Dear Doctor:

You have recently submitted a request for Moderate Sedation/Analgesia privileges or have been previously granted privileges in Moderate Sedation/Analgesia.

To be granted privileges in Moderate Sedation, the following is necessary:

1. Request the privilege by checking the box on the privilege request form
2. Read the enclosed Physician Self-Learning packet
3. Complete the case studies
4. Take the quiz at the end of the packet. (You must achieve a score of 80% or higher on the quiz)
5. Return the completed quiz (pages 20-23) reflecting a score of 80% or higher

When all documentation is complete, your request will be reviewed, and the Medical Staff Office will notify you regarding the final action.

Please note that we will not be able to process your request for sedation privileges and will consider your request voluntarily withdrawn if the completed privilege forms and documentation are not submitted to our office by the date indicated.

If you have any questions, please contact the SHMC Medical Staff Office at 541/222-2300.

Thank you.
Sacred Heart Medical Center Moderate Sedation
Physician Self Learning Packet

Introduction

The SHMC "Sedation and Analgesia for Procedures" policy was created and designed by an interdisciplinary team from SHMC in July, 2002 and updated in 2011.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has defined specific standards for the administration of moderate sedation, analgesia and anestheisa. This policy was created to comply with these 2011 Standards, which are based on the American Society of Anesthesiologists (ASA) "Guidelines for Sedation and Analgesia by Non-Anesthesiologists." The standards also state that "individuals administering moderate sedation and anesthesia are qualified and have the appropriate credentials to manage patients at whatever level of sedation or anesthesia is achieved, either intentionally or unintentionally." Privileging physicians to perform moderate sedation meet the intent of "appropriate credentials."

The purpose of this Self-Learning Packet is to provide the physician with information necessary to safely and appropriately care for patients receiving moderate sedation/analgesia. This packet is in no way inclusive of all assessments and interventions that might be necessary for an individual patient. Practitioners involved with the care of patients receiving sedation are responsible for understanding and following this policy.
## Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page #</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Sedation Continuum</td>
<td>1</td>
</tr>
<tr>
<td>Pharmacological Recommendations</td>
<td>2</td>
</tr>
<tr>
<td>Non-pharmacological Interventions</td>
<td>3</td>
</tr>
<tr>
<td>Patient Assessment and Monitoring</td>
<td>3</td>
</tr>
<tr>
<td>Interventions for Deepening Levels of Sedation/Analgesia</td>
<td>6</td>
</tr>
<tr>
<td>Sedation and Analgesia for Procedures Policy</td>
<td>8</td>
</tr>
<tr>
<td>Physical Status Classification of the ASA</td>
<td>10</td>
</tr>
<tr>
<td>Mallampati Classification</td>
<td>11</td>
</tr>
<tr>
<td>Modified Aldrete Score</td>
<td>12</td>
</tr>
<tr>
<td>Guidelines for Safe Discharge after Ambulatory Surgery</td>
<td>13</td>
</tr>
<tr>
<td>Commonly Used Medications</td>
<td>14</td>
</tr>
<tr>
<td>Case Studies</td>
<td>18</td>
</tr>
<tr>
<td>Sedation/Analgesia Quiz</td>
<td>20</td>
</tr>
</tbody>
</table>
Objectives

After completion of this self-learning packet, the physician will be able to:

- Define the levels of sedation/analgesia
- Discuss the indications, contraindications, actions, administration, dosage, potential side effects related to sedatives, analgesics and antagonists.
- Describe the patient assessments before, during and after sedation/analgesia
- State the advantages and limitations of pulse oximetry
- Describe the interventions for deepening sedation
- Identify the appropriate equipment for patient care areas where sedation/analgesia are administered
- Discuss the policy "Moderate Sedation for Adults"

This packet contains the system policy, appendices and attachments referred to in the policy. Additional information to further define levels of sedation, appropriate assessments, interventions and documentation is also included. Questions and case studies are provided to assess assimilation of information.

The Sedation Continuum

Sedation /analgesia is the practice of producing a calming or sedating effect and/or analgesia through the use of medications. There is no clear delineation among the levels of sedation. The 2001 JCAHO Standards emphasize that the patient’s sedation level is not determined by the drug dose but by the patient’s responses to the medication(s). A drug dose producing minimal sedation for one patient may be deep sedation, or, although rare, general anesthesia in another. This requires astute assessment of the patient at all times while the patient is receiving sedative/analgesic medications or recovering from them.

The following graphic illustrates the sedation continuum:

```
Minimal          Moderate          Deep          Anesthesia
(Anxiolysis)     (Conscious Sedation)
```
## Sedation Continuum Grid

The Sedation Continuum Grid defines typical signs & symptoms for each level.

<table>
<thead>
<tr>
<th></th>
<th>Minimal Sedation (Anxiolysis)</th>
<th>Moderate Sedation/Analgesia (Conscious Sedation)</th>
<th>Deep Sedation/Analgesia</th>
<th>Anesthesia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsiveness</strong></td>
<td>Cognitive function may be impaired</td>
<td>Depression of consciousness, easily arousable</td>
<td>Depression of consciousness, cannot be easily aroused</td>
<td>Loss of consciousness</td>
</tr>
<tr>
<td></td>
<td>Normal response to verbal commands</td>
<td>Responds purposefully to verbal commands, may require light tactile stimulation</td>
<td>Responds purposefully following repeated or painful stimulation</td>
<td>Not arousable even with painful stimulation</td>
</tr>
<tr>
<td><strong>Protective Reflexes (Laryngeal-cough, pharyngeal-gag)</strong></td>
<td>Maintained</td>
<td>Maintained</td>
<td>Partial/Complete loss of protective reflexes</td>
<td>Loss of protective reflexes</td>
</tr>
<tr>
<td><strong>Airway</strong></td>
<td>Able to maintain patent airway</td>
<td>Able to maintain patent airway</td>
<td>May require assistance to maintain patent airway</td>
<td>Often requires assistance to maintain patent airway</td>
</tr>
<tr>
<td><strong>Spontaneous Ventilation</strong></td>
<td>Adequate</td>
<td>Adequate</td>
<td>May be impaired</td>
<td>Often impaired</td>
</tr>
<tr>
<td><strong>Cardiovascular Function</strong></td>
<td>Maintained</td>
<td>Maintained</td>
<td>Maintained</td>
<td>May be impaired</td>
</tr>
</tbody>
</table>

## Pharmacological Recommendations

Sedatives, benzodiazepines, and opioids used for sedation/analgesia may cause somnolence, confusion, diminished protective reflexes (e.g. cough, swallow and gag), airway obstruction, and depressed respiratory and cardiovascular functions. Opioids may also cause nausea and vomiting. Since the level of sedation may easily change from light to deep, continuous monitoring of respiratory and cardiac function is essential.

