

1. PURPOSE

This Standard Operating Procedure (SOP) describes acceptable procedures for euthanasia of large animal species such as swine, dogs, rabbits, cats, non-human primates (NHP), sheep, goats and cattle. It ensures that animals are euthanized in the most humane way possible.

2. RESPONSIBILITY

Principal investigator (PI) and their research staff, veterinarian, veterinary care staff.

3. CONSIDERATIONS

All animal euthanasia must be performed by appropriately trained personnel approved on the Animal Use Protocol.

Euthanasia procedures should not be performed in the same room where animals are housed.

All euthanasia procedures must be continuously monitored by the person(s) performing the procedure, until confirmation of euthanasia is complete. Animals must not be left unattended until the procedure is complete.

4. ACCEPTABLE METHODS BY SPECIES

4.1. Rabbit, ferret, cat, dog, non-human primate:

- 4.1.1. Barbiturate overdose
- 4.1.2. Exsanguination under general anesthesia

4.2. Sheep, swine, goat, cattle:

- 4.2.1. Barbiturate overdose
- 4.2.2. Exsanguination under general anesthesia
- 4.2.3. Physical methods

5. PROCEDURES

5.1. Barbiturate overdose:

- 5.1.1. Anesthetize animals prior to barbiturate overdose.
- 5.1.2. Pentobarbital sodium is the main agent of injectable commercial euthanasia solutions.
- 5.1.3. Inject pentobarbital intravenously at a dose of 120mg/kg. When intravenous injection is not possible, pentobarbital may be injected intraperitoneally.
- 5.1.4. Confirm euthanasia before disposing of the carcass by observing that there is no respiratory movement for at least 3 minutes, and that the heartbeat has ceased.

5.2. Exsanguination:

- 5.2.1. Exsanguination is not recommended as a sole means of euthanasia, but may be considered as an adjunct to other agents or methods
- 5.2.2. Deeply anesthetize the animal as per SOP.
- 5.2.3. Verify that withdrawal reflex is absent by pinching the toes with hemostats of non-hooved animals and pinching leg tendon of a hooved animal.
- 5.2.4. Exsanguination is achieved either by withdrawal of the maximum volume of blood possible, volume should be sufficient to cause death, or by cutting of a major blood vessel.

5.2.5. Confirm euthanasia before disposing of the carcass by observing that there is no respiratory movement for at least 3 minutes, and that the heartbeat has ceased.

5.3. Physical methods:

5.3.1. Licensed slaughterhouse:

5.3.1.1. Use physical methods only on food animals for agricultural use.

5.3.1.2. Animal transportation and slaughter must comply with federal and provincial laws and regulations.

6. REFERENCES

- 6.1. American Veterinary Medical Association. [AVMA Guidelines for the Euthanasia of Animals: 2020 Edition](#).
- 6.2. Canadian Council on Animal Care. [CCAC guidelines on euthanasia of animals used in science](#) (2010).
- 6.3. Canadian Council on Animal Care. [Addendum to the CCAC guidelines on: euthanasia of animals used in science](#) (2010).

SOP REVISION HISTORY

DATE	NEW VERSION
2024.01.12	2. RESPONSIBILITY Principal investigator (PI) and their research staff, veterinarian , veterinary care staff.
2024.01.12	5.1.1. Sedate Anesthetize animals prior to barbiturate overdose.
2024.01.12	5.1.3. Inject pentobarbital intravenously at a dose of 120mg/kg. When intravenous injection is not possible, pentobarbital may be injected intraperitoneally. Note: in ferrets, inject pentobarbital intraperitoneally.
2024.01.12	5.2.4. Withdraw Exsanguination is achieved either by withdrawal of the maximum volume of blood possible, volume should be sufficient to cause death, or by cutting of a major blood vessel.