

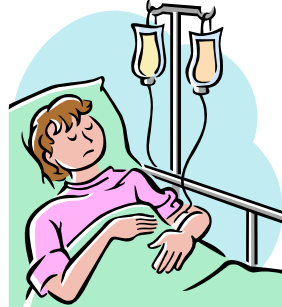
# Little Booklet

October  
2010

**INGHAM**  
REGIONAL MEDICAL CENTER  
A MCLAREN HEALTH SERVICE

## Moderate Sedation Review

All non-physician ACLS professional staff that induces moderate sedation must review and complete this Booklet & quiz. Please return your completed quiz by November 30<sup>th</sup>, 2010. If you have any questions contact Cindy Stormoen at [cindy.stormoen@irmc.org](mailto:cindy.stormoen@irmc.org) or 975-3898.



### I. INTRODUCTION

The purpose of this booklet is to provide the professional nurse or other qualified professional staff with some key review information necessary to safely and appropriately care for the patient receiving moderate/conscious sedation in the healthcare setting.

Moderate sedation may be provided in a variety of clinical areas – Ingham Regional Medical Center's Moderate Sedation policy applies to all departments in which moderate to deep sedation may be given and to all patient care areas that monitor the sedated patient. These departments include:

- All Inpatient Nursing Units
- All Outpatient Nursing Units
- Emergency Department
- OR/PACU/SDS
- Special Studies
- Endoscopy Lab
- Bronchoscopy Lab
- Radiation Oncology
- Radiology

**You will benefit from reviewing our current moderate Sedation policies, form & attachments found under policies & procedures on the intranet.**

We know that infrequent administration &/or annual review of moderate sedation ...



...does not guarantee competency.

Staff may be educated in moderate sedation but perform the procedure infrequently, with the possibility of long periods between procedures. Regardless of the frequency of sedation administration, all individuals performing sedation must meet the same standards, for example ACLS training.

## II. OBJECTIVES

After completion of this booklet, the learner will have completed a review of Moderate Sedation focusing on:

1. Identify the purpose of moderate/conscious sedation.
2. Identify the differences in the levels of sedation.
3. Identify the appropriate reversal agents for the medications used for moderate sedation
4. Identify common adverse reactions related to drugs used in moderate sedation.
5. Identify the signs of respiratory depression and airway compromise.
6. Articulate the elements of airway management during moderate sedation.

Note: The current terminology refers **Moderate Sedation** versus what we used to call conscious or IV conscious sedation.

## III WHAT IS SEDATION???

**Sedation** is a depressed level of consciousness that carries the risk of loss of protective reflexes.

### **Sedation criteria include:**

- ability to retain protective airway reflexes
- ability to independently and continuously maintain a patent airway
- ability to respond appropriately to both physical and verbal stimuli
- maintaining Cardiovascular functioning

### **The purpose of Moderate Sedation is to:**

1. use the least amount of sedation while providing for patient comfort
2. maintain adequate sedation with minimal risk – have monitoring and emergency equipment & medications immediately available
3. relieve anxiety and produce amnesia – facilitate good communication and provide clear instruction, maintaining low levels of visual and auditory stimuli
4. provide relief from pain and other noxious stimuli – by giving opioids, and local or topical anesthetics
5. enhance patient cooperation – by ensuring the ability to communicate is preserved
6. maintain stable vital signs
7. ensure a rapid recovery



## IV. **Four 4 Levels of Sedation:**

### 1. **Minimal sedation = anxiolysis ("removal of anxiety")**

- 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.

In 2002, the American Society of Anesthesiologists stated that examples of anxiolysis include peripheral nerve blocks, local or topical anesthesia, and single, oral sedative or analgesic medication administered in doses appropriate for the unsupervised treatment of insomnia, anxiety, or pain.

### 2. **Moderate sedation/analgesia (Conscious Sedation)**

- Patients respond purposefully to verbal commands, either alone or accompanied by light, tactile stimulation.
- No interventions are required to maintain a patient airway, and spontaneous ventilation is adequate.
- Cardiovascular function is usually maintained.

