



Biosecurity - Hendra virus investigation and management

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Management of the biosecurity risk

Hendra virus is a [Biosafety level 4](#) zoonotic agent that is endemic in flying foxes in Australia. Occasionally it spreads from bats to horses. These incidents are termed spillover infections. Infected horses have caused human infection and death. Infection may also be spread to other species.

The purpose of this procedure is to set out how to manage suspected or confirmed Hendra virus infection incidents in animals other than bats. The aim in managing these cases is to minimise risks to human health, the horse industry, and trade associated with Hendra virus and ensure animal welfare.

Scope

The *Biosecurity Act 2015* (the Act) promotes biosecurity as a shared responsibility between government, industry and communities. This procedure is a State Priority for NSW and should be read in conjunction with the Prohibited matter - Sporadic Animal Pests and Diseases policy.

The procedure applies to the NSW Department of Primary Industry (NSW DPI) and office within the NSW Department of Industry, and Local Land Services (LLS) in their role as authorised officers under the Act.

This procedure has been developed jointly by NSW DPI and LLS and is based on an assessment of the risks associated with Hendra virus.

Biosecurity legislation summary

Hendra virus (except in bats) is listed as prohibited matter in Schedule 2 of the Act. This means that a person who owns or is in charge of any non-bat animal species, or a person such as a veterinarian in their professional capacity, has a duty to immediately notify an authorised officer when Hendra virus infection is suspected or confirmed in any non-bat animal species.

Under section 28 of the Act it is an offence for people to deal with prohibited matter. In the context of Hendra virus, this means that it is an offence for people to do anything that is described in section 12 of the Act as dealing with which includes moving, selling or treating any non-bat animal species infected with Hendra virus, unless the person could not have reasonably known that they were dealing with Hendra virus. Note that the Secretary (or delegate) can issue a prohibited matter permit that authorises specific dealings with prohibited matter, non-bat species infected with Hendra virus, subject to specific conditions

Under the Act any person (e.g. horse owner or manager, trainer, veterinarian etc.) who deals with potential Hendra virus carriers such as horses, or other associated carriers (e.g. equipment) and who knows or ought to know of the biosecurity risks associated with Hendra virus has a general biosecurity duty to take measures to prevent, eliminate or minimise the risk as far as is reasonably practicable. Potential ways to discharge this biosecurity duty include:

- actions to minimise horses becoming infected with the Hendra virus, such as vaccination of at risk horses
- regular monitoring of animals for signs of disease
- immediate notification of suspected disease
- isolation of a potentially infected animal, carrier or premises
- disinfection of potentially infected items
- making and maintaining records to assist in disease tracing
- appropriate disposal of potentially infected things, e.g. of infected carcasses or clinical waste.

See the [NSW DPI Hendra virus web page](#) for information on suggested Hendra virus risk mitigation measures.

The collection, use and disclosure of information in accordance with this procedure, including any internal or external discussion or distribution of information, must be in compliance with the *Privacy and Personal Information Protection Act 1998* or be exempted by the operation of section 387 of the Act.

Section 387 (2) of the Act provides authority for the disclosure of information about a person, without the consent of the person: to a public sector agency, or to any other person, but only if the disclosure is reasonably necessary for the purpose of exercising a biosecurity risk function.

Work health and safety

The *Work Health and Safety Act 2011* places an obligation on the agency (NSW DPI and LLS) as a person conducting a business or Undertaking and workers to provide a safe and healthy workplace. Safe Work Method Statements that support activities included in this procedure must be used in identifying, assessing and controlling risks.

NSW DPI and LLS will work together to create a safe and supportive work environment when undertaking any activities for this procedure.

These activities may require personnel to operate in an environment and/or locations that are unfamiliar and sometimes isolated (by time and space) which may pose a higher level of risk to their health, safety and wellbeing than normal work environments. Situations may be affected by different environmental and other hazards which must be identified and suitably addressed.

NSW DPI or LLS field staff must undertake a [pre-ops site inspection](#) before undertaking any field operations.

Sample collection, vaccination, health monitoring or other activities that involve animals may on occasions involve significant safety issues. Under no circumstances should the health or welfare of animals or people be compromised while undertaking these activities. Personnel handling animals must follow recommended safety policies and procedures.

Assistance by expert animal handlers may be necessary to complete some tasks. Animals being handled (especially for invasive procedures) must be adequately restrained (physical and/or chemical) to minimise the risk of kicks, bites, scratches etc. and potential exposure to a dangerous zoonotic agent. Handling including examination or sampling should not be undertaken unless the risk of personal contamination/injury can be adequately managed.

Travel to and from the site by motor vehicle may be hazardous e.g. driving at dawn or dusk, rising flood water, mud or gravel roads. Refer to the Safe Work Method Statement (SWMS) - [Driving Vehicles](#) that identifies specific hazards and treatments.

Personnel must be monitored regularly and systematically to ensure their health, safety and well-being is not adversely affected. Action must be taken if adverse effects of the field activities are identified.

Operational plans must be developed for the task that identify and address risks. Field activity plans/risk assessments must account for (as a minimum) fatigue, working environment (hot, cold), task(s) being conducted, locality, isolation, communication access, medical plan information, team size and experience of personnel.

Personnel must be trained to perform the task and/or be supervised by an experienced person.

Personnel may be required to interact with people suffering trauma as a result of a Hendra virus incident. These people may be stressed, tired, irritable and irrational. Refer to Welfare Services where appropriate.

Other people may be in the vicinity of the operation, so efforts should be made to limit their exposure to actions such as destruction and disposal.

Personnel must consider biosecurity when moving between properties. Refer to the following SWMS – [Property visits](#) and Risk assessment – [Maintaining biosecurity entering and exiting properties](#)

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Hendra virus investigation and management procedure

1. Roles and responsibilities

1.1 NSW Department of Primary Industries (Animal Biosecurity and Welfare)

NSW DPI (Animal Biosecurity and welfare) will:

- notify NSW Health of likely or confirmed cases of Hendra virus infection,
- make available advisory material on Hendra virus and associated infection risk mitigation to:
 - owners/managers of susceptible animals
 - those who work with susceptible animals
 - event organisers
 - private veterinarians, and
 - NSW DPI and LLS staff.
- make recommendations to the NSW DPI Chief Veterinary Officer (CVO) for euthanasia of an infected animal where it is assessed that the case pose a public health or disease transmission risk.

