



## PROCEDURAL SEDATION: PEDIATRIC AND NEONATAL

Clinical Procedure	
<b>Approved:</b> June 2017	<b>Next Review:</b> June 2020
<b>Clinical Area:</b> All clinical areas	
<b>Population Covered:</b> All neonatal and pediatric patients up to 18 years of age receiving procedural sedation	
<b>Campus:</b> Ballard, Cherry Hill, Edmonds, First Hill, Issaquah, Mill Creek, Redmond	<b>Implementation Date:</b> July 2010

### **Related Procedures, Protocols, and Job Aids:**

[Procedural Sedation: Adult](#)

[Ketamine Use for Pediatric Procedural Sedation](#)

[Nitrous Oxide / Oxygen Administration: Pediatric](#)

[Consent for Surgery or Other Invasive Procedural Treatment](#)

[Food and Fluid Restrictions: Pre-Anesthesia](#)

[Verification of Correct Patient, Procedure, and Site/Side](#)

[Vital Signs: Pediatric](#)

[Emergency Measures: Pediatric](#)

[Obstructive Sleep Apnea \(OSA\) Risk Management: Pediatric Inpatients](#)

[The Comfort Promise](#)

[Pain Management](#)

[Pain Assessment: Pediatric](#)

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[Recommended Deep Sedation Drugs and Doses: Pediatric and Neonatal](#)

[Recommended Moderate Sedation Drugs and Doses: Pediatric and Neonatal](#)

### **Purpose**

To provide clinical management guidelines for effective and safe procedural sedation for pediatric and neonatal patients.

### **Policy Statement**

The use of pharmacologic agents for procedural sedation at Swedish Medical Center (SMC) is standardized in accordance with guidelines from the American Society of Anesthesiologists, [Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists](#) (ASA).

- Procedures and treatments that include sedation require a review of the patient's pertinent medical history, informed consent from the patient or legal representative, monitoring of the patient, and provision for immediate response to emergent situations.<sup>2,3,5,8-Professional Guidelines</sup>
- Monitoring occurs prior to the procedure, during the procedure, and through the recovery process. At a minimum, the monitored parameters include level of sedation, ventilatory function, and hemodynamics.

Individuals responsible for patients receiving procedural sedation medications understand the dose, side effects, and reversal agents.<sup>1,2,3,4,7,8,10-Professional Guidelines; 12-State Guidelines</sup>

- Individuals administering moderate or deep sedation (see [Definitions](#)) are qualified and have the appropriate credentials to manage patients at whatever level of sedation or anesthesia is achieved, either intentionally or unintentionally.<sup>2,3,5,8-Professional Guidelines</sup>

Individuals responsible for patients receiving procedural sedation medications understand the dose, side effects, and reversal agents.

Licensed independent practitioners (LIP) (see [Definitions](#)) intending to induce *moderate* sedation are competent as evidenced by medical credential in anesthesiology, emergency medicine or critical care and verification of education, training, and experience supporting the granting of these privileges; or completion of the SMC moderate sedation self-learning module (pediatric, whichever is applicable to their practice) and upon renewal of medical credentials to:

- Evaluate patients prior to performing moderate sedation.
- Manage a compromised airway.
- Provide adequate oxygenation and ventilation.
- Recover patients from deep sedation.

Those LIPs privileged to administer *deep* sedation are competent as evidenced by credential in anesthesiology, emergency medicine (including pediatric), or critical care (pediatric or neonatal) to:

- Evaluate patients prior to performing deep sedation.
- Manage an unstable cardiovascular system as well as a compromised airway and inadequate oxygenation and ventilation.
- Recover patients from general anesthesia.

**NOTE: This policy does not pertain to anesthesia-directed care in procedural areas. Clinical decisions for patient care are determined and managed by the anesthesia provider.**

All pediatric patients with ASA classification level 3 or greater require Pediatric Critical Care or Anesthesiology consultation.

Procedures and treatments that use sedation require the following:

1. A review of the patient's pertinent medical history,
2. Informed consent from the patient or parent/guardian,
3. Monitoring of the patient, and
4. Provision for immediate response to emergent situations.

