



**Ascension  
St. Clare's  
Hospital**

**Origination:** 11/25/2009  
**Last Reviewed:** 8/8/2017  
**Last Revised:** 8/8/2017  
**Next Review:** 8/8/2019  
**Owner:** Nicole Simpson: Physician  
**Policy Area:** Anesthesia  
**Reference Tags:**  
**Applicability:** Ministry Saint Clare's Hospital

## Procedural Sedation-Guidelines for Sedation and Analgesia, 24353

### Scope:

Saint Clare's Hospital

### Purpose:

Defines levels of sedation and analgesia, and provides care standards for patient receiving moderate and deep sedation and analgesia for diagnostic, therapeutic and invasive procedures.

Provides dosing guidelines for commonly used pharmaceutical agents. This policy pertains to all providers administering procedural sedation with the exception of Anesthesia services.

### Policy Statement:

- A. An MD, DO, or DDS credentialed for moderate and/or deep sedation must be in attendance when procedural sedation medications are administered.
- B. An ACLS-certified RN, MD, DO or DDS may administer the medications.
- C. It is highly recommended that the MD, DO, or DDS in attendance is also ACLS or PALS certified.
- D. The person administering procedural sedation medications can be the same person monitoring the patient, but may not be the person performing the procedure.
- E. The RN that is monitoring the patient during and after the procedure must be ACLS certified and have current competencies in administration of procedural sedation.
- F. For pediatric patients, the RN that is monitoring the patient during and after the procedure must be PALS or ENPC certified and have current competencies in administration of procedural sedation.
- G. If further assistance is required during the procedure, anesthesia may be consulted or Code Blue may be activated by dialing #911 on any telephone in-house.
- H. Anesthesia consultation is available for all patients, but is required for ASA Class 4-5, Mallampati Class III or greater, previous history of adverse sedation/anesthesia event or BMI greater than 50 with the exception of ED and ICU physicians, who are advised but not

required to obtain anesthesia consultation.

## **Definitions:**

Sedation and analgesia describes a state which allows patients to tolerate unpleasant procedures while maintaining adequate cardio respiratory function. Levels of sedation are defined as the following:

### **Level I- Minimal Sedation/Anxiolysis:**

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.

### **Level II – Moderate Sedation:**

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.

### **Level III – Deep Sedation/Analgesia:**

A drug-induced depression of consciousness during which patients cannot be easily aroused but respond purposefully following repeated or painful stimulation. The ability to independently maintain ventilatory function may be impaired. Patients may require assistance in maintaining a patent airway and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained.

**For purposes of this policy and to maintain consistency in all SCH policies, "Pediatric" is defined as "birth through 18 years."**

**Moderate sedation** is the use of medication to minimally depress the level of consciousness in a patient while allowing the patient to continually and independently maintain a patent airway and respond appropriately to verbal commands and/or gentle stimulation. Moderate sedation does not refer to medications given for postoperative pain relief, premedication, or pain control during Labor and Delivery. This type of sedation is being used more and more frequently for a variety of diagnostic and surgical procedures (especially endoscopy, closed reductions of fractures and many radiology procedures). **The ability to independently maintain a patent airway is an important distinguishing feature of procedural sedation.** Moderate sedation of the patient is generally achieved when there is an onset of slurred speech.

**Deep sedation** or **Monitored Anesthesia Care (MAC)** uses medication to induce a controlled state of depressed consciousness or unconsciousness in which the patient may experience partial or complete loss of protective reflexes including the ability to independently and continuously maintain a patent airway. The deeply sedated patient may not be easily aroused and may not purposefully respond to verbal commands or physical stimulation.

Deep sedation may be administered by anesthesia and credentialed ED and intensivist physicians only.

It should be recognized that various degrees of sedation occur on a continuum. A patient may progress from one degree of sedation to another depending on their underlying medical status,

the medication(s) administered, dosage, and route of administration. It is important therefore that the monitoring and staffing requirements be based on the patient's acuity and the potential response of the patient to the procedure. Progress from one level of sedation to another requires appropriate changes in monitoring and observation of the patient.

The responsibilities of those care providers, physician or nurse, administering moderate and/or deep sedation is to prepare and monitor the patient before, during and after the procedure. Informed consent for both the procedure and the sedation must be obtained prior to the procedure and prior to the patient receiving sedating medication.

For outpatient procedures, discharge and follow-up instructions may need to be given to the patient and/or the person responsible for transporting the patient post-sedation prior to administration of sedation.

## **Policy:**

### **Location, Staffing and Equipment Considerations**

- A. Only staff with SCH competencies or credentials may administer procedural sedation within the confines of the hospital.
- B. Areas performing procedural sedation must have the equipment listed in Pre-Procedural Responsibilities. A designated procedure room/area is strongly recommended.
- C. If in the judgment of the anesthesia provider or attending physician the patient has a high probability of requiring General anesthesia the procedure will be done in the OR or Cath Lab where the environment, equipment, and support staff are appropriate. Procedures requiring fixed equipment such as certain radiology equipment may require use of OR general anesthesia, which is outside the purview of the Procedural Sedation policy.
- D. Procedural Sedation requires the presence of two licensed professionals at the bedside. One licensed professional must be an RN whose competency in procedural sedation has been verified by Saint Clare's Hospital. The RN may administer the medication and monitor the patient but must not be involved in performing the procedure. Health-care professionals monitoring the patient undergoing procedural sedation must not have other responsibilities that would compromise their ability to adequately monitor the patient before, during and after the procedure.
- E. Resuscitation equipment and supplies must be age appropriate and present at the bedside for the patient undergoing any procedure. At a minimum, equipment must include oxygen and oxygen delivery devices, suction devices and suction source, cardiac and pulse oximetry monitoring devices, defibrillator, oral/nasal airways, intubation equipment, alternative airways, bag-valve mask device, equipment to allow secondary confirmation of endotracheal tube placement, reversal agents and ACLS medications.
- F. **Propofol, Ketamine and Etomidate use by non-anesthesia providers is restricted to the ICU and ED and limited to credentialed Emergency Room Physicians and Intensivists.**
  1. Procedural Sedation at Saint Clare's Hospital will only be allowed in the following locations:
    - a. Emergency Department

- b. OR
- c. PACU
- d. ICU
- e. Cardiac Cath Lab
- f. Interventional Radiology (IR)

### **Pre-Procedure Responsibilities**

- A. Patients receiving moderate to deep sedation/analgesia will have a pre-procedure assessment and screening performed by an MD, DO, NP or PA, to provide baseline data and identify risk factors.
- B. These assessments must include ASA Classification and Airway Assessment.
  - 1. The pre-procedural assessment and documentation will be completed before the sedation procedure is started unless an emergent nature would compromise patient outcome.
- C. Patients undergoing invasive or potentially hazardous procedures under moderate, level II, or deep sedation/analgesia, level III, need pre-procedure documentation by the provider prior to medication administration **that includes:**
  - 1. Indication for the procedure
  - 2. Allergies or history of adverse medication reactions
  - 3. History of adverse anesthesia or sedation events
  - 4. A list of current medications and dosages
  - 5. Assessment of co-morbid conditions including sleep apnea
  - 6. Assessment of mental status
  - 7. Heart and lung exam by auscultation
  - 8. Site-specific exam
  - 9. ASA classification
  - 10. Airway assessment (Mallampati class)
  - 11. Sedation plan (e.g. type of sedation, drugs chosen. Location, staff)
  - 12. Additional documentation at the discretion of the examining provider as dictated by the patient's condition
- D. Documentation requirements for this level procedure are met using the age appropriate <SCH- Procedural Sedation Assessment/History & Physical> form. H&P content requirements for this level of procedure may also be met using a dictated H&P updated to meet procedural sedation and H&P update documentation requirements.

