Moderate Sedation at Mayo Clinic Health System
Objectives

• Identify general principles and precautions in medications used for moderate sedation

• Identify components of Administrative Policy 335: Sedation and Analgesia for Diagnostic, Therapeutic and Invasive Procedures

• Identify discharge and transfer criteria used by the Mayo Clinic Health System in procedure areas following moderate or deep sedation

• Define the physician/provider’s responsibilities for pre-procedural assessment in procedures requiring sedation
Administrative Policy 335

• A multidisciplinary Moderate Sedation committee set policy for all Mayo Clinic Health System areas where moderate sedation is performed by non-anesthesiology staff
Moderate Sedation Committee Members

- **Providers**
  - Dr. Garber, physician champion, Emergency Department
  - Dr. Beuning, Emergency Department
  - Dr. Cochrane, Anesthesia
  - Theresa Brunetto, Trauma Services

- **Pharmacy**
  - Paul Finn, Pharm.D.

- **Education**
  - Jim Malinoski, Education

- **Nursing**
  - Lisa Moelter, RN, Pediatric Nurse Specialist, Neuro/Peds/Trauma
  - Diana Rykal, RN, Digestive Health
  - Pam White, RN, Nursing Administration
  - Katie Clay, RN Educator
  - Nanc Kvapil RN, Educator

- **Quality**
  - Jocelyn Wittrock
Goals of Procedural Sedation and Analgesia

• Minimize physical pain, discomfort and negative psychological responses by providing sedation, amnesia and analgesia, as needed, during painful or uncomfortable procedures

• Assure rapid safe return to highest possible health status following a procedure
Joint Commission Standards and Moderate Sedation

- Moderate sedation is provided by qualified personnel with skills to manage and rescue patients at the sedation level achieved
- Resuscitation equipment is available
- Pre-sedation assessment is performed
- Sufficient number of staff is available to evaluate the patient, provide sedation, help with procedure, monitor and recover the patient
Joint Commission Standards and Moderate Sedation

- Informed consent of procedure is done
- Physiologic status and pain is assessed and monitored before, during and after the procedure (oxygenation, ventilation and circulation are continuously monitored)
- Patient is discharged in company of a responsible adult
- Patient is discharged or transferred according to criteria approved by clinical leaders
Sedation is a Continuum

General care areas

Minimal sedation anxiolysis

Moderate sedation

Deep sedation

General anesthesia

Specialized areas only

Increased Patient Risk
Moderate Sedation/Analgesia

• Moderate sedation/analgesia, also known as “conscious sedation”, is a drug-induced depression of consciousness

• Patients respond purposefully to verbal commands, either alone or by light tactile stimulation
  • (Note: withdrawal from painful stimuli is not a purposeful response)
Moderate Sedation/Analgesia

• No interventions are required to maintain a patent airway
• Spontaneous ventilation is adequate
• Cardiovascular function is usually maintained
• Moderate Sedation is Performed by Non-Anesthesia Staff in Limited Areas at Mayo Clinic Health System

• Provider and nursing staff in those identified areas maintain competency in keeping with Joint Commission Standards of Care with a focus on patient safety.
Mayo Clinic Health System Specialty Areas Where Moderate Sedation is Performed

- Emergency Department
- Radiology
- Digestive Health Lab
- Pain Clinic
- Critical Care Unit
- Intermediate Care
- Neuro Intermediate Care
Moderate Sedation Policy Defines Pediatric Patients

• Moderate sedation may be performed by non-anesthesia personnel in the Emergency Department for pediatric patients; pediatric patient refers to all patients through the age of 14 years

• In all other areas, pediatric patients through the age of 14 require presence of anesthesia personnel or nursing staff who are trained in pediatric advanced life support for moderate sedation
The Moderate Sedation Policy Defines:

• Staff competency
• Fasting requirements
• IV access
• Emergency equipment requirements
• Pre-procedure assessment and documentation
• Intraprocedural assessment, monitoring and documentation
The Moderate Sedation Policy Defines:

- Post-procedure assessment, monitoring and documentation
- Requirements for transfer
- Requirements for discharge
- Emergency interventions
- Quality requirements
Physician/Provider Competency Requirement

• Initially and every two years
  • Assigned moderate sedation training
  • Basic airway management skill competency

• Only providers in Eau Claire and critical access hospital emergency departments or anesthesia who maintain advanced airway management competency are authorized to administer etomidate or ketamine

• Only providers in Eau Claire emergency department with advanced airway management competency may administer propofol for moderate sedation

  *RN’s in the emergency dept., under the direction and presence of a qualified provider, may administer bolus doses of propofol
Nurse (RN) Competency Requirement

- Initially and every two years
  - Assigned moderate sedation training
  - ACLS Provider course completion
Fasting Requirements

• For elective procedures, follow NPO requirements appropriate to the procedure and sedation guidelines

• For emergency procedures, weigh the risk for aspiration when considering the timing and target level of sedation on a case-by-case basis
IV Access

• IV access is required for IV sedation until either transfer or discharge criteria have been met

• For procedures not requiring IV sedation, IV access can be considered on a case-by-case basis
Emergency Equipment Requirements

• **Supplemental oxygen strongly recommended for patient safety**

• Age/size-appropriate equipment available in room
  - Suction, oxygen, bag-valve-mask, airway adjuncts (oral and nasal), pulse oximeter, non-invasive blood pressure monitor, ECG monitor, reversal medications

• Code cart immediately available (within five minutes) with monitor/defibrillator and advanced airway equipment
Complete the H&P – Pre Procedure Assessment form

### Physician/Provider Pre-Procedure Responsibilities

**Chief Complaint:** ________________________________________________________________________

**HPI:** __________________________________________________________________________________

- **Meds reviewed:**
- **Allergies reviewed:**
- **Record reviewed:**
- **No change from H & P of: ___________ (date) (must be within 30 days)**

**Past Medical History:**

- **Illnesses:**
- **Previous Surgeries:**
- **Family History/Social History:**

**Post Procedure Airway Assessment**

- **History of difficult intubation or surgical airway (i.e. trach):**
- **Inability to extend neck:**
- **Mouth opening less than two finger breadths:**
- **Diagnosis of sleep apnea:**
- **Less than three finger breadths to hyoid bone:**

**Physical Exam/Review of Systems**

- **Vital Signs Reviewed**
  - **Heart:**
  - **Lungs:**
  - **Neuro:**
  - **Abdomen:**
  - **Mental Status:**

**ASA Classification**

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Healthy, normal</td>
</tr>
<tr>
<td>2</td>
<td>Mild systemic disease</td>
</tr>
<tr>
<td>3</td>
<td>Severe systemic disease</td>
</tr>
<tr>
<td>4</td>
<td>Severe systemic disease constant threat to life</td>
</tr>
<tr>
<td>5</td>
<td>Moribund</td>
</tr>
</tbody>
</table>

**Plan for Sedation**

- **Informed consent obtained after discussion of risks, benefits, alternatives and potential complications. Patient/guardian understands and desires to proceed.**
- **Patient re-evaluated immediately prior to moderate sedation**

**Medication:**

- **Versed**
- **Fentanyl**
- **Demerol**
- **Morphine**
- **Ketamine**
- **Etomidate**

**Other:**

- **Moderate Sedation**
- **MAC**

**Post Sedation Plan of Care:**

- **Departmental Post Procedure Area**
- **Inpatient Room**
- **PACU**

**Impression:** ________________________________________________________________

**Treatment Plan:** ____________________________________________________________

**Provider Signature:** ___________________________ **Pager:** ___________ **Date:** ___________ **Time:** ___________
Physician/Provider Pre-Procedure Responsibilities

• Compete informed consent for procedure and moderate sedation, including a sedation plan.

If you have concerns about patient safety related to airway assessment, consult Anesthesia.

