



South Dakota State Board of Dentistry

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PRACTITIONER MANUAL FOR DENTAL OFFICE EVALUATION

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1. Clinical Demonstration

A. During the inspection process a dentist will be required to perform one or two procedures with the inspector observing his or her overall anesthesia technique. The inspector will evaluate only the anesthesia and not the dental procedure being performed. The dentist will be evaluated on IV access, IV position, sterile technique, skin preparation, disposal of sharps, and the positioning of the IV access to maintain a continual flow of fluids throughout the procedure. Stabilization of the IV catheter should also be evaluated. The appropriate size IV access should be used. Dentists using only oral moderate sedation will be required to demonstrate proficiency in IV access and placement. There should be adequate operating room personnel during the procedure. The patient should be evaluated prior to transportation to the recovery room and there should be evaluation of the transfer of that patient by appropriate measures with appropriate protection for the patient falling or injury to the patient and appropriate timing of moving the patient to the recovery area. In the recovery area there should be adequate monitoring, adequate positioning of the patient, adequate visualization or recovery room nursing. The vital signs should be maintained and recorded. Adequate written and verbal postoperative instructions should be given. The patient should be discharged to a responsible adult. The patient should be discharged in an appropriate time frame when the patient is alert, awake and has stable vital signs.

2. Airway Management Equipment

A. The office must have a main tank of oxygen with a full backup tank of oxygen and the ability to rapidly change the lines from the main oxygen tank to the backup oxygen tank. There must be a small E cylinder portable tank with a full backup and the E cylinder tank must have the appropriate regulator with appropriate connections for the ability to deliver nasal cannula, face mask, or positive pressure oxygen. All operating room areas, recovery room areas must have the ability to deliver positive pressure oxygen.

- B. Oral airways/nasal airways in appropriate sizes
- C. Endotracheal tubes, Laryngeal Mask Airways, or Combi-tubes: each dentist must have appropriate sizes of each airway above that he/she is familiar with. This includes sizes for children if the dentist sedates pediatric patients. Dentists that use general anesthesia or deep sedation must have endotracheal tubes.
- D. Laryngoscope and suitable blades (plus extra bulbs and batteries)
- E. McGill forceps or other suitable instruments
- F. Cricothyrotomy set with connector
- G. Must have suction tubes for oral and tonsillar suction which would include a nasogastric suctioning tube or an endotracheal suctioning tube commonly called a Salem sump tube and also should include a Yankauer tonsillar suction.
- H. Suction devices which would include central suction, which is mandatory for both the operating room and the recovery area. A portable suction which should be available for both operating room and recovery room.

3. Monitors

- A. Moderate sedation: pulse oximetry, sequential 5-minute blood pressures and electrocardiogram (ECG) are required.
- B. Deep sedation/general anesthesia: pulse oximetry, sequential 5-minute blood pressure and electrocardiogram (ECG) are required. Capnography or precordial stethoscope shall be used. If any medication is used that can trigger malignant hyperthermia temperature monitoring is required.

4. Other Equipment

- A. Stethoscope or precordial stethoscope
- B. Equipment to establish intravenous infusion
 - 1. Angiocaths, needles, syringes, intravenous sets and connectors
 - 2. Tourniquets for venipuncture
 - 3. Tape
- C. Defibrillator/AED
- D. Glucose test device
- E. Available emergency algorithms

F. Emergency medications organized and labeled, located within or near operating theater.

5. Drug Categories

- A. Vasopressor drug
- B. Corticosteroid drug
- C. Bronchodilator drug
- D. Muscle relaxant drug
- E. Intravenous medication for treatment of cardiopulmonary arrest
- F. Narcotic antagonist drug
- G. Benzodiazepine antagonist drug
- H. Antihistamine drug
- I. Antiarrhythmic drug
- J. Anticholinergic drug
- K. Coronary artery vasodilator drug
- L. Antihypertensive drug
- M. ACLS algorithm drugs for Acute Coronary Syndromes:
 - 1. Morphine sulfate and/or Fentanyl (sublimaze)
 - 1. Nitroglycerin
 - 2. Aspirin
- N. Mechanism of response for Malignant Hyperthermia dantrolene (Dantrium®) (*If the provider uses inhalation anesthetics other than nitrous oxide*)

The following are examples of drugs that will be helpful in the treatment of anesthetic emergencies. The dentist should have appropriate drugs within each category. The list should not be considered mandatory or all-inclusive.

A. Intravenous fluids

- Sterile water for injection and/or mixing or dilution of drugs
- Appropriate intravenous fluids

B. Cardio tonic Drugs

- Oxygen

- Epinephrine 1 mg (10 mL of a 1:10,000 solution)
- Atropine 0.5 mg/mL
- Nitroglycerin (0.4 mg; 1/150 gR.)

