



## University of Maryland College Park Animal Care and Use Standard

### Multiple Survival Surgical Procedures

**Purpose:** This standard defines and provides information required to secure approval for multiple survival surgeries in animal use protocols.

**Background:** Regardless of whether they are classified as major or minor surgeries, the research team [PI, Attending Veterinarian (AV), IACUC] should evaluate multiple surgical procedures on a single animal to determine their impact on the animal's well-being. Multiple major survival surgical procedures on the same animal under the same protocol are only acceptable if they meet certain criteria (as outlined below). Multiple major survival surgical procedures on the same animal under different protocols are discouraged, and may require approval from the USDA.

**Definitions:**

1. *Major operative or surgical procedure:* "any surgical intervention that penetrates and exposes a body cavity or any procedure that produces permanent impairment of physical or physiological functions." (AWR 1.1) UMD further defines major operative procedures to include any initial craniotomy and craniotomy on small mammals (rats, mice, ferrets, gerbils, hamsters, guinea pigs, etc.) consisting of an initial or subsequent opening > 3mm. Other operative procedures classified as major include laparotomy, thoracotomy, joint replacement, limb amputation and procedures that involve extensive tissue dissection or transection. Based on information provided in the protocol, the IACUC may classify operative or surgical procedures not listed here as major, and/or make additional requirements regarding surgical conditions (e.g., dedicated surgical suite use) as deemed appropriate by the committee.

2. *Minor surgical procedure:* a procedure that does not expose a body cavity and causes little or no physical impairment. (E.g., wound suturing, peripheral vessel cannulation, percutaneous biopsy, routine agricultural animal procedures such as castration, and most procedures routinely done on an "outpatient" basis in veterinary clinical practice.)

3. *Survival surgical procedure:* any surgical procedure from which the animal is allowed to recover.

**Standards:** Multiple survival surgical procedures will be evaluated on a case-by-case basis. Multiple **major** surgical procedures on a single animal are acceptable only if they are (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. Conservation of scarce animal resources may justify the conduct of multiple major surgeries on a single animal, but the application of such a practice on a single animal used in separate protocols is discouraged; the IACUC will critically review such requests. The IACUC does not accept cost or convenience as adequate justification for subjecting an animal to multiple major survival surgeries.

**Methodology:**

1. Surgical procedures must be described in the animal study protocol. Procedures will be evaluated on a case-by-case basis by the AV and IACUC to determine whether they are major or minor surgical procedures.

2. Regardless of whether the surgery is designated minor or major, all survival surgeries (including those conducted at field sites) must be performed using aseptic technique. Major surgical procedures on non-rodent mammal species must be performed in a dedicated surgical facility. All other surgical procedures must, at minimum, be performed in a dedicated, easily sanitizable space that provides separation from other activities.

3. If multiple survival surgical procedures are described for a single animal in the protocol, there must be a clear, scientific need for these multiple surgical procedures. Any procedures (even minor ones) that may induce substantial post-procedural pain or impairment should be scientifically justified if performed more than once.

4. If multiple survival surgery is approved, the IACUC will continue to assess animal welfare by monitoring surgical outcomes. This may be accomplished through annual protocol reviews, semi-annual facility inspections, post-approval monitoring and adverse event report evaluations. When applicable, the Institutional Official will request permission and receive approval from the USDA to perform multiple major survival surgeries on regulated species under separate, unrelated research protocols.

#### **References:**

1. USDA [US Department of Agriculture]. 1985. 9 CFR 1A. (Title 9, Chapter 1, Subchapter A): Animal Welfare. Available at [https://www.aphis.usda.gov/animal\\_welfare/downloads/AC\\_BlueBook\\_AWA\\_508\\_comp\\_version.pdf](https://www.aphis.usda.gov/animal_welfare/downloads/AC_BlueBook_AWA_508_comp_version.pdf); accessed January 15, 2021.

2. Institute for Laboratory Animal Research, National Research Council. (2011). Guide for the Care and Use of Laboratory Animals. Washington, DC: National Academy Press. Retrieved from <https://grants.nih.gov/grants/olaw/guide-for-the-care-and-use-of-laboratory-animals.pdf> 2021