• Conduct pre-procedure verification process according to the team doing the procedure will take “a pause” or a “time out” in the procedure area, prior to incision or the start of the procedure, when the patient and the operating/procedural team are present.
Intraprocedure Assessment, Monitoring and Documentation

One RN designated to continuously monitor the patient with no tasks that interfere with patient monitoring

• O2 saturation - continuous
• Document every five minutes: blood pressure, respiratory rate, heart rate and pain level
• ECG - continuous with IV sedation
• ETCO2 – continuous, if ordered
Intraprocedure Orders

Orders for medications and other interventions during the procedure will be verbally confirmed and documented, signed, dated and timed by the physician/provider.
Post-Procedure Assessment Monitoring and Documentation

• Vital signs every 15 minutes and continuous oxygen saturation for one hour after the last dose of sedating medication or at provider discretion

• NPO until swallow reflex returns

• If reversal agents are used, monitor for two additional hours
Aldrete I and Post-Anesthesia Recovery Score for Ambulatory Patients (PARSAP)

- Mayo Health System has set criteria for transfer and discharge of patients from the procedure area following moderate sedation, deep sedation or anesthesia using:
  - Aldrete I for transfer
  - Aldrete I plus Aldrete II or PARSAP for discharge

- All components of the assessment tool may not apply to every patient

- If patients do not meet criteria for transfer or discharge, a physician’s order is required
MHS Criteria for Transfer Aldrete I

- Aldrete I scores the following parameters:
  - Respiration
  - Circulation
  - Oxygen saturation
  - Level of consciousness
  - Activity level

- Aldrete I score must be above eight while on oxygen or above nine off oxygen

- If conditions are not met, the patient may be released with an order from the provider
MHS Criteria for Discharge PARSAP

- In addition to Aldrete I, PARSAP includes:
  - Dressing (may not apply)
  - Pain
  - Ambulation
  - Fasting and feeding
  - Urine output (may not apply)

- Must score PARSAP of 18 along with parameters for transfer (IV, blood products, pain, etc.)

- If conditions are not met, the patient may be released with an order from the provider
Emergency Interventions

• Unexpected emergency situations may arise during moderate sedation
  • Airway obstruction
  • Inadequate ventilation
  • Apnea

• Required actions
  • Provide immediate basic airway management
  • If basic airway management techniques are not successful, call “Code Blue”
Emergency Interventions (Cont’d)

View the video on ILMA (Intubating Laryngeal Mask Airway) insertion.

Click Here - Intubating laryngeal mask airway

Courtesy of Hennepin Co. Medical Center
Quality Requirements

• The Moderate Sedation committee will monitor respiratory arrest, cardiac arrest and death related to moderate sedation

• Departments will monitor other parameters, such as use of reversal agents as set by the Moderate Sedation committee, for Joint Commission compliance (see policy for others)
Medications for Sedation

Adult and Pediatric Medication List for Moderate Sedation
Suggested Medication Doses

• The adult and pediatric medication list for moderate sedation suggests commonly used sedative and analgesic medications and dosages

• Physicians/providers may opt to give more or less of a medication or choose a different medication based upon the needs of specific patients

• This list does not include medications to control nausea and/or allergic reactions
General Cautions for Medication Administration

• Allow for medication onset and assess effect before each incremental dose

• Rapid administration of medications increases the risk of adverse effects, especially respiratory depression

• Administer medications slowly into an already infusing line near point of insertion
General Cautions for Medication Administration

• Dose response may vary with age, mental status, medication history and medical condition

• When combining medications (for example Fentanyl and Versed), use lower doses of each medication

• *Medications on this list may cause drowsiness or physical impairment for up to 24 hours*
## Medication Administration

