FLOYD MEDICAL CENTER
POLICY AND PROCEDURE MANUAL
PATIENT CARE SERVICES

TITLE: Pediatric Sedation/Rapid Sequence Intubation	Policy No.: PCS-06-036
Purpose: To ensure patient safety by the establishment of guidelines for monitoring pediatric patients who receive deep sedation/analgesia for diagnostic, invasive and non-invasive procedures or manipulative procedures, and Rapid Sequence Intubation by specifying who may administer deep sedation/analgesia drugs and to provide guidelines for assessing, administering, monitoring and discharging patients receiving deep sedation/analgesia drugs/Rapid Sequence Intubation. 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:** 7/04 **Review Date:** 10/16 **Revised Date:** 12/04, 7/06, 3/07, 11/10, 5/12, 9/12, 1/13, 4/18 **Review Responsibility:** Department of Anesthesia, Executive VP Chief of Patient Services/CNO, Chairman Department of Pediatrics, Director of Women's & Children's, Clinical Manger of Pediatrics, Executive Staff, Executive Committee of the Medical Staff
Reference Standards: 1. TJC: PC.03.01.01, PC.03.01.05; PC.03.01.07 2. American Academy of Pediatrics "Guidelines for Monitoring and Management of Pediatric Patients During and After Sedation for Diagnostic and Therapeutic Procedures," June 1992 and October 2002. 3. Pediatric Procedural Sedation and Analgesia; L Doyle, J Colletti; Pediatric Clinics of North America, 53 (2006) 279-292. 4. 2015 – 2016 Lexicomp's Pediatric and Neonatal Dosage Handbook. 5. UpToDate, "Rapid sequence intubation (RSI) outside the operating room in children: Approach," July 2017. 6. FMC Policy PCS-06-035	

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 Quality Management department 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 agent to facilitate rapid tracheal intubation. The technique specific protection against aspiration of gastric contents, provides excellent access to the airway for intubation, and permits pharmacologic control of adverse response to illness, injury, and 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. Patients who are to receive sedation/analgesia are selected by the physician.
3. 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).
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 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 PALS 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 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
    - ♦ intravenous (IV) 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 pediatric 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:

- Emergency Care Center
- Intensive Care Unit
- Outpatient/Inpatient Surgery
- Post Anesthesia Care Unit
- GI Lab
- Labor & Delivery
- Pediatric Unit and PICU
- Radiology

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

- Diphenhydramine
- Fentanyl (Sublimaze)
- Morphine (Morphine Sulfate)
- Valium (Diazepam)
- Versed (Midazolam)

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

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

- Fentanyl (Sublimaze)
- Ketamine
- Midazolam
- Propofol

22. **RSI Administered by qualified nursing staff under the appropriate Physician supervision will occur only in specific locations:**
    - Emergency Care Center

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

- Etomidate (Amidate)
- Lidocaine
- Propofol (Diprivan)
- Recuronium (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.

CANDIDATE GUIDELINES

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

If a patient has an ASA $\geq$ 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**. (Titration to desired effect is the preferred method of administration, instead of fixed dosing schedules, recognizing that these doses are needed to achieve the desired end point.) Moderate 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 emergency 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/vascular access and patency, type, and amount of fluids (if administered);
- drug, dose, route, time, site, and effect any interventions, and the patient's response;
- any untoward or significant reactions and resolutions

DISCHARGE CRITERIA

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 ±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 ±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

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. 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 Pediatric Sedation/RSI policy (PCS-06-036)
- 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 and PALS provider status
- 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	
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.	1. May be given by physician.
2. Obtain Procedure and/or Surgical Consent and place signed record on chart.	2. Consent: The parent or legal guardian must be informed about the risks, benefits, and alternatives to deep sedation as a component of the planned procedure. This must be documented.
3. Baseline history and physical performed by physician or trained designee, to include, but not limited to: ♦ Age, height and weight ♦ Allergies and previous adverse drug reactions ♦ Current medications ♦ Airway patency (assessment and pertinent patient and family history of prior anesthetic complications) ♦ Pulmonary and cardiac status ♦ Vital Signs ♦ Oxygen saturation (O_2 Sat) ♦ Level of consciousness (LOC) ♦ Sedation Risk Factors ♦ Last food intake time ♦ Prior hospitalizations ♦ Review of systems	3. Pediatric Pre-Sedation Assessment Form attached.
4. Nursing Assessment will be completed.	
5. Fasting history – **Infants 0 – 5 months:** no milk or solids for 4 hours prior to procedure **Infants 6 – 36 months:** no milk or solids for 6 hours prior to procedure **Children older than 36 months:** no milk or solids for 8 hours prior to procedure.	5. In emergent situations where the patient may not be NPO, monitor closely for complaints of nausea in order to prevent emesis/aspiration.

