

# EUTHANASIA OF DOGS

(Photos courtesy of KwaZulu-Natal Rabies Project and World Animal Protection)

Euthanasia of dogs is a component of rabies control that may be necessary if suspected rabid or untreatable sick dogs are reported in the community, as well as for unwanted dogs or problem (aggressive) dogs. These SOPs will provide you with practical guidelines for euthanasia of dogs. You should also consult published guidelines provided with the [Blueprint for Rabies Prevention and Control](#).

## **PERSONNEL AND TRAINING**

All methods of euthanasia have the potential to be poorly performed if operators are untrained and unsupported. Consequently, it is essential that operators are provided with suitable training, including a period of initial tuition with assessment of proficiency, followed by continuous monitoring of skills and ability, as well as access to emotional support. The initial period of instruction should, without exception, include training in both the technical aspects of the methods to be used and the recognition of signs of animal distress. Following the instruction, operators should understand the mechanism by which that particular method of euthanasia causes unconsciousness and death.

## **HANDLING OF DOGS**

Possibly the most important aspect during euthanasia is the handling of the patient. Situations vary greatly and although not all situations can be dealt with in the scope of this manual, the following will serve as basic guidelines. It must also be understood that an animal that is about to be euthanised has rights and must be treated with dignity and in a humane manner.

Personnel should receive direction and practical training in the careful handling required to prevent distress in the animals they will be restraining for euthanasia (see “Guidelines for restraining dogs and cats” listed amongst the documents section of the Blueprint for Rabies Prevention and Control, accessible through the site map). It is essential that personnel are taught to recognize the species-typical behavior and physiological responses that indicate an animal is experiencing fear, distress, pain or anxiety, and how to take immediate action to alleviate these states should they be observed.

The following behaviors or physiological responses may be signs of pain and distress:

- Aggression towards humans or redirected towards self or inanimate objects (e.g. snapping, biting, growling, scratching)
- Vocalization – whining, whimpering, high pitched barking, howling, or growling in dogs, hissing or yowling in cats
- Attempting to escape or withdraw from the situation
- Struggling
- Panting
- Hyperventilating
- Salivating
- Pupils becoming dilated
- Piloerection (hair standing on end)
- Increased heart rate (tachycardia)
- Shivering, muscle tremors and spasms. These may also result from reflex skeletal muscular contractions.

- Immobility or freezing (The animal becomes tense and stops moving, but remains conscious and aware of the situation.)
- Urination
- Defecation
- Anal sacs are emptied (foul smelling liquid is evacuated)

### **EQUIPMENT**

- 1) Elastic band (strong)
- 2) Needles: Cats - needle of 22–24 gauge and length 0.75 inches (2 cm). Dogs - needle of 18–22 gauge and length of 5/8–1 inch (1.6–2.5 cm) is convenient for most sizes of dog.
- 3) Syringes: Disposable syringes with eccentric (i.e. off-centre) nozzles. For cats, a syringe size of 2 ml is recommended. For dogs, syringe sizes of 5, 10 and 20 ml will be suitable for most weights.
- 4) Sharps container (recognized quality with disposal system)
- 5) Latex gloves
- 6) Methylated spirit in a bottle (optional)
- 7) Forceps (optional)
- 8) Lockable box
- 9) Heavy duty plastic bags for carcass disposal
- 10) Catchpole or net
- 11) Muzzles
- 12) Leashes
- 13) Crush cages for cats

### **DRUG SPECIFICATIONS FOR EUTHANASIA**

- 1) Classification – C.2.2. Sedative hypnotics
- 2) Schedule 6
- 3) Presentation – 100 ml amber glass vials
- 4) Pharmacological action – Barbiturates such as Sodium Pentobarbital act by depressing the central nervous system, starting with the cerebral cortex, which causes rapid loss of consciousness progressing to a state of unconsciousness i.e. anesthesia. Their efficacy as anesthetic agents free from distressing side effects is widely recognized. With sufficient dosages (overdose) barbiturates induce respiratory and cardiac arrest by depressing the central nervous system that controls the life-maintaining functions.
- 5) Dangers – Do not inject yourself
- 6) Warnings:
  - Euthanasia strength barbiturates should not be used for anesthetic purposes.
  - Non sterile, but it is not absolutely necessary to use sterile equipment.
  - Carcasses of animals euthanised should not be fed to other animals.
- 7) Records – Used by non-veterinarians only under supervision of a veterinarian. Records to be kept with the drugs and all usage and quantities recorded.
- 8) Storage – Must be stored under lock and key. Store below 25°C. Keep out of reach of children and uninformed persons.
- 9) Dosage – 150 mg/kg for both dogs and cats, equating to 1-2 ml/kg body mass at the concentrations usually prepared for euthanasia. Dose for oral preparations for sedation of dogs: 63 mg/kg.