### **ASA (American Society of Anesthesiologists Classifications**

- 1. Normal healthy patient
- 2. Mild systemic disease, no limitation of activity

3. Severe systemic disease, limitation of activity
4. Severe systemic disease that is constant threat to life
5. Moribund, patient is not expected to survive 24 hours with or without procedure.

### **Airway Assessment**

#### **A. Normal**

1. Mouth opening >3 finger breadths
2. Chin (mental) to thyroid cartilage distance > 3 finger breadths
3. Normal neck flexion and extension
4. Mallampati Class I or II

#### **B. Abnormal**

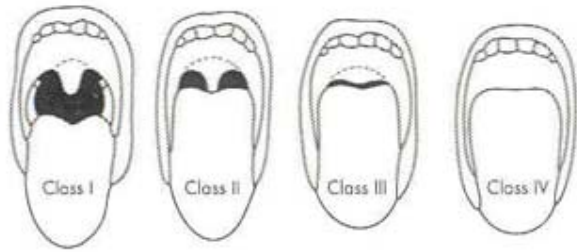
1. Micrognathia
2. Retrognathia
3. Trismus
4. Mallampati Class III, IV
5. High Arched Palate
6. Limitation in mouth opening or neck motion

#### **C. Mallampati Classification:** Have the patient perform the following in the upright sitting position:

1. Open mouth as wide as possible
2. Protrude tongue as far as possible (no phonation)
  - a. Identify the following structures:
    - i. Uvula
    - ii. Tonsillar pillars
    - iii. Soft palate

### **Class Definitions**

- A. **Class I** –Complete view of uvula, tonsillar pillars, soft palate
- B. **Class II** – Partial view of uvula and tonsillar pillars, complete view of soft palate
- C. **Class III** – View of soft palate only
- D. **Class IV** – Soft palate not visible



- A. Anesthesia consultation is required for ASA Class 4-5, Mallampati III or greater, previous history of adverse sedation/anesthesia event and/or BMI > 50 with the exception of ED and ICU physicians who are advised but not required to obtain anesthesia consultation.
- B. Patients undergoing moderate to deep sedation and analgesia for elective procedures should not drink fluids or eat solid foods for a time determined according to Addendum #1.
- C. Document NPO status
- D. For certain urgent/emergent procedures, adherence to NPO guidelines may need to be modified.
- E. Informed consent for the procedure and the sedation must be obtained and documented by the physician prior to administration of sedation/analgesia. The consent must specifically include the risks and benefits of the sedation itself.
- F. Pre-sedation screening form must be completed by MD and RN in their respective areas.
- G. Prior to start of procedure, perform a "time out" and confirming patient, procedure, consent, allergies and laterality if applicable. The "time out" will be documented in the record.
- H. Medication Administration: MD's or DO's credentialed for Procedural Sedation will determine the dose to be administered. Dosage and manner of administration is to take into account when administering drugs (See Addendum II)
- I. Immediately before the procedure begins, an assessment of the patient is either done by the physician or done by the RN and reviewed with the physician. This evaluation is documented by the RN pre-procedure. Evaluation occurs in the procedure room and includes: vital signs, pulse oximetry, pain score, level of consciousness (Ramsay score) and baseline Aldrete score. The decision to proceed with the procedural sedation is confirmed and documented.
- J. Equipment: Before sedation is administered, the following will be present at the bedside:
  - 1. Oxygen Source
  - 2. Positive Pressure Ventilation system
  - 3. Suction apparatus and suction catheters
  - 4. Cardio-respiratory (EKG) monitor
  - 5. Non-invasive BP monitoring
  - 6. Continuous pulse-oximetry
  - 7. End tidal CO2 monitor for deep sedation

8. Code Blue and airway cart
9. Reversal agents
10. Patent IV Access (may be obtained immediately following administration of minimal/moderate sedation in selected pediatric patients)
11. Appropriate equipment to administer intravenous fluids and drugs, including blood and blood components, is available as needed.
12. Telephone or other means of communication to summon help.

### **Intra-Procedure Responsibilities**

- A. Monitoring during moderate and deep sedation/analgesia is recorded on the SCH- Procedural Sedation Flow Sheet-Adult and Pediatric found in Document Manager (for inpatient units and the ED) (for the OR and Cath Lab documentation is in the respective computer charting system) and includes:
1. Continuous respiratory rate.
  2. Continuous heart rate.
  3. ECG Cardiac rhythm in:
    - a. patients with significant cardiovascular disease or when dysrhythmias are anticipated or detected---
    - b. All cases of DEEP SEDATION.
  4. Non-invasive blood pressure at a minimum of 5 minute intervals
  5. Level of consciousness/sedation at a minimum of 5 minute intervals using Ramsay scale (see below)
  6. Continuous O2 saturation monitored via pulse oximetry.
  7. End tidal CO2 and/or Bispectral (BIS) Analysis
    - a. BIS monitoring preferred
    - b. REQUIRED FOR DEEP SEDATION IF FEASIBLE (must document reason if these monitors not used)
  8. Pain scale (0 – 10) at 5 minute intervals
- B. Documentation using SCH- Procedural Sedation Flow Sheet- Adult and Pediatric (for inpatient units and the ED) at minimum intervals of 5 minutes and with medication administration will include:
1. Heart Rate
  2. Blood pressure
  3. Respiratory rate
  4. End tidal CO2 and/or BIS monitoring if applicable
  5. Oxygen saturation
  6. Medications administered including dosage, route, site, time and patient effects.

7. Level of consciousness (Ramsay scale)- see below
8. Pain scale (0 – 10)
9. Intravenous Fluids
10. Blood and/or blood components delivered if applicable.
11. Any unusual events or complications and the management of those events (i.e. blood transfusion reaction use Procedural Sedation flow sheet digital ink over form in Doc Man.)