The minimal necessary qualified personnel (see below) are present during procedures using *moderate* or *deep* sedation to:

- Appropriately evaluate the patient prior to beginning moderate or deep sedation.
- Provide the moderate or deep sedation.
- Perform the procedure.
- Monitor the patient.
- Recover and discharge the patient either from the post-sedation or post-anesthesia recovery area or from the organization.

The minimal necessary qualified personnel are defined as follows:

- During procedures requiring *moderate* sedation, in addition to the LIP, an additional qualified staff (such as a registered nurse [RN], respiratory care practitioner [RCP], or another LIP) is present to monitor the patient and assist with minor, interruptible tasks which do not interfere with the ability to monitor the patient.

- When the intent is to provide *deep* sedation, the following health care providers are present:
  - a. The privileged LIP, credentialed in anesthesiology, emergency medicine or critical care, who orders the medication is present during the procedure and administration of the medications.
  - b. The qualified registered nurse (see [Definitions](#)) may monitor depth of sedation and cardiopulmonary status and administer the medications *only* if the prescribing privileged LIP is present in the room or at the bedside for neonatal patients, and there is verbal confirmation between LIP and nurse to administer the medication.
  - c. A second LIP, RN, or a RCP assists with airway management. If the second LIP is privileged, he or she may administer the medications and monitor.

**Personnel monitoring the patient receiving sedation do not have responsibility for the care of other patients during or post procedure until vital signs are stable and the patient has recovered to a pre-procedure state.**

The minimal necessary qualified personnel and responsibilities are defined as follows:

#### **Moderate sedation**

- LIP who is credentialed in providing procedural sedation
- One qualified RN (see definitions)
- Another RN, RCP, technician, or assistant may be required when tasks would interfere with RN's ability to monitor the patient.

#### **Deep sedation**

- The LIP, credentialed in anesthesia, emergency medicine, or critical care
- One qualified RN (see definitions)
- A second LIP, RN, or RCP

**NOTE: A LIP written order is required prior to administering sedation medications.**

Roles and responsibilities for moderate and deep sedation:

**NOTE:** There is verbal confirmation between the LIP and the RN for each dose of sedation medication being administered.

#### **The LIP**

- Writes the orders the procedural sedation medication.
- Is present in the room prior to initiating sedation medications, and is present for *all* subsequent sedation administration throughout the procedure.
- Performs procedure.
- Second LIP, if credentialed, may administer medications, monitor the patient, and assist with airway management.
- An LIP written order is required prior to administering sedation medications.

#### **The RN**

- Administers medications for moderate or deep sedation *only* if the prescribing privileged LIP is present in the room or at the bedside for neonatal patients, and there is verbal confirmation between the LIP and RN to administer the medication
- Monitors depth of sedation
- Monitors patient ventilator function, cardiopulmonary status and hemodynamics
- Assists with minor interruptible tasks which do not interfere with the ability to monitor the patient.

## **Certified respiratory care practitioner**

- Assists with airway management and respiratory status documentation (respiratory rate, end tidal CO<sub>2</sub>, etc...)

**NOTE:** There is verbal confirmation between the LIP and the RN for each dose of sedation medication being administered.

Continuous monitoring occurs prior to the procedure, during the procedure, and through the recovery process. At a minimum, the monitored parameters include level of sedation, ventilatory function, and hemodynamics.

## **LIP Order Requirement**

Elements of this procedure require a licensed independent practitioner's (LIP) order.

## **Responsible Persons**

Qualified LIPs (includes neonatal nurse practitioner), CRNAs, registered nurses (RN), and certified respiratory care practitioner (RCP). Involve the certified child life specialist (CCLS), if available, to help prepare the child and family for the procedure.

## **Prerequisite Information**

Use of single drug anxiolytics, by any route of administration (IM, IN, IV, PO, PR), is not considered procedural sedation.

The LIP is present for all procedural sedation medication administration. Any medications administered for pre procedure anxiety or pain requires a one-time order from the LIP that is separate from the procedural sedation orders.

When combination drug therapy is used for any target level of sedation, the potential for a deeper level of sedation or adverse effects is increased.

Opiates used in combination with anti-anxiety or sedative medications for procedures require compliance with procedural sedation policy guidelines.<sup>1,3</sup>

The RN monitors the patient for 15 minutes post procedure. If all of the outpatient discharge criteria are met, then the patient is discharged home with a parent/guardian. If the outpatient discharge criteria are not met in 15 minutes, the patient continues to be monitored every 5 minutes until all of the discharge criteria are met. At that time, the patient is then discharged home with a parent/guardian.

