

## Hendra Virus

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Animal Biosecurity, NSW DPI

### What is Hendra virus?

Hendra virus is a virus carried by flying foxes that inhabit Australia, Papua New Guinea, and surrounding islands. So far, clinical disease due to Hendra virus infection has only been recognised in Australia. Flying foxes appear to be unaffected by the virus.

Rarely, Hendra virus spreads from flying foxes to horses, (spillover events) causing severe disease, and may then spread to people or animals in close contact with infected horses.

The virus can be deadly to both humans and horses.

### What should I do if I suspect Hendra virus in a horse?

If you think your horse has Hendra virus keep everyone away from the horse and call your private veterinarian immediately. Hendra virus is a notifiable disease, and the vet will notify the [Local Lands Services \(LLS\)](#) or [Department of Primary Industries \(NSW DPI\)](#), if they consider the case suspect for Hendra.

If your vet is unavailable you can call a District Veterinarian with the LLS or the Animal Biosecurity Emergency Hotline on 1800 675 888.

### When and where does it occur?

Hendra virus was first detected in 1994 in the suburb of Hendra, Brisbane. Since then cases have been reported from Cairns in north Qld down to Kempsey on the NSW Mid North Coast. The majority of cases have occurred east of the Great Dividing Range, with a single case in July 2011 west of the range in Chinchilla, Queensland.

Most incidents have occurred between May and August but some cases have occurred in other months.

Shedding of Hendra virus by flying foxes shows a strong winter seasonality in SE Qld and in NSW but is more year round in far north Queensland.

Incidents are sporadic but sometimes occur in clusters. In 2011 there were 18 incidents in northern NSW and SE Qld while in 2012 all cases occurred north of Rockhampton.

All four species of flying fox have been shown to carry the Hendra virus however Hendra virus is more frequently detected in urine of spectacled and black flying foxes.

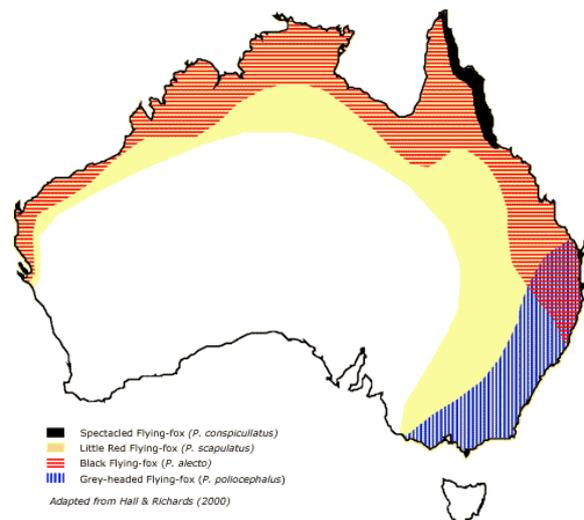
### Distribution of flying foxes

The distribution of the four species of flying fox present in Australia is shown in Figure 1.

While spectacled flying foxes are not migratory, black flying foxes have been moving south slowly and the species distribution in figure 1 is indicative only.

Mixed roosts containing some black flying foxes have been detected near Sydney and continued spread south is likely.

Figure 1 Distribution of flying foxes in Australia



Flying foxes are protected species and are critical to the Australian environment. They pollinate native trees and spread seeds to preserve the health of native eucalypt forests and rainforests.

Unauthorised attempts to disturb flying fox colonies are illegal and also ineffective as:

- Flying foxes are widespread in Australia and are highly mobile. The disturbed colony may relocate nearby or a new colony can move into the vacant former colony.
- There are more effective strategies to reduce the risk of Hendra virus infection in animals and people (see below).

For more information about flying foxes see [http://www.environment.nsw.gov.au/animals/flyin\\_gfoxes.htm](http://www.environment.nsw.gov.au/animals/flyin_gfoxes.htm).

## Symptoms in horses

Hendra virus can cause a wide range of symptoms in horses; these are not specific and may vary. Hendra virus should be considered in any unvaccinated sick horse (that has potentially been exposed to the virus) where the cause of illness is unknown, particularly where there is rapid onset and deterioration associated with either respiratory or nervous signs, or if an unvaccinated horse dies unexpectedly or is found dead.

The following signs have been associated with many Hendra virus cases:

- rapid onset of illness,
- increased body temperature (fever),
- increased heart rate,
- discomfort/weight shifting between legs that may mimic colic,
- depression,
- rolling and sweating with absent gut sounds
- rapid deterioration with either respiratory and/or nervous signs.

