



WORLD
ANIMAL
PROTECTION

Controlling rabies

One humane solution, three reasons why

We were known as **WSPA**
(World Society for the
Protection of Animals)



Killing dogs won't stop rabies

Every year, millions of dogs are inhumanely culled in an attempt to stop the spread of rabies. Every day 150 people die of rabies; most of these people are children under 15 years of age. In developing countries this equates to someone dying every 10 minutes from this horrific disease¹. Killing dogs is not the solution as it does not stop the disease; mass dog vaccination is the only proven solution.

World Animal Protection works with governments to examine their proposed reasons for culling and help them to provide vaccination plans that involve local communities and are tailored to the problems they face.



Mass vaccination is cost-effective, humane and sustainable. And, as we'll prove, it's the only effective solution to controlling canine rabies.

The Benefits: Working towards 2016

By 2016 we want a world where no dog is needlessly culled because of fear of rabies. Mass dog vaccination benefits us all in three ways:

1. Animal welfare:

It stops cruelty

2. Human health:

It protects the community

3. Economic:

It saves money



Key facts about vaccination

It's a barrier

Dogs are the main reservoir host for human and canine rabies. Vaccinating at least 70% of dogs in an area creates 'herd immunity'. The vaccinated dogs form a barrier, slowing the spread of rabies until it dies out. By removing this main source of infection, rabies cases in dogs and other animal populations can be eliminated and human rabies deaths vastly reduced.ⁱⁱ

It's humane

Millions of dogs are saved from needless inhumane culling that is driven by a fear of rabies; millions of cases of rabies in dogs are also prevented; vaccination promotes a more responsible and less fearful attitude towards dogs within communities.

It's cost-effective

Vaccinating dogs is not only more effective than culling dogs for controlling rabies, but it is also very cost-effective. As more dogs are vaccinated, fewer people are bitten by rabid dogs and this can greatly reduce the demand for costly human vaccines given for post-exposure treatment.



Rabies – 100% preventable

Culling dogs – 100% needless

The animal cost: fear causes cruelty

Fear of rabies is a major driving force causing millions of unnecessary dog deaths every year. Where rabies is endemic, so is cruelty to dogs. Mass vaccination addresses this fear and improves public attitudes to dogs.

During a cull, dogs are often rounded up and methods used to kill them include poisoning, gassing, electrocution, beating and shooting.

All often result in slow and agonising deaths.

Strychnine, for example, is administered using meat baits or darts. It causes violent convulsions and impaired breathing, which eventually kills the dogs. With baiting, they may experience extreme pain, for over an hour in some cases, throughout which they're conscious.*

Carbon monoxide, another method, is often administered via car exhaust fumes to dogs who have been herded into gas chambers. Lack of oxygen in the blood and depression of the central nervous system leads to respiratory arrest and eventually, death. During the gassing process, dogs howl, yelp and bark for about 7 minutes until they lose consciousness. They take up to 20 minutes to dieⁱⁱⁱ.

Stopping cruelty, stopping rabies

It doesn't have to be this way. Evidence suggests that where mass dog vaccination programmes are implemented, people's attitudes to dogs and the dogs' welfare improves. World Animal Protection works closely with local, national and international animal welfare and veterinary groups to ensure vaccination programmes are accompanied by education on rabies and dog management.

The fight against rabies shouldn't be a fight against dogs.



The OIE considers the use of strychnine unacceptable on animal welfare grounds^{xi}.





Rabies – working together to protect humans

The public health cost: in more than 99% of all cases of human rabies, the virus is transmitted via dogs^{xiii}

Rabies kills an estimated 55,000 people each year in Africa and Asia and a further 1.5 million receive post exposure treatment to prevent the disease^{xiv}. Africa and Asia are the most affected regions, where rabies is most common in children. Mass dog vaccination works by addressing the disease at its primary source: the dog.

In most parts of Africa and Asia, dog vaccination will also control rabies in wildlife (even in wildlife-rich areas) and additional investments in wildlife disease control will not be necessary.