When a dedicated recovery unit is not available, the RN monitoring the patient receiving sedation will not have the responsibility for the care of other patients during or post procedure until the patient has recovered and the discharge criteria are met or returned to pre-procedure vital signs, *and* vital signs are stable for a minimum of 15 minutes.

Swedish Medical Center has agreed to follow The Comfort Promise to reduce or eliminate the discomfort of procedures. The Comfort Promise includes sucrose administration, distraction techniques, position of comfort and topical numbing (See [The Comfort Promise](#) addendum).

Etomidate and Propofol are only used during deep sedation procedures, and are not permitted to be used as a moderate sedation medication.

## PROCEDURE

▶ *Requires an LIP order*

Responsible Person	Steps
LIP	<p><b>PRE PROCEDURE</b></p> <ol style="list-style-type: none"> <li>1. Perform and document in the electronic medical record (EMR) the following pre-procedure assessment:               <ol style="list-style-type: none"> <li>a. Update the Medical History and Physical Exam.</li> <li>b. The patient’s suitability for sedation prior to any medication administration, including a minimum of:                   <ul style="list-style-type: none"> <li>• Targeted sedation level</li> <li>• ASA status (<a href="#">Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists</a>)</li> <li>• Obstructive sleep apnea (OSA) evaluation. See <a href="#">Algorithm: Preprocedure Assessment for Sleep Apnea, Pediatric Patients Undergoing Procedural Sedation</a>.</li> <li>• History of anesthesia difficulty and personal or family history of malignant hyperthermia.</li> <li>• Airway evaluation</li> <li>• Time of last oral intake</li> <li>• Personal and family history of anesthesia complications including malignant hyperthermia</li> </ul> </li> <li>a. Discuss plan, risks, alternatives and benefits of sedation and the procedure with the patient/patient’s legal representative as part of the informed consent.</li> <li>b. Consider Anesthesia involvement in the procedure for patients with:                   <ul style="list-style-type: none"> <li>• A BMI of 35 or greater</li> <li>• An ASA score of 3 or greater</li> <li>• Concern for respiratory compromise during procedural sedation</li> </ul> </li> </ol> </li> </ol> <p><b>NOTE: Consider an Anesthesia consult for those patients identified as having a risk of complications with sedation and to assist with the developed of a plan.</b></p> <ol style="list-style-type: none"> <li>2. Mark side/site of procedure according to <a href="#">Verification of Correct Patient, Procedure, and Site/Side</a> when applicable.</li> </ol>
RN	<p><b>PRE PROCEDURE</b></p> <ol style="list-style-type: none"> <li>1. Education:               <ol style="list-style-type: none"> <li>a. Patient/caregiver education</li> <li>b. Patient/caregiver understands effects of sedation and the precautions to take for 12-24 hours after receiving sedation</li> </ol> </li> </ol> <p><b>NOTE: Pediatric and neonatal patients being discharged less than 24 hours after receiving sedation are discharged to a parent or assigned guardian to drive or accompany them home and will have someone available in case of an emergency. If discharge criteria is unmet due to the absence of a responsible escort, notify the LIP for decision/orders on discharge from or admission to the hospital.</b></p>

