I. Description

Requirements for management of adult patients receiving moderate sedation/analgesia while undergoing therapeutic or diagnostic procedures.

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II. Rationale

The intent of this policy is to provide a consistent standard of care throughout the Care Clinics of the School of Dentistry for the management of adult patients receiving moderate sedation/analgesia while undergoing therapeutic or diagnostic procedures.

III. Policy

A. Exceptions
   1. This policy does not apply when an anesthesiologist administers sedation during a procedure.
   2. This policy does not apply in situations when sedatives and analgesics are utilized for management of baseline, non-procedure related pain and/or anxiety, seizures, or physiological symptoms.
B. Definition of Moderate Sedation/Analgesia

“Conscious Sedation” or “MSA”: 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. (Please see Appendix 1).

C. Patients for Whom Adult Sedation Policy and Procedures Applicable

Patients aged 18 and older are appropriate for adult sedation policy and procedures. A patient aged 14 to 17 years may be considered appropriate for adult sedation policy and procedures if that patient is 40kg or greater and post-pubescent without chronic pediatric disease.

IV. Competency Requirements

A. Faculty, residents and fellows must be ACLS certified.

B. Supervising faculty must hold an active North Carolina sedation permit and satisfy all requirements for that permit, including certification in Basic Life Support annually.

C. During moderate sedation, a designated individual, other than the practitioner performing the procedure, should be present to monitor the patient throughout procedures performed with sedation. This individual may assist with minor, interruptible tasks once the patient’s level of sedation-analgesia and vital signs have stabilized, provided that adequate monitoring for the patient’s level of sedation is maintained.

D. Individuals responsible for patients receiving sedation-analgesia should understand the pharmacology of the agents that are administered, as well as the role of pharmacologic antagonists for opioids and benzodiazepines.

E. Individuals monitoring patients receiving sedation-analgesia should be able to recognize the associated complications and capable of assisting with procedures, problems, and emergency incidents.

F. At least one individual capable of establishing a patent airway and positive pressure ventilation, as well as a means of summoning additional assistance, should be present whenever sedation-analgesia is administered.

V. Pre-procedure Evaluation

A. Consent

1. Explanation of the risks, benefits, and alternatives to sedation must be provided to patient.

2. Written consent for procedural sedation must be included with the procedural consent.

B. History

1. Medical Conditions: (for example) cardiac, pulmonary, renal, hepatic, endocrine, head trauma, prior intubation, stridor, snoring, sleep apnea

2. Past medication history, including previous adverse reactions to anesthesia/sedation.

3. Prior surgeries and/or airway issues

4. Present medication regimen, especially medication taken within the last 48 hours

5. Allergies
6. Pregnancy status, when applicable
7. Tobacco, alcohol, or substance use/abuse
8. Last oral intake, which includes tube feedings
9. Exposure to infectious disease and the need for isolation procedures

C. Physical Exam
1. Cardiac
2. Pulmonary
3. Airway (Complicated airway examples include, but are not limited to):
   a. Habitus: Excessive facial hair, receding chin, or significant obesity, especially involving the
      neck and facial structures (body mass index > 35)
   b. Head and Neck: Short neck, limited neck extension, decreased hyoid-mental distance (< 3
      cm in adult), neck mass, cervical spine disease or trauma, tracheal deviation, dysmorphic
      facial features (e.g., Pierre-Robin syndrome)
   c. Mouth: Small opening (< 3 cm in adult); edentulous; protruding incisors; loose or capped
      teeth; dental appliances; high, arched palate; macroglossia; tonsillar hypertrophy;
      nonvisible uvula
   d. Jaw: Micrognathia, retrognathia, trismus, or significant malocclusion
4. Examination specific to the procedure proposed
5. Ability to lie in required position for the procedure

D. Additional Evaluation
1. The patient’s physiological status must be re-evaluated immediately before administering
   moderate sedation and documented in the medical record.
2. American Society of Anesthesiologists (ASA) physical status classification documented.
3. Review of appropriate diagnostic/laboratory data.
4. Interpretation of cardiac rhythm if other than regular rate and rhythm.
5. Presence of satisfactory intravenous access if needed.
6. For elective procedures:
   a. The patient should be NPO (nothing by mouth) prior to sedation for a duration that is
      appropriate for the procedure being performed and for the patient population being
      served.
   b. The general requirement is: no solid foods for at least eight hours prior to the procedure;
      may have clear liquids up to two hours prior to procedure.
7. Presence of a responsible adult to accompany the discharged patient is required.
VI. Suggested and Required Physician Consultation

A. A Physician Consultation Is Suggested if a Patient:
1. Is known to have significant respiratory compromise or hemodynamic instability;
2. Presents with significant co-morbid conditions or sleep apnea.
3. Has an ASA physical status of 4 or 5;
4. Has a high-risk airway;
5. Has a history of airway problems during sedation/analgesia or general anesthesia; or
6. Has a history of adverse reaction to sedation/analgesia or general anesthesia.

