

**FLOYD MEDICAL CENTER
 POLICY AND PROCEDURE MANUAL
 PATIENT CARE SERVICES**



TITLE: Moderate/Deep Sedation Rapid Sequence Intubation (Adult)	Policy No.: PCS-06-035
Purpose: To ensure patient safety by the establishment of guidelines for monitoring adult patients who receive sedation/analgesia for diagnostic, invasive and non-invasive procedures, or manipulative procedures, by specifying who is qualified to administer sedation/analgesia drugs at Floyd Medical Center, on what units the drugs may be administered, and to provide guidelines for assessing, administering, monitoring and discharging patients receiving sedation/analgesia drugs. The purpose of these guidelines is not to be construed to include other routine uses of narcotic or anxiolytic drugs such as in the treatment of seizures, acute and chronic pain, sedation in the intensive care units (e.g. patients on ventilators), for urgent/emergent endotracheal reflexes, or patients under the direct supervision of an anesthesiologist.	Developed Date: 10/15/89 Review Date: 5/05 Revised Date: 11/93, 1/96, 6/96, 6/00, 5/03, 5/06, 10/08, 4/11, 9/12, 1/13, 10/16, 3/18, 4/18, 6/18 Review Responsibility: Department of: Anesthesia, Pharmacy & Therapeutics Committee, Executive VP Chief of Patient Services/CNO, Executive Committee of the Medical Staff, Executive Staff
Reference Standards:	

Oversight and Responsibility

The Department of Anesthesia as delegated by the Medical Executive Committee is responsible for the development of standards of practice for sedation/analgesia in collaboration with other departments that provide the service. The medical director of each department administering sedation/analgesia will be responsible for ensuring that the standard is followed. The nursing director for that department is responsible for ensuring that the nursing interventions in the standard are followed. The Department of Anesthesia will be responsible for overseeing the continuous quality improvement process for assessing outcomes in patients receiving sedation/analgesia.

DEFINITIONS

Anesthesia

consists of general anesthesia and spinal or major regional anesthesia. It does not include local 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 often impaired. Patients often require assistance in maintaining a patent airway, and positive pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired.

Deep sedation/analgesia

is a drug-induced depression of consciousness during which patients cannot be easily aroused, accompanied by a partial or complete loss of protective reflexes, including the ability to maintain, airway independently and respond purposefully to physical stimulation or verbal command. Patients may require assistance in maintaining a patent airway and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained.

Minimal sedation (anxiolysis)

Is 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.

Moderate sedation/analgesia (Conscious Sedation)

Is a drug-induced depression of consciousness during which patients respond purposefully to verbal commands, 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.

Rapid Sequence Intubation

Rapid Sequence Intubation (RSI) is defined as a technique where a potent sedative or induction agent is administered virtually simultaneously with a paralyzing dose of neuromuscular blocking agent to facilitate rapid tracheal intubation. The technique includes specific protection against aspiration of gastric contents, provides excellent access to the airway for intubation, and permits pharmacologic control of adverse responses to illness, injury, and the intubation itself.

The various degrees of sedation occur on a continuum. The patient may progress from one degree to another, based on the patient's physical status, the medications administered, route, and dosages. It is recognized that despite appropriate dosages of sedatives for sedation/analgesia patients are at risk for respiratory depression, apnea and loss of protective reflexes.

The determination of patient monitoring and staffing requirements, at the discretion of the physician, is based on the patient's acuity; reference to inpatient history and physical for current patient status, and the potential response of the patient to the procedure.

POLICY:

1. Only physicians and licensed independent practitioners properly credentialed will administer sedation. (Registered Nurses, who have completed competency requirements, may administer Moderate Sedation and RSI).
2. The registered nurse (RN) may administer Propofol, Etomidate, and neuromuscular blocking agents (only Succinylcholine, Rocuronium, and Vecuronium) to the non-intubated patient in a hospital setting for the purpose of rapid sequence intubation when the clinical presentation of impending respiratory failure is imminent. This will be done in the presence of and under the direction of, a physician credentialed in emergency airway management. (Position statement: Administration of Propofol, Etomidate, and Neuromuscular blocking Agents Georgia Board of Nursing April 2015).
3. Patients who are to receive sedation/analgesia are selected by the physician.
4. For sedation/analgesia, a pre-procedural patient assessment must be performed and documented within 30 days before the procedure. When the assessment is performed in advance a clinician needs to record in the patient's chart that there has been no change in the patient's medical history or physical condition before starting the procedure. The baseline history and physical prior to the procedure may be performed by the physician or trained designee.
All patients requiring sedation will have a pre-procedure assessment, intra-procedure assessment and a post procedure assessment prior to discharge.
5. Consent for sedation/analgesia: The Procedure and/or Surgical Consent for the diagnostic, invasive or manipulative procedures in which sedation/analgesia is to be employed will be placed in the patient's chart as part of the permanent record.
6. The patient receiving sedation/analgesia as the sole anesthetic mode (with or without local or topical anesthetic agents) will be monitored for reaction to drugs and for physiologic and behavioral changes.
 - ◆ The registered nurse managing the care of the patient receiving sedation/analgesia primary responsibility is to continuously monitor the patient. The nurse will establish the patient's physiological baseline, and monitor the patient throughout the procedure. Changes in the patient's condition will be reported to the physician immediately. If the nurse must step away from the patient, for any reason, active communication will occur between the nurse and the other procedure team members. Responsibility of monitoring the patient will be assumed by one of the other team members. The nurse will have a working knowledge of the function and use of monitoring equipment and the ability to interpret data obtained. The nurse will be competent in the administration and knowledge of moderate sedation/analgesia medication. The nurse will be competent in the monitoring and knowledge of deep sedation medications.