	<p>2. Verify consent and obtain signature on consent form if not yet done. Use the “<a href="#">Consent for Surgery or Other Invasive Procedural Treatment</a>” form.</p>
LIP, RN	<p><b>PRE SEDATION</b></p> <p>1. Verify and document the following in the Pediatric Procedural Sedation flowsheet in the EMR prior to giving sedation for planned, elective and unplanned procedures:</p> <ul style="list-style-type: none"> <li>• The correct patient using two patient identifiers</li> <li>• Type of procedure to be performed. See <a href="#">Verification of Correct Patient, Procedure, and Site/Side</a>.</li> </ul>
LIP, RN	<p>▶ 2. Perform a Point of Care (POC) urine dip stick pregnancy test on all female patients of childbearing age (9 years and older or has started menses) prior to any procedure and procedural sedation. The following are exceptions: currently pregnant, history of hysterectomy or tubal ligation, history of menopause (12 months without menses).</p> <p>3. Confirm and document in the EMR prior to giving sedation, that the following are available for immediate use:</p> <ul style="list-style-type: none"> <li>• Blood Pressure device</li> <li>• Medications and reversal agents</li> <li>• IV in place</li> <li>• Pulse Oximetry</li> <li>• Suction equipment</li> <li>• Emergency age appropriate Code Blue cart (neonatal or pediatric)</li> <li>• Oxygen Set-up, including resuscitation bag/mask</li> <li>• Cardiac monitor</li> <li>• End-tidal CO<sub>2</sub> monitor during deep sedation procedures</li> <li>• Printed Emergency Drug Sheet based on patient’s weight in kilograms</li> </ul> <p>4. For planned or unplanned procedures, verify and document in the EMR prior to giving sedation. For emergent or urgent procedures, verify and document as many of the following as possible:</p> <ul style="list-style-type: none"> <li>• NPO status (see <a href="#">Food and Fluid Restrictions: Pre-Anesthesia</a>)</li> </ul> <p><b>NOTE: Although recent food intake is not an absolute contraindication for administering procedural sedation, the LIP must weigh the risk of pulmonary aspiration and the benefits of providing procedural sedation and analgesia in accordance with the needs of each individual patient.</b><sup>1,3,8-Professional Guidelines.</sup></p> <ul style="list-style-type: none"> <li>• H&amp;P or pre procedural note is completed prior to procedural sedation</li> <li>• Written consent for the procedure or treatment</li> <li>• Complete Safety Pause including Procedure site/site verification (if applicable)</li> <li>• Presence of sleep apnea symptoms or risk factors (see <i>Obstructive Sleep Apnea (OSA) Risk Management: Pediatric Inpatients</i>).</li> <li>• Pre-procedural flowsheet is completed</li> <li>• Allergies</li> <li>• How to report any symptoms during and after procedure</li> <li>• Patient/parent/guardian understands effects of sedation and the precautions to take for 24 hours after receiving sedation, including: <ul style="list-style-type: none"> <li>a. Feeding: Do not give anything to drink or eat until fully awake. Start with small amounts of clear liquids and advance slowly.</li> </ul> </li> </ul>

