Conscious Sedation

STANDARDS FOR SEDATION

PATIENT CARE MANUAL

NSG-V-S-3.0

AVAILABLE ON CLINICAL INTRANET

Objectives

- Define conscious sedation
- Recognize indications for the use of conscious sedation
- Identify medications associated with the use of conscious sedation
- Identify the SIUH Policy and Procedure that govern this practice
- Identify “age specific” considerations in the administration of conscious sedation

Definitions

- *Conscious Sedation:* A drug induced depression of consciousness
  - Patients respond purposefully to verbal or tactile commands
  - Patient can independently maintain a patent airway
  - Spontaneous breathing is adequate
  - Cardiovascular function is maintained.

3 Levels of Sedation

1. Minimal Sedation (anxiolysis):
   - patients respond normally to verbal commands.
   - Ventilatory and cardiovascular function are unaffected
   - Cognitive function and coordination may be impaired
2. Moderate Sedation/Analgesia (Conscious Sedation)
   - patients respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation
   - interventions are not required to maintain a patent airway
   - Spontaneous ventilation adequate and cardiovascular function is usually maintained
3. Deep Sedation- see next page

Deep Sedation-Level 3

- 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.
- Documentation is done by Anesthesia on the Anesthesia Record

Age Specific Considerations

Pediatric	Geriatric
• Normal respiratory and heart rates vary with age • Airway is higher • Consider developmental age • Hepatic and renal function may impact drug metabolism • Potential for complications is higher	• Decrease in laryngeal and pharyngeal reflexes increase risk of airway compromise • Decreases in cardiac output may lead to decreased renal and hepatic blood flow and alter drug metabolism & excretion • Increased risk of hypoxia, hypercapnia & dysrhythmia

Standards for Sedation:

Patient Care Manual -NSG-V-S-3.0

- Documentation of pre-procedure assessment
- Assessment of patient's status regarding food and fluid restrictions
- Informed consent obtained
- Continuous EKG and pulse oximetry monitoring
- V/S q 5 minutes during procedure (may use non-invasive BP monitoring)
- IV access maintained
- Supplemental O^2, emergency equipment available
- American Society of Anesthesia (ASA) classification and Aspiration Risk Assessment completed by MD
- Capnography (end-tidal CO2 monitoring) is required for Deep Sedation.
  - There is an increased risk of entering Deep Sedation when using the following medications:
    - etomidate, ketamine, propofol and fentanyl
  - Administration of etomidate, ketamine & propofol require end tidal CO2 monitoring

General Considerations

- Nursing personal must:
  - Demonstrate knowledge of the pharmacology and side effects of medications used
  - Maintain BLS certification
  - Demonstrate ability to position the airway, suction, use oral airways and supplemental oxygen

Drug Classification

- Benzodiazepines: Provide sedation and amnesia, some skeletal muscle relaxation. Provides no analgesia.
  - Midazolam (Versed), lorazepam (Ativan), diazepam (Valium), alprazolam (Xanax)
- Opiods (narcotics): Provide analgesia, decreased level of consciousness, respiratory depression
- Sedative hypnotics (propofol): Provides sedation and is an antiemetic. Provides no analgesia.

Medications used for Minimal to Moderate Sedation

Medications used for Level 1	Medications used for Level 2
• Chloral Hydrate • Diazepam • Meperidine • Midazolam • Morphine	• All meds used in level I plus: • Etomidate • Fentanyl • Ketamine • Propofol *These drugs pose an increased risk of patients entering deep sedation.

Medication Guidelines

- Drug doses generally reduced for:
  - Combination of sedative & hypnotics
  - Elderly, debilitated patients
  - Patients with significant organ system disease
  - Patient has received other depressant medications
  - *V/S must be done q 5 minutes while giving medications*

Reversal agents

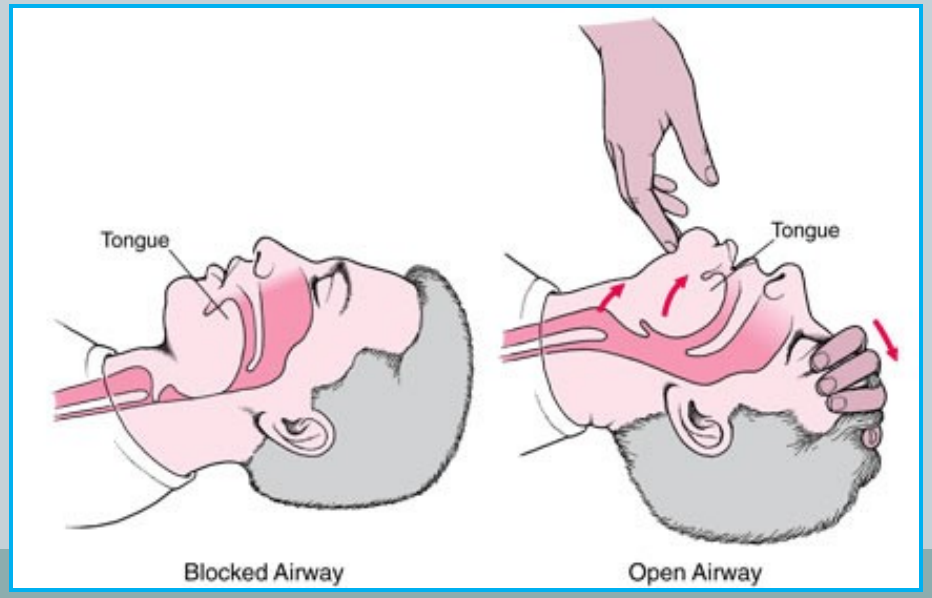
- Naloxone (Narcan): Narcotic antagonist. Acute reversal of opiod-induced analgesia may result in pain, hypertension, tachycardia or pulmonary edema
  - *Patients receiving Naloxone (Narcan) must have vital signs q 15 minutes X 1 hours post –procedure*
- Flumazenil (Romazicon): Benzodiazepine antagonist. May produce seizures in patients with history of use/abuse
  - *Patients receiving Flumazenil (Romazicon) must have vital signs q 15 minutes for two (2) hours post-procedure.*

