MVHS Procedural Sedation Policy (Scope)

• The goal is to promote cooperation by:
  – Reducing anxiety and pain
  – Promoting immobility (especially in children)

• The intention is to preserve airway reflexes, spontaneous breathing and arousability while reducing the level of consciousness
Levels of Procedural Sedation

Minimal Sedation-

- drug induced state where:
  - Patients respond normally to verbal commands
  - Although cognitive function and coordination may be impaired, characteristically there is no altered level of consciousness
  - Airway and ventilation remain intact.
Levels of Procedural Sedation

Moderate Sedation -

• Drug induced depression of consciousness which preserves:
  – Response to verbal commands (may require light tactile stimulation)
  – Patent airway
  – Spontaneous ventilation
  – Hemodynamic stability
Levels of Procedural Sedation

Deep Sedation:
• drug induced state where:
  – Patients cannot be easily aroused but respond following repeated or painful stimulation
  – Patients may require assistance in maintaining a patent airway and adequate ventilation
## Sedation: Minimal ➔ Moderate ➔ Deep ➔ GA*  
*General Anesthesia

<table>
<thead>
<tr>
<th>Response</th>
<th>Minimal</th>
<th>Moderate</th>
<th>Deep/ GA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal response to verbal stim.</td>
<td>Purposeful response to verbal or tactile stim.</td>
<td>Purposeful response to repeated or painful stim.</td>
<td>Unarousable by any stimulation</td>
</tr>
<tr>
<td>Airway</td>
<td>Unaffected</td>
<td>No intervention required</td>
<td>Intervention may be required</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Intervention often required</td>
</tr>
<tr>
<td>Spontaneous Ventilation</td>
<td>Unaffected</td>
<td>Adequate</td>
<td>May be inadequate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Frequently inadequate</td>
</tr>
<tr>
<td>CV Function</td>
<td>Unaffected</td>
<td>Usually maintained</td>
<td>Usually maintained</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>May be impaired</td>
</tr>
</tbody>
</table>

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This clinical policy is intended for all patients of all ages in all hospital units who have: emergent or urgent conditions that require:

- Pain management through a drug-induced reduction in level of consciousness in order to successfully accomplish an interventional or diagnostic procedure.
Transition from moderate to deep sedation or general anesthesia can occur when using any procedural sedation agent.

In order to minimize this risk:

- All drugs are administered slowly and titrated to effect.
MVHS Procedural Sedation Policy

Inclusion Criteria

• This policy and its attendant documentation and monitoring requirements applies only to moderate and deep sedation.

• Credentialing applies to attending physicians and nurse practitioners only.
  — Credentialing does not apply to housestaff.

• The performance of deep sedation is associated with higher risks.
  — Limited to physicians meeting special requirements
  — NPs may not perform deep sedation.
MVHS Procedural Sedation Policy

Exclusion Criteria:

• The administration of a minimal dose of a single medication in order to achieve anxiolysis constitutes minimal sedation.
  - Example: 1 or 2 mg of IV Versed in a healthy middle aged patient.

• Use of sedative agents for control of acute agitation or withdrawal states.

• Use of analgesics for acute pain control.

• Routine nighttime use of hypnotics.
Delineation of Privileges: Moderate Sedation

• Review of the procedural sedation policies and procedures and successful completion of the on-line course

• Current BLS certification

• Applies to the use of the following drugs:
  — Midazolam           Pentobarbital*
  — Fentanyl           Chloral Hydrate*
  — Morphine*  * for moderate sedation in children

• Note: Deep sedation may occur with any of the above agents at sufficient doses.
Delineation of Privileges: Deep Sedation

• Board certification/prepared in a specialty that routinely employs deep sedation
• Advanced airway skill competency.
  – (ACLS, PALS, NALS or equivalent training/experience)
• Current experience established.
• Performance of deep sedation will be restricted to the following attending physician groups*:
  – Anesthesiology  Oral Surgery
  – Critical Care  Pediatric Critical Care
  – Emergency Medicine  Pediatric Emergency Medicine

*Other attending physicians whom the sedation committee deems qualified by their training and/or experience.
Delineation of Privileges: Deep Sedation

• Review of the procedural sedation policy and procedures course and completion of the on-line test.

• The use of the following drugs for procedural sedation will a priori constitute deep sedation:
  — Propofol
  — Ketamine*
  — Etomidate

* Ketamine produces a specialized condition, referred to as a “dissociative” state where patient responses more closely resemble deep sedation.
Procedural Sedation Time Periods

- Pre-procedure preparation
- Procedural period
- Post-procedure period
Required Documentation Prior to Procedure

• Signed consent for both the procedure and procedural sedation
  — Specify moderate or deep sedation
  — Use same consent form for procedural sedation and procedure.
• Completed History and Physical
• Results of pregnancy testing for women of childbearing age.
Required Documentation Prior to Procedure - continued

• Completed pre-sedation assessment portion by the physician or nurse practitioner* who will perform the procedural sedation. This includes:
  – Airway assessment
  – Fasting status
  – ASA classification

* NP only permitted to perform moderate sedation
Pre-Sedation Assessment – History and Physical

• History*
  – Previous problems with sedation
  – Sleep apnea

• Physical exam-head and neck*
  – Limited mouth opening
    • modified Mallampati classification
  – Short neck (reduced thyromental distance)
  – Small mandible
  – Large tongue
  – Loose teeth, dentures
* The presence of one or more of these findings may require advanced airway skills.
# Pre-Sedation Assessment - Fasting Guidelines