### Procedural Sedation-Adult

<table>
<thead>
<tr>
<th>Drug</th>
<th>Initial Dose</th>
<th>Technique</th>
<th>Max Dose</th>
<th>Onset of Action</th>
<th>Duration of Effect</th>
<th>When to Re-dose</th>
<th>Reversal Agent, Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etomidate (Amidate)</td>
<td>10-20 mg (or 0.1-0.2 mg/kg)</td>
<td>Administer over 30-60 secs</td>
<td>0.2 mg/kg</td>
<td>30-60 secs</td>
<td>Peak: 1 minute Duration: 5-15 mins</td>
<td>0.05 mg/kg Every 3-5 mins</td>
<td>none</td>
</tr>
<tr>
<td>Fentanyl IV (Sublimaze)</td>
<td>25-100 mcg (or 0.5-1 mcg/kg)</td>
<td>Admin IV slowly over 1-2 mins; inject into an infusing line</td>
<td>200 mcg (or 5 mcg/kg)</td>
<td>2-3 mins</td>
<td>Peak: 10-15 mins Duration: 30-60 mins</td>
<td>Repeat every 2 mins until desired sedation</td>
<td>Naloxone*</td>
</tr>
<tr>
<td>Midazolam (Versed)</td>
<td>0.5-1 mg (or 0.05-0.1 mg/kg). Lower initial dose if elderly, obese, renal, hepatic dysfx.</td>
<td>Given over 1-2 mins. Max rate of 1.25 mg/min</td>
<td>5 mg</td>
<td>2-5 mins</td>
<td>Peak: 5-7 mins Duration: 30-90 mins</td>
<td>Titrate with 1 mg every 3-5 mins</td>
<td>Flumazenil**</td>
</tr>
<tr>
<td>Meperidine IV (Demerol)</td>
<td>10-40 mg (or 0.15-0.4 mg/kg)</td>
<td>Inject into infusing line over 2-3 mins</td>
<td>150 mg (or 1.5 mg/kg)</td>
<td>5-10 mins</td>
<td>Peak: 300-50 mins Duration: 2-4 hrs</td>
<td>Titrate by 10mg increments IV every 2-3 mins</td>
<td>Naloxone*</td>
</tr>
<tr>
<td>Morphine IV</td>
<td>1-2 mg (or 0.01-0.04 mg/kg)</td>
<td>Titrate to desired effect</td>
<td>20 mg (or 0.2 mg/kg)</td>
<td>5-10 mins</td>
<td>Peak: 20 mins Duration: 1-2 hrs</td>
<td>May repeat 1 mg every 2-3 mins</td>
<td>Naloxone*</td>
</tr>
</tbody>
</table>

*Naloxone Dose: 2-5 mcg/kg undiluted IV, followed by 2-5 mcg/kg every 2-3 mins as needed, max. 10 mcg/kg

**Flumazenil Dose: 0.01-0.2 mg/kg IV over 15 secs, may repeat 0.005-0.01 mg/kt at 1 min if needed

-References: UpToDate, Micromedex 2011, LutherMidelfort Administrative Policy 335
Medication Classifications for Moderate Sedation

- Narcotic analgesics/Opioids
- Benzodiazepine
- Reversal agents

** Please note that the use of ketamine and etomidate is limited to emergency departments where staff have training in advanced airway management.

**Propofol** is limited to Eau Claire’s emergency department where physicians administer bolus medication

*RN’s in the emergency dept. under the direction and presence of a qualified provider may administer bolus doses of propofol
Endoscopy Case Scheduling Recommendations:

• **During the week**: all endoscopies (bronchoscopies, GI procedures, TEE), for which sedation is used, shall be scheduled in the Endoscopy Lab from **0700 – 1700, Monday through Friday**.

• **On weekends or after 1700 on weekdays**: All endoscopies, for which sedation is used and scheduled, should be done in the Endoscopy Lab

• **HOW** - through accessing the on-call endoscopy RN - available through the operator.

  * In the event that the endoscopy RN is unavailable (already in a procedure), the house supervisor should be contacted in order to consider CCU staff to assist.

*Please Note:* These recommendations exclude patients in the Critical Care Unit.
Summary

• Sedation is a continuum; the line between moderate and deep sedation is a fine one

• Pre-procedure H&P and ongoing assessment is essential