PROCEDURAL SEDATION: ADULT

Clinical Procedure

Approved: June 2015   Next Review: June 2018

Clinical Area: All clinical areas

Population Covered: All adult patients receiving procedural sedation

Campus: Ballard, Cherry Hill, Edmonds, First Hill, Issaquah, Mill Creek, Redmond

Implementation Date: December 2000

Related Procedures, Protocols, and Job Aids:

- Consent for Surgery or Other Invasive Procedural Treatment
- Food and Fluid Restrictions: Pre-Anesthesia
- Obstructive Sleep Apnea (OSA) Risk Management: Adult Medical Inpatients
- Procedural Sedation: Pediatric and Neonatal
- Verification of Correct Patient, Procedure, and Site/Side (Final Time Out / Safety Pause)

Go directly to:

- Procedure
- Definitions
- Recommended Moderate Sedation Drugs and Doses: Adult
- Recommended Deep Sedation Drugs and Doses: Adult
- Adult Procedural Sedation Flow Sheet

Purpose

To provide clinical management guidelines for the purpose of ensuring uniformity of care provided to patients receiving procedural sedation.

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.

- Procedures and treatments that include sedation require a review of the patient’s pertinent medical history, informed consent from the patient or parent/guardian, monitoring of the patient, and provision for immediate response to emergent situations.\(^2,3,5,8\)-Professional Guidelines

- The 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.\(^1,2,3,4,7,8,10\)-Professional Guidelines; 12-State Guidelines

- 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.\(^2,3,5,8\)-Professional Guidelines.
Licensed independent practitioners (LIP) (see Definitions) intending to induce moderate sedation are competent as evidenced by medical credential in 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 and upon renewal of medical credentials to: 1,2,3,5,6,8 Professional Guidelines; 13-Medical Staff Bylaws

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

Those physicians permitted to administer deep sedation are competent as evidenced by credential in emergency medicine or critical care to 1,3,6 Professional Guidelines

- 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.

Sufficient numbers of qualified personnel 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, one qualified registered nurse (RN) 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:
  - The LIP, credentialed in anesthesiology, emergency medicine, or critical care, who orders the medications is present during the procedure and administration of the medications.
  - The qualified registered nurse (see Definitions) may monitor depth of sedation and cardiopulmonary status and administer the medications only if the prescribing privileged physician is present in the room, and there is verbal confirmation between physician and nurse to administer the medication.
  - A second LIP, RN, or a certified respiratory care practitioner assists with airway management. If the second physician is privileged, he or she may administer the medications and monitor the patient.

**LIP Order Requirement**

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

**Responsible Persons**

Qualified LIPs, registered nurses, and certified respiratory care practitioners.
Prerequisite Information

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.\(^1,3\)

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 to an Aldrete score of 8 or greater or returned to pre-procedure vital signs, and vital signs are stable for a minimum of 15 minutes.