Note: reflex withdrawal from a painful stimulus is **NOT** considered a purposeful response.

### 3. **Deep Sedation/analgesia**

- Patients cannot be easily aroused, but 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.

### 4. **Anesthesia**

- Consists of general anesthesia and spinal or major regional anesthesia.
- General anesthesia is a drug-induced loss of consciousness during which patients are not arousable, even by painful stimulation.
- The ability to independently maintain ventilatory function is impaired.
- Patients often require assistance in maintaining a patent airway.
- Positive pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function.
- Cardiovascular function may be impaired.

**You need to know when your patient is going from Moderate Sedation (OK on their own) into Deep Sedation (they may need your intervention):**

#### **Moderate Sedation**

-versus-

#### **Deep Sedation**

Mood altered.	Cognitive function impaired.
Purposeful response to verbal commands	Patients cannot be easily aroused.
Respond to verbal commands alone or light tactile stimulation	Respond purposefully following or accompanied by repeated or painful stimulation
Patient cooperative	Not awake enough to follow verbal commands
Can maintain own airway.	Ability to maintain own airway
Spontaneous ventilation is adequate.	Ventilatory function may be impaired
Cardiovascular function intact	Cardiovascular function may be impaired
Vital Signs stable	Vital Signs may be labile or significantly changing

## **VI. Indications for Giving Sedation:**

1. Diagnostic procedures (i.e. angiogram, endoscopy, biopsy)
2. Minor surgery (i.e. skin closure/excisions)
3. Potentially painful procedures such as chest tube insertion or fracture reduction (may require deeper sedation).
4. Decrease anxiety before procedures and diagnostic tests (i.e. MRI)

**Remember** there is a difference between treating our patient for pain and/or anxiety that is related to *a procedure we are doing to them* **versus** *treating existing pain and/or anxiety*.

## **VII. Who Can Administer and Monitor Moderate/Conscious Sedation :**

Must be:

- ✓ An Anesthesiologist or Certified Registered Nurse Anesthetist (CRNA)
- ✓ Physicians specifically credentialed for Moderate to Deep Sedation
- ✓ All non-physician practitioners must be ACLS certified.
  - \*\*\*Non-Physician ACLS Practitioners must complete Moderate Sedation Module & complete Annual Skills validation on Moderate Sedation
- ❖ Qualifications necessary to provide Moderate Sedation are:
  - ✓ Ability to rescue patients from deep sedation - know how to use resuscitation medications and monitoring equipment.
  - ✓ Interpret patient data = demonstrate knowledge of anatomy and physiology, cardiac arrhythmia interpretation, provide adequate oxygenation and ventilation.
  - ✓ Manage a compromised airway = BLS and ACLS airway skills training including head-tilt or chin-lift maneuver, airway adjuncts like nasal airways, and
  - ✓ Use of oxygen delivery devices like nasal cannula and Ambu-bag.

**Emergency equipment, including a defibrillator, must be immediately accessible to every location where moderate sedation is administered.** The equipment should include, but not be limited to the following:

- a. emergency, resuscitation, and antagonist drugs;
- b. airway and ventilator adjunct equipment for adult and pediatric patients;
- c. defibrillator;
- d. source for administration of 100% oxygen and
- e. capability for suctioning of the patient.



**Loss of Protective Reflexes** is an **inability** to handle secretions or to maintain a patent airway independently. Other examples may include the **inability** of the patient to blink eyes, move arms and legs purposefully and swallow or speak with minimal slurring. Your patient may be having trouble maintaining an airway and/or oxygenation well before **loss of protective reflexes is evident**. Your goal is that your patient maintains their ability to independently maintain their airway and respond appropriately to verbal stimuli.