C. Vasopressors

- Dopamine 200 mg/5 mL
- Epinephrine 1:1,000 or 1:10,000 (1 mg = 1:1,000)
- Dobutamine 1, 2, or 4 mg/mL
- Ephedrine 50 mg/mL
- Phenylephrine (Neo-Synephrine[®]) 10 mg/mL

D. Antiarrhythmic Agents

- Atropine 0.5 mg/mL
- Lidocaine 2% (Xylocaine[®]) 20 mg/mL
- Propranolol (Inderal[®]) 1 mg/mL
- Procainamide (Procanbid[®]) 100 mg/mL
- Verapamil (Calan[®]) 5 mg/2 mL
- Amiodarone (Cordarone[®] et. al.) 50 mg/mL
- Adenosine 3 mg/mL

E. Antihypertensive Agents (Immediate)

- Diazoxide (Hyperstat[®]) 15 mg/mL
- Hydralazine (Apresoline[®]) 20 mg/mL
- Esmolol (Brevibloc[®]) 10 mg/mL
- Labetalol (Trandate[®]) 5 mg/mL (20-mL single-dose vial)

F. Diuretics

- Furosemide (Lasix[®]) 10 mg/mL

G. Antiemetics

- Prochlorperazine (Compazine[®]) 5 mg/mL
- Ondansetron (Zofran[®]) 2 mg/mL
- Phenergan

H. Reversing Agents

- Naloxone (Narcan[®]) 0.4 mg/mL
- Flumazenil (Romazicon[®]) 0.1 mg/mL

I. Additional Drugs

- Dextrose 50%
- Hydrocortisone sodium succinate or methylprednisolone sodium succinate (Solu-Medrol[®]) 125 mg
- Dexamethasone (Decadron[®]) 4 mg/mL
- Glycopyrrolate (Robinul[®]) 0.2 mg/mL
- Diazepam (Valium[®]) 5 mg/mL
- Diphenhydramine (Benadryl[®]) 50 mg/mL
- Albuterol (Ventolin[®]) inhaler
- Midazolam (Versed[®]) 5 mg/mL
- Succinylcholine (Anectine[®]) 20 mg/mL
- Morphine sulfate 5 mg/mL
- Dantrolene (Dantrium[®]) 20 mg vials, readily available (*if provider does inhalation anesthesia*)
- Nonenteric aspirin 160 – 325 mg.

All drugs must be current with an expiration date not less than 30 days following the date of inspection. All sedation medications must be drawn up in appropriate sterile fashion and labeled and dated and all scheduled medications require a separate drug log for the medication.

7. Facility Requirements

- A. The facility should be of adequate size and design to permit access of emergency equipment, personnel and permit effective emergency management.
- B. The chair should be CPR certified or have backboard available, or the room should have the ability to transfer the patient to the floor. There should be

- adequate room in design in both the operating room and the recovery room so that emergency medical equipment would be able to transport the patient as necessary.
- C. Both the operatory and the recovery area should be appropriately equipped with adequate lighting to permit evaluation of the patient's skin and mucosal color as well as emergency lighting in case of a power outage.
 - D. Both the operating room and the recovery room should be equipped with adequate suction devices with backup suction in case of power loss.
 - E. Scavenging equipment should be used with nitrous oxide and oxygen in all operating rooms.
 - F. There should be a general alarm system for low-pressure oxygen, which should be able to be heard within the operating room.
 - G. A fire extinguisher should be available with current in date inspections.
 - H. Office address, telephone number, and telephone numbers to the closest hospital and emergency vehicles should be posted in 2 appropriate locations closest to the recovery room and the operating room.
 - I. Two E cylinders for O₂ delivery.

8. Personnel Requirements

- A. Anesthesia Assistants: Any assistant that will be recorded in the anesthesia record must be able to answer questions regarding how he or she supports the dentist in managing emergency situations.
 - 1. Moderate Sedation: There must be a minimum of:
 - a. One registered anesthesia assistant (an individual that holds a current registration from the Board to monitor patients under anesthesia). **The registered anesthesia assistant must only monitor the patient and cannot assist in the procedure.** The registered anesthesia assistant must be continuously present during the sedation procedure and in the recovery area until the patient is discharged; and
 - b. One assistant that is assisting the dentist with the procedure. This assistant does not need to hold a current registration with the Board to monitor patients under anesthesia.

2. General Anesthesia/Deep Sedation: There must be a minimum of:
 - a. Two registered anesthesia assistants (individuals that hold a current registration from the Board to monitor patients under anesthesia) continuously present during the sedation procedure. There must be at least one registered anesthesia assistant in the recovery area until the patient is discharged.
3. Injection of medication. A dentist that holds a moderate sedation or general anesthesia and deep sedation permit may authorize a dental hygienist, registered dental assistant, or dental assistant to inject medication through an intravenous site if the following requirements have been met:
 - 1) The dental hygienist, registered dental assistant, or dental assistant holds a permit to monitor patients under general anesthesia, deep sedation, or moderate sedation;
 - 2) The dental hygienist, registered dental assistant, or dental assistant has successfully passed the Dental Anesthesia Assistant National Certification Examination administered by the American Association of Oral and Maxillofacial Surgeons and *is currently certified in Dental Anesthesia Assisting by the American Association of Oral and Maxillofacial Surgeons*;
 - 3) The supervising dentist draws up the medications that will be utilized during the procedure;
 - 4) The dental hygienist, registered dental assistant, or dental assistant is operating under the personal supervision of the supervising dentist and the supervising dentist maintains direct visual supervision during the injection of the medication through an intravenous site; and
 - 5) The supervising dentist authorizes the procedure by verbal command, clearly articulating the specific medication and the amount of the medication to be administered and the dental hygienist, registered dental assistant, or dental assistant repeats the verbal command back to

the supervising dentist before injecting medication through an intravenous site.

