

<b>SOP: # 304</b> <b>Effective Date: 4/20/2022</b>	<b>SURVIVAL SURGERY AND  POST-SURGICAL  MONITORING OF ANIMALS  USED IN TEACHING, TESTING,  AND RESEARCH</b>	<b>Supersedes Documents  Dated: 4/17/19 and 5/18/2016</b>
Page 1 of 4		

## 1. POLICY:

The Animal Welfare Act, Public Health Service (PHS) Policy, the “Guide for the Care and Use of Laboratory Animals” (Guide) and the “Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching” (Ag Guide) all specifically require that the IACUC review and the institutional veterinarian oversee surgical procedures as well as pre- and post-operative animal care programs. The following IACUC policy statements will serve to clarify the directives from the USDA and PHS regarding this topic. Surgery considerations apply to procedures involving incisions greater than 0.5 cm in live vertebrate animals. Any exceptions to this SOP must be reviewed and approved by the IACUC.

## 2. DEFINITIONS

- 2.1 *Major Surgery* - Penetrates and exposes a body cavity or produces substantial impairment of physical or physiologic functions. (Examples: penetrates and exposes a body cavity such as the thorax, abdomen, or a joint cavity, substantially impairs physical or physiological function, such as removal of any part of a limb, involves extensive tissue dissection or transection.
- 2.2 *Minor Surgery* - Does not expose a body cavity and causes little or no physical impairment.
- 2.3 *Multiple Survival Surgery* - more than one surgical session is performed, and the animal is recovered from anesthesia after each session
- 2.4 *Survival Surgery* - The animal awakens from surgical anesthesia.
- 2.5 *Non-Survival Surgery* - The animal is euthanized before recovery from anesthesia (e.g., tissue harvest).

## 3. PROCEDURES

### 3.1 Survival Surgery Procedures

- 3.1.1 All Survival Surgery will be performed using aseptic procedures, including surgical gloves, masks, sterile instruments and aseptic techniques.

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Page 2 of 4		

3.1.2 Major operative procedures on non-rodent mammalian species may be conducted only in facilities intended for that purpose which shall be operated and maintained under aseptic conditions.

3.1.3 Procedures that do not classify as Major Surgery on all species and surgery on rodents do not require a dedicated facility, but must be performed using aseptic procedures and in areas of the laboratory or facility where cleanliness can be assured and unnecessary traffic and activities can be minimized at the time of surgery.

### **3.2 Multiple Survival Surgeries**

3.2.1 Multiple Major Survival Surgeries on USDA-covered species, where the surgeries are not part of a single research protocol, require the Institutional Official to submit a request to the USDA/APHIS and receive specific approval.

3.2.2 When Multiple Survival Surgeries not covered under section 3.2.1 above, the Principal Investigator must provide justification in the IACUC protocol application. Examples of scientific justifications that could be used in a protocol include:

- (a) Scientific Purposes – The justification would need to show how the Multiple Survival Surgeries are necessary for the research/teaching being performed and why other methods cannot be utilized to achieve the research/teaching goals.
- (b) Conservation of a scarce resource – Multiple Major Survival Surgeries could be performed in separate animals, but this would further reduce the scarce resource by increasing the number of animals used. It needs to be determined that the additional Survival Surgery does not cause undue stress to the animal. Application of this reason is discouraged and will be very critically weighed during the review process.
- (c) Two surgeries are required that could be performed at the same time, but to do so would sufficiently compromise the animal that it may not survive, whereas if the animal is able to heal from the first before the second, it should survive both procedures.
- (d) Salvage value - as in the case of a food animal in which two separate surgeries are required (on a single protocol) at different times and in which, the second could be non-survival; however, to

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Page 3 of 4		

kill the animal would unnecessarily be a waste of a food source. It needs to be determined that the additional Survival Surgery does not cause undue stress to the animal.

### **3.3 Post-Surgical Monitoring**

3.3.1 Accurate records regarding surgical procedures, anesthesia, recovery and post-procedural care must be kept and be made readily available to the IACUC, LAP veterinary staff and representatives of regulatory organizations.

- (a) For non-rodent mammalian species (e.g., dogs, cats, rabbits, pigs etc.), individual records must be kept.
- (b) For other species, the procedural records may be entries in laboratory notebooks or other well-organized study records.

3.3.2 Records should include appropriate procedural details, dates, personnel, and pre- and post-procedural condition of the animals.

- (a) Notes during the immediate post-procedural recovery period must include frequent (at least every 15 minutes until recovery from anesthesia) written observations of the animal's condition.
- (b) Examples of surgical records, criteria that need to be monitored and recommended post-operative/procedure monitoring records are available with this document or can be obtained on the [Purdue University IACUC website](#).
- (c) Any animal, including rats and mice, that develops unexpected surgical or post-surgical complications should be reported to the LAP in a timely manner. Animals that die unexpectedly during or after surgery or are euthanized because of post-surgical complications must also be reported to the LAP.
- (d) After general anesthesia, at least daily, post-operative monitoring must be performed for a minimum of three (3) days after a surgical procedure. Details about the parameters to be monitored, analgesics given, and length of time to be monitored, must be included in the approved IACUC protocol.

## **4. RESPONSIBILITIES**

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Page 4 of 4		

- 4.1** The Principal Investigator (PI) must conscientiously evaluate the need to perform surgery (whether single or multiple) and adequately provide scientific justification in the IACUC application. The PI is also responsible for providing pre- and post-procedural care, seeking Laboratory Animal Program (LAP) veterinary care or consultation, coordinating any specialized animal care, and documenting care of the animal(s) through appropriate record-keeping.
- 4.2** The IACUC is responsible for review of the protocol in reference to the science and practicality of the study while considering humane treatment of animals proposed for use in research and/or teaching.
- 4.3** All personnel engaging in surgical procedures on animals must be appropriately trained in aseptic surgical technique and have their training documented with the IACUC prior to performing unsupervised surgeries.

**5. APPLICABLE REGULATIONS AND GUIDELINES**

Animal Welfare Act, 9 CFR § 2.31

National Research Council (US) Committee for the Update of the Guide for the Care and Use of Laboratory Animals. Guide for the Care and Use of Laboratory Animals. 8th edition.

[PHS Policy on Humane Care and Use of Laboratory Animals](#)

**REFERENCES TO OTHER APPLICABLE SOPs**

Prior Purdue IACUC documents combined and updated for this SOP:

Surgery and Post-Surgical Monitoring of Animals – Last Approved 4/17/2019  
Multiple Survival Surgery – Last approved 5/18/2016