Combating of stray dog as a mean for controlling Rabies

by

Dr. Hassan Aidaros
OIE Expert
Professor of hygiene and preventive medicine
e-mail: haidaros@netscape.net
Topics

☐ Rabies:
  ■ Transmission, incidence and control....

☐ Dog Population Control:
  ■ Objective, responsibilities, important consideration, control measures ....
  ■ Humane killing

☐ Recommendations
Rabies

- Rabies is a zoonotic viral disease which infects domestic and wild animals. It is transmitted to other animals and humans through close contact with saliva from infected animals (i.e. bites, scratches, licks on broken skin and mucous membranes). Once symptoms of the disease develop, rabies is fatal to both animals and humans.

- The first symptoms of rabies are usually non-specific and suggest involvement of the respiratory, gastrointestinal and/or central nervous systems. In the acute stage, signs of hyperactivity (furious rabies) or paralysis (dumb rabies) predominate.
Rabies transmission

- In developed countries, rabies is present mainly in wild animal hosts,
- The most frequent way that humans become infected with rabies is through the bite of infected dogs and cats, wild carnivorous species like foxes, raccoons, skunks, jackals and wolves, and insectivorous and vampire bats.
- Cattle, horses, deer and other herbivores can become infected with rabies and although they could potentially transmit the virus to other animals and to people, this rarely occurs.
Rabies incidence

- No one can reliably estimate how many animals are infected with rabies at any given time. The incidence varies greatly from country to country and from one year to the next.
- There are an estimated 55,000 human deaths annually from rabies worldwide, with about 31,000 in Asia, and 24,000 in Africa.
- Wild or stray dogs are major transmitters of the disease in Africa and in many countries of Asia and Latin America.
Control strategy for Rabies:

- Mass vaccination campaigns...
  - Of stray animals, with or without concurrent sterilisation
  - Of owned animals, publicising the event and incentives for owners

- Legislation, enforcement and education for animal owners on the importance of vaccinating and controlling parasites (including regular boosters/treatment)
Control strategy for Rabies (cont.):

- Humane killing according to the facilities of the country;
  - Through fear of rabies, and with a lack of knowledge and resources, some communities use cruel and ineffective methods of population control like poisoning, electrocution and drowning.
  - Until recently, poisoning with strychnine was the only means of dog control available in some countries to the struggling local authority. Sometimes dogs died slowly, convulsing, and taking up to several hours to die.
Control strategy for Rabies (cont.):

- Countries with small dog population and enough resources; Catch-Neuter-Release will be efficient. Issues include sensitivity of local community, animal catching, humane euthanasia, vaccinations, sterilisation techniques, marking, release and long-term impact on population. Limitations of this method should also be addressed.

- Countries with large dog population; require efficient killing by humane methods i.e. methods causing death with the minimum possible suffering.
Dog population control
Introduction:

- Stray and feral dogs pose serious human health, socio-economic, political and animal welfare problems in many countries. Whilst acknowledging human health is a priority including the prevention of zoonotic diseases notably rabies, the OIE recognises the importance of controlling dog populations without causing unnecessary or avoidable animal suffering. Therefore OIE is working on a guidelines for combating stray dogs by a humane means.

- Veterinary Services should play a lead role in preventing zoonotic diseases and ensuring animal welfare and should be involved in dog population control.
Background:

- Many of these are developing countries and others fall in the least developed category, for example:
  - Over 80 countries (almost all developing countries) have endemic canine rabies. Some 4 million people annually receive post-exposure treatment and in excess of 30,000 deaths from rabies are reported every year.
  - At the same time many millions of animals contract and die of rabies each year and many of the control schemes introduced by authorities are ineffective and cause major animal welfare problems.
Definition (proposed)

- **Stray dog**: Means any dog not under direct control or not prevented from roaming.
  - Types of stray dog:
    - a) free roaming owned dog not under direct control or restriction at a particular time;
    - b) free roaming dog with no owner;
    - c) feral dog: domestic dog that has reverted to the wild state and is no longer directly dependent upon humans for successful reproduction.

