

Equine Herpes Myeloencephalopathy

What is Equine Herpes Virus?

Equine Herpes Virus-1 (EHV-1) is a virus that is present in the environment and found in most horses all over the world. Horses are typically exposed to the virus at a young age with no serious side effects.

Are there different strains of EHV-1?

There are two strains of EHV-1:

- The wild-type (aka non-neuropathogenic) strain; and
- The mutant-type (aka neuropathogenic) strain of EHV-1.

It is important to note that neurologic symptoms have been identified with both strains of the virus.

What is Equine Herpes Myeloencephalopathy (EHM)?

EHM is the neurological disease syndrome caused by the EHV-1. In this syndrome, the EHV-1 virus damages blood vessels in the brain and spinal cord causing the various neurologic clinical signs.

Are all equids susceptible to EHV-1?

All equids are susceptible to EHV-1. Mules are asymptomatic shedders, also known as silent shedders of the virus, as they seldom show clinical signs of the disease but can shed the EHV-1 virus in their nasal secretions. Biosecurity protocols should be enhanced when horses and mules are comingled on a premise.

Are other animal species susceptible to infection with EHV-1?

There are rare reports of disease caused by EHV-1 in alpacas, llamas, and guinea pigs. The disease does not affect other livestock, cats, or dogs.

Can humans be infected with EHV-1?

EHV-1 is not transmissible to humans.

How is the virus shed from an infected horse?

Horses infected with EHV-1 shed the virus in their nasal secretions. Respiratory shedding of the virus generally occurs for 7-10 days, but may persist longer in infected horses. Horses that have been exposed to the virus, but are not showing clinical signs of disease can shed virus.

How does the disease spread?

EHV-1 is spread by direct horse-to-horse contact. The virus may also be spread indirectly through contact with objects contaminated with the virus, such as clothing, human hands, equipment, tack, trailers, feed, water buckets, and wash rags. The virus can become airborne but only for short distances.

How long can the virus live in the environment?

It is estimated that the virus remains viable on clothes and human hands for 4-6 hours. In the environment under normal circumstances, the virus is estimated to be viable for up to seven days; however, it may survive for a maximum of one month under moist conditions away from sunlight.

What are the clinical signs of EHM?

Clinical signs of EHM in horses may include fever, nasal discharge, limb edema, incoordination, hind-quarter weakness, recumbence, lethargy, urine dribbling, and diminished tail tone.

How soon after exposure can a horse show clinical signs of disease?

The EHV-1 incubation period is defined as the period of time from exposure of the horse to the virus, to the time the horse displays clinical signs of disease. The incubation period for EHM is typically from 2-10 days, but may be as short as 24 hours or as long as 14 days. The clinical sign of fever typically precedes respiratory signs and limb edema. Neurologic signs may appear suddenly, progress rapidly and peak in intensity within 24-48 hours from the onset of neurologic signs.

What is the likelihood that a EHV-1/EHM exposed horse will get sick and die?

There is little published field data regarding the incidence of illness and death in exposed horses. Studies indicate that:

- 80% of infected horses will display a fever,
- 30-35% of infected horses will develop neurologic signs; and
- 5-15% of infected horses will die or be euthanized.

Long term prognosis is good for infected horses that survive.

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Is there a treatment for EHM?

Supportive treatments for EHM include administration of intravenous fluids, anti-inflammatory drugs, antiviral drugs, and other appropriate supportive therapies.

Are antiviral drugs effective against EHM?

In horses with a high risk of exposure, that develop a fever, or test positive for EHV-1, the administration of antiviral drugs may decrease the chance of the horse developing neurologic signs of the disease.

Are vaccines protective against EHM available?

There are no United States Department of Agriculture (USDA) licensed EHV-1 vaccines with label claims of protection against the neurologic symptoms of EHM. Limited research results do indicate that some EHV-1 vaccines have been shown to reduce nasal shedding of the virus and, in some cases, reduce the amount of virus present in the blood of an infected horse. The decision to vaccinate should be made after consultation with your private veterinarian.

How is EHM diagnosed?

EHV-1 virus positive samples and compatible clinical signs.

What type of samples should be collected?

A veterinarian should obtain both nasal swabs and blood samples from an exposed horse with clinical signs of EHV-1.

Can a laboratory determine EHV-1 strain type?

