

SURGICAL POLICY

ISSUE DATE:

REVISION DATE (S): 8/20/2012, 12/14/2015

- I. **Regulations:** All surgeries must comply with provisions set forth by the Animal Welfare Act (AWA), and the *Guide for the Care and Use of Laboratory Animals*. The Institutional Animal Care and Use Committee at the University of Pittsburgh investigated all concerns regarding the care, treatment and use of animals for research or teaching at the university
- II. **Qualifications for Surgeons**
 - a. The principal investigator is responsible for assuring that any personnel performing surgical procedures on animals are adequately trained.
 - b. The Academy of Surgical Research has formulated a number of guidelines for training investigators who conduct surgery on animals.
 - c. All surgical procedures are subject to review by the IACUC.
 - d. Principal investigators are encouraged to consult a DLAR veterinarian during surgical protocol development to ensure anesthetics, surgical manipulation and post-operative analgesics are appropriate for the species.
 - e. Post-operative complications must be reported to the site veterinarian.
- III. **Surgical Definitions**
 - a. **Major Surgery:** A surgical intervention that penetrates and exposes a body cavity or any procedure that produces substantial or permanent impairment of physical or physiological functions, it also encompasses manipulations involving large or deep open operative fields and/or those in which there is extensive tissue dissection or trauma.
 - b. **Minor Surgery:** Any operative procedure involving very small incisions or resections of skin, mucous membranes and/or connective tissue.
 - c. **Survival Surgery:** Any surgical procedure from which the animal recovers consciousness. Aseptic technique must be used for all survival procedures.
 - d. **Multiple Major Survival Surgery:** Are acceptable on a single animal only if they are (1) included in and essential components of a single research protocol, (2) scientifically justified by the investigator, or (3) necessary for clinical reasons. Cost savings alone is not an adequate reason for performing multiple major survival surgical procedures.
 - e. **Non-survival Surgery:** Any surgery or procedure conducted on animals that are not allowed to regain consciousness. Non-survival surgery procedures require similar record keeping as survival surgery.

IV. Rodent Surgery -Purpose Bred Rats and Mice

- a. Facilities:** A separate facility for rodent surgery is not required. A room or part of a room that is easily sanitized and not used for other activities during surgery is appropriate. Survival surgery must be performed in specifically designated areas, solely dedicated (during such times) for this purpose.
 - i. Surgical space must be uncluttered, disinfected, and impervious to water.
 - ii. Only DLAR procedure rooms or approved laboratory spaces can be used.
- b. Aseptic Techniques:** These apply to all surgical procedures in which the animals are expected to recover from anesthesia.
 - i. Standard surgical preparations of the animal operative site must be performed, including hair clipping, antiseptic cleansing of the skin, and appropriate sterile draping to maintain aseptic conditions. Alcohol is not an adequate disinfecting agent.
 - ii. Surgical instruments and supplies must be satisfactorily sterilized prior to use and between surgical procedures. Instruments must be maintained on a sterile surface during the procedure. For multiple surgeries, instruments must be disinfected at the tips between surgeries. After a maximum of 5 surgeries, a new sterile surgical pack must be used.
 - iii. Surgeons must wear sterile gloves and clean scrubs and/or a clean gown or clean and dedicated lab coat over street clothes. Surgeons must follow animal facility and biocontainment garb requirements.
 - iv. Surgical wounds must be closed using appropriate techniques and sterile, non-expired materials.
- c. Anesthesia and Analgesia:** see IACUC formulary for drugs
 - i. Animals must be maintained in a surgical plane of anesthesia throughout the entire procedure.
 - ii. Administer analgesics as described in the IACUC protocol.
- d. Post-Operative Monitoring**
 - i. Animals must be observed and monitored post operatively until they are awake and show evidence of spontaneous and voluntary movement within their cage, before returning to their respective animal holding rooms.
 - ii. Remove skin closures in 7-14 days post operatively
- e. Record Keeping:** see IACUC Medical Record Keeping Requirements-Rodents
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V. Large Animal Surgery