C. Indications for more frequent vital sign assessments and documentation would be:

1. Decreased responsiveness
2. O2 Desaturation
3. Hypotension or Hypertension
4. Dysrhythmia
5. Respiratory or Cardiac Arrest
6. Slow Respiratory rate

**\*\*Note :** An ACLS, PALS, or ENPC- certified RN with current SCH competencies must monitor the patient and remain at the bedside continuously during administration of all procedural sedation medications and until 30 minutes after the last dose is administered or 30 minutes after administration of a reversal agent. Intra-procedure and post-procedure vital signs and monitoring guidelines must be followed as per policy.

**Ramsay Sedation Scale:** Level of Sedation Clinical Description

- A. Patient is anxious and agitated or restless, or both
- B. Patient is co-operative, oriented, and tranquil
- C. Patient responds to commands only
- D. Patient exhibits brisk response to light glabellar tap or loud auditory stimulus
- E. Patient exhibits a sluggish response to light glabellar tap or loud auditory stimulus
- F. Patient exhibits no response

**\*\*Levels 2, 3 and 4 are desired range of levels during moderate sedation**

**Note: If emergent assistance is required during a procedure, activate the code Blue button in the room or dial #911 on any in-house phone.**

**Anesthesia is available through the operator 24/7 and is available for assistance.**

**Post-Procedure Responsibilities**

- A. The physician must record a post-procedure note that includes at a minimum:
  1. The provider performing procedure and assistants
  2. Procedure performed



- a. Discription of procedure
- 3. Pre-procedure diagnosis
- 4. Post-procedure diagnosis
- 5. Findings
- 6. Specimens removed, if any
- 7. Blood loss
- 8. Complications

**For Outpatients**

- A. The patient's status will be observed and assessed immediately post procedure, and until the patient is determined to meet criteria for discharge home outlined below.
- B. The patient may be discharged home at any time as long as the discharge criteria pertinent to that patient are met (See discharge criteria following vital sign guidelines).
- C. The guidelines for routine post procedure vital signs assessment are as follows:
  - 1. Every 5 minutes x3, every 15 minutes x4, every 30 minutes x2, every 1 hour x2, then as per unit vital sign routine, or as ordered by physician.
  - 2. The patient does not need to complete this series of vital signs if they meet discharge criteria, **and** it has been 60 minutes since administration of the last sedation medication, **and** it has been 2 hours since administration of last reversal agent.

**Criteria for Outpatient Discharge Home**

Patients will be discharged from recovery and/or the hospital by a qualified licensed independent practitioner or may be discharged by the RN applying the following criteria:

- A. Cardiovascular function and airway patency are satisfactory and stable.
- B. The patient is easily arousable or has reached pre-procedure level of consciousness.
- C. Aldrete scale is equal to or greater than 8, or equal to baseline:
- D. 60 minutes have lapsed since administration of last dose of procedural sedation medication.
- E. 2 hours have lapsed since administration of the last dose of reversal agent.

**NOTE:** Patient should not be discharged with a score of zero in any category unless:

- A. Zero score is baseline for that patient.
- B. A privileged provider discharges the patient with documentation of variance.

	<b>Aldrete Score</b>	<b>Pre</b>	<b>Post</b>
	<i>Time</i>		
Activity	Able to move 4 extremities voluntarily	2	2
	Able to move 2 extremities voluntarily	1	1
	Unable to move extremities voluntarily	0	0
Respiration	Able to breathe deeply and cough	2	2

	Dyspnea or limited breathing	1	1
	Apneic	0	0
Circulation	Sys BP +/- 20 mmHg of pre-sedation level	2	2
	Sys BP +/- 20-49 mmHg of pre-sedation level	1	1
	Sys BP +/- 50 mmHg or more of pre-sedation level	0	0
Consciousness	Fully awake	2	2
	Arousable on calling	1	1
	Not responding	0	0
O2 Saturation	Maintain SaO2 > 92% on room air	2	2
	Needs O2 to maintain SaO2 > 90%	1	1
	SaO2 <90% even with O2	0	0

Total: \_\_\_\_\_

- A. Protective reflexes are intact or at baseline.
- B. The patient can talk if cognitively/developmentally appropriate.
- C. The patient can sit up unaided if cognitively/developmentally appropriate.
- D. The state of hydration is adequate.
- E. No unusual bleeding.
- F. Tolerates PO fluids if applicable.
- G. Vital signs (pulse, respirations, blood pressure) are within 20% of pre-procedure vital signs.
- H. Pulse oximetry saturation >90% or at baseline.
  - I. Patients should be monitored a minimum of one hour after the last dose of sedation medication is administered and a minimum of 2 hours after the last dose of sedation reversal agent.

**Note: \*\*Patients who have received reversal agents should be monitored a minimum of two hours after administration of the reversal agent.**

**An RN certified in ACLS, PALS, or ENPC and with current SCH procedural sedation competencies must remain at the bedside for a minimum of 30 minutes after the last dose of a reversal agent.**

- A. The privileged provider ordering the sedation and/or performing the procedure must remain immediately available on the campus until the patient is stable and until discharge criteria are met.
- B. Documentation in the postoperative phase will include:
- C. Whether the patient was discharged from the post sedation care area by the privileged provider or by application of the aforementioned discharge criteria.
- D. Whether the patient has met each of the discharge criteria
- E. The privileged provider responsible for discharge.

## Patient Instructions at Discharge

- A. Once the above criteria are met, the outpatient receiving sedation/analgesia may be discharged in the company of a responsible adult .

**Note: A taxi driver does not qualify as an adult who assumes responsibility for the patient.**

- B. Age appropriate written instructions from Logicare PET or Med Host will be provided and reviewed for all outpatients.

## Inpatient Transfer Criteria

- A. The patient's status will be observed and assessed immediately post procedure, and until the patient is determined to meet criteria for transfer to inpatient routine care area as outlined below.

1. The patient must stay in the procedure area for at least 30 minutes from the last dose of sedation medication and at least 60 minutes from the last dose of a reversal agent.
2. After this criterion is met, the patient may be transferred to the inpatient routine care area at any time as long as the transfer criteria pertinent to that patient are met (See transfer criteria below).

- B. The guidelines for routine post procedure vital signs assessment are as follows:

1. Every 5 minutes x 3, every 15 minutes x 4, every 30 minutes x 2, every 1 hour x 2, then as per unit vital sign routine, or as ordered by physician.

- C. Criteria for transfer to routine nursing care area is as follows:

1. Cardiovascular function and airway patency are satisfactory and stable.
2. The patient is easily arousable or has reached pre-procedure status and protective reflexes are intact or at baseline.
3. The state of hydration is adequate.
4. Vital signs (pulse, respiration, blood pressure) are within 20% of the average pre-procedural vital signs.
5. Pulse oximetry saturation >90% or at baseline.

- D. After these criteria are met, the patient may be transported to a routine nursing care area accompanied by a BLS trained provider.

- E. Report must be given from the transferring RN to the accepting RN to insure that the above vital sign procedure is completed on the accepting routine nursing care area. It is the responsibility of the accepting RN to continue the post procedure vital sign routine from the point that the patient was transferred until the unit routine vital sign timeline or physician ordered vital sign routine is achieved. Accepting inpatient unit RN documents these findings per usual protocol.

