

# RABIES FACT SHEET



## Overview

Rabies is a viral disease affecting the nervous system. It is usually transmitted to humans via the saliva of an infected animal through a bite. Rabies is always fatal without post-exposure prophylaxis (PEP). If PEP is administered appropriately following the bite of a rabid animal, the risk of rabies infection is eliminated.

## Signs and Symptoms

The symptoms consist of irritability, fatigue, headache, fever, and pain or itching at the exposure site. The disease eventually progresses to paralysis, spasms of the throat muscles, seizures, delirium and death. By the time symptoms of the disease appear, rabies rarely can be successfully treated, and virtually all cases are fatal.

The incubation period for rabies in humans is usually three to eight weeks, but can be as short as one week to as long as nine years. It is never too late to seek medical attention for a potential rabies exposure.

## Causes and Transmission

Rabies is caused by the rabies virus transmitted in the saliva of a rabid animal. A bite from a rabid animal can cause rabies in mammals, including humans. Theoretically, rabies can also be transmitted by contaminated material (saliva or brain material from a rabid animal) if it gets into a scratch from the rabid animal, into a fresh open wound like cuts on the hands, or into the eyes or mouth. Any potential exposure situation should be evaluated to decide if PEP is appropriate. The animals most likely to transmit rabies in Pennsylvania include raccoons, bats, skunks, foxes and cats. However, all mammals can become infected with the rabies virus, and, if contact occurs with a rabid or potentially rabid animal, the victim should seek healthcare immediately.

## Risk Factors

Any human or unvaccinated mammal can develop rabies following exposure.

## Complications

If PEP is administered appropriately, no complications can be expected. If PEP is not administered, rabies will always result in death of the human or animal.

## Tests and Diagnosis

Diagnosing rabies in animals requires that the animal be euthanized, as it is necessary to obtain samples from the animal's brain. If acting normally, domestic dogs, cats and ferrets may be observed for 10 days from the day of the bite. If the domestic dog, cat or ferret is healthy after 10 days, it did not have rabies in its saliva at the time of the bite. Raccoons, foxes, skunks, bats and other wild animals should be humanely killed and the head (bats may be submitted whole) sent to the appropriate laboratory for rabies testing. If an animal must be shot to prevent its escape, care should be taken not to damage the brain so that it can be properly tested. A veterinarian and local health authorities should routinely be consulted to advise if further action is necessary for other animals and situations.

Several tests are necessary to diagnose rabies before death in humans. Tests are performed on samples of saliva, serum or spinal fluid or skin biopsies are done on hair follicles at the nape of the neck. Saliva can be tested by virus isolation or reverse transcription, followed by polymerase chain reaction (RT-PCR). Serum and spinal fluid are tested for antibodies to rabies virus. Skin biopsy specimens are examined for rabies antigen in the cutaneous nerves at the base of hair follicles.

### **Treatments**

Once rabies symptoms begin, treatment is unsuccessful.

Following exposure to a rabid animal, immediately wash the wound with plenty of soap and warm water and then promptly seek medical care. If the circumstances of the exposure warrant, human rabies vaccine may be prescribed. The vaccine is a series of four shots given in the arm (or thigh for small children) on days 0, 3, 7 and 14 after presentation to the health care provider. Rabies immune globulin is also given on day zero (the first medical visit). Rabies vaccine is highly effective in preventing the disease after an exposure, if given before any symptoms develop.

### **Prevention in Humans**

Prompt medical care following exposure to a rabid or potentially rabid animal is essential in preventing rabies infection.

### **Prevention in Animals**

- Visit your veterinarian with your pet on a regular basis and keep rabies vaccinations up-to-date for all cats, ferrets and dogs.
- Maintain control of your pets by keeping cats and ferrets indoors and keeping dogs under direct supervision.
- Spay or neuter your pets to help reduce the number of unwanted pets that may not be properly cared for or vaccinated regularly.
- Call animal control to remove all stray animals from your neighborhood since these animals may be unvaccinated or ill.
- Do not keep wild animals as pets.

Although the majority of rabies cases occur in wildlife, most humans are given rabies vaccine as a result of exposure to domestic animals. This explains the tremendous cost of rabies prevention in domestic animals in the United States.

While wildlife are more likely to be rabid than are domestic animals in the United States, the amount of human contact with domestic animals greatly exceeds the amount of contact with wildlife.

Your pets and other domestic animals can be infected when they are bitten by rabid wild animals. When "spillover" rabies occurs in domestic animals, the risk to humans is increased.

Pets are vaccinated by your veterinarian to prevent them from acquiring the disease from wildlife and thereby transmitting it to humans.

**Disease Patterns**

Rabies continues to be a significant public health problem in the commonwealth. Since the year 2000, between 350 and 500 animals are annually confirmed in the laboratory to have rabies. About half of the animal rabies cases are raccoons, followed by skunks, cats, bats and foxes. In contrast to the situation in animals, human rabies in Pennsylvania is rare. The last diagnosed human case in the commonwealth was in 1984.

Cats are the most commonly reported domestic animal with rabies, particularly in Pennsylvania, which typically reports more rabid cats than any other state in the United States.

**Additional Information**

Centers for Disease Control and Prevention: <http://www.cdc.gov/rabies/index.html>

*This fact sheet provides general information. Please contact your physician for specific clinical information.*

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