



Hendra virus – WHS Risk Assessment

Context

Hendra virus is a Biosafety level 4 zoonotic agent. Flying foxes are the natural hosts for Hendra virus. The virus can spread from flying foxes to horses. Very rarely, the virus can spread from horses to humans. As of August 2013:

- No humans have contracted Hendra virus by any means other than horse-to-human spread (there have been no cases of human-to-human, human-to-horse or bat-to-human spread of Hendra virus);
- Dogs, cats, pigs, guinea pigs and ferrets have been shown to be susceptible to infection with Hendra virus in laboratory conditions;
- One dog was shown to have had Hendra virus antibodies after close contact with a Hendra virus infected horse.

Although Hendra virus does not transmit readily from horses to humans it can cause very serious illness or death and there is no known treatment or vaccination for humans. Stringent biosecurity, work health and safety and infection control measures are therefore essential to deal safely and effectively with Hendra virus.

Users are reminded of the need to follow safe work practice when applying any techniques described in this publication. This includes identifying, assessing and managing any work health and safety risks.

Safe Work Method Statements that refer to activities included in this risk identification document must be used in assessing and managing risks.

Once a property has been quarantined for Hendra virus (i.e. NSW DPI has taken control of it), NSW DPI has Work Health and Safety (WHS) responsibilities for all other persons on that property, including the owners, under the [Work Health and Safety Act 2011](#).

Area / property (where relevant): NSW			
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1 Specific Risk	2 Source(s) of Risk	3 Area(s) of Impact	4 Current Risk Treatment
<p>Personnel (and others on farm) becoming infected with Hendra virus during Hendra virus surveillance and control activities</p>	<p>Animal disease- Hendra virus (HeV)</p>	<ul style="list-style-type: none"> ▪ Human health ▪ Organisational capability ▪ Political ▪ Reputation and image 	<p>Eliminate</p> <ul style="list-style-type: none"> ▪ Eliminate the need to enter site to perform non-contact disease control activities. Use alternate communication means, e.g. fax, phone, email, meet owner/manager at alternate location. ▪ Minimise the number of personnel entering the site and having contact with horses. A maximum of 2 personnel is required for any task unless otherwise determined by risk assessment. ▪ Do not handle horses that require vigorous restraint, therefore minimising personnel near the horse. Where possible only the person taking the samples or observations should be within 5 metres of the horse. A second person must be observing the person in contact with the horse. Horses in an agitated state increase the possibility of harming personnel and damaging or dislodging PPE. <p>Isolation</p> <ul style="list-style-type: none"> ▪ Personnel remain at least 5 metres from horses when monitoring horses for signs of the disease. Minimal PPE can be used if entering the site but not approaching horses closer than 5 metres, or known or potentially contaminated areas. ▪ Personnel must remain at least 1m from companion animals when monitoring for signs of disease. Where companion animals have had known contact with infected horses, a minimum level P2 must be used during handling. Animal must be contained in isolation until cleared of infection through testing. Quarantined areas must be clearly signalled through use of tape and signage to prevent accidental access. ▪ All contact with Hendra virus positive animals, suspect animals and close contact susceptible animals is to be kept to a minimum. All contact with Hendra virus contaminated or potentially contaminated land or equipment is to be kept to a minimum. <p>Administrative</p> <ul style="list-style-type: none"> ▪ Role specific induction for all personnel at site including staff from LHPA, DPI, subcontractors, owners and visitors, prior to commencing any Hendra virus response activities. ▪ Task briefings for <u>all</u> members of a team who conduct operations on a quarantine

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			<p>premises to inform them of the situation, the sequence of steps, the risks and their role before the task is commenced. Briefings must be clear and concise and all team members must be given an opportunity to clarify any issues dealing with the proposed task.</p> <ul style="list-style-type: none"> ▪ Entry and exit procedures from an IP, DCP or 'high risk zone' to be in accordance with the 'Procedure – Entry and exiting an IP/DCP for significant operations'. ▪ Policies that support adoption of a reduced risk approach e.g. policy that outlines requirements for working in a HeV response and procedures that describe the activities to be performed on site. This includes competency based documents on PPE, decontamination. ▪ Medivac plan for the site to account for any injuries sustained by personnel entering the site (including private veterinarians and their staff) and already on site (owners, managers, workers and family members). ▪ Activities are planned to minimise contact frequency and duration. <ul style="list-style-type: none"> • Sampling must be performed by job experts that are also trained and competent in PPE use. • Destruction location of suspect and positive HeV horses should consider disposal options to minimise carcass handling. ▪ Trained personnel – Personnel that are likely to enter properties are trained in the appropriate procedures including entry/exit, use of PPE, and risk assessments. ▪ Health monitoring for personnel entering the site (including private veterinarians and their staff) and those already on site (e.g. owners, managers, workers and family members) and advice to personnel on what clinical signs to look for after known/potential contact. In addition NSW Health will convene a panel to assess the exposure and need for follow up monitoring of persons who have had contact with an infected animal or its excretions/secretions. A DPI veterinarian will provide advice to the panel. ▪ Welfare monitoring and support for personnel (as listed above) - Assess negative impacts on personnel working with a zoonotic disease, conducting destruction/disposal activities and/or residing on a property with a zoonotic disease. ▪ Good hygiene practices e.g. washing hands and face, and no eating, drinking, smoking on site. ▪ Personal decontamination procedures to allow for allergies to soaps/detergents, use of

