

EQUINE HERPES VIRUS: FACT SHEET

Original source: American Association of Equine Practitioners (www.aaep.org), with additional information provided by Dr. Katharina Lohmann, Department of Large Animal Clinical Sciences, Western College of Veterinary Medicine (www.wcvm.com).

Definition

Equine herpes virus (EHV) is a common virus occurring in horse populations worldwide. The most common strains are EHV-1 and EHV-4. EHV-1 can cause respiratory diseases, abortions and neurologic disease, while EHV-4 typically causes respiratory disease but can also cause abortions. EHV-1, but not EHV-4, has been identified as a cause of abortion outbreaks and, more recently, outbreaks of neurologic disease. **There is no risk of transmission to humans.**

Respiratory disease caused by EHV is most common in young horses (weanlings and yearlings), while older horses are more likely to transmit the virus without showing clinical signs.

Neurologic disease due to EHV-1 infection, also called *equine herpesvirus myeloencephalopathy* (EHM), results from widespread damage to blood vessel endothelium, including damage to the blood-brain barrier. EHM can cause single cases of disease but has been identified as a cause of outbreaks affecting 20 to 50 per cent of affected populations. EHM outbreaks may or may not be associated with previous or concurrent respiratory disease.

Herpesviruses establish latency, meaning that the virus persists in the horse for the long term, possibly for life, without causing clinical disease. Most horses are considered latently infected by the time they are yearlings. Re-activation of latent infections, and subsequent disease and/or shedding of virus can occur in situations of stress. Stress may include transport, mingling of horses, and concurrent disease. In the absence of clinical signs and without testing, it may be impossible to detect that re-activation has occurred. Re-activation is likely responsible for occurrence of some outbreaks.

Clinical Signs

Fever is one of the most consistent clinical signs, and commonly precedes the development of other clinical signs. In some cases, fever may be the only sign. Fever may go undetected if horses' temperatures are not taken.

Respiratory disease commonly manifests as fever, coughing and nasal discharge. These signs can also occur with other equine respiratory diseases, such as influenza, and testing is required to determine whether EHV is implicated in an outbreak.

Abortions typically occur late in pregnancy (greater than eight months, although earlier cases are reported) and often present no warning signs.

Neonatal foals may be infected *in utero* and are usually abnormal from birth. Signs include weakness, jaundice, respiratory distress, and neurologic signs. Affected foals typically die within several days. Older foals that become infected generally show signs of respiratory disease such as nasal discharge.

Neurologic disease (EHM) may be preceded by fever and respiratory signs. EHM typically affects the hind limbs and urinary tract. Common signs include ataxia (incoordination), urine retention and incontinence, and bladder atony. Severely affected horses may become recumbent and unable to rise. “Dog-sitting” may be observed. Horses generally remain bright and often continue to eat and drink.

Incubation period

The incubation period denotes the time between infection and the onset of clinical signs. It is typically short (as short as 24 hours) and spans four to six days, but can be longer. EHV abortions can occur from two weeks to several months following infection.

Transmission

The virus is transmitted primarily by aerosol and through direct and indirect contact.

Aerosol transmission occurs when infectious droplets (coughing or snorting) are inhaled. Shedding by the respiratory route typically lasts for seven to 10 days but can persist longer. A 28-day isolation period is therefore generally recommended after the diagnosis has been established.

Abortions result in distribution of infectious virus in the placenta, fetal membranes and fetal fluids. Aborted fetuses are also infectious. Mares that have aborted also shed virus in their respiratory secretions.

Indirect transmission is an important route of transmission of the virus. Indirect transmission occurs when infectious materials (nasal secretions, fluids from abortions etc.) are moved between infected and un-infected horses by people or fomites (inanimate objects).

Poor hygiene (such as lack of handwashing) and sharing of equipment are often responsible. People who have touched or otherwise come in contact with infected horses should change their clothes and thoroughly clean and disinfect their hands before handling other horses.

