DEEP SEDATION

Policy/Procedure:	DEEP SEDATION FOR NON-ANESTHESIA PROVIDERS	Department: Anesthesia
Effective Date: 4/2004	Revised: 9/30/2013	Page: Page 2 of 22

1) Policy

To enact a uniform standard of care at Baylor University Medical Center for patients receiving medications for deep sedation/analgesia during diagnostic or therapeutic procedures

2) Purpose

To provide policy, procedures, and guidelines for clinicians employing deep sedation/analgesia to afford their patients the benefits of sedation/analgesia during diagnostic or therapeutic interventional procedures while minimizing the associated risks

3) General Information

- Deep sedation/analgesia lies on a dose and response dependent continuum leading from minimal sedation to general anesthesia
- Deep sedation is a medically controlled state of depressed consciousness from which the patient is not easily aroused by physical stimuli Patients undergoing deep sedation have a significant risk of partial or complete loss of protective reflexes including the inability to consistently maintain a patent airway independently and the inability to respond purposefully to physical stimulation or verbal commands Loss of gag reflex, inability to maintain oral secretions, and loss of swallowing reflex may occur
- Patients' sensitivity to sedation may be markedly increased because of debility, biological variations in response, and/or the additive and synergistic effects of medications
- The keys to optimal deep sedation/analgesia are vigilance and titration Vigilance to achieve optimal patient comfort while avoiding cardiopulmonary depression and the appropriate initial dosing of sedation medications followed by prudent titration of additional doses as indicated after reaching the peak effect of the previous dose
- The same deep sedation/analgesia procedures must be followed regardless of the hospital location, technique and route of medication administration (e g , oral, nasal, parenteral, rectal)

4) Applicability

This policy applies to the use of sedation and analgesia in all hospital departments ands areas except stated below

- This policy does not apply to patients who have an anesthesiologist or CRNA providing sedation because they are governed by the standards of care established by the Department of Anesthesiology
- This policy does not apply to patients in the intensive care unit or PACU under a 1 2 nurse to patient ratio who are mechanically ventilated and whose cardiovascular and respiratory status are continuously monitored by the same monitoring devices as specified by this policy. These patients are excluded because their care always includes continuous, close attention to their cardiorespiratory status and because vital signs are documented according to ICU protocol based on patient acuity.
- This policy does not cover patients who receive anxiolytic or analgesic agents which are administered routinely to alleviate anxiety, pain, and/or agitation (e g , sedation for preoperative anxiety, insomnia, or postoperative analgesia).

5) Responsibilities

- Physician with credentials for the administration of deep sedation/analgesia completes the physician portion of documentation, prescribes medications, and is physically present during the procedure.
- Registered Nurse with validated skills and documented competencies should be present at the bedside to monitor the patient during the entire procedure and until the patient is able to maintain his/her own airway, follow commands, and the patient's vital signs are stable Monitoring the patient should be the RN's sole responsibility during the procedure. The RN will continue to monitor the patient during Stage 1 recovery period until the patient achieves an Aldrete score of 8 or pre-anesthetic baseline score

- Physicians without credentials for the administration of deep sedation/analgesia should schedule procedure with an anesthesia provider (CRNA or anesthesiologist)
- The physician prescribing the deep sedation/analgesia is responsible for the implementation of this policy, procedures, and guidelines
- The physician will complete a history and physical examination and provide a preinduction re-evaluation of the patient
- The assisting RN will identify the patient, verify consent, review the physician's documentation, and complete the pre-sedation evaluation and assessment for the patient before proceeding with deep sedation/analgesia
- The assisting RN will not administer any deep sedation medication to the patient.
- The Department of Anesthesiology and Pain Management is responsible to develop standards of practice and the guidelines for deep sedation/analgesia in collaboration with other departments that provide the service.
- The Medical Director of each department administering deep sedation/analgesia is responsible for ensuring that:
  - Physicians and health care professionals performing deep sedation/analgesia within their department have appropriate credentials
  - Quality improvement indicators are monitored and quarterly reports are sent to the Center for Quality and Care Coordination unless reporting is done online
- A patient having a diagnostic or therapeutic procedure must have "TIME OUT" initiated prior to any administration of medication to the patient The "TIME OUT" process must be followed according to the Universal Protocol (See' Time Out/Universal Protocol" in Chapter 4 – Operational Policies in the Anesthesia Departmental Policies and Procedures Manual or in the Nursing Procedure and Protocol Manual or the Administrative Policy Manual)

6) Definitions

Deep Sedation/Analgesia is a drug-induced depression of consciousness during which patients may not respond purposefully* to verbal commands, and interventions may be required to maintain a patent airway and spontaneous ventilation Cardiovascular function may not be maintained

**Reflex withdrawal from a painful stimulus is not considered a purposeful response*
Approved by ASA House of Delegates in 1999

Deep Sedation may also be defined as a patient who reaches a Ramsay Sedation Score (RSS) of 5 General anesthesia is achieved when a RSS of 6 is attained

See Table 1, which defines the continuum from minimum sedation to general anesthesia.

