



Hendra virus

Information for horse owners, handlers, competitors and event organisers

What is Hendra virus?

Hendra virus is a zoonotic disease, which means it can transfer from animals to people. Hendra virus can cause disease in horses but only rarely causes disease in humans.

How Hendra virus is transmitted

Hendra virus can be transmitted from flying fox to horse, horse to horse and horse to human.

The exact route of transmission is not known, but it is thought that horses become infected via contact or droplet transmission of the virus. This may occur by ingesting material contaminated by infected flying fox body fluids and excretions. While Hendra virus is present in flying fox populations periodically, the likelihood of horses becoming infected is low.

Hendra virus can spread from horse to horse through direct contact with infectious body fluids, or through indirect contact via equipment contaminated with infectious body fluids.

The few cases of Hendra virus infection in people occurred following high-level exposure to respiratory secretions (e.g. mucus) and/or blood and other body fluids from an infected horse. Other people have reported having some contact with infected horses but have remained well, and their blood tests have shown no evidence of Hendra virus infection.

There is no evidence of Hendra virus spreading from person to person or from flying foxes to humans.

The scientific information available on the disease is not complete. Research continues so that we can learn more about Hendra virus—particularly about how it is transmitted from flying foxes to horses.

Hendra virus and horses

How to reduce the risk of horses becoming infected

- A Hendra virus vaccine is available for horses. Vaccination is the single most effective way of reducing the risk of Hendra virus infection in horses. Discuss the option of vaccination with your veterinarian. See *Vaccination* in this brochure for more information.
- Remove horse feed and water containers from under trees. If possible, place feed and water containers under a shelter.
- Remove your horses from paddocks where flowering/fruiting trees may be attracting flying foxes. Return the horses only after the trees have stopped flowering/fruiting and the flying foxes have gone. If the horses cannot be removed from the paddock, consider fencing (temporary or permanent) to restrict access to flowering/fruiting trees. Clean up any fruit debris underneath the trees before returning the horses. If it is not possible to remove your horses from paddocks for long periods, try to temporarily remove your horses during times of peak flying fox activity (usually at dusk and during the night).
- Clean and disinfect gear exposed to any body fluids from horses before using it on another horse. This includes items like halters, lead ropes and twitches. Talk to your veterinarian about which cleaning agents and disinfectants to use.
- When cleaning contaminated equipment, wear gloves, cover any cuts or grazes and wash your hands thoroughly afterwards.
- If your horse becomes sick, isolate it from other horses, other animals and people until a veterinarian's opinion is obtained.

- Always handle healthy horses before handling sick horses and only handle sick horses after taking appropriate precautions (see *How to reduce the risk of people becoming infected* and *Personal protective equipment* in this brochure).
- Practise good biosecurity (animal disease control). Do not travel with, work on or take sick horses to other properties or equestrian events.
- Do not allow visiting horse practitioners (e.g. farriers) to work on sick horses.
- Seek veterinary advice before bringing any sick horse onto your property.

Vaccination—a new tool in the fight against Hendra virus

A vaccine for horses is now available for use under permit by veterinarians. The permit requires vaccinated horses to be microchipped.

Research has shown that the vaccine protects horses from Hendra virus for up to six months following an initial course of two vaccinations. Vaccinated horses demonstrated no clinical signs of Hendra virus disease. Research is continuing to determine the duration of immunity from the vaccine.

The vaccine works by stimulating the production of protective antibodies. If the horse is subsequently exposed to Hendra virus, the antibodies work by binding to the viral particles, preventing them from establishing an active infection in the horse. No live virus is used at any stage during the manufacture of the vaccine and it therefore cannot cause Hendra virus infection.

The vaccine is used as an aid to prevent clinical disease in horses caused by Hendra virus, and also to reduce viral shedding.

Vaccination is the single most effective way of reducing the risk of Hendra virus infection in horses. Human infection and death have occurred following high-level exposure to body fluids from an infected horse. Vaccinating horses is an important measure to prevent this occurring and provides a public health and workplace health and safety benefit.

Vaccination of horses is strongly encouraged and you should discuss this with your veterinarian.

However, do not become complacent after your horses have been vaccinated. Always practise good personal hygiene and biosecurity measures when working with horses, regardless of their vaccination status.

For more information about the Hendra virus vaccine for horses, visit www.health4horses.com.au.

Signs of Hendra virus in horses

Hendra virus can cause a broad range of signs in horses. Hendra virus infection should be considered in any sick horse where the cause of illness is unknown and particularly where there is rapid onset of illness, fever, increased heart rate and rapid deterioration associated with respiratory and/or nervous signs.

The following signs have all been associated with Hendra virus cases, but not all of these signs will be found in any one infected horse:

- rapid onset of illness
- increased body temperature/fever
- increased heart rate
- discomfort/weight shifting between legs

- depression
- rapid deterioration with respiratory and/or nervous signs.

Respiratory signs include:

- respiratory distress
- increased respiratory rate
- nasal discharge at death—can be initially clear, progressing to stable white froth and/or stable blood-stained froth.