7. Except when "minimal sedation" is administered as a pre-medication (preoperative and pre-procedural medication is considered minimal sedation), staffing during sedation/analgesia should always include a minimum of:

Moderate Sedation

- ◆ One nurse/tech to assist as needed
- ◆ One qualified practitioner to administer medication and monitor effects of medication
- ◆ Physician (readily available)

Deep Sedation

- ◆ One nurse to monitor patient
- ◆ Physician or LIP to administer medication
- ◆ Respiratory Therapist

Rapid Sequence Intubation

- ◆ One nurse to assist as needed
- ◆ One qualified practitioner to administer medication and monitor effects of medication
- ◆ Physician or LIP
- ◆ Respiratory as available

At least one healthcare provider currently certified in BCLS and/or ACLS will be present.

Additional staffing, as determined by the physician responsible for managing the patient, is based on the patient's acuity, procedure, and the potential response to the medications administered.

Staffing during "minimal sedation" should include one nurse or qualified practitioner to observe the patient's response to the medication(s). The nurse does not have to be in the continuous presence of the patient.

8. All patients must have an intravenous access secured prior to administering sedation/analgesia/RSI.
9. All patients will have an airway assessment prior to procedure and documented on the Moderate/Deep Sedation/Analgesia Flow Sheet (excludes RSI).
10. All moderate sedation/analgesia/RSI will be ordered and supervised by the physician or licensed independent practitioner credentialed for the specific procedure and administration of medications.
11. The physician or licensed independent practitioner must place orders in the EMR or sign off on any verbal orders in the EMR specifying medication, dosage, and route of administration in the medical record.
12. The nurse responsible for managing the care of the patients receiving sedation/analgesia/RSI will complete and maintain an annual competency in the skill.
13. The nurse will recognize normal and abnormal reactions to drugs used during the procedure, and be prepared to provide emergency measures if adverse reactions occur.

14. All patients receiving sedation/analgesia will be continually monitored throughout the procedure as well as the recovery phase by physiologic measurements including:
- ◆ respiratory rate;
 - ◆ oxygen saturation (continuous monitoring with pulse oximetry);
 - ◆ blood pressure;
 - ◆ cardiac rate and rhythm;
 - ◆ level of consciousness; and
 - ◆ capnography

15. Supplemental oxygen will be immediately available to all patients receiving sedation/analgesia and administered per order.

16. The minimal equipment available in the room will be:

- ◆ age-appropriate airways
- ◆ automatic blood pressure monitor or blood pressure cuff with manometer and stethoscope
- ◆ cardiac monitor
- ◆ intravenous (IV) supplies
- ◆ oxygen
- ◆ positive pressure breathing device (Ambu bag)
- ◆ pulse oximeter
- ◆ suction
- ◆ capnography monitoring device

Equipment will be checked before each sedation procedure.

17. Emergency equipment that is immediately available includes: (Refer to Code Blue Policy)

- ◆ age-appropriate drugs and equipment
- ◆ emergency cart with defibrillator and ECG monitor
- ◆ emergency intubation equipment (positive pressure breathing device and airways)
- ◆ oxygen
- ◆ reversal agents (Narcan and Romazicon)
- ◆ suction device

18. Equipment available for RSI includes:

- ◆ age-appropriate airways
- ◆ automatic blood pressure monitor or blood pressure cuff with manometer and stethoscope
- ◆ cardiac monitor
- ◆ vascular access supplies
- ◆ oxygen
- ◆ positive pressure breathing device (Ambu bag)
- ◆ pulse oximeter
- ◆ suction
- ◆ age-appropriate drugs and equipment
- ◆ emergency cart with defibrillator and ECG monitor
- ◆ emergency intubation equipment (positive pressure breathing device and airways)
- ◆ capnography monitoring device

19. Provisions must be in place for back-up personnel who are experts in airway management, emergency intubation, and advanced cardiopulmonary resuscitation if complications arise.

20. **Moderate sedation/analgesia** of patients will occur only in specific locations outside the operating suite. The following locations are designated as areas where moderate sedation/analgesia may be used:

- ◆ Bronchoscopy Lab
- ◆ Cardiac Cath Lab
- ◆ Cardiopulmonary Treatment Room
- ◆ Coronary Care Unit
- ◆ Emergency Care Center
- ◆ GI Lab
- ◆ Intensive Care Unit
- ◆ Labor & Delivery
- ◆ Outpatient/Inpatient Surgery
- ◆ Pediatric Unit
- ◆ Post Anesthesia Care Unit
- ◆ Radiology
- ◆ Vascular Lab

Possible drugs used for moderate sedation/analgesia include: (See Attachment A)

- ◆ Etomidate (**Only administered as specified in this policy**)
- ◆ Fentanyl (Sublimaze)
- ◆ Morphine (Morphine Sulfate)
- ◆ Valium (Diazepam)
- ◆ Versed (Midazolam)

21. **RSI Administered by qualified nursing staff under the appropriate Physician supervision will occur only in specific locations:**

- ◆ Emergency Care Center
- ◆ Intensive Care Unit
- ◆ 5 West/Step Down Unit

Possible drugs used for RSI include: (See Attachment B)

- ◆ Etomidate (Amidate)
- ◆ Lidocaine
- ◆ Propofol (Diprivan)
- ◆ Rocuronium (Zemuron)
- ◆ Succinylcholine
- ◆ Vecuronium (Norcuron)

The parenteral form of Versed and Fentanyl will not be dispensed to any areas except those listed above. (EMS will receive Versed for rapid sequence intubation)

The exception to the above is the administration of narcotic/analgesic drips to patients on the Medical/Oncology Unit. Patients on this unit may receive larger dosages of the above drugs for palliative reasons, and will not be monitored in the same fashion. Prophylactic monitoring will be at the discretion of the physician.