Knowledge of the medications used in sedation/analgesia and reversal agents is the responsibility of the practitioner ordering the administration and assessment of patients receiving these agents.

Recommendations for medication administration include:
- Administer medications slowly.
- Administer medications in incremental doses.
• Assess/reassess the patient after each dose.
• Consider that individual patient response to a particular dose of medication may vary significantly.
• The cardiovascular and respiratory depressive effects of opioids and sedatives are potentiated when used in combination.
• Drug dosages may need to be decreased based on the patient’s medical condition: e.g. age, cardiac, pulmonary, hepatic and renal function.
• Drug dosages may need to be increased based on the patient’s current tolerance to opioids and sedatives.
• The amount of stimulation the patient receives may influence the level of sedation/analgesia observed: e.g. during the actual procedure the patient may be awake and alert. During the recovery period when the stimulation is gone the patient may slip into a deeper level on the sedation continuum.
• Additional resources available to obtain further information on commonly used sedation/analgesia medications include pharmacists, Medline and medication reference books.

Non-Pharmacological Interventions

The ways clinicians interact with patients also helps to reduce their anxiety prior to and during a procedure. Non-pharmacological methods to help reduce the patient’s anxiety include:
• Adequate pre-procedure preparations. Knowledge of what is going to happen during the procedure (sounds, sensations, etc.) reduces patient’s fear of the unknown. Explanations about the actions of the medications to be used and what the patient may experience after the drugs are administered reduce anxiety. Identification and use of past comfort measures provides additional support. For example, some patients may prefer to talk, some may prefer to be quiet, or some may want help with visualization.
• Emotional support. Empathize with the patient: talk with the patient not just at them. Allow and encourage the patient to talk
• Professionalism. A calm, unhurried professional atmosphere comforts patients. Unprofessional, social talk amongst care providers is not beneficial to patients and could increase their stress.
• Supportive environment. Control extraneous noise and traffic. Choose music of the patient’s preference, not the staff’s.

Patient Assessment and Monitoring

Refer to the policy for required assessment and monitoring parameters pre, intra, and post-procedure. A thorough baseline (pre-procedure) assessment provides a reference point, which allows care providers to recognize changes in the patient’s condition. Early detection of undesirable patient responses allows for rapid intervention and treatment.

Undesirable effects of sedation/analgesia include:
• Loss of consciousness
• Hypotension
• Agitation
• Combativeness
• Hypoventilation/decreased oxygen saturation
• Respiratory depression
• Airway obstruction
• Apnea

Changes in pulmonary and cardiovascular findings may indicate deepening levels of sedation/analgesia, which require increasing monitoring and assessment.

**Pulmonary Assessment**

Early recognition of signs and symptoms of inadequate ventilation prevents the patient from becoming hypoxemic or hypercarbic. Signs of a change in the patient’s general status indicate a need for reassessment of the patient’s respiratory status.

Assessments that may indicate a difficult airway are:
• Inability to open mouth
• Poor cervical spine mobility
• Receding chin
• Large tongue
• Prominent incisors
• Short muscular neck
• Morbid obesity

Proceed with caution if the patient has any of these findings: it may be difficult to maintain or reestablish an airway.

Screening for Sleep Apnea should be a consideration because these patients may obstruct significantly easier with less sedation. See STOP BANG tool in attachments

Signs and symptoms of airway obstruction or inadequate ventilation:
• Snoring
• Stridor
• Nasal flaring
• Tracheal or thoracic retractions
• Decreased or absent breath sounds
• Decreased oxygen saturation
• Loss of chest expansion
• Rocking of chest and abdomen
• Change in mental status: restless, combative, decreased levels of consciousness
• Change in skin color: pale or dusky
• Change in rate and depth of respirations
• Change in heart rate and/or blood pressure: may increase or decrease
• Apnea
Principles of Pulse Oximetry Include:

- Noninvasive method of measuring the oxygen saturation of arterial blood based on absorption of light at specific wavelength by red blood cells
- Measures ratio of oxygenated blood to the total amount of oxygen and expressed it as a percentage
- Heralds a hypoxic event before clinical signs
- Requires pulsating vascular bed
- $\text{SpO}_2 > 90\% = \text{paO}_2 > 60 \text{ mm Hg}$ (with normal oxyhemoglobin curve)
- $\text{SpO}_2 < 90\%$ indicative of hypoxemia

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Limitations-Pulse oximeter may not provide accurate reading when there is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplicity</td>
<td>Motion at sensor site</td>
</tr>
<tr>
<td>Noninvasive</td>
<td>Interference from ambient or extrinsic light sources</td>
</tr>
<tr>
<td>Continuous display</td>
<td>Low perfusion states (hypotension, cold extremities)</td>
</tr>
<tr>
<td>Sensitivity to changes in blood oxygen levels</td>
<td>Significant dysrhythmias</td>
</tr>
<tr>
<td>Ability to be applied to all ages</td>
<td>Carbon Monoxide or Methemoglobin in blood</td>
</tr>
<tr>
<td>Relatively low expense</td>
<td>Severe anemia ($\text{Hgb} &lt; 5 \text{ gm/dl}$)</td>
</tr>
<tr>
<td></td>
<td>Electrical interference</td>
</tr>
</tbody>
</table>

Suggestions for obtaining an accurate pulse oximeter reading:
- Pick a warm well-perfused finger
- Be sure the probe fits securely, but not too tight
- Be sure the finger is clean
- Be sure the patient’s heart rate matches the oximeter heart rate. If the oximeter is not picking up accurately, try another finger, the ear, or the patient’s nose.
- Plethysmographic waveform monitoring may be helpful to validate a good signal i.e. pulse wave monitoring.

