



Institutional Animal Care and Use Committee (IACUC)
Office of Research Compliance (ORC)

Policy on Survival Surgery and Post-Surgical Monitoring of Animals Used in Research, Teaching, and Testing

FULL POLICY CONTENTS

Policy Statement
Reason for Policy
Scope
Procedures
Sanctions
Forms
Contacts

ADDITIONAL DETAILS

Web Address
Related Information

Effective: *February 26, 2008*
Last Updated: *March 28, 2016*

Responsible University Officer:
Fred H. Cate
Vice President for Research

Policy Owner:
Bloomington Institutional Animal Care and Use Committee

Policy Contact:
IACUC Administrator

Policy Statement

This policy explains requirements pertaining to survival surgery procedures, post-surgical care, and monitoring of animals used in research, teaching or testing at the Indiana University Bloomington campus.

Reason for Policy

Survival surgery and post-surgical care of research animals are addressed in the *Guide*, PHS Policy and USDA regulations. These documents specifically require that the Institutional Animal Care and Use Committee (IACUC) to review surgical activities and the Attending Veterinarian (AV) oversee surgical procedures and post-operative care programs.

Scope

All personnel involved with survival surgeries must be trained in basic surgical (aseptic) technique by an IUB veterinarian prior to performing surgery. Postdoctoral fellows and PIs ***may*** petition for an exemption to the policy based on previous experience with survival surgeries. To do so, please submit your qualifications and request for a waiver to the BIACUC Office at BIACUC@indiana.edu. Also include the species with which one has experience.

Procedures

Survival Surgery Procedures and Facilities

Aseptic technique

Principles of aseptic surgical technique:

Principle 1: Instruments and materials that penetrate a body cavity or are placed beneath the skin of an animal should be sterile.

Principle 2: Appropriate preparation of the incision site and precise surgical techniques are required to reduce microbial contamination of the surgical site as well as the instruments and materials used.

Principle 3: Reduction of microbial contamination by preparation of the surgeon, decontamination of the surgical work-space and limitation of exposure of the incision instruments and materials to fomites.

Aseptic surgical technique is required for all survival surgeries in vertebrate species (e.g., mammals, birds, reptiles, amphibian, fish).

Specific application of these principles to non-rodent mammalian survival surgery involves:

- Preparation of the animal, such as hair removal if appropriate, and disinfection of the operative site.
- Preparation of the surgeon, such as the provision of decontaminated surgical attire (e.g., clean lab coat/scrub top, surgical mask), surgical scrub, and sterile surgical gloves. A surgeon's cap is recommended to prevent hair or dander falling into the surgical area.
- Appropriate sterilization of instruments, supplies, and implantable materials.
- Draping the immediate area around the incision with sterile drapes (e.g., sterile gauze, autoclaved lab mat/paper towels) to avoid contamination of the incision, instruments, and supplies.

- Use of surgical techniques to reduce the likelihood of infection.

The IACUC recognizes that due to inherent differences in the anatomy, physiology, and environment of the various vertebrate classes, the effective performance of aseptic surgical technique on non-mammalian vertebrates (e.g., birds, fish, reptiles, amphibians) often requires modification of the standard practices associated with mammalian aseptic surgery. It also recognizes that field studies present a significant challenge to the effective implementation of all the principles of aseptic surgical technique, regardless of vertebrate class. Some scientific societies that specialize in vertebrates, other than mammalian, have provided guidelines for surgery. Animal researchers who use non-mammalian species or perform research in the field should expect to consult with the AV during the development of protocols involving surgery.

Sterile Surgical Packs

Per the 8th edition of the *Guide* (p. 119):

Specific sterilization methods should be selected on the basis of the physical characteristics of the materials to be sterilized and sterilization indicators should be used to validate that materials have been properly sterilized.

Maintenance of sterile surgical packs and plastic peel packs may be time-related and/or event-related. A variety of factors affect pack sterility, including the properties of wrap materials, storage conditions, and handling of sterile packs. Packs expire at 6 months and are to be labeled with the creation date, contents, and initials of the individual who wrapped the pack. Double-wrapped, cloth packs must have a sterilization indicator strip in the interior-most section of the pack.

Major Survival Surgery

Major survival surgery is defined as any surgical intervention that penetrates and exposes a body cavity (e.g., skull, abdomen, thorax) or has the potential for producing a substantial or permanent physical or physiologic impairment in an animal that is expected to recover. The AV will determine whether a procedure is to be considered "major" or "minor" or simply a "procedure" in cases where it is not obvious. Major survival surgery in non-rodent mammals must be conducted in a facility intended for that purpose and maintained/ operated to ensure cleanliness. Major survival surgical procedures in rodent species and non-mammalian vertebrates do not require a dedicated surgery facility; however, such procedures do require the use of appropriate aseptic technique, and that the laboratory area where surgery is conducted to be maintained and operated in a manner that ensures cleanliness and minimizes unnecessary traffic and activities.

Minor Survival Surgery

Minor survival surgery does not expose a body cavity and causes little or no physical impairment. Minor surgeries may be performed under less stringent conditions than major procedures. Although minor surgical procedures do not require a dedicated surgical facility, appropriate aseptic technique is required.

Multiple Major Survival Surgery (MMSS)

Generally, multiple major survival surgical procedures on a single animal are not allowed.