Specific guidelines on dog handling are provided below:

**Placid animal responding well to handling** Pre-euthanasia drugs can be used to ensure the animal stays calm and comfortable and reduce any risks to handler. It is sometimes preferable to have the owners present, who can be instructed on how to hold the dog, although owners often prefer not to be present. People working with the dog should be calm and reassure the animal. One should work deliberately but not in a rushed way as the dog will sense it. Dogs should be held firmly, secured against the body where they will feel safe, but not suffocated. The dog's head is restrained so that it cannot turn in the direction of the person administering the euthanasia agent. The person holding the dog can also hold the leg and so raise the vein. When the vein is raised, the hand can be twisted slightly to the right (if the right leg is used; to the left, if the left leg is used) bringing the vein on the top of the leg for intravenous injection (described below).



**Sick, injured, anxious and aggressive dogs**

These dogs should receive pre-euthanasia drugs before euthanasia is attempted. The following methods can be used to restrain the dog for pre-euthanasia drug administration and subsequent euthanasia after these drugs have taken effect. The least invasive and therefore least stressful method of restraint possible should be selected:

- 1) Muzzle – Stand behind the dog and keep movements slow as not to stress the dog. Try to keep the dog calm all the time.



- 2) Muzzle with leash – Leashes can be very useful as a muzzle but must be used correctly. Leash is firstly tied around the neck, the long end is then wrapped around the muzzle and back around the neck where it is held in place, and the dog is effectively muzzled. Caution must be taken and practice is needed..
- 3) Pole nets - pole nets are useful for capturing dogs that are not used to be held by people. The hoop is placed over the dog, the dog then moves to the end of the net, the pole is lifted and the net twisted several times until the dog is restrained at the end of the net (see RSPCA's "Operational guidance for dog control staff" or AWBI's "Standard Operating Procedure for street dog birth control programmes" for more information). The dog can be given pre-euthanasia drugs through a fenestration of the net, once these drugs have taken effect a foreleg can be drawn through the net for intravenous injection or the needle and syringe can be introduced through the net, this avoids any need to remove the dog from the net before euthanasia.



- 4) Catch-poles. Catch-poles are not advised for dogs that have not experienced collars and leads previously, nets will be more suitable for these dogs



## ***PRE-EUTHANASIA***

Pre-euthanasia drugs (tranquillisers, sedatives, immobilisers or general anaesthetics) facilitate safe and humane handling of animals prior to euthanasia and can be used with all dogs. Pre-euthanasia is essential when using intraperitoneal or intracardiac routes for euthanasia. The majority of these drugs require minimal animal handling during their administration as they are preferably given as a subcutaneous injection, intramuscular injection or even via oral dosing. The operator then withdraws and waits for the drug to take effect before administering the euthanasia agent. Some pre-euthanasia agents, however, will require intravenous administration. An important point is that the use of these drugs can add significantly to the time taken to perform euthanasia and this should be considered in advance to safeguard animal welfare.

One suggested combination of drugs for pre-euthanasia is Tiletamina-Zolazepam (10–20 mg/Kg) delivered intramuscularly alone or in addition to xylazine (1–2 mg/kg) to provide analgesia, muscle relaxation and anesthetic induction. Further discussion of different pre-euthanasia drugs, including the limitations of tranquilizers and immobilizers and hence why they should not be used alone for pre-euthanasia, is provided in WSPA's "Methods for the euthanasia of dogs and cats: comparison and recommendations" available from [www.icam-coalition.org](http://www.icam-coalition.org).