EHV-1 strain subtyping can be done on nasal swabs and blood samples. The laboratory differentiates the strains based on the genetic makeup of the virus in the sample.

Which horses should be sampled for testing?

Only horses displaying clinical signs should be tested. Since EHV-1 is considered to be endemic within the horse population, random testing of normal horses is not recommended as it can, and likely will, detect horses positive for EHV-1. Those positive horses may represent transient presence of virus or viral levels that are not sufficient to pose a significant risk of transmission of infection.

When should a sample be taken from a clinical horse?

The optimal window for nasal swab sampling is at onset of clinical signs. It is important to keep in mind that samples collected represent one point in time and viral shedding changes over the course of the infection and may be intermittent.

If a horse has neurologic signs but tested negative on the initial test, should it be re-tested?

In some situations, where initial testing was negative for EHV-1 but EHV infection is suspected, repeat sampling within 2-4 days of onset of clinical signs may be warranted. The amount of EHV-1 DNA detected in nasal swabs varies from horse to horse over the course of disease and does not necessarily correlate with the severity of disease.

If a horse tested negative on the nasal swab but positive on the blood sample, what does this mean?

A positive EHV-1 result from a blood sample indicates viremia (presence of virus in the blood) and an active infection. A negative result on nasal swab indicates the absence of detectable virus shedding at the time of sampling, provided that appropriate sampling, collecting, and shipping protocols were followed.

Where should suspected cases of EHM be reported?

In California, any suspected cases of EHM should be reported to the California Department of Food and Agriculture (CDFA) Animal Health Branch (AHB) headquarter or district offices.

If a horse is exposed, what should be done to monitor that horse for EHM?

Owners of exposed or potentially exposed horses should monitor the rectal temperature on each horse two times a day. If a temperature reading above 101.5°F occurs or other clinical signs of disease are observed, immediately contact your private veterinarian for evaluation of the horse and preferably collection of nasal swabs and blood for laboratory testing.

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What disinfectants are effective against EHV-1?

Herpes viruses are susceptible to many disinfectants. In general, 1:10 dilution of bleach to water is effective against EHV-1. However, both alcohol and bleach disinfectants are inactivated by organic matter, such as manure and soil.

Therefore, prior to the disinfection process, all areas must be thoroughly cleaned with soap or detergent to decrease the organic matter present before use of these products. In barn environments, where organic material cannot be completely eliminated, it is advisable to use a disinfectant that retains activity in the presence of organic matter such as Intervention®, 1 Stroke Environ®, SynPhenol-3®, or Virkon®. Be sure to follow manufacturer recommendations and label instructions for the disinfectant.

What biosecurity measures should be implemented for EHV-1 positive or suspect horses?

- Isolate any suspect, exposed, or confirmed positive EHV-1/ EHM horses,
- Restrict access of personnel to isolation area,
- Wear protective clothing including coveralls, rubber boots or plastic boots when entering the stall or contacting an EHV-1/EHM suspect, exposed or confirmed positive horse. All protective clothing should be disposed of or washed before contacting any other horses,
- Use disinfectant-saturated foot mats or foot baths filled with disinfectant at entry or exit doors to barns and stalls. Be certain to change foot bath solutions frequently since the presence of organic matter may deactivate the disinfectant,
- Wear disposable gloves while handling infected animals. Thoroughly wash your hands with soap and water between contacts with horses,
- Always handle healthy animals first and sick animals last; and
- Use separate grooming, feeding, and handling equipment for each horse.

Reportable Disease Alert

Equine Herpes Myeloencephalopathy (EHM) is a reportable disease (pursuant to §9101 of the California FAC, Title 3 California CR §797 and Title 9 CFR §161.4(f)) and must be reported within two days of discovery. If your horse is exhibiting clinical signs consistent with EHM or may have been exposed please contact your private practitioner or CDFA officials.

[Reportable Disease List](#)

Animal Health and Food Safety Services Animal Health Branch

Headquarters - (916) 900-5002

Redding District - (530) 225-2140

Modesto District - (209) 491-9350

Tulare District - (559) 685-3500

Ontario District - (909) 947-5932

USDA-APHIS (916) 854-3950 or (877) 741-3690

For more information visit https://www.cdfa.ca.gov/ahfss/Animal_Health/Equine_herpes_virus.html