Not all of these signs will be found in any one infected horse.

Respiratory signs may include:

- laboured breathing,
- increased respiratory rate,
- nasal discharge (initially clear, progressing to stable white froth and/or stable blood-stained froth).

Additional nervous signs may include:

- wobbly gait,
- loss of vision,

- aimless walking in a dazed state,
- head tilting and circling,
- muscle twitching,
- inability to rise, and
- straining to urinate or dribbling urine,

Disorientated horses may become caught in fences and be mistaken for trauma cases.

Some infected horses have been found dead with no signs observed so Hendra virus infection should be considered when investigating unexplained sudden deaths in horses from areas where flying foxes occur.

In some cases the onset of signs is more gradual and the course of the illness has been longer lasting weeks.

In cases where horses were known to be infected with Hendra virus more than 70% have died.

## Treatment of infected horses

There is no specific treatment for infected horses. It is possible that supportive treatment such as anti-inflammatory agents and fluid therapy may help but euthanasia is often required on welfare grounds.

Providing supportive treatment to infected horses poses a significant risk to people and euthanasia of infected horses may be required to prevent the spread of infection to people – or to other animals

## Hendra virus in other animals

Hendra virus infection has been confirmed in two dogs on properties where horses had been infected with the Hendra virus. Neither dog was showing signs of illness.

Cats, pigs, ferrets, and guinea pigs have been shown to develop clinical disease after experimental infection.

All domestic animals should be kept away from horses and any areas contaminated by their body fluids or wastes e.g. urine or manure.

## Incubation period

The incubation period in horses is 5–16 days.

## Hendra virus survival

The Hendra virus is very fragile. It is easily killed by heat, soap or detergents and by desiccation (drying out). It may survive in the environment from several hours to several days depending on environmental conditions.

Survival is longer in cool moist conditions where the pH is close to neutral.

## Managing Hendra virus risk in the workplace

All workplaces where there is occupational contact with horses should implement work health and safety measures for Hendra virus.

All veterinary staff assessing or managing a sick horse should do so in accordance with the *Biosecurity guidelines and other veterinary advice*, which can be found in the 'For Veterinarians' section of the Queensland DPI website: <https://www.business.qld.gov.au/industries/service-industries-professionals/service-industries/veterinary-surgeons/guidelines-hendra>).

Hendra virus requires careful risk management. Workplace managers should develop a written plan for managing suspect or confirmed cases of Hendra virus in their workplace. The plan should outline how to minimise the risk to all who work in or visit the workplace. Workers should be trained in how to implement the plan.

Sound hygiene and biosecurity measures should be adopted as a routine work practice for all horse contact. These should include:

- regular hand washing,
- maintaining standards of cleanliness and stable hygiene, and
- cleaning and disinfecting equipment that has been in contact with horses' body fluids.

## Vaccination

A registered vaccine is available to help prevent Hendra virus disease in horses.

The Hendra virus vaccine for horses was released in November 2012. To date, adverse reactions have been infrequent and usually mild and transient.

### **Vaccination of horses is the most effective way to help manage Hendra virus disease.**

Vaccination of horses provides a public health and workplace health and safety benefit by reducing the risk of Hendra virus transmission to humans and other susceptible animals.

## Reducing the chance of infection in horses

Hendra virus vaccination of horses is the most effective way to help manage Hendra virus disease.

Your veterinary adviser can provide details of the vaccination protocol.

Additional actions to reduce risk include:

- Do not place feed and water under trees.
- Cover feed and water containers with a shelter so they cannot be contaminated from above.
- Do not leave food lying about that could attract flying foxes, such as apples, carrots, or molasses.
- Inspect paddocks regularly and identify trees that are flowering or fruiting,
- Remove horses from paddocks where fruiting or flowering trees have temporarily attracted flying foxes.
- If the horse(s) cannot be removed from the paddock, erect temporary or permanent fencing to keep horses from grazing under trees.
- If these measures are not practical, consider stabling horses, or removing them from the paddock before dusk and overnight, when flying foxes are most active. Clean up any fruit debris under the trees before horses are returned to the paddock.

## Preventing spread of infection

Horses may be infectious before they show any sign of illness. Sound hygiene and biosecurity (animal disease control) measures should be used routinely for all horse contact.