Suggestions for troubleshooting the pulse oximeter:
- When an alarm sounds-**CHECK THE PATIENT**
- If the patient is in trouble-forget the oximeter-**TREAT THE PATIENT**
- If the patient is okay-check the oximeter
- Patient’s heart rate and oximeter rate should be the same rate/rhythm. If the oximeter heart rate differs from the patient’s actual heart rate, the pulse oximeter may not be picking up the correct arterial pulse. The oxygen saturation reading may not be accurate.
- It should be remembered that a patient may have a normal pulse oximeter reading but could be significantly hypercapnic when supplemental oxygen is given. Patient can become unconscious or arrest from elevated CO2 levels with normal oximetry.
Cardiovascular Assessment

Recognition of patients at a higher risk for developing cardiovascular complications as a result of their sedation is an important assessment for care providers to make. Patients with known cardiovascular disease, hypertension, dehydration, and elderly patients are at higher risk for developing hypotension. Monitor blood pressure frequently in these patients.

Correlate changes in the patient’s heart rate on the pulse oximeter with the patient’s radial or apical pulse. If the heart rate and/or rhythm change, EKG monitoring should be initiated.

Signs and symptoms of inadequate tissue perfusion include:

- Decreased blood pressure
- Increased/decreased heart rate and/or arrhythmias
- Cool and/or mottled, pale or dusky extremities
- Changes in mental status: confusion, light headedness, agitation, combativeness, decreased LOC
- Inability to obtain a pulse oximetry reading
- Decreased capillary refill
- Decreased urine output (if monitoring)

The frequency of assessments, monitoring and documentation should be increased if a patient exhibits an undesirable change in their physical assessment or level of sedation/analgesia.

Interventions for Deepening Levels of Sedation/Analgesia

Patients may occasionally slip into a deeper level of sedation than had been originally intended. If this occurs it is crucial for the care providers to intervene immediately. Follow the ABCDs of basic emergency intervention: Airway, Breathing, Circulation, and Defibrillation/Drugs. Do not hesitate to call a code if more help is needed.

- **Airway**: Maintain head in neutral midline position with the neck extended. Perform the Head-tilt; chin lift or jaw thrust procedures as needed to relieve airway obstruction.

  The Head-tilt, chin lift maneuver is performed by lifting the chin with the fingertips underneath the bone at the center of the chin. Add the head tilt if necessary. Tilt the head by placing a hand on the patient’s forehead and tilting the head back so the chin comes up.

  Placing fingers under the angles of the mandible and lifting the jaw forward perform the Jaw thrust. (These procedures should be practiced as part of BLS training.)

  Nasal and oral airways may also be utilized to maintain an open airway. A nasal airway supports upper airway patency in a patient with minimal to moderate obstruction and is well tolerated by awake or sedated patients with an intact gag reflex. The distance from the nares to the angle of the mandible may estimate the proper nasal airway size. Nasal airways can cause epistaxis and are usually avoided with
patients who are receiving anticoagulation therapy. An oral airway maintains upper airway patency in patients who have airway obstruction from the tongue and soft palate but may not be well tolerated if the patient’s gag reflex is intact.

Complications from the use of oral airways include vomiting, laryngospasm, and dental trauma. The wrong size of oral airway may worsen the obstruction. The correct size of the oral airway may be estimated by holding the airway against the patient’s face; the tip of the airway should end just cephalad to the angle of the mandible. If the airway is too short, it may compress the tongue; if it is too long, it may lie against the epiglottis.

- **Breathing:** Support the patient’s respiratory efforts with bag/valve/mask if the patient’s respiratory rate and depth are inadequate to maintain ventilation. With a respiratory rate less than 8 the patient may need to be manually stimulated or reversed with naloxone according to hospital policy.

- **Circulation:** Fluids, patient positioning (legs up or Trendelenburg), drugs, and/or CPR may be indicated for inadequate cardiac output (circulation) and tissue perfusion.

- **Drugs:** Medications may be indicated either for reversal of sedation/analgesia or for supportive measures, i.e. to support circulation. Reversal agents, naloxone (Narcan®) and flumazenil (Romazicon®), and other emergency medications found on the crash cart, should be immediately available. Diminished reflexes, depressed respiratory function, and impaired cardiovascular function may occur with drugs used for moderate sedation. Refer to appropriate medication references.

- **Differential Diagnosis:** Once the patient is stabilized the underlying cause of the symptoms and/or event must be sought: e.g. if a diabetic patient is confused – is the cause due to the medications given or to low blood glucose?

- **Emergency Equipment:** Size appropriate emergency equipment listed in the policy, and according to individual patient need, must be immediately available when moderate sedation are preformed.
SCOPE: Medical Staff of SHMC RiverBend and University District

INTRODUCTION
SHMC Medical Staff credentialed to provide moderate sedation during procedures are required by Joint Commission and SHMC policy to meet stated requirements.

These requirements apply to the administration of moderate sedation/analgesia as described in SHMC Credentialing Criteria for Sedation and SHMC Nursing Policy for Sedation. Moderate sedation should be sufficient for the majority of elective diagnostic, therapeutic, and minimally invasive procedures. These requirements do not apply to minimal sedation and pain management in which sedative or analgesic medications are administered in doses appropriate for the unsupervised treatment of insomnia, anxiety, or pain. For those procedures that require deeper levels of sedation/analgesia, the sedation should be supervised and/or administered by a physician specifically trained and credentialed to administer this level of sedation.