Vaccination: the 'One Health' approach

Rabies is incurable once clinical symptoms and signs start to show. However it is preventable if dealt with effectively. World Animal Protection views animal and human health as inextricably connected. The 'One Health' approach encourages all relevant agencies to work together locally, nationally and internationally to achieve the best possible health for people, animals and the environment^{xv}. It's about pooling efforts, resources and expertise to achieve the best outcome.

Mass dog vaccination, together with effective management of disease risk in humans, is the only humane, sustainable and effective 'One Health' response. Over time, rabies in dogs is eliminated, as is the main threat to human health. This approach will reduce the human, animal and financial cost of the disease.

“It is proved around the world [that] culling doesn’t work. It’s an ineffective tool for the prevention of rabies... It is proved that [dog] vaccinations can prevent rabies.”

Dr Aung Swi Prue Marma, government rabies specialist, Bangladesh (September 2012)



In action:

Bangladesh

In 2011 we worked with the government of Bangladesh to vaccinate over 70 per cent of the dog population in the southern beach resort of Cox’s Bazar.

In 2012 the government set an ambitious target to eliminate rabies by 2020. We supported the government by funding a workshop aimed at developing a coordinated national action plan against rabies: implementing a mass dog vaccination programme alongside more effective delivery of PEP, community advocacy and communication, monitoring and surveillance. No dog culls would take place.

Crucially, several key government ministries were involved - health, livestock and local government - plus academics and representatives from international organisations including the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO).



Zanzibar

Rabies was reintroduced to the island of Zanzibar in 1991. Over the last four years we have worked with the Government to establish a humane sustainable dog population management project. Building on this, the government are working on appropriate infrastructure and seeking the assistance of supporting agencies to help eliminate rabies from the area through increased deployment of vaccination programmes.



Wider work

Based on lessons learned from our on-going support of the programme in Zanzibar, World Animal Protection are now, alongside key partners, supporting the Government of Kenya's policy development for the control of canine and human rabies sharing cross-continent learnings and networks.



A strategic and co-ordinated response to rabies shows the value of national anti-rabies planning that will eventually end the needless practice of dog culling and prevent the loss of human life.



Rabies – the economic cost

\$6 billion every year worldwideⁱⁱⁱ

When confronted with a rabies outbreak, some Governments often turn to what they think is the cheapest, easiest and most effective way to eliminate rabies: cull the dog population. Yet dog culling doesn't stop rabies, it drains the resources of countries that implement it. Culling is ineffective and can be counter-productive to vaccination programmes.^{iv}

Why culling doesn't pay in the long term:

(a) The spread of rabies does not depend on the density of dogs

Recent scientific studies show that the spread of rabies in very low-density dog populations is very similar to that in very high-density populations (even those that are one hundred times higher)^v. Therefore reducing the density of dogs through culling will not help control rabies.



(b) Dogs will quickly repopulate areas after dogs have been removed through culling

Areas where dogs have been culled will quickly be repopulated, because families who have lost dogs often buy or adopt new, unvaccinated dogs and un-owned dogs may also rapidly migrate in from neighbouring areas, which will introduce new risks of infection. In culling programmes, vaccinated dogs are often also killed, and culling can therefore lead to a decline in population or herd immunity and exacerbate the spread of rabies.

Vaccination: investing in our future

Mass dog vaccination campaigns are a cost-effective measure. A recent study (Zinsstag, 2009) compared the effects of a mass dog vaccination programme with culling of a percentage of the dog population. Results indicated that vaccinating 70% of the dog population is 'the most profitable and cost-effective intervention'.

We supported the UK's Royal Veterinary College (RVC) in conducting an investigation into the economic value of the rabies control programme on the Indonesian island of Bali.^{vii}

The study compared predicted outcomes of two scenarios for controlling rabies, using simulation models developed by the University of Glasgow^{viii} and running these simulations over a 10-year time period. One scenario focused on mass culling with limited vaccination and the other on island-wide mass dog vaccination.