## VIII. Medications for Moderate Sedation



### **Benzodiazepines**

Diazepam (Valium)

Midazolam (Versed)

1. Produce **sedation, relief of anxiety, antegrade amnesia, and some skeletal muscle relaxation**– but not pain relief
2. Synergistic (additive) effect when given with narcotics
3. **Use with caution in patients with:**
  - ✓ a history of COPD,
  - ✓ sleep apnea,
  - ✓ known cardiovascular depression,
  - ✓ intoxicated patients,
  - ✓ patients with liver or renal disease,
  - ✓ difficult airways, and in the
  - ✓ very young and the very old.
4. **Don't use** if your patient has:
  - Hypersensitivity to Benzodiazepines
  - Allergic to specific benzodiazepines
  - Respiratory Depression/O<sub>2</sub> sat < 90%
  - Psychosis
  - Acute narrow-angle glaucoma
  - Pregnancy/Labor/Lactation
5. **Antagonist** = Flumazenil (Romazicon)
6. **Age-Related Considerations:**
  - In the elderly patient reduce the loading dose by 40-50%
  - Avoid use in pregnancy – crosses placental barrier and is in breast milk
7. **Watch for symptomatic bradycardia** if your patient is on:
  - Lopressor (metoprolol) or Inderal (propranolol) or Lanoxin (digoxin)
8. **Increase effect of action** for patients on:

CNS depressants	Skeletal muscle relaxants
MAO inhibitors/tricyclic antidepressants	Antiarrhythmics (e.g. lidocaine)
Concurrent sedatives/narcotics	Alcohol
Antipsychotics	Phenothiazines/antihistamines

### **Some benzodiazepine highlights:**

#### ◆ **Diazepam (Valium):**

- Minimal effect on ventilation and circulation
- Long acting

#### When given IV:

- Rate for IV push = 5 mg/minute
- Onset = 1-3 minutes
- Peak effect in 3-4 minutes
- Duration = 15-30 minutes

#### Interaction / Toxicity:

- **Don't give IM**
- Bradycardia, hypotension, respiratory depression, drowsiness, ataxia, confusion, depression, venous thrombosis/phlebitis at injection site
- **Return of drowsiness may occur in 6-8 hours after dose**

- **Do not mix or dilute** with other solutions / drugs

◆ **Midazolam HCL (Versed):**

- Short acting, with sedative and skeletal muscle-relaxant properties
- Compared with Diazepam (Valium) – it is more rapid onset, shorter duration, greater amnesic effect, and 3-4 times as potent.

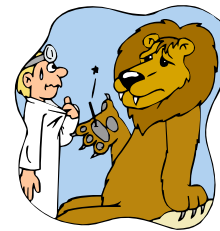
If given IV:

- Rate if given IV push = 1 mg/minute; Give slow IVP, never rapid as IV bolus – respiratory depression &/or arrest may result from excessive dosing
- Onset = 1-5 minutes
- Peak = 3-5 minutes
- Duration = 30-40 minutes; up to 2-4 hours

Interactions/Toxicity:

- Tachycardia, PVC, hypotension, broncho/laryngospasm, apnea, tonic-clonic motion
- Reduce dose in elderly, hypovolemic, and COPD

Contraindicated in **glaucoma** unless patient is being treated for it



**Narcotics (Opioids)**

- Morphine Sulfate
- Meperidine (Demerol)
- Fentanyl (Sublimaze)

1. **Analgesia (pain relief )** properties are the best of any drug
2. Allow for peak effect of each dose before administering additional doses
3. Increase in increments of at least 25% of the previous ineffective dose
4. Profound **effect on the cardiovascular system**
5. Morphine and Demerol release histamines that **affect the respiratory system** leading to bronchoconstriction, decreased respiratory rate and volume - so use with caution if patient has asthma, and it causes hypotension.
6. After narcotic administration, patient may “forget to breath” unless asked to.
7. Increase in cerebral blood flow **may stimulate the vomiting center of the brain.**
8. **Be careful giving narcotics to patient with:**
  - ✓ history of COPD or asthma,
  - ✓ difficult airway,
  - ✓ morbidly obese,
  - ✓ neuro compromise.

9. **Don't use** if your patient has:

Acute alcoholism	Respiratory depression/O2 sat < 90%
Hypersensitivity to opiates/narcotics	Allergy to specific narcotic
Acute asthma/COPD	MAO inhibitor use within 14 days

**Antagonist** = Naloxone (Narcan)

10. **Age-Related Considerations:**

- Elderly patients usually require reduced dose
- Narcotics cross the placental barrier and are secreted in breast milk

11. **Increased effects of narcotics** are seen with:

CNS depressants	Skeletal muscle relaxants
MAO inhibitors	Cimetidine (Tagamet)
Concurrent sedatives	Alcohol
Antipsychotics	Phenothiazines/antihistamines

**Some Narcotic Highlights:**

1. **Demerol (Meperidine) :**

- All narcotics but Demerol (meperidine) produce bradycardia (Demerol produces **tachycardia** secondary to its vagolytic effect); use with caution if liver or renal disease, or MAO inhibitor use.
- Slightly less potent than Morphine; however half-life = 15-30 hours
- May give postoperatively to decrease shivering.

If given IV:

- **IV inject rate = 25 mg/minute;** may cause vomiting if given too rapidly.
- Onset = 5-10 minutes
- Peak : 15 minutes
- Duration = 2-3 hours

2. **Fentanyl (Sublimaze):**

- As analgesia, Fentanyl is 75-125 times more **potent** than Morphine (e.g. 100 micrograms of Fentanyl = 10 milligrams of morphine)
- **Incompatible in IV tubing with Valium** (remember - nothing goes with Valium)

Protect from light

If given IV:

- **IV Inject rate = 50 mcg/minute;** if given too rapidly may get “wooden chest”; chest wall muscles become tight; treat by ventilating with an Ambu-bag and a muscle relaxant (i.e. Succinylcholine)
- Onset within 30 seconds
- Peak effect = 5-15 minutes
- Duration = 30-60 minutes

Interaction/Toxicity: Analgesia enhanced and prolonged by Epinephrine and Clonidine

3. **Morphine**

- Morphine is inexpensive
- Side effects markedly increased if rate of injection too rapid (i.e. respiratory depression)
- Pain relief is almost immediate and lasts up to 4-5 hours (average 2 hours)  
Incompatible in IV tubing with Demerol and other meds.

If given IV:

- **IV inject rate = 2-5 mg/minute**
  - Onset = 1-3 minutes
  - Peak: 20 minutes
  - Duration = 4 hours
- Give in small doses to reverse deep sedation and respiratory depression.

- Some physicians order a reversal agent to rapidly reverse the effects of sedation.
- Reversal medications length of action is shorter than the length of the drug reversed, so repeat dosing of the reversal drug may be necessary.
- **If a patient receives a reversal agent, that patient should be monitored for 2 hours prior to discharge**, and then only discharge if they meet discharge criteria.



## Reversal Medications

Naloxone (Narcan)  
Flumazenil (Romazicon)

### 1. Naloxone (Narcan)

**Class:** Narcotic antagonist reverses respiratory depression **and** analgesia due to opioids.

- May be given IV push, IM or Subcutaneous injection – for injections if using dilution (shown below) then administer in divided doses.
- Onset: IV = 2-3 min. IM = 15 min. Subcutaneous = 15 min.

**Dosage** based on IRMC Moderate / IV Conscious Sedation Policy:

- IRMC Pharmacy supplies Narcan as 0.4 mg in 1 ml
- 10 ml syringe and glass ampule filter needle (comes in Pyxis or Omnicell or from Pharmacy)
- Dilute 0.4mg/ml Narcan with 9 ml injectable normal saline  
(= **0.04mg Narcan/ml or 40mcg/ml**)
- This dose works for all pediatric patients over 4kg (8.8 pounds):
  - ❖ **Pediatric** IV, IM, Subcutaneous dose: 0.01mg/kg every 2-3 minutes
  - ❖ **Adult** IV, IM, Subcutaneous dose: 40 mcg or 1ml every minute, not to exceed 0.1-0.2 mg every 2-3 minutes

**Onset:** 1 –2 min.

**Peak:** 5-15 minutes

**Duration of Effect:** 45 min. – 4 hours

Often does not last as long as opioid and therefore may need to repeat dose.