## ***ADMINISTRATION ROUTES***

### ***Intravenous***

This is the normal route used in the majority of cases, as it is easy, effective and quick; pre-euthanasia drugs will support the use of this route by minimizing distress and therefore movement. The euthanasia agent is injected into the cephalic vein on the foreleg, or into the jugular (uncommon). Once the animal has been safely and humanely restrained and the leg is presented, the following procedures can be followed:

- A. Shave** – The dorsal area of the cephalic vein can be prepared by removing hair from the area. This can be done best using a pair of curved scissors, razor or clippers. The better the area is prepared the better the view of the vein, although this is dependent on the control of the animal and the proficiency of the technician. This is not always possible in the field, and in many situations, short-haired dogs can be euthanised without shaving.



- B. Raising the vein** - Correct restriction of the blood flow to raise the vein ensures a clear view. This can either be achieved by applying pressure with a thumb or by stretching an elastic band around the leg (tourniquet) that can be held in place by a pair of artery forceps or by an assistant. If available applying some methylated spirits or surgical spirits to the area can enhance visibility of the vein.



**C. Administration** – Once the needle has been inserted, draw back on the plunger. There should be a burst of blood into the syringe (see picture below) if this is correctly placed. Release the restriction and administer fairly rapidly, but not too quickly as to blow the vein. If you blow the vein on a leg, this will be normally seen as a bulge of euthanasia agent when you start administering. Immediately stop and try the other leg or try higher up on the same leg.



### **Intraperitoneal**

The euthanasia agent is put into the abdominal cavity. This is used mainly in dogs with very low blood pressure where a vein cannot be raised for intravenous injection. It may also be used when the dog is too difficult to handle for intravenous injection; the use of pre-euthanasia drugs may be used to ensure animal welfare and human safety. Intraperitoneal injections of pentobarbital will cause irritation hence should be avoided in preference for intravenous routes (with or without pre-euthanasia drugs) or should be combined with local anesthetic to reduce irritation. It is slow to cause death (15-30 minutes, may be shorter depending on the exact site of injection); but this method will initially cause sedation allowing you to handle it for an intravenous injection. The position of this injection should be into the cavity itself or into the liver (intrahepatic) to benefit from high blood vessel density and hence faster drug absorption by entering the cranial (front of abdomen) and then angle up towards the diaphragm.

Intra-renal injection can be attempted in smaller dogs, cats or thin, larger dogs by palpating the kidney (usually located in the cranio-dorsal abdomen just caudal to the ribcage). By holding the kidney with one hand against the abdominal wall, the euthanasia agent can be injected straight in with the other hand. The syringe should be drawn back before injecting, and some blood should be seen in the hub of the needle. If done correctly, this method will rapidly induce euthanasia due to the high vascularization of the kidney. Additionally, this method can be performed with pre-euthanasia drugs.



### **Intracardiac**

This is a very effective and quick method; however, it is painful, and hence must be used with pre-euthanasia drugs to ensure the dog is unconscious. Intracardiac injection can be a useful tool in special circumstances (i.e. in recumbent dogs where a vein cannot be found and the animal has been previously anaesthetized). Firstly draw back the leg to where the point of the elbow meets the rib cage (top picture below). Release the leg, maintain the site and feel for the heart beat between the ribs. Insert the needle and draw back on the plunger until blood is seen prior to injecting the euthanasia agent (bottom picture below).







### **Subcutaneous**

This is not a recommended method. If the correct dose of euthanasia agent is administered subcutaneously, the dog will die very slowly and this will cause considerable pain.

### ***HOW TO CHECK IF THE DOG IS DEAD***

It is known to have happened that a dog has been declared dead, but in fact was just in a deep state of anesthesia. It is recommended that dogs be checked thoroughly and rechecked (as described below) before being placed into the storage receptacle to avoid any possible suffering.



**Optic reflex – touch eye, if the eye reacts, feel for a pulse or check with stethoscope. (Animal may not blink if deeply anaesthetized, so always check for a heartbeat.)**



**Always use a stethoscope to check for heart beat**



**Feeling for a heart beat**

### ***CARCASS DISPOSAL***

Once dogs have been euthanised, carcasses should be placed in a strong plastic bag or container of sorts as after death there is often a release of bodily fluids. It is also best to keep the carcasses out of sight of members of the public, especially children and sensitive people. Disinfectant soaps and water should always be available to clean up as many of these dogs are in poor state and could harbor hazardous pathogens. Carcasses should be incinerated.