

SEDATION AND ANALGESIA PROTOCOL

Introduction

Sedation and analgesia describes a state produced by the proper administration of pharmacologic agents that allows the patient to tolerate unpleasant procedures. The patient has a depressed or altered level of conscious but retains the ability to independently and continuously maintain a patent airway, follow verbal commands, and respond appropriately to tactile stimulation. These drugs may be administered via peripheral or central venous access, oral, rectal, intramuscularly, and/or intranasally.

- Sedation/analgesia provides the benefits of increasing patient tolerance of certain diagnostic and therapeutic invasive procedures and of expediting procedures that require patient cooperation. Risks include respiratory depression, apnea, hypotension, severely slurred speech, unarousable sleep, and/or paradoxical responses such as agitation or combativeness.
- Only designated RNs who have demonstrated competency in medication administration (unit/department specific) and management of complications may administer sedation/analgesia with physician order.
- This protocol is NOT meant for use in care such as pain control, sedation of ventilated patients or for relief of anxiety. See policy/structure standards for additional information.

Pre-Sedation Activities

Validation

1. Validate designation of a qualified individual as defined in department standards to monitor the patient during the procedure.
2. Validate presence of the following information on the patient record:
 - height, weight, age
 - current medications
 - drug allergies or sensitivities
 - pregnancy status
 - previous adverse experience with sedation/analgesia (including regional or general anesthesia)
 - history of substance abuse
 - concurrent medical problems/abnormalities of major organ systems chief complaint/indication for procedure
 - focused physical assessment (specific to procedure to be performed)
 - ASA risk classification
3. Confirm patient's readiness for sedation/analgesia:
 - level of alertness and orientation to person/time/place/event (age appropriate)
 - no allergy/sensitivity to the prescribed sedation medication
 - signed informed consent; verbalization of understanding by patient/family others of risks, alternative sedation options, and procedure to be performed
 - time and nature of patient's last oral intake (see table #1)
4. Validate the presence at the bedside or easy accessibility to:
 - emergency resuscitation equipment, including defibrillator
 - O₂ equipment with cannula or face mask
 - suctioning equipment
 - functioning emergency call system
 - emergency drugs, including reversal agents
 - Pediatrics: Emergency drug sheet

Initial Assessment

5. Assess prior to administering sedation:
 - vital signs (BP, pulse rate/rhythm, respirations, temp)
 - skin color, warmth, dryness and sensation
 - breath sounds
 - SaO₂ level via pulse oximeter
 - patient ability to hyperextend neck, maintain airway, and open mouth without difficulty
 - Aldrete Score
6. Validate current height and weight of pediatric patients and calculate correct dosage of reversal agents for potential administration prior to procedure.

Monitoring Equipment

7. Attach finger probe for continuous oximetry reading during sedation, procedure, and recovery.
8. Attach to EKG monitor and noninvasive BP cuff as relevant.

**Patient
Instruction**

9. Instruct the patient and/or family:
 - to anticipate drowsiness/sleepiness lasting a short period
 - that conscious awareness of activity will be limited
 - that ability to hear, especially instructions, will remain
 - that BP cuff and pulse ox probe will remain in place during sedation/procedure
 - that recovery period will be relatively short (30-60 minutes)
 - that any necessary ambulation during recovery MUST be supervised
 - that a responsible person should drive outpatient home and be available for the day

Consult

10. Consult with MD regarding the need for cardiac monitoring.
11. Consult with MD regarding need for peripheral IV access.

Procedure**Sedation
Administration**

12. Validate MD order for sedation/analgesia
13. Administer initial dose, then titrate medication to desired effect. Recommended initial IV doses for drugs most commonly used are:

	<u>Adult</u>	<u>Pediatric</u>
• Diazepam (Valium)	2 mg to 10 mg	0.25 mg/kg
• Lorazepam	0.05 mg/kg (maximum dose 4mg)	0.03 - 0.05 mg/kg
• Midazolam (Versed)	0.07 mg to 0.08 mg/kg (maximum dose 2.5 mg)	0.035 mg/kg
• Morphine	0.025 to 0.2 mg/kg	0.05 to 0.2 mg/kg
• Meperidine (Demerol)	1 to 1.5 mg/kg	1 to 2 mg/kg
• Fentanyl	1 mcg to 2 mcg/kg	1 mcg to 2 mcg/kg
• Sufentanil	0.1 to 0.2 mcg/kg	0.1 to 0.2 mcg/kg
• Intranasal Versed	0.1 to 0.4 mg/kg	