PERSONNEL
A practitioner who has been granted privileges by the hospital credentials committee to administer a given level of sedation/analgesia must be present during the procedure to either administer or supervise the administration of medications to achieve that level of sedation/analgesia. Competency-based education, training and experience in the pharmacology, potential risks, and potential antagonists of the specific agents to be used should be demonstrated before these privileges are granted.

At least one qualified practitioner or RN trained in basic life support skills and advanced cardiac life support skills (establishing a patent airway and administering positive pressure ventilation) must be present in the procedure room during moderate sedation/analgesia. Furthermore, a qualified practitioner with ACLS or equivalent (tracheal intubation, defibrillation, use of resuscitation medications) should be present within the procedure room during deeper levels of sedation/analgesia.

Qualified personnel must be available to recover the patient after the procedure and then discharge the patient once the sedation/analgesia has resolved to an acceptable level.

PROCEDURE
Procedure-specific patient preparation and consent.
1. Patients should undergo a directed history and physical to determine if they are appropriate candidates for sedation/analgesia. In particular, attention should be focused on (1) abnormalities of major organ systems, (2) previous adverse events during sedation/analgesia or anesthesia, (3) drug allergies, current medications and potential drug interactions, (4) history of tobacco, alcohol, or substance abuse, (5) vital signs, (6) heart and lung auscultation, (7) airway evaluation, and (8) sleep apnea. When indicated, consultation with an appropriate medical specialist (e.g. cardiologist, pulmonologist, or anesthesiologist) should be obtained.

2. As part of the pre-procedure evaluation, the American Society of Anesthesiologists (ASA) Physical Status Classification must be determined and assigned by the physician prior to initiating procedural sedation. The nurse assisting with sedation and documentation will record the ASA Physical Status Classification on the Sedation Record. A patient with severe systemic disease that is a constant threat to life ASA Classification of P4 requires consultation with an anesthesiologist prior to elective sedation.
3. Patients (or their legal guardians) should be informed of the risks and benefits, and agree to the administration of, sedation/analgesia before the procedure.

4. A responsible adult should be available to drive or accompany the patient home. Patients should not be permitted to drive themselves after having received sedation/analgesia.

5. For elective procedures, the patient should not drink fluids or eat food for a sufficient period of time to allow for gastric emptying before the procedure to minimize the risk of pulmonary aspiration. The typical time period is 8 hours for solid foods and 2 hours for clear liquids, but concurrent medical states, such as diabetes mellitus or pregnancy, may extend the time period required for adequate gastric emptying. In urgent or emergent situations, the potential for pulmonary aspiration of gastric contents must be considered in determining the timing of the intervention, the target level of sedation/analgesia, and whether the patient’s trachea should be protected by intubation.

6. Pre-procedure laboratory and EKG testing should be guided by the patient’s medical conditions and the likelihood that the results will affect the performance of the procedure or the management of the sedation/analgesia.

7. Adequate post-procedure instructions should be supplied to the patient and/ or their family as indicated.

REFERENCES:
Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists. (Approved by the House of Delegates on October 25, 1995 and last amended on October 17, 2001).

Standards and Intents for Sedation and Anesthesia Care, from Comprehensive Accreditation Manual for Ambulatory Care, JCAHO (2001) (www.jcaho.org/standard/anesamb.html)

Sacred Heart Nursing Policy 125 (Sedation Policy)
### ASA Physical Classification System

<table>
<thead>
<tr>
<th>P1</th>
<th>A normal healthy patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2</td>
<td>A patient with mild systemic disease</td>
</tr>
<tr>
<td>P3</td>
<td>A patient with severe systemic disease</td>
</tr>
<tr>
<td>P4</td>
<td>A patient with severe systemic disease that is a constant threat to life</td>
</tr>
<tr>
<td>P5</td>
<td>A moribund patient who is not expected to survive with the operation</td>
</tr>
<tr>
<td>P6</td>
<td>A declared brain-dead patient whose organs are being removed for donor purposes</td>
</tr>
</tbody>
</table>

### STOP BANG screening Tool for Sleep Apnea

<table>
<thead>
<tr>
<th>S (snore)</th>
<th>Have you been told that you snore?</th>
<th>YES / NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>T (tired)</td>
<td>Are you often tired during the day?</td>
<td>YES / NO</td>
</tr>
<tr>
<td>O (obstruction)</td>
<td>Do you know if you stop breathing or has anyone witnessed you stop breathing while you are asleep?</td>
<td>YES / NO</td>
</tr>
<tr>
<td>P (pressure)</td>
<td>Do you have high blood pressure or on medication to control high blood pressure?</td>
<td>YES / NO</td>
</tr>
<tr>
<td>B (BMI)</td>
<td>Is your body mass index greater than 28?</td>
<td>YES / NO</td>
</tr>
<tr>
<td>A (age)</td>
<td>Are you 50 years old or older?</td>
<td>YES / NO</td>
</tr>
<tr>
<td>N (neck)</td>
<td>Are you a male with a neck circumference greater than 17 inches, or a female with a neck circumference greater than 16 inches?</td>
<td>YES / NO</td>
</tr>
<tr>
<td>G (gender)</td>
<td>Are you a male?</td>
<td>YES / NO</td>
</tr>
</tbody>
</table>

For each question that is answered yes the patients receives 1 point. A STOP BANG score of 5 or great places the patient at significant risk for sleep apnea.
Mallampati Classification

The Mallampati classification is based on the finding that visualization of the glottis is impaired when the base of the tongue is disproportionately large. Assessment is made with the patient sitting upright, with head in neutral position, the mouth open as wide as possible, and the tongue protruded maximally. The modified classification includes four categories:

- **Class I** Fauclial pillars, soft palate, and uvula are visible
- **Class II** Fauclial pillars and soft palate may be seen, but the base of the tongue masks uvula
- **Class III** Only soft palate is visible. Intubation is predicted to be difficult
- **Class IV** Soft palate not visible. Intubation predicted to be difficult
## The Modified Aldrete Score

