

**DIVISION OF LABORATORY ANIMAL HEALTH**  
**RODENT ANESTHESIA GUIDELINES**

1. **Acclimation period and health observation:** Animals should be acclimated for at least 48 hours before major survival surgery or general anesthesia for survival procedures. A pre-anesthetic health observation should be performed prior to the procedure. This involves reviewing the animal's general appearance, activity, respiration, and body weight or body condition score.
2. **Fasting:** Rodents are generally not fasted before anesthesia. Water is not withheld.
3. **Provide heat:** Rodents can quickly become hypothermic under anesthesia and during recovery from anesthesia. Preferred heat sources during and after procedures include circulating warm water blankets, chemical heat packs, and insulating methods (e.g. Saran wrap/bubble). All require careful monitoring, as rodents can easily overheat. Always place an insulating layer such as a towel between the animal and the heat source. Depending upon the species and procedure, monitoring of body temperature may be indicated.
  - Use of heat lamps is discouraged as they may cause animals to overheat and/or other thermal injuries
  - Use of electric heating pads is discouraged in surgery as they can cause the animal to overheat and may cause thermal burns. However, heating pads may be acceptable during anesthesia recovery by placing them partially under cages so that approximately 50% of the cage is on the heating pad. This allows the animal to move away from the heat as it recovers from anesthesia.
4. **Procedure location:** All anesthetic and surgery procedures should be performed outside of the housing room. The location should be clean, uncluttered, organized, and dedicated to surgery use when surgery is being performed.
5. **Administering the Anesthetic:** Rodents may be anesthetized with injectable or inhalant agents, or with a combination of the two. An adequate, even depth of anesthesia should be maintained throughout the procedure. For inhalants, this can be accomplished by adjusting the vaporizer as necessary. For injectables, supplemental doses of the agent can be administered as needed. Anesthetics used must follow the approved IACUC protocol.
6. **Apply eye ointment:** For anesthesia/sedation, eye ointment is required to prevent corneal damage due to loss of blink reflex.
7. **Monitoring Anesthesia:** Before surgery is started, ensure that the animal is adequately anesthetized by testing the pedal withdrawal reflex (foot pad pinch on both hind feet). If the foot pad pinch causes a response, supply additional anesthesia and re-test before starting the procedure. Anesthetic depth must be rechecked regularly for the duration of the procedure. Monitor the animal's responsiveness to painful stimuli, character of respiration, and color of the ears, tail, gums, or foot pads, and adjust anesthetic depth whenever needed.
8. **Stay in the room** with anesthetized animals while they are on the procedure table. Do not immediately return recovering animals to a cage containing un-anesthetized animals. Animals should be placed in a

separate recovery cage with half the cage on a heat source, and observed every 10-15 minutes until ambulatory. Animals are returned to standard housing when ambulatory.

9. **Post-procedure monitoring:** Monitor animals for signs of distress or discomfort during and after recovery. Record any complications, and contact a veterinarian if problems recur. Administer analgesics per the approved IACUC protocol. Animals experiencing post-procedural complications that cannot be alleviated should be euthanized using approved guidelines.
10. **Fluid administration:** Administration of warmed (i.e. body temperature) fluids can help animals maintain blood pressure and speed up recovery from anesthesia or surgery. Fluids may be given IP, intravenously, or subcutaneously.
11. **Record keeping** is required for anesthesia/sedation procedures intraoperative and post operatively.
12. **Recovery Cage:** Animals should be recovered in a warm, clean, dry, quiet environment away from other animals. Cover bottom of recovery cage with a paper towel or towel. All animals must be continuously monitored until maintaining upright posture and walking normally about the cage before completion of monitoring and return to the animal housing room.