



Equine Herpes Virus type 1 – myeloencephalopathy

Update 7 February 2014

- MPI has confirmed that Equine Herpes Virus type 1 – myeloencephalopathy is present on a stud farm in the Waikato. It has not been reported on any other properties.
- At 7/2/14: thirteen horses on the property are affected. No new cases have been reported on the property since Sunday 2 February. Of the 13 horses, seven have been euthanized. The other affected horses are receiving supportive care.
- MPI is investigating movement of horses on and off the affected property but due to the complex nature of the disease we may never know how this form of EHV-1 emerged here.
- The Ministry is currently focused on the investigation and working closely with the equine industry and the affected property.
- The owner of the farm has voluntarily quarantined the affected paddocks and put the following biosecurity measures in place:
 - No routine procedures involving handling of the animals have been conducted on the stud farm
 - There are five paddocks on the stud farm and no-one has entered these paddocks since 20 January
 - The farm has provided disinfection footbaths and overboots
 - Personnel handling the sick animals are showering afterwards
- MPI is satisfied the current quarantine measures in place are sufficient to manage the situation.
- Equine Herpes Virus-1 has been in New Zealand for many years. It is a virus commonly found in horses in all countries around the world. Many horses are infected as foals and show no clinical signs of the disease.
- This is the first time its neurological form has been confirmed in New Zealand.
- The neurological form of EHV-1 has been known to occur in countries such as North America, Europe and Australia.
- Symptoms and severity of the neurological form may vary between horses, but fever usually occurs before the neurological signs are seen. A neurologically affected horse is likely to show some or all of the following:
 - Poor coordination
 - Urine dribbling
 - Loss of tail tone
 - Hind limb weakness
 - Paralysis of limbs

- Certain exotic diseases can also cause neurological signs in horses.
- EHV-1 is spread by direct horse-to-horse contact, by contaminated hands and equipment.
- EHV-1 is not a notifiable disease in New Zealand. The virus cannot be eradicated from New Zealand as the virus is wide-spread and commonly found in horses throughout New Zealand. It is found in healthy horses, and only causes disease occasionally. There is no 100% reliable diagnostic test to confirm or exclude EHV-1 in live horses, particularly in those that are not showing any clinical signs.
- EHV-1 can cause four types of disease in horses, respiratory disease, abortion, neonatal death and the neurological form Equine Herpes Virus type 1 – myeloencephalopathy.
- EHV-1 cannot transmit to people or other animals and does not pose a risk to human health.
- There is no specific treatment for this disease, but care and good nursing of individual cases is required. Vaccines are available for EHV-1, but they do not protect against the neurological form of this disease.
- MPI has strict standards in place for the importation of live animals and equipment associated with animals.
- Horse owners are advised to call their local veterinarian if they are concerned about their horses.
- Vets that are called to examine any unusual neurological horses should notify MPI via the exotic pest and diseases hotline 0800 80 99 66.

ENDS



Questions and answers

2014 outbreak of Equine Herpes Virus -1 myeloencephalopathy.

Summarised by the Animal, Marine and Food Response Team, Investigation Diagnostic Centres and Response Directorate
Ministry for Primary Industries.

7 February 2014

Where did this disease come from?

Equine herpesvirus 1 (EHV-1) is endemic in New Zealand; it probably arrived in the country with the first horses. Many foals become infected from their dams and infected foals may or may not show clinical signs of respiratory disease. Like the human cold sore virus, EHV-1 can enter a latent state in a previously infected animal and it can reactivate in later life, often at times of increased stress.

The neurological form of EHV-1 has been known to occur in countries such as North America, Europe and Australia. This is the first time it has been confirmed in New Zealand.

How has this disease presented in New Zealand?

The reported cases have occurred on one property in a group of thoroughbred mares without recent history of travel. Horses have presented with central nervous system signs including ataxia and weakness or paralysis of limbs. In several cases, affected horses were found laterally recumbent without previous clinical signs. All affected horses have been within adjacent areas of the farm, with either nose-to-nose contact or shared contact with equipment or handlers. Horses on this farm were up-to-date on EHV-1 vaccines, and vaccination history did not prevent illness.

The owner of the farm has voluntarily quarantined the affected paddocks and put the following biosecurity measures in place:

- No routine procedures involving handling of the animals have been conducted on the stud farm.
- There are five paddocks on the stud farm and no-one has entered these paddocks since 20 January.
- The farm has provided disinfection footbaths and overboots.
- Personnel handling the sick animals are showering afterwards

As EHV-1 myeloencephalopathy has not been reported elsewhere in New Zealand, no other properties have needed to implement quarantine measures for it.

Is this neurological form of EHV-1 caused by a different strain of virus to the respiratory and abortion forms?

There are genetic variants of EHV-1 that have been linked to outbreaks of neurological disease in the USA and these have been named “neuropathogenic strains”. However, this situation is far from clear, and it is apparent that not all outbreaks of neurological disease are caused by these “neuropathogenic” variants. All strains of EHV-1 should be regarded as potentially able to cause neurological disease.

Why has neurological EHV-1 disease not been reported in New Zealand before?

EHV-1 is a necessary but not the sole cause of equine herpes viral myeloencephalitis. The cause of disease is multifactorial and quite complex. There are many other reported risk factors in outbreaks that occur. The other risk factors may be more or less important in different situations.

What are the risk factors that horse owners and vets should be aware of?