7) *Staff Qualifications*

A The staff member monitoring sedation and analgesia cannot be the same person who performs the procedure unless the procedure is itself that of monitoring (i e , EEG).

B. The staff member (assisting RN or RT) monitoring sedation and analgesia shall
   1 Be familiar with the effects of the drugs used
   2 Know how to recognize airway obstruction and correct it
   3 Know how to monitor required parameters, how to recognize abnormalities in the required parameters, and how to intervene
   4 Be able to manage ventilation with a self-inflating bag valve mask
   5 Be able to initiate cardiopulmonary resuscitation

Table 1.
Continuum of Depth of Sedation: Definition of General Anesthesia and Levels of Sedation/Analgesia

"Sedation and analgesia" comprise a continuum of states ranging from minimal sedation (anxiolysis) through general anesthesia

	Minimal Sedation n(Anxiolysis)	Moderate Sedation/Analgesia (Conscious Sedation)	Deep Sedation/ Analgesia	General Anesthesia
Responsiveness	Normal response to verbal stimulation	Purposeful * response to verbal or tactile stimulation	Purposeful * response after repeated or painful stimulation	Unarousable, even with painful stimulus
Airway	Unaffected	No intervention required	Intervention my be required	Intervention often required
Spontaneous Ventilation	Unaffected	Adequate	May be inadequate	Frequently inadequate
Cardiovascular function	Unaffected	Usually maintained	Usually maintained	May be impaired

Minimal Sedation n(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

Moderate Sedation/Analgesia (Conscious 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

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

General Anesthesia = 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

Because sedation is a continuum, it is not always possible to predict how an individual patient will respond Hence, practitioners intending to produce a given level of sedation should be able to rescue patients whose level of sedation becomes deeper than initially intended Individuals administering *Moderate Sedation/Analgesia (Conscious Sedation)* should be able to rescue patients who enter a state of *Deep Sedation/Analgesia,* while those administering *Deep Sedation/Analgesia* should be able to rescue patients who enter a state of *general anesthesia*

8) Preparation

Preparation for deep sedation/analgesia shall include.

A Availability of personnel necessary for provision of deep sedation/analgesia

1 A designated credentialed RN or physician, other than the practitioner performing the diagnostic or therapeutic procedure, must be present to monitor the patient throughout the period of deep sedation This should be their sole responsibility

2 The credentialed physician must be capable of recognizing the development of general anesthesia, establishing a patent airway and providing positive pressure ventilation, supporting the circulation and be able to summon additional assistance

3 The practitioner responsible for deep sedation must have undergone training during residency or fellowship, in the management of anesthesia This training must be recognized by an ACGME accredited program with an established syllabus of the program focused on providing anesthesia and procedural sedation. The credentialed practitioner must have demonstrable skills to recognize and rescue a patient from general anesthesia

B Availability of anesthesia equipment and emergency medications and equipment must be confirmed prior to initiation of deep sedation/analgesia including the immediate availability of a defibrillator and those agents and equipment listed in Table 2

Table 2. Emergency Equipment for Sedation and Analgesia

Appropriate emergency equipment should be available whenever sedative or analgesic drugs capable of causing cardiorespiratory depression are administered The lists in Table 2 should be used as a guide, which should be modified depending on the individual practice circumstances Items in brackets are recommended when infants or children are sedated utilizing intravenous agents/medications

Intravenous equipment	Gloves, tourniquets, alcohol wipes, sterile gauze pads, tape Intravenous fluid, Intravenous catheters [24-22 gauge], Intravenous tubing [pediatric "microdrip" (60 drops/ml)] Assorted needles for drug aspiration, intramuscular injection [intraosseous bone marrow needle] Appropriately sized syringes [1-ml syringes]
Basic airway management equipment	Source of compressed oxygen (tank with regulator or pipeline with flowmeter) Source of suction, suction catheters [pediatric suction catheters] Yankauer-type suction Face masks [infant/child], self-inflating breathing bag-valve set Oral and nasal airways [infant/child-sized], lubricant Stethoscope and pre-cordial stethoscope
Advanced airway management equipment	Laryngeal mask airways [pediatric] Laryngoscope handles (tested), laryngoscope blades [pediatric] Endotracheal tubes Cuffed 6 0 – 8 0 mm ID [uncuffed 2 5 – 6 0 mm ID] Intubating stylets (appropriately sized for endotracheal tubes)
Pharmacologic Antagonists	Naloxone, Flumazenil
Emergency Medications	Epinephrine, ephedrine, vasopressin, atropine, amiodarone, nitroglycerin (tablets or spray), lidocaine, diphenhydramine, Glucose 50% [10 or 25%], diazepam or midazolam, hydrocortisone, methylprednisolone, or dexamethasone

C The ordering physician must obtain informed written consent for anesthesia The patient must be informed of sedation options and agree to the benefits, risks, and limitations associated with deep sedation/analgesia planned for their diagnostic or therapeutic procedure

D The ASA Guidelines for Preoperative Fasting are shown in Table 3 For emergency diagnostic or therapeutic procedures, and other situations in which gastric emptying is impaired, the clinical judgment of the provider must weigh the risks and benefits of proceeding with deep sedation