Whenever Hendra virus infection is suspected, even in vaccinated horses, appropriate biosecurity precautions including personal protective equipment (PPE) should be used as no vaccine can provide 100% guaranteed protection. If you have handled a sick horse, before you contact other horses:

- wash off any contamination with plenty of soap and water
- shower and wash your hair
- disinfect your footwear and wash your clothes.

To minimise the risk of Hendra virus spreading to people or other animals:

- Implement high work health and safety standards (see Managing Hendra virus risk in the workplace)
- Isolate sick horses or suspect horse carcasses from other horses, people and animals until a veterinarian's opinion is obtained. Generally it is best to move the healthy animals at least five metres away, and keep them separated using a solid barrier.
- Always handle healthy animals before handling sick animals.
- Practise good personal hygiene (cover cuts and abrasions, regularly wash your hands with hot soapy water, especially after contacting the horse's mouth or nose) - Remember that every time you put a bridle on or take it off you are likely to contact the horse's saliva.
- Ideally you should avoid all contact with suspect horses until a veterinarian has investigated and provided advice on the safe handling of affected horses.
- Only handle sick horses after taking appropriate precautions including using Personal Protective Equipment (PPE)
- Make sure all equipment exposed to any body fluids from horses is cleaned and disinfected before it is used on another horse. This includes halters, lead ropes and twitches. Ask your veterinarian about which cleaning agents and disinfectants to use.
- 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.

Follow the procedures outlined in '[Guidelines for veterinarians handling potential Hendra virus infection in horses](#)'.

### Personal protective equipment (PPE)

Everyone handling a sick horse or a horse on which procedures such as dentistry or stomach tubing is being conducted should wear full PPE. PPE must be fitted correctly.

When using PPE:

- Cover cuts and abrasions with a water-resistant dressing.
- Put on PPE before approaching the horse.
- After handling the horse, remove and dispose of PPE carefully into waste bags, making sure there is no contact with your face, particularly your eyes, mouth and nose.
- Carefully remove any clothing contaminated with the horse's body fluids.
- Wash your hands thoroughly after removing PPE.

Horse owners should always have a PPE kit on hand. Items for a PPE kit can be purchased from most hardware stores.

Your PPE kit should contain:

- hand cleansers/soap
- disinfectants
- waste disposal bags
- disposable gloves
- overalls
- rubber boots
- facial shields or safety glasses
- P2 particulate respirators (Note surgical masks do not provide respiratory protection, and P2 respirators are only effective for clean shaven people).

Your veterinarian can also help you obtain PPE.

### Hendra virus symptoms in people

If you have been in contact with an infected horse please seek medical attention immediately.

Symptoms typically develop between 5 and 21 days after contact with an infectious horse.

Fever, cough, sore throat, headache and tiredness are common initial symptoms. Meningitis or encephalitis (inflammation of the brain) can then develop, causing headache, high fever, and drowsiness, convulsions and coma.

Hendra virus infection can be fatal.

For more information on Hendra virus infection in humans, refer to the [NSW Health website- Hendra virus](#)

### Waiting for test results

If your veterinarian considers your horse may have Hendra virus, they will take samples from your horse for testing. See the fact sheet: [Waiting for Hendra test results](#) for more information.

### Managing confirmed cases

Where Hendra virus has been confirmed as the cause of illness or death in horses, DPI in conjunction with the local LLS and NSW Health will manage the situation.

Urgent measures will be taken to minimise the risk to people and other animals, and to track the likely cause and extent of the infection. See the Primefact: [Hendra virus response to infection](#) for further information.

## What movement restrictions are imposed when a case of Hendra virus is detected?

The property where an infected horse is found will have movements of Hendra susceptible animals restricted under the NSW Biosecurity Act and only allowed on a permit issued by an Authorised officer

These restrictions will normally remain in place for a minimum of 21 days and only removed by an Authorised Officer.

## More information

NSW DPI Hendra webpage at  
<http://www.dpi.nsw.gov.au/animals-and-livestock/horses/health-and-disease/hendra-virus>

Queensland Department of Agriculture, and Fisheries Hendra virus page at  
<https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/livestock/animal-welfare/pests-diseases-disorders/hendra-virus>

The location of public health units in NSW can be found at:  
<http://www.health.nsw.gov.au/Infectious/Pages/pus.aspx>

Information on Hendra virus and human health is found at  
[http://www.health.nsw.gov.au/Infectious/factsheets/Pages/hendra\\_virus.aspx](http://www.health.nsw.gov.au/Infectious/factsheets/Pages/hendra_virus.aspx)

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