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David R. Smith

Annette K. Bredthauer

*Nebraska Department of Health and Human Services*

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## Rabies in Nebraska

By Annette K. Bredthauer, DVM, Nebraska Public Health Veterinarian, Nebraska Department of Health and Human Services  
David R. Smith, DVM, Extension Dairy/Beef Veterinarian, University of Nebraska -Lincoln

Nebraska is currently experiencing an outbreak of rabies in animals after many years with few cases. The last rabies outbreak in the state peaked in 1981 with nearly 200 animal cases diagnosed that year (*Figure 1*). After many years with few cases, many people have become complacent about this deadly disease. This NebFact describes rabies in animals and explains how people can protect themselves, as well as their pets or livestock from rabies exposure.

### What is Rabies?

Rabies is a deadly virus infection that can attack the central nervous system of most warm blooded animals, including humans. Rabies is a very old disease. The first recorded description of the disease dates from the 23rd century BC in Babylon. It was rampant in Europe in the 19th century and was carried to the Americas by animals on the early ships.

Rabid animals usually exhibit some form of abnormal behavior (dementia), which may differ according to species. Untreated, the disease is invariably fatal. Treatment is highly successful for humans who receive the proper post-exposure rabies antibodies and vaccinations.

*Wildlife* — Are usually observed acting uncharacteristically

- Nocturnal animals (e.g. skunk and raccoon) may be active in daytime.
- They may exhibit uncoordinated movement — walk in circles, stagger, compulsive actions.
- They may aggressively chase people and pets, or act tame, sleepy, or paralyzed.

*Dogs and cats* — develop progressive stages of abnormal behaviors

- Initially, the animal may seek solitude, as well as display other non-specific changes in behavior.

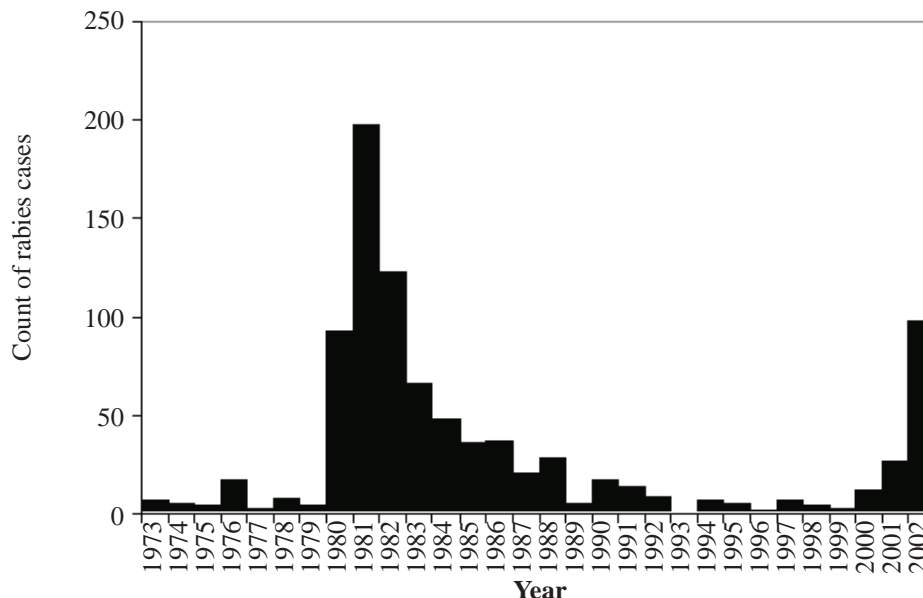


Figure 1. Thirty-year history of the number of rabies cases diagnosed in Nebraska animals.

- The muscles of the throat become paralyzed preventing eating or drinking. Saliva may drool out of the mouth (sometimes fooling people into believing a foreign object is caught in throat).
- Animals exhibiting the “furious” form of rabies may initially behave irritably and snap or bite at real or imaginary objects. Later, they may viciously and violently attack anything in their path. Dogs may run for miles, cats may leap up and violently attack unsuspecting people. In later stages, paralysis is observed, usually beginning with the rear legs and progressing toward the head.
- Alternatively, in the paralytic or “dumb” form of rabies, animals appear drowsy with paralysis of the lower jaw, drooling, and a tendency to snap at movement. They are insensitive to pain and eventually become comatose.