Table 3. Summary of American of Anesthesiologists Pre-procedure Fasting Guidelines*

Ingested Material	Minimum Fasting Period**
Clear liquids ††	2 h
Breast milk	4 h
Infant formula	6 h
Nonhuman milk ~~	6 h
Light meal ^^	6 h

* These recommendations apply to *healthy* patients who are undergoing elective procedures They are not intended for women in labor Following the Guidelines does not guarantee a complete gastric emptying has occurred

** The fasting periods apply to all ages

†† Examples of clear liquids include water, fruit juices without pulp, carbonated beverages, clear tea, and black coffee

~~ Since non-human milk is similar to solids in gastric emptying time, the amount ingested must be considered when determining an appropriate fasting period

^^ A light meal typically consists of toast and clear liquids. Meals that include fried or fatty foods or meat may prolong gastric emptying time Both the amount and type of food ingested must be considered when determining an appropriate fasting period

Comments.

1 Patients with specific problems such as hypoglycemia, failure to thrive, hepatic disease, or gastroesophageal reflux, or conditions associated with delayed gastric emptying will need individualized NPO orders and /or IV fluid after being made NPO
2 Milk is not a clear liquid
3 NPO orders for infants under 6 months of age should specify that the patient be awakened and fed at a specific time and that the type, time and amount of last feeding be recorded in the patient's chart
4 Clear liquid diet instructions for pediatrics
Only the following permitted
   a Unsweetened apple juice, Pedialyte, glucose water, Gatorade, tea (without milk or cream or creamer), Kool-Aid
   b Breast milk *(no cow's milk or formula)*
   c Clear carbonated drinks (7•Up, Sprite, colas, Dr Pepper, plain Jell-O, popsicles, clear broth)
5 Bottle-fed infants· bring a bottle of water, Pedialyte, or clear liquid for the trip home *Do not bring formula*

9) Patient Evaluation

To develop an appropriate sedation plan, each patient's pre-sedation assessment is performed and documented by the physician credentialed in deep sedation/analgesia indicating that the patient is an appropriate candidate for deep sedation/analgesia

1. Clinicians administering deep sedation/analgesia should be familiar with and confirm the anesthesia-oriented aspects of the patient's medical history and how these might alter the patient's response to sedation/analgesia immediately before the initiation of sedation including.
   - a Age
   - b Abnormalities of the airway and major organ systems
   - c History of Gastroesophageal Reflux Disease (GERD)
   - d History of sleep apnea or other respiratory compromise
   - e Personal and family history of previous adverse experiences with sedation/analgesia as well as regional and general anesthesia
   - f Drug allergies, current medications, herbal supplements
   - g Time and nature of most recent oral intake
   - h History of tobacco, alcohol, substance use and abuse
   - i Pregnancy
   - j Pertinent laboratory, radiological, and functional studies
   - k Sedation risk assessment (see Table 4 ASA Physical Status Classification)

Table 4. American Society of Anesthesiologists Physical Status Classification

Class I	Normal healthy patient
Class II	Mild systemic disease
Class III	Severe systemic disease
Class IV	Severe systemic disease/constant threat to life
Class V	Not expected to survive without operation

2 Patients presenting for deep sedation/analgesia should undergo a focused physical examination immediately before initiation of sedation including the following
- a Patient's mental status and level of consciousness
- b Vital signs and the patient's weight
- c Assessment of pain scale (see Table 5)
- d Auscultation and examination of heart and lungs
- e Evaluation of the airway as in Table 6

Table 5. Pain Intensity Scale

0 2 4 6 8 10

0 – 10 Numeric Pain Intensity Scale

0	2	4	6	8	10
No Pain	Mild Pain	Moderate Pain	Severe Pain	Very Severe Pain	Worst Possible Pain

Table 6. Airway Assessment Procedures for Sedation and Analgesia

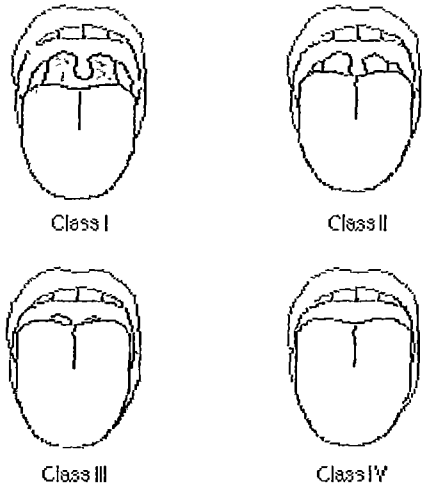
Positive pressure ventilation, with or without tracheal intubation, may be necessary if respiratory compromise develops during sedation-analgesia This may be more difficult in patients with atypical airway anatomy In addition, some airway abnormalities may increase the likelihood of airway obstruction during spontaneous ventilation Some factors that may be associated with difficulty in airway management are