Nervous signs include:

- wobbly gait
- apparent loss of vision in one or both eyes
- aimless walking in a dazed state
- head tilting and circling
- muscle twitching
- urinary incontinence
- inability to rise.

Who to contact if you suspect a horse has Hendra virus

Contact a veterinarian immediately. If you are unable to reach a veterinarian, notify a government veterinarian or Biosecurity Queensland officer—there is a legal obligation to do this. Clearly explain that you are calling to report a suspected case of Hendra virus infection. Let the officer know if there has been human exposure to body fluids from the sick horse.

Report suspected cases by contacting:

- **Biosecurity Queensland** on **13 25 23** (business hours) or
- the **Emergency Animal Disease Watch Hotline** on **1800 675 888** (24-hour hotline).

What to do while waiting for Hendra virus test results for horses

If your veterinarian considers your horse may have Hendra virus, they will take samples for testing at a government laboratory.

Initial test results are usually available 1–2 working days after the laboratory receives the samples.

While you are waiting for test results:

- Avoid close contact with the horse under investigation, and other horses that have been in contact with it, until Hendra virus has been ruled out.
- If close contact with a horse under investigation is essential, ensure the number of people having contact with the horse is kept to a minimum and take the precautions outlined under *How to reduce the risk of people becoming infected* and *Personal protective equipment* in this brochure. Never let children have contact with a horse under investigation for Hendra virus.
- Move horses that are under investigation away from areas that can be accessed by the public.
- Isolate the horse that is under investigation from other animals if it is safe to do so. Ideally, leave the sick horse where it is and move other animals to a different area of the property.
- If you need to provide feed and water for any horses on the property, keep your distance from them.
- Observe horses from a distance and notify your veterinarian immediately of any change in the health status of any horse on the property.

- If a horse under investigation dies or is euthanased, avoid contact with the carcass. Advise anyone disposing of the carcass that the horse is under investigation for Hendra virus.

If the test result is negative, your veterinarian may wish to take further samples to investigate your horse's illness. Continue to monitor your horse and notify your veterinarian immediately of any change in the health status of any horse.

What will happen if a horse on your property tests positive for Hendra virus

If a test result is positive for Hendra virus, Biosecurity Queensland will work with you and your veterinarian to manage the situation.

The affected property will be placed under quarantine by Biosecurity Queensland and the following steps will be taken:

- Horses will not be allowed to enter or leave the property without permission from a Biosecurity Queensland inspector.
- Horses assessed as being at risk on the property will be tested for Hendra virus and their health status assessed and monitored.
- Any horses that have moved off the property in the last few weeks will be traced and may be tested for Hendra virus.
- Neighbouring properties with horses will also be assessed for the risk of exposure to Hendra virus. Testing and monitoring may be carried out and movement restrictions applied as a result of this assessment.
- As the horse owner, you are responsible for meeting the general husbandry needs of your horses during the quarantine period, including treatment of non-Hendra virus illnesses or injuries.
- Other animals on the property, including pets, may be tested for Hendra virus and have movement restrictions applied to them—see *Hendra virus and other animals* in this brochure.

Once there is substantial evidence that no animals are infected with Hendra virus, the quarantine on your property will be lifted.

Biosecurity Queensland will notify Queensland Health of the situation. Queensland Health will coordinate risk assessments and appropriate follow-up for people involved.

Horse events

Hendra virus is not highly contagious and the horse industry is not subject to movement restrictions for Hendra virus, except for any properties under quarantine.

If you are organising or competing in a horse event, ensure that good biosecurity measures are followed to minimise the risk of spreading any diseases, such as Hendra virus. Event organisers should, as a minimum:

- prepare and implement a biosecurity plan
- collect information on all horses attending the event
- maintain strict biosecurity at the event
- not allow sick horses to attend the event
- consider recommending Hendra virus vaccination for attending horses as a public health and workplace health and safety consideration.

Competitors should always practise good biosecurity and hygiene for themselves and their horses, and should not take sick horses to events.

Hendra virus and other animals

Hendra virus antibodies have been identified in a dog, which indicates that the dog had been exposed to the virus. There is no evidence of dogs excreting Hendra virus. Dogs that have either been exposed to Hendra virus naturally or infected with Hendra virus in an experimental setting have not shown any signs of illness.

Biosecurity Queensland's policy is to test and monitor species known to be susceptible to Hendra virus (e.g. dogs, cats, pigs) on quarantined properties that have had, or are likely to have had, close contact with horses known to be infected with Hendra virus.

If you are not located on a property quarantined for Hendra virus, the risk of animals other than horses contracting the virus is very low.

While animals including cats, guinea pigs, ferrets and pigs have been infected experimentally with Hendra virus, the virus has not been known to occur naturally in these animals. (Note that it is illegal to keep ferrets in Queensland.)

