

Hendra virus infection in horses



July 2023

The recent Hendra virus death of an unvaccinated horse within close proximity to Newcastle racecourse, and the increasingly widespread distribution of flying foxes (beyond areas initially thought to be at risk), serves as a reminder of the dangers of Hendra virus and the need for measures to minimise infection of both horses and humans.

- Hendra virus infection in horses and humans has a high mortality rate – with reports that up to 80% of horses and 70% of people infected may die.
- Hendra virus antibodies have been detected in all Australian mainland flying foxes. Flying foxes are highly mobile animals now found to be inhabiting areas previously thought to be low-risk across much of coastal and central New South Wales.
- Most cases of Hendra virus infection in New South Wales have occurred between May and August, correlating with the seasonality of detection of Hendra virus in flying fox excreta. However, given that flying fox generally move in response to food availability rather than strict seasonal migration patterns, cases have occurred in other months and year-round in Queensland.
- The transmission of Hendra virus from flying foxes to horses occurs mainly through urine or other infected excretions, including saliva and faeces. From horses, it can spread to people or animals in close contact (high level exposure) with an infected horse.
- Horses are susceptible to respiratory droplet transmission due to their grazing behaviours, large respiratory tidal volume and highly vascularised upper respiratory tract with a large surface area.
- Hendra infection can spread from horse to horse through direct contact with infectious body fluids or indirect contact via equipment, clothing or humans contaminated with infectious body fluids.

Hendra virus symptoms in horses

Hendra viral infection in horses causes widespread inflammation of the blood vessels (systemic vasculitis). As such, infection can manifest as a wide range of clinical signs depending on the stage of the disease, the level of virus exposure, the route of infection and individual horse variation in the inflammatory and immune response. Research has shown infected horses may be asymptomatic or only mildly symptomatic.

Infection in horses usually results in acute, severe disease with rapid onset of illness that may include overt respiratory and/or neurological signs. However, in some cases, the onset of signs is more gradual, and the course of the illness has been longer, lasting weeks.

Horses with Hendra infection may exhibit some of the following signs, but not all will be present in all cases –

- Rapid onset of illness
- Increased body temperature (fever)
- Increased heart rate
- Discomfort or weight shifting between legs that may mimic colic
- Depression
- Rolling and sweating with absent gut sounds
- Rapid deterioration with either respiratory and/or nervous system signs

Respiratory signs may include –

- Laboured breathing
- Increased respiratory rate
- Nasal discharge

Additional nervous system signs may include –

- A wobbly gait
- Loss of vision
- Aimless walking in a dazed state
- Head tilting and circling
- Muscle twitching
- Inability to rise
- Straining to urinate or dribbling urine

Note disorientated horses may become caught in fences or sustain other injuries and be mistaken for trauma.

Reducing the risks of infection in horses

- 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 out that could attract flying foxes, such as apples, carrots, or molasses.
- Inspect paddocks, yards and stable areas regularly to identify flowering or fruiting trees.
- Remove horses from areas where fruiting or flowering trees attract flying foxes.
- If the horse(s) cannot be removed from an area, temporary or permanent fencing should be erected to keep horses from grazing under trees.
- If these measures are impractical, stabling horses or removing them from the paddock before dusk and overnight, when flying foxes are most active, is advised. The paddock should be inspected, and any fruit debris under trees should be removed before horses are returned to the paddock.

Horses returning from spelling

Horses returning to racing stables from spelling properties pose a greater Hendra infection risk than horses already in the stable – particularly if properties are located in areas where flying fox activity is high.

Accordingly, these horses should undergo a period of isolation, where they can be kept physically separated from other horses for at least 14 days.

During this time, all persons handling and coming into contact should practice a high level of basic hygiene. Additionally, these horses should be closely monitored for any indication of illness through daily recording of rectal temperatures, and observation for changes in behaviour and loss of appetite.

