



Rabies in South Dakota: Animal and Human Aspects

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What is rabies? Rabies is a fatal but preventable viral disease that can affect animals and people. Cases of rabies in animals are diagnosed every year in South Dakota.

What animals are affected by rabies? While it's possible for any mammal to become infected with rabies, in South Dakota, skunks are the most common carriers of rabies. Of South Dakota wildlife species, bats are the next most common animal found positive for rabies. Raccoons and rodents (such as mice, rats, and gophers) are frequently tested but are very uncommon carriers of rabies in South Dakota. Human rabies is rare in the United States, but when human cases do occur, they most often result from contact with bats.

How is rabies spread? Rabies virus is normally transferred from animal to animal through bites or abrasions of the skin, and occasionally through contact with saliva or mucous membranes. Rabies could also be transmitted when an animal eats an animal that carries rabies.

How does the disease develop in the body? The rabies virus first enters the victim's body through saliva from an infected animal that enters a wound or abrasion. The virus reproduces in the local muscle tissues for a widely variable time period—ranging from one week to one year—before spreading to nerve endings in the area. From there, the rabies virus spreads to the nerves, the spinal cord, and then the brain. From the brain it can then spread to other organs in the body—most notably the salivary glands—through the periph-

eral nerves. This results in the rabies virus being shed in the saliva of the affected animal.

What are the signs of rabies in animals? In animals, the signs of rabies most commonly observed are behavioral changes and progressive paralysis, or decreased capability to move. It's been commonly noted that wild animals with rabies tend to lose fear around people, and domesticated animals with rabies tend to act more unrestrained. In general, there are two types of these behavioral changes: "dumb" and "furious." The furious form may affect pets and livestock. Some signs are increased excitability, aggression, salivation, difficulty swallowing, vocal changes (bellowing in cattle), incoordination, and convulsions that lead to paralysis. The dumb form produces more exhausted or weary behavior, salivation, and difficulty swallowing, and also leads to progressive paralysis. The excessive salivation and difficulty swallowing is due to *hydrophobia*, or the contraction of the throat muscles. Rabies in animals results in death, almost invariably quite soon (a few days at the most) after the beginning of clinical signs.

What are the symptoms of rabies in humans? Humans with rabies feel symptoms such as headaches, irritability, irritability around the wound, increased salivation, and sensitivity to sound and light. Hydrophobia may be experienced as well, and symptoms progress to convulsions, paralysis, and death.

How is rabies diagnosed in animals? There is no test for rabies virus in live animals. The animal must be

euthanized and its brain tissue obtained for testing. If the brain is damaged due to the manner in which the animal was captured or euthanized, obtaining results may be difficult or impossible.

Who tests animals for rabies in South Dakota? The appropriate samples are sent, through veterinarians or animal control personnel, either to the SDSU Animal Disease Research and Diagnostic Laboratory in Brookings or to the South Dakota Public Health Laboratory in Pierre. Results are then reported to the veterinarian or animal control official.

How can rabies be prevented in animals? Rabies can be prevented in domestic animals by a vaccine. Cases in vaccinated animals are incredibly rare. All pet dogs and cats, even those that spend their time indoors, should be vaccinated for rabies.

When and how often should I vaccinate my animals? Dogs and cats can first be vaccinated for rabies when they are 3 months of age and anytime thereafter. The timing of booster doses of vaccines depends on the specific vaccine administered. Rabies vaccine should be administered by a licensed veterinarian. South Dakota cities and counties may have their own regulations regarding vaccination requirements for cats and dogs. Wild animals have an increased risk of carrying rabies and should not be kept as pets. Rabies vaccines are not licensed for use in individual wild animals.

Do livestock need to be vaccinated? Livestock such as cattle and sheep should be vaccinated if exposure to rabies occurs on the farm or pasture. In general, it's a good idea for horses in South Dakota to be current on rabies vaccination. Valuable animals or animals being shown at fairs or achievement days should also be vaccinated for rabies. Consult your local veterinarian for guidance on vaccinating animals.

What if a possibly rabid animal is present in the areas my pet spends time in, or eats out of my pet's food dish? The rabies virus does not have a long survival time once outside of the body. The virus is located in saliva but becomes inactivated after a short period of time, usually minutes to hours. If a wild animal is found near your pets' feeding area, it is best to empty the dish and replace the food. Feeding your pet only as much as they will eat, and in an area inaccessible to wildlife, will help avoid these situations and will attract fewer unwanted animals.

What will happen if my animal has been bitten or scratched by an animal that might have rabies? It depends on whether the other animal was in fact positive for rabies. If that animal tests positive for rabies, or is unavailable for testing, then it depends on whether your animal is current on its rabies vaccination (see fig. 1). Non-vaccinated pets that have been exposed to rabies should be euthanized.