**Adverse effects:** Reverses analgesia (pain control)

Titrate to effect – if given rapidly can produce non-cardiogenic pulmonary edema tremors, excitement, seizures, hyperventilation, pulmonary edema (non-cardiogenic), hypotension, bradycardia, ventricular tachycardia/fibrillation, nausea/vomiting

**Contraindications:** Patients with a history of hypersensitivity to the drug.

**Precautions:** Should be administered with caution to patients dependent on narcotics as it may cause withdrawal effects.

**Titrate dose** when administering so not to totally reverse analgesic effect of narcotic if possible.

Duration of action of Narcan is shorter (45 minutes to 3-4 hours) than half-life of narcotics – watch for re-sedation; support airway/ventilation until patient is breathing at least 10 breaths per minute on their own.

If given too fast may cause: tachycardia, hypertension, pulmonary edema (question edema if O<sub>2</sub> saturation stays low despite adjunct oxygen therapy)

### 2. Romazicon (Flumazenil)

**Class:** Benzodiazepine Agonist Antidote

**Actions:** Reverses sedative effects of benzodiazepines, does not completely reverse amnesia, and may not reverse respiratory depression.

**Contraindications:** Patients with a history of hypersensitivity to the drug; patients who have been given a benzodiazepine for control of a potentially life-threatening condition (e.g., control of intracranial pressure or status epilepticus).

**Precautions:**

1. The onset of reversal is usually evident within 1 to 2 minutes after the injection



2. If patient does not reach desired level of consciousness after 1 min., repeat at 1-minute intervals until total dose of 1 mg given (initial dose plus 4 additional doses), prn.
3. Romazicon's duration of action is shorter than all benzodiazepines, e.g. half-life is half that of *Versed* or *Valium*.
4. In case of RESEDATION give no more than 1 mg (at 0.2 mg/min doses) at any one time, and no more than 3 mg should be given in any one hour.
5. Severe re sedation unlikely in patients showing no signs of re sedation 2 hours after 1mg of Romazicon.
6. Administer into free-flowing IV solution if appropriate, to minimize pain on injection
7. Tell patient to avoid operating equipment, using alcohol, CNS depressants and over-the-counter drugs for 24 hours.
8. If reversed, patient won't recall information given in postprocedure period, Romazicon doesn't reverse amnesic effects of benzodiazepines.
9. Flumazenil should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Dosage** (based on IRMC Anesthesia Moderate Sedation Policy):

- A. IRMC Pharmacy supplies Romazicon as 0.5 mg in 5 ml
  - ❖ **Pediatric** (age 1 to 17 yrs.) IV dose: 0.005-0.01 mg/kg every 2-3 minutes based on response; Maximum dose for reversal of moderate sedation is 0.2 mg.
  - ❖ **Adult IV dose:** 0.003 mg /kg every 1-2 minutes as needed; Maximum dose for reversal of moderate sedation is 0.2 mg

Use free flowing IV.

- ✓ May repeat in 2-3 minute intervals in doses of 0.2 mg up to desired level of consciousness.
- ✓ Do not exceed total dose of 3 mg/hr without response.

Onset: 1-2 min.      Peak: 6 – 10 min.      Lasts: 1- 2 hours

- ✓ 80% of the response within the first 3 minutes; no response in 5 min. look for another cause.

**Adverse effects:** dizziness, headache, agitation, seizures, dyspnea, sweating, palpitations, dysrhythmias, hypertension, chest pain, nausea/vomiting, pain at injection site

**Contraindications:** Hypersensitivity to flumazenil or benzodiazepines – can precipitate withdrawal or seizure activity. May provoke panic attack in patient with history of panic disorder, unknown coma, physical dependence on benzodiazepines.