History	Previous problems with anesthesia or sedation Stridor, snoring, or sleep apnea Advanced rheumatoid arthritis Chromosomal abnormality (e g , trisomy 21)
Physical Examination	
Habitus	Significant obesity (especially involving the neck and facial structures)
Head & Neck	Short neck, limited neck extension, cervical spine disease or trauma, neck mass, decreased hyoid-mental distance (< 3cm in an adult), Tracheal deviation, dysmorphic facial features (e g , Pierre-Robin syndrome)
Mouth	Small opening (< 3 cm in am adult), edentulous, protruding incisors, Loose or capped teeth, dental appliances, high arched palate, macroglossia, tonsilar hypertrophy, nonvisible uvula
Jaw	Micrognathia, retrognathia, trismus, significant malocclusion

The Mallampati classification relates tongue size to pharyngeal size This test is performed with the patient in the sitting position, the head held in a neutral position, the mouth wide open, and the tongue protruding to the maximum The subsequent classification is assigned based upon the pharyngeal structures that are visible

Class I = visualization of the soft palate, fauces, uvula, anterior and posterior pillar
Class II = visualization of the soft palate, fauces and uvula
Class III = visualization of the soft palate and the base of the uvula
Class IV = soft palate is not visible at all

The classification assigned by the clinician may vary if the patient is in the supine position (instead of sitting). If the patient phonates, this falsely improves the view If the patient arches his or her tongue, the uvula is falsely obscured A class I view suggests ease of intubation and correlates with a laryngoscopic view grade I, 99% to 100% of the time. Class IV view suggests a poor laryngoscopic view, grade III or IV 100% of the time Beware of the intermediate classes which may result in all degrees of difficulty in laryngoscopic visualization



10) Consultations

For patients in whom deep sedation/analgesia is planned, medical specialists should be consulted before deep sedation/analgesia is initiated in patients with significant underlying conditions

For emergency diagnostic or therapeutic procedures, the clinical judgment of the provider must weigh in risks and benefits of proceeding with deep sedation/analgesia

Practitioners who are not credentialed in the administration of general anesthesia should consult an anesthesia provider in the following circumstances.

1 Severely compromised or medically unstable patients (e g , anticipated difficult airway, severe pulmonary disease, and severe cardiac disease) may need consultation from the Anesthesiology and Pain Management Department.
2 If it is likely that sedation to the point of general anesthesia will be necessary to obtain adequate conditions for the diagnostic or therapeutic procedure.
3 If during the performance of a diagnostic or therapeutic procedure, the patient requires increasing amounts of sedation or analgesia such that the level of sedation is likely to progress to general anesthesia

11) Rescue Procedures

If a patient becomes obtunded and/or a patent airway cannot be maintained, then the prescribing physician is responsible to ensure the following procedures are enacted.

1. Provide Basic and Advanced Life Support
2 Provide proper rescue therapy and general anesthesia care
3. Issue appropriate consults (Code Team and/or anesthesia provider) as indicated
4 Consider reversing opioids and/or benzodiazepines

12) Intravenous Access

Intravenous access should be maintained throughout deep sedation/analgesia and during the recovery phase until the patient is no longer at risk for cardiorespiratory depression

If intramuscular ketamine hydrochloride is used for sedation, intravenous access is not required

13) Supplemental Oxygen

Supplemental oxygen should be present and considered during deep sedation/analgesia unless specifically contraindicated for a particular patient or procedure. If hypoxia is anticipated or develops, then supplemental oxygen should be administered and rescue skills employed

14) Monitoring and Documentation of Monitoring

The Baylor Deep Sedation record or Anesthesia record must be fully completed on each patient and will become part of the patient's permanent record The physician prescribing the deep sedation/analgesia will complete the physician sections of the sedation record as indicated on the form Any complications occurring during the period from initiation of deep sedation/analgesia until discharge of the patient from the sedation recovery area must be recorded

Appropriate monitoring of patients receiving deep sedation/analgesia must begin prior to administration of deep sedation/analgesia agents Respiratory rate and quality, percent oxygen saturation, blood pressure, and heart rate/pulse rate and cardiac rhythm should be documented prior to initiation of deep sedation/analgesia at least every five minutes during the procedure, at the beginning and conclusion of the recovery phase, and not less frequent than every 15 minutes during the recovery phase (more often as the patient's condition warrants) A pain scale score will be documented just prior to the procedure and every 15 minutes thereafter until the conclusion of the recovery period Level of consciousness is monitored continuously and documented by the Ramsay Scale just before the procedure begins, after administration of each sedation agent, and at least every 15 minutes during the procedure and recovery phase

The following information must be documented and parameters must be monitored during deep sedation/analgesia.

1 *Medications* – The time and dosage of all medications administered will be documented
2. *Level of consciousness* is assessed by the patient's response to verbal commands except in patients who are unable to respond appropriately (e g , infants or young children, mentally impaired or uncooperative patients) or during procedures where movement could be detrimental When verbal responses are not appropriate, the ability to give a "thumbs up" or other indication of consciousness in response to verbal or tactile (light tap) stimulation suggests that the patient will be able to control his airway and take deep breaths if necessary, corresponding to a state of moderate sedation Patient responses limited to reflex withdrawal from a painful stimulus (not considered a purposeful response) represent a state of deep sedation approaching the state of general anesthesia, and should be treated accordingly. The Ramsay Sedation Scale (see Table 7) score is used to assess and document the patient's level of consciousness.