VII. Medication Use

Medications used for moderate sedation are almost always, but not limited to, a combination of short-acting opioid and short-acting benzodiazepine. The use of general anesthetics for sedation is outside the scope of this policy. (Please refer to deep sedation policy for further information.)

VIII. Intraprocedure Monitoring

A level of surveillance of the patient that is continuous without any interruption at any time, and during which the health care provider is in constant attendance is required. Evaluation of the patient’s response to the drugs is the primary responsibility of the individual administering the drugs and monitoring the patient. This individual must NOT be the person performing the procedure.

KEY POINT: Monitoring staff are empowered to stop the sedation process at any time during the procedure, including refusing to initiate sedation.

A. Monitor

1. The following parameters are monitored continuously and recorded every 5 minutes:
   o Arousal score
   o Cardiac rhythm
   o Blood pressure every 5 minutes
   o Pulse rate
   o Respiratory rate
   o Oxygen saturation
   o End-tidal carbon dioxide (ETCO2) to assess adequacy of ventilation

B. Resuscitative Equipment Available in Room (or within immediate proximity to room)

1. Bag-valve-mask device
2. Oxygen face mask
3. Nasal cannula
4. Oxygen
5. Suction
6. Oral/nasal airways

C. Resuscitative Equipment Available in the Immediate Area

1. Reversal agents must be available in the immediate area prior to the start of the procedure.
2. Verification of the physical presence of these agents in the immediate area must be on the pre-procedure checklist.
3. Emergency cart
IX. Post-Procedure Monitoring

A. A health care provider shall continuously monitor and observe the patient until the patient meets the discharge criteria noted in the Aldrete scoring system (See appendix) or is at pre-sedation baseline. At no time shall a sedated patient be left unattended.

B. The following parameters must be monitored and documented every 15 minutes until the patient meets the discharge criteria noted in the Aldrete scoring system (Section VII.C.2 below) or is at pre-sedation baseline.
   1. Arousal score
   2. Cardiac rhythm prn
   3. Blood pressure (BP) every 15 minutes
   4. Pulse rate
   5. Respiratory rate
   6. Oxygen saturation

C. Intravenous access shall not be discontinued during the recovery period until the patient has met the Aldrete scoring system discharge criteria or is at pre-sedation baseline.

D. Patients receiving reversal agents should be monitored for at least one hour prior to discharge from the procedure area, regardless of Aldrete score.

E. Patients receiving reversal agents should be monitored for at least one hour prior to discharge, regardless of Aldrete score.

   KEY POINT: Reversal agents must never be used to expedite discharge.

F. The monitoring health care provider shall notify the attending or resident dentist if the patient does not meet the discharge criteria or is not at pre-sedation baseline within 2 hours post-procedure/diagnostic test.

G. The Aldrete score will be documented at completion of sedation monitoring.

H. Patients may be sent to a non-monitored area (e.g. lobby) or discharged to home when he/she meets discharge criteria.

X. Discharge Guidelines

A. Patients should be alert and oriented. Patients whose mental status was altered pre-procedure should have returned to baseline.

B. Patients discharged to home or other non-monitored area (e.g. lobby) should achieve pre-procedure baseline levels of oxygenation when removed from supplemental oxygen for a five-minute period.

C. The Aldrete Scoring System (ranging from "10" for complete recovery to "0" in comatose patients) may be used to determine readiness of discharge.
   1. The Aldrete score should be documented on discharge/transfer.
   2. Patients may be discharged without dentist intervention with a score of "8" or above, provided that activity, respiration, and color on the scale are scored as "2" and circulation and consciousness are scored at "1" or "2."
D. A responsible adult will be provided with written instructions regarding post procedure diet, medications, activities, and a phone number to use in case of emergency.

E. Patients should be discharged to a responsible adult who assumes responsibility for transport and who has been educated to post-procedure complications and the appropriate reporting mechanism.

**Appendix:**

Definitions of levels of sedation/analgesia are as defined by the American Society of Anesthesiologists Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists.

