



Association for Radiologic & Imaging Nursing

POSITION STATEMENT

Role of the Imaging Nurse in Patients Undergoing Sedated Procedures

Introduction/Position

The imaging registered nurse plans, coordinates, and delivers nursing care for patients across the life span that are going to receive sedation and analgesia while undergoing a radiological procedure. The purpose of sedation and analgesia is to relieve anxiety, discomfort, or pain, to diminish memory of the event, and to facilitate the best results. Possessing clinical knowledge, sound judgment, and critical thinking skills based on scientific principles, the nurse plans and implements nursing care to address physical, psychological, and spiritual responses of the patient undergoing a radiological procedure. The nurse is responsible for the patient outcomes resulting from the nursing care provided during the radiological procedure.

The safety and efficacy of sedation for radiological procedures requires the cooperation between the radiologist and the imaging registered nurse. All patients having radiological procedures in which they will receive sedation and analgesia require pre-evaluation to assess their risk and to help manage problems related to pre-existing medical conditions. This assessment includes obtaining a history and performing a focused physical exam, reviewing current medications and drug allergies, assessing cardiopulmonary status, and assessing the airway particularly if moderate or deep sedation will be used. NPO status must be confirmed before any sedation or analgesia medications can be administered. Informed consent is essential before sedation and should be obtained by the radiologist. The nurse can educate the patient and/or family concerning the objective of sedation, anticipated changes in behavior during and post sedation, and activity restrictions post procedure. Once the patient is cleared for sedation and an ASA status and Mallampati score are determined by the radiologist, a plan of care can be formulated. The nurse then prepares and administers the medications under the direct order and supervision of the radiologist.

During the procedure, it is the responsibility of the nurse to monitor the patient's vital signs, comfort, and clinical status. The nurse records the data prior to, at intervals during, and following the procedure. The purpose of patient monitoring is to detect potential intra-procedural complications especially those due to sedation. Effective communication is of utmost importance to ensure a safe and comfortable procedure.

Complications due to sedation, although infrequent, can occur. Sedatives can cause cardiopulmonary compromise and other complications such as allergic reactions, interactions with other drugs, and idiosyncratic or dose-related adverse events. If these complications are recognized, the radiologist must be promptly informed to address the patient's condition. This may range from administration of medication to the patient (e.g., reversal agents, oxygen) to opening the airway and providing assisted ventilation (e.g., bag-mask ventilation, endotracheal intubation). The radiologist must be available immediately to manage complications, from the beginning of sedation until the patient has adequately recovered from its effects.

Post-procedure care should be delivered according to established protocols or written physician orders regarding the level of monitoring and discharge criteria.

Rationale and Supporting Information

Sedation occurs on a continuum from light sedation to general anesthesia and is the result of an individual response and the identified intent of sedation. Progression from one level of sedation to another is related to the medications administered, the routes, the dosage, and the patient's current clinical health status. The nurse managing the care of the patient who has received sedation must be able to define and recognize the various levels of sedation and be able to provide the appropriate corresponding care. Because sedation is a continuum, it is not always possible to predict how an individual patient will respond. Hence, the nurse intending to produce a given level of sedation should be able to rescue patients whose level of sedation becomes deeper than initially intended. Nurses administering moderate sedation/analgesia should be able to rescue patients who enter a state of deep sedation/analgesia, while those administering deep sedation/analgesia should be able to rescue patients who enter a state of general anesthesia.

Moderate sedation/ analgesia

A drug-induced depression of consciousness during which patients respond to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained.

Deep sedation analgesia

A drug-induced depression of consciousness during which patients cannot be easily aroused but respond purposefully following repeated painful stimulation. The ability to independently maintain ventilator function may be impaired. Patients may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained.

Monitoring during the procedure

1. Continuously (prolonged without any interruption at any time) monitored heart rate and oxygenation by audible pulse oximetry.
2. Respiratory frequency and adequacy of pulmonary ventilation are continually (repeated regularly and frequently in steady, rapid succession) monitored.
3. Vital signs and patient assessment every 5-15 minutes as condition warrants (minimally heart rate, respiratory rate, O₂ saturation, blood pressure, and, if indicated, heart rhythm). Vital signs should be monitored after each medication administration and with any significant event.
4. Age-appropriate assessment of pain and level of consciousness with vital signs.
5. EKG is monitored in patients with significant cardiovascular disease when dysrhythmias are anticipated or detected.
6. Capnography monitoring may be considered for use when administering moderate and/or deep sedation.
7. Venous access shall be maintained for all patients having sedation and analgesia.
8. Homeothermia should be preserved.
9. Patients should be protected from pressure-related and position-related injuries.
10. An emergency cart must be immediately accessible to every location where sedation and analgesia is administered. This cart must include:
 - a. emergency resuscitative drugs
 - b. airway and ventilatory equipment
 - c. defibrillator
 - d. source for administration of 100 percent oxygen

- e. positive pressure breathing device
- f. suction
- g. Appropriate airways must be placed in each room where sedation and analgesia is administered.

The nurse assumes no other concurrent responsibilities during the procedure.

Recommendations

The imaging registered nurse is allowed within the limits of state licensure, state nurse practice act, and institutional policy to administer sedation and analgesia. The healthcare facility should have in place an educational/credentialing mechanism that includes a process for evaluating and documenting the nurse's competency relating to the management of patients receiving sedation and analgesia; evaluation and documentation should occur on a periodic basis.

The registered nurse managing and monitoring the care of patients receiving sedation and analgesia must be able to do the following:

- Demonstrate the acquired knowledge of anatomy, physiology, pharmacology, cardiac arrhythmia recognition, and complications related to sedation and analgesia sedation and medications.
- Assess the total patient care requirements before, during, and post administration of sedation and analgesia.
- Understand the principles of oxygen delivery, transport and uptake, respiratory physiology, as well as understand and use oxygen delivery devices.
- Recognize potential complications of sedation and analgesia sedation for each type of agent being administered.
- Possess the competency to assess, diagnose, and intervene in the event of complications and institute appropriate interventions in compliance with orders or institutional protocols.
- Demonstrate competency, through ACLS or PALS, in airway management and resuscitation appropriate to the age of the patient.

Resources

American Association of Nurse Anesthetists. (2005). AANA – Registered Nurses Engaged in the Administration of Sedation and Analgesia. [Rev.]. Park Ridge, IL: Author.

ACR/SIR Practice guideline for sedation/analgesia [(2010) Rev 45]. Reston,VA: Author.

Baerlocher MO, Nikolic B, Silberzweig JE, et al. (2013) Society of Interventional Radiology Position Statement on Recent Change to the ASA's Moderate Sedation Standards: Capnography. *Journal Vascular Interventional Radiology* 24 (7): 939-940.

Author: Sharon Lehmann, MS, ACNS-BC

Reviewers: Sara Hawkins, BSN, RN, CRN; Karen Green, MHA, BSN, RN, CRN

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Association for Radiologic & Imaging Nursing
2201 Cooperative Way, Suite 600
Herndon, VA 20171
Tel: 866-486-2762
Fax: 703-884-2229
info@arinursing.org