Table 7. Ramsay Sedation Scale - Levels of Consciousness

SCORING SYSTEM FOR ASSESSMENT OF SEDATION

Level of Sedation: Conscious	
1	Anxious and agitated or restless
2	Cooperative, oriented, tranquil
3	Responds to commands only
Level of Sedation: Deep	
4	Asleep, but has brisk response to glabellar tap* or loud auditory stimulus
5	Asleep, has sluggish response to glabellar tap* or loud auditory stimulus
6	No response

3. *Pulmonary ventilation* is assessed by observation or auscultation Drug-induced respiratory depression, hypoventilation, and airway obstruction are the primary causes of morbidity associated with sedation/analgesia. Assessment of respiratory rate and quality (depth of respiration or tidal volume, pattern of respiration, and airway patency) are necessary to evaluate adequate pulmonary ventilation Monitoring of exhaled carbon dioxide (capnography) is recommended Ventilation and oxygenation are separate, though related, physiologic processes and pulse oximetry is a late indicator of hypoventilation in the presence of supplemental oxygen, and may fail to detect inadequate ventilation **Level of sedation and respiratory pattern are the key indicators of respiratory depression (most patients will become unconscious when the $PaCO_2$ rises above 80 mmHg).**
4. *Oxygenation* should be assessed by impedance plethysmography (pulse oximetry) and should be monitored continuously during sedation Pulse oximetry with appropriate alarm settings and with an audible, variable pitch indication of oxygen saturation should be employed
5. *Electrocardiography* should be continuously monitored during deep sedation/analgesia
6. *Heart rate* (pulse rate) should be assessed by palpation or some automated blood pressure cuffs not less than every 5 minutes or continuously by pulse oximetry and/or some intra-arterial blood pressure monitors
7. *Blood pressure* may be measured manually or by non-invasive automated blood pressure cuff not less than every five minutes during deep sedation or continuously by transduction of an intra-arterial catheter

When a physician transfers sedation/anesthesia care to an anesthesiologist or CRNA, then the responsibility for further documentation and monitoring becomes the responsibility of the anesthesia provider.

If a "Code Blue" or "Code Purple" is initiated, then further documentation will be continued on the code forms

15) Administration of Sedative Agents and Reversal Agents

Administration of sedative agents and reversal agents requires prudent attention to the agents' pharmacology, the particular patient's medical history, mental status, physical status, and physical examination, and the duration and stimulation of the planned diagnostic and therapeutic procedure

1 Medications administered for deep sedation must not be administered on the nursing unit prior to transport of the patient to another location This does not include routine pre-operative anxiolytic medications

2 All medications must be administered according to the current standard practice Incremental titration of intravenous sedative medications is essential to achieve the desired end points of sedation while minimizing the associated risks Sufficient time must elapse for small incremental doses of sedating agents to reach their *peak effect* and allow for thorough assessment of the patient before subsequent small incremental doses are administered

3 When drugs are administered by non-intravenous routes (oral, rectal, intramuscular, transmucosal), allowance should be made for the time required for drug absorption before supplementation is considered Because absorption may be unpredictable, administration of repeat doses of oral medications to supplement sedation is not recommended

4. Combinations of sedative and analgesic agents (benzodiazapines and opioids) may be administered as appropriate recognizing that published data suggest that combinations of sedatives and opioids may increase the likelihood of adverse outcomes, including respiratory insufficiency and hypoxemia Ideally, each component should be administered individually and incrementally awaiting the agent's peak effect to be reached before subsequent doses of analgesic medication to manage pain or additional doses of sedating medication to decrease awareness or anxiety are administered Since combining opioids and sedatives synergistically causes respiratory depression and airway obstruction, the need to reduce the incremental doses of each agent by 30% to 50% depending on the patient's age and condition is emphasized, as is the requirement to continually monitor the patient's respiratory status

5 Anesthetic induction agents such as propofol, methohexital, etomidate, and ketamine administered by any route may only be administered by practitioners qualified and trained to rescue patients from any level of sedation, including general anesthesia

6 Reversal agents for opioids and benzodiazepines should be immediately available whenever opioids and/or benzodiazepines are administered for deep sedation. Reversal agents may be administered to improve spontaneous ventilatory efforts in patients who have received opioids or benzodiazepines This may be especially helpful in cases where airway control and positive pressure ventilation are difficult Before or concomitantly with pharmacological reversal, patients who become hypoxemic, hypercarbic, or apneic during sedation should:
   a be encouraged or stimulated to breathe deeply
   b receive supplemental oxygen
   c receive positive pressure ventilation if spontaneous ventilation is inadequate

After pharmacological reversal for rescue, patients should be observed sufficiently long enough to ensure that sedation and cardiorespiratory depression does not recur once the effect of the antagonist dissipates Sedation regimens that require the routine use of reversal agents are discouraged