1.2 Local Land Services

LLS authorised officers must:

- train in risk assessment, use of Personal Protective Equipment (PPE) and entry and exit procedures
- identify, assess and control risks (by elimination or minimisation)
- use appropriate PPE during all investigations
- check that their PPE fits correctly
- check at least quarterly that their field investigation kits including PPE are complete and in date
- notify their supervisor of any defect or deficiency in the PPE
- maintain oversight of any Hendra notifications they receive to ensure sampling and submission to the laboratory occurs. This may involve on occasions sampling by AOs where feasible and safe to undertake
- provide advice (referencing advisory material) where requested by a private practitioner on PPE, sampling and submission of samples, risk mitigation
- report notifications of suspected Hendra virus infection as per the [Procedure – Reporting notifiable pests and diseases of animals](#)
- notify laboratory staff of the expected delivery time of samples sent for Hendra virus testing
- contact laboratory or hotline staff to facilitate prompt testing or urgent samples
- notify local [NSW public health unit](#) staff of likely or confirmed cases of Hendra virus infection
- ensure animals they are handling are adequately restrained/tranquilized
- assess the risk of spread to humans and to other animals, and take steps or provide written advice to minimise any assessed risk following the collection of exclusion samples
- promptly report any potential exposure e.g. needle stick to [NSW public health unit](#) staff
- shower using shampoo and soap after contact with a potentially infected animals, its body fluids or anything contaminated with Hendra virus
- enter details of investigations, advice, test results and regulatory actions in Livestock Health Management System (LHMS)
- undertake property investigations including tracing to identify at risk animals or potentially contaminated lands or things
- organise sampling of close contact or Suspect Response animals if required
- give biosecurity directions
- grant a prohibited matter permits
- revoke biosecurity directions
- provide the owner/person in charge of the animal(s) on Infected Premise (IPs), Dangerous

Contact Premises (DCPs) and Trace premises (TPs) with a copy of the factsheets:

- [‘Response to Hendra virus infection in animals’](#),
- [Hendra virus - Personal Protective Equipment \(PPE\) and decontamination procedures for property owners](#)
- [‘Waiting for Hendra test results’](#).
- collect property information for IPs, DCPs and TPs
- assign Hendra virus statuses to premises
- assess the need for epidemiological assessments and organise if required
- assess susceptible species on the property and classify into risk groups
- ensure signs/tape are erected to clearly identify potentially contaminated areas
- oversee decontamination
- issue persons in charge of close contact or other high risk animals with PPE and provide initial instruction/ training in its use
- facilitate humane destruction and safe disposal of carcasses.

1.3 Shared NSW Department of Primary Industries and Local Land Services responsibilities

NSW DPI and LLS managers must:

- ensure that their staff are trained in this procedure, Risk Assessment, entry and exit procedures and the use of PPE
- ensure that their staff are briefed on the technical aspects of Hendra virus infection and its prevention
- ensure that WHS responsibilities and accountabilities in their area of control are well defined and known by all staff.

1.4 Advice to animal owners, event organisers and private veterinarians

Animal owners or managers should:

- implement strategies to minimise the risk that susceptible animals become exposed to Hendra virus
- monitor the health of their animals and contact their private veterinarians if their animal is unwell
- implement strategies to minimise the risk of spread of infection from an animal infected with Hendra virus.

A person who suspects an animal is infected with Hendra virus must notify a NSW DPI or LLS authorised officer immediately.

Event organisers should:

- develop (including consultation with veterinarians) and implement plans to:
 - mitigate the risk of an animal becoming infected with Hendra virus at an event
 - mitigate the risk of the spread of Hendra virus from an infected animal at an event.
- assist NSW DPI and LLS staff to investigate and manage infection risks where a suspect animal is identified at an event
- assist NSW Health to trace persons who may have been exposed to Hendra virus where a suspect animal is identified at an event.

Private veterinarians should:

- be familiar with the technical resource publications [Hendra virus information for veterinarians](#) and [Guidelines for veterinary personal biosecurity](#),
- develop, train in, and implement Hendra virus case investigation procedures and infection control protocols, including use of appropriate PPE, entry and exit procedures and dispatch of samples to the laboratory for animals suspected to be infected with Hendra virus
- provide advice to animal owners to reduce their potential exposure and to minimise the risk of further spread of infection until testing results are available. Give the owner a copy of the

fact sheet [Hendra-Waiting for test results](#)

- seek additional assistance from a NSW DPI or LLS veterinarian on the investigation or management of an animal potentially infected with Hendra virus as required
- collect and submit appropriate samples for Hendra virus testing
- notify the laboratory when samples are being submitted.

2. Work health and safety for Hendra virus

NSW DPI or LLS staff conducting field work on properties that are potentially infected/contaminated with Hendra virus must:

- be trained and assessed as competent in risk assessment, entry and exit procedures and the selection, use, storage and maintenance of PPE,
- identify, assess and control risks (by elimination or through minimisation) (see the '[Procedure – Risk assessment for emergency management](#)' (which includes a link to a task risk assessment template).
- follow protocols in the:
 - procedure - 'Reporting Prohibited Matter, Notifiable Pests and Diseases and other Biosecurity Events'
 - procedure – 'Prohibited Matter Pests and Diseases of Animals– Investigation and Alert Phase'
 - Procedure - [Decontamination kit for personnel](#)
 - Work Instruction [Correct use of PPE for infectious animal disease investigations](#)
 - [Primefact Personal Protective Equipment \(PPE\) and decontamination procedures for property owners](#)
 - publication [Property visits \(SWMS\)](#).
- promptly report any incidents such as needle stick injuries or where direct skin or mucous membrane contact occurs with body fluids or discharges from Hendra virus suspect cases must to the local public health unit and to a supervisor. First aid should include washing and application of viricidal solutions or ointments.

The Hendra virus vaccine is only supplied to veterinarians.

2.1 Animal handling

All contact with animals potentially infected with Hendra virus must be kept to a minimum.

Animals must be assessed prior to handling to identify how they can be effectively restrained. Handling including examination or sampling should not be undertaken unless the risk of personal contamination/injury can be adequately managed.

2.2 Personal protective equipment

The following PPE is required by all people involved in animal handling or potentially exposed to Hendra virus contaminated land or things:

- impervious boots
- splash proof overalls (impervious overalls may result in heat stress if working in direct sunlight)
- double gloves (nitrile) and taped to overalls at the wrists to provide a continuous barrier
- face shield or goggles to protect against splashes
- respiratory protection using a P2 respirator. For bearded people powered respirators are required as ordinary face masks do not seal adequately. Face masks must be fit tested before use as all brands are not universal fitting.

2.3 Post operations

Shower using shampoo and soap after contact with a potentially infected animal, its body fluids or anything contaminated with Hendra virus.

3. Notification and reporting

A person who suspects an animal is infected with Hendra virus must notify a NSW DPI or LLS authorised officer immediately. Notifications of suspected Hendra virus infection may be made by ringing the local [LLS](#) office or by calling the Emergency Animal Disease Hotline on 1800 675 888.

Notifications of suspected Hendra infection must be reported and assessed as per the Procedure - Reporting notifiable pests and diseases of animals.