1. **Minimal Sedation (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 not.

2. **Moderate 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.

3. **Deep sedation/analgesia**
   A drug-induced depression of consciousness during which patients cannot be aroused easily but respond purposefully following repeated or noxious stimulation. The ability to independently maintain ventilatory function and a patent airway may be compromised. Cardiovascular function is usually not impaired. A state of deep sedation may be accompanied by partial or complete loss of protective airway reflexes.

4. **General anesthesia**
   General anesthesia is 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. Anesthetized 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.

The distinction between moderate sedation/analgesia and milder sedation or milder analgesia is not always completely clear. Sedation is a continuum, and it is not always possible to predict how an individual patient will respond. However, in general, one should consider the effect on the patient to be that of moderate sedation/analgesia under the following circumstances:
• The prescribing dentist’s intent is to produce a depression of consciousness that exceeds simple reduction of anxiety or simple relief of pain. For example, the sedation/analgesia may be intended to, among other things, produce amnesia for the diagnostic or therapeutic procedure.

• Sedatives or combinations of sedative and analgesic medications

• The prescribing dentist reasonably expects the dose that is prescribed to produce a moderate sedating and analgesic effect for this individual patient.

In cases of milder sedation not intended to produce moderate sedation/analgesia as covered in this policy the following parameters should still be maintained:

• Patient responds purposefully to verbal commands alone or accompanied by light tactile stimulation.

• Reflex withdrawal from a painful stimulus is not considered a purposeful response.

• No interventions are required to maintain a patent airway.

• Spontaneous ventilation is adequate.

• Cardiovascular function is maintained.

**Oropharyngeal Classification For Airway Exam**

The patient is asked to open his/her mouth maximally, and stick out his/her tongue. The patient should not say “ah,” for the purpose of this examination.

Class 1: Can visualize soft palate, fauces, uvula, tonsillar pillars. Class 2: Can visualize soft palate and fauces; tip of uvula is obscured. Class 3: Can visualize soft palate. Class 4: Can visualize hard palate only.
ASA Physical Status Classification

<table>
<thead>
<tr>
<th>Class 1</th>
<th>Healthy patient, no medical problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 2</td>
<td>Mild systemic disease</td>
</tr>
<tr>
<td>Class 3</td>
<td>Severe systemic disease, but not incapacitating</td>
</tr>
<tr>
<td>Class 4</td>
<td>Severe systemic disease that is a constant threat to life</td>
</tr>
<tr>
<td>Class 5</td>
<td>Moribund, not expected to live 24 hours irrespective of operation</td>
</tr>
</tbody>
</table>

An "e" is added to the status number to designate an emergency operation.
An organ donor is usually designated as “Class 6.”

Aldrete Scoring System and Arousal Scale

**Aldrete Scoring System** – May be used without obtaining dentist order

**Activity**
- Voluntary movement of all limbs to command. ......................... 2
- Voluntary movement of 2 extremities to command .................. 1
- Unable to move .......................................................... 0

**Respiration**
- Breathe deeply and cough .............................................. 2
- Dyspnea, hypoventilation ............................................. 1
- Apneic, Unable to move .............................................. 0

**Circulation**
- B/P + 20% of preanesthetic level ................................. 2
- B/P + 20% - 50% of preanesthetic level ......................... 1
- B/P + 50% of preanesthetic level .................................. 0

**Consciousness**
- Fully awake ............................................................ 2
- Arousable ............................................................... 1
- Unresponsive .......................................................... 0

**Color**
- Pink ................................................................. 2
- Pale, dusky, blotchy, jaundice, other ............................. 1
- Cyanotic ............................................................... 0

The score should be documented at discharge/transfer below.
The range is 10 for complete recovery to 0 in comatose patients. Patients may be discharged without dentist intervention with a score of 8, provided that activity, respiration, and color on the scale are scored as “2” and circulation and consciousness are scored at “1” or “2.”

*UNC HOSPITALS AROUSAL SCALE*

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Fully awake</td>
</tr>
<tr>
<td>4</td>
<td>Aroused easily</td>
</tr>
<tr>
<td>3</td>
<td>Aroused with tactile stimuli</td>
</tr>
<tr>
<td>2</td>
<td>Aroused to vigorous stimuli</td>
</tr>
<tr>
<td>1</td>
<td>Responsive to painful stimuli</td>
</tr>
<tr>
<td>0</td>
<td>Unresponsive</td>
</tr>
</tbody>
</table>
Approved by:

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