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			<p>least hazardous chemical and use in accordance with manufacturer's instructions and material safety data sheets. Least hazardous options:</p> <ul style="list-style-type: none"> • Skin contact - soaps or detergents or alcohol sanitizer gel or wipes • Specialised PPE (respiratory and eyewear) – Trigen or similar product recommended by the manufacturer that does not affect PPE components • Goggles/face shields, tools and instruments - 70% alcohol • Equipment, vehicles, boots, instruments etc – after gross contamination removed apply detergent (e.g. Farmcleanse, truck wash) or disinfectant (e.g. Hibitane (chlorhexidine)) for at least 10 mins and rinse with clean water • Footbaths – detergent or disinfectant <ul style="list-style-type: none"> ▪ Personnel permitted on site need to be: <ul style="list-style-type: none"> • Healthy including not displaying flu/cold symptoms, • Not be in medical high risk categories (e.g. pregnant women, people who have existing health problems, such as diabetes, respiratory, heart and renal disease), and • No children or minors to be granted access to site. ▪ Manual handling considerations: <ul style="list-style-type: none"> • Working in more restrictive PPE – ensure people practice wearing and conducting activities in the PPE. Minimise time working in PPE and ensure there are sufficient breaks. • Uneven and unfamiliar working environments – assess work area before entry to identify hazards and implement satisfactory controls. Before attending a suspect/infected property: <ul style="list-style-type: none"> ○ Complete a risk assessment , ○ Ensure all resources are available prior to arriving at location of task ○ Check number, type and temperament of animals that will need to be handled and what facilities are available to restrain them, and ○ Check that the owner/manager is aware of the zoonotic risk and risk mitigation measures. • Animal handling – animals only to be handled when safe. Animals being handled must be adequately restrained. Chemical and/or physical restraints should be considered to minimise the risk of kicks, bites, scratches etc. Intramuscular or oral tranquilization should be considered prior to more invasive procedures e.g. administration of intravenous euthanasia solutions, intravenous blood collection. Delaying or non-conduct of tasks may be required. • Sampling - Samples should not be taken unless the risk of personal contamination/injury can be adequately managed. Rectal swabs or urine swabs

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			<p>from the ground immediately post-urination may be a safer option than nasal or mouth swabs or blood samples. Cut resistant gloves are useful if taking tissue samples. Avoid recapping needles, use sharps containers, sharp scalpel blades, blunt dissection+ etc..</p> <ul style="list-style-type: none"> • Euthanasia and post mortem – Euthanasia of infected horses should be performed in accordance with AUSVETPLAN Destruction of Animals manual. A full post mortem must not be performed except by specially trained and equipped staff. • Disposal – Minimise movement of carcasses by planning tasks. Only use heavy machinery to lift and transport carcasses. Where disposal is delayed, cover carcass with plastic/tarp, then dispose of tarp with carcass. Isolate the carcass (minimum of five metres) from all people and other animals until all arrangements are in place. Bury the carcass on site, preferably in an adjacent hole, where possible. If the carcass is to be burned, observe fire precautions. For more information on Carcass disposal see Guidelines for Veterinarians handling potential Hendra virus infection in horses and the AUSVETPLAN Decontamination and Disposal Manuals. • Transport- Avoid or minimise transport where possible. Competent licensed plant operators If the carcass is to be moved: enclose the head in a strong plastic bag and tie off at the neck, to prevent spreading any fluids; do not drag the carcass; lift the carcass with a front end loader bucket or similar apparatus; avoid creating a risk of splashing; ensure the load is leak proof and covered. For further information on transport see the Procedure Transport of carcasses and contaminated material. • Decontamination- Thoroughly clean and disinfect any machinery or vehicles used to move the carcass. Decontamination of contaminated soil or other equipment should be by isolation for ten days where possible. If isolation is not possible, disinfect in accordance with the AUSVETPLAN Decontamination Manual, contaminated soil may be removed and disposed of with the carcass. Place contaminated single use items in clinical waste bags/containers. Double bag any non disposable items that cannot be adequately decontaminated on site. Seal waste bags with cable tie, place inside second bag, seal and disinfect outer surface. • Activities only to be undertaken in daylight hours to ensure adequate visibility and reduce impacts of fatigue. <ul style="list-style-type: none"> ▪ Operational briefing and debriefing to be conducted. ▪ Standard WHS systems to be in place such as

