



MANAGEMENT

Rabies in Horses: Should Horses be Vaccinated in Colorado? no. 1.819

by N. Striegel¹

Quick Facts...

Rabies is caused by a virus of the Rhabdovirus family.

Rabies is transmitted via saliva, most commonly through bite wounds from an infected wild animal bite.

Symptoms can appear in as little time as two weeks but can take up to one year for clinical signs to appear. On the average, symptoms will be seen four to eight weeks after exposure.

Rabies causes rapidly progressive neurological disease.

Death can occur within two to four days after the horse begins to show clinical signs, or up to two weeks later with supportive care.

Rabies in horses is caused by a virus of the Rhabdovirus family and causes a severe, rapidly progressive neurological disease. It is transmitted via saliva, most commonly through bite wounds from an infected wild animal bite. Symptoms can appear in as little time as two weeks but can take up to one year for clinical signs to appear. On the average, symptoms will be seen four to eight weeks after the exposure. Death usually occurs within two to four days after the horse begins to show clinical signs, although death may not occur until up to two weeks later with supportive care.

The incidence of rabies in skunks has increased dramatically in Colorado in 2008. Skunks are the most common species involved in the transmission of rabies virus to horses. Rabies is transmitted from infected animals to other species through a bite or by the introduction of virus-laden saliva into a fresh wound, cut or mucous membrane. A rabies-infected horse can expose owners, veterinary personnel, and many other people to rabies. There is no treatment for rabies once an animal becomes infected so veterinary medical and public health efforts have traditionally been focused on prevention. Veterinarians and public health professionals have always recommended vaccination of dogs and cats to prevent infection and to reduce the incidence of rabies in humans in whom it is also a fatal disease.

Should horses in Colorado or in other states be vaccinated? Owners will have to weigh the incidence of terrestrial wildlife rabies in their geographical location, the risk of human exposure and contracting rabies, the possible financial costs, the potential emotional loss of their horse, and the cost of the vaccination procedure. Horse owners should seek out the recommendation of their veterinarian who is a valuable resource for their horse's health!

Rabies in Horses

Once the virus enters the body by a bite wound, it migrates through the peripheral nerves to the spinal cord, and then travels up the spinal cord to the brain. From the brain the virus migrates to the salivary glands where it replicates and is shed in high quantities in the saliva. At this point, the infected animal can expose others through its saliva. While the symptoms of rabies in the horse may take two weeks up to one year to appear after exposure, the animal is NOT infectious until clinical signs of rabies are becoming noticeable.

Clinical signs of rabies can also vary immensely. It does cause severe, rapidly progressive encephalitis (inflammation of the brain).

Some of the signs that can be present are:

- Depression with loss of appetite
- A low-grade fever
- Lameness and / or incoordination

**Colorado
State
University**

Extension

- Other neurological symptoms, including convulsions
- Increased sensitivity to being touched
- Abdominal pain or colic (straining to urinate or defecate)
- Swallowing problems and drooling
- Odd behavioral changes, nervousness, irritability

Once a horse shows symptoms of rabies, the disease progresses rapidly. The horse will usually die within two days to two weeks after it starts showing clinical signs of rabies.

Diagnosis is difficult in the course of the infection because the symptoms can mimic many other diseases. Rabies should be suspected in all equine cases that show a sudden onset of rapidly progressing neurological signs. Rabies can only be diagnosed with a laboratory test performed on brain tissue. The fluorescent antibody (FA) test that is used is accurate and can be performed quickly once the brain of the affected animal is submitted to an approved diagnostic lab. The diagnosis can be further confirmed by virus isolation and mouse inoculation tests.

Prevention and control is through vaccination and decreased exposure to wild animals in areas where rabies is known to be circulating in a terrestrial species. Obviously, it is not possible to prevent contact with wild animals. However, the best prevention is to vaccinate horses against rabies. There are a number of commercial vaccines approved for horses. (See additional information under Vaccination Recommendations.)

• *In 2005, there were 44 positive cases of rabies – all of these positives were bats.*

• *In 2006, there were 70 cases of rabies in Colorado – all bats, no skunk cases.*

• *From January 2007 through August 2008, there have been 18 positive cases of skunk rabies.*

• *Skunks are the most common species involved in the transmission of rabies virus to horses.*

Incidence of Rabies in Colorado

The incidence of rabies in the United States is well documented by state public health departments. Rabies surveillance figures from Colorado in 2005 showed that there were 44 positive cases of rabies – all of these positives were bats. In 2006, there were 70 cases of rabies in Colorado – again all were bats, no skunk cases. In fact, for the past 30 years, bats have been the only rabies reservoir reported in Colorado. However, that changed recently with an increase in positive cases of rabies diagnosed in skunks in eastern Colorado counties.

From 1/1/2007 until 8/21/08, the Colorado Department of Public Health and Environment has reported 18 positive cases of skunk rabies. This is a dramatic change! Prior to 2007, the last positive skunk rabies case was in 1994. Skunks are highly efficient at transmitting rabies virus to other species, called spill-over infections. Spill-over infections have been documented with a positive raccoon, a positive cat, and a positive coyote reported from eastern Colorado in areas where skunk rabies is circulating.