**Note: See SCH NPO Guidelines Policy #22735**

## Guidelines for the Administration and Dosing of Procedural Sedation Medications

General dose guidelines for sedatives and narcotics which may be administered for the purpose of procedural sedation are outlined below.

Considerations:

- A. Appropriate use of these medications is driven by the intent of the sedation, not the medication.
- B. Each patient will respond idiosyncratically to these medications due to variables such as: age, renal and hepatic function, concomitant medications, and previous history of sedation/narcotic use, disease status, and procedure type.
- C. Sedative drugs should be titrated slowly and adequate time allowed for full effect before additional doses or medications are administered.
- D. The following dose schedules are a guideline and should not replace the judgment and practice of the prescribing physician. The prescribing physician is ultimately responsible for medication selection and dosing.
- E. The following dose schedules are recommended, but the initial and subsequent doses should be determined on a case by case basis by the prescribing physician. Medications should be titrated to effect.
- F. The sedative and respiratory depressant effect of a benzodiazepine combined with a narcotic is synergistic. If there is a clinical indication for using a narcotic analgesic in combination with a benzodiazepine, then the dose of the opioid or benzodiazepine, or both, should be reduced.
- G. Care should be taken to ensure that each patient is appropriately monitored for therapeutic and adverse effects. More extensive monitoring may be indicated when the patient receives doses greater than those listed. During prolonged procedures, maximum doses may be exceeded.
- H. The author has exerted every effort to ensure that the drug doses set forth in this reference are in accord with current recommendations at time of publication. The reader is urged to check the drug's package insert for any changes in indications or dosages as well as for warnings and precautions—especially if the drug is new or infrequently used. Ultimate responsibility is that of the prescribing physician.
  - I. All dosages/maximum total doses are relative guides. The choice of medication or medications should be individualized to the patient and planned procedure. The medications should be titrated to effect.

## RECOMMENDED DOSING FOR PROCEDURAL SEDATION

(See above disclaimer)

**I = Initial Dose R=Repeat Dose Max=Maximum Total Dose Recommended**

Agent	Adult	Pediatric	Geriatric
Diazepam (Valium)	<b>Intravenous</b> I = 5-10 mg R = 2-5 mg IV every 15 min	<b>Intravenous</b> I = 0.2 mg/kg IV R = every 15 min Max = 0.75 mg/kg IV or total IV	<b>Intravenous</b> I = 2 mg IV R = 1 – 2 mg IV every 15 minutes

	Max = 20 mg total IV dose	dose of 10 mg	Max = 5 mg total IV dose
Midazolam (Versed)	<b>Intravenous</b> I = 0.5 mg-2 mg IV R = every 2-3 minutes Max = 10 mg total IV dose	<b>Intravenous</b> I = 0.05-0.1 mg/kg IV R = every 5 minutes Max = 0.4-0.6 mg/kg total IV dose <b>Oral</b> I = 0.5 mg/kg orally 30 minutes prior to procedure. Max dose 20 mg.	<b>Intravenous</b> I = 0.5-1 mg IV R = every 2-3 minutes Max = 3 mg total IV dose
Morphine	<b>Intravenous</b> I = 2-5 mg IV R = every 5 min prn Max = 15 mg total IV dose	<b>Intravenous</b> I = 0.05-0.1 mg/kg IV R = 5 min prn Max = 0.2 mg/kg total IV dose	<b>Intravenous</b> I = 1-2 mg IV R = every 5 min prn Max = 5 mg total IV dose
Fentanyl (Sublimaze)	<b>Intravenous</b> I = 0.5-1 mcg/kg IV R = every 3 min prn Titrate to effect recommended 150-200 mcgs	<b>Intravenous</b> I = 1-2 mcg/kg/dose IV R = 30-60 minutes	<b>Intravenous</b> Same as Adult
Dilaudid (Hydromorphone)	<b>Intravenous</b> I = 0.2-0.4mg to a max of 2mg R = 0.2-1 mg	<b>Intravenous</b> I = 0.015 mg/kg IV R = every 3 hours	<b>Intravenous</b> I = Same as adult Use lower doses with kidney and liver problems.
Pentobarbital (Nembutal) Pediatric Use Only	XXXXX	<b>Intravenous</b> I = 2mg/kg/IV R = 1-2mg/kg every 5-10 min. to max 6mg/kg or 200mg <b>Rectal</b> I = 2-6mg/kg/dose Max 150 mg Do not divide suppository	XXXXX
Chloral Hydrate (Noctec, Somnos)	<b>Oral/Rectal</b> I = 500-1000 mg oral or rectal prn	<b>Oral/Rectal</b> I = 50-75 mg/kg oral or rectal R = once in 30 minutes Max = 120 mg/kg or 1000 mg total oral/rectal dose for infants, 2000 mg for children	Same as adult

## DOSE FOR REVERSAL AGENTS

Agent	Adult	Pediatric	Geriatric
Naloxone (Narcan)	<b>Intravenous</b> I= 0.1-0.2 mg IV every 2-3 minutes R= same	<b>Intravenous</b> I=0.1 mg/kg IV every 2-3 minutes No max dose	<b>Intravenous</b> I= same as adult
Flumazenil (Romazicon)	<b>Intravenous</b> I= 0.1 - 0.2 mg IV at two minute intervals R=same to 5 doses Max dose=1 mg	<b>Intravenous</b> I= 0.01 mg/kg at one minute intervals R= same to 5 doses Max dose = 0.05 mg/kg or 1 mg	<b>Intravenous</b> Same as adult

### \*\*Anesthesia Induction Agents Used for Sedation/Analgesia (i.e. Propofol, Ketamine, Etomidate) for Non-Anesthesia Providers:

- These agents are limited to use by credentialed board certified emergency room physicians and intensivists who are ACLS certified and who by virtue of their daily practice and residency training, routinely provide airway support and are able to manage patients who may reach general anesthesia.
- Usage locations are limited to the Operating Room, ICU and Emergency Department.
- All criteria for sedation MUST be followed. In addition to this, ETCO<sub>2</sub> (End-tidal Carbon Dioxide) or BIS (Bispectral analysis) monitoring must be used during and following the procedure, when feasible.
- Note that these medications cause dose-related decreases in consciousness culminating in general anesthesia. The MD/DO must be in attendance during drug administration .
- A responsible physician or an equivalently trained delegate must be immediately available on the unit until discharge criteria are met.
- These guidelines do not apply to mechanically ventilated patients in the ICU who are sedated with Propofol as these patients have a definitive airway in place.