**Commonly Used Local Anesthetics**

Local Anesthetic	Concentration (%)	Duration (min.)	Duration (min.) w/Epinephrine	Maximum Dose (mg)	Max Dose w/Epi (mg)
<b>Lidocaine</b> (Xylocaine)	0.5-2 Rapid	30-120 Moderate	120-360 Moderate	300	500
<b>Bupivacaine</b> (Marcaine)	0.25-0.5 Slow	120-240 High	180-420 High	175	225

(Note: 2% concentration is more potent than the 1%)

**Progressive Signs of Toxicity – LOCAL Anesthetics:**

1. Metal taste in mouth
2. Tinnitus – “ringing in the ears”

3. Peri-oral numbness/tingling – “lips are numb”
4. Change in sensation – talk nonsense, euphoria
5. Seizure
6. Respiratory Arrest
7. Cardiac Arrest

## XI. Untoward Reactions

Untoward reactions may include, but not limited to, the following

- a. agitation
- b. combativeness
- c. hypoventilation
- d. respiratory depression
- e. airway obstruction
- f. apnea
- g. hypotension
- h. vomiting
- i. aspiration
- j. allergic reaction

*Changes in patient condition should be reported immediately to the physician.*

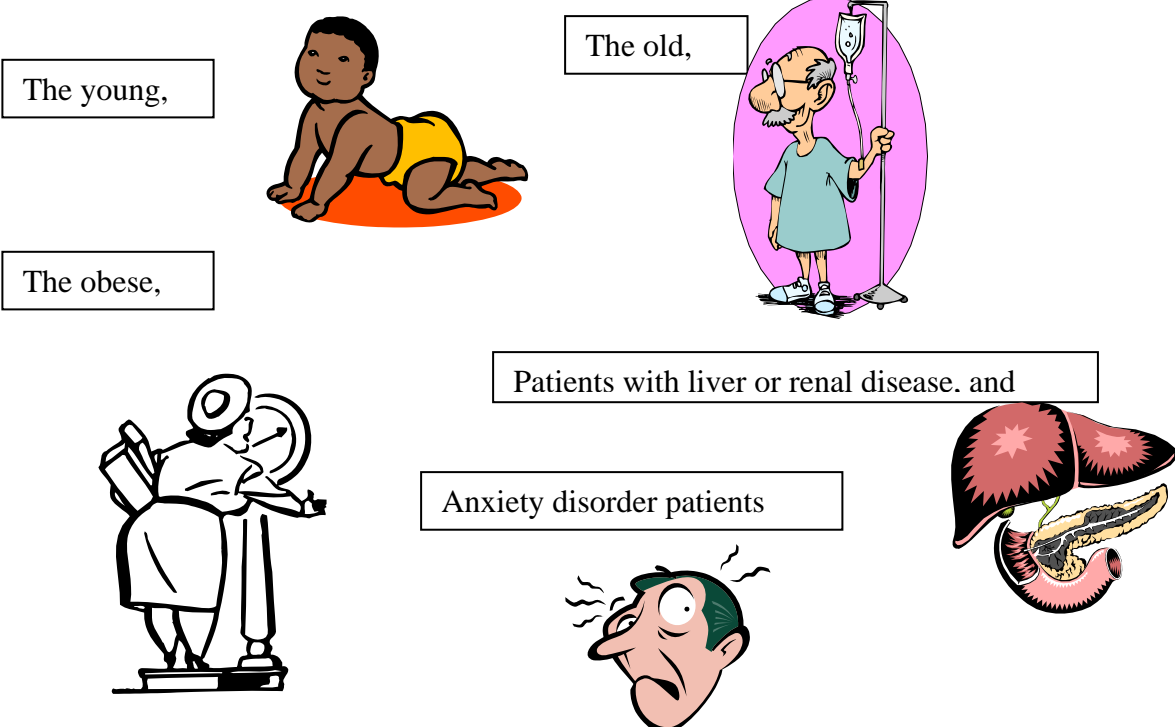
### 1. What do I do if there is an untoward reaction?

- A. Report any changes in patient condition promptly to physician, and maintain patent airway.
- B. Access Emergency Equipment

### 2. Most common complications:

- A. Over-or-Under-sedation of the patient.