If you look at a U.S. map of the distribution of skunk rabies, it seems to stop right at the eastern Colorado state border. That is not the case anymore. Positive skunk rabies cases have been documented in several eastern Colorado counties. The concern is that the virus is moving westward towards the Front Range of Colorado. Counties along the Front Range are more populous in people and horses and so there is a potential risk to humans, dogs, cats, livestock, and horses.

Vaccination Recommendations for Horses in Colorado

Certainly, the best recommendation is to seek the advice of your veterinarian who knows your horse management situation, the individual health of your horse, and is familiar with the incidence and risk of equine diseases in your geographical locale. Your veterinarian's advice is based on their experience and the recommendations of experts in the field of equine preventive medicine.

The American Association of Equine Practitioners (AAEP) has recently included rabies in their "core vaccinations" and defined a recommended

vaccination schedule. According to the American Veterinary Medical Association, core vaccinations are the immunizations “that protect from diseases that are endemic to a region, those with potential public health significance, required by law, virulent/highly infectious, and/or those posing a risk of severe disease. Core vaccines have clearly demonstrated efficacy and safety, and thus exhibit a high enough level of patient benefit and low enough level of risk to justify their use in the majority of patients.”

Because it is difficult to diagnose rabies until the infection is advanced, many horse owners and others can be exposed to the virus-laden saliva of an infected horse.

Many states have urged their horse owners to vaccinate their horses against the rabies virus. Maryland, Vermont, Kentucky, Minnesota, and others have made these recommendations to horse owners but also have a higher incidence of rabies in skunks and raccoons.

The 2008 Compendium of Animal Rabies Prevention and Control published by the National Association of State Public Health Veterinarians (NASPHV) has written the following under the section of principles of prevention and control for livestock:

“Consideration should be given to vaccinating livestock that are particularly valuable. Animals that have frequent contact with humans (e.g., in petting zoos, fairs, and other public exhibitions) and horses traveling interstate should be currently vaccinated against rabies”

Any human exposed to rabies will have to go through post-exposure treatment and incur significant emotional distress and cost of treatment. The best method to prevent human exposure is to insure that horses, livestock and pets are protected against rabies with current vaccinations.

Another risk consideration is the personal and public health issues involved with a case of rabies in a horse. Because it is difficult to diagnose rabies until the infection is advanced, many horse owners and others can be exposed to the virus-laden saliva of an infected horse. Any human who is exposed will have to go through post-exposure treatment and incur significant emotional distress and cost of treatment. The best method to prevent human exposure is to insure that horses, livestock and pets are protected against rabies with current vaccinations.

There are commercial vaccines available to protect against rabies and for adult horses an annual vaccination is recommended. Foals and brood mares fall into a different immunization schedule. The immunization schedule recommended by the American Association of Equine Practitioners (AAEP) can be found on their website at the following Internet address: http://www.aaep.org/vaccination_guidelines.htm

Summary

In the end, it is the horse owner’s decision whether to vaccinate or not to vaccinate. It has become a vital question to ponder for horse owners in Colorado. Rabies in horses is fairly rare but it would seem after considering the recommendations of veterinarians, the incidence of wildlife rabies, and the course of the disease, the benefits of vaccinating horses for rabies may outweigh other potential reasons for not vaccinating horses in Colorado.

Consult with your veterinarian about vaccinating your horse against rabies. Do not handle wild animals or do any feeding around the house that may attract them to come closer to your family. If you see any wild animals that are acting strange, showing neurological symptoms, or showing odd behavior such as nocturnal animals (skunks and raccoons) being active during the day - contact your animal control officials or your local public health department.

References

- American Association of Equine Practitioners. (2008). Guidelines for the Vaccination of Horses. Retrieved July 20, 2008, from http://www.aaep.org/vaccination_guidelines.htm
- Blanton, J. D., Hanlon, C. A., & Rupprecht, C. E. (2007). Rabies Surveillance in the United States During 2006. *Journal of the American Veterinary Medical Association*, 231(4), 540-556.
- Colorado Department of Public Health & Environment. (2008). Rabies. Retrieved July 22, 2008, from <http://www.cdphe.state.co.us/dc/zoonosis/rabies/>
- Cooperative Extension Service, University of Kentucky. (2008), Rabies in Horses. *Cooperative Extension Service Newsletter*, 2008, 1-2.
- eXtension.org. (2007). Rabies in Horses. Retrieved July 20, 2008, from http://www.extension.org/pages/Rabies_in_horse
- eXtension.org. (2008). Equine Rabies Vaccine Urged in Maryland. Retrieved July 20, 2008, from <http://www.extension.org/pages/Equine+Rabies+Vaccine+Urged+in+Maryland>
- Green, S. L. (1997). Rabies. *The Veterinary Clinics of North America. Equine Practice*, 13(1), 1-11.
- Marx, M. B., & Sikes, R. K. (1966). Immunizing Horses Against Rabies. *Journal of the American Veterinary Medical Association*, 149(9), 1159-1161.
- National Association of State Public Health Veterinarians (NASPHV). (2008). *Compendium of Animal Rabies Prevention and Control, 2008*. *JAVMA*, 232(10), 1478-1486.
- Schroeder, W. G. (1969). Suggestions for handling horses exposed to rabies. *Journal of the American Veterinary Medical Association*, 155(12), 1842-1843.