



# Duke University Animal Care & Use Program Policy



## ASEPTIC TECHNIQUE FOR ANIMAL SURGERY

**PERFORMANCE STANDARD:** To provide physiologically stable biologic models for research.

**BACKGROUND / PURPOSE:** The Animal Welfare Act (AWA), Public Health Service (PHS) Policy, and the “Guide for the Care and Use of Laboratory Animals” (Guide) require the Institutional Animal Care and Use Committee (IACUC) and the attending veterinarian to provide oversight of all surgical procedures. The Guide states that, “Aseptic technique is used to reduce microbial contamination to the lowest possible practical level. Aseptic technique includes preparation of the patient, such as hair removal and disinfection of the operative site; preparation of the surgeon, such as provision of decontaminated surgical attire, surgical scrub, and sterile surgical gloves; sterilization of instruments supplies, and implanted materials; and the use of operative techniques to reduce the likelihood of infection.”

### ROLES:

1. Researchers: All surgical procedures shall be described in the approved protocol.
2. Deviations necessitated by emergency needs, must be reported to the DLAR veterinary staff and IACUC immediately.
3. DLAR veterinary and technical staff are available for consultation and training in aseptic technique.

**PROTECTIVE POSTURES REQUIRED:** Depending upon the species and procedure being conducted, but generally, all procedures require protection of the animal, through proper instrument prep and proper skin prep. For more information, see the Web Site under Guidelines.

### DEFINITIONS:

1. Aseptic: Techniques used to assure the patient remains free of pathogenic organisms.
2. Sterilization: Techniques used to remove all pathogenic organisms (such as on instruments – you do not sterilize skin)
3. Disinfection: Techniques used to decrease to as low as possible, the pathogens located on the skin surface of the patient. Disinfection is used for items that cannot be sterilized (autoclaved).

## **POLICY OUTLINE:**

1. Minimum aseptic technique for **mouse, rat, and avian survival surgery:**
  - a. Surgical area:
    - i. Any dedicated space in a laboratory appropriately managed to minimize contamination from other activities in the room.
    - ii. No other activities can be performed in this same area while surgery is being performed
    - iii. Sufficient space for patient preparation and patient recovery must be provided.
  - b. Surgical instruments and supplies (all required):
    - i. Sterile instruments and supplies are required.
    - ii. Instruments are initially autoclaved or gas sterilized.
    - iii. Surgical instruments can be re-used for multiple animals on the same day.
    - iv. Between animals, the tips of the instruments should be placed into a glass/ceramic bead sterilizer or other IACUC approved method.
  - c. Surgeon preparation:
    - i. Required:
      1. Hand scrubbing and rinsing of all hand surfaces
      2. Sterile gloves
      3. A face mask
      4. Head cover
    - ii. Recommended:
      1. A surgical gown or dedicated surgical scrubs
  - d. Surgical site prep (all required):
    - i. Clipping of fur over the patient's surgical site
    - ii. Preparation of surgical site by scrubbing the skin with a disinfectant (e.g., chlorhexidine, betadine) followed by an alcohol derivative. This process is completed 3 times.
  - e. Surgical draping of the disinfected area is required.
    - i. Use of adhesive plastic food wrap (e.g. Press-n-Seal is the only currently available product), pulled from a clean roll and applied across the surgical field and surrounding area. The incision can be made directly through the plastic wrap and into the skin.
    - ii. Any other process or material that provides a clean area protecting the surgical site may also be used.
2. Minimum aseptic technique for **all other mammalian species (e.g. rabbit, guinea pig, and others) survival surgery:**
  - a. Surgical area: According to The Guide, Major surgeries must be performed, "...in facilities intended for that purpose..." Practically, this means:
    - i. Interior surfaces are monolithic and impervious to moisture.
    - ii. Ventilation supply is filtered air at positive pressure.
    - iii. There is minimal traffic.
    - iv. A surgeon preparation area is located outside of the operating room.
    - v. A patient preparation area is separate from the surgeon preparation area.
    - vi. A patient recovery area is provided.
  - b. Surgical instruments and supplies (all required):
    - i. Sterile instruments and supplies are required.
    - ii. Instruments are initially autoclaved or gas sterilized, no re-use unless re-autoclaved, gas sterilized, or chemically sterilized.

- c. Surgeon preparation (all required):
  - i. Hand scrubbing and rinsing of all hand surfaces
  - ii. Sterile gloves
  - iii. A face mask
  - iv. A surgical gown or dedicated surgical scrubs
  - v. Head cover
- d. Surgical site prep (all required):
  - i. Clipping of fur over the patient surgical site.
  - ii. Preparation of surgical site by scrubbing the skin with a disinfectant (e.g., chlorhexidine, betadine) followed by an alcohol derivative. This process is completed 3 times.
  - iii. If the potential exists for sterile instruments or hands to contact non-sterile portions of the patient's body, an autoclaved sterile drape must be used.
- e. Sterile instruments and supplies:
  - i. All surgical instruments, supplies, and implants used must be autoclaved or gas sterilized prior to use in the surgical patient.
  - ii. Appropriate indicators and verification must be located with instruments that have been sterilized.
  - iii. Liquid sterilants may be used with adequate contact times and assured activity of the sterilant (fresh solution). They must also be rinsed with sterile water or saline before use.
    - 1. NOTE: The preference is for autoclave and gas sterilization.
    - 2. NOTE: Alcohol is neither a sterilant nor a high-level disinfectant and is not appropriate for instrument preparation.
  - iv. Instruments which contact non-sterile materials or surfaces during the procedure must be discarded from the surgical field and not used until re-sterilized.
- 3. Materials that have expiration dates:
  - a. Survival Surgery: Drugs and supplies intended to be used in animals must be in-date.
  - b. Non-survival Surgery: Expired products other than anesthetics or analgesics, may be used for non-survival procedures. Expired anesthetics or analgesics may not be used at any time.
- 4. Procedural techniques which encourage proper surgical outcomes include:
  - a. Gentle tissue handling
  - b. Minimal dissection of tissue
  - c. Appropriate use of instruments
  - d. Effective hemostasis
  - e. Correct use of suture materials and patterns
  - f. Reducing surgical timeSupplemental surgical training to enhance these is available through DLAR veterinary staff.