Editor’s Note: Read part one of this series, which focuses on patient assessment, red flags, and pharmacologic agents, at americannurse today.com/?p=56273.

Skilled clinicians who administer sedation and analgesia may perform thousands of uneventful procedures annually, but when complications arise, they must immediately recognize and address the signs and symptoms of airway compromise.

Sedative medications alter airway muscle activity, which can lead to airway obstruction. Signs and symptoms include:

- increased respiratory effort
- sternal retraction
- rocking chest motion (not in sync with respiratory effort)
- inspiratory stridor (harsh, high-pitched inspiratory sounds)
- hypoxemia

This second in a two-part series reviews sedation implementation and monitoring.

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• hypercarbia
• absence of breath sounds.

Use a sedation airway management algorithm if airway obstruction and respiratory compromise occur during procedural sedation. (See Airway management algorithm.)

When you identify an obstruction, first speak to and touch the patient to assess the level of consciousness and stimulate him or her. If these efforts aren’t successful and do not relieve the obstruction, use the lateral head tilt. This maneuver moves the head from a neutral to a lateral (side) position in an attempt to provide partial or complete relief. It also may help displace the tongue from the posterior pharyngeal wall to the side of the oropharynx, opening the airway.

If the head tilt isn’t successful, try the chin lift, which permits anterior movement of the mandible through superior displacement of the chin. This maneuver, combined with hyperextension of the head and neck and forward displacement of the mandible, will elevate the soft tissue anteriorly.

If verbal or tactile stimulation, head tilt, and chin lift don’t relieve the airway obstruction, the patient has entered a state of deep sedation or general anesthesia. If obstruction isn’t relieved and airflow restored, oxygen desaturation and hypoxemia will ensue. Next try the jaw thrust maneuver, which requires using both hands, to significantly anteriorly displace the mandible, stretch the anterior aspects of the neck, and elevate the pre-epiglottic soft tissues anteriorly.

If jaw thrust doesn’t relieve the obstruction, consider pharmacologic reversal. (See americannursetoday.com/?p=56273 for information about reversal agents for procedural sedation and analgesia medications.) Nonreversible medications may require an oral or nasal airway to relieve the obstruction. Also, considering an immediate consultation with an anesthesia provider for additional airway support and possible intubation is critical.

**Procedural monitoring**

Recording procedural patient care includes documenting monitoring modalities and medications administered during the procedure. Monitoring requirements include cardiac rate and rhythm, blood pressure, and continuous ventilation (pulse oximetry and capnography) assessment. (See Pulse oximetry vs. capnography.) Level of consciousness scoring also should be recorded using an appropriate tool, such as the Ramsay Sedation Scale, Observer’s Assessment of Alertness/Sedation.
Pulse oximetry vs. capnography

Sedation practice guidelines include new recommendations that require continual monitoring of ventilatory function with capnography to supplement standard monitoring by observation and pulse oximetry.

Significant differences exist between pulse oximetry and end-tidal carbon dioxide monitoring, including the immediate recognition of apnea or hypoventilation when using capnography. Pulse oximetry measures the quantity of arterial blood oxygen saturation and pulse rate; capnography directly measures ventilation by calculating the concentration of carbon dioxide exhaled by the patient. Here’s an easy way to remember the difference:

- Pulse oximetry measures oxygen deficiency (a hypoxic state).
- Capnography measures ventilation (concentration of carbon dioxide in exhaled air).

Capnography has been cited as providing superior respiratory monitoring because hyperventilation can occur several minutes before the onset of hypoventilation. Rather than waiting for the pulse oximeter to identify a hypoxic state, the provider using capnography has already begun implementing protocols to correct airway obstruction, apnea, or hypoventilation syndrome.

Professional competence

Registered nurses must demonstrate professional competence when providing sedation patient care. The American Nurses Association (ANA) position statement on professional role competence states: “The public has a right to expect registered nurses to demonstrate professional competence throughout their careers. ANA believes the registered nurse is individually responsible and accountable for maintaining professional competence.” If you’re asked to adopt new or expanded responsibilities in the sedation setting, use the Practice Decision-Making Framework, developed by the Tri-Council for Nursing in collaboration with the National Council of State Boards of Nursing (https://ncsbn.org/decision-making-framework.htm), to identify or clarify the activity, intervention, or role under consideration.

Learn more

For more information about state laws related to moderate procedural sedation and analgesia administration by nurses, visit:

- Sedation Certification: sedation-certification.com/resources/position-statements/position-statements-by-state/Clickable-map

You also must familiarize yourself with your state board of nursing requirements (such as advanced cardiac life support [ACLS] course completion, patient monitoring standards, airway management competency, and appropriate credentials for rescuing deeply sedated patients) related to moderate procedural sedation and analgesia patient care.

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Selected references


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