Moderate Sedation
Physician Review Course

• Objectives-
  – Identify components of a comprehensive airway examination
    • Identify assessment findings for difficult ventilation and intubations
  – Define Moderate Sedation and understand principle of rescuing patients going into deep anesthesia
  – Insure recognition of respiratory insufficiency, and appropriately manage the care of a patient receiving moderate sedation
  – List advantages, disadvantages, recommended dose limitation, and titration's associated with use of Benzodiazepines, Opioids, and their reversal agents
Recredentialling of Class II Privileges

- Reapply every 2 years
- Physicians must have a current Basic Life Support card OR complete the Airway management course
- Airway Management Course
  - 1. Review power point presentation
  - 2. Take post test
  - 3. Schedule Simulation Appointment 917-1963
  - 4. Simulation exercise for patient undergoing moderate sedation and rescuing patient from deep anesthesia
    - Respiratory Therapist and RN will assist in simulation
    - Session lasting approximately 15 minutes.
    - Simulation Lab located in the Center for Advanced Surgery on the second floor across from Elevator C
Moderate Sedation

• Please refer to SMH policy # 00.PAT.38
• Moderate Sedation- A drug-induced depression of consciousness during which patients respond purposefully to verbal commands (reflex withdrawal from a painful stimulus is not considered a purposeful response) 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.
Components of a comprehensive airway examination:

- **Oral Cavity Inspection**
  - Identify loose, chipped or capped teeth, and dental anomalies such as dentures
  - Identify tumors or other obstruction of airflow
  - Ability to visualize vocal cords and epiglottis

- **Temporomandibular Joint exam**
  - Normal distance between the upper and lower incisors is 4-6 cm
  - Reduced ability to open the mouth indicates reduced mobility of the joint and impaired access to the patient’s airway
Airway Exam con’t:

• **Physical Characteristics Evaluation**
  – Recessed jaw
  – Protruding jaw
  – Deviated trachea
  – Large tongue
  – Short, thick neck
  – Protruding teeth
  – High, arched palate
Airway Assessment

• Evaluate each separately
  – Ventilation
  – Intubation

• Stick to one assessment method and implement it strictly in all your patients prior to induction of Moderate Sedation
Difficult Mask Ventilation

- The objective of face-mask ventilation
  - Maintenance of airway patency
  - Oxygenation
5 Predictors of Difficult Bag and Mask Ventilation (Langeron et al)

- Summarized in one word
  - **O.B.E.S.E**
    - The **O**bese (body mass index >26kg/m²)
    - The **B**earded
    - The **E**lderly (older than 55y)
    - The **S**norers
    - The **E**dentulous
Difficult Intubations

• Because sedation-to–anesthesia is a continuum, it is not always possible to predict how an individual patient receiving medication with the intent to achieve moderate sedation will respond
  – It is important that the practitioner delivering the Moderate sedation be able to rescue the patient from Deep Sedation
• Using a consistent approach to evaluation is important
  – The LEMON Law can be used as such an approach
LEMON Law

- **Look** externally
- **Evaluate** the 3-3-2 rule
- **Mallampati**
- **Obstruction**
- **Neck** mobility
<table>
<thead>
<tr>
<th>Physical signs</th>
<th>Less difficult airway</th>
<th>More difficult airway</th>
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| Look externally    | • Normal face and neck<br>• No face or neck pathology                                 | • Abnormal face shape<br>• Sunken cheeks<br>• Edentulous<br>• "Buck teeth"
|                    |                                                                                       | • Receding mandible<br>• "Bull-neck"
|                    |                                                                                        | • Narrow mouth<br>• Obesity<br>• Face or neck pathology                             |
| Evaluate the 3-3-2 rule | • Mouth opening > 3F<br>• Hyoid-chin distance > 3F<br>• Thyroid cartilage-mouth floor distance > 2F | • Mouth opening < 3F<br>• Hyoid-chin distance < 3F<br>• Thyroid cartilage-mouth floor distance < 2F |
| Mallampati         | • Class I and II (can see the soft palate, uvula, fauces +/- facial pillars)          | • Class III and IV (can only see the hard palate +/- soft palate +/- base of uvula)   |
| Obstruction        | • None                                                                                 | • Pathology within or surrounding the upper airway (e.g. peri-tonsillar abscess, epiglottis, retropharyngeal abscess) |
| Neck mobility      | • Can flex and extend the neck normally                                               | • Limited ROM of the neck                                                            |
Look Externally
Evaluate 3-3-2-1 Rule