LIP, RN	<p>b. Some post sedation nausea and vomiting is common. Your child may not have a normal appetite for the first 24 hours after sedation.</p> <p>c. Observe your child closely, encourage rest and quiet activities.</p> <p>d. Do not allow your child to play outside, ride a bike, swim, and participate in sports, return to work or drive a car for 24 hours.</p> <p>e. Do not allow your child to bath unsupervised for the rest of the day.</p> <p>f. Your child should not be left unsupervised by an adult until 24 hours after sedation.</p> <p>g. Alcohol should be avoided for a period of 24 hours.</p> <p>h. Conditions under which immediate emergency care should be sought.</p> <p><b>Pediatric and neonatal patients being discharged less than 24 hours after receiving sedation are discharged to a parent or assigned guardian to drive or accompany them home and will have someone available in case of an emergency.</b></p> <p>5. Obtain and document in the EMR the following prior to procedure initiation:</p> <ul style="list-style-type: none"> <li>• Temperature</li> <li>• Height and weight</li> <li>• Respiratory rate</li> <li>• Blood pressure</li> <li>• End tidal CO<sub>2</sub> for deep sedation procedures</li> <li>• Oxygen saturation</li> <li>• Heart rate</li> <li>• Level of sedation</li> <li>• Patient's baseline pain level</li> </ul> <p>a. N-PASS for neonatal patients</p> <p>b. 0-10 numeric scale, Faces-revised, or FLACC-revised scale for pediatric patients.</p> <ul style="list-style-type: none"> <li>• Patient will be assessed for discharge based on the following criteria, compared to baseline assessment and vital signs:</li> </ul> <p><b>American Academy of Pediatrics (AAP) Discharge Criteria:</b></p> <p>a. Cardiovascular function and airway patency are satisfactory and stable.</p> <p>b. The patient is easily arousable, and protective reflexes are intact.</p> <p>c. The patient can talk (if age/developmentally appropriate).</p> <p>d. The patient can sit up unaided (if age/developmentally appropriate).</p> <p>e. For a very young or handicapped child incapable of the usually expected responses, the pre-sedation level of responsiveness or a level as close as possible to the patient's baseline for that child should be achieved.</p> <p>f. The state of hydration is adequate.</p> <p>6. Perform safety pause, including:</p> <p>a. RN verifies with LIP that the pre procedural sedation order set is completed and the H&amp;P is updated.</p> <p>b. Identify and verify correct patient using two identifiers from two sources.</p> <p>c. The proceduralist verifies the site/side with his/her initials, if applicable.</p> <p>d. Verify the planned procedure and the patient consent match.</p> <p>e. RN verifies that appropriate patient monitoring equipment and specialty supplies are present in the procedure room.</p>
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LIP, RN, RCP	<p><b>INTRAPROCEDURE</b></p> <ol style="list-style-type: none"> <li>1. Document time of safety pause on the <a href="#">Pediatric Procedural Sedation Flow Sheet</a> in the EMR. <i>(move to preprocedure; see Safety Pause above)</i></li> <li>2. Administer medications for the purpose of sedation according to individual drug/dosing as defined in the order sets in the EMR. See order set #1503.</li> </ol> <p>See <a href="#">Recommended Moderate Sedation Drugs and Doses: Pediatric</a> or <a href="#">Recommended Deep Sedation Drugs and Doses: Pediatric</a>. The procedure <a href="#">Ketamine Use for Pediatric Procedural Sedation</a> may be used according to the conditions in that procedure (excludes neonates).</p> <ol style="list-style-type: none"> <li>3. All patients receiving sedation, either inpatients or outpatients, are assessed and monitored as outlined below.</li> <li>4. Report to LIP immediately any adverse reactions, complications, or side effects such as respiratory depression, hypotension, or bradycardia.</li> <li>5. Assess pain level (age and developmental appropriate scale) pre and post procedure.</li> <li>6. At the time sedation drugs are being given and during the procedure, monitor and document the following in the <a href="#">Pediatric Procedural Sedation Flowsheet</a> in the EMR or the Anesthesia Record (used by the LIP) every 5 minutes: <ul style="list-style-type: none"> <li>• Respiratory rate</li> <li>• Blood pressure</li> <li>• End tidal CO<sub>2</sub> (for deep sedation procedures)</li> <li>• Oxygen saturation</li> <li>• Heart rate</li> <li>• Any abnormal baseline parameters (such as cardiac rhythm or rate, hypotension, or breathing difficulties)</li> </ul> </li> </ol> <p><b>NOTE: Level of sedation and analgesia is continuously being assessed and monitored by the LIP and medications are adjusted based on those assessments.</b></p> <p><b>NOTE: Items under # 5 are documented every 5 minutes. If unforeseen circumstances arise and unable to document vital signs every 5 minutes, the next set of vital signs should be obtained as soon as possible, not to exceed 10 minutes.</b></p> <p><b>NOTE: Report to LIP immediately any adverse reactions, complications, or side effects (i.e. respiratory depression or hypotension).</b></p>
RN	<p><b>CHANGE IN CLINICAL CONDITION</b></p> <ol style="list-style-type: none"> <li>1. LIP notification should occur for any of the following (reference Vital Signs: Pediatric for normal ranges): <ul style="list-style-type: none"> <li>• Change in Heart Rate</li> <li>• Cardiac Monitoring changes from baseline</li> <li>• Change in Respiratory Rate if obstructing</li> <li>• Change in Systolic Blood Pressure (SBP)</li> <li>• Oxygen Saturation less than 92%, if not baseline value</li> <li>• Increase in oxygen requirement</li> <li>• End tidal CO<sub>2</sub> (etCO<sub>2</sub>) significantly changes from baseline</li> <li>• Unexpected decrease in level of consciousness</li> <li>• Agitation</li> <li>• Any other concern for patient safety</li> </ul> </li> </ol>