4. Technical information

Technical information about Hendra virus including clinical signs, epidemiology and sampling can be found at:

- [NSW DPI Hendra virus laboratory page](#)
- [Hendra virus AUSVETPLAN response policy brief](#)
- [QDAF Veterinarian guidelines and assistance for handling Hendra virus in horses.](#)

5. Sampling

The [NSW DPI \(Laboratory Services\) Hendra page](#) sets out the preferred sampling protocol for Hendra virus. Rectal swabs or urine swabs from the ground immediately post-urination may be a safer option than nasal or mouth swabs or blood samples from live animals in some instances.

When sampling:

- involve a minimum number of people during sampling
- collect a range of samples from the one animal as it will increase the confidence in test results
- minimise contact with the animal and any blood or secretions while handling/sampling
- avoid standing in front of the horse/animal where possible
- collect blood/tissue samples last
- EDTA and clotted blood samples are preferred for PCR rather than lithium Heparin which may interfere with PCRs
- submit swabs in PBGS or if unavailable 1-2ml of saline. Do not use solid transport media as it can be inhibitory for PCRs
- do not recap needles; consider using safety engineered sharps such as retractable needle
- put used needles and scalpels straight into a sharps container
- use a new scalpel blade for any incisions
- ensure companion animals are muzzled and restrained.

If dissecting out a jugular clot or submandibular lymph node:

- use blunt dissection
- handle the clot and lymph nodes using forceps, not fingers
- cut high on the neck, so that when disposing of the carcass, the incision can be enclosed in a bag placed over the head.

5.1 Sampling for routine Hendra virus exclusion

For safety and animal welfare reasons, examination and sampling of suspect live animals is best undertaken by private veterinarians. They can provide more restraint options and wider diagnostic and treatment services while collecting samples to exclude or confirm Hendra virus infection. Where NSW DPI or LLS staff investigate possible Hendra virus cases the owner/manager must be advised that examination and sampling will be limited to Hendra virus exclusion testing only.

Prompt sampling of animals that are suspected to be infected with Hendra virus may be facilitated by:

- requesting the owner to engage a private veterinarian to sample the animal
- tasking a private veterinarian would only be considered where high level human exposure has occurred.
- sampling by LLS biosecurity staff if the horse is dead.

5.2 Sampling of in contact or suspect response animals

Where possible, **duplicate samples** should be collected from In Contact or Suspect Response animals so that one set of samples can be stored at the laboratory for review when initial laboratory results require clarification. Sampling of these animals is best undertaken by a private veterinarian.

6. Packaging and submission of samples

Information on packaging of specimens is available in the NSW DPI [laboratory services customer services page](#).

Urgent sample testing out of hours is only required in limited circumstances:

- where samples are submitted from unvaccinated suspect animals from (or recently moved from) high risk areas, and
- where there is a significant disease transmission risk e.g. race meeting or equestrian event, or
- where significant potential human exposure has occurred (e.g. needlestick injury) and NSW Health would be anticipated to recommend urgent post exposure treatment be given if the horse is positive.

Additional information on submitting samples to government laboratories and prioritisation of testing is found in Appendix 1 Submitting laboratory samples of the procedure '[Prohibited matter Animal Pests and Diseases – Investigation and Alert Phase](#)'.

7. Risk mitigation after notification of suspected Hendra virus infection

Staff who provide risk management advice to horse owners or veterinarians about suspect cases, should state that the NSW DPI/ LLS is not taking responsibility for on-going case management from the owner/veterinarian. A copy of the Primefact [Waiting for Hendra virus test results](#) should be supplied. Concerns re human health should be referred to staff of NSW public health.

Where NSW DPI or LLS staff conduct field investigations on premises where Hendra infection is suspected staff must:

- assess the risk of spread to humans and to other animals, and
- take steps or provide written advice to minimise any assessed risk.

The first step must always be to minimise any potential human health risk. However the risk assessments must also take into account the welfare needs of the animals involved. Possible actions to mitigate risk include:

- restricting movements of animals or animal products off the property
- isolation of suspect animals
- facilitate isolation or appropriate disposal of carcass
- advice and provision of PPE to the owner/manager if ongoing contact with a suspect animal is required
- isolation and decontamination of equipment, fixtures or land
- management of contaminated waste.

Premises that are strongly suspected to contain an infected animal may be subject to a biosecurity undertaking or an individual biosecurity direction.

8. Liaison with NSW Health

NSW Health must be notified immediately when:

- an animal is assessed as likely to be infected, or
- animals is confirmed to be infected, or
- there has been high risk human contact with a suspect horse

The local public health unit will be notified by the local District Vet (DV). The attending private veterinarian should be encouraged to notify the public health unit directly in cases where human exposure is of concern but the local DV must follow up as well.

The NSW DPI CVO/DVO will notify NSW Health head office.

9. Notification of laboratory results

Reporting of laboratory results will be in accordance with the Procedure - '[Reporting prohibited Matter, Notifiable Pests and Diseases and other Biosecurity Events](#)'

10. Record keeping

All events including investigations, laboratory reports and advice must be entered into the property based disease recording system. This includes risk assessments and discussions with private veterinarians about the case.

11. Issuing of regulatory instruments

Legal authority for disease control activities is derived from the Act. See the [Biosecurity Directions procedure](#).

11.1 Biosecurity directions for Hendra virus incidents

An authorised officer will issue a biosecurity direction to prevent a risk of Hendra virus exposure or transmission on Infected Premises (IP), Dangerous Contact Premises (DCP) and in other situations where significant biosecurity risks are identified. The suspicion or confirmation of Hendra virus infection is regarded as an emergency situation (section 131 of the Act).

An individual biosecurity direction can be given to a person such as the owner or occupier of a property to take certain actions to for example, to prevent a risk of Hendra virus exposure. Alternatively a general biosecurity direction may be given by an authorised officer with the appropriate approval when a Hendra virus risk is identified at, for example, an event, and all requirements for publication and communication to the relevant persons are complied with.

A template for completing a biosecurity direction in the case of an emergency to use when managing Hendra virus incidents can be found at

<https://intranet.industry.nsw.gov.au/know-the-department/our-structure/primary-industries/dpi-biosecurity-food-safety/biosecurity-act-forms/biosecurity-forms/animal-biosecurity/hendra>

When Hendra virus infection is first suspected or confirmed on a holding, knowledge about risk groups and potentially contaminated areas will be limited and the initial biosecurity direction will predominantly be about movement control at the property level. As more information is gained from interviews with owners, risk groups and potentially contaminated areas will be identified.

Subsequent biosecurity directions can then address the management of risks groups and identify how potentially contaminated areas can be managed including identifying entry and exit points and PPE and decontamination requirements on any people moving into or out of these areas.