22. **Deep sedation/analgesia** of patients will occur only in specific locations outside the operating suite. The Emergency Care Center is the only location outside of the operating suite designated for use of deep sedation.

Possible drugs used for deep sedation/analgesia include: (*See Attachment C*)

- ◆ Fentanyl (Sublimaze)
- ◆ Ketamine
- ◆ Midazolam
- ◆ Propofol (Diprivan)

CANDIDATE GUIDELINES

Patients who are ASA Class I and II are frequently considered appropriate candidates for moderate sedation/analgesia (*See Attachment D*). Patients in ASA Class III or IV present special problems that require additional and individual consideration.

If a patient has an ASA ≥ 3 , consideration will be given to consult with anesthesiology services.

DRUG ADMINISTRATION

1. Medications will be given as ordered by the physician in small, incremental doses. **DO NOT ADMINISTER AS A BOLUS DOSE.** Ordered medications should be given slowly, while monitoring for the desired effect. The patient should be able to respond to physical stimulation and verbal command. Sedation/Analgesia medications may be given by a physician or registered nurse who has met competency requirements. Deep Sedation medications may only be given by a physician who has met the competency requirements.
2. Naloxone (Narcan) will be available to reverse respiratory depression caused by narcotics. Flumazenil (Romazicon) will be available to reverse benzodiazepine agents such as midazolam (Versed), diazepam (Valium), and lorazepam (Ativan).
3. The physician has been trained to perform procedures requiring sedation and must be physically present during the initial and continued administration of sedation.
4. When these drugs are given in combination at lower doses, the sedation/analgesia policy and procedure must be followed due to the synergistic effect of the drugs. The choice and use of these agents should be determined based on the patient assessment and the experience of the ordering physician. When patient assessment indicates that agent/dosages other than those recommended are needed, this must be documented.
5. When reversal medications are used, longer recovery time is needed. Patients will be monitored for 90 minutes in the area of procedure.

6. Higher risk patients, pediatric patients, elderly patients, and chronically ill patients usually require lower dosages of sedatives and narcotics. Patients with COPD are usually sensitive to the respiratory depressant effects of Versed. Reduced initial dosage of narcotics and sedatives is recommended, and the possibility of profound and/or prolonged effects must be considered.
7. Total medication doses greater than recommendations shall be approved by the physician.

DOCUMENTATION for SEDATION/ANALGESIA

Documentation on the patient receiving sedation/analgesia will reflect continual assessment, planning, implementation, and evaluation of patient care. Documentation will include, but not be limited to the following:

- ◆ signed Procedure and/or Surgical Consent;
- ◆ patient allergies and any prior adverse drug reactions;
- ◆ beginning and end time of procedure;
- ◆ beginning and end time of moderate sedation/analgesia;
- ◆ monitoring devices and equipment used;
- ◆ pre-, intra-, and post-procedure respiratory rate, oxygen saturation, blood pressure, heart rate and rhythm, and level of consciousness;
- ◆ patient plan of care;
- ◆ patient's airway evaluation;
- ◆ physiologic data from continuous monitoring, documented at 5-minute intervals during the procedure, at 15-minute intervals during the recovery period; and at any significant event;
- ◆ IV access and patency, type and amount of fluids (if administered);
- ◆ drug, dose, route, time, site, and effects of local anesthetic and analgesic agents;
- ◆ any interventions (oxygen or intravenous therapy) and the patient's response;
- ◆ any untoward or significant reactions and resolutions;
- ◆ instructions for patient/family; and
- ◆ discharge condition and discharge location.

DOCUMENTATION for RAPID SEQUENCE INTUBATION

As RSI is an emergent procedure, some elements of pre-procedure documentation may not be available such as patient allergies and any prior adverse drug reactions:

- ◆ patient allergies and any prior adverse drug reactions;
- ◆ monitoring devices and equipment used;
- ◆ IV access and patency, type and amount of fluids (if administered);
- ◆ drug, dose, route, time, site, and effects any interventions, and the patient's response;
- ◆ any untoward or significant reactions and resolutions

DISCHARGE CRITERIA for SEDATION/ANALGESIA

Patient Discharge Criteria will be met prior to discharge or transfer of the patient or the patient must be discharged from the recovery phase by the physician. Discharge criteria are as follows:

PARAMETER	SCORING CRITERIA	SCORE
LOC	2 - Fully awake or return to pre-sedation state	
	1 - Arouses to verbal stimuli	
	* 0 - Not responding	
CIRCULATION	2 - V/S's $\pm 20\%$ Base mm Hg of pre-sedation state	
	1 - V/S's ± 20 to 50% Base mm Hg of pre-sedation state	
	* 0 - V/S's $\pm 50\%$ Base mm Hg of pre-sedation state	
AIRWAY PATENCY	2 - O ₂ Sat > 92% or return to pre-sedation state	
	1 - O ₂ Sat < 92 % or less than pre-sedation state	
	* 0 - Dyspnea or limited breathing	
CARDIAC RHYTHM	2 - No abnormalities or pre-sedation rhythm	
	1 - Abnormalities (non-life threatening)	
	* 0 - Abnormalities (potentially life threatening)	
TOTAL SCORE		

0 ratings will be reported to the physician immediately

The Cardiac Cath Lab will use computer documentation, which addresses all items required.

