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Monitoring and control of dog populations

by

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Topics

- ❑ **Control of stray dog populations for successful rabies control.**
- ❑ **Principles of dog population control acc. To OIE TAHC**
- ❑ **Dog Populations Control [experience, lessons learned]:**
 - Objective, responsibilities, important consideration, control measures
- ❑ **Conclusion & 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.

Rabies transmission

- In developed countries, rabies is present mainly in **wild animal** hosts, while in developing countries **stray animals** play the important role in transmission of the disease.
- 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.

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- ❑ In Bangladesh, where dog bites are very common, many of them causing rabies;
 - ❑ Bangladesh is a country with one of the highest per capita ratio of rabies in humans. more than **2000 deaths** every year by this disease
 - ❑ India counts at least for approximately **20.000** human deaths (WHO, 2009).).
 - ❑ According to M.K.Sudarshan's survey (2007) the full cost of post-exposure treatment of humans that have been bitten in India is **\$25million** for **500.000** people (50\$/case).
 - ❑ The 25 million\$ is the cost for vaccination of **12 million dogs**
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- Over 80 countries (almost all developing countries) have endemic canine rabies. Some 4 million people annually receive post – exposure treatment.
 - Rabies kills more than **55 000 people** in the world every year (WHO website). These are very sad statistics of a disease that is 100% preventable by vaccination
 - At the same time many millions of animals contract and die of rabies each year , causing major animal welfare problems.

Control strategy for Rabies:

- Monitoring and Control of dog populations; still one of the important and effective tools for the prevention of rabies in man and animals

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- killing according to the resources and facilities of the country;
 - Through fear of rabies, and with a lack of knowledge and resources, some communities use cruel and ineffective methods of dog 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.



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 included standards for combating stray dogs by a humane means in the OIE, TAHC

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.

- **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.

Responsibilities and Partnership

- ❑ Veterinary Authority ; Veterinary Services should play a lead role in preventing zoonotic diseases and ensuring animal welfare and should be involved in dog population control.
- ❑ Other government agencies ;public health; environment ;local or municipal authorities
- ❑ Private sector veterinarians ;
- ❑ Non Governmental Organisations (NGOs) ;
- ❑ Dog owners.

Control measures

- The control measures could be implemented according to the national context, resources, facilities and local circumstances.
- Euthanasia of dogs, when used alone, is not an effective control measure. If used, it should be done humanely and in combination with other measures to achieve effective long term control.

Control measures:

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.

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- ❑ Control of dog reproduction.
 - ❑ 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, or suffering
 - ❑ Whether captured animals are kept or killed, it should be 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.

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.
- encourage control of dog reproduction through financial incentives to sterilise dogs.

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- 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 of stray dogs

- ❑ 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.

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

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

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,

10. Reduction in dog bite incidence

- The most effective means of reducing prevalence of dog bites are education and placing responsibility on the owner.
- Mandatory registration and identification schemes will facilitate the effective application of such mechanisms.

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); regardless of the method used, it is important to minimise pain by ensuring that operators are appropriately trained

Unacceptable chemical or Mechanical methods:

As : Formalin; Ether; Cyanide; Air Embolism; Burning ;
Drowning ;Hypothermia, rapid freezing ; Kill-trapping
Electrocution of conscious animal....

NB Stunning: stunning is not a euthanasia method, it should always be followed by a method which ensures death.

The method chosen, except in an emergency, shall either:

Cause immediate death with minimum possible suffering, and pain;

or Begin with the induction of deep general anesthesia to be followed by a step which will ultimately and certainly cause death.

Examples of accepted methods:

- **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
- **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

Lessons learned and best practices

- What is behind the OIE standards (concept):

Is not to eradicate the stray dogs

But is:

1. to protect Human health;
2. to protect animal health;
3. to respect the Animal welfare;
4. to protect Environment

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- Human: Zoonosis, dog bites, environment pollution
 - Animal: diseases and Zoonosis, dog bites
 - Dog : welfare, health, environment pollution
 - Environment: food water, shelter, human acceptance

Important considerations

- **Considerations in planning a dog population control programme:**
 - Legislation ; sustainable and applicable,
 - Assessment of the problem ; estimating the existing number, distribution and ecology; is a key factor for the success of control strategy.
 - Identifying the sources of stray dogs, and the dynamic of the dog population. The aim was to estimate the size and composition of the entire dog population in the city (both roaming and confined dogs), to begin to understand the dynamics of the population and more specifically what was maintaining the roaming dog population, and the community's attitude towards dogs

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- Resources available to implement the plan.
 - Sustainability of the programme.
 - Available logistics; Training ;SOPs.
 - Awareness of the plan and strategy; dangerous of stray dog and zoonosis.

 - Intersectoral collaboration; Private Vet ;public vet, municipalities; Media; mosques and churches; human health authorities, social experts.

 - Elimination of garbage, and wastes of , slaughter houses restaurants, and houses.
 - Monitoring , evaluation of the activities and outcomes.

□ **Monitoring** is a continuous process that aims to check the program progress against targets and allows for regular adjustments.

□ **Evaluation** is a periodic assessment, usually carried out at particular milestones to check the program is having the desired and stated impact. .

Indicators

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- stray/feral animal numbers would go dramatically down if there was nothing for them to eat on the roads and backyards.
 - Streets without stray dog problem in Singapore, Stockholm, San Francisco or Sydney are not the result of indiscriminate killing of thousands or millions of dogs but a fact that the problem has never risen to the extent because of different sanitary and ecological conditions

Conclusion

- Countries with limited 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. This, if not accompanied with a group or package of actions will be not effective



Recommendations

Recommendations

- The support of the international Community and the developed countries to the developing countries is essential for the humane control of the dog population, and consequently the control of rabies in human and animals.
- Although killing of stray dog is apparently an easy, less expensive method, it brings about many animal welfare concerns ;experiences in developing countries have shown that, removal of stray dogs by this method has little or no impact on population densities, unless it is accompanied with a group of actions including; reducing the carrying capacity of the habitat (by excluding dogs from sources of food , shelter, and human acceptance) as well as reducing the sources of the stray dogs

Taking in consideration to minimize unnecessary or avoidable animal suffering.