Limiting the spread of disease

To minimise the risk of disease spreading to horses and people, in general you should –

- Always practice good personal hygiene (cover cuts/abrasions, regularly wash your hands with hot soapy water) especially after contacting a horse's nose or mouth and before eating.
- Ensure 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.
- Maintain high standards of stable hygiene.

- Handle healthy horses before those that are sick or those that have been in contact or proximity with those that are sick.
- Not allow visiting horse practitioners (farriers, dentists, chiropractors, etc.) to work on sick horses.
- Seek veterinary advice before bringing any sick horse onto your property.

If you have handled a sick horse –

- Wash off contamination with soap and water.
- Shower and wash your hair.
- Disinfect your footwear and wash your clothes.

Suspected Hendra disease response

Hendra virus infection should be considered in any horse that dies unexpectedly or is found dead when the cause of illness is unknown – particularly when the signs of illness progress and deteriorate quickly and are associated with respiratory or nervous symptoms, and especially if the horse is not fully vaccinated against Hendra.

Based on epidemiological evidence, infected horses are considered to present the most significant risk of infection to humans from 72 hours before the onset of clinical signs and up to and including post mortem examination (if conducted) and disposal of the carcass. Accordingly, as a rule, people should limit or avoid direct contact with any discharge or secretions from any horse, whether sick or not.

- **You should avoid all contact with a horse suspected to have Hendra and other horses that may have been in contact until a veterinarian has advised you on appropriate biosecurity and preferably, assessed the animal.**
- You are strongly advised to seek veterinary advice before moving any horse(s) so as to limit both human and horse exposure, and reduce further environmental contamination.
- All animals, including dogs and cats, should not be allowed access to suspect or infected horses, the carcasses of horses, or contaminated areas. Ideally, healthy horses should be kept at least five metres away and separated using a solid barrier.
- Signage should be used to warn of the potential biohazard and advise people not to approach.

Only handle sick horses, including Hendra vaccinated horses, after obtaining veterinary advice and taking appropriate precautions, including the use of Personal Protective Equipment (face shield and goggles, gloves, overalls, rubber boots and P2 particulate respirators).

Hendra vaccination

A Hendra vaccine is available for use in horses. Racing NSW does not have an official policy regarding vaccination and therefore advises you to consult with your veterinarian.

Work place health and Safety

Owners, businesses and persons who care for horses have a legal obligation to take all reasonable and practical efforts to prevent or minimise the effects of biosecurity risk – including reducing the risk of Hendra virus infection and implementing measures to limit the spread.

In addition to implementing and enforcing other hygiene and biosecurity measures, vaccination helps you to meet your obligations under the Workplace Health and Safety Act and the Biosecurity Act.

Racing NSW Rules and regulations

Under no circumstances is a horse with an elevated body temperature or showing signs of illness allowed to train on a training track or travel to a racecourse to barrier trial or race.

The training and movement of any horse that has been in close contact with a horse displaying potential signs of Hendra viral infection must be discussed with Racing NSW Stewards.

- AR88 specifies that horses that have been vaccinated must not start in a race within five clear days of the day of vaccination.
- AR89 specifies that, as a notifiable disease, Hendra infection or the suspicion of infection must be reported to the Stewards immediately.
- It is an offence to withhold veterinary care where deemed necessary for the welfare of the horse.

Due to the susceptibility of horses to Hendra virus infection, the potentially mild and ambiguous clinical signs of disease, the presence of flying foxes throughout much of New South Wales, and the severe and fatal consequences in both horses and humans, Racing NSW strongly urges owners and trainers to consult with their veterinarians about the best means of minimising the likelihood of infection and ensuring the health and safety of themselves, their horses and staff.



TO REPORT SUSPICIONS OF HENDRA VIRUS INFECTION, CONTACT YOUR LOCAL VETERINARIAN OR RING THE EMERGENCY ANIMAL DISEASE HOTLINE ON 1800 675 888. RACING NSW STEWARDS SHOULD ALSO BE CONTACTED ON 02 9511 7500.

Further information is available at <https://www.dpi.nsw.gov.au/about-us/services/laboratory-services/veterinary/hendra-virus>