



RABIES

Other names: Mad Dog Disease, Hydrophobia, Lyssa

CAUSE

Rabies is an infectious viral disease of mammals caused by multiple strains of *Lyssavirus*. Each strain tends to be maintained in specific reservoir species for which these strains have adapted (i.e. raccoon strain in raccoons, skunk strain in skunks, canine rabies in canids). These strains can, however, cause rabies and become established in alternative host species (e.g. skunk rabies in dogs).

SIGNIFICANCE

Rabies represents a significant risk to public health and infects a significant number of wildlife each year. In North America the typical reservoir species are foxes, bats, skunks, and raccoons, however, the virus can cause rabies in any mammal species. The CWHC has identified more than 140 positive cases in wildlife from 2013-2017. The virus potentially exists in natural populations of wildlife across Canada, though normally it is primarily restricted to wilderness areas. However, potential incursions of the raccoon rabies strain from the USA and Arctic fox strain from northern Canada place Ontario, Quebec, and New Brunswick at particular risk for rabies incidents. Current research suggests that co-infections with rabies and distemper commonly occur in wildlife. The reason for this and any links between infections is, however, not yet understood.

TRANSMISSION

Transmission of the rabies virus occurs through the saliva of an infected animal. Typically transference of saliva occurs via an animal bite. However, alternate routes of infection include contact with saliva on any open wound or mucous membranes in the mouth, eyes, or nose. The virus follows nerves, ultimately infecting the central nervous system.

CLINICAL SIGNS

Rabies is an infection of the central nervous system resulting in inflammation of the brain and spinal cord, and is almost always fatal. Initial symptoms of the disease are typically non-specific and include lethargy, fever, vomiting, and anorexia. Within days symptoms of brain dysfunction and dysfunction of nerves stemming directly from the brain (i.e. those that control the eyes and face) begin to appear. Animals may begin to lose control of body movements, appear weak and/or become paralyzed, they may have seizures, and exhibit difficulty breathing. They may also lose their fear of humans and can be easily approached. The virus also invades and multiplies in the salivary glands causing increased production of virus laden saliva, and extremely painful spasms in the throat when an individual attempts to swallow. As a result the individual will exhibit difficulty swallowing, salivate excessively, and may exhibit fear of water.

The excessive saliva production, inability to swallow, lack of fear of humans, and degenerated mental capacity facilitate the transmission of the disease through aggressive behaviour leading to transference of saliva into a new host through animal bites.

RISK TO HUMAN AND DOMESTIC ANIMAL HEALTH

Rabies poses a serious threat to the health of humans and domestic animals. Domestic dogs represent the most common reservoir of rabies with 95-99% of all global human deaths resulting from infections acquired from dogs. Globally, rabies is responsible for an average of 60 000 human deaths each year and over 15 million people receive treatment for potential exposure to rabies annually. Infected people may take 2-3 months to exhibit symptoms, however, once symptoms arise it usually causes death within 2 weeks.

MANAGEMENT AND PREVENTION

Management of rabies in wildlife typically involves authorities euthanizing infected animals where they pose a risk to the public or through dropping vaccinated baits in targeted areas. In humans and domestic animals, rabies is an entirely preventable disease:

- Vaccinate pets against rabies and keep rabies vaccinations up-to-date.
- Keep cats indoors and maintain direct supervision of dogs while outdoors to prevent interactions with wildlife.
- Call animal control to remove stray animals in the event they may be unvaccinated or ill.
- Maintain a safe distance from wild animals and domestic animals not well known to you.
- Do not feed or harass wild animals.
- Do not attempt to catch, house, relocate, or rehabilitate wildlife. Call local authorities to properly capture and treat any sick, injured, abandoned, or nuisance animals.
- Do not touch dead animal carcasses as they can contain live rabies virus, even after being frozen.
- If a person has been exposed contact a local health care provider and if a domestic animal is suspected of having been exposed contact your veterinarian.
- Report any sick or dead mammals to the Canadian Wildlife Health Cooperative. Find your closest regional centre at: <http://www.cwhc-rcsf.ca/>

SUGGESTED READING

- [Centers for Disease Control and Prevention: Rabies](#)
- [World Health Organization Rabies Fact Sheet](#)
- [CWHC Quarterly Reports, Includes Provincial Break Down of Rabies Cases](#)
- [Canadian Food Inspection Agency Rabies Reporting](#)

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