



Johns Hopkins University

Animal Care and Use Committee

Survival Surgery: Major, Minor and Multiple

Background:

Survival surgery is defined as any surgery from which the animal recovers consciousness from anesthesia following a surgical procedure. Animal Welfare Act Regulations¹ and Public Health Service Policy (as set forth in the *Guide for the Care and Use of Laboratory Animals*²) require that survival surgeries be performed using aseptic techniques. Major operative procedures on USDA-regulated species must be done in a dedicated surgical facility. Minor operative procedures, surgeries on rodents and other non-regulated species, and surgeries conducted at field sites do not require a dedicated facility. Investigators performing survival surgery must identify where the procedure will take place. Individuals performing these procedures must be appropriately trained and/or supervised to perform them. As with any research or teaching procedures performed on animals, surgical procedures and their justifications must be approved in advance by the Animal Care and Use Committee.

Definitions:¹

- **Major survival surgery:** Any surgical procedure that penetrates and exposes a body cavity **or** produces substantial impairment of physical or physiological functions.¹ The *Guide*² adds that if a surgery involves extensive tissue dissection or transection it could be considered a major survival surgery.
- **Multiple survival surgery:** More than one surgical session (major or minor) in which the animal is anesthetized.

Regardless of surgical classification, pain and distress should be minimized through use of pre-operative sedation, anesthesia, and analgesia, as well as post-operative monitoring and care appropriate to the procedure performed. Withholding drugs that would prevent or alleviate pain must be justified for scientific reasons.

Complete records of the surgical procedure(s) performed and of intra- and post-procedural monitoring for all species must be kept (see sample Surgical Record forms at web.jhu.edu/animalcare). These records should be legible, current, and readily available for inspection.

Both the AWA Regulations and the *Guide* indicate that multiple major survival surgical procedures on a single animal may be acceptable if they are (1) related components of a research project, (2) scientifically justified by the investigator, or (3) necessary for clinical reasons (as determined by the Attending Veterinarian). The *Guide* indicates that multiple minor surgical procedures that may induce “substantial post-procedural pain or impairment” should be scientifically justified. For USDA-regulated species (i.e., warm-blooded animals generally other than most rats, mice, and

birds bred for use in research) an exception to the above restrictions on multiple major survival surgeries may only be approved by the Administrator of the Animal and Plant Health Inspection Service.

Animals surviving a major surgical procedure under one protocol must be identified to prevent them from undergoing a second major survival procedure under another protocol without appropriate review and approval that takes the first surgery into account. This includes animals purchased that have already undergone a major surgical procedure.

References:

¹9 CFR Parts 1 and 2

²*Guide for the Care and Use of Laboratory Animals*, NRC, National Academy Press, 2011, p30.

Approved by the IACUC on 5/15/14