

STATE OF IDAHO –BOARD OF DENTISTRY



5/2/2011

POLICY FOR GENERAL ANESTHESIA AND DEEP SEDATION PERMIT EVALUATIONS

DEFINITION¹

General anesthesia shall mean a drug-induced loss of consciousness during which patients are not arousable, even by painful stimulation. The ability to independently maintain ventilator function is often impaired. 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.

Deep sedation shall mean 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 ventilator function may be impaired. Patients may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained.

SCOPE

The following guidelines have been based upon the *AAOMS Office Anesthesia Evaluation Manual 2006 Edition*, and the *American Heart Association Advanced Cardiovascular Life Support Provider Manual 2006 edition*. This is a guideline and is not meant to be a complete review of the manual.

PERSONNEL AND STAFFING

During the period of sedation (before, during, and after the procedure) the patient will be attended by at least one person (in addition to the person performing the procedure) whose responsibilities will include monitoring the patient. This person (monitoring the patient) may be a dentist/physician, RN, or other qualified person (minimally B.C.L.S. certified), and will operate under the supervision of a dentist/physician who is immediately available. The supervising dentist/physician must be certified in Advanced Cardiac Life Support. The office staff should have regular, documented training in emergency procedures.

¹The Idaho State Board of Dentistry's rules regarding sedation are found at IDAPA 19.01.01 – Rules of the Idaho State Board of Dentistry.

DRUGS AND MEDICATIONS

Route of administration and medications chosen should be well understood. Available reversal agents **must** be present in the office. Please note that dental assistants and dental hygienists are NOT permitted or authorized by the Administrative Rules of the Board of Dentistry to administer sedation medication(s).

MONITORING AND DOCUMENTATION

Each patient should be monitored with non-invasive blood pressure, ECG, and pulse oximetry. Oxygen saturation, blood pressure, heart rate, and respiration should be recorded as a baseline, and then monitored every five minutes during the anesthetic, and then continued every fifteen (15) minutes until the patient meets the requirements for discharge. Respiratory and level of consciousness will be monitored continuously by observation, and significant changes noted. All medications, as well as vital signs must be recorded and remain with the patient's chart as a part of their permanent record. It is required to have documentation of an ASA classification and a completed medical history prior to sedation.

ASA Physical Status Classification System

ASA Physical Status 1 – A normal healthy patient

ASA Physical Status 2 – A patient with mild systemic disease

ASA Physical Status 3 – A patient with severe systemic disease

ASA Physical Status 4 – A patient with severe systemic disease that is a constant threat to life

ASA Physical Status 5 – A moribund patient who is not expected to survive without the operation

RECOVERY

The patient will be monitored closely following the last dose of medication given until the patient meets the discharge criteria. This observation may take place at the site of the procedure or in a designated recovery area. While in the recovery area, the patient will be observed, with the doctor immediately available. All vital signs are to be monitored every 15 minutes. Patients are discharged when they meet discharge criteria.²

Stable vital signs

No airway difficulties

No respiratory distress

Return to usual state of alertness

Return to usual ambulatory status (except as limited by surgery)

Stable wound site

Ability to retain fluids

Responsible adult caretaker to accompany patient (patient and responsible party to be provided information on contact person if problems arise).

²Source: Longnecker/Tinker/Morgan, *Principles and Practice of Anesthesiology*, page 2260, (Mosby 2nd Ed. 1998).

Office Evaluation Checklist for General Anesthesia/Deep Sedation Permit

Part I. Office Equipment, Monitoring and Emergency Equipment, Records

Required Equipment and Records

- ___ Oxygen and Supplemental gas-delivery system
- ___ Suction and backup suction device
- ___ Gas Storage facility
- ___ Auxiliary lighting system
- ___ Pulse Oximeter
- ___ Automatic Non Invasive Blood Pressure Monitor
- ___ Manual Sphygmomanometer and Stethoscope
- ___ Recovery Area (monitoring equipment in area if recovery area is used)
- ___ Automatic External Defibrillator (AED)
- ___ Equipment Necessary to Obtain IV access and Delivery of IV fluids
- ___ Appropriate Medications to Provide Level of Sedation for Which Permit Allows
- ___ Full Face Mask, Positive pressure delivery device, Ambu Bag
- ___ Tonsillar Suction
- ___ Oral and Nasal Airways
- ___ Equipment for Performing Cricothyrotomy or Emergency Airway Puncture
- ___ Advanced airways (LMA, Combi Tube, etc.)
- ___ Laryngoscope
- ___ Magill Forceps
- ___ Precordial Stethoscope
- ___ Nasal Cannula
- ___ Board or other device to stiffen the back of patient chair if CPR necessary