Patients will score 8 prior to discharge from the area. If the patient scores < 8, the nurse will notify the physician.

Hospitalized patients who have sedation/analgesia will revert to assessments per unit protocol after receiving a score of 8.

PHYSICIAN / LICENSED INDEPENDENT PRACTITIONER CREDENTIALING AND RE-CREDENTIALING

1. The physician/licensed independent practitioner administering moderate sedation/analgesia/RSI must have privileges for clinical administration of this category of drugs. (**Note:** Licensed Independent Practitioners will work under the direction of a physician in administering moderate sedation/analgesia. Only physicians may administer deep sedation drugs)
2. The physician/licensed independent practitioner responsible for managing the patient receiving sedation/analgesia/RSI will be familiar with proper dosages and interventions for adverse reactions and overdoses. The physician will be able to manage complications that may occur related to the administration of sedation/analgesia/RSI.

3. Only Cardiologists approved for AICD implantations (and testing) and cardioversions; Pulmonologists and Emergency Room Physicians approved for Endotracheal Intubations may be approved for administration of fixed-doses of Etomidate in a safe sub-anesthetic dose range.
4. Automatic re-credentialing will result when routine monitoring reveals no variances from established protocols.

VALIDATION OF COMPETENCY – NURSE

General competency and specific criteria for the nurse managing the care of a patient receiving sedation/analgesia include:

- ◆ demonstration of the knowledge of anatomy, physiology, pharmacology, cardiac arrhythmia recognition, and complications related to sedation/analgesia and medications
- ◆ demonstration of the ability to assess total patient care requirements including, but not limited to respiratory rate, oxygen saturation, blood pressure, heart rate and rhythm, and level of consciousness
- ◆ knowledge of the principles of oxygen delivery, transport and uptake, and respiratory physiology, and demonstrate the ability to properly use oxygen delivery devices
- ◆ ability to anticipate and recognize potential complications of moderate sedation/analgesia in relation to the type of medication being administered
- ◆ demonstration of the skills necessary to access, diagnose, and intervene in the event of complications or undesired outcomes, assess the emergency personnel team as appropriate, and to institute interventions in compliance with orders (including standing orders) or institutional protocols or guidelines
- ◆ demonstration of skill in airway management resuscitation
- ◆ demonstration of knowledge of the legal ramifications of administering moderate sedation/analgesia/RSI and/or monitoring patients receiving sedation/analgesia, including the nurse's responsibility and liability in the event of an untoward reaction or life-threatening complication.

(Reference: Position Statement: American Association of Nurse Anesthetists, April 1991)

Achievement of this competency will be evaluated annually using the following requirements:

- ◆ maintains a license to administer medication
- ◆ reviews Moderate/Deep Sedation/RSI (Adult) policy (PCS-06-035)
- ◆ completes the "Skills Checklist on Monitoring the Patient Receiving Moderate/Deep Sedation/Analgesia/RSI";
- ◆ scores 90% or higher on the "Monitoring the Patient Receiving Moderate/Deep Sedation/Analgesia/RSI" examination;
- ◆ maintains current BCLS provider status, ACLS and PALS provider status strongly encouraged;
- ◆ demonstrates knowledge of proper dosages, administration, adverse reactions, and interventions for adverse reactions and overdoses

Procedure: Physician / Nursing Care Responsibility

ACTIONS	KEY POINTS
PRE PROCEDURE PHASE	
<ol style="list-style-type: none"> 1. Provide verbal and/or written instructions and information to the patient and/or family that include anticipated changes in behavior during and after sedation. 2. Obtain Procedure and/or Surgical Consent and place signed record on chart. 3. Baseline history and physical performed by physician or trained designee, to include, but not limited to: <ul style="list-style-type: none"> • age, height and weight; • allergies and previous adverse drug reactions; • prior problem with sedation/anesthesia; • current medications; • pregnancy status; • high-risk patient, pediatric patient, and history of renal disease; • history of MI; • airway patency (assessment and pertinent patient and family history of prior anesthetic complications); • pulmonary and cardiac status; • temperature (T), heart rate (HR) and rhythm, blood pressure (BP), and respiratory rate (RR); • oxygen saturation (O₂ Sat); • level of consciousness (LOC); • last food intake time; • ASA's physical status category; • plan of care; • diseases, disorders and abnormalities; • immediate pre-procedure assessment; • prior hospitalizations; and • review of systems 	<ol style="list-style-type: none"> 1. May be given by physician or licensed non-physician practitioner. 2. Consent: The patient or legal guardian must be informed about the risks, benefits, and alternatives to sedation as a component of the planned procedure. 3. All patients receiving moderate sedation/analgesia for an elective procedure must be NPO for solid foods for at least six hours or as ordered by the physician/licensed non-physician practitioner. For emergency procedures, the time of the patient's last oral intake is one factor that must be considered when planning the procedure.