9. Simulated Emergencies and Their Algorithms

RESPIRATORY

LARYNGOSPASM:

1. Administer 100% oxygen
2. Suction foreign material
3. Push on chest, listen for air
4. Attempt positive-pressure ventilation
5. Administer succinylcholine (Anectine®) 10 to 40 mg IV

BRONCHOSPASM:

1. Provide positive-pressure oxygen
2. Provide albuterol inhaler
3. Administer Epinephrine 5 mL 1:10,000 solution (0.3—0.5 mg 1:1,000 solution)

EMESIS AND ASPIRATION

1. Allow patient to cough
2. Position head down or to side
3. Remove foreign material
4. Administer 100% oxygen

If No Improvement:

1. Place patient in Trendelenburg position 15 degrees on right side
2. Remove foreign material
3. Intubate
4. Administer 100% oxygen
5. Transfer to hospital

AIRWAY OBSTRUCTION:

1. Chin lift/jaw thrust
2. Perform Heimlich maneuver
3. If unable to ventilate, perform
 - a. Cricothyrotomy
 - b. Tracheostomy

CARDIOVASCULAR

STABLE ANGINA:

1. Terminate surgery
2. Administer nitroglycerin (one tablet) sublingually
3. Administer 100% oxygen
4. Monitor patient
5. Repeat nitroglycerin administration after 5 minutes
6. Assume myocardial infarction if there is no relief after third dose of nitroglycerin; proceed to morphine, oxygen, nitroglycerin, and aspirin to chew

UNSTABLE ANGINA/MYOCARDIAL INFARCTION:

1. Activate emergency medical services (911)
2. Administer 100% oxygen
3. Administer nitroglycerin if systolic BP is greater than 90 mmHg
4. Administer nonenteric aspirin 160-325 mg to chew
5. Administer morphine
6. Monitor electrocardiography, blood pressure, pulse oximetry
7. Establish intravenous lines
8. Treat dysrhythmias

HYPOTENSION:

1. Identify cause and correct
2. Administer 100% oxygen and terminate procedure
3. Administer intravenous drugs if needed

HYPERTENSION:

1. Identify cause and correct
2. Administer 100% oxygen and terminate procedure
3. Administer intravenous drugs if needed

VENIPUNCTURE COMPLICATIONS

PHLEBITIS

1. Apply moist heat
2. Administer drugs: aspirin, steroids, antibiotics
3. Limit motion of affected limb
4. If symptoms persist, refer for consultation

INTRA-ARTERIAL INJECTION:

1. Leave needle in place
2. Administer 10 mL 1% lidocaine (Xylocaine®)
3. Refer to hospital for possible heparinization and/or stellate ganglion block after consultation with a vascular surgeon

OTHER

SYNCOPE

1. Place patient in a supine position and raise feet
2. Administer oxygen

HYPERVENTILATION SYNDROME:

1. Monitor patient and provide verbal reassurance
2. Increase carbon dioxide intake with artificial dead space (e.g. paper bag, mask and anesthesia bag with low-flow oxygen)
3. Possibly administer benzodiazepine such as Valium®

SEIZURES:

1. Prevent injury
2. Administer anticonvulsant therapy, for example Valium® or other benzodiazepine shown to be effective for seizures.
3. Monitor patient after grand mal seizure for possible respiratory depression

MALIGNANT HYPERTHERMIA:

1. Discontinue all anesthetic agents, administer 100% oxygen, and hyperventilate
2. Activate emergency medical services (911)
3. Administer dantrolene (Dantrium®) 1 to 3 mg/kg (up to 10 mg/kg possible). If the dentist uses inhalation agents, this is required.
4. Cool patient's body
5. Treat ventricular dysrhythmias
6. Treat hyperkalemia with bicarbonate, intravenous insulin 0.25 to 0.30 U/kg and glucose 0.25 to 0.5 mg/kg
7. Prevent renal failure from myoglobinuria
8. Obtain coagulation studies

SEVERE ALLERGIC REACTION:

1. Maintain airway and administer 100% oxygen
2. Place patient in supine or Trendelenburg position
3. Monitor
4. Administer intravenous fluids
5. Administer drugs:
 - a. Epinephrine 0.3 mg (repeat until stable)
 - b. Diphenhydramine (Benadryl®) 50 mg IV
 - c. Steroids