

Equine Herpesvirus

Definition

Equine herpesvirus is a common DNA virus that occurs in horse populations worldwide. The two most common strains are EHV-1, which causes abortion, respiratory disease and neurologic disease; and EHV-4, which usually causes respiratory disease only but can occasionally cause abortion.

Respiratory disease caused by EHV is most common in weaned foals and yearlings, often in autumn and winter. Older horses are more likely than younger ones to transmit the virus without showing signs of infection. Although EHV-1 causes outbreaks of abortion, EHV-4 has only been associated with single occurrences and is not considered a risk for contagious abortions.

EHV-1 myeloencephalitis results from widespread vascular injury after damage to the vascular endothelium of the blood-brain barrier. Neurologic signs result from vasculitis, thrombosis, and necrosis of neurologic tissue. Herpesvirus myeloencephalitis cases occur singly or as outbreaks affecting 20-50% of the population. They may or may not be associated with a previous or ongoing EHV-1 respiratory disease outbreak.

Clinical Signs

Fever—commonly precedes other clinical signs, but may be the only clinical sign and goes undetected, therefore, temperature monitoring twice a day is suggested.

Respiratory disease

- Fever
- Coughing
- Nasal discharge

Neonatal foals infected in utero are usually abnormal from birth:

- Weakness
- Jaundice
- Respiratory distress/stridor
- CNS signs (occasionally)
- Death commonly occurs within 3 days.

Older foals: nasal discharge is most common sign of illness.

Abortion

- Usually no warning signs of impending abortion
- Typically occurs late pregnancy (8+ months); occasionally as early as 4 months.

Neurologic disease:

- Incoordination of the hind (and occasionally fore) limbs
- Urine retention/dribbling
- Bladder atony
- Recumbency
- Neurologic signs may be preceded by fever and respiratory signs.

Incubation

After infection by any route, incubation period may be as short as 24 hours, is typically 4-6 days, but can be longer.

EHV abortion can occur from two weeks to several months following infection with the virus.

Transmission

Aerosol transmission (most common route)

Inhalation of droplets from coughing and snorting.

Note: EHV is not as easily spread by this route as is Equine Influenza virus.

Mares who have aborted, or whose foals have died, transmit infection via the respiratory route.

Shedding by the respiratory route typically lasts for 7-10 days, but can persist much longer. Therefore a 28-day isolation period is recommended after diagnosis.

Indirect transmission

Virus can be viable for several weeks in the environment once it has been shed by the horse.

Fomites are a significant factor in EHV contagion as compared to influenza virus.

Aborted fetuses, fetal membranes and/or fluids are significant sources of infection.

Infected foals are highly contagious and can transmit infection to other horses via the respiratory route *and* by shedding virus into the environment.

Diagnostic Testing

Virus Isolation - It is important to obtain both nasal swab and whole blood in anticoagulant such as EDTA when collecting specimens for EHV-1 testing on suspect cases.

PCR - It is important to request PCR as well as virus isolation when testing for EHV-1. It is also important to obtain both nasal swab and whole blood in anticoagulant such as EDTA when collecting specimens for EHV-1 testing.

The [ACVIM consensus statement](#) indicates that real time PCR is more sensitive than conventional PCR. Real-Time PCR testing is recommended over conventional PCR testing. Note: Real-Time PCR will allow for more sensitive detection, greater specificity, and calculation of viral load.

Serology - Serological diagnosis using Viral Neutralization titers (synonym: Serum Neutralization titers) cannot distinguish between EHV-1 and EHV-4. Nevertheless, in combination with specific clinical signs, a four-fold rise in titer can assist in diagnosis. When a single virus neutralization titer is very high (typically 1:1024 to 1:2048 or greater) this is likely to be the result of recent infection rather than vaccination.

Complement fixation titers have been reported to be useful in diagnosis of recent infection; however, commercial testing is currently unavailable in N. America.

A commercial test kit, suitable for use in practice, is available for detection and differentiation of EHV-1 and EHV-4 specific antibodies directed against a viral glycoprotein called gG (Svanovir™: www.svanova.com).

Contact your diagnostic laboratory for specific instructions regarding sample procurement and further information regarding sampling.

Shedding Time of Organism Past Resolution of Clinical Signs

Likely for up to a week, possible for 21 days or more.

Recovered horses typically develop latent infections and are capable of shedding virus (with or without clinical disease) particularly at times of stress for the remainder of their lives.

Environmental Persistence

Environmental transmission plays a minor role in the maintenance of virus in the horse population since environmental persistence of EHV-1 is short, estimated to be no more than 35 days under ideal conditions and probably less than 7 days in most practical field situations.

Specific Control Measures

Biosecurity Guidelines

Vaccination

Booster vaccination of healthy animals in primary and secondary contagion control perimeter may have some value, and is not known to lead to complications. If animals are unvaccinated prior to the outbreak there is unlikely to be time to administer an effective vaccination series during the risk period.

Clinically normal horses housed within the primary perimeter may be permitted segregated exercise periods outside the perimeter. Precautions should be taken, and may include:

Exercise scheduled *after* general population's exercise period to avoid potential virus transfer to unaffected horses/barns by exercise riders. It is recommended to avoid strenuous exercise in at risk horses.

Access to starting gate or similar equipment denied.

Restricted use of ponies/outriders' horses—horses housed within the primary perimeter may only be escorted by horses housed within the same facility.

Direct horse-to-horse contact is to be avoided.

Prompt post-contact use of hand sanitizer by individuals having contact with horses during exercise.

Release of animals from isolation

Maintain isolation procedures (primary perimeter) for 28 days after last suspected new infection. In the absence of clinical disease, the risk of exposure decreases with time. A shorter quarantine period maybe justified, such as 21 days, if during this time no horse has had any fever (temperature taken at least 24 hours without treatment with non-steroidal drug), abortion or neurologic signs and all exposed horses are tested and have a negative test result using nasal swabs for EHV-1 by Real-Time-PCR. There should be complinace with requirements by state animal health officials for duration of quarantine and testing.

Biosecurity Issues for Receiving Animals

Horses having been housed within primary perimeter:

Isolate from general population for 28 days

Horses having been housed within secondary biosecurity perimeter:

After having determined its level of risk-aversion, the recipient facility may consider the following:

Vaccination requirements for entrance into facility

Health certificate specifications

Testing (negative PCR from nasal swab)

Update vaccination for animals at recipient facility before arrival of potentially infected/exposed animal.

Zoonotic Potential

None known.