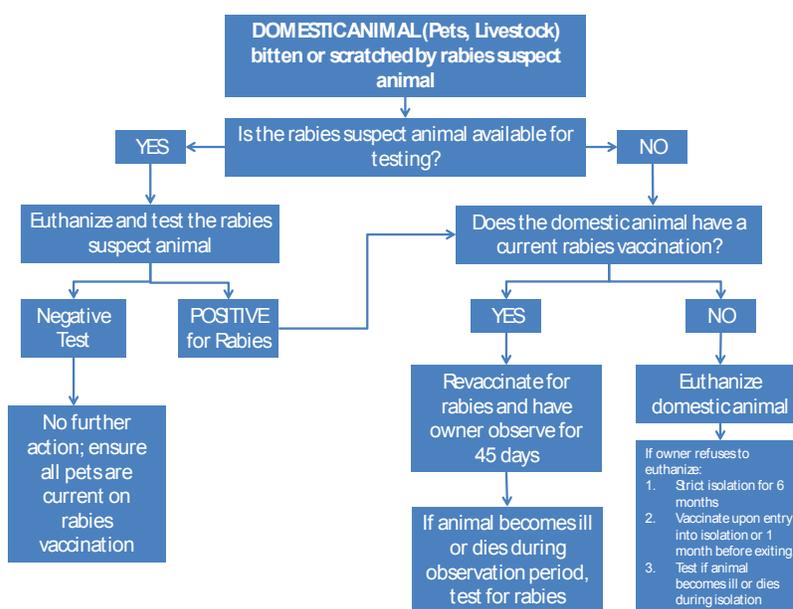


Figure 1. What to do if bitten or scratched by a domestic animal

What should I do if I have been bitten by an animal that could have rabies? The first step is to wash the wound with soap and water. Next, contact your physician or health provider. Depending on the circumstances, your doctor may administer post-exposure prophylaxis (PEP) treatment. This includes a dose of rabies immune globulins (antibodies specifically against rabies virus) and four doses of rabies vaccine given over a 14-day period. These injections are given in the muscle and may be rather costly. If necessary, PEP should be administered as soon as possible. However, depending on the particular exposure, treatment delays of several days may be acceptable if it is necessary to locate animals or obtain test results.

What are the steps that should take place regarding the animal that has bitten me? If the animal has an owner or is a healthy-appearing stray animal that can be placed under observation by animal control officials, confinement and observation of the animal for a period of 10 days is necessary (see fig. 2). This is due to the fact that rabid animals can only potentially transmit rabies for a short period of time before they start to show clinical signs of illness due to rabies. If the animal shows any signs of illness or dies in that period of time, the animal is euthanized and tested for rabies.

How can I avoid being bitten by an animal? Do not pet animals without an owner's permission, and stay away from animals you are not familiar with, especially those exhibiting strange behavior. Supervise children around animals at all times. Stay away from wild animals.

What do I do if there is an animal on my property and I am concerned about being bitten? Call animal control services or local law enforcement authorities. Increasingly, bats are implicated in human cases of rabies. Bats found outside in daylight hours should not be approached, and pets should be kept away from them. If a bat is found indoors, especially in a bedroom overnight, contact your local health provider or the South Dakota Department of Health for advice regarding rabies testing and exposure. Bats have small teeth and bites can easily go unnoticed, especially if the victim is sleeping. Use extreme caution when attempting to capture such live bats, or contact local animal control officials for assistance. Information on dealing with live bats, including exclusion from buildings, can be found at <http://sdbwg.org>.

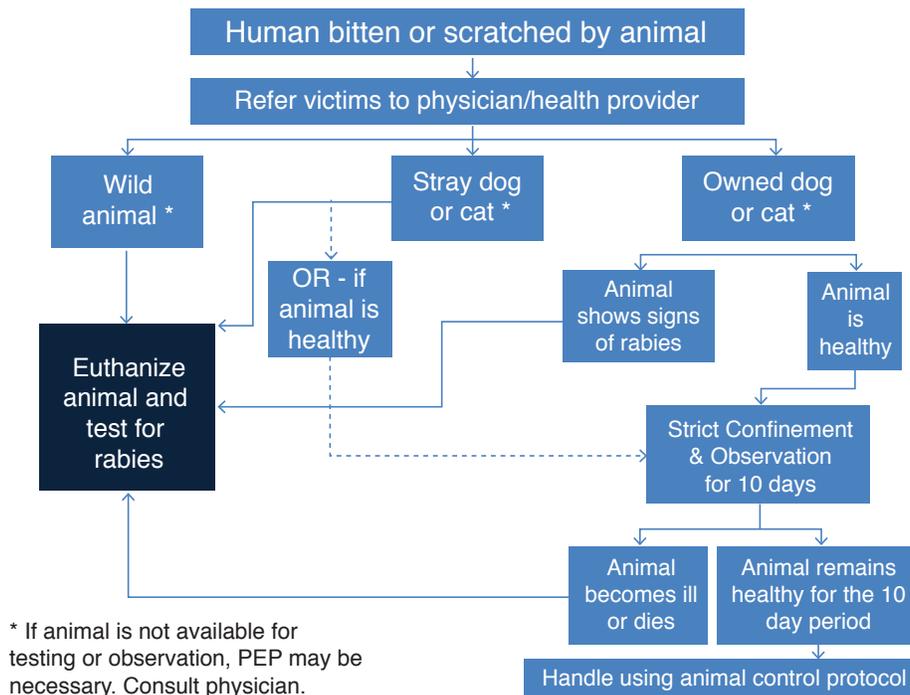


Figure 2. What to do with an animal that may have bitten or scratched a human

Where can I get answers about my particular questions about rabies?

- If you have been bitten by an animal or had contact with a potentially rabid animal, contact your local physician or health care provider as soon as possible.
- If you have questions about your animal being in contact with a potentially rabid animal, contact your veterinarian.
- South Dakota Department of Health:
1-800-592-1861
- South Dakota Animal Industry Board (State Veterinarian): 1-605-773-3321
- SDSU Animal Disease Research and Diagnostic Laboratory: 1-605-688-5171.

Rabies is a common disease among certain wild animals in South Dakota. Keeping pets vaccinated against rabies and using caution in interacting with wild animals is important in avoiding the serious potential human effects of this disease.

REFERENCE

Compendium of Animal Rabies Prevention and Control. 2008. National Association of State Public Health Veterinarians.



**South Dakota
Animal Industry Board**



**South Dakota
Cooperative Extension Service**

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