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
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)

- **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

### Medications used for Level 1
- Chloral Hydrate
- Diazepam
- Meperidine
- Midazolam
- Morphine

### Medications used for Level 2
- 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 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*

- **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 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 victims lips
End tidal CO₂ monitoring detects hypoventilation before a pulse oximetry reading will decrease

- **End-tidal CO₂**: \( CO_2 \) 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
- **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.

![Image of CO₂ 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.
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 the “CHECK SAMPLE LINE” message appears.

**NOTE:** Refer to manufacturers recommendations for cannula application.
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.
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)
Must write medication, dose, and route. V/S q 5 minutes during medication administration

<table>
<thead>
<tr>
<th>TIME</th>
<th>Med/Dosage/Route</th>
<th>B/P</th>
<th>Pulse</th>
<th>Resp</th>
<th>O₂ SAT</th>
<th>LOC</th>
<th>Pain</th>
<th>EtCO₂ (if applicable)</th>
<th>EKG</th>
<th>(Circle) ASA 1 2 3 4 5</th>
<th>MD Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>Prior to Sedation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All Assessments must continue until return to base line

RN Completes
# Post Procedure / Discharge Assessment

**MD and RN to Complete**

<table>
<thead>
<tr>
<th>Phase I</th>
<th>Phase II</th>
<th>Post Sedation Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time ______ BP ______ Pulse ______</td>
<td>Time ______ BP ______ Pulse ______</td>
<td>Airway Patent: [ ] Yes  [ ] No</td>
</tr>
<tr>
<td>Resp ______ Temp ______</td>
<td>Resp ______ Temp ______</td>
<td>Nausea and Vomiting: [ ] Yes, see post op orders  [ ] No</td>
</tr>
<tr>
<td>O2 sat ______ Loc ______</td>
<td>O2 sat ______ Loc ______</td>
<td>Post Operative Hydration: [ ] Oral  [ ] Intra Venous</td>
</tr>
<tr>
<td>Pain ______</td>
<td>Pain ______</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase I Score of 9 required for Discharge</th>
<th>Phase II Score of 8 required for Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criteria for Discharge: 0 1 2</td>
<td></td>
</tr>
<tr>
<td>Respiration</td>
<td>Oxygen Saturation</td>
</tr>
<tr>
<td></td>
<td>Circulation</td>
</tr>
<tr>
<td></td>
<td>Consciousness</td>
</tr>
<tr>
<td>Activity</td>
<td>Total Score</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MD Signature</th>
<th>Print Name</th>
<th>Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nurse Signature/Title</th>
<th>Post Name</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nurse Signature</th>
<th>Print Name</th>
<th>Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See Discharge Criteria on Back
Post Procedure Discharge Assessment
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.
- 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

<table>
<thead>
<tr>
<th>Phase I Score of 9 required for Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criteria for Discharge 0 1 2</td>
</tr>
<tr>
<td>Respiration __________________________</td>
</tr>
<tr>
<td>Oxygen Saturation ____________________</td>
</tr>
<tr>
<td>Circulation __________________________</td>
</tr>
<tr>
<td>Consciousness _________________________</td>
</tr>
<tr>
<td>Activity _____________________________</td>
</tr>
<tr>
<td>Total Score __________________________</td>
</tr>
</tbody>
</table>

| Nurse Signature/Title __________________|
| Print Name: __________________________|
| Time ________________________________ |
Phase I Criteria

- Must receive a total score of 9
Post Procedure Discharge Assessment
Phase II

- 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

<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>NSG-V-S-3.0</td>
</tr>
<tr>
<td>1 - Dyspnea or limited breathing.</td>
<td></td>
</tr>
<tr>
<td>0 - Apnea, obstructed airway / mechanical ventilation.</td>
<td>Sedation Assessment Form Guidelines</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>ADM III D 4.3</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>
Post Sedation Note

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.

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