Intra-procedural Monitoring & Documentation

- Continuous monitoring and documentation of the following every 5 minutes:
  - Heart rate
  - Respiratory rate and adequacy of pulmonary ventilation
  - SpO2 by pulse oximetry
  - Noninvasive blood pressure
  - Level of consciousness
  - EKG monitoring for all patients having deep sedation and others at risk of cardiac ischemia or dysrhythmia
  - End-Tidal CO2 monitoring (Capnometry) is required for deep sedation

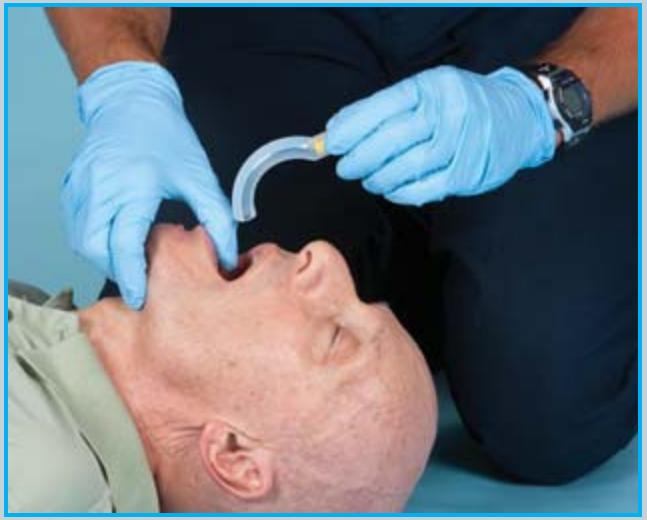
Airway

- ***Airway:*** When a person becomes unconscious, they loose all muscle tone. The tongue being a muscle relaxes and may block the airway. The tongue is the most common cause of airway obstruction in an unconscious adult. To mitigate this and reopen the victims airway, we must perform a physical intervention to lift and move the tongue out of the way. The maneuver used to open a victims airway is called a **head tilt/chin lift.**



Oral Airway- Unconscious patient

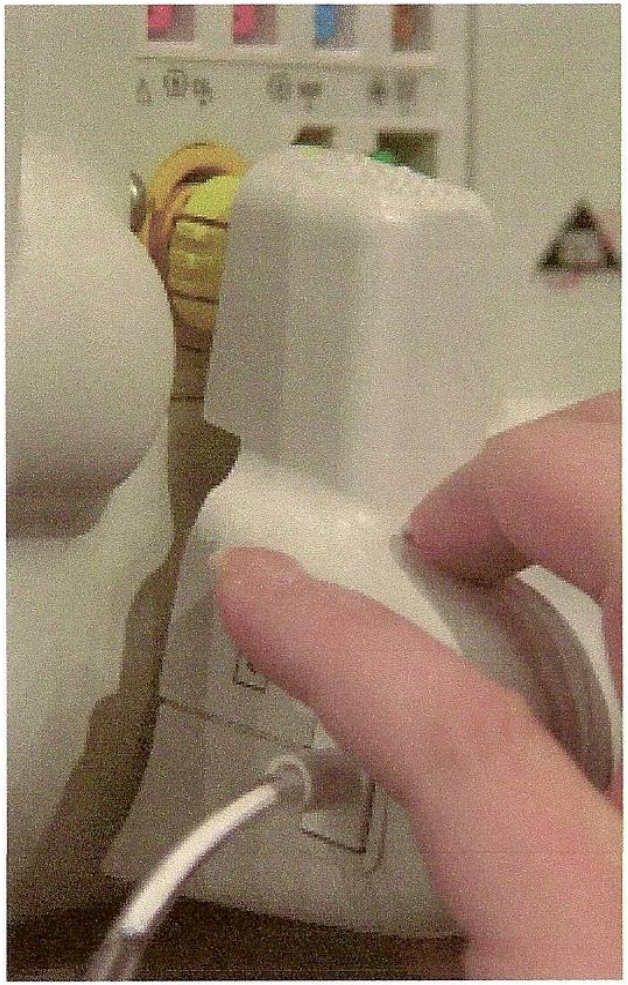
- Select the proper size
  - Measure the oral airway from the earlobe to the corner of the mouth
- Open the mouth
- Insert the oral airway
  - Grasp the lower jaw and tongue and lift upward
  - Insert the oral airway with the curved end along the roof of the mouth
  - As the tip approached the back of the mouth rotate it one-half turn
  - Slide the oral airway into the back of the throat
- Ensure correct placement
  - Flange should rest on the victims lips



Capnography Basics

- **End tidal CO2 monitoring detects hypoventilation before a pulse oximetry reading will decrease**
  - **End-tidal CO_2:** *CO_2 present in the airway at the end of exhalation*
  - **Capnometry:** *The numeric measurement of the concentration of carbon dioxide in the airway throughout the ventilatory cycle.*
  - **Capnography:** *The waveform displayed*
  - **PetCO_2:** *Pressure of end-tidal CO_2*

CapnoFlex LF CO_2 is a continuous, non-invasive technique for determining the concentration of carbon dioxide (CO_2) in respiratory gas.

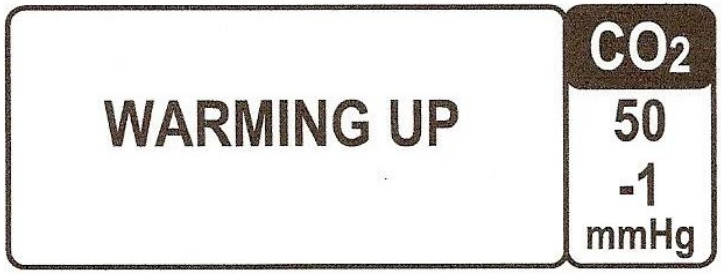


CapnoFlex LF CO_2 Module Connection to Dash Monitor

CapnoFlex LF CO_2 Setup Procedure

Caution: Do not use this module on patients that cannot tolerate the removal of 50ml / 1 min from their total minute ventilation.

1. Plug the module into the CO_2 connector (yellow port) on the Dash monitor
   - The CO_2 parameter window will automatically display once the module is connected.
   - The message "**WARMING UP**" will be displayed for approximately two minutes after the module has been connected.