<table>
<thead>
<tr>
<th>Ingested Material</th>
<th>ASA Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear Liquids</td>
<td>2h</td>
</tr>
<tr>
<td>Breast Milk</td>
<td>4h</td>
</tr>
<tr>
<td>Non-clear liquids</td>
<td>4h</td>
</tr>
<tr>
<td>All other meals</td>
<td>6h</td>
</tr>
<tr>
<td>Class</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------------------------------</td>
</tr>
<tr>
<td>Class I</td>
<td>Healthy</td>
</tr>
<tr>
<td>Class II</td>
<td>Mild systemic disease</td>
</tr>
<tr>
<td>Class III</td>
<td>Severe but not incapacitating systemic disease</td>
</tr>
<tr>
<td>Class IV</td>
<td>Incapacitating systemic disease that is a constant threat to life</td>
</tr>
<tr>
<td>Class V</td>
<td>Moribund patient not expected to survive more than 24 hours</td>
</tr>
</tbody>
</table>
Pre-Sedation Assessment
Anesthesia Consultation – required if:

• Patient falls within ASA classification 4 or greater.
• Anticipated difficult airway or
  – Poor mouth opening
  – Reduced thyromental distance
• History of adverse reaction to sedation or general anesthesia.
• Known respiratory/hemodynamic compromise.
• Significant co-morbid conditions/ sleep apnea.
Required actions prior to procedure

- Medication orders entered into ICIS
- Pre-procedure “Time-Out”
  - Confirm correct patient
    - If possible query patient directly; if not:
      - Correct name on ID bracelet
      - Correct date-of-birth on ID bracelet
  - Confirm correct procedure (including if moderate or deep sedation is being performed)
  - Confirm correct side, level (if applicable)
- Document baseline vital signs just prior to start of procedural sedation
Required Actions Prior to Procedure - continued

- Reliable IV access
  - Establishing reliable IV access is required in most cases of moderate and deep sedation
  - Exceptions include:
    - Use of Chloral hydrate for moderate sedation in children
    - Use of intramuscular (IM) Ketamine for deep sedation in children with anticipated difficult IV access.

- Appropriate monitoring (& documentation)
- Appropriate “monitor” (see slide 23)
- Appropriate resuscitation equipment
Procedural Period
“The Monitor”

- The designated individual, separate from the operator, to directly observe and monitor the patient throughout the procedure performed with sedation.
- Monitor must be an RN with at a minimum BLS certification.
- During moderate sedation, the dedicated RN may perform minor interruptible tasks.
- During deep sedation, the dedicated RN must continuously monitor the patient uninterrupted.
Procedural Period
Required Equipment

• Basic Equipment
  — Oxygen source
  — Suction device
  — Oxygen delivery devices
    • Nasal cannulae, oxygen mask,
  — Airway adjuncts (age appropriate)
    • Oral/nasal airways.
  — BP/pulse oximeter/ECG monitor
  — Exhaled CO2 monitor (for deep sedation)
Procedural Period
Required Equipment - continued

• Resusitation Equipment
  — Age appropriate airway equipment
    • Ambu Bags, Laryngoscopes, ETTs
  — Defibrillator/ACLS medications
  — Reversal Agents
    • Naloxone
    • Flumazenil
Procedural Period

Required Monitoring and Documentation

• Continuous HR, RR, BP O2 sat and ECG monitoring
  — Pre-procedure (baseline)
  — During Procedure: document at least every 5 minutes
  — Post-procedure: document at least every 10 minutes

• Degree of sedation:
  document at least every 5 minutes during procedure
  and at least every 10 minutes post-procedure.

• Dose, route, time and effects of all medications

• Document anticipated interventions (i.e. repositioning for snorers)

• Document unanticipated interventions
Procedural Period

Events Requiring Documentation

• Apneic periods with O2 desaturation
  — (O2 saturation<90)
• Need for intervention for Airway patency or Controlled Ventilation
• Hemodynamic Instability
• Significant Arrhythmias
• Use of reversal agents
• Hospital admission
Procedural Period

Drug Administration

• Avoid repeating initial doses until ample time has passed to observe peak effect in order to minimize the risk of oversedation.

• Combination of analgesics and hypnotics may offer synergy so that combined effect is greater than sedation with each drug alone.
Procedural Period

Important Warnings

• Do not turn audible alarms off.
• Always assume abnormal monitor equipment readings are due to the patient’s condition, not artifact.
• Always confirm monitor equipment readings.
• Observe patient along with monitoring equipment readings.
• The use of reversal agents (Nalaxone and/or Flumazenil) to accelerate recovery from procedural sedation is prohibited.
  — They should be reserved for use as a rescue agent only after recovery from respiratory depression has failed to occur despite adequate ventilatory support.
Post-Procedure

Termination of Monitoring

- Alert and Oriented (or return to baseline)
- Vital Signs stable (or return to baseline)
- If reversal agents were administered, patient must be observed for a minimum of 2 hours after the last dose.
Post-Procedure Guidelines for Discharge

- Pre-procedure alertness and orientation
- Stable (or pre-procedural) vital signs
- Ability to move/coordinate all muscle groups within pre-procedural abilities.
- Waiting at least 2 hours after last dose of reversal agent (used emergently only).
- Patient or family can verbalize discharge instructions (including ability to report post-procedure complications)
- Accompanied by an responsible adult escort.
Post-Procedure

WARNING!

Discharged Patients:

• Cannot go home alone!
  — Must be accompanied by a responsible adult who will be with patient for at least 6 hours.

• Cannot Drive or participate in dangerous activities for 24 hours

• Recommended: No business activities or legally binding decisions for 24 hours
Quality Improvement Program

- Review of Cases by each Service Director or Designate

- Report of Results to Hospital QA & I Committee
For a review of agents commonly used in procedural sedation the following websites are suggested:

1. [www.acep.org](http://www.acep.org)
2. [www.asahq.org](http://www.asahq.org) (go to publications and click on practice guidelines for sedation and analgesia by non-anesthesiologists)