**Livestock** — Horses and pigs may bite viciously at any moving object or show drowsiness and paralysis. Facial nerve paralysis in horses may resemble a stroke, with drooping eyelids, flaccid lips and drooling of saliva.

- Horses may show signs of colic and restless pacing.
- Animals may have irritation of the urogenital tract and show frequent urination or sexual excitement. Cattle may have persistent straining to the point of rectal prolapse.
- Cattle may butt any moving object and have an unusual pitch to their bellowing; drooling of saliva resembles the signs of a foreign object in throat.

### **How is rabies transmitted?**

The virus is excreted in the saliva of rabid animals and is most commonly transmitted to others through bite wounds or when contaminated saliva contacts a fresh wound on the skin or the mucous membranes of the eye. In rare cases, rabies can be acquired by inhalation (e.g. in bat caves), via infected corneal transplants, or when infected brain tissue makes contact with a fresh skin wound. Infection is unlikely after virus exposure to unbroken skin or wounds over 24 hours old with a scab. Rabies virus has not been isolated from skunk spray.

### **What are the common sources of rabies in Nebraska?**

Wildlife, especially skunks and bats, are the primary reservoir of rabies. The striped skunk (*Mephitis mephitis*) is frequently the source of rabies exposure to domestic livestock and pets and accounted for 70 percent of the Nebraska positive rabies diagnosis during 2001-2003. Skunks are able to harbor the rabies virus in their bodies for extended periods without showing signs. Stressors such as fighting, poor nutrition, or reproduction may trigger the onset of clinical signs. Because skunks are highly susceptible to rabies, any skunk should be considered a possible source of the virus. Rabies outbreaks are most common when skunk populations reach high numbers and the opportunity for transmission is greatest. As rabies-infected skunks die, and the skunk population dwindles, the probability of rabies transmission declines.

Dogs, cats, cattle, and horses have commonly been infected with rabies from wildlife and these domestic animals often serve as the source of rabies exposure to people. Often a single domestic animal becomes the source of exposure of rabies to multiple people.

Brown bat bites are also an important source of human exposure to rabies virus. Due to their small size, any physical contact with a flying bat may constitute tooth (and saliva) exposure. Because a bat bite is small and easy to overlook, finding a bat in a room with a sleeping person, the elderly or very young, or anyone unable to understand and communicate well should be considered a potential bite exposure.

### **How is rabies diagnosed?**

The brain of the animal suspected of having rabies must be microscopically examined in a laboratory. Therefore, it is especially important that the head (brain) of suspected animals is not damaged when they are humanely killed. A rabies-vaccinated pet that bites someone or is suspected of rabies may be quarantined for 10 days instead of being humanely killed for rabies testing. Dogs and cats die within 10 days of showing clinical signs of the disease; therefore, animals that remain healthy throughout this period do not have rabies.

### **What should I do if bitten by an animal?**

First, thoroughly wash the wound with soap and hot water, then positively identify the biting animal and confine it, if you can do so safely. Contact your physician immediately for their recommendations. If the animal tests positive for rabies, or cannot be captured, then rabies post-exposure treatments may be necessary. This program consists of an injection of antibodies against rabies and five injections of rabies vaccine over a four-week period. Rabies in humans is fatal without treatment. Post-exposure treatment is very effective; however, the treatment must be administered before signs of rabies occur.

### **How can I lower my chances of contracting rabies?**

Vaccinating pets against rabies protects them and also protects you from being exposed to rabies through them. Wear plastic gloves if you must handle your pets after a wildlife encounter. Rabies vaccine is also available for horses, cattle and sheep. If pets or livestock are acting strangely and drooling, they should be examined by a veterinarian. Don't put your bare hands in their mouths.

Stay clear of stray animals and avoid wildlife that act abnormally; report them to animal control authorities. Clean up piles of brush or debris that would provide attractive habitat for skunks and be careful not to attract them with food left out for pets.

**File under: ANIMALS DISEASES**

**G-6, Diseases, General**

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