When giving and writing biosecurity directions:

- provide a warning that it is an emergency situation
- ensure the spelling of names is correct and addresses are current
- ensure the holding is correctly identified and/or described including the DP/Lot number.
- fully describe the details of all restricted activities (e. g. close contact horses are not to be ridden or must be fed from a minimum distance of five metres.)
- designate where specific activities must be undertaken e.g. the close contact group must be kept in the area designated "xx" on the attached property map
- specify the relevant Standard Operating Procedure relating to any requirement for disinfection
- consider other property activities and the extent of potential contamination to minimise unnecessary restrictions whilst preventing further spread of infection, e.g. do not hinder routine family activities provided contact with all close contact animals, contaminated land and things can be avoided
- issue the direction to the person in apparent control of the premises (owner, occupier or a person who is leasing or managing the premises) and provide a copy to all other relevant parties e.g. other occupiers where multiple residences or owners who agist animals on the premises

- fully brief the persons in charge and other relevant parties listed above on the conditions in any legal instruments.

The biosecurity direction must:

- include a warning that it is an emergency situation
- specify the species of animals to which the direction applies
- specify the animal products, equipment, fittings and vehicles to which the biosecurity direction applies
- provide an indication of the likely time period the restrictions will apply for (e.g. typically less than 28 days)
- define contaminated areas and the designated entry/exit points to these areas
- specify where signs indicating the property is restricted are to be placed
- require a log to be maintained of all personnel and equipment entering the contaminated area(s)
- require all persons leaving a contaminated area to decontaminate and remove contaminated clothing and PPE before entering clean areas in accordance with the Procedure – [Decontamination kits for personnel](#)
- require all vehicles, items and equipment leaving the contaminated area to be decontaminated/disinfected, in accordance with the Procedure [Decontamination of vehicles and equipment](#) and using a final disinfection with a disinfectant as per the [AUSVETPLAN Decontamination Manual](#)
- specify the manner of destruction of any items to be destroyed
- record the name/identification of all animals that have been classified as infected, suspect response or a close contact animals
- require contact with infected, suspect response or close contact animals to be limited to essential tasks
- require persons in charge of any infected, suspect response or close contact animals to prevent children having contact with these animals
- restrict the movement of all susceptible animals within and off a holding including instructions to:
 - move animals out of contaminated areas
 - check and repair fences as required
 - confine any infected or suspect response animal in specified designated areas separate from low risk animals
 - confine close contacted horses in specified designated areas separate from low risk animals until monitoring and testing is complete
 - confine close contact companion animals in specified designated areas separately from humans and other animals until monitoring and testing is complete.
- include a property map showing high risk/contaminated areas, entry and exit points and the location of risk groups
- note the names of owners or managers who have been issued with PPE and provided with training in its use
- require any person to wear PPE if going within:
 - five metres of a horse that is a Confirmed Case, a Suspect Response Horse, or a Close Contact Horse, or
 - one metre of a Confirmed Case companion animal, a Suspect Response companion animal or a Close Contact Animal.
- require owners or persons in charge of animals to:
 - monitor the health of close contact animals daily
 - monitor the health of Suspect Response animals and infected animals at least twice a day

- record health observations in the [Hendra Virus –Animal observation checklist](#), and
- advise an authorised officer immediately of any emerging animal health/welfare issues.

Note: An *emergency order that is property specific* may be served on the owner, occupier or person apparently in charge of the Hendra affected property where there are concerns about likely compliance with or challenge of a biosecurity direction.

11.2 Moving animals on Hendra virus restricted properties

A permit to move susceptible animals within and off a holding during a Hendra virus response can be found on the [Biosecurity permits webpage](#).

An authorised officer may issue a permit to move:

- low risk animals (including close contact animals with a current Hendra virus vaccination status) without any testing
- Hendra virus positive or suspect response animals to uncontaminated areas on the property (consequently increasing the contaminated area) only where it is absolutely essential
- Hendra virus positive or suspect response animals to another premise only with prior permission from the NSW DPI CVO.

11.3. Removing restrictions

A biosecurity direction revoking all restrictions will be given when:

- 21 days have elapsed since the last confirmed positive case, and
- no Suspect Response animals remain on the premises, and
- all Close Contact animals have negative health monitoring for Hendra like symptoms or
- there are no Close Contacts and 10 days have elapsed since the death of a positive case.

12. Veterinary Investigations on Infected Premises, Dangerous Contact Premises or Trace Premises

12.1 Advice to persons in charge of animals

The owner/person in charge of the animal(s) should be given a copy of the factsheets, [Response to Hendra virus infection in animals](#), [Hendra virus - Personal Protective Equipment \(PPE\) and decontamination procedures for property owners](#) and [Waiting for Hendra test results](#).

12.2 Collection of property information

Complete and accurate property information must be collected to make decisions about possible contact animals and likely contaminated areas.

12.2.1 Surveillance information

The following information must be recorded:

- name and contact details of person in charge of premises
- name and contact details of any other persons who reside in separate residences on the premises or reside elsewhere but own/manage animals on the premises
- traces as per 10.1.2
- animal identification details as per 10.1.3
- number and type of each animal species on the property including all pets
- feral and stray animal sightings
- map of premises.

Any susceptible animals that may have contacted an infected animal, contaminated land or a contaminated fomite must be identified and the details of the known or likely contact or other relevant epidemiological information recorded e.g. 'Prince' nose to nose contact on xx.xx.xxxx, 'Browny' shared paddock with infected horse, 'Fluffy' allowed to roam at night, 'Goldie' sniffed carcass. (Note: use microchip or other unique identifier details where possible)

Other relevant epidemiological information e.g. are animals hungry, potential contamination of feed/water by bat body fluids, which animals in mob are generally dominant, temperament of infected animal, etc. should also be entered on the property file.

12.2.2 Tracing information

Tracing to and from the property must be conducted to identify other places where Hendra virus infection/contamination may be present. This will include:

- the location/s where an infected animal has been in the 16 days prior to the onset of clinical signs (to identify where the animal may have been infected)
- movements of susceptible animals to and from suspect premises for 16 days before the first observation of unusual morbidity or mortality in the susceptible species (to identify any animal that may have been infected at or around the same time as the infected animal)
- susceptible animals on neighbouring properties that are close contacts
- animals known or likely to stray onto the property that are close contacts, and
- potentially contaminated items (including vehicles, feed or fittings) that have left the property after known or potential contact with Hendra virus in the previous 10 days.

Note: tracing for the 10 days before Hendra virus illness or death was observed on the infected premises will primarily relate to items contaminated by moderately invasive procedures of the nasopharyngeal area of horses (e.g. stomach tubing or dental work).

12.2.3 Animal identification

All susceptible animals (except those classified as low interest animals) must be accurately identified. Identification records should include the:

- registered name
- stable or pet name
- current location of animal on property
- brands, eartag number, collar number and/or microchip number
- description including markings
- Hendra virus vaccination status (need vaccination certificate or database printout).