ACTIONS	KEY POINTS
<p>4. The physician/licensed non-physician practitioner will review this information prior to the procedure.</p> <p>5. Fasting history - the patient will be NPO for at least four (4) hours for liquids and six (6) hours for solids, except for oral medications with sips of water.</p>	<p>5. In emergent situations where the patient may not be NPO, monitor closely for complaints of nausea in order to prevent emesis/aspiration.</p>
<p>INTRA PROCEDURE PHASE</p> <p>1. Maintain intravenous access continuously during the procedure and the recovery phase.</p> <p>2. Document at least every five minutes and more frequently as indicated, the following parameters: B/P, HR and rhythm, RR, cont. O₂ Sat, and LOC.</p> <ul style="list-style-type: none"> • The minimum number of available personnel shall be two: the provider administering the medication and the nurse monitoring the patient. Patients receiving sedation are to be continuously monitored: <ul style="list-style-type: none"> • Vital Signs/SPO₂ • Oxygenation • Medications <p>3. Document administration of medications, fluids, drug dosage (bolus and maintenance), time(s), and person administering.</p> <p>4. Document any unusual occurrences and interventions.</p> <p>5. Maintain Moderate/ Deep Sedation/ Analgesia Flow Sheet.</p>	<p>2. Document any changes in rhythm in “comment” section of procedure flowsheet. Rhythm strips may be attached to sheet.</p> <p>4. Exception: Any monitor that interferes with the accuracy or reliability of any diagnostic procedure, e.g. MRI, can be removed at the discretion of the attending physician and documented.</p>
<p>POST PROCEDURE PHASE</p> <p>1. Continue documentation on the Moderate/Deep Sedation/Analgesia Flow Sheet through discharge.</p>	

ACTIONS	KEY POINTS
<ol style="list-style-type: none"> 2. Monitor and document RR, HR and rhythm, B/P, O₂ Sat, and LOC at least q 15 minutes x 4 unless otherwise ordered by the physician/licensed non-physician practitioner. <ul style="list-style-type: none"> • oxygenation • Aldrete (post sedation) score or return to pre-sedation status. 3. Document assessment and nursing interventions based on the procedure and specific physician/ licensed non-physician practitioner's orders. 4. Observe for and document any post-procedure complications, management of those events and patient response. 	<ol style="list-style-type: none"> 2. Minimum recovery time is 30 minutes after the last dose of medication is given. Prior to discontinuation of post-procedure monitoring, RR, B/P, HR and rhythm, O₂ Sat, and LOC must be stable compared to pre-procedure baseline. 3. Documentation of procedures may include dressings, nausea and vomiting, or bleeding.
<p>DISCHARGE PHASE</p> <ol style="list-style-type: none"> 1. Assess "Discharge Criteria Score" and record. 2. Able to swallow and cough or at pre-sedation status. 	<ol style="list-style-type: none"> 1. Patients must meet minimum score of 8 prior to discharge
<p>INPATIENT</p> <ol style="list-style-type: none"> 1. Provide verbal report to nurse caring for patient on return to patient care unit. 2. Note time and name of person to whom report was given. 3. Sign the flow sheet and place in patient's medical record. 	<ol style="list-style-type: none"> 1. Include V/S, LOC, any problems encountered, drugs given, IV fluid total.
<p>OUTPATIENT</p> <ol style="list-style-type: none"> 1. Document discharge V/S's, LOC, appearance of discontinued IV site. 2. Provide verbal and written instructions to patient and/or responsible adult accompanying patient. 3. Document verbalization of understanding and obtain signature(s) on flow sheet. 4. Transport patient to designated discharge location. 5. Sign the flow sheet and place in patient's medical record. 	

CONTINUOUS QUALITY IMPROVEMENT

Moderate and Deep sedation/analgesia administration is directed by the Chief of the Department with the collaboration of the Chief of Anesthesia to ensure administration is performed in a safe and appropriate manner, and is consistent with the patient needs.

This will be achieved through continuous monitoring of moderate/deep sedation/analgesia administered by the involved department with the final review evaluated by the Department of Anesthesia.

- Patient Outcomes
- Appropriateness of Use
- Completeness of Documentation

Attachment A

COMMON DRUGS USED IN MODERATE SEDATION/ANALGESIA			
Drug	Dosing	Onset/Duration	Comments
Opioid Analgesics			
Morphine Sulfate Maximum IM: 0.1 mg/kg (IM injections not recommended due to variable absorption and lag time to peak effect) IV: 0.1 mg/kg (Preferred Route)	1 to 2 mg increments; titrating versus onset time to patient response (The standard against which all other opioids are measured) Age 18-60 years: 1 to 2 mg IV over 2 minutes every 5 minutes to a maximum of 0.1 mg/kg. Age over 60 years: 0.5 to 1 mg IV over 2 minutes every 5 minutes to a maximum of 7.5 mg.	Onset: 1 to 3 minutes Duration: 4 hours	Respiratory depression: Monitor respiratory rate and depth continuously; pulse oximetry may show oxygen desaturation before overt signs of distress. Be prepared to assist ventilation with bag-valve-mask device and supplemental O ₂ . Hypotension: particularly if the patient has preexisting hypovolemia. Nausea and vomiting: Lethargic patients may need suctioning to clear vomitus from the airway.
Fentanyl Maximum IM: 2mcg/kg IV: 2 mcg/kg Maximum Initial Dose = 50 mcg	0.5 to 2 mcg/kg, titrating versus onset time to patient response Fentanyl is 100 times as potent as morphine. Age 18-60 years: 25 to 50 mcg IV over 1 – 2 minutes to maximum of 100 mcg/hr. Age over 60 years: 12.5 mcg IV over 1 – 2 minutes to maximum of 50 mcg/hr.	Onset of sedative effect: 1 to 3 minutes Onset of analgesia: may not be noted for several minutes. Duration of analgesic effect: 30 to 60 minutes for IV doses, 1 to 2 hours for IM doses. Duration of respiratory depression: Longer than 1 hour unless a reversal agent is used	Same as for morphine Avoid use if patient is currently using or has used an MAO inhibitor in recent weeks.
Benzodiazepines			
Diazepam (Valium) Maximum Oral: 15 – 20 mg total dose IV: 0.1 mg/kg (Do not exceed more than 5 mg/min.) Do not dilute IV doses.	2.5 mg IV over 3 – 5 minutes to a maximum of 0.1 mg/kg, with or without narcotic (There is great individual variation in response, so titrate accordingly.) Reduce dose by a third when an opioid is being used concomitantly.	Onset: 30 seconds to 2 minutes Duration: 2 to 4 hours (Note: Duration of sedation is 15 to 60 minutes; residual effects may be seen for up to 4 hours.)	Slurred speech and nystagmus precede onset of sleep. Contraindicated in untreated narrow-angle glaucoma; irritating to veins - may cause phlebitis, thrombosis, swelling, and local inflammation, especially when used in small veins of the hand or wrist.