### Induction Agents

	ADULT	PEDIATRIC	GERIATRIC
Propofol (Diprivan) **See below See also Micromedex	<b>Intravenous</b> I = 0.5-1 mg/kg slow IV R = every 3 - 5 minutes IV and titrate to effect	<b>Intravenous</b> I=0.5-1 mg/kg IV over 2 minutes R= 0.5-1 mg/kg IV every 3-5 minutes	<b>Intravenous</b> Use 80% of adult dose. Do not use rapid boluses.
Ketamine HCL **See below	<b>Intravenous</b> I = 0.5 – 1.0 mg/kg IV R = 0.2-0.5 mg/kg and titrate to effect.	<b>Intravenous</b> I = 1-1.5 mg/kg IV R = 0.5 mg/kg every 10-minutes	<b>Intravenous</b> I = same as adult R = Max Dose =

	<b>Intramuscular</b> I=2-5mg/kg	<b>Intramuscular</b> I= 4 mg/kg IM R=2-4 mg/kg	<b>Intramuscular</b> Same as adult.
Etomidate	<b>Intravenous</b> I=0.1-0.15 mg/kg over 30-60 seconds R=0.1 mg/kg every 3-5 min	<b>Intravenous</b> I=0.1-0.3mg/kg over 30-60 seconds R=May repeat if effects wear off	Same as Adult

### Propofol:

- A. Injectable emulsion containing egg lecithin, glycerol, and soybean oil; frequently causes burning with injection.
- B. For single use only. Unused portions must be discarded
- C. Used for induction and maintenance of anesthesia or sedation
- D. Rapid acting, producing hypnosis within 40 seconds from start of injection
- E. Frequently associated with hypotension. Decreases systemic vascular resistance
- F. Frequent associated with apnea and airway obstruction
- G. During sedation, slow injection or variable rate infusion is preferred, recommend 3 – 5 minute intervals between dosing increases.
- H. Elimination is via hepatic conjugation and renal excretion.
  - I. Use 80% of recommended adult dose in elderly or debilitated patients.
- J. Patients should "awaken" within 10 – 15 minutes
- K. No reversal agent exists.
- L. Concomitant administration of benzodiazepine and narcotics will increase risk of apnea, airway obstruction and cardiovascular instability.
- M. Avoid use of bisulfite formulation in patients with bisulfite sensitivity.
- N. Refer to Micromedex for further drug information

### Ketamine:

- A. Dissociative anesthetic.
- B. Can be given IM or SLOW IV.
- C. Contraindications: hypersensitivity, hypertension, increased intracranial pressure (ICP), thyrotoxicosis, congestive heart failure, psychosis, porphyria, and uremia.
- D. Caution: gastroesophageal reflux disease, liver dysfunction, neuromuscular disease, tramadol use, increased intraocular pressure (IOP).
- E. Adverse effects: increased ICP & IOP, laryngospasm, hypersalivation, hyper and hypotension, brady and tachycardia, respiratory depression, nausea/vomiting, nystagmus, hallucinations, emergence reactions.

- F. Onset of action with IV route is 30 sec and duration is 5-10 minutes. With IM route, onset is 3-4 minutes with a duration of 12-25 minutes.
- G. No reversal agent.
- H. Consider midazolam for emergence reactions.
  - I. Refer to micromedex for further information.

### **Etomidate:**

- A. Mechanism for action unknown. May be GABA-like effects with depression of the brain stem reticular formation activity.
- B. Produces hypnosis.
- C. No analgesic activity.
- D. Given IV push over 30-60 seconds.
- E. Contraindications/precautions: hypersensitivity to class or compound.
- F. Adverse effects: Most serious is shock; apnea; can see myoclonic/tonic movements; injection site pain; nausea and vomiting; laryngospasm.
- G. Onset of action: 30-60 seconds.
- H. Duration of action: 3-5 minutes.
  - I. No reversal agent.

### **General Medication Administration Notes:**

- A. Injections should be done over several minutes unless otherwise noted.
- B. Chronic debilitated patients, regardless of age, should initially receive reduced dosages.
- C. Pediatric patients are defined as <19 years of age.
- D. Anesthesia consultation is always available on request. Anesthesia consultation is required for ASA Class 4-5, Mallampati Class III or greater, previous history of adverse sedation/ anesthesia event or BMI greater than 50, with the exception of ED and ICU physicians who are advised but not required to obtain anesthesia consultation.
- E. Due to its long half-life, lorazepam is not a drug of first choice for sedation/analgesia. When utilized, it is subject to the same procedural sedation protocols.

### **Moderate &/or Deep Sedation Self-Study Guide**

#### **Purpose:**

The purpose of this self-study packet is to increase and reinforce your knowledge of responsibilities and guidelines associated with the care of individuals requiring procedural sedation, both adult and pediatric.

On completion of this self-study program, you should be able to:

- A. Recognize indications for and contraindications to moderate and/or deep sedation



- B. State appropriate monitoring techniques and requirements for moderate and/or deep sedation administration as stated in the SCH policy 24353, Procedural Sedation- Guidelines for Sedation and Analgesia.
- C. State necessity for baseline and frequent assessments of patients undergoing procedural sedation.
- D. Identify medications frequently used for moderate and/or deep sedation, administration guidelines, possible side effects and complications and corresponding reversal agents.
- E. Evaluate, and manage expected and unexpected outcomes of moderate and/or deep sedation.
- F. Satisfactorily complete the post-test associated with this self-study guide.

### **Patient Selection and Pre-Procedural Assessment:**

- A. Moderate and/or deep sedation is not for every patient – there is an evaluation process that must be considered.
- B. Patients with unstable medical problems such as congestive heart failure, unstable arrhythmias, unstable angina, hypoxia not responsive to nasal oxygen, etc. are not good candidates for procedural sedation unless provided by a member of the Anesthesia Department.
- C. Pre-procedural assessment must be completed and documented by an MD, DO, NP or PA. Documentation requirements for this level procedure are met using the age appropriate <SCH- Procedural Sedation Assessment/History & Physical> form. H&P content requirements for this level of procedure may also be met using a dictated H&P updated to meet procedural sedation and H&P update documentation requirements.
- D. The RN should document pre-procedural vital signs, mental status, pain scale, allergies, NPO status, pulse oximetry, and weight(for pediatric patient), current medications and pertinent medical and anesthetic history including history of malignant hyperthermia, dentition (presence of dentures etc).
- E. The SCH policy on NPO status (22735) is to be followed. Recommended NPO status is no solid foods for 6 hours and no clear liquids for 2 hours prior to sedation. In cases where sedation is part of an emergency procedure, careful clinical judgment is required to determine an appropriate level of sedation that does not place the patient at an unacceptable risk for regurgitation and aspiration. The procedure and sedation may be delayed until the risk is diminished. In cases where the procedure cannot be delayed without causing further harm to the patient, practitioners should take measures to prevent aspiration.
- F. Immediately before the procedure begins, an assessment of the patient is either done by the physician or done by the RN and reviewed with the physician. This evaluation is documented by the RN. Evaluation occurs in the procedure room and includes: vital signs, pulse oximetry, pain score, level of consciousness (Ramsay score). The decision to proceed with the procedural sedation is confirmed and documented.
- G. A time out is conducted according to SCH policy immediately before the procedure and documented accordingly.