CO_2 Parameter Window with Warming Up Message

Refer to Operators Manual for Any Specific Questions.

For Customer Support or Clinical Helpline, Call: 1-800-558-7044.

CapnoFlex LF CO_2 Setup Procedure (continued).

MAIN MENU		UNITS: MMHG	CO2 SCALE 50	CO2 LIMITS	NZO COMP 0-40%	
O2 COMPENSATION 0-60% O2		CO2 AVERAGING SINGLE BREATH		CALIBRATE SAMPLE LINE		SPEED: 6.25

CO_2 Menu with Calibrate Sample Line

2. Complete the appropriate steps based on the message appearing in the CO_2 parameter window.

CALIBRATE SAMPLE LINE

- Connect the cannula to the module, but not the patient.
- Select **CO_2** parameter window.
- Select **CALIBRATE SAMPLE LINE**.
- Select **READY**.

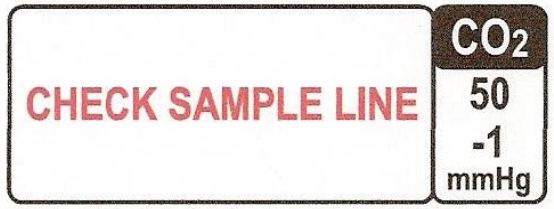
  The message "**CALIBRATING**" will be displayed.
- Connect the cannula to the patient after "**CHECK SAMPLE LINE**" message appears.

NOTE: Refer to manufacturers recommendations for cannula application.

CO_2 Parameter Window with Calibrate Sample Line Message

CHECK ADAPTER/ADAPTER CAL

- The module is ready for use.
- Connect the patient sample line and the O_2 tubing with a male adapter to the module and the patient.

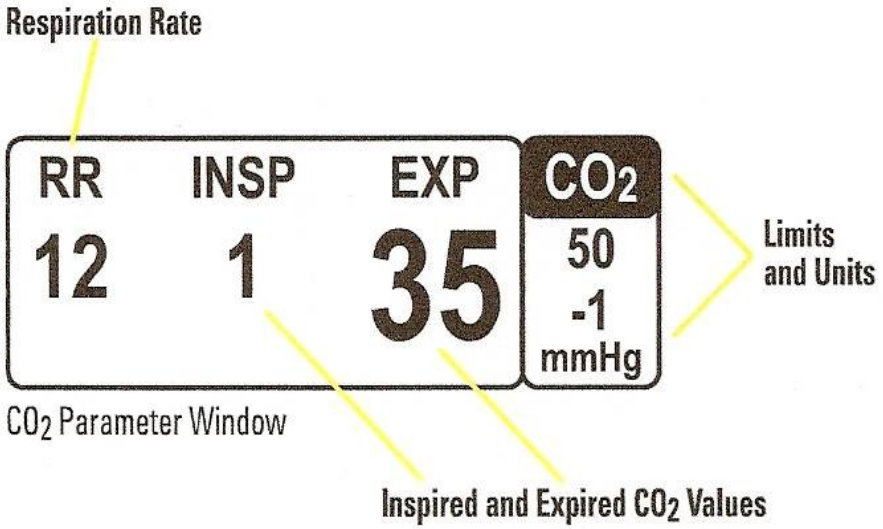


CO_2 Parameter Window with Check Adapter/ Adapter Cal Message

3. CO_2 monitoring begins when the patient is properly connected and a breath is detected. Numerics will be displayed in the CO_2 parameter window and the CO_2 waveform may be displayed on the screen.

To Adjust CO_2 Parameter Limits:

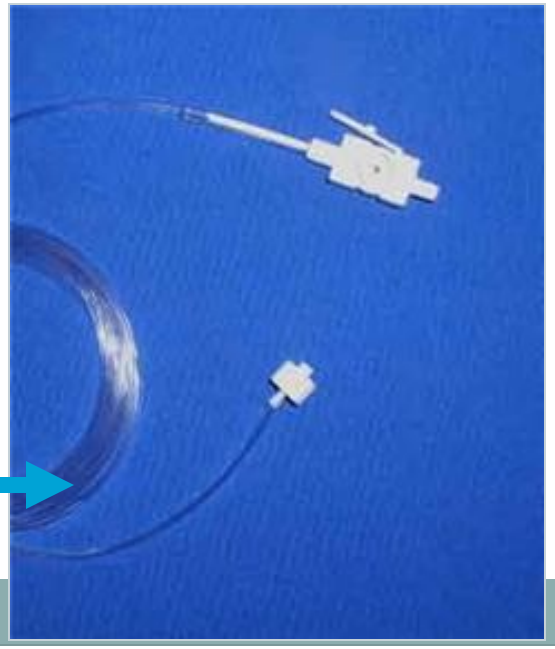
- Select the CO_2 parameter window.
- Select the CO_2 LIMITS
- Select desired limit to be adjusted (Expired CO_2, Inspired CO_2, Respiration Rate, No Breath).
- Rotate the Trim Knob until the desired limit is displayed.
- Press the Trim Knob to confirm change and close menu.
- Repeat the procedure to adjust other CO_2 parameter limits.



Capnoflex Module

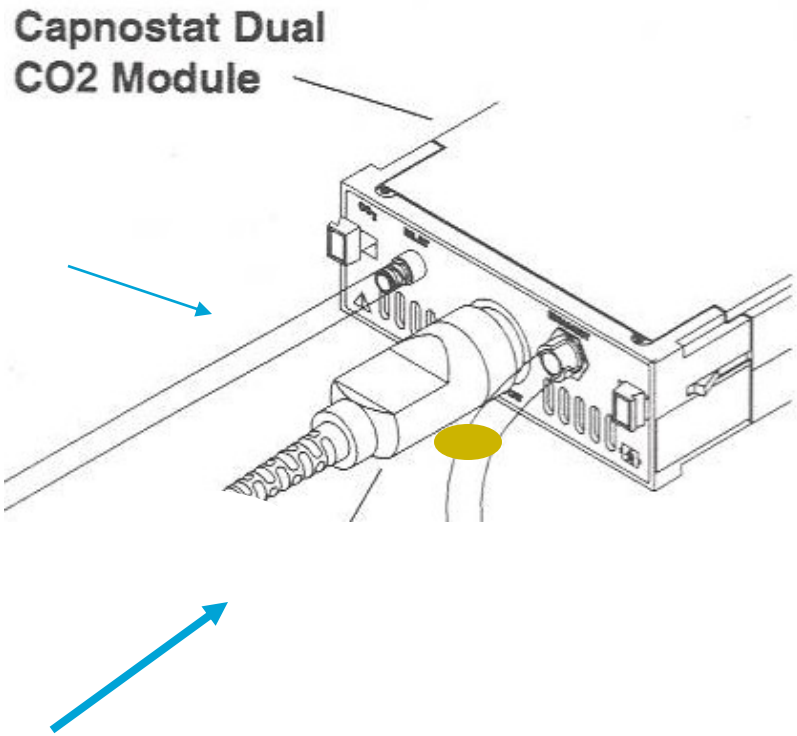
Dash Monitor Set-up with the Capnoflex Module

