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NEBRASKA EQUINE VETERINARY CLINIC

## **Neurologic Rhino (EHV-1) Overview**

This past spring, Nebraska was added to the list of states affected through horses testing positive to EHV-1. Two horses attending the Barrel Bash on April 10th held at the Lancaster Event Center in Lincoln tested positive. Both were euthanized after returning to their home state. This article is meant to give an overview of Neurologic Rhino affecting equines.

### What is EHV?

EHV is an acronym for Equine Herpes Virus. These are very common viruses in horses worldwide. Almost all horses have been infected with this virus and typically have no serious side effects. EHV is a herpes virus and almost all horses are exposed to this virus before they are two years of age. One characteristic of herpes viruses is they can become latent within the body. Therefore, the virus is present within the horse's body, but the horse has no symptoms. When horses are stressed such as trailing to a show, weaning, or hard work, the virus that is latent may become active, causing symptoms and being shed. This is the reason it is so hard to prevent the spread of the disease since most horses already are infected with a latent state.

EHV is made up of a family of different viruses which are differentiated by numbers. EHV 1, 3, 4 pose the most serious health risk for horses. EHV-1 is the virus we will focus on for this article since it is the virus which is responsible for what is referred to as neurologic rhino or equine herpesvirus myeloencephalopathy (EHM).



The two most common forms of EHV we see in horses is EHV-1 and EHV-4. EHV-4 is often responsible for respiratory symptoms seen mostly in weanling foals and yearlings, often in the fall and winter months. EHV-1 can cause respiratory symptoms (snotty nose, fever, and cough), abortion in mares, and neurologic disease (stumbling, incoordination, not able to rise). Neurologic rhino, EHM (equine myeloencephalopathy), is a result of being infected with EHV-1 causing a widespread vascularitis (damaged blood vessels) in the spinal cord and brain. This is accompanied by swelling and inflammation in the spinal cord and brain, causing the horse to lose its ability to balance properly. If the infection is severe, then the tissue in the brain and spinal column may be damaged beyond repair, and the horse will be permanently damaged.

## How is EHV spread?

EHV-1 is spread from horse to horse by nasal secretions from the respiratory tract. This can be through direct contact between horses or coming into contact with something that has been



contaminated in the environment such as human hands and clothing, equipment or tack, feed and water buckets, grooming equipment, etc. The immediate air around an infected and shedding horse can harbor virus particles, but the distance they would be able to travel is unclear. The virus is estimated to be viable for up to 7 days in the environment under normal circumstances, but it could remain alive for up to 30 days under perfect environmental conditions (cool, moist environment).

## EHV-1 Symptoms

- Fever preceding neurologic signs
- Decreased coordination (stumbling, weak, drunk acting)
- Dribbling urine
- Weak hind end and tail
- Leaning often against an object such as barn or fence
- Lethargy
- Inability to rise

## Understanding terminology associated with EHV-1

Neuropathogenic and Non-Neuropathogenic strains are terms used to describe this virus. These are two different strains of the virus differentiated by a single portion of a gene within their DNA. Neuropathogenic (D<sub>752</sub>) is the strain that has been isolated from horses with the neurologic disease more commonly than the alternative strain, Non-Neuropathogenic (N<sub>752</sub>). But both have been isolated from horses with neurologic disease, which makes the terms seem confusing since they both can cause neurologic disease; just one is more likely than the other.

What is the wild type strain? The non-neuropathogenic (N<sub>752</sub>) has sometimes been termed the “wild type” strain, implying that the neuropathogenic (D<sub>752</sub>) strain is a mutation or new virus. This does not seem to be true since both these viruses have been archived and identified for over 50 years. Thus the term “wild type” has no basis or meaning and should be discontinued and not used.

## Protecting your horse from EHV-1

*Is there a vaccine that will protect horses from acquiring the neurologic disease caused by EHV-1?* At this time there is not a vaccine available that prevents neurologic EHV-1. Some EHV-1 vaccines have been shown to reduce nasal shedding of the virus which in theory should help decrease the overall spread of the disease within a horse population. Therefore horses should be kept current on their vaccinations. At this practice we currently recommend vaccinating horses twice a year, spring and fall, if they are being shown, in contact with other horses, or at a boarding facility. Some shows or events have implemented different guidelines and require horses to be vaccinated prior to attending. A somewhat common recommendation or requirement is to booster your horse with rhino between 90 and 14 days prior to attending the show. It would be wise to contact the show office and ask if there are any requirements well in advance of the show.

Biosecurity measures should also be followed while your horse is traveling. Common sense measures to reduce potential exposure would be recommended. Some examples would be to limit any horse-to-horse contact, don't share feeding and or watering devices, be cognizant of handling one horse and then handling another potentially spreading the virus on your hands or clothing, etc.



## Most recent updates pertaining to EHV-1

Up through August 2014, there is yet to be a confirmed case of neurologic EHV-1 in the state of Nebraska. This past spring, April, there were two horses competing at a barrel race event in Lincoln who became ill after leaving the event and returning home. It is suspected that they were exposed to the virus at the barrel event, but this has not been confirmed. They could have also been harboring the virus within their body and the stress of the event triggered it to become active. Also at that time there was active cases of neurologic EHV-1 in Minnesota, Wisconsin and Iowa. Both these horses were diagnosed to have the neurologic form of EHV-1, and both horses were euthanized, one in Wisconsin and the other in Kansas. Since that time there have been no new cases in Iowa or Nebraska.

In conclusion EHV-1 is a real concern for horse owners. The disease is not completely understood, and we have no reasonable fool-proof way to protect horses. The death rate is significantly high if a horse becomes infected. Thus horse owners need to make good decisions while traveling or around other horses. If there are questions, please call our office and a veterinarian can help provide answers.