However, under special circumstances, the IACUC may grant approval for such procedures provided they are related components of a single research or instructional project, and appropriate scientific justification is provided. Cost alone is not an adequate reason for performing multiple major survival surgical procedures on an animal; however, such procedures may be justified in the interest of conserving numbers of rare species.

Animal Care during the Peri-Operative Period

The Principal Investigator is ultimately responsible for ensuring that care is provided that is both appropriate to the species and to the procedure being performed. In practice, however, appropriate animal care that adheres to regulatory expectations requires careful coordination between the Principal Investigator, surgeon, animal care staff, and veterinary staff. Responsibilities of key individuals must be delineated and understood before surgical procedures are performed. Animal care personnel must be aware of surgical animals under their care and whom to notify in case of an emergency.

If any animal develops unexpected surgical or post-surgical complications including death, the Laboratory Animal Resources (LAR) veterinary staff must be notified immediately. Animals that die unexpectedly during or after surgery or are euthanized because of post-surgical complications must be preserved by refrigeration and must be available to the LAR veterinary staff for necropsy as soon as possible. Postmortem examinations will be performed at the discretion of the LAR veterinary staff. The investigator will be notified of the results of the necropsy, including findings that indicate problems with surgical technique, anesthesia/analgesia administration, or general health of the animal.

Post-operative analgesia must be in accordance with the IUB campus policy on the use of sedatives, analgesics, and anesthetics:

<https://research.iu.edu/doc/compliance/animal-care/bloomington/iub-biacuc-use-of-sedatives-analgesics-anesthesia.pdf>

Surgery Records

The Principal Investigator/surgeon is responsible for maintaining accurate records regarding surgical procedure and perioperative care records. For non-rodent mammals, individual records that detail procedures, drugs administered, dates, personnel, and pre- and post-surgical condition of the animal, and identification of the surgeon must be kept for each animal. For rodents and non-mammalian vertebrate species, group records that provide the same details may be used in place of individual records.

Regardless of species, (at least every 15 minutes) post-operative monitoring (at least every 15 minutes) is required until recovery from anesthesia has occurred. Daily-recorded observations are required until the post-operative period ends. (Typically 10-14 days post-operatively, when sutures are removed and surgical wounds are adequately healed). A campus surgical form and pain scales are available for this purpose. The original or a copy of the surgical record must become part of the animal's campus health record for non-rodent mammals. All records must be readily available to the personnel involved in post-surgical monitoring, the veterinary staff, the IACUC, and federal regulatory officials. The surgery records and pain scales should be maintained near animal housing areas. When this is not possible, the veterinary and animal

BLOOMINGTON INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE

care staff are to have access to where these records are kept. Only records of animals present in animal quarters must be readily available; once an animal has been euthanized, the related records must be included with the surgical records in the lab and/or LAR office.

Veterinary Monitoring and Oversight

Veterinary staff involvement will be determined by the needs of the research project. Consideration will be made for the experience of the surgeon and research staff, the surgical procedure being performed, the species involved, and the needs of the convalescent animal. LAR veterinarians conduct initial veterinary evaluation of proposed surgical procedures and peri-operative animal care when they participate in the IACUC review of animal care and use protocols. Minimally, on-going veterinary monitoring will consist of regular review of the units' documentation of peri-operative care and observation of animals to ensure adequate post-surgical care. This will include review of surgery records, animal health records, and other documents relating to animal surgery. The LAR veterinary staff is available for consultation when planning for post-operative care of animals and for post-surgical emergencies.

Institutional Animal Care and Use Committee Monitoring and Oversight

The IACUC evaluates proposed surgical procedures and peri-operative care during the review of animal care and use protocols. Routine on-going monitoring and oversight are exercised through periodic review of the animal care and use program, inspection of animal housing facilities and animal use areas, and reports from the veterinary staff. Ongoing projects that are found to be out of compliance with this policy are subject to suspension by the IACUC.

Sanctions

Failure to comply with IACUC policies may result in noncompliance reports to the Institutional Official, the Office of Laboratory Animal Welfare (OLAW), the U. S. Department of Agriculture (USDA), and/or the suspension of animal use privileges. In addition, the availability of sponsored research funds may be affected when an investigator is found to be in violation of these policies.

Forms

Surgery and Post-op Record:

<https://research.iu.edu/doc/compliance/animal-care/bloomington/iub-biacuc-surgery-post-op-record.pdf>

Group Surgery Records:

<https://research.iu.edu/doc/compliance/animal-care/bloomington/iub-biacuc-group-surgery-records.doc>

Pain Scale and Recovery Record:

<http://researchcompliance.iu.edu/Policies/iacuc/iub/PainScaleandSurgeryFollowup042809.doc>

Contacts

<i>Subject</i>	<i>Contact</i>	<i>Phone</i>	<i>Fax/Email</i>
Surgery training	Clinical Veterinarian	855-6397	iubdvm@indiana.edu
General surgery inquiries	Attending Veterinarian	855-2356	lar@indiana.edu
Policy inquiries	IACUC Administrator	855-5138	biacuc@indiana.edu

Web Address for this Policy

<https://research.iu.edu/policies/bloomington-animal-care-and-use.html>

Related Information

Anesthesia:

<https://research.iu.edu/doc/compliance/animal-care/bloomington/iub-biacuc-use-of-sedatives-analgesics-anesthesia.pdf>

Rodent Surgery:

<https://research.iu.edu/doc/compliance/animal-care/bloomington/iub-biacuc-rodent-major-survival-surgery.pdf>