The virus can survive in the environment for several days to weeks (survival up to 35 days is suggested). The importance of this route of infection is difficult to estimate.

Diagnosis

The disease is often suspected based on clinical signs but diagnostic testing should be pursued to establish the diagnosis. Several tests are available that include serologic tests (test for presence of antibodies in blood), virus isolation and molecular tests (PCR).

Treatment (specific to the neurologic form)

Treatment is mostly supportive and includes anti-inflammatory medication such as corticosteroids. Some horses require IV fluid therapy if they do not maintain their hydration. Horses should be placed in a safe, well-bedded stall, especially if they are severely ataxic and have trouble rising. Recumbent horses may benefit from the use of a sling. Horses that have difficulty urinating may need to be catheterized several times daily and may benefit from medication to support bladder function.

Specific treatments directed against the virus are under investigation. Preliminary research suggests a potential benefit of antiviral medications such as acyclovir and valacyclovir.

Prognosis is generally favorable for mildly affected horses, but is poor for those that become recumbent for prolonged periods (days). Horses that recover from the disease may take several weeks to months before neurologic deficits resolve. Some horses may have persistent deficits for the remainder of their life. Horses with bladder paralysis are at risk of developing complications such as infection and persistent urinary incontinence.

Shedding past resolution of clinical signs

Virus is likely shed for up to a week, possibly longer, after resolution of clinical signs. Recovered horses typically develop latent infections and can shed virus with or without showing signs of disease for the remainder of their lives. Shedding by latently infected horses typically occurs during periods of stress.

Vaccination

Several vaccines against EHV are available. Vaccination should be based on the perceived risk of infection, but is generally recommended for broodmares. Horse owners should talk to their veterinarians about vaccination programs. Horse owners and veterinarians can also consult the vaccination guidelines of the American Association of Equine Practitioners (AAEP) at http://www.aaep.org/vaccination_guidelines.htm (EHV is covered under “risk-based vaccination guidelines”).

None of the currently available vaccines state any claim for protection against the neurologic form of EHV infection.

The benefit of vaccination in the face of an outbreak is questionable. Booster vaccination may have some benefit and may reduce virus spread. Booster vaccination has not been associated with detrimental effects. Previously unvaccinated horses are unlikely to benefit from vaccination during outbreaks, as sufficient time to establish an effective vaccination series is not available.

Biosecurity during outbreaks

Horses suspected of having EHV infections should be examined by a veterinarian and tested for virus shedding. Infected horses should be isolated immediately to avoid all contact (direct and indirect) with other horses. Exposed horses should also be isolated. All traffic on and off premises housing infected horses should be suspended.

A comprehensive biosecurity protocol should be established for all infected premises in coordination with the attending veterinarian. Biosecurity guidelines are available from the American Association of Equine Practitioners (AAEP).

Infected and exposed horses should be isolated from the general population for 28 days following the last identified case. Testing can be done to determine whether horses are shedding the virus.

All personnel should be trained in safe handling of infected horses. Biosecurity guidelines are available and should be discussed with the attending veterinarian. Strict attention to hygiene including proper handwashing is imperative.

Thorough cleaning and disinfection of facilities and all equipment are required following an outbreak. EHV is an enveloped virus and is susceptible to many disinfectants. Horse owners should consult information provided for individual disinfectants and/or contact manufacturing companies for information regarding the efficacy of varying disinfectants against EHV. Thorough cleaning and removal of organic debris (such as manure and nasal secretions) is mandatory prior to disinfection. Presence of organic material may inactivate disinfectants.

Biosecurity to prevent outbreaks

Boarding facilities, show grounds etc. should discuss biosecurity with their attending veterinarian and develop a biosecurity protocol specific to their situation. Biosecurity considerations include isolation of new horses upon arrival, testing of new horses upon arrival, and requirements for health certificates and/or vaccination.