

# ANESTHESIA, ANALGESIA AND EUTHANASIA

Procedures that are painful to humans are considered to be painful to animals. Always use the appropriate anesthetics and analgesics when performing surgeries on animals.

## DEFINITIONS

Pain – An unpleasant sensory or emotional experience associated with actual or potential tissue damage

Anesthesia - A total loss of sensation in a part of or in the entire body

Analgesia – A complete loss of sensation to pain

Euthanasia – Causing death without pain

## ANESTHESIA

### Classification of Anesthetics

1. Injectables – Effects of these agents cannot be reversed quickly. The drug must be metabolized, excreted, or counteracted by another drug to terminate anesthetic action. Examples include sodium pentobarbital, ketamine/xylazine cocktail. Some are controlled substances. Logs must be kept of usage and are subject to audit by the DEA (Drug Enforcement Agency).
2. Inhalants – Effects of these agents can be reversed quickly. The agent is eliminated when the administration is discontinued as the animal exhales. The most common inhalant is isoflurane.
3. Dissociatives – Agents that depress the central nervous system and produce a state of catalepsy (ketamine). These are most effective when combined with tranquilizers and sedatives (e.g., xylazine, diazepam).

## ANALGESIA

1. Opioids – Buprenorphine, Butorphanol. These are controlled substances. Logs must be kept in the lab of usage and are subject to audit by the DEA.
2. NSAIDs – Non-steroidal anti-inflammatory drugs not controlled substances.

### Points to Remember

- Always use the anesthetic and analgesic that is listed in your protocol.
- Calculate the dose by body weight.
- Test the animal's reflexes (pedal and palpebral) after the anesthetic has taken effect and before beginning surgery.
- Monitor the depth and rate of respiration (increase in depth and decrease in rate signify anesthesia).

- Monitor body temperature when the animal is anesthetized – temperature falls, especially in small species. Perform surgeries on a heated surface, when available.
- Drugs under the control of the Drug Enforcement Agency must be stored in a locked cabinet in a secure area.
- A written record is required when controlled drugs under the control of the DEA are used (how much of the drug you have, how much was used and for what purpose).
- An inventory list of anesthetics, analgesics, tranquilizers, sedatives and other drugs should be kept.

## **EUTHANASIA**

### **Methods of Euthanasia**

- Barbiturate overdose
- CO2 asphyxiation – **Must always be followed by a physical means to ensure death**, such as cervical dislocation or pneumothorax. Use CO2 from tanks, not from dry ice.
- Cervical dislocation – Must be preceded by anesthesia or CO2 asphyxiation unless scientifically justified in the protocol. If cervical dislocation alone is done, it must be performed by well-trained personnel.
- Decapitation – Must be preceded by anesthesia or CO2 asphyxiation unless scientifically justified in the protocol.

### **Euthanasia Procedures**

- Always follow the methods of euthanasia that are outlined in your protocol.
- Ask questions if you are ever unsure of a procedure.
- Fill out a green euthanasia sheet and mark the cage with an “X” if you need DLAM to euthanize animals for you (follow procedure in Policy Manual).