

Institutional Animal Care and Use Committee		UNTHSC
Title: Standards for Sanitization of Laboratory Based Animal Care and Use Activities		
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A. BACKGROUND INFORMATION

In effort to provide a healthy environment for the animals, it is important to establish procedures for the effective sanitization and disinfection of animal facilities and equipment used for research to order to prevent microbial agents that may cause sub-clinical and clinical diseases that could jeopardize the health of the animals and personnel.

The *Guide for the Care and Use of Laboratory Animals*, 8th edition indicates that, “The frequency and intensity of cleaning and disinfection should depend on what is needed to provide a healthy environment for an animal.” (Pg. 69)

Therefore, the goal of this policy is to ensure that the animal activity areas are sanitized appropriately prior to and after animal use, in order to reduce or eliminate pathogenic organisms in the animal environment.

Terms:

Sanitization: The maintenance of environmental conditions conducive to health by involving cleaning and disinfection.

Cleaning: Removes the excessive amounts of excrement, dirt, and debris.

Disinfection: Reduces or eliminates unacceptable concentrations of microorganisms.

Cleaning Agents: A chemical agent, that when used in conjunction with some form of agitation, will aid in the effective removal of soils from an inanimate surface.

Sanitizer: An agent that reduces the number of bacterial contaminants on inanimate surfaces to levels prescribed by the Public Health Service’s rules and regulations.

Disinfectant: An agent that destroys or eliminates specific infectious agents from a surface.

Sterilant: Any physical or chemical agent that inactivates or kills all forms of life, especially microorganisms.

RESPONSIBILITY

- a. The Principal Investigator (PI) responsible for the area where the laboratory animal activities occur is also responsible for ensuring the effectiveness of the sanitization and disinfection of the laboratory facility as outlined in this document. The Investigator responsible for the equipment in the area is responsible for ensuring the effectiveness of the sanitization and disinfection of the laboratory equipment used for laboratory animals as outlined in this document.
- b. DLAM is ultimately responsible for ensuring the effectiveness of the sanitization and disinfection of the animal facilities and equipment in the vivarium in accordance with the DLAM SOPs, with the exception of specific PI maintained space and equipment. For example if a PI purchases equipment for their studies that must be maintained in the vivarium, the PI is responsible for ensuring the effectiveness of the sanitization and disinfection of that equipment.

PROCEDURES

a. **Cleaning Agents:**

- Cleaning agents designed to mask animal odors should not be used, as they do not substitute for good sanitation practices. In addition, they may expose animals to volatile compounds that may alter basic physiologic and metabolic processes. This is especially important in animal housing areas.
- Appropriate PPE must be worn when handling cleaning agents.
- Read the Safety Data Sheet and all literature that comes with the product, and follow all instructions (i.e., contact time required, safety precautions, etc...)
- DLAM or Safety may be consulted with for selecting an appropriate disinfectant and/ or cleaning agent.

b. **Recommended Disinfecting Agents:**

- Quaternary Ammonium Compounds (i.e., Cavicide, Quatricide)
- Peroxygen Compounds (i.e., Virkon)
- Chlorine Compounds (i.e., bleach, MB-10, Clidox)
- Alcohols are acceptable for some applications (i.e., isopropyl alcohol, Sani Cloth wipes)
 - However, not effective against non-enveloped viruses
 - Not effective against bacterial spores
 - Surface must be saturated and allowed to air dry

c. **Cleaning Utensils:**

- Constructed of material that resist corrosion
- Assigned and kept in a specific area.
- Maintained in good condition
- Routinely cleaned
- Stored neatly to minimize contamination and promote drying.

d. **Sanitization of Microenvironment:**

All equipment used in *in vivo* experimental activities that come in direct contact with the animals must be sanitized at appropriate intervals. Equipment includes, but is not limited to: specialized housing systems, chambers, transport boxes, behavioral testing equipment (such as mazes, swim tanks, and fluid delivery systems), surgical support equipment (such as rodent surgery boards), and anesthesia induction chambers.

- Equipment that is able to go through the DLAM cage washers should be scheduled for routine sanitation using the cage washer.
- Equipment that cannot go through the cage washer should be sanitized by appropriate method with established efficacy at appropriate intervals. The interval between cleaning must be decreased if disease conditions dictate a more frequent sanitation schedule. Assessment of the agent and disinfection technique is done during post approval monitoring audits.
- The minimum interval for complete disinfection of equipment that has direct contact with animals used during *in vivo* studies is two weeks, assuming the animals are of similar health status.
- The recommended sanitation schedule for common items, such as animal transport devices, chambers, and behavioral test apparatus are:
 - Clean between individual animals
 - Sanitize every two weeks or
 - Sanitize between animals if warranted by experimental or disease conditions.

e. **Sanitization of Macroenvironment:**

For animal activity areas (i.e. floors, walls, counters, and etc...) should be cleaned daily when in use, and sanitized every 2-4 weeks depending on the animal activity being performed in the area.

- This also includes cleaning contaminated surfaces (floors, walls, equipment) that are not in contact with the animals. It is essential that spills of food rewards be cleaned thoroughly in order to minimize attraction of vermin.
- If the activity involves procedures that could cause the environment or animal to be inadvertently exposed to pathogenic organisms, then the area should be sanitized every two (2) weeks or more often if known contamination occurs (feces, blood, exudate from infected tissue, etc...) or if disease process dictates an enhanced schedule.

f. **Assessing the Efficacy of Sanitation:** According to the *Guide for the Care and Use of Laboratory Animals*, 8th edition, “Whether the sanitation process is automated or manual, regular evaluation of sanitation effectiveness is recommended” (Pg. 73).

- Equipment sanitized in DLAM’s cage washer is routinely assessed for the effectiveness of the sanitation process.
- Otherwise, a method for verifying the sanitation program must be implemented and documented.

- Examples of ways to assess the efficacy of sanitation includes:
 - Plating and Counting: The classic methodology utilizes RODAC (Replicate Organism Detection and Count) plating.
 - ATP Bioluminescence Technology: Bioluminescence technology uses adenosine triphosphate (ATP), the “energy source” for living cells.
- DLAM may be consulted with for recommendations to assess the efficacy of sanitation.

B. References:

- a. Animal Welfare Act Regulations (AWAR, 9 CFR)
- b. The Guide for the Care and Use of Laboratory Animals, Eighth Edition (pg. 72-73)
- c. Ingraham, Amy; Lynch, F.E., Shapiro, K.B. (2013, January 16) “Sanitation Chemicals for Laboratory Animal Science,” *ALN Magazine*. Retrieved from <https://www.alnmag.com>.

EXAMPLE
Laboratory Sanitation Log

Equipment/Area	Date Cleaned	Verification Method	Date Verified	Initial