ACTIONS	KEY POINTS
6. Place patient on continuous pulse oximetry and cardiac monitor. Have suction and oxygen set up with age appropriate tubing, bag/mask, etc. Start IC access and document appropriately. (Note: No IV access is required for sedation with Chloral Hydrate)	6. Make sure suction and oxygen are functioning prior to onset of procedure. Pediatric emergency carts (Broselow) are to be readily available.
INTRA PROCEDURE PHASE 1. Maintain intravenous access continuously during the procedure and the recovery phase.	
2. Administer medication per MD order. (Have second nurse double check medication calculation).	2. Double check weight based dosage of medication prior to administering. Check patient allergies and verify patient identity.
3. Document administration of medications, fluids, drug dosage (bolus and maintenance), time(s), and person administering.	
4. Document baseline vital signs (temperature, heart rate, respiratory rate and blood pressure).	

5. Document at least every five minutes and more frequently as indicated, the following parameters: B/P, HR and rhythm, RR, cont. O_2 Sat, and LOC.
• 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:
  • Vital Signs/SPO_2
  • Oxygenation
  • Medications	

6. Document any unusual occurrences and interventions.	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.
7. Maintain Moderate/Deep Sedation/Analgesia flow sheet.	

ACTIONS	KEY POINTS
POST PROCEDURE PHASE	
1. Continue documentation on the Moderate/Deep Sedation/Analgesia flow sheet through discharge.	
2. Monitor and document RR, HR and rhythm, B/P, O_2 Sat, and LOC at least q 15 minutes x 4 unless otherwise ordered by the physician/ licensed non-physician practitioner. • oxygenation • Aldrete (post sedation) score or return to pre-sedation status.	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, O_2 Sat, and LOC must be stable compared to pre-procedure baseline.
3. Document assessment and nursing interventions based on the procedure and specific physician/ licensed non-physician practitioner's orders.	3. Documentation of procedures may include dressings, nausea and vomiting, or bleeding.
4. Observe for and document any post-procedure complications, management of those events and patient response.	
DISCHARGE PHASE	
1. Assess "Discharge Criteria Score" and record.	1. Patients must meet minimum score of 8 prior to discharge.
2. Able to swallow and cough or at pre-sedation status.	
INPATIENT	
1. Provide verbal report to nurse caring for patient on return to patient care unit.	1. Include V/S, LOC, any problems encountered, drugs given, IV fluid total.
2. Note time and name of person to whom report was given.	
3. Sign the flow sheet and place in patient's medical record.	
OUTPATIENT	
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.	

ACTIONS	KEY POINTS
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.	
6. Send completed outpatient medical record to Health Information Management department.	Patient's record includes: ♦ Face Sheet ♦ Consent form ♦ Short stay record ♦ MD orders ♦ Pediatric Outpatient Clinic Record and Nurses Notes ♦ Results of diagnostic tests ♦ MD notes

CONTINUOUS QUALITY IMPROVEMENT

1. Deep Sedation/Analgesia administration is directed by the Chief of the Department with the collaboration of the Medical Director of Anesthesia to ensure administration is performed in a safe and appropriate manner, and is consistent with the patient needs.

2. This will be achieved through continuous monitoring of 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 SEDATION/ANALGESIA			
Drug	**Dosing**	**Onset/Duration**	**Comments**
Morphine (IV) **Age: Greater than 1 month old**	0.05 to 0.1 mg/kg/dose; administer five minutes prior to procedure. Maximum dose: 4mg; may repeat one time after 5 minutes.	Onset: within 5 minutes Duration: 4 to 5 hours	Respiratory depression: Monitor blood pressure 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. Note: Possible BP and RR drop may not appear until 60-90 minutes after dose.
Fentanyl (IV or IM) **Age: Greater than 1 month old**	1 to 2 mcg/kg/dose (if given IV, push over 3 to 5 minutes); maximum initial dose: 50 mcg/dose; may repeat half of original dose (0.5 to 1 mcg/kg/dose) every 3 to 5 minutes if necessary.	Onset of effect **IV**: <3 to 5 minutes **IM**: 7 to 15 minutes Onset of analgesia: may not be noted for several minutes. Duration of analgesic effect: 30 to 60 minutes Duration of respiratory depression: Longer than 1 hour unless a reversal agent is used.	Monitor respiratory rate and depth continuously. Monitor pulse oximetry. Monitor vital signs continuously. Be prepared to assist with ventilations if needed. Rapid IV infusion and high doses may cause chest wall rigidity.
Propofol (Diprivan) (IV) **Age: Infants, Children, and Adolescents**	1 mg/kg IV given over 20 to 30 seconds; follow initial dose with 0.5 mg/kg every 3 to 5 minutes as needed until adequate level of sedation achieved. ***If propofol given concurrently with ketamine decrease dose to 0.5 to 0.75 mg/kg***	Onset: within 1 minute Duration: 3 to 5 minutes after single bolus dose, duration of action increases when repeated doses given.	Monitor blood pressure, oxygen saturation, heart rate.

COMMON DRUGS USED IN SEDATION/ANALGESIA			
Drug	**Dosing**	**Onset/Duration**	**Comments**
Ketamine (IV) **Age: Absolute contraindications (any route): in infants < 3 months** **Relative contraindications (any route): < 12 months**	IV: 1 to 2 mg/kg, do not exceed 0.5 mg/kg/minute. (**If given with propofol, reduce initial dose to 0.5 mg/kg).** May repeat 0.5 to 1 mg/kg every 5 to 10 minutes.	Onset: IV: 1 - 2 minutes Duration IV: 15 - 30 minutes	Monitor oxygen saturation, heart rate and BP closely.
(IM) without Propofol	IM: 4 to 5 mg/kg as a single dose; may give a repeat dose (range: 2 to 5 mg/kg) if sedation inadequate after 5 to 10 minutes.	Onset: IM: 5 -10 minutes Duration: IM: 30 – 60 minutes	Emergence reactions occur in 40% of patients (dreams, fears, anxiety, and excitement). Simultaneous use of benzodiazepines frequently reduces or eliminates this reaction.
(Oral) **Age: Children and adolescents without Propofol**	Oral: 5 mg/kg (given with oral midazolam 30 minutes prior to procedure) diluted in 0.2 to 0.4 ml/kg of beverage. ***Use the 100 mg/ml IV solution*** ***(We do not carry this solution currently)***		Can cause hypertension, tachycardia, increased cardiac output, increased salivation.
(Rectal) **Age: Children 1 to 8 years of age without Propofol**	Rectal: 1.5 to 3 mg/kg given with midazolam as a single dose 20 minutes prior to painful procedure.		Contraindicated in patients with increased intracranial pressure, open eye injuries or patients with psychiatric illness.
Diazepam (Valium) (Oral) **Age: Infants greater than 6 months of age, Children, and Adolescents**	Oral: 0.2 to 0.3 mg/kg 45-60 minutes prior to procedure. Maximum dose: 10 mg.	Onset: Oral: 30 to 60 minutes Duration: Oral: 60 to 120 minutes	***Oral Diazepam is contraindicated in infants less than 6 months of age.*** Monitor heart rate, respiratory rate, blood pressure, and mental status.
Diazepam (Valium) (IV) **Age: Infants and Children**	0.05 to 0.1 mg/kg over 5 minutes (rate not to exceed 2mg/min). May repeat dose after 10 minutes. Maximum total dose: 0.25 mg/kg.	Onset: IV: 4 to 5 minutes Duration: IV: 60 to 120 minutes	***Do not dilute IV*** Do not exceed 1 to 2 mg/min IV push. Rapid injection may cause respiratory depression or hypotension.
Diazepam (Valium) (IV) **Age: Adolescents**	5 mg IV once. May repeat with 2.5 mg if needed.		

