



**Sanitizing Equipment for Use with Research Animals –
Standard Operating Procedures**

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1. Overview

Purpose

To define the methods and documents required for sanitization of equipment, instruments, and the experimental environment for use in animal research by the proper use of cleaning and disinfectants.

The goal of these procedures is to ensure clean equipment, instruments, and experimental environments for research animals and to prevent the spread of infectious agents within the animal colony.

2. Definitions

Cleaning is defined by the Center for Disease Control (CDC) as the removal of adherent visible soil, blood, protein substances, microorganisms and other debris from the surfaces, crevices, serrations, joints, and lumens of instruments, devices, and equipment.

Disinfection is the destruction of pathogenic and other types of microorganisms. Disinfection destroys most recognized pathogenic microorganisms but not necessarily all microbial forms. Cleaning and disinfection are recommended for items and surfaces that come into contact with intact animal skin. **Disinfection is not to be used as a substitute for sterilization of equipment and instruments requiring sterilization.** Disinfection will not reduce pathogens sufficiently to protect mucous membranes, nonintact skin, sterile tissue, or the vascular system from being contaminated or infected, and is not acceptable for aseptic procedures, which require sterilization.

Sterilization is the process that destroys or eliminates all forms of viable microorganisms and is not the subject of these procedures. For more information on sterile process and aseptic technique, please see Drexel University's procedures ACU-211 Non-Rodent Mammal Surgical and Post-Operative Care Procedures, ACU-213 Rodent Surgical and Post-Operative Care Procedures, and ACU-205 Sterilizing Procedures for Surgical Materials Used in Surgical Procedures on Animals.

3. Procedures

All non-sterile equipment that comes into contact either directly or indirectly with animals or animal byproducts must be disinfected in accordance with the following guidelines. The equipment must have a sanitizable surface and not be made of porous material; wooden surfaces are not acceptable, unless painted with a smooth, non-porous material.

If an investigator wishes to deviate from the guidelines, a detailed SOP must be outlined in the protocol and approved by the IACUC. The SOP should at a minimum include the agent and concentration to be used, the frequency of use, the surface contact time, if the agent needs to be rinsed or wiped away, the period of expiration after the solution has been prepared, the PPE necessary to safely use the disinfectant, and the procedure to be followed.

3.1 General Process

- a. All equipment and instruments to be used in animal research must be clean and in good working condition before use.



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- b. Equipment and instruments not needing sterilization (see ACU-205 Sterilizing Procedures for Surgical Materials Used in Surgical Procedures on Animals) should be disinfected as described below.
- c. All equipment should be disinfected more often than is recommended in these procedures if necessary for the health and safety of the animals.
- d. In the event of delicate equipment that may be directly or indirectly damaged through the sanitization process outlined in these procedures, the attending veterinarian or ULAR staff may work with the laboratory to come up with an action plan. The equipment should still be sanitized according to the agreed upon action plan in order to prevent microbial spread between animals.

3.2 Ensuring Sanitization of Hand Washed Equipment

The efficacy of the sanitation process should be verified periodically by microbiological monitoring or other appropriate methods and the data reviewed to ensure the effectiveness of these methods. ULAR can monitor the effectiveness of the procedure by swabbing representative equipment after the sanitization process. Monitoring the effectiveness of sanitization should be done annually to comply with the Guide for the Care and Use of Laboratory Animals. Contact ULAR to conduct monitoring of the sanitation process of your equipment.

In general, the disinfectant agents supplied by Drexel's ULAR at animal use locations are approved and should be the agents used unless a protocol specifies otherwise. When using infectious agents, use the sanitization product approved by the Drexel Institutional Biosafety Committee (IBC).

3.3 Carts and Transport Containers

- a. Carts should be wiped down with a disinfecting agent between species or between investigators.
- b. Carts used to transport animals that have been treated with hazardous biological agents should be labeled appropriately and cleaned accordingly.
- c. Carts in use should be hand wiped with a disinfecting agent a minimum of once per day. It is recommended that the carts be washed in ULAR facilities monthly.
- d. Transport containers should be wiped down with a disinfecting agent after each use. Any substrate should be changed and replaced with fresh substrate after each use.

