Analgesia
What is Analgesia?

- **Merriam–Webster:** insensitivity to pain without loss of consciousness
- **Dorland’s Medical:** absence of sensibility to pain
- Relieving pain
Pain in laboratory animals is an animal welfare concern that must be addressed.

Russell and Burch’s (3 R’s) principle of Refinement: “to reduce to an absolute minimum the pain and distress experienced by those animals that are used (in research procedures)”
Basic Assumption

If a procedure is likely to cause pain or distress in a human, then it is likely to also do so in animals.
Preemptive Analgesia

- Administration of preoperative and intraoperative analgesia

- Enhances intraoperative patient stability and optimizes postoperative care and well-being by reducing postoperative pain
Local vs. Systemic

- Local = regional
  - Provides pain relief to a specific area of the body

- Systemic = affecting the body as a whole
Regional analgesia, applied to a specific area of the body
Provide analgesia by blocking nerve impulse conduction
Used topically (bathe exposed nerves or cut tissue) or injected locally
Examples:
- Bupivacaine (Marcaine, Sensorcaine)
- Lidocaine
Non-steroidal Anti-inflammation Drugs (NSAIDS)

- Provides systemic analgesia
- Require approximately 30 – 60 minutes to achieve full analgesic effect
- Many have anti-inflammatory properties
- Some reduce fevers
- Examples:
  - Acetaminophen
  - Carprofen
  - Meloxicam
Opioids

- Provides systemic analgesia
- Act on pain receptors in the spinal cord and brain
- Vary in potency and duration
- Examples:
  - Buprenex (Buprenorphine)
  - Butorphanol
  - Fentanyl
“Multi-modal” Pain Therapy

- Because there are several mechanisms by which pain is produced, it is often helpful to use more than one type of analgesic.
- Multi-modal, or combination therapy may be more successful than treatment with a single agent.
- For example: using both a systemic and local agent (Carprofen given pre-operatively and Bupivicaine infused at surgical site).
REMEMBER

Anesthesia  ≠  Analgesia
Assessing Pain

- Observe animals for signs of pain or distress

Examples:
- Vocalization
- Depression
- Anorexia
- Rapid or labored breathing
- Lack of grooming
- Increased aggression
- Periocular and nasal porphyrin discharge (rodents)
- Abnormal posture
- Immobility
Some species will mask signs of pain until they are severe.

It is essential that personnel caring for animals are trained in species-specific behaviors and recognizing signs of pain and/or distress.

Appropriate nursing care can assist with pain management. For example:
- Extra bedding
- Warmth
- Proper nutrition and hydration
Follow your Protocol!

Appendix C lists the analgesia protocol approved by the IACUC.
Analgesic use is the default position of OLAW and the IACUC.

Preemptive analgesia is recommended.

Any withholding of analgesics must be scientifically justified and approved by the IACUC in your animal protocol.
REMEMBER

Document administration of analgesics.

Surgical and Post-operative records should contain analgesic information.
Veterinary Consultation

- The veterinary staff can provide recommendation on the best analgesics for species and study related needs.

- The IACUC and LAF recommend seeking a veterinary consultation prior to submission of an Animal Activity Protocol.
For additional information, contact the LAF office, G090 (4–1385).

To document training, please complete a [Training Documentation form](#) and return it to the IACUC office or the LAF office.

Thank you.
References

- Guide for the Care and Use of Laboratory Animals, Eight Edition