COMMON DRUGS USED IN SEDATION/ANALGESIA			
Drug	**Dosing**	**Onset/Duration**	**Comments**
Midazolam (Versed) (Oral) **Age: Greater than 6 months of age, Children, and Adolescents**	Single dose of 0.25 – 0.5 mg/kg once given 30-45 minutes before surgery or procedure. Maximum dose 20 mg.	Onset: Oral: 20 to 30 minutes. Duration: Oral: 30 to 60 minutes.	May potentiate adverse effects of opioids including respiratory depression - when used in combination.
Midazolam (Versed) (IM) **Age: Infants, Children and Adolescents**	0.1 to 0.15 mg/kg 30-60 minutes before surgery or procedure. Maximum total dose: 10mg	Onset: IM: Within 5 minutes Peak Effect: IM: 15 to 30 minutes Duration IM: Gross recovery within 2 hours, but effects may last as long as 6 hours.	
Midazolam (Versed) (IV) **Age: 6 months to 5 years of age**	0.05 – 0.1 mg/kg IV, 3 minutes prior to procedure; maximum single dose: 2mg. May repeat after 2 to 5 minutes at 0.2 mg/kg per dose; maximum total dose: 6mg.	Onset: IV: 1 to 3 minutes Duration: Maximum effect lasts about 5 minutes, gradually declining over the next 30 to 60 minutes. Gross recovery within 2 hours, but effects may last as long as 6 hours.	
Midazolam (Versed) (IV) **Age: 6 to 12 years old**	0.025 – 0.05 mg/kg IV, maximum single dose: 2mg. May repeat after 2 to 5 minutes at a dose of 0.1 mg/kg. Total doses of 0.4 mg/kg may be required. Total dose maximum : 10 mg		
Diphenhydramine (Oral, IV) **Age: > 2 years of age**	1.25 mg/kg/dose. Administer at a rate of $\leq$ to 25 mg/min. Maximum dose: 50 mg	Duration: 6 – 12 hours	Seizures may be precipitated with too rapid IV administration in pediatric patients.

Reversal Agents			
Drug	**Dosing**	**Onset/Duration**	**Comments**
Naloxone (Narcan) **IV (preferred route), SubQ, IM** **Age: Infants, Children, and Adolescents**	0.01 – 0.1 mg/kg. Repeat every 2 to 3 minutes if needed. Note: Children > or = to 5 years of age and adolescents often receive initial dose of 2 mg.	Onset: apparent within 2 to 3 minutes Duration: 20 to 60 minutes	Opioid Reversal Agent Narcotic antagonist; duration of opioids may exceed that of naloxone, so repeated doses may be necessary.
Flumazenil (Romazicon) **(IV)** **Age: Infants, Children, and Adolescents** AJN / June 1995	Initial dose: 0.01 mg/kg (maximum dose: 0.2 mg) given over 15 seconds. May repeat 0.01 mg/kg (maximum dose: 0.2 mg) after 45 seconds, and then every minute to a maximum total cumulative dose of 0.05 mg/kg or 1 mg, whichever is lower. Usual total dose: 0.08 to 1 mg.	Onset: Reversal of benzodiazepine effect evident within 1 to 2 minutes after injection. Peak effect occurs within 6 to 10 minutes. Duration: 30 to 60 minutes. Re-sedation usually occurs within 1 hour. Duration related to dose given and benzodiazepine plasma concentrations.	Benzodiazepine antagonist: Duration of most benzodiazepines greatly exceeds duration of flumazenil, so careful monitoring must continue for an hour after reversal initiated.

Attachment B

COMMON DRUGS USED Rapid Sequence Intubation in pediatrics			
Drug	**Dosing**	**Onset/Duration**	**Comments**
Etomidate (Amidate) ****Sedative****	Single IV push dose of 0.3 mg/kg. **Not to be used in repeated bolus doses for maintenance of sedation after intubation.**	Onset: 30 to 60 seconds from injection. Maximum effect: 1 minute Duration: 4 to 10 minutes	Monitoring Parameters: Cardiac monitoring, BP, RR, sedation score. Safe with hemodynamic instability, neuroprotective. Side Effects: myoclonus, adrenal suppression. ***Do **not** use routinely in patients with septic shock***
Lidocaine ****Premedication****	Single dose of 1 to 2 mg/kg IV (maximum dose of 200 mg). Give two to three minutes before intubation.	Onset: 45 to 90 seconds. Duration: 10 to 20 minutes ******No specific pharmacodynamics listed for peds, but did find an article that listed they were similar to adult pharmacodynamics******	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****	**0.1 mg/kg/dose IV, repeat every hour as needed.**	Onset: 1 to 3 min Duration: 30 to 40min (dose dependent)	Monitoring Parameters: Assisted ventilation status, HR, BP, peripheral nerve stimulator measuring twitch response. ***Does not relieve pain or produce sedation.***
Rocuronium (Zemuron) ****Paralytic****	**1 mg/kg IV**	Onset: 45 to 60 seconds Duration (infants 3-12 months): 40 minutes Duration (1-12 years): 26 to 30 minutes	Monitoring Parameters: Peripheral nerve stimulator measuring twitch response, HR, BP, assisted ventilation status. Do not mix in the same syringe with barbiturates. ***Does not relieve pain or produce sedation.*** ****Side effects: Increased HR, Increased BP****