COMMON DRUGS USED IN MODERATE SEDATION/ANALGESIA

Drug	Dosing	Onset/Duration	Comments
<p>Midazolam (Versed)</p> <p>Maximum Oral: 0.5 mg/kg IM: 0.08 mg/kg IV: 0.1 mg/kg (max total dose = 5 mg)</p>	<p>Initial doses should be as low as 0.5 to 1 mg and shouldn't exceed 2.5 mg. (administered over 2 minutes if given IV)</p> <p>Titrate slowly to effect allowing at least 2 minutes between doses to evaluate full effect of drug. Once sedation is achieved, additional doses should be 25% of the dose required to produce the sedative endpoint; for maintenance, use 0.25 to 1 mg.</p> <p>Reduce dose by a third when used with premedication narcotic or other CNS depressants are used.</p>	<p>Onset IV: 3 to 5 minutes IM: 15 minutes Oral: 10 – 20 minutes</p> <p>Duration: IV: Maximum effect lasts about 5 minutes, gradually declining over the next 30 to 40 minutes.</p> <p>All routes: Gross recovery within 2 hours, but effects may last as long as 6 hours.</p>	<p>May potentiate adverse effects of opioids including respiratory depression - when used in combination.</p> <p>Reduce dose in the elderly and debilitated.</p> <p>Reduce dose in patients with compromised renal function.</p> <p>3 to 4 times more potent than diazepam per mg; capable of producing mild sedation to coma.</p>
Sedative Agent			
<p>Etomidate (Amidate)</p> <p>IV only</p>	<p>0.1 mg/kg IV push over 30 to 60 seconds will induce sub-hypnotic state in 30 – 60 seconds. A dose of 0.05 mg/kg IV may be repeated one time after 5 minutes, if needed.</p>	<p>Onset 10 to 20 seconds from injection. Peak effect in 1 minute</p> <p>Duration: 4 to 10 minutes</p>	<p>Etomidate (Amidate) should not be administered simultaneously with other CNS depressant medications. Etomidate is an anesthetic drug with the best cardiovascular safety profile, and may be given IV just before procedures (such as countershock, endotracheal intubation) to reduce awareness.</p>
Reversal Agents			
<p>Naloxone (Narcan)</p> <p>IV (preferred route), IM, SubQ</p>	<p>0.1 to 0.2 mg IV every 2 to 3 minutes until desired response (adequate ventilation and alertness without significant pain).</p>	<p>Onset: apparent within 2 to 3 minutes</p> <p>Duration: Depends on the dose and administration route. Typical duration between 20 – 60 minutes. Repeat doses may be necessary after 1 to 2 hours. If given IM, effects may last longer.</p>	<p>Narcotic antagonist; duration of opioids may exceed that of naloxone, so repeated doses may be necessary.</p>

Attachment B

COMMON DRUGS USED Rapid Sequence Intubation			
Drug	Dosing	Onset/Duration	Comments
Etomidate (Amidate) **Sedative**	Single IV push dose of 0.3mg/kg. Not to be used in repeated bolus doses for maintenance of sedation after intubation.	Onset: 15 to 45 seconds from injection. (Remove peak effect in 1 minute) Duration: 3 to 12 minutes	Etomidate (Amidate) should not be administered simultaneously with other CNS depressant medications. Etomidate is an anesthetic drug with the best cardiovascular safety profile, and may be given IV just before procedures (such as countershock, endotracheal intubation) to reduce awareness.
Lidocaine **Premedication**	Single dose of 1.5 mg/kg IV given two to three minutes before intubation.	Onset: 45 to 90 seconds. Duration: 10 to 20 minutes	Allows for a look into the airway, while enabling the patient to maintain respiratory drive and protective airway reflexes. To attenuate the rise in airway resistance and intracranial pressure that occur during laryngoscopy and intubation. **Contraindication: high grade heart block** **Side effect: Decreased BP**
Vecuronium (Norcuron) **Paralytic**	0.08-0.1 mg/kg IV	Onset: 2 to 5min Duration: 25 to 40min	
Rocuronium (Zemuron) **Paralytic**	1mg/kg IV using ideal body weight	Onset: 45 to 60 seconds Duration: ~45 minutes	Classified as an intermediate-duration neuromuscular-blocking agent. Do not mix in the same syringe with barbiturates. Rocuronium does not relieve pain or produce sedation. **Side effects: Increased HR, Increased BP**