Nasal cannula for use with the Capnoflex



Side stream Set up GE Solar Monitor

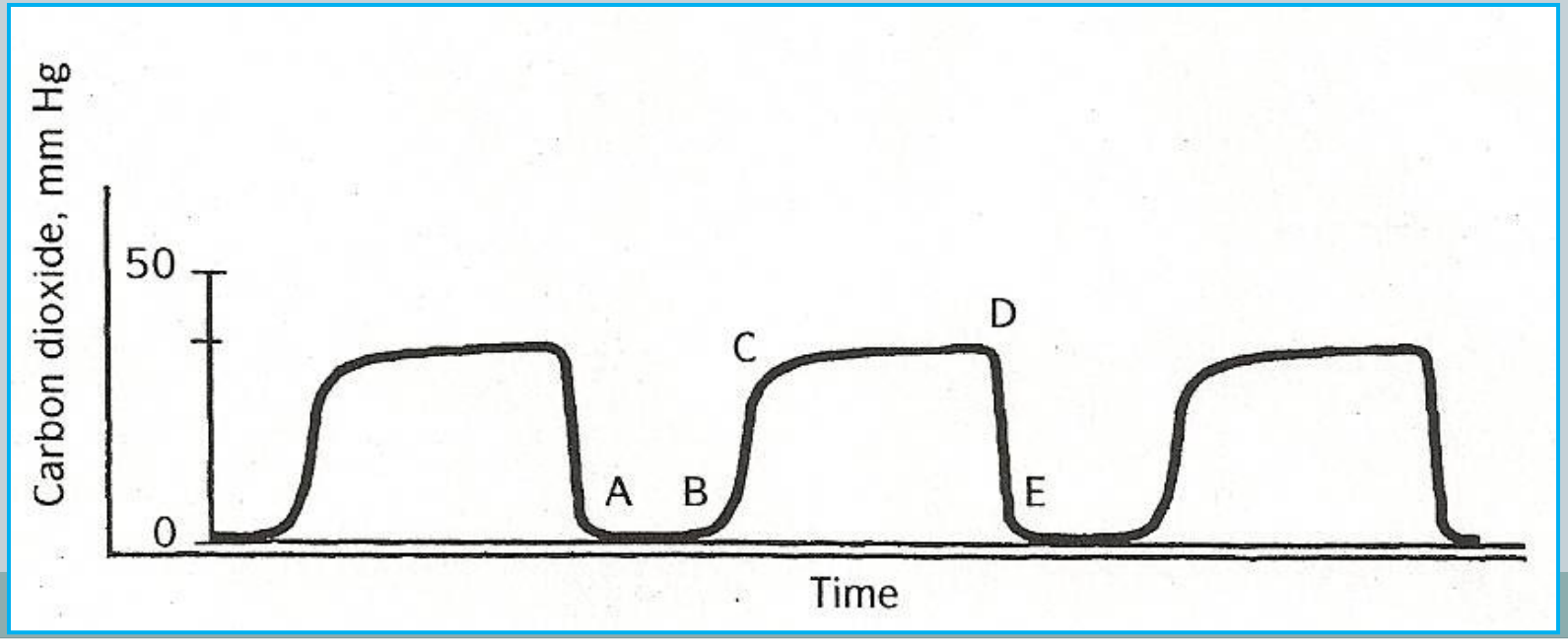
(for patients with nasal cannula)



Insert CO2 module into tram housing of bedside monitor.
Attach capnoflex module to yellow port.
Insert sensor of nasal cannula into sensor slot. "Zero" sensor.

Normal findings on a Capnogram Waveform

- A→B indicates the baseline
- B→C expiratory upstroke
- C→D, alveolar plateau
- D - partial pressure of end-tidal carbon dioxide
- D→E inspiratory downstroke



Complications of Conscious Sedation

- Hemodynamic instability/hypotension most common
- Others
  - Over/under sedation (elderly, young, obese)
  - Respiratory insufficiency
  - Airway obstruction
  - Aspiration
  - Dysrhythmias (most common in elderly)
  - Nausea and vomiting

Documentation

DOCUMENTATION
SEDATION ASSESSMENT FORM
GUIDELINES
ADM III 4.3

AVAILABLE ON THE CLINICAL INTRANET

ADM POLICY AND PROCEDURE MANUAL

Part One: Pre-procedure Assessment

MD and RN complete

Sedation Form: 40087 C (03/13)

25

North Shore LIJ Staten Island University Hospital

SEDATION

PRE PROCEDURE ASSESSMENT

Plan of Care / Procedure: _____ **/Sedation** **Date:** _____ **Time:** _____

Weight: _____ **lbs/kgs** **ID Band** ☐ **Yes** **Area of use** _____ **Dentures** **Yes** **No** **Removed**

MD Performing Procedure: _____ Emergency Yes No

Indication for Sedation: _____

Past History: *(circle if present)* Diabetes, Hypertension, Anemia, COPD, Morbid obesity, CAD, CHF, Renal Failure

Other _____ .

Allergies: *(list)* _____

Prior Anesthesia Complications: *(circle)* NO, *(list)* YES _____

Current Medications: *(list)* _____

Level of Consciousness: *(Circle)* Alert & oriented/Lethargic/Stupor/Coma NPO status, (Circle) Yes No _____

Time _____ , Vital signs B/P _____ , Pulse: _____ , Resp. _____, Lung Sounds _____ , See H&P _____

***PAIN ASSESSMENT:** PAIN PRESENT ☐ No ☐ Yes Location: _____

TYPE: ☐ Acute ☐ Chronic ☐ Related to current illness? ☐ No ☐ Yes

QUALITY: ☐ Aching/Throbbing ☐ Dull ☐ Shooting ☐ Burning ☐ Sharp ☐ Pressure

INTENSITY: 0 No Pain 1 2 3 4 5 Moderate Pain 6 7 8 9 10 Worst Pain

Emergency Equipment: YES

EKG/Cardiac Monitor: _____ O_2 Sat. _____ O_2 _____

I.V. Line/Fluids _____ ☐ Comments _____

(Circle) ASA 1 2 3 4 5

Airway Assessed

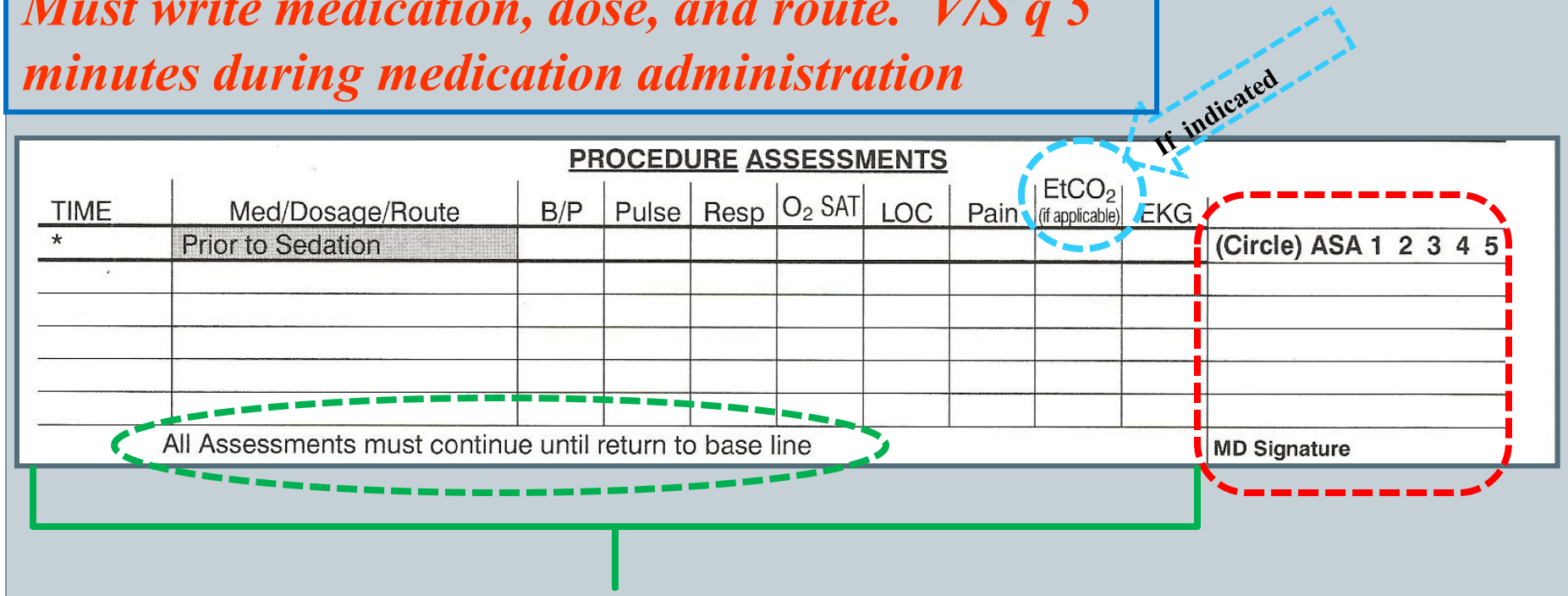
Aspiration Risk Assessed

MD Signature **Time**

Nurse Signature **Print Name** **Time**

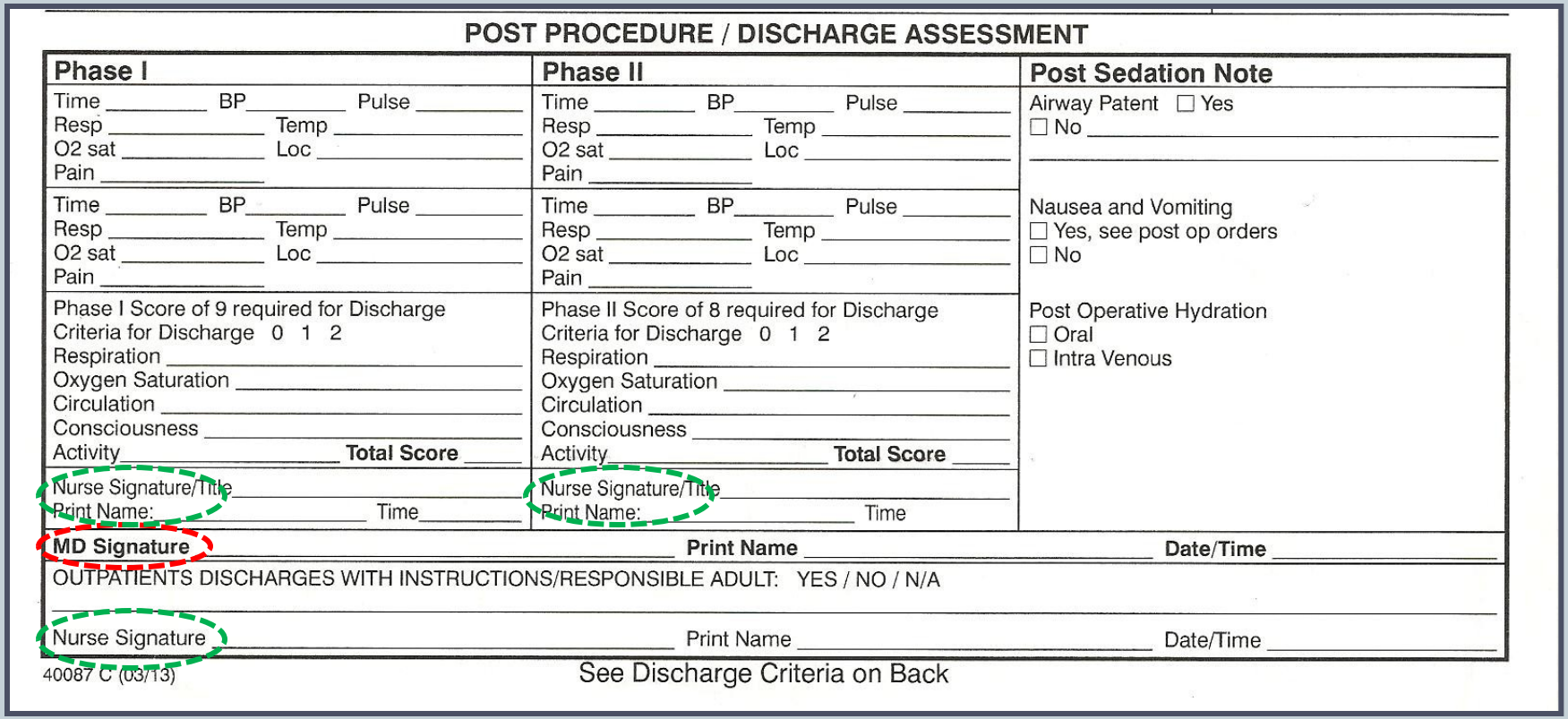
Procedure Assessments

Must write medication, dose, and route. V/S q 5 minutes during medication administration



RN Completes

Post Procedure /Discharge Assessment



POST PROCEDURE / DISCHARGE ASSESSMENT

Phase I	Phase II	Post Sedation Note
Time _____ BP_____ Pulse _____ Resp _____ Temp _____ O2 sat _____ Loc _____ Pain _____	Time _____ BP_____ Pulse _____ Resp _____ Temp _____ O2 sat _____ Loc _____ Pain _____	Airway Patent ☐ Yes ☐ No _____
