



CM SOP #211 – Rodent Oral Gavage

Original release date: 12/23/2016 Version: 4 Date last revised: 03/07/2026

I. Purpose & Scope

The purpose of this Standard Operating Procedure (SOP) is to establish standardized methods for oral gavage administration in mice and rats housed in Comparative Medicine (CM) facilities.

Oral gavage is used to deliver liquid compounds directly into the gastrointestinal tract using an appropriately sized bulb-tipped gavage needle or flexible cannula attached to a syringe. This SOP is intended to promote consistent technique, minimize animal pain and distress, reduce the risk of injury or aspiration, and ensure proper post-procedural monitoring and documentation.

This SOP applies to all CM staff and research personnel performing oral gavage in mice or rats under an approved IACUC protocol or under the direction of veterinary staff for animal health-related purposes.

II. Roles & Responsibilities

Comparative Medicine Staff

- Performing procedures as outlined in this SOP
- Completing procedures in a timely and accurate manner
- Using appropriate restraint and gavage technique
- Monitoring animals after gavage for adverse effects
- Documenting procedures and observations as applicable
- Reporting complications or adverse events promptly to veterinary staff and management

Research Staff, Students, Visitors

- Performing oral gavage only after documented training and competency
- Following the approved IACUC protocol
- Using appropriate gavage equipment, dose volumes, and technique
- Monitoring animals after administration
- Maintaining accurate experimental records
- Contacting veterinary staff if complications are observed or suspected

CM Management

- Ensuring compliance with this SOP
- Ensuring appropriate training is provided to personnel based on job duties
- Scheduling training and refresher training at a frequency sufficient to maintain competency
- Monitoring procedural compliance and addressing deficiencies

**CM Director and AV**

- Serving as a resource for recommended methods of oral gavage in mice and rats
- Ensuring veterinary staff and research personnel are appropriately trained and adhering to this SOP
- Providing guidance on complications, humane endpoints, and technique refinement
- Determining appropriate action when adverse effects are suspected

III. General Notes & Definitions

- Liquid compounds may be administered directly into the gastrointestinal tract of mice and rats by oral gavage.
- In this procedure, a bulb-tipped gastric gavage needle or flexible cannula is attached to a syringe and used to deliver the compound into the stomach. Gavage needles are available in mouse and rat sizes and lengths. The correct needle or cannula length is generally equal to the distance from the mouth to just beyond the last rib.
- Orally administered substances do not need to be sterile. However, gavage instruments must be clean and sanitized before use. Personnel must use a clean syringe and a clean gavage applicator appropriate for the species and size of the animal.
- Maximum volume limits must be followed. If repeat dosing is necessary, additional doses may be administered at intervals consistent with the approved IACUC protocol.
- Fluids must be properly mixed before administration to minimize adverse effects and inconsistent dosing.
- Animals must be properly restrained during oral gavage. Restraint should immobilize the head and body sufficiently to perform the procedure safely, but not be so forceful that the animal vocalizes or shows unnecessary distress.
- Animals must be observed after gavage for any signs of respiratory distress, bleeding, or other complications.

Maximum Gavage Volumes

Species	Max volume	Typical cannula size
Mouse	10 ml/kg	18-20 gauge
Rat	20 ml/kg	16-18 gauge

- These needle sizes are intended for average adult animals. Smaller needles or cannulas should be used for juvenile animals or other small animals as appropriate.
- Curved gavage needles are generally preferred because they may reduce the risk of trauma. Straight needles may be used if placed carefully and by trained personnel.

IV. Materials & Equipment

- Appropriate gavage needle or flexible cannula for the species and size of the animal
- Syringe of appropriate size
- Liquid compound to be administered
- Scale for animal body weight
- Clean restraint surface or approved restraint method
- Appropriate PPE
- Health Monitoring cards
- Experimental logbook, progress notes, or diagnostic documentation forms
- Cleaning and sanitizing supplies for gavage equipment