Office Records

- _____ Staff and Doctor BLS certification
- _____ Doctor ACLS certification
- _____ Health History form
- _____ Consent for Anesthesia and Surgery
- _____ Anesthesia Record (ASA Status)
- _____ Anesthesia Case Log
- _____ Anesthesia Drug Log

Part II: Required Emergency Medications (required at a minimum)

Check all Expiration Dates

It is the permit holders' responsibility to confirm ALL drug concentrations from individual suppliers

Pediatric dosing should be calculated mg/kg determined by the specific medication

Doses and Delivery Guidelines may be described in Part III-medical emergencies

[REVERSAL AGENTS]

_____ Naloxone (*Narcan*) 0.4mg/ml
Reversal of opioids
0.1mg-0.2mg (IV/IM/SC/ET)

_____ Flumazenil (*Romazicon*) 0.1 mg/ml
Reversal of benzodiazepines
Adults: recommended initial dose of is 0.2 mg over 15 sec, may repeat q 1min
(1g max dose)
Peds: recommended initial dose is 0.01 mg/kg (up to 0.2 mg)
May be associated with the onset of seizures

[CARDIAC, AIRWAY AND ALLERGIC REACTION MEDICATIONS]

_____ Epinephrine 1mg/ml
_____ ASA (Chewable uncoated Aspirin) 160-325mg
_____ Nitroglycerin (*Nitrolingual, Nitroquick, Nitrostat*)
_____ Ephedrine Sulfate (*Ephedrine*) 50mg/ml
_____ Intravenous Fluids (NS, Lactated Ringers, Dextrose in water)
_____ Diphenhydramine (*Benedryl*) 50mg/ml
_____ Albuterol (*Ventolin*) Bronchodilator Mist Metered Dose Inhaler

[OTHER REQUIRED MEDICATIONS]

_____ Instant Glucose or other Sugar Source to treat Hypoglycemia
_____ Anti Seizure Medication (*Versed, Valium*)

[Suggested Medications to Treat Medical Emergencies and Non-Emergent Situations]
(not required but can be valuable if needed)

- Succinylcholine (*Anectine*) 20mg/ml
Ultra short-acting depolarizing skeletal muscle relaxant
Used in laryngospasm
10-40mg IV (0.15-0.3mg/kg) or 4mg/kg IM

Suggested medications – continued

- Methylprednisolone (*Solu-Medrol*) 125mg
corticosteroid hormone (glucocorticoid)
potent anti-inflammatory steroid—useful in allergic reactions.
adult: 10-250mg IV
pediatric: 0.5-1 mg/kg IV q6h
- Morphine- Opioid agonist—useful if suspect Myocardial Infarction
Multiple available routes of administration)
1-3mg doses IV administration during MI q5 min
- Ammonia Inhalants (useful in syncope)

Antihypertensives

- Labetalol (*Trandate*) 5mg/ml
mixed alpha/beta adrenergic antagonist (alpha & beta-blocker)
IV infusion of 2mg/min (additional dosing 5-20mg IV)
Relative contraindications for use in patients with asthma, congestive heart failure, any degree of heart block, bradycardia, or those in cardiogenic shock.
- Esmolol (*Brevibloc*) 10mg/ml
Cardioselective beta₁ receptor blocker
Rapid onset and a very short duration of action
Commonly used in patients during surgery to prevent or treat tachycardia, and is also used in treatment of acute supraventricular tachycardia.

Bradycardia and Hypotension

- Atropine (*Atropine*) 0.4 mg/ml
(*Atropine - Ansyr® prefilled syringe*) 0.1mg/ml
Muscarinic receptor antagonist
Adults: 0.5 – 1.0mg
Peds: 0.01 to 0.03 mg/kg body weight

Antiarrhythmics

- Amiodarone (50 mg/ml) 300mg IV once then 150mg IV
- Lidocaine (1-1.5mg/kg first dose)

Suggested medications – continued

Antiemetics

- Promethazine (*Phenergan*) IV/PO/PR/IM
Antihistamine
Adult: 12.5mg-25mg
Peds: (>2yrs) 0.1mg/kg (12.5mg max)
- Ondansetron (*Zofran*) 2mg/ml IV & 4mg PO
Selective blocking agent of the serotonin 5-HT₃ receptor
Adult: 4mg
Peds: (1mo-12yrs) 0.1mg/kg

Drugs for Endotracheal Intubation “Lane”

Lidocaine
Atropine
Naloxone
Epinenephrine

PART III: Simulated Emergencies and Suggested Algorithms

The simulated emergency procedures are to be demonstrated in the surgery/anesthesia area with full participation of the office staff. Proper use of any necessary emergency equipment should be demonstrated. Evaluator will check for satisfactory completion of each situation. Two way discussion of each situation with evaluators is expected.