Time _____ BP_____ Pulse _____ Resp _____ Temp _____ O2 sat _____ Loc _____ Pain _____	Time _____ BP_____ Pulse _____ Resp _____ Temp _____ O2 sat _____ Loc _____ Pain _____	Nausea and Vomiting ☐ Yes, see post op orders ☐ No
Phase I Score of 9 required for Discharge Criteria for Discharge 0 1 2 Respiration _____ Oxygen Saturation _____ Circulation _____ Consciousness _____ Activity _____ **Total Score** ____	Phase II Score of 8 required for Discharge Criteria for Discharge 0 1 2 Respiration _____ Oxygen Saturation _____ Circulation _____ Consciousness _____ Activity _____ **Total Score** ____	Post Operative Hydration ☐ Oral ☐ Intra Venous
Nurse Signature/Title _____ Print Name: _____ Time_____	Nurse Signature/Title _____ Print Name: _____ Time	

MD Signature _____ **Print Name** _____ **Date/Time** _____

OUTPATIENTS DISCHARGES WITH INSTRUCTIONS/RESPONSIBLE ADULT: YES / NO / N/A

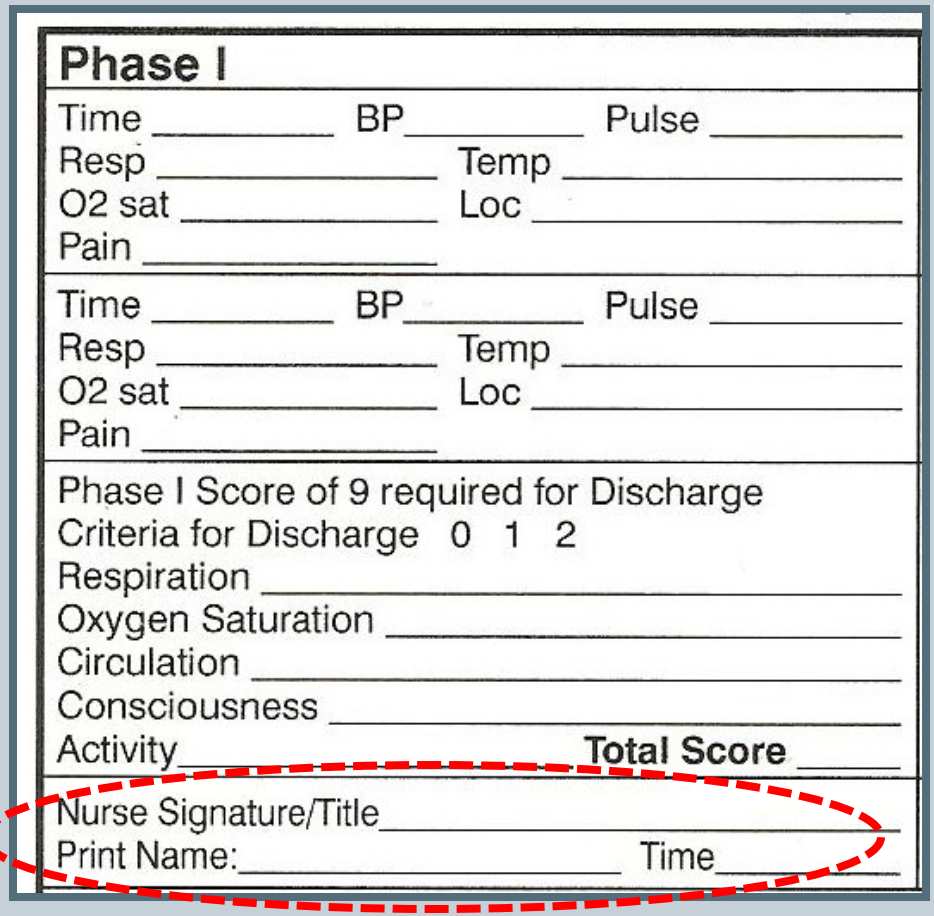
Nurse Signature _____ Print Name _____ Date/Time _____

40087 C (03/13)

See Discharge Criteria on Back

MD and RN to Complete

Post Procedure Discharge Assessment Phase 1



Phase I

Time _____ BP _____ Pulse _____
Resp _____ Temp _____
O2 sat _____ Loc _____
Pain _____