Drug	Dosing	Onset/Duration	Comments
Propofol (Diprivan) **Sedative	1.5-3 mg/kg IV	Onset: 15 to 45 seconds Duration: 5 to 10 minutes.	Incremental doses must be given <u>slowly</u> over several minutes and adequate circulation time allowed to assess full pharmacologic effect. Monitor patients heart rate, respiratory status, pulse oximetry, and level of consciousness on a continuous basis. Be prepared to assist ventilations with bag-valve mask device and supplemental oxygen.
Succinylcholine **Paralytic**	1.5 mg/kg IV	Onset: 45 to 60 seconds from injection. Duration: 6 to 10 minutes	Contraindication: pts with a personal or family history of malignant hyperthermia** **Side effect: Rhabdomyolysis, decreased HR**

Attachment C

COMMON DRUGS USED IN DEEP SEDATION/ANALGESIA			
Drug	Dosing	Onset/Duration	Comments
<p>Propofol</p> <p>IV only</p>	<p>Initial dose of 1 mg/kg IV. May repeat doses of 0.5 mg/kg every 3 to 5 minutes as necessary.</p> <p>Reduce dose by 20% in elderly.</p> <p>Opioids interact synergistically and markedly reduce needed dose of Propofol.</p>	<p>Onset 40 seconds from injection. Peak effect 1 minute</p> <p>Duration: 5 to 10 minutes.</p>	<p>Incremental doses must be given <u>slowly</u> over several minutes and adequate circulation time allowed to assess full pharmacologic effect. Monitor patient's heart rate, BP, respiratory status, pulse oximetry, and level of consciousness on a continuous basis. Be prepared to assist ventilations with bag-valve mask device and supplemental oxygen.</p>
<p>Fentanyl</p>	<p>1 to 3 mcg/kg IV over 1-2 minutes, titrating versus onset time to patient response.</p> <p>Fentanyl is 100 times as potent as morphine.</p>	<p>Onset of effect: 1 to 3 minutes</p> <p>Onset of analgesia: may not be noted for several minutes.</p> <p>Duration of analgesic effect: 30 to 60 minutes</p> <p>Duration of respiratory depression: Longer than 1 hour unless a reversal agent is used</p>	<p>Monitor BP, respiratory rate and depth continuously. Monitor pulse oximetry. Monitor vital signs continuously. Be prepared to assist with ventilations if needed.</p> <p>Avoid use if patient is currently using or has used an MAO Inhibitor in recent weeks.</p>
<p>Ketamine</p> <p>IV route preferred</p>	<p>IV: 1 to 2 mg/kg over 1 to 2 minutes. Repeat dose of 0.25 to 0.5 mg/kg every 5 to 10 minutes as needed.</p> <p>IM: 4 to 5 mg/kg as a single dose; may give a repeat dose of 2 to 5 mg/kg IM, if sedation inadequate after 5 to 10 minutes.</p>	<p>Onset: IV: <30 seconds;</p> <p>Duration: IV: 5 to 10 minutes</p> <p>Onset: IM: 3 to 4 minutes</p> <p>Duration: IM: 12 to 25 minutes</p> <p>IM route increases risk of emesis</p>	<p>Monitor oxygen saturation, heart rate and BP closely.</p> <p>Emergency reactions occur in 40% of patients (dreams, fears, anxiety, and excitement). Simultaneous use of benzodiazepines frequently reduces or eliminates this reaction.</p>

Drug	Dosing	Onset/Duration	Comments
<p>Midazolam (Versed)</p> <p>IV (preferred route for deep sedation/analgesia)</p>	<p>1 to 4 mg IV, administered in 1 mg increments. (Administer IV dose over at least 2 minutes).</p> <p>Note: In ages > 69 years; dose at 0.5 mg IV increments, up to 2 mg.</p> <p>Titrate slowly to effect allowing at least 2 minutes between doses to evaluate full effect of drug. Once sedation is achieved, additional doses should be 25% of the dose required to produce the sedative end-point; for maintenance, use 0.25 to 1 mg.</p>	<p>Onset: 1 to 2 minutes</p> <p>Duration: Maximum/peak effect at approximately 5 minutes, gradually declining over the next 30 to 40 minutes.</p> <p>Gross recovery within 2 hours, but effects may last as long as 6 hours.</p>	<p>May potentiate adverse effects of opioids including respiratory depression - when used in combination.</p> <p>Reduce dose in the elderly and debilitated.</p> <p>Reduce dose in patients with compromised renal function.</p>
Reversal Agents			
<p>Naloxone (Narcan)</p> <p>IV (preferred route), IM, SubQ</p>	<p>0.1 to 0.2 mg IV every 2 to 3 minutes until desired response (adequate ventilation and alertness without significant pain).</p>	<p>Onset: apparent within 2 to 3 minutes</p> <p>Duration: Depends on the dose and administration route. Typical duration between 20 to 60 minutes. Repeat doses may be necessary after 1 to 2 hours. If given IM, effects may last longer.</p>	<p>Narcotic antagonist; duration of opioids may exceed that of naloxone, so repeated doses may be necessary.</p>
<p>Flumazenil (Romazicon)</p> <p>IV only</p>	<p>0.2 mg IV given over 15 seconds. If the desired level of consciousness is not obtained, 0.2 mg may be repeated at 60 second intervals up to a total dose of 1 mg.</p>	<p>Onset: Reversal of benzodiazepine effect evident within 1 to 2 minutes after injection. Peak effect occurs within 6 to 10 minutes.</p> <p>Duration: 30 to 60 minutes</p>	<p>Benzodiazepine antagonist: Duration of most benzodiazepines greatly exceeds duration of flumazenil, so careful monitoring must continue for an hour after reversal is initiated. In the event of re-sedation, repeat doses may be given at 20-minute intervals as needed at 0.2 mg per min to a maximum of 1 mg total dose and not to exceed 3 mg in 1 hour. Partial antagonism at 0.1 to 0.2 mg; 0.4 to 1 mg produces complete antagonism.</p>