On properties with multiple animals of one species photographs should be taken of individual animals.

Where individual animals cannot be readily identified by operational staff, including incoming staff rostered or contracted for field duties, the animal should be fitted with suitable identification devices e.g. numbered head collars.

12.2.4 Property map

A property map identifying the following should be developed to assist response decision making:

- boundary and internal fences
- known or suspected contaminated areas
- possible entry and exit points and a decontamination area
- gateways
- waterways/dams and water points
- stables and yards
- location of animals including where infected animals have been located in the 16 days prior to exhibiting clinical signs
- roads and laneways
- buildings/feed sheds/storage areas
- residences
- potential and known disposal areas
- immediate neighbours including type of enterprises if known
- potential hazards and other considerations which could impact operations, and
- approximate distances and building dimensions should be included.

12.3 Premises classification

Premises holding known or potentially infected animals or other things contaminated with Hendra virus should be allocated a status in the property based disease recording system as per the [LHMS field guide](#) according to the table below - Section 1 *Premises classification for sporadic Hendra virus incidents*.

In the event of multiple incidents or large numbers of traces the NSW DPI CVO may request that additional statuses as per Section 2 *Additional premises classification for multiple Hendra virus incidents* are applied to facilitate reporting.

1. Premises classification for sporadic Hendra virus incidents

<i>Dangerous Contact Premises (DCP)</i>	Premises that holds animals not showing clinical signs but that following a risk assessment is considered highly likely to contain a Close Contact animal or contaminated vehicles, equipment or things that may present an unacceptable risk to the Hendra virus response if not addressed. It includes neighbours to an IP where risk assessment confirms that it is highly likely that one or more animals are Close Contacts (e.g. known close contact between neighbouring horses and the infected horse on an IP).
<i>Infected Premises (IP)</i>	A premises or part premises holding an animal which is an Infected Case, or where viable Hendra virus shed by an animal which is an Infected Case exists or is believed to exist on the property.
<i>Trace Premises (TP)</i>	Temporary classification of premises that tracing indicates requires investigation as it may contain: <ul style="list-style-type: none">• a susceptible animal(s) that has/ have been exposed to a confirmed case, or a contaminated fomite(s), or• a contaminated animal product, or• a contaminated fomite.
<i>Resolved Premises (RP)</i>	Premises that was previously classified as IP or DCP that has completed the required control measures.

2. Additional premises classification for multiple Hendra virus incidents

<i>Assessed Negative Premises (ANP)</i>	Premise that was previously classified as a SP where following testing of at risk animals it is concluded that the premises does not contain an infected animal at the time of designation.
<i>At Risk Premises (ARP)</i>	Premises that contain a susceptible animal(s) but that is not considered at the time of designation to be an SP, DCP, IP or TP.
<i>Suspect Premises (SP)</i>	Temporary classification of premises that contain a suspect animal.
<i>Unknown Premises (UP)</i>	Premises with no information re animals or traces.
<i>Zero Premises (ZP)</i>	Premises that does not contain susceptible species and is not known to have received potentially contaminated things.

12.4 Epidemiological assessment

An expert epidemiological assessment of risks relating to Hendra virus infection may be undertaken on occasions to gain a better understanding of risk factors for spill over events. The LLS will coordinate these assessments and will:

- seek permission from the owner/manager of the premise for any site visits by experts
- source experts with experience in bat ecology and/or Hendra epidemiology, and
- distribute any reports from the experts.

12.5 Surveillance on Infected Premises, Dangerous Contact Premises or trace properties

Suspect Response animals should be sampled as soon as practical to confirm if they are infected.

Close contact animals must be monitored and if required may be sampled (if safe to do so) after being identified as a close contact.

Low risk animals (including close contact horses with a current Hendra virus vaccination status) do not need to be sampled.

If test results are not definitive, the relevant animals should be re-sampled as soon as practical.

13. Implementing biosecurity controls

Effective biosecurity controls must be implemented immediately to prevent spread of the disease to susceptible species including humans.

13.1 Identification of high risk areas

Any areas of the property that are high risk for a spill over of Hendra virus from flying foxes should be identified (e.g. fruiting fig trees or feed or water troughs under blossoming trees). Where practical, susceptible animals should be excluded from these areas to minimise the chance of another spill over event.

13.2 Assessment and segregation of susceptible animals in like status “risk groups”

Using the property map and tracing information all susceptible animals should be categorised as per Hendra virus case definitions as a:

- confirmed case
- suspect response animal
- close contact animal
- low interest animal.

Animals should then be segregated in like risk groups to prevent disease spread to healthy animals. Segregation may be by a physical barrier like a solid wall or separation using a fence by a minimum of five metres from a Close Contact horse or one metre from a Close Contact companion animal.

Any Close Contact animal showing clinical signs consistent with Hendra virus infection is to be reclassified as a Suspect Response animal, segregated and tested.

Where insufficient paddocks are available to provide a five metre buffer around close contact horses temporary fencing can be used for segregation to create a minimum five metre buffer. It is important that susceptible animals on adjoining properties are also not able to come within five metres of higher risk groups. Moving them away from boundary areas is recommended.

13.3 Classification of land or other items that that require decontamination

The following land should be classified as contaminated (i.e. part of the contamination area):

- a) all land on which an infected animal has been located in the period from the onset of clinical signs
- b) any land contaminated with bodily fluids/stable waste from an infected animal
- c) any land contaminated with nasopharyngeal fluids/blood from an infected animal in the 10 days prior to the onset of clinical signs
- d) all the land within a one metre buffer around the land specified at a, b and c above that has held a companion animal, and

- e) all the land within a five metre buffer around the land specified at a, b and c above that has held a horse.

Fixtures and equipment known or likely to have directly contacted:

- blood or nasopharyngeal secretions secreted or excreted from a Hendra virus positive animal in the 10 days prior to the onset of clinical signs (i.e. pre-clinical), or
- body fluids (including nasopharyngeal secretions, urine, blood) or faeces from a Hendra virus positive animal, or a suspect response animal (NB: this may be by contacting the infected animal or carcass) for up to 10 days after secretion or excretion

should be classified as possibly contaminated with Hendra virus.

13.4 Securing close contact animals

Fences should be checked and repaired where necessary to prevent horses from straying.

Close contact companion animals must be confined separately from humans and other animals until monitoring and testing is complete. Close contact dogs should be held in a secure yard or run or tied up and close contact cats confined to a cage or other secure area.

13.5 Access to contaminated areas

Contaminated areas within the premises should be defined as soon as practical to identify operational risks relating to their proximity to infected animals and/or animal products. A biosecurity direction will define these areas.