Time _____ BP _____ Pulse _____
Resp _____ Temp _____
O2 sat _____ Loc _____
Pain _____

Phase I Score of 9 required for Discharge
Criteria for Discharge 0 1 2
Respiration _____
Oxygen Saturation _____
Circulation _____
Consciousness _____
Activity _____ **Total Score** _____

Nurse Signature/Title _____
Print Name: _____ Time _____

- 2 sets of vital signs a minimum of every 15 minutes are required or more frequently until the patient recovers to an Aldrete score of 9 or more to be discharged to Phase II.
- Any score below 9 after 15 minutes, or sooner if indicated, will result in an anesthesia consult.
- Only a score of two (2) is acceptable for the following criteria:
  - Respiration/ circulation/ consciousness/ activity
  - Any score below 9 after 15 minutes, or sooner if indicated, will result in an anesthesia consult.
  - **Nurse's signature ends Phase I**

Phase I Criteria

- Must receive a total score of 9

CRITERIA FOR DISCHARGE PHASE I

RESPIRATION:
- 2 - Able to deep breathe & cough - Normal rate & depth.
- 1 - Dyspnea or limited breathing.
- 0 - Apnea, obstructed airway / mechanical ventilation

OXYGEN SATURATION:
- 2 - SpO2 > 96% on room air.
- 1 - SpO2 < 92% on room air or as pre-op status.
- 0 - SpO2 < 92% even with oxygen supplement.

CIRCULATION:
- 2 - BP +/-20% of preanesthesia value.
- 1 - BP +/-20%-49% of preanesthesia value. (abnormal dysrhythmia)
- 0 - BP +/-50% of preanesthesia value. (symptomatic dysrhythmia)

CONSCIOUSNESS:
- 2 - Easily Awakened & orientated x 3 or as pre-op status.
- 1 - Arousal on verbal stimuli.
- 0 - Nonresponsive.

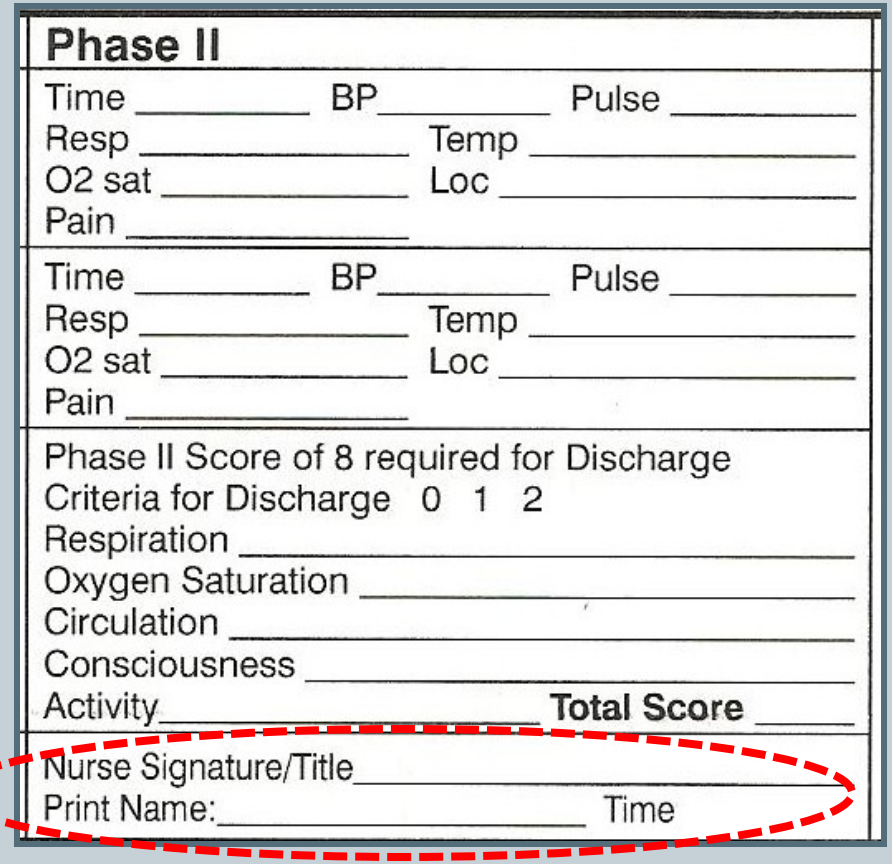
ACTIVITY:
- 2 - Able to move 4 extremities on command or as pre-op status.
- 1 - Able to move 2 extremities on command or as pre-op status.
- 0 - Unable to move extremities.

SYSTOLIC BLOOD PRESSURE VALUES

Preanesthesia	20%	49%
80	64-96	40-119
90	72-108	45-134
100	80-120	51-149
110	88-132	56-163
120	96-144	61-178
130	104-156	66-193
140	112-168	71-208
150	120-180	76-223
160	128-192	81-238
170	136-204	86-253
180	144-216	91-268

Criteria for discharge is located on back of white form

Post Procedure Discharge Assessment Phase II



Phase II

Time _____ BP _____ Pulse _____
Resp _____ Temp _____
O2 sat _____ Loc _____
Pain _____

Time _____ BP _____ Pulse _____
Resp _____ Temp _____
O2 sat _____ Loc _____
Pain _____

Phase II Score of 8 required for Discharge
Criteria for Discharge 0 1 2
Respiration _____
Oxygen Saturation _____
Circulation _____
Consciousness _____
Activity _____ **Total Score** _____

Nurse Signature/Title _____
Print Name: _____ Time

- Two sets of vital signs a minimum of every 15 minutes up to 45 minutes post procedure must be done.
- The nurse will mark each section with the appropriate score and then indicate total score.
- All patients must reach a Aldrete score of 9 or more to be discharged
- If the patient fails to meet a score of 8 or more within an acceptable time frame (30 minutes), the anesthesiologist must be notified
- **Nurse's signature ends Phase II**

Phase II Criteria

Additional references:

NSG-V-A-3.0 Aldrete Discharge Criteria

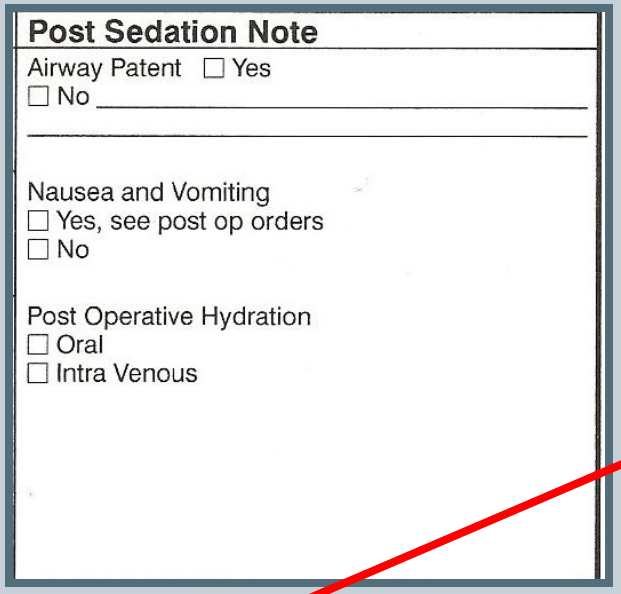
CRITERIA FOR DISCHARGE PHASE II

RESPIRATION: 2 - Able to deep breathe & cough - Normal rate & depth. 1 - Dyspnea or limited breathing. 0 - Apnea, obstructed airway / mechanical ventilation.
CIRCULATION: 2 - BP +/-20% of preanesthesia value. 1 - BP +/-20% - 49% of preanesthesia value 0 - BP +/-50% of preanesthesia value.
CONSCIOUSNESS: 2 - Fully awake & orientated x3 or as pre-op status. 1 - Arousal on verbal stimuli. 0 - Nonresponsive.
ACTIVITY: 2 - Able to move 4 extremities on command or as pre-op status. 1 - Able to move 2 extremities on command or as pre-op status. 0 - Unable to move extremities.

Standards for Sedation
NSG-V-S-3.0

Sedation Assessment Form Guidelines
ADM III D 4.3

Post Sedation Note



Post Sedation Note

Airway Patent ☐ Yes
☐ No _____

_____

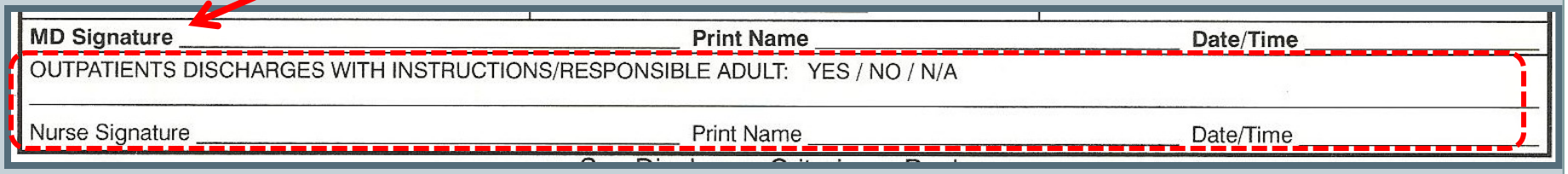
Nausea and Vomiting
☐ Yes, see post op orders
☐ No

Post Operative Hydration
☐ Oral
☐ Intra Venous

The physician will check off:

- **airway patency assessment with yes or no; if no, explanation required**
- **Nausea and Vomiting with yes or no; if yes, see post-operative orders for treatment**
  - **post-operative hydration oral or intravenous**

- **The physician signature below authenticates the physician has reviewed and acknowledges the Phase I and Phase II patient vital signs, pain assessment, respirations, 02 saturation, circulation, consciousness and activity.**



MD Signature _____ **Print Name** _____ **Date/Time** _____

OUTPATIENTS DISCHARGES WITH INSTRUCTIONS/RESPONSIBLE ADULT: YES / NO / N/A

_____

Nurse Signature _____ Print Name _____ Date/Time _____

Outpatients Discharge- RN documents

a.Patient discharged with instructions and responsible adult; circle yes, no or n/a. if no, document reason.

a.Nurse's signature, print name with date and time

Self-Assessment Quiz

True or False

1. The patient receiving conscious sedation *must* have completed a signed consent form prior to receiving sedating agents.
2. Benzodiazepines provide sedation and analgesia.
3. Discharge criteria and an acceptable score for discharge should be included on the conscious sedation flowsheet.
4. Dysrhythmia development is the most common cardiovascular complication occurring with conscious sedation administration.

Answers: 1 – T, 2 – F (Benzodiazepines do not provide analgesia), 3 – T, 4 – F (Hypotension is the most common complication)

Multiple Choice

1. The definition of conscious sedation includes:
   a. A depressed level of consciousness
   b. Patient retains the ability to independently and continuously maintain a patent airway.
   c. Patient retains the ability to respond appropriately to physical and verbal stimuli
   d. All of the above
2. Which of the following patients would be a good candidate for conscious sedation in most settings?
   a. A moribund patient
   b. A patient with mild systemic disease such as controlled hypertension
   c. Severe systemic disease that is incapacitating and life-threatening
   d. None of the above
3. Typical discharge criteria include:
   a. Adequate respiratory function and stable vital signs
   b. Attainment of a pre-procedural level of consciousness
   c. Intact protective reflexes
   d. All of the above
4. Reversal of benzodiazepines can be accomplished utilizing
   a. Naloxone (Narcan)
   b. Revex
   c. Flumazenil (Romazicon)
   d. Benzodiazepines cannot be reversed.
5. Components of the conscious sedation flowsheet should include:
   a. Presedation assessment
   b. Intrasedation documentation of medications and vital signs
   c. Postsedation care
   d. All of the above
6. Which of the following are normal changes associated with aging that will affect sedation medication administration?
   a. Cardiac output decrease
   b. Decreased responsiveness to blood carbon dioxide levels
   c. Decreased renal blood flow
   d. All of the above.
7. Patients at risk of over-or under sedation include:
   a. Obese patients
   b. Elderly patients
   c. Pediatric patients
   d. All of the above.

Answers: 1- d, 2 – b, 3 – d, 4 – c, 5 – d, 6 – d, 7 – d.

- Proceed to Quiz