COMMON DRUGS USED Rapid Sequence Intubation in pediatrics			
Drug	**Dosing**	**Onset/Duration**	**Comments**
Propofol (Diprivan) ****Sedative****	1 to 1.5 mg/kg IV	Onset: Within 30 seconds Duration: 3 to 10 minutes, depending on the dose, rate and duration of administration. 1 to 1.5 mg/kg IV	Incremental doses must be given slowly over several minutes and adequate circulation time allowed to assess full pharmacologic effect. Monitoring Parameters: HR, 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. ****Side Effect: Hyper-/Hypotension****
Succinylcholine ****Paralytic**** **Note: Due to the risk of adverse effects in Pediatric patients, including malignant hyperthermia and cardiac arrhythmias, surgical or long-term paralytic use (continuous IV infusion) is not recommended.**	*****To reduce risk of bradycardia or asystole, premedication with atropine 0.02 mg/kg IV (max single dose of 0.5 mg) recommended prior to IV succinylcholine doses.***** **Infants and Children </= 2 years:** Initial dose of 2 mg/kg IV; maintenance: 0.3 to 0.6 mg/kg every 5 to 10 minutes as needed. **Children > 2 years and Adolescents:** Initial dose of 1 mg/kg IV; maintenance: 0.3 to 0.6 mg/kg every 5 to 10 minutes as needed. **IM dosing in Infants, Children and Adolescents:** (to be used if IV access unobtainable) 3 to 4 mg/kg; maximum dose of 150 mg	Onset: IV: 30 to 60 seconds Onset IM: 2 to 3 minutes Duration IV: 4 to 6 minutes Duration IM: 10 to 30 minutes	****Contraindications: pts with a personal or family hx of malignant hyperthermia, chronic myopathy or denervating neuromuscular disease, 48 to 72 hours after burns, multiple trauma, or an acute denervating event, extensive crush injury, preexisting hyperkalemia**** Monitoring Parameters: HR, BP, serum potassium, assisted ventilator status, peripheral nerve stimulator measuring twitch response. ****Side effect: Rhabdomyolysis, decreased HR****

Attachment C

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.
E	An Emergency Case.

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 ☐ Yes ☐ No
Prior problem with sedation / anesthesia ☐ Yes ☐ No
History of renal disease ☐ Yes ☐ No ☐ Hx of MI _____ Date
Pregnant ☐ Yes ☐ No
WT_____lb_____kg Ht _____
Monitors ☐ EKG ☐ Pulse Oximetry
Rhythm Pre-Op _____ Post-Op_____

Plan of Care
☐ Preprocedure assessment reviewed ☐ Dentures removed
☐ Verbal Reassurance ☐ Position changed prn
☐ Comfort measures offered ☐ Side rails up
☐ Explanation of procedure
☐ Risks, benefits and alternatives explained and accepted

Airway Evaluation
☐ Short muscular neck
☐ Protruding incisors ○ upper ○ lower

Class* _____

ASA Class* (circle one)
1 2 3 4 5 6

Respiratory
☐ Regular ☐ Irregular
☐ Moderately Deep ☐ Shallow
☐ Unlabored ☐ Labored
☐ Clear ☐ Congested
☐ Room Air O_2@ _____ L/m
☐ ETCO2 monitoring

Cardiovascular
☐ Pink ☐ Cyanotic
☐ Warm ☐ Cold
☐ Dry ☐ Moist
☐ Current c/o chest pain

Immediate Preprocedure Assessment
LOC _____ Consent Signed _____
Allergies_____
BP_____T_____P_____ R_____ O_2 Sat _____
IV gauge_____ Site_____ IVF _____
Last Meal Eaten_____ NPO Yes: ☐ No: ☐
Physician initials _____

Sedation Start Time: **Procedure Start Time:** **Sedation/Procedure End Time:**

Time																		Medication	Dose	Time	Route	Initials
	210																					
	190																					
	170																					
	150																					
	130																					
	110																					
	90																					
	70																					
B/P v ^	50																					
HR *	30																					
	10																					
Resp																						
O_2 Sat %																						
ETCO2																						
LOC A=Alert D=Drowsy U=Unresponsive																						