Contaminated land, equipment and things must be managed to:

- prevent the movement of Hendra virus to a new site (including within an existing premises), and
- minimise the risk to people and uninfected animals of exposure to Hendra virus, and
- ensure anything that has been contaminated with secretions from an infected animal is destroyed or decontaminated.

A physical identifier such as hazard tape and signs i.e. "Caution - Do Not Enter" or "Danger" should be used to distinguish the line between the contaminated and clean areas.

Entry to the contaminated areas should be via designated entry/exit points specified on a biosecurity direction.

Personnel and equipment entering the contaminated area(s) must be recorded in a log.

Animals and people should be moved off contaminated land. Further entry to contaminated areas should be avoided where possible.

Where a contaminated area/stable has to be used by other susceptible animals it must be decontaminated as per the [AUSVETPLAN Decontamination Manual](#). Use of contaminated areas must be as a last resort and must be authorised by the CVO.

NB: A susceptible animal introduced into a contaminated area will become a close contact animal. Where animals cannot be moved out of contaminated paddocks, areas of gross contamination should be fenced off or decontaminated.

All contaminated areas must be:

- clearly identified e.g. by hazard tape and/or warning signs
- clearly identified on the site map. The map should be used to identify other animals that may have been exposed to infection by potential contact with this land.

13.6 Decontamination

Contaminated land, fixtures or equipment must be decontaminated by isolation for ten days or if isolation is not possible, by disinfection in accordance with [AUSVETPLAN Decontamination Manual](#).

Everything leaving the contaminated area must be decontaminated /disinfected:

- all persons leaving a contaminated area must decontaminate and remove contaminated clothing and PPE before entering clean areas
- procedure – [Decontamination kits for personnel.](#)

Vehicles and equipment leaving the contaminated area must be decontaminated/disinfected, see:

- procedure — [Decontamination of vehicles and equipment](#)
- Risk Assessment – [Working around plant and equipment.](#)

Equipment should be cleaned of dirt and organic matter using water and detergent prior to final decontamination. This initial clean down should be completed away from (though in close proximity to) the final decontamination site, then equipment moved to the decontamination site for final treatment. Final decontamination is to be completed with a disinfectant as per the [AUSVETPLAN Decontamination Manual.](#)

13.7 Contact with animals on the declared premises

To limit risks to human health, contact with Hendra positive animals, suspect response animals and close contact animals should be restricted to essential tasks.

Essential tasks include:

- provision of food and water
- critical veterinary care
- daily health monitoring (see section 13)
- exercise required for animal health and welfare purposes
- emergency situations to address animal welfare obligations e.g. horse caught in fence
- Hendra virus operational tasks e.g. testing, euthanasia.

Owners must use PPE, trained in its use and advised to wear PPE if going within:

- five metres of a horse that is a Confirmed Case, a Suspect Response Horse, or a Close Contact Horse, or
- one metre of a Confirmed Case companion animal, a Suspect Response companion animal or a Close Contact Animal.

Advice and training is to be documented in the biosecurity direction.

14. Vaccination of close contact horses

Horses including close contact horses that do not have current Hendra virus vaccination status may be vaccinated against Hendra virus to reduce the chance of transmission of infection. If undertaken it will be at owner expense. The vaccine can only be administered by a veterinarian. Vaccinated horses are microchipped and details of vaccinated horses recorded on a publicly accessible database at <https://www.health4horses.com.au/?ReturnUrl=/index.aspx>

Label details for the Hendra Virus vaccine can be found at

<http://websvr.infopest.com.au/LabelRouter?LabelType=L&Mode=1&ProductCode=68996>

15. Monitoring of animals on infected premises, dangerous contact premises or trace premises

A biosecurity direction should include the requirement for owners or persons in charge of the high risk groups to undertake health monitoring as part of the ongoing care of the animal. In grazing animals health monitoring may be possible from outside the contamination area and at a minimum five metre distance precluding the need to use PPE. In situations requiring closer contact such as grooming, feeding, feet trimming, etc PPE must be used. Temperatures should not be measured if PPE has to be donned for this task alone.

Suspect Response animals and infected animals should be monitored at least twice a day to identify potential emerging animal welfare issues.

Close Contact animals must be observed for clinical signs of illness at least once a day and details noted in the [Hendra Virus –Animal observation checklist.](#)

Monitoring may cease when an animal is reclassified as negative for Hendra virus.

Low Risk animals should be monitored by the owner/manager in the same way as any other animal under their control.

16. Euthanasia

Animals showing clinical signs of Hendra virus infection frequently die or are euthanased before laboratory results are available. In situations on IPs or DCPs where positive or suspect response animals are alive, euthanasia may be appropriate to manage the risk of disease transmission, address animal welfare concerns or manage owner anxiety.

Euthanasia activities should only be performed by experienced and competent operators. Plans for the euthanasia must be developed in conjunction with plans for carcass disposal (see Section 16).

All activities surrounding the euthanasia of an animal must be treated with sensitivity.

All team members must be fully briefed prior to the conduct of any destruction actions.

Reference should be made to the:

- [Australian Standards and Guidelines for the Welfare of Animals — Land Transport of Livestock](#), and
- [AUSVETPLAN Destruction of Animals Manual](#).

Factors to consider include:

- proximity to the neighbours and the general public
- the erection of a temporary structure to screen any activities that may be viewed by neighbours and the general public
- minimising potential media attention (this may include restricting air space)
- notification of immediate neighbours.

16.1 Elective euthanasia

The Site Supervisor may facilitate the humane destruction and subsequent disposal of an animal with clinical signs consistent with Hendra virus. They must ensure that:

- the animal nominated for destruction is correctly identified
- the lawful owner/manager and the supervising veterinarian has signed a completed form [permission for euthanasia](#).

16.2 Euthanasia under a Biosecurity Direction (destruction order)

There may be situations where confirmed Hendra virus cases pose a public health or disease transmission risk if alive and euthanasia is recommended by the NSW DPI CVO as the most appropriate action. In those situations a written briefing justifying why euthanasia is appropriate must be prepared for NSW DPI CVO approval by the incident manager who must ensure that:

- a Biosecurity Direction in relation to the animals proposed euthanasia is given to the animal's owner at least 24 hours prior to the proposed euthanasia and that they are given an opportunity to lodge an objection before proceeding with any destruction operations and
- the animal nominated for destruction in the biosecurity direction is clearly and correctly identified.

17. Post-Mortem of infected animals

On occasions valuable scientific information may be gained from post-mortem examination of positive or suspect response animals. An example would be infection in companion animals or in other species not previously confirmed to be naturally infected in field situations.

However a full post-mortem is a high risk procedure and should only be undertaken by experienced personnel with appropriate equipment and/or facilities to manage the risk. A risk assessment must be completed and NSW DPI CVO approval sought before undertaking a full post-mortem.