<table>
<thead>
<tr>
<th>Responsible Person</th>
<th>Steps</th>
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<tbody>
<tr>
<td>RN</td>
<td>PRIOR TO PROCEDURAL SEDATION ADMINISTRATION</td>
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<tr>
<td></td>
<td>1. Verify and document in the electronic medical record (EMR) the following prior to giving sedation for planned, elective and unplanned procedures:</td>
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<tr>
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<td>• The correct patient using two patient identifiers</td>
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<td>• Type of procedure to be performed</td>
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<td>2. Confirm and document in the EMR the following is available for immediate use:</td>
</tr>
<tr>
<td></td>
<td>• Oxygen delivery system</td>
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<td>• Suction equipment</td>
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<td>• Blood pressure device</td>
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<td>• Pulse oximetry</td>
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<td></td>
<td>• End-tidal CO(_2) monitor during deep sedation procedures(^1,3,8)-Professional Guidelines</td>
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<td>• Emergency Code Blue cart</td>
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<td>• Cardiac monitor (EKG is monitored on patients with significant cardiovascular disease or when dysrhythmias are anticipated or detected as determined by the prescribing LIP.)</td>
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<td>• Medications and reversal agents</td>
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<td>3. For planned or unplanned procedures, verify and document in the EMR the following. For emergent, urgent procedures, verify as many as possible, subject to peer review.</td>
</tr>
<tr>
<td></td>
<td>• Procedural Sedation order set/pre procedural module is completed</td>
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<td>• Written consent for the procedure or treatment</td>
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<td>• Allergies</td>
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<td>• NPO status (see Food and Fluid Restrictions: Pre-Anesthesia)</td>
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<td>• Although recent food intake is not an absolute contraindication for administering procedural sedation, the physician 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.(^1,3,8)-Professional Guidelines.</td>
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<td></td>
<td>• Presence of sleep apnea symptoms or risk factors (see Obstructive Sleep Apnea (OSA) Risk Management: Adult Medical Inpatients, including:</td>
</tr>
<tr>
<td></td>
<td>• Diagnosis of sleep apnea</td>
</tr>
<tr>
<td>RN</td>
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</tr>
</tbody>
</table>
|  | ▪ Apneic periods when sleeping  
|  | ▪ Gasping or choking when asleep  
|  | ▪ Loud or frequent snoring and obesity  
|  | ▪ Daytime sleepiness,  
|  | ▪ BMI greater than 35  
|  | ▪ Male gender  
|  | ▪ Age over 55  
|  | • How to report any symptoms during procedure  
|  | • Patient understands effects of sedation and the precautions to take for 12-24 hours after receiving sedation, including:  
|  | ▪ Do not drive a car.  
|  | ▪ Do not make major decisions or sign legal documents.  
|  | ▪ Do no activities requiring skilled physical coordination or hand-eye coordination.  
|  | ▪ Avoid alcohol.  
|  | ▪ Conditions under which immediate emergency care should be sought  
|  | • It is recommended that someone is available in case of an emergency.  
|  |  
| LIP ordering sedation | 4. Update the History & Physical (H&P) in accordance with the Medical Staff Rules & Regulations; Rules and Regulations of Swedish Health Services Issaquah; and Rules and Regulations of the Medical Staff of Swedish Health Services Edmonds.  
|  | 5. Assess and document in the EMR Procedural Sedation order set / pre-procedural module the patient’s suitability for sedation prior to any medication administration, including a minimum of:  
|  | ▪ Targeted sedation level  
|  | ▪ ASA status  
|  | ▪ Sleep apnea history  
|  | ▪ History of anesthesia difficulty and personal or family history of malignant hyperthermia  
|  | ▪ Airway evaluation  
|  | 6. Discuss the plan, risks, alternatives and benefits of sedation and the procedure with the patient.  
|  | 7. Consider anesthesia involvement in the procedure for patients with:  
|  | ▪ A BMI of 35 or greater  
|  | ▪ An ASA score of 4 or greater  
|  | 8. Mark site of procedure according to Verification of Correct Patient, Procedure, and Site/Side (Final Time Out / Safety Pause) when applicable.  
| RN | 9. Obtain and document in the EMR baseline vital signs, including:  
|  | ▪ Temperature  
|  | ▪ Height and weight  
|  | ▪ Respiratory rate  
|  | ▪ Blood pressure  
|  | ▪ End tidal CO₂ for deep sedation procedures  

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**Clinical Procedure:** PROCEDURAL SEDATION: ADULT  
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RN

- Oxygen saturation
- Heart rate
- Level of sedation
- Patient’s baseline pain level: 0-10 numeric scale, Pain Attitudes and Beliefs Scale (PABS) scale,

**NOTE:** The Intensive/Critical Care Units use the Critical-Care Pain Observation Tool (CPOT) for pain assessment\(^{11-1A}\) and the Richmond Agitation Sedation Scale (RASS)\(^{8-1A}\) for level of sedation for patients bedded in the intensive care setting.

- Baseline Aldrete score (see table)

<table>
<thead>
<tr>
<th>ALDRETE SCORE</th>
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<tbody>
<tr>
<td><strong>Movement</strong></td>
</tr>
<tr>
<td>Can move 4 extremities</td>
</tr>
<tr>
<td>Can move 2 extremities</td>
</tr>
<tr>
<td>Can move 0 extremities</td>
</tr>
<tr>
<td><strong>Respiratory Effort</strong></td>
</tr>
<tr>
<td>Can deep breathe &amp; cough</td>
</tr>
<tr>
<td>Dyspnea/Impaired breathing</td>
</tr>
<tr>
<td>Apnea</td>
</tr>
<tr>
<td><strong>Blood Pressure</strong></td>
</tr>
<tr>
<td>+/- 20 mmHg of baseline</td>
</tr>
<tr>
<td>+/- 20-50 mmHg of baseline</td>
</tr>
<tr>
<td>+/- 50 mmHg of baseline</td>
</tr>
<tr>
<td><strong>Sedation Level</strong></td>
</tr>
<tr>
<td>Awake and responding</td>
</tr>
<tr>
<td>Sedated, but responds to normal voice</td>
</tr>
<tr>
<td>Sedated, but responds to loud voice or movement</td>
</tr>
<tr>
<td>Deeply sedated, unable to respond</td>
</tr>
<tr>
<td><strong>Oxygen Saturation</strong></td>
</tr>
<tr>
<td>Able to maintain O(_2) saturation greater than 94% on room air (or pre-procedure baseline)</td>
</tr>
<tr>
<td>Needs supplemental O(_2) to maintain O(_2) saturation greater than 90%</td>
</tr>
<tr>
<td>O(_2) saturation less than 90% even with supplemental oxygen</td>
</tr>
</tbody>
</table>

