

Role of the Registered Nurse in the Care of the Pregnant Woman Receiving Analgesia and Anesthesia by Catheter Techniques

An official position statement of the Association of Women's Health, Obstetric and Neonatal Nurses

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Position

The Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) believes that registered nurses (RNs) who are not licensed anesthesia care providers should monitor but not manage the delivery of analgesia and anesthesia by catheter techniques to pregnant women. These techniques include administration of analgesia and anesthesia via epidural, intrathecal, spinal and patient-controlled epidural analgesia (PCEA) catheters. Further, AWHONN has not identified research or evidence that supports the premise that management of regional labor anesthesia and analgesia by RNs who are not licensed anesthesia providers is a safe practice in the obstetric environment. In order to protect the well-being of the mother and the fetus, there should be a substantial amount of clinical evidence supporting the safety and effects of such a practice before it is implemented.

Role of the Registered Nurse

RNs are required to function within the scope of practice defined by the state(s) in which they practice. In the labor and birth setting, the RN is responsible for coordinating and documenting the care of the laboring woman and her fetus(es), which includes providing direct physical care and support of the woman and support for her partner and family members during labor. This responsibility includes implementing, monitoring, and evaluating the effectiveness of nonpharmacologic, oral, and parenteral pharmacologic pain-relief measures and managing high-alert and high-risk medications administered via one or more infusion pumps. The RN participates in educating women about their options for pain relief during labor and provides information about benefits and risks associated with various types of analgesia

and anesthesia. The RN is also responsible for monitoring fetal well-being either electronically or via frequent auscultation of the fetal heart rate.

Following stabilization of vital signs after either initial insertion, initial injection, bolus injection, re-bolus injection, or initiation of continuous infusion by a licensed, credentialed anesthesia care provider, RNs in communication with the obstetric and anesthesia care providers may

- Monitor the woman's vital signs, level of mobility, level of consciousness, perception of pain and level of pain relief.
- Monitor fetal status.
- Pause the infusion to 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 and re-start the infusion.
- Stop the continuous infusion if there is a safety concern or the woman has given birth.
- Remove the catheter if appropriate educational training and criteria have been met and institutional policy and law allow. Removal of the catheter by an RN is contingent upon receipt of a specific order from a qualified anesthesia or physician provider.
- Initiate emergency therapeutic measures if complications arise according to institutional policy, protocol, and RN scope of practice.
- Communicate clinical assessments and changes in patient status to the obstetric and anesthesia care providers as indicated by institutional policy.

RNs who are not licensed anesthesia providers should not

- Bolus or rebolus regional/intrathecal analgesia or anesthesia doses by injecting medication into the catheter.
- Manipulate doses of regional/intrathecal analgesia and anesthesia delivered by continuous infusion.
- Manipulate doses of regional/intrathecal analgesia and anesthesia or dosage intervals for PCEA.
- Increase or decrease the rate of a continuous infusion.
- Re-initiate an infusion once it has been stopped.
- Be responsible for obtaining informed consent for analgesia and anesthesia procedures; however, the nurse may witness the patient signature for informed consent prior to analgesia and anesthesia administration.

A wide variety of medications and dosing regimens are used for obstetric regional analgesia and anesthesia. RNs that care for women during labor are responsible for knowing general information about the classification of these medications and their actions, side effects, and potential adverse reactions to them. RNs are expected to achieve and maintain the requisite competence necessary for nursing assessment, monitoring, selected intervention techniques related to and evaluation of the effectiveness of regional analgesia and anesthesia, and measures designed to minimize untoward effects (AWHONN, 2008). These RNs are also responsible for having more in-depth knowledge of dosages, dosing intervals and ranges, drug actions and interactions, side effects, and adverse reactions related to safe administration and management of the wide range of other medications commonly used in labor. These include but are not limited to high-alert medications, such as oxytocin, magnesium sulfate, labetalol, and insulin (AWHONN; Institute for Safe Medication Practices, 2009). However, detailed information about medications specifically used for obstetric regional analgesia and anesthesia is typically not required or included in basic nursing pharmacology courses or in clinical orientation to the extent that is necessary for safe and competent administration and management (vs. monitoring) of these drugs in the labor and birth clinical setting. Such education and clinical training is included in certified registered nurse anesthetist (CRNA) education curriculum.