<table>
<thead>
<tr>
<th>Activity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to move four extremities voluntarily or on command</td>
<td>2</td>
</tr>
<tr>
<td>Able to move two extremities voluntarily or on command</td>
<td>1</td>
</tr>
<tr>
<td>Unable to move extremities voluntarily or on command</td>
<td>0</td>
</tr>
<tr>
<td><strong>Respiratory</strong></td>
<td></td>
</tr>
<tr>
<td>Able to breathe deeply and cough freely</td>
<td>2</td>
</tr>
<tr>
<td>Dyspnea or limited breathing</td>
<td>1</td>
</tr>
<tr>
<td>Apneic</td>
<td>0</td>
</tr>
<tr>
<td><strong>Circulation</strong></td>
<td></td>
</tr>
<tr>
<td>BP + 20% of preanesthetic level</td>
<td>2</td>
</tr>
<tr>
<td>BP + 20-49% of preanesthetic level</td>
<td>1</td>
</tr>
<tr>
<td>BP + 50% of preanesthetic level</td>
<td>0</td>
</tr>
<tr>
<td><strong>Consciousness</strong></td>
<td></td>
</tr>
<tr>
<td>Fully awake</td>
<td>2</td>
</tr>
<tr>
<td>Arousable by calling</td>
<td>1</td>
</tr>
<tr>
<td>Not responsive</td>
<td>0</td>
</tr>
<tr>
<td><strong>O2 Saturation</strong></td>
<td></td>
</tr>
<tr>
<td>Able to maintain O2 saturation &gt;92% on room air</td>
<td>2</td>
</tr>
<tr>
<td>Needs O2 to maintain O2 saturation &gt;90%</td>
<td>1</td>
</tr>
<tr>
<td>O2 saturation &lt;90% even with O2 supplement</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
</table>

Patients with scores of 8-10 may be transferred to the next phase of recovery.
Attachment 4

Guidelines for Safe Discharge After Ambulatory Surgery

<table>
<thead>
<tr>
<th>Activity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to move four extremities voluntarily or on command</td>
<td>2</td>
</tr>
<tr>
<td>Able to move two extremities voluntarily or on command</td>
<td>1</td>
</tr>
<tr>
<td>Unable to move extremities voluntarily or on command</td>
<td>0</td>
</tr>
</tbody>
</table>

**Respiratory**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to breathe deeply and cough freely</td>
<td>2</td>
</tr>
<tr>
<td>Dyspnea or limited breathing</td>
<td>1</td>
</tr>
<tr>
<td>Apneic</td>
<td>0</td>
</tr>
</tbody>
</table>

**Circulation**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP + 20% of preanesthetic level</td>
<td>2</td>
</tr>
<tr>
<td>BP + 20-49% of preanesthetic level</td>
<td>1</td>
</tr>
<tr>
<td>BP + 50% of preanesthetic level</td>
<td>0</td>
</tr>
</tbody>
</table>

**Consciousness**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully awake</td>
<td>2</td>
</tr>
<tr>
<td>Arousable by calling</td>
<td>1</td>
</tr>
<tr>
<td>Not responsive</td>
<td>0</td>
</tr>
</tbody>
</table>

**O2 Saturation**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to maintain O2 saturation &gt;92% on room air</td>
<td>2</td>
</tr>
<tr>
<td>Needs O2 to maintain O2 saturation &gt;90%</td>
<td>1</td>
</tr>
<tr>
<td>O2 saturation &lt;90% even with O2 supplement</td>
<td>0</td>
</tr>
</tbody>
</table>

**Dressing**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry and clean</td>
<td>2</td>
</tr>
<tr>
<td>Wet but marked and not increasing</td>
<td>1</td>
</tr>
<tr>
<td>Growing area of wetness</td>
<td>0</td>
</tr>
</tbody>
</table>

**Pain**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Free</td>
<td>2</td>
</tr>
<tr>
<td>Mild pain handled by oral medication</td>
<td>1</td>
</tr>
<tr>
<td>Severe pain requiring parenteral medication</td>
<td></td>
</tr>
</tbody>
</table>

**Ambulation**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to stand and walk straight</td>
<td>2</td>
</tr>
<tr>
<td>Vertigo when erect</td>
<td>1</td>
</tr>
<tr>
<td>Dizziness when supine</td>
<td>0</td>
</tr>
</tbody>
</table>

**Fast-Feeding**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to drink fluids</td>
<td>2</td>
</tr>
<tr>
<td>Nauseated</td>
<td>1</td>
</tr>
<tr>
<td>Nauseated and vomiting</td>
<td>0</td>
</tr>
</tbody>
</table>

**Urine Output**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has voided</td>
<td>2</td>
</tr>
<tr>
<td>Unable to void but comfortable</td>
<td>1</td>
</tr>
<tr>
<td>Unable to void and uncomfortable</td>
<td>0</td>
</tr>
</tbody>
</table>

**TOTAL**


# PRE SEDATION AGENTS

## ANTISECRETORY AGENTS

<table>
<thead>
<tr>
<th>Drug</th>
<th>Route</th>
<th>Dose/Titration</th>
<th>Onset</th>
<th>Duration</th>
<th>Side Effects / Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atropine</td>
<td>IV, IM, PO, PR SQ</td>
<td><strong>Adult Dose or patient &gt; 50kg:</strong> 0.4mg SQ, IM, or IV Maximum dose 1mg</td>
<td>PO, IM: 15 min. to 1 hour IV: 10 minutes</td>
<td>4 hours</td>
<td>Use with caution in patients with tachycardia, thyrotoxicosis, obstructive diseases of the GI tract, obstructive uropathy, spastic paralysis, myasthenia gravis, and cystic fibrosis. Monitor heart rate since atropine may cause tachycardia.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pregnancy Category C: No definite association with malformations, possible drug class association. Has been used to decrease secretions before c-sections. May cause decreased respiratory rate in fetus. The AAP considers atropine compatible with breastfeeding, although the extent to which it passes into breast milk is unknown.</td>
</tr>
<tr>
<td>Glycopyrrolate</td>
<td>IV, IM</td>
<td><strong>Adult Dose or patient &gt; 50kg:</strong> 0.1 – 0.3mg IM/IV Maximum dose 2 mg</td>
<td>IV: 1-10 minutes IM: 15-30 minutes</td>
<td>Up to 7 hours</td>
<td>Monitor heart rate: may cause tachycardia. Use with caution in patients with tachycardia, thyrotoxicosis, obstructive diseases of the GI tract, obstructive uropathy, spastic paralysis, myasthenia gravis, hepatitis and cystic fibrosis. Monitor heart rate since atropine may cause tachycardia.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pregnancy Category B: Crosses placenta, but less than atropine. Possible drug class association with minor malformations. Has been used to decrease secretions before c-sections. Anticholinergic of choice for anesthesia for electroconvulsive therapy in pregnant patients. No breast-feeding data available.</td>
</tr>
</tbody>
</table>

