

# Equine Rabies

*Rabies in horses is 100% fatal, and nearly 100% preventable with proper vaccination*

## Overview

Rabies is a life-threatening neurological disease that can affect all warm-blooded animals, including horses, dogs, cats, skunks, wolves, foxes, raccoons, and bats. While rabies is relatively rare in horses—usually fewer than 100 horses are infected in the United States every year—it is an important disease because it is zoonotic. That is, it can be spread to humans.

Rabies is caused by a lyssavirus that infects the nervous system and salivary glands. The rabies virus is almost always spread directly between animals through the saliva through the bite of an infected animal. Alternately, an animal can become infected if the saliva from an infected mammal contaminates an open wound or a mucous membrane (e.g., the lining of the mouth, eyes, or nasal cavity).

The rabies virus spreads to the central nervous system (i.e., the brain and spinal cord) via peripheral spinal nerves. The virus then infects the brain, causing massive encephalitis (inflammation of the brain) and subsequently spreads to the salivary glands, where it replicates and is shed.

Rabies virus is typically present in the saliva of clinically ill mammals and transmitted by bites. After entering the central nervous system of the next host, the virus causes an acute, progressive encephalomyelitis that is almost always fatal. The incubation period in humans ranges from days to years.

Exposed humans, if treated in time, can survive if they receive prompt medical attention. According to the Centers for Disease Control, two of the eight human rabies cases in 2004 resulted from bat exposures. One of those rabies patients recovered. Rabies was not immediately recognized as the cause of death in the other patient, and organs and a vascular



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graft from that patient were transplanted into four people, resulting in clinical rabies and death in all of the recipients.

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## Clinical Signs

Horses often become infected when they explore an abnormally behaving wild animal when on pasture and are accidentally bitten on the muzzle, head, or lower limbs. Horses begin to show clinical signs of disease usually between two to six weeks post-exposure, but it can sometimes take up to 12 weeks before the clinical signs are obvious. Therefore there is ample time for an unsuspecting owner to be exposed because a horse isn't acting "just right."

The clinical signs of rabies are widely variable, making a definitive diagnosis extremely challenging. The most common clinical signs of rabies are characteristic of profound disturbances of the central nervous system, such as behavior changes. Specifically, infected horses are often dull and depressed, but can become aggressive or fearful.

Depending on the severity of the case, horses can be ataxic (incoordinated), exhibit headpressing, circling, have difficulty swallowing, exhibit muscle tremors or convulsions, be unable to rise (recumbent), or fall into a semi-coma or coma.

Additional, more subtle signs can include a low-grade fever, lameness, tenesmus (painful spasm of the anal sphincter), dilated pupils and photophobia (aversion to light), continual chewing and biting, tenderness at the site where the bite occurred, and hyperesthesia (hypersensitivity to stimulus).

Due to the generality and range of the clinical signs, rabies can be challenging to diagnose. Other diseases that can be mistaken for rabies are plentiful and include tetanus, the neurologic form of equine herpesvirus (EHV-1), other viral causes of encephalomyelitis (e.g., Eastern, Western, and Venezuelan equine encephalomyelitis), West Nile virus, equine protozoal myeloencephalitis (EPM), and botulism. Other problems with clinical signs that rabies can mimic include lead poisoning and trauma to the head or spinal cord.

## Diagnosis

Since rabies is a zoonotic disease, any horse exhibiting any clinical signs that could be associated with rabies should be examined by a veterinarian. Rabies can only be diagnosed post-mortem by submitting the horse's head to a local public health laboratory to identify the rabies virus using a test called fluorescence antibody.

Therefore, ensuring that all other potential diseases have been ruled out is very important in these cases.

### Treatment

There is no treatment for horses diagnosed with rabies. Once clinical signs are apparent, the disease is invariably fatal.

Vaccinated horses with a known exposure to a rabid animal need to be isolated from other horses and animals and monitored for signs of disease for at least six months post-exposure. People that were in contact with a rabid horse might be advised to receive post-exposure rabies treatment.

### Prognosis

Once horses show clinical signs of rabies, death generally occurs in two to four days. In horses receiving supportive care (e.g., horses that are being tested to rule out other neurological disease), it can take up to two weeks before a horse succumbs.

Rabies is a reportable disease. All horses with behavioral changes and central nervous system disorders should be examined by a veterinarian as soon as possible to minimize human exposure to the rabies virus.

### Prevention

The best prevention for rabies is vaccination. Commercially available vaccines are safe and extremely effective. According to the American Association of Equine Practitioner's (AAEP) vaccination guidelines, adult horses should be vaccinated annually and mares in foal should be vaccinated four to six weeks pre-partum or before breeding. Foals and weanlings less than 12 months of age are administered an initial series of three vaccines. The timing is dependent on the vaccination status of the mare. Thereafter, horses are vaccinated annually.

In addition, dogs and cats that reside on the premises should also be vaccinated against rabies to limit the spread of disease from wild animal populations to resident horses.

Since it is still possible for vaccinated horses to become infected with rabies (albeit exceedingly rare), additional preventative measures are important and involve controlling wild animals that could potentially carry rabies. Do not adopt wild animals as pets, and report the presence of wild animals that are exhibiting abnormal behaviors to your veterinarian. 🐾

## FAST FACTS

- Rabies is a fatal neurological disease of horses caused by a lyssavirus.
- Affected horses can show a wide range of clinical signs, the majority of which are behavioral.
- Diagnosis of rabies is challenging based on clinical signs and is often made by ruling out all other possible neurological diseases.
- A definitive diagnosis is made by submitting the head of a suspected rabid horse to a public health laboratory for testing.
- There is no treatment for rabies, and once clinical signs are observed, the disease is invariably fatal.
- Prevention is key and is centered on vaccination of all animals residing on the farm and minimizing contact between wildlife and horses.



To watch a webcast on equine rabies presented by Steve Reed, DVM, Dipl. ACVIM, go to [TheHorse.com/Webinars.com](http://TheHorse.com/Webinars.com).



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