- **Dog population control program**: Means a programme with the aim of reducing a dog population to a particular level and/or maintaining it at that level and/or managing it in order to meet a predetermined objective.

- **Carrying capacity**: Is the upper limit of the dog population density that could be supported by the habitat based on the availability of resources (food, water, shelter), and human acceptance.
programme objectives:

- improve health and welfare of owned and stray dog population;
- reduce numbers of stray dogs;
- assist in the creation and maintenance of a rabies immune dog population;
- promote responsible ownership;
- reduce the risk of zoonotic diseases other than rabies;
- manage other risks to human health (e.g. parasites);
- prevent harm to the environment;
- prevent illegal trade and trafficking.
Responsibilities on:

- Veterinary Authority;
- Other government agencies;
- Private sector veterinarians;
- Non Governmental Organisations (NGOs);
- Local Government Authorities;
- Dog owners.
Important considerations

- Considerations in planning a dog population control programme:
  - Identifying the sources of stray dogs
  - Estimating the existing number, distribution and ecology
  - Legislation
  - Resources available to authorities
Control measures

- Measures may be used in combination. Killing of dogs, alone, is not an effective control measure. If used, it should be combined with other measures to achieve effective long term control.
  1. Education and legislation for responsible ownership
  2. Registration and identification of dogs
  3. Reproductive control
  4. Removal and handling
control measures (cont.)

5. Management of dogs removed from communities
6. Environmental controls
7. Control of dog movement – international (export/import)
8. Control of dog movements – within country
9. Regulation of commercial dog dealers
10. Reduction in dog bite incidence
11. Euthanasia
1- Education and legislation for responsible ownership

- Education on responsible dog ownership should address the following elements:
  - registration and identification of dogs
  - prevention of zoonotic diseases, e.g. through regular vaccination in rabies endemic areas;
  - preventing negative impacts of dogs on the community, via pollution (e.g. faeces and noise), biting and risks to wildlife, livestock and other companion animal species.
  - control of dog reproduction.
- In order to achieve a shift towards responsible ownership; legislation, public awareness and education will be required.
1- Education and legislation for responsible ownership (cont.)

- When a country considers that the numbers of stray animals present a problem, it shall take the appropriate legislative and/or administrative measures necessary to reduce their numbers in a way which does not cause avoidable pain, suffering or distress.

- Such measures shall include the requirements that:
  - if such animals are to be captured, this is done with the minimum suffering appropriate to the animal;
  - whether captured animals are kept or killed, this is done in accordance with the humane principles.
2- Registration and identification of dogs

- A core component of dog population management by the Competent Authority is the registration and identification of owned dogs. This may include granting licences to owners. Registration and identification may be emphasized as part of responsible dog ownership and are often linked to animal health programmes, for example, mandatory rabies vaccination.

- Encourage control of dog reproduction through financial incentives to sterilise dogs.
3- Reproductive control

- Controlling reproduction in dogs prevents the birth of unwanted litters of puppies. Direct veterinary input to individual animals, involvement of both private and public veterinary sectors may be required to meet demand.
3-Reproductive control (cont.)

- Methods for controlling reproduction in dogs include:
  - surgical sterilisation;
  - chemical sterilisation;
  - chemical contraception;
  - separation of female dogs during oestrus from unsterilised males.

- Surgical sterilisation should be carried out in a humane manner and include appropriate use of pain relief.
4. Removal and handling

☐ The *Competent Authority* should collect dogs that are not under direct supervision and verify their ownership.

☐ Capture, transport, and holding of the animals should be done humanely.

☐ The *Competent Authority* should develop and implement appropriate legislation and training to regulate these activities.
5. Management of dogs removed from communities

- Competent authorities have the responsibility to develop minimum standards for the housing (physical facilities) and care of these dogs.