## Agents Used for Moderate and/or Deep Sedation

- A. Moderate and/or deep sedation is achieved by administering pharmacological agents. The most common route of administration is intravenous (IV), although some medications may be given orally (PO), rectally, intramuscularly (IM), subcutaneously (SQ) or nasally.
- B. The most commonly used agents are benzodiazepines (such as Valium, Versed), narcotics (such as Morphine, Dilaudid, Fentanyl), and certain hypnotics (such as Chloral Hydrate). See Addendum II of policy for dosage recommendations. The agents used depend on the type, duration and intensity of the procedure.
- C. Nurses administering these medications must have current SCH competencies and be ACLS certified or PALS/ENCP certified for pediatric patients. The sedating physician must be credentialed for procedural sedation. ACLS and/or PALS certification is strongly recommended. The MD/DO must be in immediate attendance during drug administration.

### **Administration of drugs classified as anesthetic agents such as Propofol, Etomidate and Ketamine must be ordered by an anesthesiologist or by a credentialed intensivist or emergency department physician.**

- A. These agents are limited to use by credentialed board certified emergency room or intensivist physicians who are ACLS and/or PALS certified and who by virtue of their daily practice and residency training, routinely provide airway support and are able to manage patients who may reach general anesthesia.
- B. Usage locations are limited to Operating Room, ICU, and Emergency Department.
- C. All criteria for sedation MUST be followed. In addition to this, ETCO<sub>2</sub> (End-tidal Carbon Dioxide) and BIS (Bispectral analysis) monitoring must be used during and following the procedure, when feasible.
- D. Note that these medications cause dose-related decreases in consciousness culminating in general anesthesia and the MD/DO must be in immediate attendance during drug administration
- E. A responsible physician or an equivalently trained delegate is immediately available on the unit until discharge criteria are met.

## Benzodiazepines

Benzodiazepines have anti-anxiety, anti-convulsant, sedation, muscle relaxation, and amnestic properties. The typical medications used in this category are midazolam (Versed) and diazepam (Valium).

### Midazolam (Versed)

- A. Short acting benzodiazepine CNS depressant.
- B. Indicated for procedural sedation prior to short diagnostic or surgical procedures, either alone or with a narcotic. It may be administered IV, IM, PO, rectally or nasally. The most common route of administration is IV.
- C. Midazolam is a potent sedative agent that must be given slowly. Administration over 2 or

more minutes is prudent. Never give as a single large bolus dose. Rapid or excessive IV doses may result in respiratory depression or arrest. If not recognized and treated promptly, death or hypoxic encephalopathy may result.

- D. The initial adult IV dose may be as little as 0.5-1.0 mg. It should be titrated to the desired effect with a maximum dose of 10 mg IV. Slurred speech is an excellent indicator of an adequate dose. Lower doses should be used for patients over 60 years of age, debilitated patients, or patients receiving narcotics.
- E. Sedation after IV injection is usually achieved within 3-5 minutes. The duration of effect ranges from 1-6 hours after IV injection, but patients should not do any activity that require fine motor or cognition skills for 24 hours (i.e. driving, cooking). The half-life ranges from 1.2 to 12.3 hours.
- F. Midazolam should not be used on patients with known benzodiazepine hypersensitivity or acute narrow-angle glaucoma. Adverse reactions from IV administration include hiccups, nausea, vomiting, over-sedation, headache, coughing, and pain at injection site.

## **Diazepam (Valium)**

- A. Has been replaced for the most part by Midazolam but is still used occasionally for procedural sedation and as a premedication for non-painful procedures.
- B. Indicated for procedural sedation prior to short diagnostic or surgical procedures, either alone or with a narcotic. It may be administered IV, IM, or PO, although IM administration is very painful and not recommended.
- C. The IV dose may range from 2-20 mg in a healthy adult, although 10 mg or less is usually sufficient. It should be administered in 1-2 mg increments every 2 minutes until the desired effect is achieved.
- D. Slurred speech is an excellent indicator of an adequate dose. Lower doses should be used for elderly or debilitated patients. Sedation after IV injection is usually achieved within 3-5 minutes. The half-life ranges from approximately 32-90 hours. Patients should not do any activities that require fine motor or cognition skills for 24 hours (i.e. driving, cooking).
- E. Diazepam is extremely irritating to the tissue and should be injected through a large vein. This drug cannot be mixed with other medications or diluted due to precipitation. It should be injected as close to the IV cannula as possible. Adverse reactions include venous thrombosis, phlebitis, apnea and hypotension.
- F. Diazepam can be given orally as a premedication prior to many non-painful surgical procedures. It is very effective as an anxiolytic. Generally patients less than 50 years of age can be given 10 mg of Valium PO (orally) for premedication. Patients older than 50 years of age should be given 5 mg or less of Valium PO for premedication. At or below dosages used for premedication, the procedural sedation policy is not in effect, unless the patient becomes unexpectedly sedated. Specifically these medications should be used with caution in elderly, chronically ill or debilitated patient.

## **Narcotics**

Narcotics are naturally occurring or synthetic opioids that act to provide analgesia, sedation, and elevate the pain threshold. They may be classified as agonists, mixed agonists-antagonists, or

partial antagonists by their activity at the opioid receptors.

## Fentanyl (Sublimaze)

- A. A synthetic opioid. It is indicated for analgesic action of short duration in procedures such as endoscopies.
- B. If given alone, dosage should begin at 1-2 mcg/kg, which is 75-150 mcg for an average adult. If given in conjunction with a benzodiazepine, a smaller dose should be used. The average adult patient usually requires 50-100 mcg.
- C. Fentanyl has an immediate response and provides excellent analgesia. The half-life is 2-4 hours, but patients should not do any activities that require fine motor or cognition skills for 24 hours after receiving this medication (i.e. driving, cooking).
- D. Rapid IV administration of Fentanyl can lead to rigid chest wall and difficulty breathing. This effect may be reversed with Naloxone (Narcan) or may require a depolarizing muscle relaxant and intubation.
- E. See Addendum II for recommended drug dosing.

## Reversal Agents

Reversal agents are drugs that counteract the effects of other drugs. The reversal agent used for benzodiazepines is Flumazenil (Romazicon), and the reversal agent used for narcotics is Naloxone (Narcan). There is no reversal agent for anesthetic agents such as Ketamine and Propofol (Diprivan).

## Flumazenil (Romazicon)

- A. Benzodiazepine antagonist. It competes for receptor sites thereby reducing or reversing the effects of the benzodiazepine.
- B. The adult dosage is 0.1 – 0.2 mg every 2 minutes until the desired effect is achieved or until 1 mg is given. The effect lasts for about 1 hour.
- C. The effects of the benzodiazepine can return because of the disparity in the half-lives of the two drugs.
- D. Patient receiving benzodiazepines chronically are at risk for grand mal seizures with the use of flumazenil.
- E. Patients with a history of seizures should receive this medication with extreme caution. Seizures have occurred after the reversal of benzodiazepines even with patients not dependent on their use. For this reason, **flumazenil should not be used as a matter of routine**. If needed it should be administered slowly and the patient should be carefully and continuously monitored.