The findings confirmed that mass culling would not only fail to stop the spread of rabies or reduce dog bites, but also incurs added costs (the cull itself, human post-exposure prophylaxis (PEP) costs and the effects of human deaths that can create a huge financial drain on an individual family).

In contrast, the study showed that island-wide mass dog vaccination would lead to the elimination of rabies. Over a 10-year period, mass vaccination would result in an overall saving of up to **US\$16 million** as the need for PEP and other treatments declined.

The real economic and human burden of rabies is likely to be far higher than recorded. In the places most affected by rabies, especially in Africa and Asia, there is significant underreporting: many cases of human rabies do not get reported to the local authorities; rabies victims often die at home; and even in hospitals, the disease is often misdiagnosed.

Bite victims from poor and remote communities are often unable to travel to health facilities to receive PEP or to afford the PEP treatment, and in many countries, PEP is not always available at local health clinics. With large-scale dog vaccination, people would not die from rabies because of these problems.

This makes it vital to invest in mass dog vaccination now.



Rabies – a coordinated, humane and sustainable approach by 2016

The initial success of a coordinated response to rabies in countries such as Bali, Bangladesh and Zanzibar demonstrates the value of national rabies elimination planning. It will end the needless practice of dog culling and help protect human lives.

How we'll get there

End culling, implement mass vaccination

World Animal Protection is calling on governments to stop killing dogs, and as an alternative, implement effective dog vaccination programmes. We work with global organisations like the Global Alliance for Rabies Control, WHO, OIE, Pan American Health Organization and FAO to promote mass dog vaccination over culling, raise awareness and educate people about rabies in communities. We've helped many countries stop inhumane culling of dogs but we want to end it worldwide.

Although reducing the density of dogs may not be critical for effective rabies control there are many benefits to dog population management. Combining dog population management and responsible pet ownership programmes can help combat a spectrum of problems associated with roaming dogs, such as:

- Disease transmission
- Injury and fear caused by aggressive behaviour in dogs
- Nuisance through noise and fouling
- Livestock predation

(ICAM, 2007) ^{xvii}

World Animal Protection are part of the International Companion Animal Management (ICAM) Coalition, which draws together cross-sector groups, such the World Small Animal Veterinary Association and the Global Alliance for Rabies Control to offer unified dog population management guidelines for governments and responsible authorities.

Humane dog population management is an effective strategy for creating a healthy, sustainable population.

- i Hampson, K. et (2009) Transmission dynamics and prospects for the elimination of canine rabies. *PLoS Bio*, 7(3)
- ii WHO expert consultation on rabies [2013]. Second report, Geneva, Switzerland, (WHO technical report series no.982). and see also Coleman and Dye, (1996) Immunization coverage required to prevent outbreak of dog rabies. *Vaccine*. 1996 Feb;14(3):185-6.
- iii WHO expert consultation on rabies [2013]. Second report, Geneva, Switzerland, (WHO technical report series no.982).
- iv Ibid. And also Morters, M. K., Restif, O., Hampson, K., Cleaveland, S., Wood, J. L., Conlan, A. J., & Boots, M. (2013). Evidence-based control of canine rabies: a critical review of population density reduction. *Journal of Animal Ecology*, 82(1), 6-14.
- v Hampson, K. et (2009) Transmission dynamics and prospects for the elimination of canine rabies. *PLoS Bio*, 7(3). And also Morters, M. K., Restif, O., Hampson, K., Cleaveland, S., Wood, J. L., Conlan, A. J., & Boots, M. (2013). Evidence-based control of canine rabies: a critical review of population density reduction. *Journal of Animal Ecology*, 82(1), 6-14.
- vi Zinsstag, J., Dürr, S., Penny, M. A., Mindekem, R., Roth, F., Menendez Gonzalez, S., Naissengar, S., & Hattendorf, J. (2009). Transmission dynamics and economics of rabies control in dogs and humans in an African city. *Proceedings of the National Academy of Sciences*, 106(35):14996-5001. Epub: 2009 Aug 17.
- vii Haesler, B. et al. (2012). Evaluation of rabies control in the province of Bali, Indonesia: A comprehensive framework to evaluate rabies control strategies taking into account economics, animal welfare, epidemiology, social acceptability and ethics. London, UK: Royal Veterinary College.
- viii Townsend SE, Sumantra IP, Pudjiatmoko, Bagus GN, Brum E, Cleaveland S, Crafter S, Dewi AP, Dharma DM, Dushoff J, Girardi J, Gunata IK, Hiby EF, Kalalo C, Knobel DL, Mardiana IW, Putra AA, Schoonman L, Scott-Orr H, Shand M, Sukanadi IW, Suseno PP, Haydon DT, Hampson K (2013) Designing Programs for Eliminating Canine Rabies from Islands: Bali, Indonesia as a Case Study. *PLoS Negl Trop Dis* 7(8): e2372. doi:10.1371/journal.pntd.0002372
- ix World Organisation for Animal Health (OIE). (2011). Recommendations. Global Conference on Rabies Control: Towards sustainable prevention at source, 7-9 September. Available at: www.oie.int/fileadmin/Home/eng/Conferences_Events/docs/pdf/recommendations/A_Recommendation_Global%20Rabies%20Conference%20Seoul_final.pdf
- x Khan, S.A. (2012). Overview of strychnine poisoning. In: Aiello, S.E, Moses, M.A., Lane, K.A.G and Steigerwald, M.A. (eds.) *The Merck Veterinary Manual*. [online]. Available from: http://www.merckmanuals.com/vet/toxicology/strychnine_poisoning/overview_of_strychnine_poisoning.html
- xi World Health Organization Terrestrial code, Chapter 7.7, Stray dog population control, Article 7.7.6 http://www.oie.int/fileadmin/Home/eng/Health_standards/tahc/2010/en_chapitre_1.7.7.htm
- xii Haesler, B., Gregory, N., Bennani, H., Onono, J. and Rushton, J. (2012). Evaluation of rabies control in Colombo City, Sri Lanka. *World Society for the Protection of Animals*
- xiii WHO expert consultation on rabies (2013). Second report, Geneva, Switzerland, (WHO technical report series no.982).
- xiv World Health Organisation (2010). Rabies Fact sheet 99. <http://www.who.int/mediacentre/factsheets/fs099/en/>
- xv American Veterinary Medical Association. (2008). One Health: A New Professional Imperative. Available at: www.avma.org/KB/Resources/Reports/Documents/onehealth_final.pdf.
- xvi Hampson, K. et (2009) Transmission dynamics and prospects for the elimination of canine rabies. *PLoS Bio*, 7(3). And Morters, M. K., Restif, O., Hampson, K., Cleaveland, S., Wood, J. L., Conlan, A. J., & Boots, M. (2013). Evidence-based control of canine rabies: a critical review of population density reduction. *Journal of Animal Ecology*, 82(1), 6-14.
- xvii ICAM (2007) Humane Dog Population Management Guidance [online]. Available at: http://icam-coalition.org/downloads/Humane_Dog_Population_Management_Guidance_English.pdf [accessed August 2013].

All sources accessed in August 2013

“The control and elimination of rabies in dogs through vaccination remains the only cost-effective way to sustainably protect humans from contracting the disease.”

World Organization for Animal Health (OIE)^{ix}

Learn more

World Animal Protection provides expert advice on implementing effective and sustainable mass dog vaccination programmes. We can make saving lives affordable in the long term.



Go to worldanimalprotection.org to find out more

Guidelines to how to implement a rabies control programme visit rabiesblueprint.com

We are World Animal Protection.

We end the needless suffering of animals.

We influence decision makers to put animals on the global agenda.

We help the world see how important animals are to all of us.

We inspire people to change animals' lives for the better.

We move the world to protect animals.

Contributors

Prof Sarah Cleaveland, Professor of Comparative Epidemiology, Institute of Biodiversity, Animal Health and Comparative Medicine, University of Glasgow

Dr Katie Hamilton - Consultant