Institutional Animal Care and Use Committee  
Clemson University

POLICY #06: INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE (IACUC) POLICY ON ASEPTIC TECHNIQUE

Aseptic technique is a set of specific practices and procedures performed under carefully controlled conditions with the goal of minimizing contamination by pathogens.

Survival Surgery:
The AWAR (Animal Welfare Act Regulations, §2.31,1–1–13 Edition) require that all survival surgery will be performed on all regulated animals using aseptic procedures which includes surgical gloves, masks, sterile instruments, and aseptic technique. Major operative procedures on non-rodents will be conducted only in facilities intended for that purpose which shall be operated and maintained under aseptic conditions. Non-major operative procedures and all surgery on rodents do not require a dedicated facility, but must be performed using aseptic procedures. Operative procedures conducted at field sites need not be performed in dedicated facilities, but must be performed using aseptic procedures. The Guide for the Care and Use of Laboratory Animals (8th ed., 2011, page 118) states that “General principles of aseptic technique should be followed for all survival surgical procedures”.

Non-Survival Surgery:
APHIS/AC (Animal and Plant Health Inspection Service/Animal Care) Policy #3 (March 14, 2014) does not require aseptic technique or dedicated surgical facilities when performing non-survival surgery. The areas to be used should be clean, free of clutter, and prepared using acceptable veterinary sanitation practices as would be used in a standard examination/treatment room. Personnel present in the area should observe reasonable cleanliness practices for both themselves and the animals.

Field Surgery Involving Wildlife:
The AWAR (§2.31, 1–1–13 Edition) state that operative procedures conducted at field sites does not require dedicated facilities, but must be performed using aseptic procedures. The Institutional Animal Care and Use Committee Guidebook (2nd ed., 2002) states that any invasive surgery should be done using aseptic technique. The Guide for the Care and Use of Laboratory Animals (8th ed., 2011) states that surgical outcomes should be continually and thoroughly assessed to ensure that appropriate procedures are followed and timely corrective changes are instituted. Modification of standard techniques may be required (for instance, in aquatic or field surgery), but should not compromise the well-being of the animals.

Field Surgery Involving Farm Animals:
The AWAR (§2.31,d,1.ix) which apply to farm animals used in biomedical research, state that survival surgery conducted at field sites does not require dedicated facilities, but must be performed using aseptic procedures including surgical gloves, masks, sterile instruments, and aseptic technique. PHS Policy (IV,A,1) requires compliance with standards for survival surgery as outlined in the Guide when using farm animals in biomedical research. The Guide recognizes that modification of standard aseptic and surgical techniques might be necessary when performing field surgery; however, animal well-being should not be compromised. When modifications are implemented, thorough assessment of surgical outcomes should be done to ensure that appropriate procedures are followed.

When using farm animals in agricultural research, standards for survival surgery as outlined in the Guide for the Care and Use of Agricultural Animals in Research and Teachings (AG Guide) should be applied. The AG Guide (page 11) states that “major survival surgeries should be performed in facilities designed and prepared to accommodate surgery and standard aseptic procedures should be employed”. Minor survival surgical procedures that do not expose a body cavity and cause little or no physical impairment (wound suturing and peripheral vessel cannulation) may be performed under less stringent conditions if performed in accordance with standard veterinary practices.
Therapeutic and emergency surgeries are sometimes required in agricultural situations that are not conducive to rigid asepsis. However, every effort should be made to conduct minor and emergency survival surgeries in a sanitary and aseptic manner.

Training:
The Guide for the Care and Use of Laboratory Animals (8th ed., 2011) “Researchers conducting surgical procedures must have appropriate training to ensure that good surgical technique is practiced—that is, asepsis, gentle tissue handling, minimal dissection of tissue, appropriate use of instruments, effective hemostasis, and correct use of suture materials and patterns (Brown et al. 1993; Heon et al. 2006).”

“Technical staff performing rodent surgery may have had little formal training in surgical techniques and asepsis and may require general surgical training as well as training for the specific techniques they are expected to perform (Stevens and Dey 2007).”

In summary, both The Guide and the AG Guide state that the highest degree of asepsis should be maintained taking into consideration several factors - the type of surgery (major or minor), species differences, emergency versus elective type of procedures, etc. The guiding consideration is what is best for the animal given the specific set of conditions for the procedure - “appropriate aseptic technique commensurate with the risk to the animal’s health and well-being.”