RN	<p>2. If clinically indicated, consider activating the <a href="#">Emergency Measures: Pediatric</a> protocol.</p> <p><b>NOTE: If patient condition deteriorates or no response to reversal treatment is noted, call Anesthesia for assistance.</b>  <b>Call a <a href="#">Pediatric Rapid Response Team (PRRT)</a> or <a href="#">Code Blue: Pediatric</a> or <a href="#">Code: Neonatal</a> if warranted by patient condition.</b></p>
RN	<p><b>POST PROCEDURE</b></p> <p>1. After the procedure or test, continue to monitor and document vital signs, pain level, and level of sedation on the Pediatric Procedural Sedation Flow Sheet in the EMR:</p> <p>a. Every 5 minutes until stable for three (3) consecutive readings in a row and every 15 minutes thereafter until discharge or transfer, then</p> <p>b. In 10-30 minutes, then</p> <p>b. Per unit standard until discharge or transfer:</p> <ul style="list-style-type: none"> <li>• Respiratory rate</li> <li>• Blood pressure</li> <li>• End tidal CO<sub>2</sub> for deep sedation procedures</li> <li>• Oxygen saturation</li> <li>• Heart rate</li> <li>• Level of sedation</li> <li>• Pain level</li> </ul> <p>a. N-PASS for neonatal patients</p> <p>b. 0-10 numeric scale, Faces-revised, or FLACC-revised scale for pediatric patients.</p> <ul style="list-style-type: none"> <li>• Any abnormal baseline parameters (such as changes in cardiac rhythm or breathing difficulties)</li> </ul> <p><b>NOTE: Items under # 1.a. are documented every 5 minutes. If unforeseen circumstances arise and unable to document vital signs every 5 minutes, the next set of vital signs is obtained as soon as possible, not to exceed 10 minutes.</b></p> <p><b>If patient is not progressing as expected, notify the LIP.</b></p> <p>2. <b>Inpatient:</b> The patient may be transferred to a recovery area within the procedural area or to the intensive care nursing unit, with handoff RN-to-RN, but may not be transferred to a medical-surgical nursing unit until:</p> <ul style="list-style-type: none"> <li>• The patient’s AAP Discharge Criteria are met or returned to pre-procedure vital signs, <i>and</i></li> <li>• Vital signs are stable for a minimum of 15 minutes.</li> </ul>
RN	<p><b>DISCHARGE</b></p> <p>▶ <b>Outpatients:</b> May be discharged when <i>all</i> of the following discharge criteria are met.</p> <p>1. Confirm and document in the EMR:</p> <ul style="list-style-type: none"> <li>• Minimal or no nausea</li> <li>• No need for parenteral medications</li> <li>• AAP Discharge Criteria are met, or have returned to the pre-procedure level</li> </ul>

RN	<p style="text-align: center;"><b>AAP Discharge Criteria:</b></p> <ol style="list-style-type: none"> <li>a. Cardiovascular function and airway patency are satisfactory and stable.</li> <li>b. The patient is easily arousable, and protective reflexes are intact.</li> <li>c. The patient can talk (if age/developmentally appropriate).</li> <li>d. The patient can sit up unaided (if age/developmentally appropriate).</li> <li>e. For a very young or handicapped child incapable of the usually expected responses, the pre-sedation level of responsiveness or a level as close as possible to the patient's baseline for that child should be achieved.</li> <li>f. The state of hydration is adequate.</li> </ol> <ul style="list-style-type: none"> <li>• Vital signs stable for a minimum of 15 minutes.</li> <li>• A minimum of one hour has elapsed after the last administration of reversal agents (naloxone, flumazenil) to ensure that patients do not become re-sedated after reversal effects have worn off.</li> <li>• Patient and parent/guardian have been educated on effects of procedure, sedation, symptoms to report, and how to seek emergency care, and the importance of having someone available to provide help with his or her care for 24 hours following the procedure.</li> </ul> <p>2. <b>Infants:</b> The following patients are monitored for 12 hours post procedure and may be discharged when all of the above discharge criteria are met and there have been no apneic events:</p> <ul style="list-style-type: none"> <li>• Term infants less than 44 weeks post conceptual age (a newborn less than one month of age) at time of procedure.</li> <li>• Premature infants (at birth) less than 52 weeks post conceptual age at time of procedure.</li> </ul> <p style="padding-left: 40px;">If any apnea occurs during initial monitoring, the patient continues to be monitored until apnea free for 12 hours.</p> <p>3. Patient and a responsible escort are educated on effects of procedure, sedation, symptoms to report, and how to seek emergency care, and the importance of having someone available to provide help with his or her care for 24 hours following the procedure.</p> <p style="padding-left: 40px;">If discharge criteria is not met due to absence of responsible escort, notify the LIP for decision/orders on discharge from, or admission to the hospital.</p>
RN, RCP, LIP	<p><b>DOCUMENTATION</b></p> <ol style="list-style-type: none"> <li>1. Document the procedure and patient outcomes on the Pediatric Procedural Sedation Flowsheet and LIP completes a Procedure Note documenting the sedation in the EMR.</li> <li>2. LIP completes Discharge from Sedation Note in EMR summarizing sedation and outcome including any complications</li> <li>3. Document all education provided in the Patient Education section of the EMR.</li> </ol>