18. Disposal

Planning for disposal of carcasses needs to be carefully undertaken in consultation with experienced staff, the Environmental Protection Authority and possibly local government. All methods for disposal

should be considered as each situation will present different challenges and options. The following resources provide detailed information on animal disposal options and planning:

- [Primefact – Hendra Virus horse carcass disposal](#)
- [AUSVETPLAN Disposal Procedures Manual](#).
- [Procedure - Disposal planning](#)
- [Procedure – transport of carcasses and contaminated material](#)
- [RA - transport of carcasses and contaminated material](#).

18.1 Onsite disposal

This is the preferred option in most instances provided sufficient land is available and water table contamination can be managed.

Burning or burial must be in accordance with advice from relevant authorities.

18.2 Offsite disposal

Offsite disposal may be the preferred disposal option when for instance horses die in a public place or locations where insufficient land is available for burial. In these instances the resource documents for moving contaminated material listed above must be consulted.

When machinery is used to handle Hendra virus positive carcasses it is important that machinery operators do not handle contaminated material directly unless wearing full PPE. If the animal is buried next to where it died the bucket of the machine can manipulate the cadaver into the hole with no contact required and only the bucket needs decontamination. If the carcass has to be moved either use the bucket or chains that are applied by someone wearing PPE. Anything that has touched the contaminated material must be decontaminated.

19. Definitions and acronyms

Animal Product	includes: <ul style="list-style-type: none">• the hide, skin, hair, wool, feathers, shell, horn or hoof of an animal, or• any meat, fat, milk, whey, cream, butter, cheese, eggs or other food or foodstuffs derived from an animal, or• any part of the viscera of an animal, or• any dung, urine, faeces, bone or blood of an animal, or any article or substance derived from the dung, urine, faeces, bone or blood of an animal, or• any secretion of an animal, or• any product or biological preparation made or derived from any animal tissue or animal secretion, or• any article or substance derived from an animal, whether or not in combination with any other article or substance, or• any other article, substance or thing that is declared by the Minister, by order published in the Gazette, to be an animal product for the purposes of the Act.
Authorised officer	An authorised officer means a person who is appointed as an authorised officer under the Act and includes Police Officers
Biosecurity Duty	
Veterinarian	The veterinarian who is responsible for taking and managing calls on the Emergency Animal Disease hotline.
Close Contact Animal	A susceptible animal without a current HeV vaccination status known to have or assessed as having potentially: <ul style="list-style-type: none">• come within five metres of a clinical horse that is a confirmed case, or a suspect response horse (based on range of droplet spread); or• come within one metre of a clinical companion animal that is a confirmed case, or a suspect response companion animal (based on range of droplet spread); or• had direct contact with body fluids (including nasopharyngeal secretions, saliva, urine, blood,) or faeces within 10 days of secretion or excretion (based on maximum virus survival time) from an animal that is a

symptomatic confirmed case, or a suspect response animal, or the carcass of recently deceased confirmed case; or

- had direct contact with blood or nasopharyngeal secretions from a **preclinical** confirmed case or a suspect response animal in the 10 days prior to the onset of clinical signs (based on infectious period); or
- had direct contact with blood or nasopharyngeal secretions during the potential infectious period (after exposed to virus and before confirmed to be infected) from an asymptomatic confirmed case or
- direct contact with a contaminated thing

Note: If an animal has had close contact with a suspect response animal that is later proven to not be a confirmed case, this animal may be reclassified as low interest.

Companion animal Includes dogs, cats, rabbits, guinea pigs, ferrets whether kept as pets, or for therapy, work or commercial purposes.

Contaminated area Is an area that has not been decontaminated and

- holds/has held a horse that is a confirmed case e.g. stables/round yard/paddock where possible contamination from body fluids or faeces has occurred from the 10 days prior to the onset of clinical signs (based on infectious period (equine)), while clinical signs are present and in the 10 day period after death (based on maximum virus survival time); or
- holds/has held a 'suspect response horse' or a 'close contact horse' plus a buffer zone of a minimum of 5 metres or
- holds/has held a companion animal that is a confirmed case, a suspect response animal or close contact animal plus a buffer zone of a minimum of 1 metre or
- is within a five metres radius of where a horse that is a confirmed case has been buried or burnt. or
- on the basis of a risk assessment Hendra virus contamination is thought possible.

Note 1: A contaminated area will be considered decontaminated 10 days after the last known potential secretion or excretion of the Hendra virus (based on maximum survival time).

Note 2: If the close contact or suspect response animals held in an area are tested negative then the areas they are housed in may be reclassified as no longer part of the contaminated area.

Contaminated Thing Any vehicle, equipment or other item that has had direct contact (i.e. touched) with body fluids (including nasopharyngeal secretions, urine, blood) or faeces from a Confirmed Case or a suspect response animal (including carcasses) in the 10 days following secretion or excretion. This includes contact with blood or nasopharyngeal secretions from a confirmed case that were secreted in the 10 days before the onset of clinical signs.

DCP Dangerous Contact Premises

NSW DPI New South Wales Department of Primary Industries

NSW DPI CVO NSW DPI Chief Veterinary Officer

ELISA Enzyme-linked immunosorbent assay

Horse All members of family equidae, including horses, ponies, mules, donkeys and zebras.

Infected case An infected case is:

- a terrestrial animal (with or without clinical signs) that tests positive to Hendra virus using one or more of the following tests:
 - polymerase chain reaction (PCR)
 - virus isolation
 - immunohistochemistry,or
- an animal for which testing has not been possible or for which testing is inconclusive, but scientific evidence (clinical, laboratory, epidemiological) that the animal is/was infected is compelling (eg confirmed human infection following contact with an animal with clinical signs and history suggestive of Hendra virus infection).

Infectious period prior to clinical signs A minimum 10 days.

Note: On the basis of current field and experimental knowledge the likely risk period for possible transmission of infection in a horse prior to the onset of clinical signs is five days (i.e. genetic material has been identified (via PCR) in nasal secretions from a horse five days prior to it demonstrating clinical signs)¹. Consistent with the precautionary approach historically adopted by the OIE, this figure has been doubled to a conservative figure of 10 days that a horse may be infective prior to exhibiting clinical signs. Including 'minimum' allows discretionary extension of the 10 day period where there is uncertainty about the exact date of onset of clinical signs, or where circumstances deem that additional precaution is appropriate.

