

# Rabies

## Frequently Asked Questions

### What is rabies?

Rabies is a contagious viral disease causing damage to the brain and the spinal cord and is uniformly fatal. It affects both animals and humans and is caused by the rabies virus. Two biotypes of rabies virus occur in Southern Africa: the canid-type which circulates in domestic dogs and other canids, and the viverid type which circulates in mongoose. Rabies in dogs is a preventable disease.

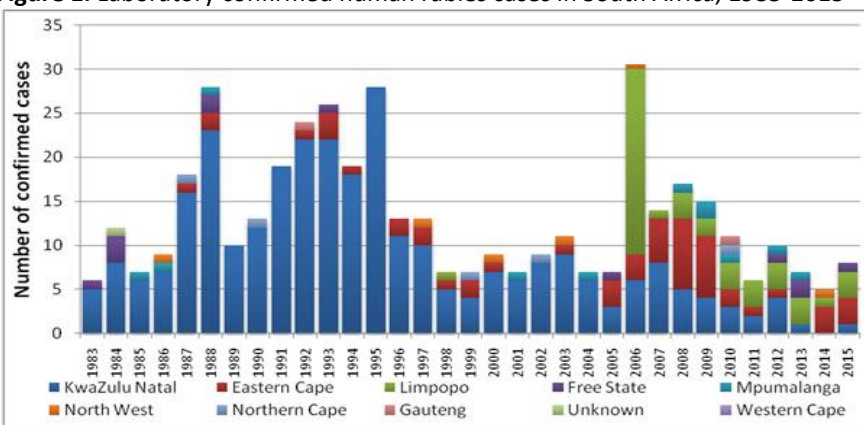
### Who can get rabies?

Persons who come into contact with infected animals, commonly dogs, cats, mongooses, cattle or bats are at risk. Children are often at higher risk as they tend to play with dogs, are defenceless and are more likely to be bitten. Veterinarians and laboratory workers are at greater risk because of exposure through their professional activities.

### Where does rabies occur in South Africa?

Rabies is relatively more common in domestic dogs in KwaZulu-Natal, Eastern Cape, Mpumalanga, Free State and Limpopo Provinces. Human rabies has therefore predominantly been reported from these provinces. In the past ten years an average of 13 human cases (range 5-31) have been reported in South Africa per year. In 2015, eight confirmed human rabies cases were diagnosed from the following provinces: KwaZulu-Natal (n=1); Limpopo (n=3); Eastern Cape (n=3) and Free State (n=1). Figure 1 illustrates the number of cases per year by province in South Africa since 1983. There has been a noticeable decrease in the reported number of canine rabies and human deaths due to canine rabies in KwaZulu-Natal since 2012 because of mass vaccination of dogs. In addition to dogs, many other animals can transmit rabies. In South Africa, these most importantly include cats, livestock, yellow mongoose, black-backed jackal and bat-eared fox. Human rabies associated with wild animals dominates in the western, central or northern portions of the country.

**Figure 1.** Laboratory confirmed human rabies cases in South Africa, 1983-2015



### How is rabies transmitted?

The rabies virus is spread to humans and other animals through contact with saliva or tissue of infected animals (i.e. scratches, bites, licks on broken skin and mucous membranes of the lips or eyes). It cannot be transmitted through intact skin, so touching, petting or being close to the animals is not a risk. The majority of human exposures in South Africa are linked to dogs.

## How does rabies affect animals?

Rabid animals tend to behave strangely, often aggressively. They also experience muscle paralysis, produce lots of saliva and experience difficulty in swallowing. Wild animals may lose fear of humans and become strangely tame. Cows and sheep with rabies may appear to have something “stuck” in their throat.

## What are the signs and symptoms of rabies?

In humans, rabies presents in the form of “furious” rabies or “dumb” rabies. Initial symptoms of rabies may be non-specific and include general weakness, discomfort, fever and/or headache. Tingling at the bite site may be noted. The disease progresses rapidly to “furious” rabies which presents as anxiety, confusion and agitation. As the disease progresses, the patient becomes delirious, behaves abnormally, hallucinates and may have a variety of psychiatric symptoms before becoming comatose. The “paralytic” or “dumb” form of rabies is clinically similar to poliomyelitis, but presents with descending paralysis, coma and death. The acute period of disease typically lasts 2 to 10 days.

## How is rabies diagnosed?

Once persons become symptomatic, antigen detection using PCR or fluorescent antigen detection (FAT) is done on saliva, nuchal skin biopsy, CSF or brain tissue. At least 3 saliva specimens are required, as virus excretion is intermittent in early stages and saliva antigen detection may be falsely negative. Antibody detection is unreliable for the diagnosis of rabies. A post-mortem examination and submission of brain tissue must be done on persons suspected to have died of rabies. Post-mortem diagnosis is achieved through FAT and PCR of brain tissue. There are no tests available to test for rabies in humans after an exposure and before symptoms develop.

## How is rabies treated?

No treatment is available for human or animal rabies.

## How can rabies be prevented?

Canine rabies is preventable through vaccination of animals against rabies. All domestic dogs and cats should be vaccinated against rabies after three months of age. Human infection with rabies following exposure to rabid or suspected rabies-infected animals can be prevented by prompt administration of rabies post-exposure prophylaxis (PEP). Health care workers (HCW) should conduct a risk assessment on all persons presenting with history of exposure to an animal, to ascertain animal behaviour and condition at the time of exposure, vaccination status of the animal and category of bite. Any breach in the skin of the patient or contact with mucous membranes is considered a category 3 exposure, while licks to skin or direct contact without skin breaks are category 2 exposures. HCW should also consider the geographical location of the incident and prevailing canine rabies diagnoses. If indicated, PEP includes a series of rabies vaccinations given on day 0, 3, 7 and 14 following exposure. Intramuscular injection of rabies immunoglobulin is given at the site of exposure, and the remainder in the opposite deltoid as soon as possible after the bite. Pre-exposure vaccination can also be given to high risk groups, such as veterinarians and animal handlers and anti-rabies immunoglobulin given on the dog of exposure. Animal rabies is preventable through vaccination of dogs and is the most cost-effective approach for preventing rabies in humans.

## Where can I find out more information

**Guidelines:** [Rabies Guide for the Medical, Veterinary and Allied Professionals; Rabies Poster 2015](#)

**Medical / clinical related queries:** contact NICD Hotline number +27 82 883 9920 (for use by healthcare professionals only)

**Laboratory related queries:** Dr Jacqueline Weyer: (Tel) +27 11 386 6376, [jacquelinew@nicd.ac.za](mailto:jacquelinew@nicd.ac.za)

**Results inquiries:** NICD Specimen Receiving Laboratory: +27 11 386 6404.

- Center for Emerging and Zoonotic Diseases Laboratory: +27 11 386 6339