- Sharps container, when applicable

V. Procedure

A. Preparation

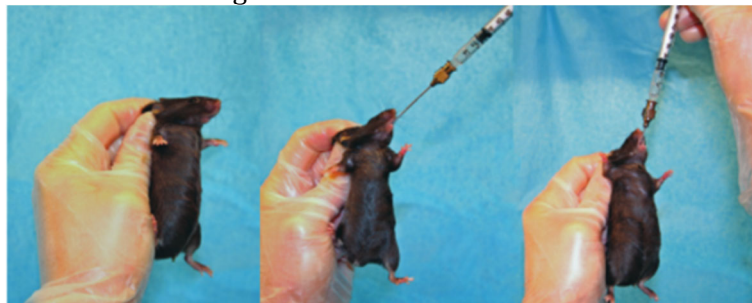
1. Verify that the oral gavage procedure is approved in the applicable IACUC protocol.
2. Confirm the identity of the animal.
3. Weigh the animal and calculate the dose and maximum permitted volume.
4. Select the appropriate gavage needle or cannula based on species, age, and size of the animal.
5. Measure the appropriate insertion length, generally from the mouth to just beyond the last rib.
6. Prepare the syringe with the compound to be administered.
7. Mix the compound thoroughly, if applicable.
8. Remove air bubbles from the syringe.
9. Ensure all materials are ready before restraining the animal.

B. Restraint

1. Restrain the animal by grasping the loose skin of the neck and back to immobilize the head and body.
2. Maintain the animal in an upright or vertical position.
3. Ensure the restraint is secure enough for safe administration but not so forceful that the animal vocalizes or shows excessive distress.

C. Gavage administration

1. Position the gavage needle or cannula at the side of the mouth.
2. Advance the gavage needle gently along the roof of the mouth.
3. Continue advancing toward the esophagus, allowing passage just before the epiglottis to stimulate the swallowing reflex.
4. If resistance is encountered, stop and reassess needle position before proceeding.
5. Advance the needle only to the premeasured length.
6. Once correct placement is achieved, administer the compound slowly and with very gentle pressure.
7. Do not use force during administration.
8. After the full volume has been delivered, slowly withdraw the gavage needle.
9. Return the animal to its cage or a clean observation area.



D. Monitoring after gavage

1. Observe the animal closely for at least 5 minutes before returning it to the animal holding room.
2. Monitor for:
 - a) Difficulty breathing



- b) Coughing
 - c) Choking
 - d) Bleeding from the mouth
 - e) Bleeding from the nose
 - f) Excessive struggle
 - g) Lethargy or abnormal posture
3. If the animal coughs, chokes, or struggles during administration, stop immediately and withdraw the gavage needle.
 4. If it appears that material has entered the lungs, the animal should be euthanized.
 5. If excessive force or struggling raises concern for rupture of the esophagus or stomach, the animal should be euthanized.
 6. Notify veterinary staff promptly if a complication occurs or is suspected.

E. Recordkeeping

1. Place a Health Monitoring card on cages of animals that have received oral gavage treatment so that animals can be monitored for adverse effects after administration. The card should indicate that the animals were gavaged, along with the date and initials as applicable.
2. Make entries regarding:
 - a) Animal identification
 - b) Volume administered
 - c) Compound administered, when appropriate
 - d) Date and time of treatment
 - e) Any observations or complications
3. Documentation should be entered into the relevant records, including:
 - a) Experimental logbooks
 - b) Progress notes
 - c) Diagnostic testing documentation
 - d) Health monitoring records, when applicable
4. Gavage applicators prepared for use should be labeled appropriately.

VI. Health & Safety

- Used gavage needles and cannulas must be cleaned and sanitized appropriately before reuse.
- Sharps must be disposed of in designated sharps containers.
- Personnel must wash hands before and after performing oral gavage.
- Animals are capable of inflicting scratches and bites. Proper handling and restraint techniques must be used to reduce the risk of injury.
- In the event of a bite or scratch:
 - Scrub the area with soap and water.
 - Apply firm pressure to stop excessive bleeding.
 - Notify your supervisor immediately.
 - Follow *CM SOP 008: Reporting Accidents, Injury, and Illness*
- Personnel must wear appropriate PPE and clothing as outlined in *CM SOP 101: Protective Clothing and Personal Hygiene* and comply with any additional precautions directed by Comparative Medicine personnel or management.



VII. References & Attachments

- Applicable approved IACUC protocol
- FAU formulary or other approved institutional guidance, when applicable
- Health Monitoring card template
- Gavage equipment sizing guide

VIII. Revision History

Revision Date	Revision Number	Summary of Changes
05/07/2021	2	
03/07/2024	3	
03/29/2026	4	Updated format, made ADA compliant, streamlined process and language

Approved by: Nicole Compo, DVM, DVSc, DACLAM, Attending Veterinarian