Policy on Validation of Disinfection of Research Equipment Used on Animals

This document establishes the policy of the IACUC regarding disinfection of experimental equipment having direct contact with animals at the University of Kentucky. Specific research requirements that deviate from this document must receive IACUC approval prior to initiating.

Policy

This policy applies to equipment other than that used for aseptic surgery. It is important to note that disinfection is not a substitute for sterilization, a process that destroys all forms of viable organisms and which is not the subject of this policy. Because pathogens may be passed between animals through contact with contaminated equipment, it is essential to disinfect equipment at a frequency and using methods that reduce the pathogenic microbial load. This policy does not apply to animals used in agricultural research or to aquatic species. Note that any instruments used for survival surgery must be sterilized as part of aseptic technique.

Researchers using experimental equipment (e.g., behavioral testing equipment, metabolic cages, transport containers, imaging equipment, anesthetic induction chambers, surgical platforms) that involves direct contact with animals must ensure adherence to the following:

- Contact surfaces of relevant equipment must be disinfected with an appropriate disinfectant agent after each animal or group of animals has had contact.
- Validation of these practices must be performed at least annually and documented
- A threshold should be established to determine acceptability of result.
- Equipment with results outside the established threshold should be disinfected again and retested, with no equipment being used prior to having successfully undergone disinfection.
- Records of disinfection and validation must be maintained and should detail the date and method of testing, and the results. These records must be available to the IACUC as requested.

Additional Information

Equipment that is sanitized and disinfected by DLAR does not require testing or documentation by the investigator, as DLAR maintains a rigorous process that is routinely evaluated.

Cleaning agents containing fragrance designed to mask odors should not be used, as they may expose animals to volatile compounds that could alter metabolism. Appropriate

PPE, typically gloves and eye protection, should be worn when working with disinfectant chemicals.

Appropriate disinfectant agents include quaternary ammonium compounds; peroxygen compounds; and chlorine compounds. Alcohols are sometimes acceptable but may require extended contact time to achieve disinfection. It is advisable to consult with the veterinarian in your area when choosing an appropriate disinfectant.

It is essential to validate that the process used for disinfection is effective. This may be done in several ways, including bacterial culture (e.g., RODAC plating) or via ATP bioluminescence technology which assays for ATP (the “energy source” of living cells). While visual inspection is helpful to establish removal of gross material, it is inadequate to validate efficacy. It is advisable to consult with the area veterinarian with respect to methods for validation of disinfection efficacy.

Whatever method is used for validation of disinfection efficacy, a threshold should be established to determine acceptability of result. The goal is not necessarily to eliminate all microbes, but to substantially reduce the burden. The degree of reduction desirable may vary with the use of the specific equipment being tested. It is often helpful to test equipment before disinfection and again after, to assess impact of the disinfection process.

Though specific thresholds for microbial burden following disinfection have not been established for non-surgical research equipment used on animals, the following offers examples of thresholds that might be applied:

ATP Bioluminescence

Pass: < 200 RLU (Relative Light Units)
Fail: ≥ 200 RLU

RODAC Microbiological Testing

Pass: <26 bacterial colonies per plate
Fail: ≥ 26 bacterial colonies per plate

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