16) Recovery Care

Recovery care following deep sedation includes observation of patients in an appropriately staffed and equipped area until they are near their baseline level of consciousness (evaluation with Ramsay Sedation Scale) and are no longer at increased risk for cardiorespiratory depression The patient's post-procedure status is assessed on admission to and before discharge from the post-sedation recovery area or post anesthesia care unit Cardiac monitoring should occur during recovery. Oxygenation should be monitored periodically until patients are no longer at risk for hypoxemia. Ventilation and circulation should be monitored at regular intervals until patients are suitable for discharge Patients must meet discharge criteria (Aldrete Scale, see Table 8, and Ramsay Sedation Scale see Table 7) designed to minimize the risk of central nervous system cardiorespiratory depression after discharge from observation by trained personnel as in Table 9

Table 8. Aldrete Scoring Scale

Activity	
Moves 4 extremities voluntarily or to command	= 2
Moves 2 extremities voluntarily or to command	= 1
Moves 0 extremities voluntarily or to command	= 0
Respiration	
Spontaneous unlabored respiration (deep breath, cough freely)	= 2
Dyspnea (limited breathing)	= 1
Apnea	= 0
Circulation	
Blood Pressure plus or minus 20% of preanesthetic level	= 2
Blood Pressure plus or minus 20-50% of preanesthetic level	= 1
Blood Pressure plus of minus 50% of preanesthetic level	= 0
Consciousness	
Awake – oriented X 3 (fully awake)	= 2
Arousable on calling	= 1
Not responding	= 0
Oxygen Level	
Able to maintain oxygen saturation greater that 92% on room air	= 2
Needs to oxygen inhalation to maintain oxygen saturation greater than 90%	= 1
Oxygen saturation less than 90% even with oxygen supplementation	= 0

Table 9. Recovery and Discharge Criteria after Sedation and Analgesia

1. Medical supervision of recovery and discharge after deep sedation is the responsibility of the physician performing the diagnostic or therapeutic procedure.
2. The recovery area should have appropriate monitoring and resuscitation equipment
3 Patients receiving deep sedation/analgesia should be monitored until appropriate discharge criteria are satisfied and fitness for discharge is documented using scoring systems

   Aldrete Score of 8 or higher (or patient's pre-sedation baseline score) and
   Ramsay Sedation Score of 2 (or the patient's pre-sedation baseline score)

4. The duration and frequency of monitoring should be individualized depending on the level of sedation achieved, the overall condition of the patient, and the nature of the overall condition of the patient, and the nature of the intervention for which sedation/analgesia was administered
5 Oxygenation should be monitored until patients are no longer at risk for respiratory depression.
6. Patients must be fully monitored for at least two hours after administration of an opioid or benzodiazepine reversal agent to ensure that patients do not become re-sedated after reversal effects have diminished
7 Level of consciousness, vital signs, EKG monitoring, respiratory pattern, and oxygenation should be monitored at regular intervals during the recovery period, not less frequently than every 15 minutes
8 The patients should be alert and oriented. Infants and patients whose mental status was abnormal before sedation should have returned to their baseline status Practitioners and parents must be aware that pediatric patients are at risk for airway obstruction should the head fall forward while the child is secured in a car seat
9 Vital signs, respiratory pattern, and oxygenation should be within acceptable limits and stable before discharge.
10. An RN trained to monitor patients and recognize complications should be immediately available until discharge criteria are fulfilled or the patient returns to the pre-sedation baseline.
11 An individual capable of managing complications (e g , establishing a patent airway and providing positive pressure ventilation) should be immediately available until discharge criteria are fulfilled
12 Outpatients must be discharged into the care of a responsible adult who will accompany them home and be able to report any post-procedure complications.
13. Outpatients and their responsible escorts should be provided with written instructions regarding post-procedure diet, medications, activities, and a phone number to be called in case of emergency

17) Quality Indicators

The Medical Director of each department will monitor continuous quality improvement data Quarterly reports will be sent to the Center for Quality Coordination unless reporting is completed online Nine CQI indicators must be monitored as follows

1. A pre-sedation nursing assessment is performed for each patient before deep sedation/analgesia medications are administered
2. Each patient's physiological status is monitored during deep sedation/analgesia
3. The incidence of respiratory or cardiac arrest
4. Informed consent is obtained prior to use of sedation.
5. Discharge criteria are met and documented
6. Written discharge instructions are given to patient being discharged post procedure
7. The use of reversal agents, incidence of over-sedation (patient unresponsive)
8. Unplanned admission to hospital
9. Any adverse outcome

Deep sedation/analgesia privileges will be verified for physicians and nurses participating in cases that meet quality indicators.
Verification of deep sedation/analgesia privileges will be performed on a random sampling of deep sedation/analgesia charts and deficiencies will be reported to the Medical Director of the appropriate department.