- * Reference: Pediatrics - Harriet Lane - Mosby Year Book, Inc. 1991
 Adult - AHFS-95 Drug Information - American Hospital Formulary Service
 ASHSP - Inc., packages inserts, Micromedex

Assessment

14. Assess at least every 15 minutes during sedation/procedure as indicated by the individual patient health status, length of the procedure, type and dosage of sedation:
 - BP, pulse rate/rhythm
 - patient responsiveness to verbal/tactile stimulus
 - SaO₂

Safety

15. Observe patient position, especially watching for placement of extremities/digits as patients with decreased level of consciousness (LOC) may not be aware of poor positioning or pinched fingers.
16. Keep stretcher/bed rails elevated as relevant.

Report

17. Report to the MD immediately:
- rise or drop in systolic BP \geq 30 mmHg
 - sustained tachycardia ($>$ 150 beats/min) or bradycardia ($<$ 50 beats/min) or serious arrhythmia (as monitored)
 - rise or drop in respiratory rate (\pm 6/min from baseline); dyspnea, apnea, hypoventilation or cyanosis
 - O₂ saturation 5% below baseline
 - marked decrease in patient responsiveness to verbal/tactile stimulation
 - diaphoresis
 - signs/symptoms of allergy medicine intolerance
 - other untoward or unexpected patient responses

Post Procedure Activities

Assessment

18. Assess the patient upon completion of procedure and at least every 15 minutes until he/she reaches discharge criteria defined in Aldrete Score of eight (8) or pre-procedure score:
- BP, pulse rate/rhythm, respiratory rate/depth
 - SaO₂ level
 - LOC, sensation

Discontinue

19. Discontinue IV access, if purpose was only for sedation administration, when patient is ready for discharge.
20. Discontinue pulse oximetry when the patient's SaO₂ is above 95% (or to pre-sedation level) for at least 30 minutes post-sedation administration AND there is absence of respiratory complications.

Discharge Criteria

21. Discharge the patient from the post sedation/procedure recovery when the patient reaches Aldrete Score of eight (8) or pre-procedure score
- patient alert/oriented to time/place/person, and conversant with clear articulation (age appropriate)-or are at pre-sedation level
 - patient's cardiovascular and respiratory status are assessed to be absent of any new complications and within range of pre-sedation levels
 - patient is able to move and coordinate all muscle groups within pre-sedation abilities
 - patient or family can verbalize post-sedation/discharge instructions AND/OR verbal report, identifying interventions and patient response, has been given to nursing unit receiving patient post-procedure
22. Monitor hospitalized inpatients until they reach an Aldrete Score of eight (8) or pre-procedure score.
23. Notify MD if patient does not meet discharge criteria within 2 hours.

Instructions

24. Provide patient and/or family with written discharge instructions about post-sedation/procedure activities to include:
- do not drive, operate heavy/dangerous equipment or sign any legal documents until the next day
 - a responsible person should drive him/her home and be available for the day

Document

25. Assessment data, pre- and post - procedure Aldrete Score, any abnormalities, physician notification, any interventions and patient response.
26. Location and number of attempts needed to establish IV access, IV fluids (if applicable).
27. Medications.
28. Absence/occurrence of complications, any interventions and response to interventions.
29. Patient/family teaching and response.
30. Area to which patient transferred, mode of transfer, and person receiving report OR discharge time and who accompanied patient at discharge.