Laryngospasm Pass Fail

- Pack off surgical site
- Position patient/ upright/ most comfortable
- Suction patient – tonsillar suction
- Ventilate patient with positive pressure ventilation
(full face mask/ambu bag with 100% oxygen)
- Auscultation of lung fields
- Succinylcholine (*Anectine*) 20mg/ml
Ultra short-acting depolarizing skeletal muscle relaxant
10-40mg IV (0.15-0.3mg/kg) or 4mg/kg IM
- *Cricothyrotomy (if necessary)*
- Call 911

Bronchospasm and Airway Obstruction Pass Fail

- Establish airway and administer 100% oxygen with full face mask with positive pressure ventilation
- Albuterol (*Ventolin*) Metered Dose Inhaler
Used in Asthma
Beta-agonist bronchodilator
- Epinephrine
Severe bronchospasm (1:1,000) 0.3-0.5mg SQ
TB syringe 0.3-0.5ml of 1:1,000 SL/SQ
1:10,000 dilution if used IV
- Benadryl ~50mg intravenously
- Auscultation of lung fields
- Call 911 if not resolved

Simulated emergencies – continued

Emesis and Aspiration Pass Fail

- Change suction to Tonsillar suction
- Turn patient to right side --Trendelenburg position, check for foreign body
- 100% oxygen
- Auscultation of lungs
- Consider Anti Emetic Medications
- If situation gets worse, (i.e. cyanotic, dyspnea) call 911

Bradycardia Pass Fail

- Monitor patient; recheck BP and pulse
- Stop procedure, pack wound site
- Consider etiology
- Consider Atropine (serious sign or symptoms?)

Asystole/PEA (Pulse arrest- NOT Shockable) Pass Fail

- Epinephrine 1 mg IV repeat 3-5 min or
- Vasopressin 40 U IV to replace 1ST or 2ND dose epi
- Consider atropine 1 mg IV
- Find and treat factors
H's and T's (hypovolemia, hypoxia, hydrogen ion, hypo-/hyperkalemia,
hypoglycemia, hypothermia, toxins, tamponade, tension stx, thrombosis, trauma)

Angina Pectoris Pass Fail

- Nitroglycerin (*Nitrolingual, Nitroquick, Nitrostat*)
Check Date, use patients own NTG if possible
Sublingual doses (0.3mg = 1/200 grain, 0.4mg = 1/150 grain
0.6mg = 1/100 grain)
SL/spray/oral
Determine level of SBP (must be > 90mmHg)
Avoid in patients taking Sildenafil (*Viagra*)
- Place patient in comfortable position

Simulated emergencies – continued

- 100% oxygen, Nitrous Oxide
- Monitor patient
- If pain continues, administer one more tab/spray in 5 minutes in 5 minutes
- If pain still continues, assess MI, 911 and transportation
- Third NTG dose 5 minutes later while waiting for ambulance

Myocardial Infarction Pass Fail

- Stop Surgery and Position Patient
- 100% Oxygen
- Call 911
- Establish IV
- Monitor Vitals, Consider Applying AED
- Chewable uncoated Aspirin 325mg oral
- Analgesia—Nitrous Oxide, NTG,
Morphine 1-3mg doses IV administration during MI q5 min

Cardiac Arrest Pass Fail

- Look, Listen, Feel
- Call 911
- Ventilate with AMBU bag and 100% Oxygen
- Apply AED—Defibrillate if indicated
- Check Pulse—Begin Chest Compressions if no pulse
- Establish IV
- ACLS PROTOCOL
 - Epinephrine 1mg IV q3-5min
10ml dilution of 1:10,000
 - Antiarrhythmics
 - Amiodarone (50 mg/ml) 300mg IV once then 150mg IV
 - Lidocaine (1-1.5mg/kg first dose)

