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**
- 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

**Geriatric**
- 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 O², 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
• 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 (Xanaxes)

- Opioids (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

<table>
<thead>
<tr>
<th>Medications used for Level 1</th>
<th>Medications used for Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Chloral Hydrate</td>
<td>• All meds used in level I plus:</td>
</tr>
<tr>
<td>• Diazepam</td>
<td>• Etomidate</td>
</tr>
<tr>
<td>• Meperidine</td>
<td>• Fentanyl</td>
</tr>
<tr>
<td>• Midazolam</td>
<td>• Ketamine</td>
</tr>
<tr>
<td>• Morphine</td>
<td>• Propofol</td>
</tr>
</tbody>
</table>

*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 opioid-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.

  - 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 lose 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 victim's airway, we must perform a physical intervention to lift and move the tongue out of the way. The maneuver used to open a victim's 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 victim's lips
Capnography Basics

• **End tidal CO₂ monitoring detects hypoxia before a pulse oximetry reading will decrease**
  - **End-tidal CO₂**: CO₂ 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
  - **PetCO₂**: Pressure of end-tidal CO₂
CapnoFlex LF CO₂ is a continuous, non-invasive technique for determining the concentration of carbon dioxide (CO₂) in respiratory gas.

CapnoFlex LF CO₂ 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 CO₂ connector (yellow port) on the Dash monitor
   - The CO₂ 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.

Refer to Operators Manual for Any Specific Questions.
For Customer Support or Clinical Helpline, Call: 1-800-558-7044.
CapnoFlex LF CO₂ Setup Procedure (continued).

2. Complete the appropriate steps based on the message appearing in the CO₂ parameter window.

**CALIBRATE SAMPLE LINE**
- Connect the cannula to the module, but not the patient.
- Select CO₂ 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.

**CHECK ADAPTER/ADAPTER CAL**
- The module is ready for use.
- Connect the patient sample line and the O₂ tubing with a male adapter to the module and the patient.
3. CO₂ monitoring begins when the patient is properly connected and a breath is detected. Numerics will be displayed in the CO₂ parameter window and the CO₂ waveform may be displayed on the screen.

To Adjust CO₂ Parameter Limits:

- Select the CO₂ parameter window.
- Select the CO₂ LIMITS
- Select desired limit to be adjusted (Expired CO₂, Inspired CO₂, 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 CO₂ parameter limits.
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

<table>
<thead>
<tr>
<th>Plan of Care / Procedure:</th>
<th>Date:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID Band</td>
<td>Yes</td>
<td>Area of use</td>
</tr>
<tr>
<td>MD Performing Procedure:</td>
<td></td>
<td>Sedation</td>
</tr>
<tr>
<td>Indication for Sedation:</td>
<td></td>
<td>Dentures Yes No Removed</td>
</tr>
<tr>
<td>Past History: (circle if present) Diabetes, Hypertension, Anemia, COPD, Morbid obesity, CAD, CHF, Renal Failure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>Emergency Yes No</td>
</tr>
<tr>
<td>Allergies: (list)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior Anesthesia Complications: (circle) NO, YES (list)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Medications: (list)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of Consciousness: (Circle) Alert &amp; oriented/Lethargic/Stupor/Coma NPO status, (Circle) Yes No</td>
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</tr>
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</table>

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

<table>
<thead>
<tr>
<th>TYPE:</th>
<th>☐ Acute</th>
<th>☐ Chronic</th>
<th>☐ Related to current illness?</th>
<th>☐ No</th>
<th>☐ Yes</th>
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<tbody>
<tr>
<td>QUALITY:</td>
<td>☐ Aching/Throbbing</td>
<td>☐ Dull</td>
<td>☐ Shooting</td>
<td>☐ Burning</td>
<td>☐ Sharp</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>INTENSITY:</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Moderate Pain</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Worst Pain</th>
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<tbody>
<tr>
<td>Emergency Equipment:</td>
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<td></td>
<td></td>
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<tr>
<td>EKG/Cardiac Monitor:</td>
<td></td>
<td>O₂ Sat.</td>
<td></td>
<td>O₂</td>
<td></td>
<td></td>
<td>I.V. Line/Fluids</td>
<td></td>
<td>☐ Comments</td>
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</tbody>
</table>

Airway Assessed ☐ Yes
Aspiration Risk Assessed ☐ Yes

MD Signature: ____________________________  Time: ____________________________

Nurse Signature: ____________________________ /
Part II: Intra-procedure and Post Procedure Documentation
MD and RN to Complete

Must write medication, dose, and route. V/S q 5 minutes during medication administration
Post Procedure- Phase 1

- 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.

- 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

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**PHASE I**

<table>
<thead>
<tr>
<th>Time</th>
<th>BP</th>
<th>P</th>
<th>RR</th>
<th>O₂ Sat</th>
<th>LOC</th>
<th>PAIN</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

**POST PROCEDURE / DISCHARGE ASSESSMENT**

**PHASE II**

<table>
<thead>
<tr>
<th>Time</th>
<th>BP</th>
<th>P</th>
<th>RR</th>
<th>O₂ Sat</th>
<th>LOC</th>
<th>PAIN</th>
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<tbody>
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</tbody>
</table>

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Criteria for Discharge: 0 1 2
- Respiration
- Oxygen Saturation
- Circulation
- Consciousness
- Activity

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

Nurse Signature: 
Time: See Discharge Criteria on Back

400687 C (05/11)
Phase I Criteria

- Must receive a total score of 9

Criteria for discharge is located on back of white form
Phase II: Discharge Assessment

- If the patient fails to meet a score of 8 or more within an acceptable time frame (30 minutes), the anesthesiologist must be notified.
**Phase II Criteria**

- **Additional references:**
  - NSG-V-S-3.0 Standards for Sedation
  - NSG-V-A-3.0 Aldrete Discharge Criteria

- **Must receive a total of 8 points for discharge from Phase II.**

**Criteria for Discharge Phase II**

<table>
<thead>
<tr>
<th>RESPIRATION:</th>
<th>Standards for Sedation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - Able to deep breathe &amp; cough - Normal rate &amp; depth.</td>
<td>ADM III D 4.0</td>
</tr>
<tr>
<td>1 - Dyspnea or limited breathing.</td>
<td>Sedation Assessment Form Guidelines</td>
</tr>
<tr>
<td>0 - Apnea, obstructed airway / mechanical ventilation.</td>
<td>ADM III D 4.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CIRCULATION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - BP +/-20% of preanesthesia value.</td>
<td></td>
</tr>
<tr>
<td>1 - BP +/-20% - 49% of preanesthesia value</td>
<td></td>
</tr>
<tr>
<td>0 - BP +/-50% of preanesthesia value.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONSCIOUSNESS:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - Fully awake &amp; orientated x3 or as pre-op status.</td>
<td></td>
</tr>
<tr>
<td>1 - Arousal on verbal stimuli.</td>
<td></td>
</tr>
<tr>
<td>0 - Nonresponsive.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVITY:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - Able to move 4 extremities on command or as pre-op status.</td>
<td></td>
</tr>
<tr>
<td>1 - Able to move 2 extremities on command or as pre-op status.</td>
<td></td>
</tr>
<tr>
<td>0 - Unable to move extremities.</td>
<td></td>
</tr>
</tbody>
</table>
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