## Definitions

*Body Mass Index (BMI):* a measure of someone's weight in relation to height; to calculate one's BMI, take one's weight in kilograms and divide that by the square of one's height in meters ( $\text{kg}/\text{m}^2$ ); overweight is a BMI greater than 25; obese is a BMI greater than 30.

*Case end.* The time in which both (1) the proceduralist completes the case and (2) sedation medication administration has ended. For pediatric patients: deep sedation has ended when the patient has returned to near baseline mental status. The LIP continues monitoring q5 min vitals during this time.

*Case start.* The time in which the first sedation medication is administered (does not include anxiolysis medications).

*Obstructive sleep apnea (OSA).* Repeated episodes of complete or partial cessation in air flow during sleep secondary to upper airway obstruction, resulting in drop in oxygen. With the use of opioids and benzodiazepines, untreated sleep apnea patients are at increased risk for developing respiratory failure and respiratory arrest.

*Pain management.* An analgesic administered *only* for the purpose of managing either existing pain or anticipated pain from a procedure in a patient who has previously received analgesics, e.g., morphine sulfate 2 mg IV for the removal of a chest tube 5-15 minutes prior to procedure; the patient has been receiving 1-2 mg morphine IV every three hours as needed for pain.

*Procedure pause or safety pause.* The moment immediately prior to the incision or insertion of instruments when the nurse states the patient's name, the procedure, and, when applicable, the operative side, and receives verbal agreement from all members of the team. Correct patient position and the availability of correct implants and any special equipment or special requirements are also verified during the pause.

*Procedural sedation.* A technique of administering sedatives or dissociative agents with or without analgesics to induce a state that allows the patient to tolerate unpleasant procedures while maintaining cardiorespiratory function. Procedural sedation is intended to result in a depressed level of consciousness that allows the patient to maintain oxygenation and airway control independently.

*Following are the American Society of Anesthesiologists definitions of levels of sedation. In preverbal children and infants, as well as those who are developmentally impaired, response to verbal commands is not helpful in assessment of level of sedation. Gentle touch and vigorous tactile stimulation may be substituted to assess responsiveness, but may rouse the child and interfere with the procedure. Infants and children can pass rapidly from one level of sedation into a deeper level, and the distinction between levels may be unclear.*

*Minimal sedation (anxiolysis).* A drug-induced state during which patients respond normally to verbal commands. Although cognitive function and coordination may be impaired, ventilatory and cardiovascular functions are unaffected.

*Moderate sedation/analgesia (conscious sedation).* A drug-induced depression of consciousness during which patients respond purposefully 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 can respond purposefully following repeated or painful stimulation. The ability to independently maintain ventilatory function may be impaired. Patients may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained.

*Anesthesia.* Consists of general anesthesia and spinal or major regional anesthesia. It *does not* include local anesthesia. General anesthesia is a drug-induced loss of consciousness during which patients cannot be aroused, even by painful stimulation. The ability to independently maintain ventilatory function is often impaired. Patients often require assistance in maintaining a patent airway, and positive pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired.

*Qualified personnel.* Registered nurse who has successfully completed the SMC Procedural Sedation self-learning module annually, has completed the Procedural Sedation Competency Verification, and is a current ACLS certified provider for adults, a PALS certified provider for pediatrics, or a NRP certified provider for neonates. When the intent is *deep* sedation, a certified respiratory care practitioner, RN, or second LIP may serve as qualified personnel to assist with airway management and must also have current ACLS, PALS, or NRP training (patient age dependent).

*Licensed independent practitioner (LIP).* Physician or allied health professional with appropriate credentials as defined by the medical staff bylaws and allied health manual, i.e., physician, certified registered nurse anesthetist (CRNA), and advanced registered nurse practitioner (ARNP).

