



Standard Operating Procedure: Sedation in Dogs and Cats

These SOPs were developed by the Office of the University Veterinarian and reviewed by Virginia Tech IACUC to provide a reference and guidance to investigators during protocol preparation and IACUC reviewers during protocol review. They can be used as referenced descriptions for procedures on IACUC protocols. However, it is the sole responsibility of the Principal Investigator to ensure that the referenced SOPs adequately cover and accurately represent procedures to be undertaken in any research project. Any modification to procedure as described in the SOP must be outlined in each IACUC protocol application (e.g. if the Principal Investigator plans to use a needle size that is not referenced in the SOP, simply state that alteration in the IACUC protocol itself).

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I. Procedure Summary and Goal

- a. The purpose of this procedure is to allow students to practice chemical sedation of dogs.
- b. Sedation is a common procedure in veterinary medicine used for doing diagnostics and treatments that the patient may object to.
- c. Sedation reduces the stress a patient is subjected to and reduces the intensity of restraint necessary for many procedures.
- d. Sedation prior to anesthesia can decrease the level of anesthetic needed and can increase the safety of anesthesia.

II. Personal Protective Equipment and Hygiene

- a. Hands should be sanitized before and after if venipuncture is being performed.
- b. Personal protective equipment appropriate to the setting should be used.

III. Supply List

- a. Stethoscope
- b. Thermometer
- c. Calculator
- d. Watch
- e. Pen
- f. Lab coat
- g. Sterile 3cc syringes
- h. 22-gauge needles
- i. Injectable sedatives
- j. Injectable reversal agents

IV. Detailed Procedure

- a. Laboratory Procedure
 - i. Do not hold animals off of food.
 - ii. See Appendix 1 for acceptable sedation drug protocols
 - iii. Give drug injections IM or IV with technique outlined in SOP: Dog and Cat Injections
 - iv. Students should make no more than 2 injection attempts before asking for assistance
 - v. Students should fill out a monitoring sheet keeping track of heart rate, respiratory rate, temperature, level of sedation, and pedal pulse strength at an interval of 5 minutes for a total duration of 30 minutes.

- vi. If the patient is being reversed, the appropriate reversal drug should be given IM or IV according to SOP: Dog and Cat Injections or SOP: Dog and Cat Venipuncture. Reversal drugs to be used according to sedation protocol are listed in Appendix 1.

V. Variations

- a. Pre-operative Procedure
 - i. Withhold food from the animals for 12 hours prior to the procedure.
 - ii. See IV catheter SOP and Anesthesia SOP general anesthesia.
 - iii. Supportive Care
 1. Heating pads and blankets will be used to maintain rectal temperature > 96°F during the procedure.
- b. Post-operative Procedure
 - i. The animals will be monitored after the removal of all IV catheters.
 - ii. Heating pads and blankets may be utilized until a rectal temperature of $\geq 99^{\circ}\text{F}$ is recorded and the animal able to ambulate from MDL 3 to its housing area.

VI. Potential Adverse Effects, Mitigation, or Treatment

- a. Excessive bradycardia
- b. Excessive respiratory depression
- c. Seizures
- d. Aggression
- e. Cyanosis
- f. Avoidance Measures:
 - i. Weigh the animal and calculate dose carefully
 - ii. Monitor pulse and respiratory rate closely
 - iii. Provide oxygen therapy if needed
 - iv. Have reversal drugs, anticholinergic and anti-seizure drugs available

VII. Appendix 1. Sedation Protocols and Additional Drugs Sedation Protocols

Sedation Protocols

1. Acepromazine 0.05 mg/kg IM
2. Acepromazine 0.05 mg/kg and Morphine 0.5 mg/kg IM
3. Dexmedetomidine 0.01 mg/kg IM
4. Dexmedetomidine 0.005 mg/kg and Butorphanol 0.2 mg/kg IV
5. Midazolam 0.2 mg/kg and Butorphanol 0.2 mg/kg IM
6. Morphine 1 mg/kg IM

Additional drugs

1. Naloxone 0.005mg/kg IV or 0.04 mg/kg IM (reversal for opioids)
2. Atipamezole IM dose is the same volume used of dexmedetomidine (reversal for dexmedetomidine)
3. Glycopyrrolate 0.005-0.01 mg/kg or atropine 0.02 to 0.04 mg/kg IV or IM (in case of severe bradycardia or as directed by the veterinary laboratory instructors)