- There should be a provision for holding the dogs for a reasonable period of time to allow for reunion with the owner and, as appropriate, for rabies observation.
6. Environmental controls

- Steps should be taken to reduce the carrying capacity, such as excluding dogs from sources of food (e.g. rubbish dumps and abattoirs, and installing animal-proof rubbish containers).

7. Control of dog movement – international (export/import)

- Chapter 2.2.5 of the OIE Terrestrial Animal Health Code provides recommendations on the international movement of dogs between rabies free countries and countries considered to be infected with rabies.
8. Control of dog movements – within country

- It is necessary to have empowering legislation and a national or local infrastructure comprising of organization, administration, staff and resources to encourage the finders of a stray dog to report to the Competent Authority.

9. Regulation of commercial Animal dog dealers

- Regulation is needed to ensure that dog breeders and dealers are identified by the Competent Authority and are committed to raising and selling physically and psychologically healthy animals, as unhealthy animals may be more likely to be abandoned to become part of the stray population.
10. Reduction in dog bite incidence

- The most effective means of reducing prevalence of dog bites are education and placing responsibility on the owner.
- Dog owners should be educated in principles of responsible pet ownership.
- Mandatory registration and identification schemes will facilitate the effective application of such mechanisms.
- Education programmes focussed on appropriate dog-directed behaviour have been demonstrated to be effective in reducing dog bite prevalence and these programmes should be encouraged.
11. Euthanasia:

- When euthanasia is practised, the general principles laid down in the OIE Terrestrial Animal Health Code should be followed, with the emphasis on using the most practical, rapid and humane methods and ensuring operator safety. (e.g.; Chemical, mechanical, gaseous, electrical)
11. Euthanasia (cont.):

- Unacceptable chemical or Mechanical methods:
  - Burning
  - Drowning
  - Hypothermia, rapid freezing
  - Stunning: stunning is not a euthanasia method, it should always be followed by a method which ensures death.
  - Kill-trapping
  - Electrocution of conscious animal.
Humane Killing

1. Only a veterinarian or another competent person shall kill a pet animal except in an emergency to terminate an animal's suffering when veterinary or other competent assistance cannot be quickly obtained or in any other emergency covered by national legislation.

2. The method chosen, except in an emergency, shall either:
   - cause immediate death with minimum suffering, or
   - begin with the induction of deep general anesthesia to be followed by a step which will ultimately and certainly cause death.
3. The person responsible for the killing shall make sure that the animal is dead before the carcass is disposed of.
Humane Killing (cont.):

- **Barbiturates**: IV injection.
- **Anaesthetic agent overdose** (thiopentone or propofenol);
  - IV injection of a sufficient dose
- **Potassium chloride** (KCl):
  - Only use on anaesthetised animals, IV injection
- **Free bullet or Penetrating captive bolt**:
  - Skilled operator essential
- **Exsanguination**:
  - Only use on unconscious animal
Humane Killing (cont.):

- **Carbon monoxide (CO):**
  - must be used to achieve and maintain adequate concentration.

- **Carbon dioxide (CO2):**
  - Compressed CO2 gas chamber is the only recommended method

- **Inert gas (nitrogen, N2 argon, Ar):**
  - Concentration above 98% must be achieved rapidly and maintained
Recommendations
Recommendations

- Prevention of human rabies must be a community effort involving both veterinary and public health officials.

- Rabies elimination programs focused mainly on proper humane stray dog depopulation, mass vaccination of dogs, post-exposure treatments for humans. Pre-exposure vaccination has been widely and successfully used to prevent rabies in at-risk populations.

- In countries with a big stray dog population; Humane killing program may be the first choice to reduce the risk.

- In countries with a big stray dog population; have the choice to select the appropriate methods for humane killing according to their circumstances and resources; taking in consideration to minimize unnecessary or avoidable animal suffering.
Thank you