18) Training, Credentials, and Competencies

Training, credentials, and competencies of personnel participating in the administration of deep sedation/analgesia should include:

1. Understanding of the Deep Sedation Policy and Procedures and Guidelines
2. Current privileges to provide deep sedation/analgesia
3. Understanding of the pharmacology of deep sedation/analgesia agents
4. Understanding of the pharmacology of opioid and benzodiazepine antagonists
5. Understanding which patients are appropriate candidates for deep sedation/analgesia
6. Understanding when consultation of practitioners trained in the administration of general anesthesia is appropriate
7. Ability to properly administer sedation agents
8. Ability to assess a patient's depth of sedation
9. Ability to recognize associated complications of sedation
10. Practitioners intending administer deep sedation should be able to rescue patients whose level of sedation compromises the airway or hemodynamics
11. Ability to treat complications of sedation

A. Physician

1 Knowledge – must provide documentation of training in the recognition and management of airway and cardiac emergencies from an ACGME accredited training program This program should have specific focus on providing anesthesia and procedural sedation

2 Competency – competency must be demonstrated by fulfilling one of the following pathways
- a Care Privileges in Anesthesiology, Emergency Medicine, Critical Care Medicine, or Cardiology
- b Rotation with the Department of Anesthesiology learning techniques for patient assessment, monitoring, and the administration of deep sedation/analgesia, or documented training in deep sedation from an accredited training program

WITH

BLS and ACLS, or ATLS or PALS provider certification, appropriate to the patient population served

WITH

A record of a sufficient number of patients to whom the physician has administered deep sedation/analgesia within the past 24 months; these records are reviewed to ensure that hospital standards of assessment and monitoring and management for these procedures were utilized Any complications associated with the care of such patients is reviewed by physician's own Department QA Committee and utilized in the re-credentialing process by the chief/chairman of department If a log of 12 patients has not been completed, then a fully credentialed physician must proctor the physician for a minimum of 12 patients

3 Medical staff services will maintain physician education and credentials records

B. Assisting Registered Nurse (assists credentialed physician)

The sole responsibility of the assisting nurse should be to monitor the patient receiving deep sedation At no time will the RN administer any deep sedation medications to the patient (e g , Brevital, Etomidate, Ketamine, and Propofol)

1. Knowledge – must have successfully completed the competencies
2. Competencies
   - a. Complete educational material annually
   - b. Complete Mega-code and airway management skills twice each year
   - c BLS certification
   - d. ACLS certification
3. The educational materials and credentialing record will be maintained in the employee's personnel file

BAYLOR UNIVERSITY MEDICAL CENTER
DEPARTMENT OF ANESTHESIOLOGY & PAIN MANAGEMENT

Policy/Procedure: DEEP SEDATION FOR NON-ANESTHESIA PROVIDERS	Department: Anesthesia
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Privilege Request and Approval Form

DEEP SEDATION / ANALGESIA PRIVILEGES by NON-ANESTHESIOLOGISTS

Physician's Name:	Signature:	
Department:	Division:	Date:

I request privileges to administer deep sedation/analgesia to patients cared for at Baylor University Medical Center These privileges are granted for two years coinciding with my appointment/reappointment. I have met the following criteria for privileges

KNOWLEDGE	
☐ *Completion of an accredited training program that includes the management of airway and cardiac emergencies, anesthesia, and procedural sedation*	Date

COMPETENCY	
☐ Completion of ACGME accredited training program in Anesthesiology, Emergency Medicine, Critical Care Medicine, or Cardiology, OR	Date
☐ Rotation with the Department of Anesthesiology learning techniques for patient assessment, monitoring, and the administration of deep sedation/analgesia, WITH Demonstrable patient rescue skills and BLS and ACLS, or ATLS or PALS provider certificate, appropriate to the patient population served, WITH A log of patients to whom I have administered deep sedation within the past 12 months Hospital standards of assessment and monitoring for these procedures were utilized Any complications associated with the care of such *patients is reviewed by my Department QA Committee and utilized in the re-credentialing process*	Date range
☐ Full documented knowledge of, and training in, the actions and dosing of deep sedation agents including propofol, etomidate and methohexital	Date

Privileges Recommended: ☐ Yes ☐ No	Date:
Department Chair:	Date:
Credentials Committee Chair:	Date:

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Baylor University Medical Center
Deep Sedation/Analgesia
Competency-Based Skills Checklist and Objectives
For Non-Anesthesia Providers (NAP) and/or RN, as indicated

Name _____

PREPARATION

NAP A Ensures that consent is complete.
NAP B Verifies documentation of an age specific focused history including:
1. Age
2. Abnormalities of the major organ systems
3. History of sleep apnea or other respiratory compromise
4. Personal and family history of previous adverse experiences with sedation/analgesia as well as regional and general anesthesia
5. Drug allergies, current medications, herbal supplements
6. Time and nature of most recent oral intake
7. History of tobacco, alcohol, substance use and abuse
8. Pregnancy
9. Pertinent laboratory, radiological, and functional studies
10. Sedation risk assessment

NAP/RN C Verifies documentation of focused physical examination
1. Patient's mental status and level of consciousness
2. Vital signs and the patient's weight
3. Assessment of pain scale
4. Auscultation and examination of heart and lungs
5. Evaluation of the airway

NAP D. Determines age and procedure appropriate NPO guidelines.
NAP E Discusses appropriate consultation of an anesthesia provider
NAP/RN F TIME OUT Verification and Documentation (per "Time Out/Universal Protocol")

	0-11 mos Infant	1-12 yr Pediatric	13-17 yr Adolesc	18-60 yr Adult	61+ yr Geriatric
Pre-sedation Evaluation					

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EMERGENCY PROTOCOLS
Checklist For RN