## LOCAL AGENT

<table>
<thead>
<tr>
<th>Drug</th>
<th>Route</th>
<th>Dose/Titration</th>
<th>Onset</th>
<th>Duration</th>
<th>Side Effects / Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1% Lidocaine</td>
<td>Infiltration</td>
<td>3-5mg/kg/dose via infiltration <strong>(not parenteral)</strong></td>
<td>45-90 seconds</td>
<td>1-2 hours</td>
<td>Doses may vary based on procedure, degree of anesthesia needed, tissue vascularity and duration of effect required. Consider degree of dosage in patients with impaired liver function.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maximum dose in combination with epinephrine: 7mg/kg</td>
<td></td>
<td></td>
<td>Pregnancy Category C: Rapidly crosses placenta. No evidence of association with large categories of major or minor malformations. Has been used for epidural anesthesia during labor. Possible complications for infant include: Decreased muscle strength/tone, CNS depression, seizures, apnea. Treatment of choice for ventricular arrhythmias during pregnancy.</td>
</tr>
</tbody>
</table>
## AGENTS FOR ADULT SEDATION

**Benzodiazepine – For Sedation, Amnesia, and Relief of Anxiety Only. NOT for Pain Control**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose/Titration</th>
<th>Onset</th>
<th>Duration</th>
<th>Side Effects / Precautions</th>
</tr>
</thead>
</table>
| Midazolam| Adults < 65 yrs old 1-2mg IV over 1 minute; wait 2 minutes to evaluate response; if needed, give 1mg IV slowly every 4 minutes until desired response (usually not more than 5mg needed). | IV: 1-5 min | Duration after single dose = 20-40 min (IV) | **Adverse Drug Reactions:**  
1. CNS effects/withdrawal  
2. Respiratory depression, apnea  
3. Anterograde amnesia  
4. Hiccups, nausea, vomiting  
5. Rarely hypotension  
Not removed by hemodialysis or peritoneal dialysis  
Pregnancy category D  
Freely crosses placenta, although more slowly than lorazepam and diazepam. Possible complications for newborn: hypotonia, lethargy, sucking difficulties, IUGR, withdrawal symptoms. Excreted in breast milk. Mean Milk: Plasma ratio 0.15  
Unknown effect on breastfeeding infant-prolonged exposure not recommended. |
|          | Adults >/=65 yrs old 0.5-1.5mg IV over 1 minute; wait 2 minutes to evaluate response; titrate in 0.5mg increments every 4 minutes to desired response (up to a maximum of 3.5mg) |       |                           |                                                                                          |

**Narcotic – For Pain Control Only. Not Appropriate for Sedation, Amnesia or Relief of Anxiety**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose/Titration</th>
<th>Onset</th>
<th>Duration</th>
<th>Side Effects / Precautions</th>
</tr>
</thead>
</table>
| Fentanyl | Adults <65 yrs old 25-50mcg IV over 2-3 minutes (may repeat every 5-10 minutes to a maximum dose of 200mcg in 60 minutes) | IV: 3 min | 30-60 minutes Elimination = hepatic Half-life= 2-7 hours | **Adverse Drug Reactions:**  
1. Respiratory depression, apnea  
2. Bradycardia, hypotension  
3. Nausea and vomiting  
4. Sedation  
5. Decreased gut mobility  
6. Urinary retention  
Hypotension with rapid administration  
The respiratory depressant effect of fentanyl may last longer than the analgesic effect. May have synergistic effect when used with Versed; consider lower doses when used in this combination. Consider the total dose of all narcotics used.  
Pregnancy Category B (Category D if used in high doses for prolonged periods at term). Freely crosses placenta. No reports of congenital defects. Possible effects on newborn include withdrawal and respiratory depression. |
|          | Adults >/=65 yrs old 25-50mcg IV over 2-3 min (may repeat every 5-10 minutes to a maximum dose of 100mcg). |       |                           |                                                                                          |
### Narcotic Reversal Agent

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose/Titration</th>
<th>Onset</th>
<th>Duration</th>
<th>Side Effects / Precautions</th>
</tr>
</thead>
</table>
| Naloxone  | Take contents of one 0.4mg/ml ampule (use filter needle) and dilute with 9ml of normal saline to a total volume of 10ml. This will provide a concentration of 0.04mg/ml. Give 1ml(0.04mg) IV every 1-2 minutes until desired degree of reversal is obtained. May need to repeat dose every 20-30 minutes, or more frequently. Observe for re-sedation, return of respiratory depression. | IV: 2-3 minutes | Duration after single dose = 1-2 hours, Elimination= conjugated in the liver, eliminated in the urine, Active metabolite=NO, Half-life= 30-80 minutes | May precipitate withdrawal symptoms (e.g. hypertension, sweating, agitation, nausea and irritability) in patients dependent on opiates. Use with caution in these patients, and in those with chronic cardiac and pulmonary diseases. Naloxone effects may wear off before the effects of the narcotic do, and sedation and respiration depression may reoccur.  
**Adverse Drug Reactions:**  
Excessive reversal, withdrawal symptoms, agitation.  
**Drug Interactions:**  
The duration of action of the opioids may exceed that of Naloxone, so REPEATED DOSES may be necessary.  
Pregnancy Category B  
Freely crosses placenta. Has been safely given to infants immediately after delivery. No information on safety of use during pregnancy. No breastfeeding data available. |