3.4 Surgery Areas

- a. The entire surgical area or suite should be thoroughly cleaned with a disinfecting agent between species or between investigators.
- b. All surgical surfaces must be disinfected before the start of surgical preparation.
- c. Induction chambers must be disinfected between animals housed in different cages or between individual animals if soiled.
- d. Gas anesthesia tubing and nose cones must be disinfected after all the surgical procedures have been completed each day.
- e. Any cushioning, towels, or protective wrap added to equipment must be changed between animals housed in different cages or between individual animals if soiled.



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- f. Any equipment required in the surgical field including but not limited to stereotaxic devices and monitoring equipment must be disinfected prior to use and in between individual animals.
- g. All equipment within the surgical field should be sanitized between animals. Other equipment must be properly cleaned with a disinfecting agent prior to use and if soiled, at the end of the surgical session.
- h. Regular dusting, sweeping, and general housekeeping of the surgical area must be performed.

3.5 Behavioral

- a. Behavioral equipment should be thoroughly cleaned with a disinfecting agent between individual animals.
- b. Chambers used in behavioral tests should be thoroughly cleaned with a disinfecting agent before and after each individual animal.
- c. Any substrate used in behavioral chambers or behavioral equipment should be changed between individual animals and replaced with fresh clean substrate.
- d. Any cushioning or protective wrap added to the behavioral equipment should be disinfected between individual animals. If disposable, it should be replaced at a minimum of once per week of use. If unable to be safely disinfected, it should be replaced between species, investigators, or at least once per day of use.
- e. Regular dusting, sweeping, and general housekeeping of the behavioral rooms must be performed.

3.6 Imaging Equipment

- a. Imaging equipment (including IVIS, ultrasound, etc.) should be thoroughly cleaned with a disinfecting agent between individual animals.
- b. The imaging equipment should be in good working order before attempting use with animals.

4. Agents

- a. Disinfectant agents are not interchangeable. Approval is needed prior to switching the type of disinfectant. Contact ULAR for recommended disinfectant agents.
- b. Disinfectant agents must be prepared at the concentration described on the label.
- c. The bottle containing the disinfectant agent must be labeled with the name and concentration of the agent, the preparation date, and the expiration date.
- d. Disinfectant agents must have surface contact for the defined amount of time to be effective.
- e. The attending veterinarian or ULAR staff may approve disinfectant agent changes.

5. Responsibilities

5.1 Drexel University IACUC Responsibilities

The Drexel University IACUC and the IACUC Office are responsible for maintaining this guidance document, training, and monitoring. All exceptions to this procedure must be approved by the IACUC. For inquiries regarding these procedures, please contact the Director of Animal Welfare, a part of the Office for Research & Innovation (ORI), or the Attending Veterinarian.



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5.2 Principal Investigator’s Responsibilities

The Investigator is ultimately responsible for ensuring that each lab member is following policy and procedure. Individuals using private or shared animal research equipment are responsible for maintaining proper sanitization before, during, and directly after each use. The Investigator is responsible for decontamination of equipment exposed to hazardous materials as outlined in biosafety protocols.

5.3 ULAR Responsibilities

ULAR is responsible for providing the shared disinfecting agents in behavioral suites and common animal use areas. ULAR can test the effectiveness of hand sanitization of equipment by microbiological monitoring as requested.

6. Resources

- http://www.iacuc.emory.edu/documents/313_Sanitation%20of%20Research%20Equipment%20Used%20with%20Animals.pdf
- <http://www.bu.edu/researchsupport/compliance/animal-care/working-withanimals/procedures/surgery-rodent/>
- <https://www.brown.edu/research/sites/research/files/Rodent%20Survival%20Surgery%26Record%20Keeping%20Policy.pdf>
- <https://www.cdc.gov/infectioncontrol/guidelines/disinfection/index.html>

7. Revisions

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Edition 002/Review and Revision Date: 05/08/2024 and Effective Date: 05/22/2024– Revised Document.

- Updated formatting to new template.
- Section 3.2. Addition of “Contact ULAR to conduct monitoring of the sanitation process of your equipment.”
- Section 5. Addition of Drexel IACUC Responsibilities
- Section 5. Addition of “Contact ULAR to conduct monitoring of the sanitation process of your equipment.”