Simulated emergencies – continued

Hypotension Pass Fail

- Terminate Surgery
- Position Patient—Trendelenberg—Supine
- Check Pulse and BP
- Stimulate Patient
- Increase IV Fluids (IV access if not already established)
Isotonic intravenous fluids (0.9% Normal Saline, Lactated Ringers)
- Ephedrine sulfate (*Ephedrine*) 50mg/ml
Alpha-1, Beta-1, Beta-2 receptor agonist
Must be diluted! (50mg/ml vial diluted with 9ml saline= 5mg/ml)
2.5-5mg IV SLOW q5-10min
(pediatric – 0.5mg/kg IM or SQ)

If Bradycardic (HR<60) and Hypotensive

- Atropine (*Atropine*) 0.4 mg/ml (*Atropine - Ansyr® prefilled syringe*) 0.1mg/ml
Muscarinic receptor antagonist
Used to treat Bradycardia
Adults: 0.5 – 1.0mg
Peds: 0.01 to 0.03 mg/kg body weight

Hypertension Pass Fail

Consider all possible etiologies. Treat the cause if known.

Most hypertensive episodes are transient.

Careful consideration for therapeutic intervention.

- Labetalol (*Trandate*) 5mg/ml
mixed alpha/beta adrenergic antagonist (alpha & beta-blocker)
IV infusion of 2mg/min (additional dosing 5-20mg IV)
Relative contraindications for use in patients with asthma, congestive heart failure, any degree of heart block, bradycardia, or those in cardiogenic shock.
- Esmolol (*Brevibloc*) 10mg/ml (500mcg/kg slow delivery over 1 minute)
Cardioselective beta₁ receptor blocker
Rapid onset and a very short duration of action
Commonly used in patients during surgery to prevent or treat tachycardia, and is also used in treatment of acute supraventricular tachycardia.
- Call 911 if necessary

Acute Allergic Reaction Pass Fail

- Mild Reaction (rash, hives)--- Benedryl 25-50mg IV or IM

Simulated emergencies – continued

- Severe Reaction (wheezing, angioedema, laryngedema, bronchospasm)
 - Epinephrine—0.3mg-0.5mg SL, SC, IM, IV
 - Bronchodilator mist
 - Benedryl—50mg IV or IM
 - Repeat Epinephrine if needed in 3-5 min
 - Call 911, Continue BLS
 - May give Corticosteroid (*Solu-Medrol, Decadron*)
 - Increase IV Fluids
 - Cricothyrotomy

Syncope, Loss of Consciousness Pass Fail

- Position Patient—Trendelenberg—raise legs
- Oxygen, monitor vitals
- Ammonia Inhalants
- Start IV Fluids
- BLS if unresponsive
- Apply AED, call 911 if necessary
- Consider Hypoglycemia (glucagon, instagluose)

Hyperventilation Pass Fail

- Calm the patient, Position patient Upright
- Breath into paper bag, cupped hands, or full mask with 0.5L of Oxygen flow
- May need to sedate with Valium or Versed

Convulsions Pass Fail

- Protect patient and gently restrain
- After seizure BLS—post ictal depression—maintain airway
- May need Valium or Versed –titrate in IV

Malignant Hyperthermia Pass Fail

- Avoid succinylcholine

Simulated emergencies – continued

- Avoid volatile inhalation anesthetics
- Nitrous oxide safe
- Need alternative muscle relaxation (non-depolarizing)
- Access to Dantrolene (Dantrium) – ER transfer

Part IV: Observation of a Sedation Case

One parenteral case should be observed. The sedation should be no longer than one hour. Evaluators will remain present to ensure proper use of patient monitors, preparation and delivery of medications, titration to appropriate level of sedation, and patient management.

Pass Fail

DEFICIENCIES NOTED/CORRECTIVE ACTION NEEDED

Multiple horizontal lines for writing deficiencies and corrective actions.

Recommended Follow-up:

- Follow-up Evaluation
Written Follow-up
No follow-up required

(If a follow-up evaluation is required, within thirty (30) days of the date of initial evaluation it is the responsibility of the dentist being evaluated to undertake the identified corrective action and make appropriate arrangements with an evaluator to conduct the follow-up evaluation. An anesthesia permit will not be issued until all requirements of the evaluation are satisfied.)

Dr. _____ completed the general anesthesia/deep sedation evaluation program on this date, assisted by:

Signature lines for Dr. and assistants, with labels for Printed Name, Signature, and Date.

Return forms to:
Idaho State Board of Dentistry
PO Box 83720
Boise, ID 83720-0021
P: (208) 334-2369
F: (208) 334-3247