AWHONN supports the advanced practice role of the CRNA in the labor and birth setting, which includes administering and adjusting doses of in-

termittent and continuous-infusion regional anesthetic and analgesic agents (American Association of Nurse Anesthetists, 2007). However, direct management (vs. monitoring) of regional analgesia and anesthesia of the woman in labor is beyond the scope of practice for RNs who are not CRNAs, and catheter dosing of intermittent and/or continuous infusion of regional analgesic and anesthetic agents should remain within the scope of practice of the licensed, credentialed, anesthesia care provider.

Safe Anesthesia Administration for Pregnant Women

Patient safety is the utmost concern for perinatal health care providers caring for women during pregnancy, labor, and birth. When compared with non-obstetric nursing specialties, the perinatal nurse's responsibility is unique in that for each woman presenting for care, there are at least two patients: the woman and her fetus. Of these two patients, only the woman can be directly observed and monitored. The second patient, the fetus, can only be monitored indirectly. If the woman's condition becomes compromised, fetal well-being can also be adversely affected. Consequently, managing and monitoring regional anesthesia for pain relief among pregnant women can be more complex than for the non-pregnant population.

The pregnant woman differs both physiologically and anatomically from the non-pregnant woman, and these differences can increase the risk for complications from regional analgesia and anesthesia. As a result of pregnancy, edema can develop in the oral and nasal pharynx, larynx, and trachea, which presents a challenge to maintaining the airway and to successful intubation during resuscitation should an emergency occur (Gaiser, 2009; American Heart Association, 2010). Oxygen consumption increases as pregnancy progresses, and this condition, coupled with the fact that functional residual lung capacity is often decreased by 20% (Gaiser), means that the pregnant woman can decompensate much more rapidly during physiologic compromise or during resuscitation than a non-pregnant woman.

The pregnant woman also has increased sensitivity to local anesthetics (Santos & Bucklin, 2009). Regional techniques such as administration of epidural anesthesia and analgesia induce a pharmacologic sympathectomy that can lead to marked decreases in blood pressure and a delayed compensatory response to supine hypotension syndrome (Gaiser, 2009). Furthermore,

pregnancy results in down-regulation of beta-adrenergic receptors that decreases responsiveness to chronotropic agents and vasopressors (Gaiser) and can threaten successful response to standard treatment for hypotension.

Pregnant women are at greater risk for unintentional intravascular cannulation than non-pregnant women (Wong, 2009; Wong, Nathan, & Brown, 2009). Epidural venous engorgement occurs with uterine enlargement and vena caval compression and thus can increase the potential for catheter migration (Wong et al.). Although complications such as intravascular injection of local anesthetic, high neuraxial block, and inadvertent intrathecal or subarachnoid injection are rare, they can be life-threatening, and unintentional intrathecal injection has been cited as a cause of neuraxial anesthesia-associated cardiac arrest resulting in maternal death or brain damage (Davies, Posner, Lee, Cheney, & Domino, 2009; Williams, Davies, & Ross, 2009; Wong et al.). Although cases such as these are rare, the data underscore the importance of ensuring that qualified, licensed anesthesia care providers are available to initiate and manage regional anesthesia, including potential adverse sequelae, during labor and birth.

Safe regional or neuraxial anesthesia administration requires specialized education, experience, and competence. Wong (2009) stated, "Anesthesia personnel should be responsible for changes in the content or rate of the [epidural] infusion and the volume of bolus doses" (p. 453) and that the anesthesia provider should assess the woman every several hours to determine the quality of analgesia, the sensory level and intensity of motor block, the progress of labor, and maternal-fetal status. It is necessary to acknowledge that there is potential for significant maternal-fetal morbidity and mortality associated with some obstetric anesthesia complications, and pregnant women are at higher risk for difficult or failed intubation should an airway emergency occur. Therefore, a licensed, credentialed, anesthesia care provider should manage neuraxial anesthesia and analgesia during labor and birth and be readily available to manage obstetric anesthesia-related emergencies.

AWHONN maintains that only qualified, credentialed, licensed anesthesia care providers as described by the American Society of Anesthesiologists and the American Association of Nurse Anesthetists and/or as authorized by state law should perform the following procedures:

- Insertion, initial injection, bolus injection, re-bolus injection or initiation of a continuous infusion of catheters for analgesia and anesthesia,
- Preparation and programming the medication and infusion devices,
- Verification of correct catheter placement, and
- Increasing or decreasing the rate of a continuous infusion and program doses for PCEA administration.

Pregnant and laboring women should be able to benefit from the expertise of the entire obstetric care team, including the RN, the primary obstetric care provider, and the obstetric anesthesia care provider to help ensure comprehensive and safe care.

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