**I. Background**

Public Health Policy (PHS), the Guide for the Care and Use of Laboratory Animals (the *Guide*) and the Animal Welfare Regulations (AWR) require IACUC’s to provide appropriate oversight for any anesthetic and surgical procedure performed in laboratory animals. This includes but is not limited to review of protocols describing anesthesia, surgical procedures, inspection of areas where surgical procedures are performed including pre- and post-operative care areas, appropriate training of personnel who perform anesthetic and surgical procedures and are responsible for peri-operative care as well as regular evaluation of anticipated and non-anticipated outcomes of surgical procedures in all vertebrate research animals included in the animal care and use program at FAU.

**II. Purpose**

To establish a policy that will provide guidance to Animal Care and Research Staff in regards to surgeries and anesthesia - alone and in conjunction with surgical procedures - properly performed on laboratory animals compliant with laws and regulations governing animals in research and teaching as well as state of the art veterinary medical techniques. To minimize risks associated with anesthesia and surgical procedures; and reduce post-operative pain.

**III. General Statement**

When required for scientific data collection or clinical or operational requirements, animals will undergo anesthetic and/or surgical procedure(s), as detailed in the approved protocol. All individuals who perform or are expected to perform anesthesia and/or surgeries have to be trained in the relevant technique(s) and need to be familiar with the details of the particular animal care and use protocol as well as the provisions of this policy. To minimize risks during anesthesia and surgery and to minimize post-operative pain, animals need to
appropriately assessed and monitored during pre-, intra-, and post-procedural periods and appropriate anesthetic and analgesic regimen provided.

IV. Policy

1. Appropriate anesthesia has to be provided to all animals undergoing procedures that require either immobilization or surgical procedures or both.

2. Survival surgical procedures involving any vertebrate species must be conducted using aseptic technique.

3. Survival surgical procedures involving USDA regulated species must be conducted in IACUC approved surgical facilities. Appropriate Personal Protective Equipment (PPE) must be donned including head cover, surgical mask, sterile gown and gloves.

4. Survival surgical procedures in non-USDA regulated species require a designated, uncluttered, clean area. The surgical suites available within or in conjunction to a vivarium have to be used unless individual research laboratory areas have been specifically requested and approved by the IACUC. The surgeon has to wear appropriate PPE such as clean scrubs or lab coat, sterile gloves, head cover and surgical mask.

5. Non-survival surgical procedures involving any vertebrate species must be conducted in an uncluttered, clean area. Surgical preparation of the animal and sterile technique is generally not required. Short non-survival surgical procedures such as transcardial perfusion and harvesting of tissues during surgery do not require shaving of the surgical site unless otherwise dictated by the specific research aim.

6. All anesthetic, surgical procedures and analgesic provisions need to be described in the IACUC protocol or amendment in sufficient detail including peri-operative monitoring, pre-operative and post-operative care and assessment of analgesic effectiveness. Any deviation from this policy must be specifically outlined and the scientific justification for the exception approved by the IACUC.

7. Monitoring of animals has to occur continuously from induction of anesthesia, during the entire anesthetic/surgical procedure until full recovery as indicated by regaining righting reflex and purposeful movement of the animal. Post-surgical animals have to be monitored at least once a day until the surgical incision has healed. The period may be extended depending on the procedure performed and/or if physical impairment has been induced. In non-survival surgeries, monitoring ends with euthanasia and confirmation of death.

8. Recordkeeping is necessary for all experimental anesthetic and surgical procedures. For confirmation of quality care, proper documentation of administered anesthetics/analgesics has to occur and adequate animal monitoring of animals has to be recorded during the procedure and for a minimum of once daily for three (3) days post-operative. These documents need to be available for review by the IACUC at any time.

9. Training of animal care and research staff is overseen by the IACUC. All personnel using anesthetic regimens and performing surgeries have to be trained and/or their proficiency evaluated by the Attending Veterinarian or her designee in regards to:

   a. Anesthesia administration and monitoring adequate depth of anesthesia
   b. Aseptic and gentle surgical technique
V. Definitions

1. **Anesthesia** is the condition of having sensation, including the feeling of pain, blocked or temporarily taken away. It is induced by either a single or a combination of injectable or inhalant drugs. It can be local, only including a certain part of the body, or general, affecting the entire body. General anesthesia comprises a reversible state of amnesia, analgesia, loss of responsiveness, loss of skeletal muscle reflexes, decreased stress response, or all of these simultaneously.

2. **Survival Surgery** is a surgical procedure from which an animal is expected to regain consciousness. The length of consciousness is not a determining factor, rather the ability of an animal to experience pain or distress.

3. **Non-survival surgery** is a surgical procedure from which an animal does not regain consciousness, rather is euthanized at the end of the procedure. Animals must be maintained at a proper anesthetic plane without recovery before euthanasia to avoid pain or distress.

4. **Major survival surgery** penetrates and exposes a body cavity (e.g. laparotomy, thoracotomy, craniotomy), causes substantial impairment of physical or physiologic functions (e.g. stroke surgeries, amputations) or involves extensive tissue dissection or transection.

5. **Minor survival surgery** does not expose a body cavity and produces little or no physical impairment such as wound suturing, peripheral vessel cannulation and subcutaneous implants.

6. **Aseptic technique** involves a set of specific practices and procedures performed under carefully controlled conditions with the goal of preventing or minimizing contamination by microbiological agents.

7. **Post-surgical period** is considered the time from recovery of the animal from anesthesia until the surgical incision has healed. Surgical staples or skin sutures have to be removed 7-14 days post-operatively if applicable.

VI. Accountability

The Principal Investigator (PI) will be responsible for:

- Assuring that procedures are performed as described in the corresponding IACUC protocol and if necessary submitting an amendment to the protocol and await approval before new method(s) will be introduced
- Assuring that research personnel attends relevant training requested by the IACUC and/or collaborates with the AV to set an appointment for assessment of proficiency
- Training personnel in protocol specific experimental methods approved in the relevant IACUC protocol(s), regulations related to anesthesia, surgery and analgesia and relevant IACUC policies and SOPs
- Maintaining anesthetic and/or surgical equipment so that it is always in proper working order

The IACUC will be responsible for:

- Reviewing and approving, requiring modifications in (to secure approval) or withholding approval of IACUC protocols and/or amendments
- Providing oversight for all animal procedures conducted including anesthesia, analgesia and surgical procedures
- Developing and directing an appropriate training program
The Research Integrity office will be responsible for:

- Administrative support of the IACUC members to facilitate their regulatory function
- Maintaining policy and assure regular review and update as necessary by the IACUC
- Keeping relevant training records and provide to the IACUC for review

The Office of Comparative Medicine (CM) will be responsible for:

- Comparative Medicine personnel will abide to this policy when performing anesthesia and/or surgical procedures and providing analgesia
- Veterinary review of IACUC protocol and advise PI on appropriate method of anesthesia, analgesia and surgical technique
- Providing support and training for all personnel regarding anesthesia, analgesia and surgical techniques as required by the IACUC including hands on training, verification of proficiency of personnel in particular experimental technique(s) via observation and support regarding proper maintenance of equipment.

VII. Policy Renewal Date

TBD

VIII. References

PHS Policy on Humane Care and Use of Laboratory Animals
Animal Welfare Regulations, 9 CFR Ch. 1
Guide for the Care and Use of Laboratory Animals, 8th edition, 2011

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POLICY APPROVAL

Initiating Authority

Signature: ____________________________ Date: 10/23/14

Name: John Newcomer, Interim Vice President for Research