

COMPARATIVE MEDICINE

LABORATORY ANIMAL FACILITIES

STANDARD OPERATING PROCEDURES

For

DELIVERY OF INHALANT ANESTHETICS USING A BELL JAR

1. Purpose:

This procedure outlines the proper procedure for delivery of inhalant anesthesia to rats and mice only via the use of a chamber or “bell jar”. A bell jar may be used to deliver inhalant anesthesia for very short term procedures only (e.g < 30 seconds). If longer duration anesthesia is needed, an alternate method of anesthesia, such as an anesthetic machine with a calibrated vaporizer, should be used.

2. Scope:

This procedure applies to all veterinary or investigator staff using bell jars to deliver inhalant anesthesia to small rodents.

3. Materials:

- a. Fume hood
- b. Open-drop bell jar with mesh platform (see attached picture)
- c. Cotton balls or gauze squares
- d. Volatile anesthetic, such as isoflurane or halothane
- e. Recovery cage with supplemental heat source

4. Procedure:

- f. Bell jar anesthesia contains no provisions for scavenging anesthetic waste gases. Therefore **the bell jar must be used in a fume hood** to protect personnel from inhalation exposure to anesthetic gases.
- g. In the fume hood, soak cotton balls or gauze squares with liquid anesthetic (isoflurane or halothane). Place cotton balls or gauze in the bell jar, and then soak with anesthetic.
- h. Cover the anesthetic-impregnated cotton balls or gauze with a **plastic or wire mesh platform**. This will prevent the rodent from coming into direct contact with the anesthetic agent, which can cause localized discomfort or irritation to the animal’s skin.
- i. Place the animal in the bell jar and then cover the bell jar with a lid. The bell jar should be large enough for the animal to comfortably move around. Only 1 animal at a time should be placed in the bell jar.
- j. Using a bell jar to deliver inhalant anesthetics involves no calibrated vaporizer, thus the anesthetic concentration within the jar cannot be controlled and lethal concentration of anesthetics can rapidly accumulate. The animal must be closely monitored at all times while it is in the jar. If at any time the animal has difficulty breathing, (respiration becomes labored, slows, or stops) or poor mucous

membrane color (pale or gray membranes), then the animal should immediately be removed from the chamber.

- k. Visually observe the animal closely for cessation of voluntary movement and recumbency. This will signal the onset of anesthesia.
- l. Remove the animal from the bell jar. Check the animal's mucous membrane color, respirations, and withdrawal reflexes. If the animal's mucous membrane color and respirations are normal and its withdrawal reflexes are absent, then you may begin your procedure.
- m. When using a bell jar to deliver anesthesia there is no way to maintain anesthesia once the animal has been removed from the bell jar, thus this method only provides anesthesia for very short-term procedures, such as orbital bleeding, tail snipping, or subcutaneous tumor implantation.
- n. When the procedure is done, place the animal in its recovery cage, administer any required post-operative analgesics, and monitor the animal until it is fully awake. Fill out the "Rodent surgery/Post-operative" report and submit it to into the Veterinary Technician's office located in room 204.

Bell Jar with mesh platform:

