

A - Z OF RABIES

A guide to the world's deadliest disease.





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INTRODUCTION

It's an incredible honour to be a part of Mission Rabies and to share this information guide with the world. We are a charity focused on saving the lives of children, dogs, and the countless victims of the world's deadliest zoonotic disease. It's only possible with an amazing team driving things forward, combined with a clear strategy, focused determination, and absolute commitment.

As our projects are driving forward, with over one million street dogs vaccinated and more than two million children educated since we started, we are now really beginning to see the impact of our international programmes.

It is inspiring, humbling and brings a sense of purpose to the entire team as we realise the impact of our projects and fully appreciate what can be achieved with such fantastic sponsors, donors and volunteers who keep the fire burning and power us ever forward.

We're still a young charity, still growing and still utterly committed to doing as much as we can. It's an exciting time for us! We have to strive to do more, to focus on expanding nationally, regionally and to use our projects as proof-of-concept examples to encourage more groups and governments to take up the fight against rabies.



CEO and Founder of Mission Rabies

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ANIMALS

Any mammal, including humans, can be infected by rabies. It circulates between 'reservoir' species, depending on where you live. In Europe this could be foxes and wolves, in America it is skunks and bats, but in Africa and Asia it's mainly dogs.



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BITES

The rabies virus is transmitted through the saliva of an infected animal. The virus increases the aggression of its host, causing them to pass on the virus through biting. It is particularly dangerous as any contact between infected saliva and broken skin or eyes can pass on the infection.



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CHILDREN

Children are the worst affected by this deadly disease. 40% of all rabies deaths are in children under 15 years old¹. With sufficient resources, this could be easily avoided as rabies is 100% vaccine-preventable!

Photo: Naomi Kenton

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DOGS

99% of human rabies deaths are a consequence of dog bites². This causes dogs to be feared amongst many communities resulting in persecution and culling, due to a misunderstanding that this will eliminate rabies³. By creating a safe dog population through vaccination programmes, canine and human rabies can be reduced.

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EDUCATION

Education is the cornerstone of every rabies project, increasing awareness of rabies, dog behaviour, bite prevention and first aid following rabies exposure. This gives communities and health workers the tools to identify, prevent and stop the spread of this deadly disease.

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FATAL

Once the symptoms of rabies are present, it is nearly 100% fatal. This makes rabies the most lethal virus in history.



Photo: Richard Murgatroyd

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GOVERNMENT

Government leadership is an essential part of any disease control campaign, ensuring engagement with local communities and providing vital logistical support.

Photo: Richard Murgatroyd

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HERD IMMUNITY

To achieve herd immunity, a campaign needs to vaccinate at least 70% of the target dog population. This is the proportion required for the vaccinated dogs to form a barrier, slowing the spread of rabies until the virus dies out.



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IMPACT

Surveillance of clinical rabies cases is critical to measuring the effect of a vaccination campaign. We can do this by establishing a rabies hotline for communities to report sightings of rabid dogs. A response team can then be dispatched to investigate. Canine rabies incidence maps can demonstrate the impact a campaign has on rabies prevalence.

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JAPAN

Japan was the first country to implement mass dog vaccination in 1925, being declared rabies free in 1957. Its geographical isolation combined with compulsory registration, vaccination and import/export control measures has enabled Japan to remain rabies free. Whilst there are different challenges in other countries, this remains the original model of rabies elimination through canine vaccination.

Photo: Richard Murgatroyd

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KEY FACTS

- Rabies is a Neglected Tropical Disease that affects the poorest and most marginalised communities².
- Known as the world's deadliest virus, rabies has an almost 100% fatality rate once symptoms develop.
- Globally, rabies is predicted to cost \$124 billion USD every year².
- It kills an estimated 59,000 people a year², a large proportion of whom are children¹.
- 95% of all human cases are in Asia and Africa.
- 99% of all human rabies cases are transmitted through dog bites².
- Rabies is 100% vaccine-preventable.

Photo: Richard Murgatroyd



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LYSSAVIRUS

The rabies virus is a bullet-shaped lyssavirus of the Rhabdoviridae family. It is only 180 nanometres long, which means you could fit 5,550 virus particles into an average sized raindrop.

When inside a host's cells, the virus replicates inside a 'virus factory' called a Negri body. Before more modern diagnostic tools were developed, scientists diagnosed rabies by identifying Negri bodies.

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MHEALTH

mHealth, or mobile health, refers to the use of technology to record and improve health-related issues. Smartphones are becoming increasingly available and affordable in developing countries. Their power to record and send data in real time allows remote coordination of teams in the field and is now being recognised for its potential in disease control and surveillance.



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NERVES

The rabies virus uses nerves as its highway to the brain. The time it takes to show symptoms of rabies depends on the distance the virus has to travel. So, if someone gets bitten on their toe, they could take weeks or even months to show symptoms, but if bitten on the face they could become rabid in just a few days.

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ONE HEALTH

Vaccinating dogs saves human lives. This is the concept at the core of the work being driven by collaborative veterinary and medical professionals across the globe.

Photo: Richard Murgatroyd

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PREVENTION IS BETTER THAN CURE

Rabies is estimated to cost \$8.6 billion USD every year². The majority of this is the cost of treatment given to people in hospitals after bite injuries. Unfortunately, this is a post-exposure response and not preventing the problem at its source. Rabies can be eliminated by stopping the spread of disease through vaccination of the reservoir species in each country in combination with human vaccination.



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QUESTIONS

Got a question about rabies or want to get involved in the mission to help eliminate this deadly disease? Get in touch with the expert team at Mission Rabies: call +44 1725 557 225, email enquiries@missionrabies.com or message us on social media.



@missionrabies

Follow the links below to find out more about the incredible organisations working towards global rabies elimination.

WHO: <http://www.who.int/en/>

RABIES BLUEPRINT:
<https://caninerabiesblueprint.org>

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RESPONSIBLE DOG OWNERSHIP

Promoting responsible dog ownership and increasing dog welfare is very important to the wider rabies picture. Encouraging communities to take responsibility for their own dogs as well as street dogs is very important for the long-term goals of rabies elimination.

Photo: Richard Murgatroyd

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SYMPTOMS

Rabies manifests in two forms:

80% are 'furious' where signs can include restlessness, sensitivity to sound and movement, wandering aimlessly into new areas, excessive reactions to people and animals, aggression, indiscriminate biting, and saliva may drip from the mouth.

The other form is paralytic, where animals become lethargic, potentially paralysed and show other non-specific signs of illness.



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TESTING

Currently, the only definitive tests available for rabies are on post-mortem samples. This is because, unlike most viruses, rabies doesn't cause viraemia (virus particles in the blood), so a blood sample is unsuitable.

To confirm the diagnosis, a test is performed on the brain tissue. The samples are then sent off to a laboratory to confirm rabies.



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UNDERESTIMATE

80% of rabies cases occur in rural to semi-rural area where access to healthcare, accurate diagnosis and vaccinations is limited. Official human death statistics can therefore be unreliable, leading to gross underestimates. Hampson et al estimates the true global death rate to be 59,000 people annually.

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VACCINATION

The rabies vaccine needs to be a robust formula as it is carried across vast distances by vaccination teams in variable climatic conditions, reaching the most isolated dog populations. Once an unvaccinated dog is identified, 1ml of the vaccine is injected either under the skin or into the muscle.

Photo: Richard Murgatroyd



WORLD RABIES DAY

Friday 28th September commemorates the anniversary of the death of Louis Pasteur, the French chemist who developed the first rabies vaccine. It is a day aimed at raising awareness of rabies, celebrating successful interventions and highlighting what still needs to be done in this global fight against this deadly disease.

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X MARKS THE SPOT

GPS technology enables remote coordination and tracking of vaccination teams, maximising the efficiency of any campaign. Details about a dog's age, gender, ownership and health status, combined with its GPS location, helps to build a picture of the canine population in an area. This allows campaigns to be tailored to the specific needs of that region.

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YEARLY DRIVES

Consistent canine vaccination can reduce canine rabies cases to near zero within two years¹. However, with a high turnover of births and deaths amongst dogs, yearly vaccinations ensure the vaccinated population remains above the critical level. Surveillance measures are put in place to monitor canine rabies incidences and ensure the level of vaccination.



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ZERO HUMAN DEATHS FROM DOG-MEDIATED RABIES BY 2030!

In Geneva 2015, a global rabies meeting developed a framework for the elimination of dog-mediated human rabies deaths by 2030¹¹. This international effort will only be possible by increasing awareness, availability of resources and with the help of people like YOU!

#Zeroby30

Find out how you can make a difference on the next page.





OUR MISSION:

Our goal is simple: to eliminate human deaths from dog mediated rabies, by vaccinating the canine population and educating communities.

JOIN US!

We run volunteer programmes in Malawi, Uganda, India, Sri Lanka, and Tanzania. Join us on a vaccination drive and education outreach programme and make a real difference in the fight against rabies! Alternatively, you can donate to support our work. Visit our website or social media for more information.

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