*Responsible escort.* Includes significant others or pre-arranged private or community-sponsored vehicles/drivers responsible for “door-to-door” transport (does not include random taxi transportation).

*Sleep apnea.* Characterized by recurrent episodes of lack of breathing during sleep, resulting in oxygen desaturation. With the use of opioids and benzodiazepines, untreated sleep apnea patients are at increased risk for developing respiratory failure and respiratory arrest.

*Sedation level.*

LEVEL OF SEDATION	ANTICIPATED RESPONSE
3	Awake and responding.
2	Sedated, but responds to normal voice.
1	Sedated, but responds to loud voice or movement.
0	Deeply sedated, unable to respond.

The desired level of sedation for moderate sedation is 2-1. See addendum, [Recommended Moderate Sedation Drugs and Doses: Pediatric and Neonatal](#).

Examples of procedures associated with moderate sedation include the following:

- Endoscopy
- Bronchoscopy
- Cardioversion
- Thoracentesis
- Paracentesis
- Liver / lung biopsy
- Foreign body removal
- Arteriogram
- CAT scan guided biopsies
- Lumbar puncture
- Peripheral IV placement
- MRI
- Silo placement
- Gastroschisis beside repair
- Chest tube insertion
- Invasive line insertion
- Extensive I & D / debridement
- Reduction of dislocated joints
- Laceration repair
- Cleaning of extensive abrasion
- Temporary pacemaker insertion
- Electrophysiology studies
- Cardiac catheterization
- CT scan
- Diagnostic medical imaging studies

The desired level of sedation for deep sedation is 1-0. See addendum, [Recommended Deep Sedation Drugs and Doses: Pediatric and Neonatal](#).

Examples of procedures associated with deep sedation include the following:

- Cardioversion
- Liver / lung biopsy
- Foreign body removal
- Reduction of dislocated joints
- Extensive I & D / debridement
- Invasive line insertion
- Medical imaging

It is not always possible to predict how an individual patient receiving sedation will respond. Patient response variables include such things as age, current state of health, pre-existing conditions or illnesses, and/or other underlying factors.

*Pain scales.* See the [Pain Management](#) protocol for appropriate description of pain scales.

## Forms/Addenda

- ◆ [Pediatric Procedural Sedation Flow Sheet](#) (form 37358, downtime use only)
- ◆ [The Comfort Promise](#)

## Supplemental Information

All patients are screened for sleep apnea according to the [Algorithm: Pre-Procedure Assessment for Sleep Apnea, Pediatric Patients Undergoing Procedural Sedation](#). Patients assessed to be at moderate or severe risk for OSA require Pediatric Critical Care or Anesthesiology consultation.

When providing discharge teaching to patients with previously diagnosed OSA, encourage the use of their home CPAP machine when taking a nap or sleeping after receiving procedural sedation medication.

The procedural sedation team culture includes respect for active communication between the LIP, RN, and supporting members regarding patient status, medication administration, and concerns to ensure patient safety and quality care.

All quality variances are reviewed by a Procedural Sedation subcommittee. Findings are shared with all members of the procedural sedation committee at each meeting. Recommendations for quality improvement are determined at the general procedural sedation committee meeting and communicated to the LIP and the leadership of the unit involved with the variance.

## Regulatory Requirement

Centers for Medicare & Medicaid Services (CMS). 482.52(b)(1); 482.52 (b)(3) – Anesthesia Services.

Department of Health (DOH). WAC 246-320-241 – Anesthesia Services.

Det Norske Veritas (DNV). MS.17 – Medical Staff; AS.1 – Anesthesia Services.

The Joint Commission (TJC). Provision of Care, Treatment, & Services – PC 03.01.01, PC 03.01.03, PC 03.01.05, PC 03.01.07; Record of Care – RC 02.01.03.

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## Addenda

[Recommended Moderate Sedation Drugs and Doses: Pediatric and Neonatal](#)  
[Recommended Deep Sedation Drugs and Doses: Pediatric and Neonatal](#)  
[Algorithm: Pre-Procedure Assessment for Sleep Apnea, Pediatric Patients Undergoing Procedural Sedation](#)  
[Procedural Sedation Competency Verification](#)  
[Procedural Sedation Quick Guide](#)

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