- 3 Fingers between the patient’s teeth
  - Temporomandibular Joint exam
- 3 Fingers between the tip of the jaw and the beginning of the neck
- 2 Fingers between the thyroid notch and the floor of the mandible
- 1 Finger Lower Jaw Anterior Subluxation
Mallampati Scale

- Class I (easy)-Visualize soft palate, fauces, uvula, and both a/p pillars
- Class II- soft palate, fauces, and uvula
- Class III- soft palate and base of uvula
- Class IV-soft palate not visualized at all
Obstruction

- Pathology within or surrounding the upper airway
  - Peritonsillar abscess, epiglottis, tumor, or expanding hematoma
Neck Mobility

• Ask the patient to place their chin on their chest and tilt head backwards as far as possible
  – Not possible in presence of a trauma patient
A-O Extension (Atlanto-Occipital)

- When the neck is flexed on the chest (25-35°) and the atlanto-occipital joint is well extended, head extended on the neck, the pharyngeal and laryngeal axes are brought more closely into a straight line-sniiff position.

- When the atlanto-occipital joint cannot be extended, attempts to do so cause the convexity of the cervical spine to bulge anteriorly, pushing the larynx more anterior.
Pulmonary Symptoms

- These symptoms, depending on severity, may predispose patients to increased risk of developing respiratory complication:
  - Chronic Cough
  - Sputum Production
  - Rhinitis
  - Sore Throat
  - Dyspnea
  - Previous Pulmonary Complications
  - Hemoptysis

- A history of cigarette smoking also may predispose patients to increased risk of respiratory complications
Maintaining the GAG Reflex is important to:

• Avoid aspiration
• Adhere to the criteria for Moderate Sedation definition
Signs and Symptoms of Airway Obstruction:

- Increased Respiratory Effort
- Sternal Retractions
- Inspiratory Stridor
- Hypoxemia
- Hypercarbia
- Absence or Diminished Breath Sounds
Airway Maneuvers

- **Head tilt**— A lateral head tilt results in the movement of the patient’s head from a neutral position to the side and may relieve minor airway obstruction.

- **Chin Lift**— Place the palm of one hand on the forehead and apply firm backward pressure. Gently lift the chin with the other hand. The chin lift allows for superior movement of the mentum resulting in anterior displacement of the tongue.

- **Jaw Thrust**— The jaw thrust maneuver provides anterior displacement of the mandible to elevate the tongue off the posterior pharyngeal.

- Insertion of a nasal and/or oral airway
Moderate Sedation Drug Review

- Medications to provide moderate sedation will be given on the direct order of a physician who has been trained to perform procedures requiring sedation
  - This physician must be present during initial and continued administration of moderate sedation
  - The physician or RN may give medication

- Drugs intended for moderate sedation include:
  - Fentanyl
  - Dilaudid
  - Morphine
  - Versed
  - Ativan
  - Valium
Moderate Sedation


**Opioids**

- **Fentanyl-IV**
  - Dosage: 25-100 mcg
  - Onset: 1-5 min
  - Peak effect: 3-5 min
  - Duration: 0.5-4 hour

- **Dilaudid-Hydromorphone**
  - Onset: 5 min
  - Peak effect: 10-20 min
  - Duration: 3-4 hr