- a. Facilities:** There are five components to a large animal surgical arena: (1) surgical support/instrument prep, (2) animal preparation, (3) surgeon scrub, (4) operating room, and (5) post-operative recovery.
 - i. Major survival surgery must be conducted in a dedicated surgery room approved by the IACUC. A listing of approved rooms can be obtained by contacting the DLAR surgical research facility 412-648-9337, or surgical@dlar.pitt.edu.
 - ii. The Surgical Research unit of the DLAR equips maintains and schedules IACUC approved large animal surgical operating rooms that are located within DLAR managed facilities. Please use the DLAR Service Request Form to request services from the Surgical Research Facility. For information or questions, please contact Surgical Services at surgical@dlar.pitt.edu to schedule service
- b. Pre-surgical Assessment:** It is recommended that all animals have a pre-procedural assessment done before each procedure. This assessment should be recorded on the anesthesia form or recorded separately and maintained by the PI as part of the animal's record.
- c. Aseptic techniques:** These apply to all surgical procedures performed on large animals.
 - i. Standard surgical preparations of the animal operative site must be performed, including hair clipping, antiseptic cleansing of the skin, and includes hair removal and cleansing of the skin.
 - ii. Required surgical garb:
 1. Major surgery- clean scrubs, sterile gown, hair cover, shoe covers, surgical mask, sterile gloves.
 2. Minor Surgery- clean scrubs and/or clean gown over street clothes, surgical mask, hair cover, sterile gloves.
 - iii. Animal must be draped with sterile drapes before beginning procedure.
 - iv. A separate instrument pack must be used for each animal.
 - v. Surgical wounds must be closed using appropriate techniques and sterile, non-expired materials.
- d. Anesthesia and Analgesia:** see IACUC formulary for drugs
 - i. Animals must be maintained in a surgical plane of anesthesia throughout the entire procedure.
 - ii. Administer analgesics as described in the IACUC protocol.

e. Post-Operative Monitoring

- i. Move animal to a warm, dry area where trained personnel must monitor recovery.
- ii. Return animal to routine housing once righting reflexes have returned and the animal can maintain normal body temperature. Do not offer food and water until the animal is fully recovered.
- iii. Remove skin closures in 7-14 days post operatively.

f. Record Keeping: see IACUC Medical Keeping Requirements-Large Animals**VI. Post procedural Recovery and Care**

- a. Responsibility of Care:** It is the principal investigator's responsibility to perform all post-procedural recovery and care unless a service agreement or request has been established with the DLAR.
- b. Documentation:** Documentation that post-procedural analgesics and antibiotics were given and daily observations of the animal were performed to assess for specific pain and distress must be completed by the person administering the treatments. The Post Procedural Form (PPF) and Treatment Observation Form (TOF) must be used to accomplish this record keeping task. These forms are available on the DLAR website <https://web.dlar.pitt.edu/forms.aspx>
- c. Post Procedural Problems:** If post procedural problems are encountered, the PI must contact the DLAR. Adverse events must be reported to the DLAR veterinary team at the animal facility.
- d. Monitoring by DLAR:** Veterinary Services will perform the monitoring of post-procedural outcomes on a daily basis. In addition to the aforementioned requirements of post-procedural monitoring by the investigative group and their required documentation, the DLAR Veterinary Services personnel will be monitoring post-procedural candidates daily during their daily rounds. Large animals will be observed daily for 72 hours post-op and documentation of their progress will be entered in the animal's clinical record. If any post-procedural complications arise involving major infractions of IACUC policies, significant animal losses, protocol compliance issues, noncompliance to veterinary directives or intervention, recurrent post-surgical complications in which a resolution cannot be met, etc., the DLAR Attending Veterinarian will be notified, and this information forwarded to the IACUC and RCCO as a compliance issue.

VII. References

- a. Guide for the Care and Use of Laboratory Animals 8th edition
- b. Animal Welfare Act and Animal Welfare Regulations

c. Academy of Surgical Research Training Materials

<http://surgicalresearch.org/requestPage.asp?ID=122&guid=5756EADEBCE046C6B12CD515237D0E26>