

## WVU IACUC Policy: Multiple Survival Surgeries in the Same Animal

### **Background**

The *Guide for the Care and Use of Laboratory Animals* (the *Guide*, NRC 2011) states multiple major surgical procedures are acceptable only if they are (p.30):

1. included in and essential components of a single research project or protocol,
2. scientifically justified by the investigator,  
OR
3. necessary for clinical reasons. (clinically necessary procedures do not necessarily require review and approval by the IACUC in advance of the procedure)

Performing multiple major surgeries on a single animal used in separate protocols is discouraged and should be reviewed critically by the IACUC. The Institutional Official (IO) **must** submit a request to the USDA/APHIS and receive approval in order to allow a USDA-regulated animal to undergo multiple major survival surgical procedures in separate unrelated research protocols.

Surgical procedures are classified as major or minor (definitions below). The following should be considered when classifying:

1. Potential for pain or post-operative complications
2. Nature of the procedure
3. Size and location of the incision
4. Duration of procedure
5. Species, health status, and age of animal

The *Guide for the Care and Use of Agricultural Animals in Research and Teaching* (the *Ag Guide*, 2020) states (p. 11):

- Performance of more than one major survival surgery on a single animal is discouraged but may be necessary to ensure or maintain the health of the animal.
- Multiple major survival surgeries performed for nontherapeutic reasons should be performed only when justified, as reviewed and approved by the IACUC.

### **Definitions**

*Major surgery:* any surgical procedure that penetrates and exposes a body cavity or produces substantial impairment of physical or physiological functions or involves extensive tissue dissection or transection. Examples include, but are not limited to laparotomy, thoracotomy, ovariectomy, nephrectomy.

*Minor surgery:* a surgical procedure that does not expose a body cavity and causes little or no physical impairment. Examples include wound suturing, percutaneous biopsy, lymph node biopsy, and subcutaneous osmotic mini-pump implantation, routine agricultural animal procedures such as castration, and most procedures routinely done on an 'outpatient' basis in veterinary clinical practice.

*Survival Surgery:* Anytime an animal recovers from anesthesia following a surgical procedure.

*Non-survival Surgery* (may be classified as tissue harvest): The animal is euthanized prior to recovery from anesthesia following a surgical procedure.

*Multiple Survival Surgeries*: Occurs when an animal undergoes two or more survival surgeries as defined above.

### **Policy**

1. Protocols that propose multiple major survival surgical procedures on a single animal **must** provide justification in the protocol submission. Protocols that include a combination of a major and minor surgeries on a single animal will be evaluated as to their effects on the animal's welfare and may require further justification. Proposal of multiple major survival surgeries **must** satisfy the criteria above taken from the *Guide*. **Neither cost savings nor convenience is an adequate justification for performing multiple major survival surgical procedures, although, rarity of the model or species could be a partial justification in some cases.**
2. A specific timeline detailing when surgical procedures will be performed **must** be included in the protocol. Adequate time between procedures should be provided so that the animal can return to pre-surgical homeostasis (return to pre-surgical weight and hydration status, and none to a minimum level of pain). If animals have not stabilized and returned to expected health (adequate weight, body condition, hydration) the subsequent surgical procedures may need to be delayed unless this is clearly justified in the protocol.
3. Supportive care and adequate analgesia **must** be provided to the animals between procedures.
4. The IACUC may require periodic reporting from the Principal Investigator to track the outcomes of the multiple survival procedures.
5. This policy does count any surgical procedure defined above as major that occurs prior to the animal arriving at WVU (e. g. laparotomy or ovariectomy) in the total, when that procedure is for a research intent.
6. Placement of peripheral catheters and injections using trocars (SQ temperature telemetry, microchips, drug pellets, pieces of tumor tissue) are not considered a surgical procedure unless it involves creating an incision to access the vessel or injection site of interest.
7. Transfer of animals with surgical histories from one protocol to another or from one research use to another **must** account for prior surgical uses, and animals should be identified to preclude their inadvertent reuse. Both uses **must** be scientifically justified with regard to the surgical procedures themselves, not just for use of the animals.
8. Long lived animals (Agricultural species) may require multiple survival surgeries for therapeutic reasons throughout their lifetime. In these instances, the medical decisions will be made by the clinical veterinarian and the AV.

### **References**

1. [Animal Welfare Act and Animal Welfare Regulations](#), United States Department of Agriculture, 2017.
2. [Guide for the Care and Use of Laboratory Animals](#), National Research Council, 2011.
3. [Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching](#), Federation of Animal Science Societies, 2020.