### AGENTS FOR ADULT SEDATION

#### Benzodiazepine REVERSAL AGENT

| Flumazenil | 0.2mg IV over 15 seconds  
If the desired level of consciousness is not obtained after waiting an additional 45 seconds, may repeat with 0.2mg at 60-second intervals, up to a maximum total dose of 1mg.  
In the case of re-sedation, repeated doses may be administered at 20-minute intervals as needed. For repeat treatment, no more than 1mg (given as 0.2mg/min) should be administered at any one time, and no more than 3mg should be given in any one hour. | IV: 10-20 seconds | Duration after single dose = 60-90 minutes, Elimination= eliminated by hepatic metabolism, Active metabolite=No, Half-life= 45-80 minutes | Do not use in patients with a tricyclic antidepressant overdose. Seizures may occur in patients who are physically dependent on benzodiazepines or are receiving them for control of seizures. Flumazenil effects may wear off before the effects of the benzodiazepine do, and sedation may reoccur.  
May not reliably reverse respiratory depression.  
**Adverse Drug Reactions:**  
Seizures (see above), arrhythmias (rare), nausea and vomiting.  
May accumulate in hepatic impairment.  
Pregnancy Category C.  
No breastfeeding data available. |
CONCLUSION

The objectives of sedation and analgesia are:

- Mood alteration.
- Comfortable and cooperative
- Decreased pain
- Elevation of the patient's pain threshold with minimal changes in vital signs
- Partial amnesia
- Prompt and safe return to activities of daily living

Knowledge of the principles of sedation is crucial to delivering safe care to the patients who will benefit from these medications and techniques. It is imperative that care providers administering or monitoring sedation/analgesia understand and adhere to the policy governing the use of this practice.
CHECK YOUR KNOWLEDGE

CASE STUDIES

The following scenarios were created to enhance critical thinking in situations that may be encountered. Think about how you would react in each situation and then review the discussion points on the following page.

1. The end of the procedure is near and you have been monitoring your patient closely. The patient has received 2mg of Versed preprocedure and 100mcg Fentanyl intra-procedure. The patient's vital signs have been stable. He has been drowsy and requires tactile stimulation in order to respond appropriately to verbal commands. His pulse oximeter readings have been between 94 and 98% on room air. What concerns do you have for the patient?

2. A 150-kg, somewhat anxious, gentleman is being admitted for a procedure. His orders read "3mg Versed preprocedure IV." The patient has a history of sleep apnea. How do you prepare for this patient's care?

3. An elderly 45-kg woman, with increased liver enzymes, is scheduled for a procedure this morning. You decide to use Versed and Fentanyl. What precautions do you take with this patient?

4. A diabetic patient is admitted for a renal biopsy. During the procedure the patient seems a little confused. The pulse oximeter reading is 90%, her heart rate is slightly increased, and her blood pressure is slightly decreased from pre-procedure. The pre-procedure pulse oximeter reading was 99%. How should you advise the monitoring clinician?

5. During a procedure, you are advised that the patient's respiratory rate has decreased to 8. The pulse oximeter is reading 96%.
Discussion Points for Case Studies

1. This patient is at risk to slip into a deeper level of sedation/analgesia in the post-procedure period when the stimulation of the procedure is over.

2. Talk with the patient about the procedure and explain what might be felt and heard. Dose the medication to effect. Because of the sleep apnea and obesity, this patient is more prone to airway obstruction and apnea-decreased ventilation. A nasal airway may be appropriate for this patient should complications develop. Due to this patient's size, a larger dose of medication may be required to achieve the desired level of sedation/analgesia.

3. Due to this patient's age, weight, and liver function, smaller doses of medications may be required. Give medications slowly and dose to effect. Versed and Fentanyl potentiate each other's effects.

4. Check this patient for:
   A. Airway – assure patency and intervene as needed.
   B. Breathing – rate and rhythm – initiate oxygen.
   C. Circulation – correlate patient's heart rate with the pulse oximetry monitor for accuracy of saturation reading.
   D. Drugs – assure that resuscitation medications are available.
   E. Differential Diagnosis – confirm source of confusion (low glucose or hypoxemia/hypercarbic).
   F. Monitoring – increase frequency of assessments and documentation until patient returns to baseline.

5. This patient may need tactile stimulation to maintain or increase ventilations. You may need to assist the patient with bag-valve mask ventilation. Additional doses of sedative medications should not be given. Consider reversal, if unable to maintain ventilation. Constant monitoring of respiratory function into the post-procedure period is crucial.

(end)
Sedation / Analgesia Quiz

1. The RN designated to monitor/assess a patient during a procedure utilizing sedation/analgesia may assist the physician performing the procedure as needed.
   a) True
   b) False

2. Transport of sedated patients must be done by providers who are able to monitor, assess and interview, if needed.
   a) True
   b) False

3. Patients who have met discharge criteria must have a responsible companion to escort and drive them home.
   a) True
   b) False

4. Documentation during a procedure must occur
   a) Every 5 to 15 minutes as conditions warrant
   b) After administration of every medication
   c) With any significant event
   d) All of the above

5. Size appropriate equipment and supplies must be immediately available.
   a) True
   b) False

6. Which of the following medications reverses the effects of Benzodiazepines.
   a) Narcan (Naloxone)
   b) Romazicon (Flumazenil)

7. Which of the following medications reverses the effects of Narcotics.
   a) Narcan (Naloxone)
   b) Romazicon (Flumazenil)

8. Dosage adjustments may be needed for
   a) Elderly
   b) Impaired renal function
   c) Hepatic insufficiency
   d) All patients depending on their response to the medication

9. The effects of reversal agents may wear off before the effect of the sedative or analgesic.
   a) True
   b) False
10. A patient received 3mg of Versed IV, ten minutes ago. In what level of sedation will this patient be?
   a) Minimal
   b) Moderate
   c) Deep
   d) Unable to determine

11. A patient who is moderately sedated may need assistance to maintain a patent airway.
   a) True
   b) False

12. A patient who is deeply sedated will follow a simple command to open his eyes.
   a) True
   b) False

13. Of the following, which are signs of inadequate airway/ventilation?
   a) Snoring
   b) Change in LOC
   c) Loss of chest expansion
   d) Nasal flaring
   e) All of the above

14. All of the following describe moderate sedation except:
   a) Allows protective reflexes to be maintained
   b) A medically controlled state of depressed consciousness or unconsciousness from which the patient is not easily aroused and is unable to respond purposefully to physical stimulation or verbal command.
   c) Retains the patient's ability to maintain a patent airway independently and continuously.
   d) Permits appropriate response by the patient to physical stimulation or verbal command (e.g. "open your eyes")
   e) The drugs, doses and techniques are not intended to produce a loss of consciousness.