## Naloxone (Narcan)

- A. Pure narcotic antagonist. It competes for the receptor sites thereby reversing the effect of the narcotic.
- B. All opioid effects are reversed in parallel. Rapid injections of Naloxone not only reverse

sedation and respiratory depression, but analgesia as well. This sudden unmasking of pain may result in significant sympathetic and cardiovascular stimulation, which in turn can cause hypertension, stroke, tachycardia, arrhythmias, pulmonary edema, congestive heart failure, and cardiac arrest.

- C. For adults Naloxone can be given in 0.1 – 0.2 mg dose and repeated every 2-3 minutes until the patient is alert with adequate ventilation yet without significant pain or discomfort. The effects are seen in 1 -2 minutes and last from 1 – 4 minutes. The half-life of Naloxone is 60-90 minutes.
- D. Because of naloxone's short half-life, patients can become narcotized after the effects of naloxone have worn off. Patients should be closely monitored to watch for re-narcotization.

### **Nursing Responsibilities:**

- A. The nurse is responsible for patient advocacy, patient and family education, medication administration, documentation, preparedness, evaluation, and the overall monitoring of the patient pre, during and post-sedation.
- B. Variances from the expected sedation level (loss of ability to maintain own airway, etc) will be documented, reported and evaluated.
- C. For all procedural sedation medication administration, the nurse is responsible for validating the physician's order, obtaining the medications, and assuring administration of medications according to the hospital's policy. This includes the **right medication** in the **right dose**, to the **right patient** , over the **right time frame** , through the **right route** . The nurse must verify correct patient identification by name and date of birth.
- D. The nurse must adhere to all national, state and hospital guidelines when administering any IV medication.
- E. Inconsistencies between physician orders and guidelines must be resolved prior to administering of medications.
- F. All medications, including reversal agents, will be documented on the <SCH-Procedural Sedation Flow Sheet- Adult and Pediatric>.
- G. A time-out must be performed on all patients undergoing procedural sedation prior to procedure. This includes review and documentation of right procedure, right patient, laterality (if applicable), and identification of available equipment needed for the procedure.
- H. The patient must also have an assessment performed and documented immediately prior to the start of the procedure. This assessment includes vital signs, pulse oximetry, pain score, and level of consciousness (Ramsay score).
  - I. An ACLS certified RN with current procedural sedation competencies must monitor the patient at the bedside continuously until 30 minutes after the last dose of procedural sedation medication and 30 minutes after the last dose of reversal agent. For Pediatric patients, the RN must hold PALS or ENPC credentials.
  - J. Vital signs and assessments including blood pressure, respiratory rate, heart rate, pulse oximetry, level of consciousness (Ramsay Score), cardiac rhythm and pain scale, must be documented:
    - 1. Pre-procedure

2. Every 5 minutes during procedure
  3. Post procedure: Q 5 minutes x3, Q 15 minutes x4, Q 30 minutes x2 and Q 1 hr x2
- K. If anesthetic agents (Ketamine, Propofol, Etomidate) are used in the operating room, emergency department or ICU, end-tidal CO<sub>2</sub> and/or Bispectral monitoring should be used and readings documented.
- L. The minimum stay in the procedure area after a patient has received procedural sedation is 60 minutes after the last dose of sedation is given. If a reversal agent is administered, the minimum stay is two hours after the last dose of reversal agent. Full discharge criteria must also be met.
- M. The RN ensures that the correct equipment is available in the room prior to the start of the sedation procedure. This includes an airway and/or crash cart, suction and reversal agents (See Pre Procedure Responsibilities, #11).
- N. Health-care providers monitoring the sedated patient must demonstrate knowledge of anatomy, physiology, dysrhythmia recognition, complications related to procedural sedation, and knowledge of the pharmacology of the medications and the reversal agents. They must also have the skills necessary to assess, diagnose, and treat any complications that may arise. The RN must be ACLS certified and have current competencies in Procedural Sedation. Nurses assisting with pediatric procedural sedation must have certification in ENPC or PALS.
- O. The RN confirms that the physician has explained the procedure along with the benefits and risks of the procedural sedation to the patient and/or significant caregiver, completed and documented the pre-procedure assessment and obtained informed consent from the patient for both the procedure and the sedation . **The RN cannot proceed with medication administration if these requirements are not complete** . In the event of an emergency, whereas the risks of waiting to perform the procedure under procedural sedation would result in a life-threatening situation for the patient, the consent will not be obtained.
- P. The RN monitoring the patient may not be engaged in any other activity during the period of administration of procedural sedation. The nurse immediately reports any unexpected response by the patient to the physician. These include, but are not limited to variations from baseline (+ or – 20mmHg in blood pressure or pulse; cardiac dysrhythmias (continuous); decrease of greater than or equal to 5% from baseline oxygen saturation (continuous monitoring); dyspnea, apnea, or hypoventilation; diaphoresis (may signify myocardial ischemia); inability to arouse the patient; or the need to maintain the patient's airway mechanically.
- Q. Once the patient's vital signs are at pre-sedation levels or at least 30 minutes have passed since the last sedating medication, monitoring of physiological parameters may be increased to every 15 minutes until the patient returns to pre-sedation level of consciousness and stability.

## Emergency Interventions

Overdose or adverse drug reactions may cause respiratory depression, hypotension, and impaired cardiac function. The physician or RN must be ready to intervene if these complications arise. Emergency interventions include, but are not limited to airway

management, reversal of sedating medications and other measures such as basic and advanced cardiac life support. If assistance is needed, dial #911 from any hospital phone to activate Medical Emergency/Code Blue team.

## Physician Responsibilities

The following elements must be assessed and documented by the ordering physician prior to the beginning of Procedural sedation:

- A. Airway assessment using Mallampati classification
- B. ASA classification of anesthesia risk
- C. History and physical including history of adverse sedation or anesthesia events
- D. Current medications
- E. Informed consent
- F. Assessment of cardiovascular and respiratory systems immediately before the start of the procedure.
- G. Assessment of NPO status (See addendum I of policy)
- H. Identification of serious medical problems which could be exacerbated by drugs used for procedural sedation including sleep apnea.