**TOTAL SCORE:**

All persons in the procedural area

10. Perform safety pause, including:

a. RN verifies with LIP that the pre procedural sedation order set module is completed and the H&P is updated.
b. Identify and verify correct patient using two identifiers from two sources.
c. The proceduralist marks the site/side with his/her initials, if applicable.
d. Verify the planned procedure and the patient consent match word for word.


**ADMINISTRATION, ONGOING ASSESSMENT, AND MONITORING**

1. Administer all drugs used for the purpose of sedation according to individual drug/dosing protocols as defined in the ordersets in the EMR.
2. Assess and monitor all patients receiving sedation, either inpatients or outpatients, as outlined below.
3. Report to LIP immediately any adverse reactions, complications, or side effects such as respiratory depression or hypotension.
4. At the time sedation drugs are being given and during the procedure, monitor and document the following every five minutes in the Adult Procedural Sedation Flowsheet in the EMR:
   - Respiratory rate
   - Blood pressure
   - End tidal CO$_2$ for deep sedation procedures
   - Oxygen saturation
   - Heart rate
   - Level of sedation
   - Pain level (0-10 numeric scale or PABS scale)
   - Any abnormal baseline parameters (such as cardiac rhythm or rate, hypotension, or breathing difficulties)
5. After the procedure or test, monitor and document in the Procedural Sedation Flow Sheet in the EMR the following every five minutes until stable for three readings in a row and every 15 minutes thereafter until discharge or transfer.
   - Respiratory rate
   - Blood pressure
   - End tidal CO$_2$ for deep sedation procedures as determined by the credentialed deep sedation provider
   - Oxygen saturation
   - Heart rate
   - Level of sedation
   - Pain level (0-10 numeric scale or PABS scale)
   - Any abnormal baseline parameters (such as cardiac rhythm or breathing difficulties)
6. The patient may be transferred to a recovery area within the procedural area or to the intensive care nursing unit, with proper handoff RN-to-RN, but may not be transferred to a medical-surgical nursing unit until:
   - The patient’s Aldrete score is 8 or greater or returned to pre-procedure vital signs; and
   - Vital signs are stable for a minimum of 15 minutes
   🔴 Resuming pre-procedure monitoring or being transferred without meeting these requirements requires a physician/LIP order.
7. Outpatients: May be discharged when all of the following discharge criteria are met. Confirm and document in the EMR:
   - The patient’s Aldrete score is 8 or greater or returned to pre-procedure vital signs; and
   - Vital signs are stable for a minimum of 15 minutes
   - Minimal to no nausea
   - No need for parenteral medications
   - 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.
   - Patient and a responsible adult (when possible) have been educated on
Definitions

Pain management: An analgesic administered only for the purpose of managing either existing pain or anticipated pain from a procedure.

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.

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.

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.

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.

1) Recurrent desaturation less than 90% SpO2 caused by apneas.
2) Apneic events occur once or more per six-minute period (ten events per hour).

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.

Licensed independent practitioner (LIP). Physician or allied health professional with appropriate credentials as defined by medical staff bylaws and allied health manual, i.e., physician, certified registered nurse anesthetist (CRNA), and advanced registered nurse practitioner (ARNP).
Qualified personnel. Registered nurse who has successfully completed the SMC procedural sedation self-learning module annually and is a current ACLS certified provider. 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.

Sedation level.