IP	Infected Premises
Level 4 Zoonotic disease	Is a pathogen that usually produces a very serious human or animal disease, which can be untreatable, and which may be readily transmitted from one individual to another or from animal to human, through contact.
Low interest animal	can be: <ul style="list-style-type: none"> • A close contact animal with a current Hendra virus vaccination status, or • A susceptible animal on a quarantined property that is not a Hendra virus confirmed case, a suspect response animal or a close contact animal
LLS	Local Lands Services
Negative Case	An animal that appropriate samples have been collected from and: <ul style="list-style-type: none"> • Is a Close Contact animal and was sampled at 20 days since the date of last contact with a Confirmed Case and gives negative results to PCR testing and to an antibody profile specific to infection by VNT or ELISA testing; or • Is a Suspect Response animal and has been sampled at 20 days since the date of onset of clinical signs and gives negative results to PCR testing and to an antibody profile specific to infection by VNT or ELISA testing; or • Is a Suspect animal and has been sampled and gives negative results to PCR testing and to an antibody profile specific to infection by VNT or ELISA testing.
PCR	Polymerase Chain Reaction
PPE	Personal protective equipment
Range of droplet spread	Current field and experimental knowledge indicates that Hendra virus is transmitted by contact or droplet transmission (rather than aerosol). No definitive studies describing the range of respiratory droplet spread from horses could be found. The minimum distance of five metres is based on the absence of transmission to horses beyond this distance in field scenarios, on qualitative extrapolation of droplet studies in humans and observations of exhaling horses after exercise. Including 'minimum' allows the discretionary extension of the five metre distance where circumstances deem that additional precaution is appropriate ²
Site supervisor	The person supervising the Hendra virus response related operations at a workplace or quarantined site.
SP	Suspected Premises
Susceptible animals	Include horses, dogs, cats, pigs, guinea pigs, rabbits, hamsters and ferrets and any other species which have been shown to be susceptible to infection with Hendra virus under laboratory or natural conditions.
Suspect animal	A susceptible animal which is showing signs that could be indicative of Hendra virus infection as listed under "suspicious clinical signs": or A healthy animal that is ELISA positive to an antibody profile specific to Hendra infection (VNT and PCR testing pending).

¹ Marsh, GA, Haining, J, Hancock, TJ, Robinson, R, Foord, AJ, Barr, JA, Riddell, S, Heine, HG, White, JR, Crameri, G, Field, HE, Wang, L-F and Middleton, D 2011, 'Experimental infection of horses with Hendra virus/Australia/Horse/2008/Redlands' *Emerging Infectious Diseases* 17(12), DOI: 10.3201/eid1712.111162.

² El Saadi D, et al. Hendra virus interagency technical working group Hendra virus infection prevention advice 2010.

Suspect response animal

Any susceptible animal on an IP or DCP showing any sign of illness (including increased temperature, respiratory signs, gastrointestinal or neurological signs) consistent with the current knowledge of Hendra virus infection. Note that the current knowledge of clinical signs of Hendra virus in animals other than horses is principally extrapolated from knowledge of Hendra virus in horses.

Suspicious clinical signs

There are no pathognomonic clinical signs associated with Hendra virus infection. Horses infected with Hendra virus have shown variable and vague clinical signs. Most commonly an acute rapidly fatal illness with dominant respiratory or neurological signs is seen but a more prolonged illness has been reported on occasions. Pyrexia is a frequent early finding but may be absent later in the course of the illness. Sudden deaths with no observed illness have also been reported on a number of properties. Some of the signs observed include:

- acute onset of illness
- increased body temperature (pyrexia)
- increased heart rate
- discomfort/weight shifting between legs (both fore and hind limbs)
- depression
- rapid deterioration
- neurological symptoms including any of:
 1. 'wobbly gait' progressing to ataxia altered consciousness – apparent loss of vision in one or both eyes, aimless walking in a dazed state
 2. head tilting, circling
 3. muscle twitching – myoclonic spasms have been seen in acutely ill and recovered horses
 4. urinary incontinence
 5. recumbency with inability to rise.
- respiratory symptoms including any of:
 6. pulmonary oedema
 7. respiratory distress
 8. terminal nasal discharge (may be frothy/blood tinged)
 9. pulmonary congestion.
- other observations including:
 10. previous unexplained horse deaths
 11. facial oedema
 12. facial paralysis and/or a locked jaw
 13. spasms of the jaw, involuntary chomping
 14. muscle trembling
 15. altered gait, high stepping
 16. anorexia
 17. slow capillary refill
 18. colic-like symptoms including rolling (generally quiet abdominal sounds on auscultation of the abdomen in pre-terminal cases)
 19. straining with difficulty passing manure
 20. stranguria (difficult urination) – seen in several terminal cases in both males and females (Hendra 1994); dribbling urine – seen in some terminal cases (Redlands 2008)
 21. hot hooves
 22. bad breath/halitosis
 23. delayed blood clotting times.
 24. heavy sweating

Note: Some horses may have a mild illness from which they recover.

Trace Premises

TP
VNT

Virus Neutralisation Test for antibody detection. Sometimes referred to as Serum Neutralisation Test or SNT.

20. Documentation

Policy - Prohibited matter sporadic pests and diseases of animals

Policy - Biosecurity collection, use and disclosure of information

Procedure - Biosecurity collection, use and disclosure of information

Procedure – Prohibited Matter Pests and Diseases of Animals – Investigation and Alert Phase

Procedure - Reporting notifiable pests and diseases of animals

Primefact - [Personal Protective Equipment \(PPE\) and decontamination procedures for property owners](#)

Presentation [Personal decontamination for property visits](#)

Procedure - [Decontamination kits for personnel](#)

Procedure - [Decontamination of vehicles and equipment](#)

Procedure - [Transport of carcasses and contaminated material](#)

Procedure - [Disposal planning](#)

[Primefact - Hendra Virus](#)

[Primefact -Waiting for Hendra virus test results](#)

[Primefact -Response to Hendra Virus infection in animals](#)

[AUSVETPLAN - Response Policy brief Hendra virus infection](#)

[AUSVETPLAN -Operational Procedure Manuals – Decontamination, Disposal, Destruction of animals](#)

[Biosecurity Qld Veterinary guidelines for handling potential Hendra virus in horses](#)

[SWMS Driving vehicles](#)

[SWMS Handling of animals](#)

[SWMS Property visits](#)

Risk assessments [Maintaining biosecurity entering and exiting properties](#)

NSW Health factsheet [Hendra factsheet](#)

Resource material on biosecurity for veterinarians is available on the Australian Veterinary Association website. <http://www.ava.com.au/biosecurity-guidelines>

21. Records

All events must be recorded in LHMS.

Records created in relation to any property under a Biosecurity Direction in the case of an emergency must be stored for a minimum of ten years.

22. Revision history

Version	Date issued	Notes	By
1	01/07/2017	New procedure developed from amalgamation and complete revision of old policy and procedures in response to the <i>Biosecurity Act 2015</i> .	Animal Biosecurity and Welfare
2	3/6/20	Edits to clarify notification to NSW health, changes to sampling requirements for close contacts, label change for Vaccine, clarification of role of AOs and private vets in sampling suspect horses and changes to some definitions and review hyperlinks and links to internal resources.	Animal Biosecurity

23. Contact

Biosecurity NSW – General Enquires

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