- The presence of an infected horse, shedding virus in the herd.
- Older animals (over 3 years of age) are more likely to show neurological signs than younger ones. (Yearlings can also develop neurological signs.)
- Horses with high fever (temperatures >103.50F or 39.7°C) during the early stages of disease are more likely to progress to develop neurological signs.
- Introduction of new horses to a herd is sometimes reported before the development of EHV-1 outbreaks.
- Larger breeds are more commonly affected by neurological disease than ponies and smaller breeds.
- Mares are more commonly affected by neurological disease than geldings or stallions..
- Outbreaks of EHV-1 disease are anecdotally associated with stressors, including weaning, transportation, and concurrent infections.
- Confinement of animals in a shared airspace can accelerate the spread of disease.

What are the risks of this disease spreading to other parts of the country?

EHV-1 is endemic and therefore is already widespread around the country. The neuropathogenic strain of EHV-1 has been detected in samples from one affected horse; however, the non-neuropathogenic strain has also been detected from one other affected horse on the same property. Further affected horses are being laboratory tested for strain type.

Can this disease be eradicated from New Zealand?

EHV-1 is endemic throughout the horse population in New Zealand and around the world, it cannot be eradicated. Detecting the presence of the neuropathogenic strain using ante-mortem tests is difficult as horses have to be actively shedding the virus at the time of testing. Many horses may be latent carriers of the virus and this is difficult to test for.

Disease control involves individual owners protecting their animals from disease by ensuring that new animals coming onto a property are quarantined for 21 days after arrival. Any animals that show clinical signs of disease should be isolated and the owner should contact their veterinary

surgeon as soon as possible. Movement control and strict biosecurity measures are key to controlling this disease.

Should this disease be given a notifiable status in New Zealand?

EHV-1 is widely distributed throughout the horse population in New Zealand and many animals carry latent virus. Horses that recover from clinical disease may remain carriers for life. There is no effective treatment, and vaccination does not appear to confer protection against the neurological strain. The ante-mortem detection of the neuropathogenic strain is difficult and results are not 100% reliable, making it impractical to declare this disease notifiable.

Transmission

How does the neurological form of EHV-1 disease spread?

EHV-1 is spread through the respiratory route. This can be due to direct contact with an infected horse, or via shared equipment or the hands and clothes of people handling horses.

The virus does not spread far in air (less than 50m), but could be spread throughout a property and between properties by people and equipment.

The virus can survive for up to 30 days in the environment, but it is susceptible to all common disinfectants.

Pathogenesis

What causes the neurological symptoms?

The neurological symptoms arise subsequent to a cell-associated viraemia; they are associated with endothelial cell damage and vasculitis and can occur at any level of the brain or spinal cord. There are minimal to no gross lesions.

Why do neurological signs occur less frequently than respiratory signs?

There is much that is not understood about this sporadic disease, but risk factors other than exposure to the virus itself must play important roles in the development of clinical disease. Good recording of epidemiological information from outbreaks is required in order to gain a more complete understanding of the triggers for this disease.

Diagnostics

What are the clinical signs of the neurological form of EHV-1 infection?

The severity of signs shown varies between individual horses. Some animals may only develop a bi-phasic fever with no accompanying neurological signs. A neurologically affected horse is likely to show some or all of the following: poor coordination, urine dribbling, loss of tail tone, hind limb weakness, and paralysis of hindlimbs or all limbs.

What should I do if I suspect a case?

Horse owners should contact their veterinarian if they are concerned about an animal under their care. Veterinarians are being asked to contact MPI if they encounter a suspect case.

What samples should be collected from a suspect case?

The ante-mortem diagnostics are complicated for this disease. Most horses will have been exposed to EHV-1 at some stage during their lives and will show an antibody response. For an affected animal it is advisable to take nasal swabs, and to collect whole blood and serum. Due to the difficulties in detecting virus in advanced neurological cases, sampling all animals that are in contact with the case is advisable. Detecting a four-fold rise in neutralising antibody titre would be indicative of recent infection and requires a second blood sample taken 10-14 days after the first

Treatment and prevention

What treatments are available for an affected horse?

There are no specific treatments available for this disease. Antiviral treatments have been used in some outbreaks in other countries, but their efficacy is unproven.

Which vaccines offer protection against the neurological form of disease?

None of the vaccines available offer protection against the neurological form of this disease. Vaccinated animals are likely to shed less virus this could decrease the spread of disease. However, vaccinating exposed animals may actually predispose to developing neurological disease and vaccinating in the face of an outbreak is not advised.

How can horse owners protect their animals from developing this disease?

Strict biosecurity and quarantine measures are key to preventing spread of this disease. All horses introduced onto a property should be quarantined for 21 days. Horse owners should seek veterinary advice immediately if any horse aborts or shows signs of neurologic disease.

If a suspect case is seen then separate sick horses from healthy horses. Stop movements of horses off premises where there are sick horses. Do not bring pregnant mares onto premises where active EHV is circulating.

It is extremely important that people in contact with horses on an affected property use proper biosecurity measures, such as:

- Washing their hands adequately between handling different horses.
- Using dedicated clothing and footwear when working with a sick horse and changing out of these clothes before leaving the isolation area and handling other horses.
- The person caring for a sick horse should not work with healthy horses (if not practical, healthy horses should be handled first and sick horses last).
- Wearing disposable gloves and changing gloves between horses.
- Using disinfectant to sanitize footwear can also help minimize the risk of people spreading the virus between animals.

- Do not share equipment among horses on the property, as the virus can be spread through contaminated objects such as water and feed buckets, even bridles.
- Disinfect and destroy contaminated bedding; clean and disinfect premises, equipment and vehicles used for horse transport under the direction of the attending vets.
- Follow the instructions of vets and disease management authority (MPI) if a case of EVH-1 is suspected.

For more information on preventing and managing an outbreak of EHV-related disease, the guidelines of the Horserace Betting and Levy Board in the UK are recommended:

<http://codes.hblb.org.uk/>