

GUIDELINES FOR ANESTHESIA AND ANALGESIA IN LABORATORY ANIMALS

PURPOSE:

It is federally mandated that any animals undergoing potentially painful teaching or research procedures be provided with proper anesthesia or analgesia to mitigate pain. Researchers and instructors are mandated with mitigating pain and distress in animals used for research and instruction at Liberty University. Exceptions to the following policies are only permitted with proper justification when scientifically necessary and must be approved by the Liberty University IACUC.

- The Office of Laboratory Animal Welfare PHS Policy on Humane Care and Use of Laboratory Animals Principle #4 states, “Proper use of animals, including the avoidance or minimization of discomfort, distress, and pain when consistent with sound scientific practices, is imperative.”
- USDA Animal Care Policy #11 defines a painful procedure as “any procedure that would reasonably be expected to cause more than slight or momentary pain or distress in a human being.”

GUIDELINES:

The determination of whether or not a procedure is likely to involve pain or distress to an animal will be assessed during the veterinary protocol review process. An appropriate pain management plan including anesthesia shall be determined on a case-by-case basis. If a protocol includes a component where a specific pain level is necessary to obtain scientifically justifiable data, such justification must be provided in the IACUC protocol and be subsequently approved by the IACUC. For help determining specific USDA pain criteria, see the guidelines on determining pain and distress categories.

TRAINING

Personnel who are performing anesthesia and/or surgery must be properly trained to do so. Principle Investigators are responsible for ensuring that laboratory or instructional staff are adequately trained and/or certified prior to performing procedures.

ANESTHETICS

For the use of any anesthetic agent, the university veterinarian must be consulted regarding proper dose and administration for the species and specific procedure.

- Inhalant Anesthetics (Ex: Isoflurane)
- Injectable Anesthetics (Ex: Ketamine Combinations, Dexmedetomidine)
- Immersion Anesthetics (Ex: Buffered MS-222)
- Local Anesthetics (Ex: Lidocaine, Bupivacaine)

ANALGESICS

For the use of any analgesic agent, the university veterinarian must be consulted regarding proper dose and administration for the species and specific procedure.

- Opioids (Ex: Buprenorphine, Morphine)
- NSAIDS (Ex: Meloxicam, Carprofen, Ketoprofen)

MONITORING

Mammals must never be left alone during anesthesia. To ensure proper depth, anesthesia and analgesia shall be monitored and recorded at least every 15 minutes. Intra and post-operative monitoring plans must be included in the protocol submission.

Other monitoring might be necessary depending on the procedure. Such measures may include heart rate, blood pressure, body temperature, and tissue oxygenation. Monitoring must occur and be recorded from post-operation to complete recovery.

RECORD KEEPING

All administration of analgesia, anesthesia, or peri-operative observation must be properly recorded. Depending on the species, records may be kept in an animal's individual medical record, in laboratory records, or on post-operative cage cards.

STATEMENT ON CONTROLLED SUBSTANCES

Several commonly used anesthetics and analgesics are controlled substances and require certain authorizations and procedures prior to use in animal research. Once obtained, remember that controlled substances must be properly stored with appropriate record keeping. Depending on the agent used, licenses or permits may be required by the State of Virginia. It is the responsibility of the PI to determine if any additional authorization is needed prior to performing any procedures.

Prior to using any controlled agents, consult the university veterinarian.