<table>
<thead>
<tr>
<th>LEVEL OF SEDATION</th>
<th>ANTICIPATED RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Awake and responding.</td>
</tr>
<tr>
<td>2</td>
<td>Sedated, but responds to normal voice.</td>
</tr>
<tr>
<td>1</td>
<td>Sedated, but responds to loud voice or movement.</td>
</tr>
<tr>
<td>0</td>
<td>Deeply sedated, unable to respond.</td>
</tr>
</tbody>
</table>

The desired level of sedation for moderate sedation is 2-1. See addendum, Recommended Moderate Sedation Drugs and Doses. 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

- 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: Adult. 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

RASS has been tested on ventilated, non-ventilated, sedated, and non-sedated ICU patients with high reliability and validity for level of sedation and agitation assessment. 7-IA:

+4 Overtly combative, violent, immediate danger to staff
+3 Very agitated, pulls or removes tube(s) or catheter(s), aggressive
+2 Agitated, frequent non-purposeful movement, fights ventilator
+1 Restless, anxious but movements not aggressive vigorous
0 Alert and calm
-1 Drowsy, not fully alert, but has sustained awakening (eye-opening/eye contact) to voice (greater than 10 seconds)
-2 Light sedation, briefly awakens with eye contact to voice (greater than 10 seconds)
-3 Moderate sedation, movement or eye opening to voice (but no eye contact)
-4 Deep sedation, no response to voice, but movement or eye opening to physical stimulation
-5 Unarousable, no response to voice or physical stimulation

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.

Numeric ten-point scale; 0 = no pain, and 10 = worst pain for adolescents and adults. The faces are used for the pediatric population or as an alternative to use with cognitively impaired adults.

Utilize the Pain Assessment Behavioral Scale (PABS) in the event the patient is unable to verbalize his or her response to the pain intensity scale:

- **Face.** Smiling or relaxed (0), Facial muscle frown, tension, grimace (1), Frequent to constant frown, clenched jaw (2).
- **Restlessness.** Quiet, relaxed appearance, normal movement (0), Occasional restless movement, shifting position (1), Frequent restless movement may include extremities or head (2).
- **Muscle tone.** Normal Muscle tone, relaxed (0), Increased tone, flexion of fingers and toes (1), Rigid tone (2).
- **Vocalization:** No abnormal sounds / ETT: comfortable on awakening (0), Occasional moans, cries, whimpers or grunts / attempting to talk around ETT (1), Frequent or continuous moans, cries, whimpers or grunts / or anxiously attempting to talk around ETT (2).
- **Consolability.** Content, relaxed (0) Reassured by touch or talk. Distractible (1), Difficult to comfort by touch or talk (2).

CPOT scale for pain has been tested on verbal and nonverbal patients in several studies with internal consistency and interreliability, and construct validity. Evidence based descriptors are included. Total scores range from 0, no pain to 8, most pain.

- **Facial expression** is measured from 0-2. No muscular tension, relaxed neutral - 0; presence of frowning, presence of frowning, brow lowering, orbit tightening, and levator contraction, tense - 1; all of the above facial movements plus eyelid tightly closed, grimacing - 2.

- **Body movement** is measured from 0-2. Does not move at all (does not necessarily mean absence of pain), absence of movement - 0; slow, cautious movements, touching or rubbing the pain site, seeking attention through movements, protection - 1; pulling tube, attempting to sit up, moving limbs/thrashing, not following commands, striking at staff, trying to climb out of bed - 2.

- **Muscle tension** evaluation by passive flexion and extension of upper extremities is measured from 0-2. No resistance to passive movements, relaxed - 0; resistance to passive movements, tense, rigid - 1; strong resistance to passive movements, inability to complete them, very tense or rigid - 2.

- **Compliance with the ventilator** (intubated patients) is measured from 0-2. Alarms not activated, easy ventilation, tolerating ventilator or movement - 0; alarms stop spontaneously, coughing but tolerating - 1; asynchrony: blocking ventilation, alarms frequently activated, fighting ventilator - 2.

- **OR Vocalization** (extubated patients) is measured from 0-2. Talking in normal tone or no sound - 0; sighing, moaning - 1; crying out, sobbing - 2.

**Forms**

- Adult Procedural Sedation Flow Sheet [Sedation With or Without Analgesia] (36644) - Downtime use only

**Supplemental Information**

None.
Regulatory Requirement

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

References


13. Swedish Medical Center (SMC) *Medical Staff Bylaws*, Article VIII.

**Addenda**

Recommended Moderate Sedation Drugs and Doses: Adult
Recommended Deep Sedation Drugs and Doses: Adult

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