**The physician ordering the sedation and/or performing the procedure must remain at the patient bedside when the medication is being administered and must be immediately available in the department until the patient is stable and within the Weston Regional Medical Center complex until discharge criteria have been met.**

## Complications of Procedural Sedation

### Respiratory Depression and Hypoventilation

- A. Decreased or shallow respirations and decreased oxygen saturation are signs of respiratory depression.
- B. Respiratory depression should be treated with oxygen and airway management. The most effective way to open the airway is the head-tilt-jaw lift. Often this maneuver alone is enough to improve ventilation and O<sub>2</sub> saturation.
- C. Every patient should have oxygen via nasal cannula in place throughout the procedure. If the patient is breathing and the oxygen saturation is low, the flow of the nasal cannula O<sub>2</sub> may be increased. Encourage the patient to take deep breaths.
- D. If the patient is breathing but the oxygen saturation remains low, change the nasal oxygen to a 100% non-rebreathing mask.
- E. If efforts remain unsuccessful, provide PPV (Positive Pressure Ventilation) with bag/mask valve Page Anesthesia provider STAT for assistance. Continue to bag the patient until the oxygen saturation improves. If the condition does not improve, the patient will require intubation.
- F. If the patient is breathing and has adequate oxygen saturation but cannot maintain his or

her own airway, an artificial airway is indicated. A nasal or oral airway may be used. Oral airways should only be used in patients who are deeply sedated. **A nasal airway should be used in the conscious patient**. The appropriate size nasal airway should be selected by measuring the distance from the tip of the patient's nose to the earlobe. Apply lubricant and insert into one nostril. If resistance is encountered, slight rotation of the tube will facilitate insertion. The oral airway size is determined by measuring the distance from the corner of the patient's mouth to the earlobe.

- G. Respiratory depression can progress to respiratory arrest. If the patient is not breathing, begin PPV, initiate Code Blue (call 911) if on inpatient units and prepare for immediate intubation.

## Cardiac Complications and Hypotension

- A. Hypotension is another complication of procedural sedation. Hypotension may be easily corrected by placing the patient in "Trendelenburg" (head-down) position and giving IV fluids.
- B. If positioning and IV fluids does not improve the blood pressure, more aggressive drug therapy is needed. Call for RRT (Rapid Response Team) or Medical Emergency/Code Blue depending on severity of patient's condition.
- C. Another potentially lethal complication of procedural sedation is cardiac dysrhythmias. Cardiac dysrhythmias must be recognized and treated quickly for positive patient outcomes.
- D. If a patient has respiratory or cardiac arrest or exhibits lethal dysrhythmias, activate Code Blue immediately by dialing #911 on any hospital phone.

## Procedural Sedation for the Pediatric Patient

- A. The definition for procedural sedation for pediatric patients (under 19 years old) is the same as for adult patients: a depressed level of consciousness with the ability to independently and continuously maintain a patent airway and respond appropriately to physical stimulation.
- B. Procedural sedation for the pediatric patient should be a safe and effective treatment modality. Knowledge, preparation and clinical competency are key elements in the success of procedural sedation in this special population.
- C. As with the adult patient, pediatric patients may need to be sedated for surgical or diagnostic procedures. These patients will need to be evaluated for past medical history, ability to cooperate, psychological or developmental disabilities, potential for unpredictable reactions to medication, NPO status, and ability to communicate.
- D. Informed consent must be obtained from the parent or guardian of the child prior to medication administration. Education about procedural sedation and follow up care of the child needs to include both the child and the adults accompanying the child.
- E. Refer to NPO policy in Addendum I of Procedural Sedation policy for NPO guidelines. Certain emergency procedures may be performed with a sub-optimal NPO status. Careful clinical judgment is required to determine an appropriate level of sedation that does not place the patient at an unacceptable risk of regurgitation and aspiration of gastric contents.



- F. Monitoring the sedated child is similar monitoring sedated adults. The equipment should be appropriate to age and size of the child. The ABC's (airway, breathing, circulation) must be monitored and the nurse should be ready with the knowledge and equipment that may be needed for emergency resuscitation (Pediatric code cart). The monitoring requirements for pediatric patients are not different from adult requirements with the exception of the training of the RN, who must possess PALS or ENCP certification.
- G. The following medications are recommended for administration to pediatric patients for procedural sedation: chloral hydrate (PO or PR), diazepam (IV), fentanyl (IV or IM), midazolam (PO, IM or IV), morphine (IV or IM), hydromorphone (IV) and pentobarbital (IV or rectal). For non-anesthesia providers, use of propofol (IV), etomidate (IV) and ketamine (IV or IM) is restricted to emergency department physicians in the setting of the emergency department.
- H. Dosage is extremely important and is usually calculated on the basis of weight so an accurate weight must be obtained prior to medication administration. Refer to Addendum II for recommended dosages of procedural sedation medications. The physician must adhere to medication administration and monitoring guidelines.
- I. Pre-procedure, intra-procedure, and post-procedure care of the child will be documented in the <SCH- Procedural Sedation Flow Sheet- Adult and Pediatric>.
- J. Post-procedure care of the sedated child follows the same standards as for adults, including providing follow-up instructions to the adults with the child.
- K. At the time of discharge, two responsible adults are required to accompany a child that has been sedated, one to drive the vehicle and one to monitor the child. The pediatric sedation discharge instructions from Logicare PET or Med Host must be given to the responsible adult. When the child is to be discharged, the adult must understand these instructions, know the medications that have been administered to the child, and be aware of possible untoward side effects that may occur.

### **Related Policy:**

### **Key Words:**

moderate sedation, procedural sedation, PC.03.01.01, PC.03.01.03, PC.03.01.05, PC.03.01.07

### **For More Information Contact:**

Medical Director of Anesthesia, Director of Surgical Services, Director of Patient Care Services  
Emergency Department

### **Regulations/Standards:**

Joint Commission Standard PC.03.01.01, PC.03.01.03, PC.03.01.05, PC.03.01.07

### **Sources:**

- ASA model sedation policy - [www.asahq.org/clinical/toolkit/sedmodelfinal.htm](http://www.asahq.org/clinical/toolkit/sedmodelfinal.htm)
- Definition of General Anesthesia and Levels of Sedation/Analgesia - [www.asahq.org/publicationsAndServices/standards/20.htm](http://www.asahq.org/publicationsAndServices/standards/20.htm)

- Propofol Sedation by Non-anesthesiologists a Medicolegal Gamble - January 2005-Ambulatory Anesthesia pages 3-5.
- Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists Oct. 17, 2001
- Practice Guidelines for Preoperative Fasting and the Use of Pharmacological Agents to Reduce the Risk of Pulmonary Aspiration: Application to Healthy Patients Undergoing Elective Procedures March 1999
- Anesthesiology Statement on Safe Use of Propofol Oct. 27, 2004 [www.asahq.org](http://www.asahq.org)
- Consideration for Policy Guidelines for Registered Nurses Engaged in the Administration of Sedation and Analgesia <http://www.aana.com/practice/conscious.asp>

**Replaces the Following Policies:**

**Attachment Names:**

**Attachments:**



**Approval Signatures**

Approver	Date
Kathryn Decker: Chief Nursing Officer [CB]	8/8/2017
Cindy Buchkowski-Hoffmann: Clin Quality Improve Spclst	8/8/2017
Sheila Hulce-Dittmann: Dir Patient Care	8/8/2017
Pamela Schmidt: Dir Patient Care	8/3/2017
Nicole Simpson: Physician	8/3/2017