Complication Management

31. Notify MD of any complications as outlined in Step 16.
32. For signs of respiratory depression/compromise:
 - validate open airway
 - administer O₂ via cannula 2-4 L/min or face mask 6L/min
 - prepare for possible resuscitative measures; utilize bag/mask as needed
 - observe patient and monitor oximeter readings for signs of improved oxygenation/respiratory status
33. For marked decrease in responsiveness:
 - administer reversal agent STAT as ordered and observe patient for improved response
 - repeat reversal administration until patient reaches desired level of consciousness, monitor patient for at least 45 minutes after recovery
 - if no response after maximum dosage reached, question the diagnosis of sedative - induced toxicity and consult with MD for further diagnostic/therapeutic interventions

Recommended dosages for reversal agents are:

- | | |
|-----------|---|
| Adult: | • Narcan 0.4 mg; may repeat every 2-3 minutes until maximum 10 mg |
| | • Romazicon 0.2 mg over 15 seconds; may repeat every 60 seconds until maximum 1mg |
| Pediatric | • Narcan .005-.01 mg/kg |
| | • Romazicon .02-.03 mg/kg over 30 seconds to maximum 0.2mg |

34. For episodes of emesis, choking or possible aspiration:
 - suction oropharynx and/or nasopharynx to maintain patent airway
 - prepare for O₂ administration and/or other resuscitation measures
35. For respiratory arrest:
 - ventilate as needed
 - call for assistance as needed
 - administer reversal agent as needed
36. For hypotension:
 - consider IV fluids, inotropic agents, and Trendelenburg position, if possible
37. For cardiac arrest:
 - call Blue Alert STAT
 - initiate CPR and resuscitation measures immediately

References

- American Academy of Pediatrics Committee on Drugs. (1992). Guidelines for monitoring and management of pediatric patients during and after sedation for diagnostic and therapeutic procedures. *Pediatrics*, 89 (6), 1110-1115.
- American Society of Anesthesiologists. (1995). Guidelines for sedation and analgesia by non-anesthesiologists.
- Watson, D. (1994). *IV Conscious Sedation: Policy, Procedure, and Competency Manual*. Los Angeles: American Medical Systems, Inc. Sedation and Analgesia Task Force, 3/96.

Date: 1/99

Sedation and Analgesia Protocol

FASTING PROTOCOL FOR SEDATION AND ANALGESIA
TABLE 1

Gastric emptying may be influenced by many factors including anxiety, pain, abnormal autonomic function (e.g., diabetes), pregnancy, and mechanical obstruction. Therefore the table below does not guarantee that complete gastric emptying has occurred. Unless contraindicated, pediatric patients should be offered clear liquids until 2-3 hours before sedation to minimize the risk of dehydration.

	Solids & Non-Clear Liquids*	Clear Liquids
ADULTS	6-8 HOURS OR NONE AFTER MIDNIGHT	2-3 HOURS
CHILDREN > 36 MONTHS OLD	6-8 HOURS	2-3 HOURS
CHILDREN 6-36 MONTHS OLD	6 HOURS	2-3 HOURS
CHILDREN < 6 MONTHS OLD	4 HOURS	2 HOURS

*THIS INCLUDES MILK FORMULA, AND BREAST MILK (High fat content may delay gastric emptying)

**THERE IS NO DATA TO ESTABLISH WHETHER A 6-8 HOUR FAST IS EQUIVALENT TO AN OVERNIGHT FAST PRIOR TO SEDATION/ANALGESIA

REFERENCE: American Society of Anesthesiologists, 1995

ALDRETE SCORE CARD
TABLE 2

ALDRETE SCORE	PRE	POST
Able to move 4 extremities voluntarily or on command = 2 Able to move 2 extremities voluntarily or on command = 1 Able to move 0 extremities voluntarily or on command = 0		
	ACTIVITY	
Able to deep breathe and cough freely = 2 Dyspnea or limited breathing = 1 Apneic = 0		
	RESPIRATION	
BP ± 20% of Preanesthetic level = 2 BP ± 20-50% of Preanesthetic level = 1 BP ± 50% of Preanesthetic level = 0		
	CIRCULATION	
Fully Awake = 2 Arousable on calling = 1 Not responding = 0		
	CONSCIOUSNESS	
Pink = 2 Pale, dusky blotchy, jaundiced, other = 1 Cyanotic = 0		
	COLOR	
TOTAL		