Post Sedation Recovery (minimum 30 min.)		Time				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
Discharged ☐ Home ☐ Room ☐ PACU ☐ Other_____ Discharge to care of _____ Discharge Time _____
☐ Ambulatory ☐ Wheelchair ☐ Stretcher (Side rails up)

Physician Signature **Date AND Time** **Physician Extender Signature** **Date AND Time**

Nurse Signature **Date AND Time**

Patient Identification

Original: Chart **Yellow:** Department Copy

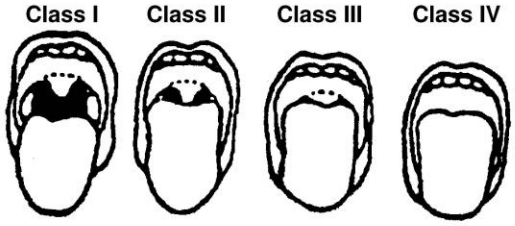
FLOYD
MODERATE/DEEP SEDATION/ANALGESIA PROCEDURE

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.

Airway Evaluation



Rhythm Strips

Original: Chart **Yellow:** Department Copy

Patient Identification

FLOYD
PEDIATRIC PHYSICIAN PRE-SEDATION ASSESSMENT

Procedure: _____

Date: _____ Performed by: _____

Sedation Unit/Site: _____ Pt.Unit Site if different: _____ Sedation Prescriber: _____

Allergies: _____ Last food or drink (item/time): _____

History and Physical:

☐ PE/health assessment including airway exam completed/in chart ☐ Medical chart reviewed
☐ No previous sedation/anesthesia
☐ Previous sedation/anesthesia WITHOUT complications
☐ Previous sedation/anesthesia WITH complications (describe) _____

History: (Pediatric use only--- X indicates presence)

Respiratory/Cardiovascular: ☐ No significant history
☐ Pulmonary Disorder ☐ Trach ☐ _____ Oxygen
☐ Aerosol/Inhaler: _____
☐ Cardiovascular Disorder: _____
☐ Pacemaker
Neurological: ☐ No significant history
☐ _____
☐ Shunt
☐ Seizures
Developmental/Cognitive: ☐ No significant history
☐ Developmentally Delayed ☐ Hearing Impaired
☐ Language other than English: _____ ☐ Other: _____
Infectious Diseases: Exposure to Illness:
Chicken Pox ☐ No ☐ Yes has had Chicken Pox ☐ No ☐ Yes
MRSA ☐ No ☐ Yes
HIV ☐ No ☐ Yes
Hepatitis ☐ No ☐ Yes
Other: _____
Smoke No Yes, How much? _____
Drugs No Yes, How much? _____
ETOH No Yes, How much? _____
Prenatal History (<5years, if applicable)
Birth weight: _____ Gest. Age: _____

Physical Assessment:

Emotional Status: ☐ Calm ☐ Agitated ☐ Anxious ☐ Other: _____

Neurologic:
☐ Oriented

Respiratory:

Cardiovascular:

GI/GU:

Other:

IV site: Weight: _____

•Sedation Risk Factors (check if present: may require anesthesia consult for sedation if present)

☐ None
☐ Craniofacial abnormality with airway difficulty
☐ Upper airway obstruction
☐ Reactive airway disease
☐ Apnea
☐ Chronic hypoxia/cyanosis
☐ Cyanotic heart disease
☐ Gastroesophageal reflux (severe)
☐ History of liver failure
☐ Cerebral palsy with swallowing difficulty
☐ Ex-preemie < 60 weeks post conceptual age
☐ Seizures (poorly controlled)
☐ Other: _____

☐ **ASA-1** Normal healthy patient
☐ **ASA-2** Patient with mild systemic disease
☐ **ASA-3** Patient with severe systemic disease
☐ **ASA-4** Patient with severe systemic disease with constant threat to life
☐ **ASA-5** Patient not expected to survive
☐ Emergent - Performed as part of an unplanned emergency condition

Pertinent Lab/Diagnostic Tests:

_____
_____
_____
_____
_____

Plan (check one) ☐ Minimal sedation/analgesia ☐ Moderate sedation/analgesia ☐ Deep sedation/analgesia

Informed Consent (signed by Physician) OR ☐ Informed Consent in chart

I have discussed the benefits, risks, options and alternatives of sedation with or without analgesia with the patient or legally authorized person who agrees to the use of sedation/analgesia.

Procedure to be done: _____

Medication(s) for Sedation: Dose, Route, Frequency: _____

_____ _____
Physician Signature: Date AND Time

Patient Identification