### B. Certain populations are at increased risk of over or under sedation:



## XIV. Airway Management



### A. Recognizing a patient who has an inadequate airway:

- Change in breathing (snoring, loss of snoring)
- Decreased oxygen saturation
- Loss of chest expansion
- Rocking of the chest and abdomen
- Changes in heart rate or blood pressure
- Changes in mental status; increased difficulty in arousing, agitation
- Changes in skin color from pink to pale or dusky – a late sign of hypoxemia
- Changes in head position
- Any sign of a change in the patient's general status should initiate an inspection of respiratory status -- restlessness and agitation are always considered signs of hypoxia or if not that then inadequate analgesia.

### B. Hypoxemia is...

- generally a late sign of hypoventilation or airway obstruction
- Remember *gradual* hypoxemia may not produce any signs or symptoms

### C. Intervene for your patient:

- 1.) **Ask your patient how they are doing, if they respond and deny any** respiratory problems, then one can be reasonably certain that the airway is patent.
- 2.) **If a patient does not respond, then gentle stimulation** should be tried, such as shaking a shoulder and using a louder voice.
- 3.) If a patient has not yet responded, try moving the patients tongue off the **back of their throat** by first
  - turning head laterally, then
  - head-tilt / chin-lift, then a
  - jaw-thrust maneuver will also serve to stimulate the patient to breathe because it is somewhat painful when used. The jaw thrust = use of both hands behind the ramus of the mandible to move the mandible forward to lift the tongue off the back of the throat to open the airway. Be aware that the facial nerve runs behind the ramus of the mandible and damage to it can result in facial palsy.



- 4.) **If you need to place an airway** to provide an added degree of airway patency for patients whose tongue is obstructing the back of the throat or in obese patients with large tongues. **Call an anesthesiologist for your patient.**

- A). **Nasal Airway** - First try to insert a nasal airway because nasal are better tolerated



than oral airways if your patient is not unconscious.

- 1) Measure for length from **the tip of the nares to the lobe of the ear**.
  - 2) Lubricate the tube first with **KY jelly** (or any water-soluble jelly), and insert in the nostril staying close to the midline until it sets behind the tongue.
  - 3) **Slight rotation** of the tube may help you angle it through as needed. Gentle pressure not force may be used.
  - 4) If excessive pressure is encountered on placement of the airway, withdraw and attempt to place it on the other side.
  - 5) **Check lung sounds** immediately after putting it in.
  - 6) **RISK: Epistaxis** down the back of the throat may stimulate laryngospasm or bronchospasm
- B).

**Oropharyngeal (oral) Airway** may work safest for unconscious patients because it may stimulate vomiting.



- 1) Measure from **corner of mouth to tip of ear** to estimate length.
- 2) **Suction** before insertion if possible.
- 3) Insert with curve up as it enters the mouth, as you reach the back of the throat ...
- 4) ...**rotate** it so it curves down the throat **or** use a tongue depressor and insert the airway curve down.
- 5) **Listen to lung sounds** after insertion.

Oral airway risks = may stimulate vomiting, cause bradycardia due to vagal stimulation, retching leading to hypertension and tachycardia, laryngospasm, dental damage, and lip lacerations - also ensure that lips or tongue are not trapped between teeth.

**Ambu-bag** = positive pressure ventilation bag-valve-mask device

**Ambu-bags usually need 10-15 liters** of oxygen to provide 100% oxygen.

- 1) Practice using an ambu-bag on your unit:
  - a.) **Remove any caps** used by manufacturer to keep bag deflated for packing
  - b.) Face mask should fit snugly between the bridge of your patient's nose and their chin, and the medial aspects of the face - so when you bag - **no air should escape the mask's seal on their face**.
  - c.) If your patient is breathing:
    - inefficiently, but not completely apneic, then synchronize your bagging with the patient's inspiration effort.
    - not at all on their own, bag at a rate of 16-20 breaths a minute or every 3-5 seconds.

**If basic airway maneuvers fail to provide a patent airway with adequate air exchange or if the patient has limited respiratory efforts**, the physician supervising the procedure should

1. Consider administering **reversal agents**
2. **Calling for help** to initiate advanced airway management (i.e. by paging the 1<sup>st</sup> Call Anesthesiologist on their pager).