Attachment D

ASA CLASSIFICATION OF PHYSICAL STATUS

Class	Definition
1	A normal, healthy patient. (There is no organic, physiological, biochemical, or psychiatric disturbance. The pathologic process for which operation is to be performed is localized and is not a systemic disturbance).
2	A patient with mild systemic disease and no functional limitations. (Mild to moderate systemic disturbance caused either by the condition to be treated surgically or by other pathophysiological processes).
3	A patient with moderate to severe systemic disease that results in some functional limitation. (Severe systemic disturbance or disease from whatever cause, even though it may not be possible to define the degree of disability with finality).
4	A patient with severe systemic disease that is a constant threat to life and is functionally incapacitating. (Indicative of the patient with severe systemic disorder already life-threatening, not always correctable by the operative procedure).
5	A moribund patient who is not expected to survive without surgery. (The moribund patient who has little chance of survival but is submitted to operation in desperation).
6	A brain-dead patient whose organs are being harvested.

Adapted from the American Society of Anesthesiologists. The ASA physical classification system. 1999.



FLOYD MODERATE/DEEP SEDATION/ANALGESIA PROCEDURE

Name _____ Age _____ Date _____ Procedure _____ Department _____ Current Medication _____ Previous adverse drug reactions <input type="checkbox"/> Yes <input type="checkbox"/> No Prior problem with sedation / anesthesia <input type="checkbox"/> Yes <input type="checkbox"/> No History of renal disease <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Hx of MI _____ Date _____ Pregnant <input type="checkbox"/> Yes <input type="checkbox"/> No WT _____ lb _____ kg Ht _____ Monitors <input checked="" type="checkbox"/> EKG <input type="checkbox"/> Pulse Oximetry Rhythm Pre-Op _____ Post-Op _____	Airway Evaluation <input type="checkbox"/> Short muscular neck <input type="checkbox"/> Protruding incisors <input type="radio"/> upper <input type="radio"/> lower Class* _____ ASA Class* (circle one) 1 2 3 4 5 6	Respiratory <input type="checkbox"/> Regular <input type="checkbox"/> Irregular <input type="checkbox"/> Moderately Deep <input type="checkbox"/> Shallow <input type="checkbox"/> Unlabored <input type="checkbox"/> Labored <input type="checkbox"/> Clear <input type="checkbox"/> Congested <input type="checkbox"/> Room Air O ₂ @ _____ L/m <input type="checkbox"/> ETCO ₂ monitoring	Cardiovascular <input type="checkbox"/> Pink <input type="checkbox"/> Cyanotic <input type="checkbox"/> Warm <input type="checkbox"/> Cold <input type="checkbox"/> Dry <input type="checkbox"/> Moist <input type="checkbox"/> Current c/o chest pain
Plan of Care <input type="checkbox"/> Preprocedure assessment reviewed <input type="checkbox"/> Dentures removed <input type="checkbox"/> Verbal Reassurance <input type="checkbox"/> Position changed prn <input type="checkbox"/> Comfort measures offered <input type="checkbox"/> Side rails up <input type="checkbox"/> Explanation of procedure <input type="checkbox"/> Risks, benefits and alternatives explained and accepted		Immediate Preprocedure Assessment LOC _____ Consent Signed _____ Allergies _____ BP _____ T _____ P _____ R _____ O ₂ Sat _____ IV gauge _____ Site _____ IVF _____ Last Meal Eaten _____ NPO Yes: <input type="checkbox"/> No: <input type="checkbox"/> Physician initials _____	

Time	Sedation Start Time:	Procedure Start Time:	Sedation/Procedure End Time:	Medication	Dose	Time	Route	Initials
210								
190								
170								
150								
130								
110								
90								
70								
B/P √ ^ 50								
HR * 30								
10								
Resp								
O ₂ Sat %								
ETCO ₂								
LOC A=Alert D=Drowsy U=Unresponsive								

Post Sedation Recovery (minimum 30 min.)	Time	Sedation/Procedure End Time:	Medication	Dose	Time	Route	Initials	Comments
LOC	Fully awake or return to pre-sedation (2) Arouses to verbal stimuli (1) Not Responding (0)							
Circulation (RR,HR,B/P)	VS's ± 20% of pre-sedation (2) VS's ± 20-50% of pre-sedation (1) VS's ± 50% of pre-sedation (0)							
Airway Patency	O ₂ Sat > 92% or return to pre-sedation (2) O ₂ Sat < 92% or less than pre-sedation (1) Dyspnea or limited breathing (0)							
Cardiac Rhythm	No abnormalities or pre-sedation rhythm (2) Abnormalities (non-life threatening) (1) Abnormalities (potentially life threatening)(0)							
Total	* Score 8 prior to discharge							

IV D/C Yes No Site condition _____ Reversal medication (Continue 90 min. observation - VS q 15 min & PRN with continued monitoring)
 Sedation Aftercare Given Discharge instructions given Patient/Family verbalizes understanding Ambulatory
 Discharged Home Room PACU Other _____ Discharge to care of _____ Discharge Time _____ Wheelchair
 Stretcher (Side rails up)

Physician Signature _____ Date AND Time _____ Physician Extender Signature _____ Date AND Time _____
 Nurse Signature _____ Date AND Time _____ Patient Identification _____

FLOYD MODERATE/DEEP SEDATION/ANALGESIA PROCEDURE

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