Hendra virus and people

How to reduce the risk of people becoming infected

- Vaccination of horses can protect horses from infection and subsequently protect humans from infection.
- Ensure sound hygiene and biosecurity measures are routinely adopted for all contact with horses, their blood and body fluids, and associated equipment. This includes:
 - regular hand washing
 - maintaining standards of cleanliness and stable hygiene
 - cleaning and disinfecting equipment that has been in contact with horses' body fluids.
- If you have a sick horse, isolate it from other horses, other animals and people (e.g. remove companion animals to another area) until you have obtained a veterinary opinion, even if the sick horse and/or the other horses have been vaccinated.
- Avoid close contact with the sick horse and other horses that have been in contact with it. Wait until your veterinarian has assessed the horse and provided advice. If you must have close contact with a sick horse where Hendra virus has not been ruled out, always take the following precautions:
 - Cover cuts and abrasions with a water-resistant dressing.
 - Put on all of the wearable personal protective equipment (PPE) in your kit before approaching the horse.
 - After handling the horse, remove and dispose of the PPE carefully, making sure there is no contact with your facial area, particularly your eyes, mouth and nose.
 - Immediately wash your hands with soap and water and dry them or use hand wipes and waterless hand hygiene solution.
 - Carefully remove any clothing contaminated with a sick horse's body fluids.

- If you have handled a sick horse, follow these steps before having contact with other horses:
 - Wash off any contamination with plenty of soap and water.
 - Shower and wash your hair.
 - Change your clothes and footwear.
- Arrange your activities so that you handle unaffected horses first and have contact with the sick horse last.

Personal protective equipment

Personal protective equipment (PPE) is an important part of personal safety when dealing with sick animals, even if they have been vaccinated against Hendra virus. PPE must be worn if you suspect your horse is sick, or if any invasive work is being performed on the horse. Use PPE correctly and always wash your hands thoroughly after removing PPE.

If you own a horse, you should always have a PPE kit at your property. You can purchase the items for a PPE kit from most hardware stores.

Always have the following in your kit:

- hand cleansers
- soap
- disinfectants
- waste disposal bags
- disposable gloves
- overalls
- rubber boots
- facial shields
- safety glasses
- a P2 respirator (particulate respirator)—this is the minimum level of recommended respiratory protection. Surgical masks do not provide respiratory protection.

If you are assisting your veterinarian in attending to a sick horse, ensure you also wear appropriate PPE.

Signs of Hendra virus in people

The few known cases of human Hendra virus infection have shown the following signs:

- an influenza-like illness (which led to pneumonia in one case) with symptoms such as fever, cough, sore throat, headache and tiredness and/or
- encephalitis (inflammation of the brain) with symptoms such as headache, high fever and drowsiness, which progressed to convulsions and/or coma and death.

The time from a person's exposure to a sick horse to the start of illness has been between 5 and 21 days.

Who to contact about human health concerns

If you have concerns about a person's health at any time, seek medical advice. Contact your general practitioner, local hospital emergency department or local public health unit if you have concerns about possible exposure of people to a horse infected with Hendra virus. For general enquiries about Hendra virus infection in humans, call the **Queensland Health hotline** on **13 HEALTH (13 43 25 84)**.

Managing the risk in the workplace

Workplace health and safety measures should be implemented at workplaces where there is occupational contact with horses.

Hendra virus requires careful risk management. Develop a plan for responding to a suspected or confirmed case of Hendra virus at your workplace. The plan should include how you will minimise the risk to yourself, any employees and others such as visiting horse practitioners (e.g. farriers). Train your workers in implementing the plan.

Adopt sound hygiene and biosecurity measures as routine work practice for all horse contact.

For more information about managing the risk of Hendra virus in the workplace, contact **Workplace Health and Safety Queensland** on **1300 369 915** or visit **www.worksafe.qld.gov.au**.

Hendra virus and flying foxes

Hendra virus occurs naturally in all species of flying foxes in Queensland; however, these animals should not be targeted for culling. Flying foxes are protected species and are critical to our environment as they pollinate our native trees and spread seeds. Without flying foxes, we wouldn't have our eucalypt forests, rainforests and melaleucas.

Any unauthorised attempts to disturb flying fox colonies are illegal and ineffective for a number of reasons:

- Flying foxes are an important part of our natural environment.
- Flying foxes are widespread in Australia and are highly mobile.
- There are more effective steps people can take to reduce the risk of Hendra virus infection in horses and people.

For more information about flying foxes, contact the **Department of Environment and Heritage Protection** on **1300 130 372** or visit **www.ehp.qld.gov.au**.

Flying foxes and trees

Flying foxes prefer to feed on nectar and pollen from eucalypts, melaleucas and banksias; however, they are attracted to a broad range of flowering and fruiting trees, and vegetation.

Some examples of the trees and vegetation on Queensland properties where horses have been infected with Hendra virus are:

- a range of fig trees (including Moreton Bay fig trees)
- melaleucas (including paperbarks)
- eucalypts
- bottlebrushes
- mandarin trees
- climbing asparagus vines
- cocos palms.

Other trees that may attract flying foxes include flowering or fruiting trees with soft fruits and stone fruits (e.g. mangoes, pawpaws), palms, lilly pillies and grevilleas.

Please note this is not an exhaustive list of trees that are attractive to flying foxes. This will vary with the geographical area. Identifying the trees on your property that attract flying foxes will help you manage your horses.