3. Page "Respiratory Arrest" by calling your emergency phone number
3. Prepare for **intubation with an endotracheal tube**. Familiarize yourself with your unit(s) emergency intubation kit contents so you can assist as needed.



### **Supplemental Oxygen**

You need to know how to use the oxygen supply available at IRMC, including how to open a cylinder of oxygen, check it has adequate pressure, and use of the flowmeter.

**Nasal Cannula: 1-6 L/minute = 24 - 44 % for patient with normal tidal volume**

1 L = 24%	3 L = 32%	5 L = 40%
2 L = 28%	4 L = 36%	6 L = 44%

**Face Mask: 8-10 L = 40 - 60%, the flow should be >5 L / minute to avoid rebreathing exhaled air held inside the mask.**

**Ambu-bag: 15 L = up to 100%, use basic airway head positioning and Oropharyngeal airway if possible. Hold mask to patients face and squeeze the bag. Watch for gastric distention.**

Note: Oxygen tank safety includes estimating if your tank will last long enough - before transporting your patient.

## **XXI. Conclusion**

You are reviewing how to administer moderate sedation. By reviewing this study packet and other resources, you can minimize or avoid complications, and help your patient to a smooth recovery. **Remember to turn in your completed "Post Quiz" to your manager or coordinator by November 30<sup>th</sup> 2010.**

## **Booklet References:**

### **Websites**

American Society of Anesthesiologists (ASA)	<a href="http://www.asahq.org">http://www.asahq.org</a>
Association of periOperative Registered Nurses (AORN)	<a href="http://www.aorn.org">http://www.aorn.org</a>
American Society of Perianesthesia Nurses (ASpan)	<a href="http://www.aspan.org">http://www.aspan.org</a>
Society of Gastroenterology Nurses and Associates (SGNA)	<a href="http://www.sgna.org">http://www.sgna.org</a>
Association of Critical Care Nurses (ACCN)	<a href="http://www.accn.org">http://www.accn.org</a>
American Society of Pain Management Nurses	<a href="http://www.aspmn">http://www.aspmn</a>
American Academy of Pediatrics (AAP)	<a href="http://www.aap.org">http://www.aap.org</a>

### **Articles**

- American Society of Anesthesiologists, Inc. (ASA) 2002 – “Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists”
- AORN. (2002). Ambulatory Surgery Principles and Practices. Denver, CO: Author
- Assoc. of PeriOperative Nurses (AORN) Standards, Recommended Practices, and Guidelines 2007.
- Craven, R. & Hirnle, C. (2002). Fundamentals of Nursing: Human Health and Function. 1192, 1196.
- Ferchau, Lynn, M.S.N., RN, CCRN (2001). Conscious Sedation, Nursing Perspectives and Responsibilities. American Health Institute. 9079
- Kost, Michael. (1998). Manual of Conscious Sedation. Saunders.
- MHA Insurance Company 2001 "Surgery/Anesthesia" Vol. 2 Section 1.5.2
- O'Donnell, J. & Bragg, K. & Sell, S. (2003) Procedure Sedation: Safely navigating the twilight zone. Nursing 2003. 33 (4), 36-45.
- Seiple, Nance RN, CRNA, M.Ed. (2001). Ambulatory Surgical Care. Western Schools Press. 53-71.
- The American Nurses Association. Position Statement of the Role of the Registered Nurse (RN) in the Management of Patients Receiving IV Conscious Sedation for Short-Term Therapeutic, Diagnostic, or Surgical Procedures
- American Society of Anesthesiologists – 2004 Continuum of Depth of Sedation, Definition of General Anesthesia and Levels of Sedation/Analgesia
- JCAHO 2005 Standards and Intents for Sedation and Anesthesia Care
- A.O.A.

### **Policies**

- IRMC Sedation : Standards of Care for Patients Receiving Moderate to Deep Sedation 200-46
- Guidelines for the use of Universal Documentation Form Moderate to Deep Sedation 604.21
- IRMC Respiratory Therapy Policy 13.18.2
- IRMC Anesthesia Conscious Sedation 50.011
- Propofol Administration Critical Care Policy 40.05.035
- Michigan Public Health Code 333.16215