety*, 6, 244-246.