15. A 55-year-old woman has a history of adult onset diabetes mellitus. She also has a history of hypertension. Theses conditions are treated with medications. She is scheduled for a colonoscopy. This patient is an ASA Physical Classification of:
   a) ASA I
   b) ASA II
   c) ASA III
   d) ASA IV
   e) ASA V
16. Prior to performing a procedure with sedation/analgesia, the physician must perform or provide the following:
   a) A brief medical history and physical exam
   b) A signed consent form
   c) An ASA Patient Classification Status
   d) Verify the patient's NPO status
   e) All of the above

17. An excellent indicator of adequate moderate sedation is:
   a) Unconsciousness
   b) Bradycardia
   c) Slurred Speech
   d) Unresponsiveness
   e) A normal blood pressure and heart rate

18. Monitoring parameters include:
   a) Heart rate, blood pressure, respirations
   b) Heart rate, blood pressure and oxygen saturation
   c) Heart rate and rhythm, blood pressure, respirations, oxygen saturation and level of consciousness
   d) Heart rate and rhythm, blood pressure, oxygen saturation and respirations
   e) Heart rate, blood pressure, respirations and oxygen saturation

19. The RN monitoring the patient receiving sedation/analgesia:
   a) May be the Charge Nurse
   b) May also circulate in the room and get equipment from the hallway
   c) May not be engaged in any other activity during this period
   d) May not apply oxygen, if needed
   e) Should do the preoperative history and physical prior to the procedure

20. Naloxone (Narcan) can be used to reverse all of the following except:
   a) Midazolam
   b) Meperidine
   c) Fentanyl
   d) Morphine
   e) Sublimaze

21. Your patient had respiratory depression. You have given 150mcg of Fentanyl. The patient will not respond to verbal stimulation. You should give Flumazenil to reverse the effects of the narcotic.
   a) True
   b) False
22. What information is not needed in the history for a patient undergoing a procedure using sedation/analgesia:
   a) Allergies
   b) Past experiences with anesthetic drugs
   c) Pregnancy or menstrual history
   d) Last meal
   e) All of the above are necessary in the history

23. Prior to discharge, the RN must have all of the following, except:
   a) Written instructions from the physician for the patient
   b) Name and phone number of a responsible adult to accompany the patient
   c) Phone number of the ride arranged with public transportation and address where they are to take the patient.
   d) Complete documentation of the entire procedure including the recovery period
   e) Assured the patient's ability to void and retain oral fluids

24. All of the following are considered clear liquids except:
   a) Plain coffee or tea
   b) Breast milk
   c) Grape juice
   d) Apple juice
   e) Water

25. It is prudent to wait 6 hours prior to performing sedation/analgesia on a patient who has had Cream of Tomato soup within the last hour:
   a) True
   b) False

26. Moderate sedation ensures complete amnesia for the patient after awakening from a procedure.
   a) True
   b) False

End of Test
Answers to Sedation / Analgesia Quiz

1.  B
2.  A
3.  A
4.  D
5.  A
6.  B
7.  A
8.  D
9.  A
10. D
11. B
12. B
13. E
14. B
15. C
16. E
17. C
18. C
19. C
20. A
21. B
22. E
23. C
24. B
25. A
26. B
MODERATE PROCEDURAL SEDATION/ANALGESIA

Basic Procedural Sedation is the administration of systemic medications by any route to produce a medically controlled state of depressed consciousness for the primary purpose of performing a diagnostic or therapeutic procedure. A patient receiving Moderate Procedural Sedation ideally has a minimally depressed level of consciousness but retains the ability to continuously and independently maintain a patent airway and respond appropriately to physical stimulation and verbal commands. The goal is to reduce the intensity of pain and awareness during a procedure, without loss of protective reflexes or consciousness.

1. Eligibility Criteria
   Licensed: MD, DO, DPM, DMD, DDS
   AND

2. Training/Experience
   a) Demonstrated successful completion of a residency or fellowship training program (within the last 5 years) with specific documentation of minimum of four weeks exposure to anesthesia (including IV conscious sedation, indications, contraindications, pre-anesthesia assessment, procedural care, procedure monitoring and post anesthesia care);
   OR
   b) Completion of the Moderate Sedation Learning Packet and Quiz with return of the quiz to the medical staff office
   OR
   c) Evidence of participation in a procedural sedation course within the past 24 months, comprised of pharmacology, cardiac rhythm interpretation, respiratory physiology-transport & uptake, use of oxygen delivery devices, recognition & treatment of complications, airway management, legal ramifications, and liability components. Documentation attesting to successful completion of the same course or equivalent must accompany this application.

Maintenance Criteria: Completion of the Moderate Sedation Learning Packet and Quiz with return of the quiz to the medical staff office.

The Moderate Sedation Quiz must be returned with this privilege request form.

I have reviewed the above criteria and the attached Moderate Sedation Learning Packet & Test. By signing below I hereby request privileges for Moderate Procedural Sedation/Analgesia, attest that I meet the eligibility criteria and that I am physically and mentally capable of performing this privilege.

Signature of Applicant: __________________________________ Date: ___/___/___

Approval Signature: __________________________________ Date: ___/___/___