A. Demonstrates techniques for airway management
B. Demonstrates recognition of lethal ECG rhythms
C Demonstrates knowledge of the BUMC emergency protocols
D Demonstrates knowledge of the location of the following emergency equipment
E Demonstrates knowledge of how to summon emergency assistance

EMERGENCY PROTOCOLS Demonstrates location of emergency equipment, airway management and emergency protocols	*0-11 mos* Infant	*1-12 yr* Pediatric	*13-17 yr* Adolesc	*18-60 yr* Adult	*61 + yr* Geriatric
Asystole algorithm					
Bradycardia algorithm					
VT/VF algorithm					
PEA algorithm					
Airways					
Ambu bag					
Defibrillator (with pacing capability)					
Intubation equipment					
Knows phone number for "Code Blue"					

Policy/Procedure: DEEP SEDATION FOR NON-ANESTHESIA PROVIDERS	**Department:** Anesthesia
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EQUIPMENT
Checklist for RN

A States location of equipment
B. States purpose of equipment (indications of age appropriate)
C Demonstrates correct set-up of equipment
D Discusses troubleshooting methods for equipment
E Documents appropriate information when using equipment

Equipment *Demonstrates appropriate use of the following equipment in providing patient care*	0-11 mos Infant	1-12 yr Pediatric	13-17 yr Adolesc	18-60 yr Adult	61+ yr Geriatric
Pre-cordial stethoscope					
Noninvasive blood pressure					
Pulse oximeter					
Suction					
Oxygen delivery					
Airways					
Ambu-bag					
Knows location of the following emergency equipment & how to summon emergency assistance					
Defibrillator					
Intubation equipment					
ECG monitor					
Knows phone number for "Code Blue"					

Intra / Post Sedation / Analgesia Checklist for RN

A Demonstrates the acquired knowledge of age-specific anatomy, physiology, and complications related to deep sedation/analgesia and sedation medications.
B. Demonstrates knowledge of age-appropriate physiological parameters.
C. Assesses total patient care requirements during deep sedation and recovery physiologic measurements should include, but not limited to·
- respiratory rate and pattern
- oxygen saturation
- blood pressure
- level of consciousness

D. Anticipates and recognizes potential complications and intervenes appropriately in relation to the type of medication being administered

Intra / Post Sedation / Analgesia Demonstrates how to monitor and document patient's response to sedation/analgesia.	0-11 mos Infant	1-12 yr Pediatric	13-17 yr Adolesc.	18-60 yr Adult	61+ yr Geriatric
Care of the sedated patient					
Use of Aldrete Scale					
Use of Ramsay Scale					
Use of ASA Scale					

DISCHARGE (WHEN APPLICABLE)
Checklist For RN

A. Discusses discharge criteria.
B. Assesses patient according to discharge criteria and documents
C Discusses criteria to be met prior to discharge/transfer

Discharge Demonstrates knowledge to assess patient according to discharge criteria and documents appropriately.	0-11 mos Infant	1-12 yr Pediatric	13-17 yr Adolesc	18-60 yr Adult	61+ yr Geriatric
Discharge/transfer evaluation					

Baylor Emergency Department QA Review_Midas: Moderate Sedation

Patient Name _____ Occurrence Date_____ Location_____

ID/Billing #_____ Physician _____ Nurse _____

Were the anesthesia/sedation consents obtained prior to the use of sedation?	❒ Yes	❒ No	
Did the physician complete the required pre-sedation assessment check list?	❒ Yes	❒ No	
Was the physician credentialed?	❒ Yes	❒ No	
Was the "Time Out" time noted?	❒ Yes	❒ No	
Was the nursing initiated pre-assessment portion of the record completed?	❒ Yes	❒ No	
Were vital signs documented every 5 minutes during sedation?	❒ Yes	❒ No	
Was ETCO2 documented every 5 minutes during sedation?	❒ Yes	❒ No	
Was the Pain Scale documented every 15 minutes?	❒ Yes	❒ No	
Did the patient meet discharge criteria?	❒ Yes	❒ No	❒ N/A
Was it documented that the patient/family received discharge instructions?	❒ Yes	❒ No	❒ N/A
Was RRT or Code Blue called during the procedure or during recovery?	❒ Yes	❒ No	
Reversal agent given during/after procedure?	❒ Yes	❒ No	
Reversal agent used?	❒ Narcan	❒ Romazicon	
Mallampati Score	❒Class I ❒Class II ❒Class III ❒Class IV	❒ Not Doc	
ASA Score	❒ASA 1 ❒ASA 2 ❒ASA 3 ❒ASA 4 ❒ASA 5	❒ Not Doc	
Any adverse outcome?	❒ Yes	❒ No	
Ramsey Score of 4 or greater documented (ED audit)	❒ Yes	❒ No	

Comments. _____

_____

_____

Dr. d'Etienne Review

Medication:_____ **Time:**_____

Medication:_____ **Time:**_____

Medication:_____ **Time:**_____

Medication:_____ **Time:**_____

Medication:_____ **Time:**_____

Medication:_____ **Time.**_____

Procedure:_____ **Time:**_____

Moderate Sedation? ❒ Yes ❒ No

Initials:_____