- **MS-IV**
  - Dosage: 5-10 mg titrated
  - Onset: 5-10 min
  - Peak effect: 15-30 min
  - Duration: 3-4 hr

**Reversal Agent:**

- Narcan (Naloxone) 0.4 mg/ml
  - Add 0.4 mg to 9 ml NS (10 ml)
  - First dose 0.2 mg (5ml)
  - Dosage: 0.2 mg IVP slowly in 0.5 ml
  - Increments over 2-3 min.
  - Repeat to desired effect
  - Onset: IV: 1-2 min
  - If no response look for other causes
  - Duration: short as 30 min

**Benzodiazepines**

- **Versed-IV**
  - IV Dosage: 1 mg/mL
  - titrated slowly, maximum
  - 2.5 mg over 2 min period
  - Onset: 3-5 min
  - Peak: 30-60 min
  - Duration: 5-60 mins

- **Ativan-IV**
  - Dosage: 2.0-4.0 mg, 1mg/min
  - Onset: 15 to 20 minutes
  - Peak: 60-90 mins
  - Duration: last 6 to 8 hours
  - 1/2 life: 16 hours

- **Valium IV**
  - Dosage: 2.5 mg repeat 4-3 mins
  - Onset: 4-2 mins
  - Peak: 8 mins
  - Half life: 8.3-2.25 days

**Reversal Agent:**

- Romazicon (Flumazenil) 0.5 mg/5 ml
  - Dose: 0.2 mg (2 ml) - 1.0 mg given IVP
  - At 0.2 mg / min
  - May repeat at 20 min intervals
  - Onset: 30 secs
  - Peak effect: 1-2 min
  - Duration: 41-70 mins

Goals:

- To allay patient fear & anxiety.
- Using the least amount of sedation while providing patient comfort

**Synergy**

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Moderate Sedation

**Goals:**

- To allay patient fear & anxiety.

**Using the least amount of sedation while providing patient comfort**
Over sedation

• **Don’t Panic!**
  – Support patient’s Airway and Breathing
  – Use Bag/Valve Mask, keeping Oxygen saturation above 90%
  – Reverse Narcotics or Benzodiazepines appropriately and slowly (see previous chart)
    • Narcan for Narcotics
    • Romazicon for Benzos
  – Remember that patient’s procedure pain will return
  – Use smallest amount of reversal agent necessary
  – **Important** – Half life of reversal agents are shorter than the Moderate sedation medications
    • You may have to redose the reversal
**SMH Moderate Sedation Essentials for Physicians**

- Physician will review pre-assessment on Moderate Sedation form
  - Previous Anesthesia Problems
  - Airway Evaluation
    - Oral cavity
    - TMJ
    - Physical characteristics
      - Mallampati
      - Overbite
      - Atlanto-occipital Joint extension
  - ASA Class
  - Is this patient a candidate for Moderate Sedation?
Physician essentials continued:

• **Review H&P**
  – If no H&P on chart the following questions need to be asked
    • Chief Complaint/diagnosis
    • History of Present illness
    • Past medical/social/family history
    • Medications
    • Review of systems
      – Neuro
      – HEENT
      – Respiratory
      – Cardiovascular
      – Abdomen
      – Extremities
      – Reflexes
    • Impression for current health status
    • Plan of care for this patient
... Physician essentials

• Review of Risk/Benefits/Alternatives to care explained to the patient
  – Yes
  – No

• Immediate Pre-assessment (Right before procedure)
  – Patient is candidate
  – Patient is not a candidate
What’s Next?

• Please complete the post test it will be sent to Dawn Oder automatically in the Simulation Lab.
• Call 917-1963 to schedule SIM lab time. (Time in the Simulation Lab is about 15-20 minutes)
• After the Simulation and the post test is complete
  – You will be given a completion certificate
  – Medical Staffing Office will be notified that you are eligible for Class II privileges
• Thank you for your time!