



EXPECTATIONS FOR USDA COVERED NON-RODENT SPECIES UNDERGOING ANESTHESIA EVENTS

Overview/Purpose

USDA covered species may be placed under anesthesia for a variety of reasons including performance of procedures, survival surgery, or imaging. Animals must be properly managed during the recovery period to ensure return to normal physiologic status. Documentation of proper monitoring should include visual observations, measurements of physiologic parameters (e.g. heart rate, respiratory rate, body temperature), and/or the administration of agents (e.g. fluid support, analgesia) for anesthetic events lasting more than 30 minutes. Anesthesia recovery records must be available upon request for various inspection needs such as IACUC and USDA.

In addition, survival surgery in USDA covered species must be completed using aseptic technique, gentle tissue handling, and proper post-operative care in accordance with applicable governmental regulations. Facilities must be appropriate for survival surgery in USDA species per regulations, and investigators must adhere to the minimum standards addressed in this policy.

Definitions

1. **Procedure** – Animal manipulations that do not require a skin incision but may cause an animal a level of pain, suffering or distress equivalent to or greater than the introduction of a hypodermic needle.
2. **Surgery** – Animal manipulation specifically involving the creation of an incision through the skin
3. **Major Survival Surgery** – Penetrates and exposes a body cavity, produces substantial impairment of physical or physiologic functions, or involves extensive tissue dissections or transection.
4. **USDA Species** – Warm-blooded vertebrate species except birds, lab rats/mice (*Rattus* and *Mus*), and farm animals/horses used for agriculture research and teaching.

All survival surgeries involving rodents including those that are regulated by the USDA are expected to follow the guidance provided by rodent survival surgery policy.

<http://orpp.osu.edu/files/2013/07/Rodent-Survival-Surgery.pdf>

Requirements

Training: Research personnel administering anesthesia must have appropriate training in advance of the scheduled event in addition to survival surgery training when applicable. Training is available at no charge through University Laboratory Animal Resources (ULAR) and/or through consultation with your attending veterinarian.

<http://ular.osu.edu/training/animal-handling-and-technique-training/>

Anesthesia: Anesthetic selection is evaluated during the IACUC protocol approval process and additional veterinary consultation is available at all times. Assessment of the animal's physiologic condition and plane of anesthesia (immobilization versus surgical plane) must occur at least every 15 minutes throughout the procedure. At a minimum, vital signs such as heart and respiratory rates should be recorded. Body temperature must also be recorded when an animal is maintained under general anesthesia.

Post-operative/anesthesia Care: Animal care following anesthetic events must include monitoring, record keeping, and documentation of any treatments given. Study team personnel must provide the animal care unless arrangements have been made with ULAR in advance. The frequency of required observation is dependent on the phase of recovery. The veterinary staff must be informed of any post-operative complications.

1. **Continuous monitoring** (heart rate, respiratory rate, and temperature) and supportive care must be provided for all animals until the animal can maintain sternal upright positioning and has been extubated (removal of the endotracheal tube) when applicable.
2. All animals must be visually monitored every 15 minutes until physiologic parameters (respiratory rate, heart rate and temperature unless collection of such data is not feasible for that species and setting) have returned to levels indicating recovery from anesthesia.
3. Following anesthetic recovery animals must be observed as described in the animal use protocol.
4. **Animals undergoing surgery must be observed daily for 5 days then as needed** until wounds have healed. Special attention should be made to physiologic functions as well as behavioral signs of post- procedural/operative pain, infection, and wound dehiscence. Non-absorbable suture and staples must be removed by day 14 or as directed by the attending veterinarian. A notation in the animal record is sufficient for record keeping purposes.

Record Keeping: Investigators must maintain accurate records of anesthesia, surgery, and post-operative care, including analgesic administration. Anesthesia and post-operative care records must provide documentation of animal evaluation. Surgical records must document the procedures performed, date, and identify the surgeon and anesthesiologist. Appropriate record keeping should include the location of block and volume of anesthetic when using regional and local anesthesia. Records must be available during the semiannual IACUC inspection and per OSU records retention policy the principle investigator is required to retain these records (medical records) a year beyond disposition of the animal.

Survival Surgery in USDA non-rodent species

Location for Surgery: Survival surgeries must be done in one of the following dedicated surgical facilities; Wiseman Experimental Surgery (ULAR), CVM and OARDC Operating Rooms. Exceptions, if justified as an essential component of the research protocol, must have IACUC approval.

Aseptic Technique: Aseptic technique must be followed for all survival surgeries. All surgical equipment, implanted material, instruments, and supplies that will come in contact with the surgical site must be sterilized before use in survival surgery. All members of the surgical team, who will come into contact with the sterile field, sterile

instruments and/or sterile equipment, must properly scrub hands and wear sterile surgical gloves and a sterile gown, surgical face mask and bonnet. Instruments must be replaced and/or hands re-gloved following contact with non-sterile surfaces. Hair/fur must be removed and the surgical site prepared aseptically using acceptable veterinary practices (e.g. scrubbed three times with a skin disinfectant, such as chlorohexidine or iodophors, alternating each disinfectant scrub with a scrub of sterile water or 70% isopropyl alcohol).

Analgesia: Analgesia must be provided to animals that are likely to experience post procedural pain; exceptions must be approved by the IACUC. Unless the contrary is established, investigators should consider that procedures that cause pain or distress in human beings may cause pain or distress in other animals. Investigators are responsible for the assessment and management of pain in their research animals and must include a plan for pain management in their IACUC protocol.

Multiple Major Surgery: Multiple major survival surgery on a single animal must be clearly described in the animal protocol and approved by IACUC. Scientific justification must be provided.

Applicable Regulations

1. Animal Welfare Act (AWA, Public Law 89-544, 7 U.S.C.)
2. Animal Welfare Act Regulations (AWAR, 9 CFR, Chapter 1, Subchapter A)
3. Health Research Extension Act of 1985 and Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals
4. National Research Council *Guide for the Care and Use of Laboratory Animals*, Eighth Edition. National Academy of Sciences, 2011

Additional Information/Guidance

1. **Small Animal Surgery, 4th Edition**, Theresa Welch Fossum, 2013
2. **Handbook of Veterinary Anesthesia**, William W. Muir III, John A. E. Hubbell, 2013
3. ULAR Veterinary Guidelines
 - a. [Best Practices for Survival Surgery on USDA Covered Species \(Non-Rodents\)](#)
 - b. [Acceptable Disinfectant and Sterilant Methods](#)
4. IACUC Policies
 - a. [Rodent \(non-USDA\) survival surgery policy](#)

History of Revisions

043-00 - new policy approved 07/13/12

043-01 – revised to reflect the location for surgery would be done in ULAR surgery facility, approved 11/16/12

043-02 – the title was revised to include anesthetic events for all USDA species, added definition of USDA species and updated the post op/anesthesia care requirements, approved 03/18/16