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			<ul style="list-style-type: none"> • ICS systems including Safety Advisor/Manager role, • Policies, procedures and supporting documents e.g. risk assessments, incident reporting and investigation, fatigue management, and • QA approach, e.g. monitoring of operational procedures. <p>PPE</p> <ul style="list-style-type: none"> ▪ PPE is available for use by approved competent personnel when entering the site. When conducting operations that require PPE: <ul style="list-style-type: none"> • Schedule regular breaks (PPE can be hot, tiring and stressful). • Short working times in hot weather (e.g. 40 min on 20 mins off) • PPE must be worn in accordance with appropriate standards, • Decontamination procedures must be followed. • All instances/failures of personnel to comply with PPE requirements must be reported as per section 13. ▪ PPE to be in accordance with Zoonotic Hendra procedure at a minimum P2 level for the following tasks: <ul style="list-style-type: none"> • Sampling of suspect live horses and companion animals, • Taking observations closer than 5 meters (e.g. stabled horses) or 1m for companion animals, • Destruction of suspect and positive HeV horses, • Sampling (swabs and bloods only) of suspect and positive HeV dead horses. <p>The minimum standard of PPE in contaminated areas is:</p> <ul style="list-style-type: none"> • P2 respirator (Disposable P2 particulate respirators are only suitable for clean-shaven people. Those with beards must use a powered air purifying respirator (PAPR)), • Rubber boots, • Overalls with full head protection, • Eye protection, and • Rubber gloves/double gloves. <p>For higher risk operations (tissue sampling or resampling positive animals) the minimum PPE standard will be:</p> <ul style="list-style-type: none"> • P3 respirator, • Impervious overalls (e.g. Tyvec),

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			<ul style="list-style-type: none"> • Rubber boots, • Rubber gloves/double gloved, and • Eye protection. <ul style="list-style-type: none"> ▪ Personnel must be trained in the use and maintenance of PPE and there should be resources available to ensure correct maintenance of PPE. PPE should be issued to and be the responsibility of personnel to, prevent sharing illnesses, ensure a correct fit and maintain equipment. This would apply to non-disposable PPE. ▪ Personnel should be monitored to ensure correct use and maintenance of PPE. <p>PPE is not required outside the contamination zone</p> <p>Although correct use of PPE should make exposure to Hendra virus extremely unlikely, it is recommended that anyone touching a known or suspect animal should shower with hot water, shampoo and soap as soon as possible after the completing operational activities.</p>

5 Risk Profile without treatment			7 Risk Profile After Treatment			8 Comment**
5a L Likelihood	5b C Consequence	5c Risk Rating	7aL Likelihood	7bC Consequence	7c Risk Rating	
Possible	Catastrophic	High	Rare	Catastrophic	High	

**Mandatory requirement if assessed level of risk rating is X (extreme) or H (high)

Consequence Description for each Area of Impact

Rating	Consequence	Animal health & production	Plant health & production	Human health, safety & well being	Economic	Commercial	Environmental	Organisational capability	Political (govt & business sector)	Reputation & image
1	Insignificant	No loss	No loss	No injuries	No economic loss	No financial loss	No environmental impact	Organisational capability intact, negligible impact on objectives	No political/organisational impact	No damage to reputation/image
2	Minor	Limited illness/injuries &/or deaths on single enterprise	Limited damage/loss on single enterprise	Minor injuries; no public health risk; short term well being impact	Few businesses locally affected or single/few properties	Low financial loss; single/few properties affected	Minor./recoverable short-term isolated/localised environmental impact	Local capability affected, minor impact on objectives, easily remedied	Local political / organisational impact	Recoverable / short term local damage to reputation/image
3	Moderate	Some illness/injuries/deaths on multiple properties across a locality	Some damage/loss on single property – multiple paddocks	Limited public health risk &/or injuries requiring medical & mental health treatment	Widespread industry impact; multiple industries / properties per district	Medium financial loss; multiple properties per district	Moderate, medium term, medium spread environmental impact	Regional capability affected, some objectives affected	Regional political / organisational impact	Medium term / regional damage to reputation/image
4	Major	Considerable illness/injuries/deaths on multiple properties across a region	Considerable damage/loss on multiple properties across a region	Major public health risk &/or major injuries/well being impact	High economic /trade risk to region &/or state	High financial loss	Serious, long term, widespread environmental impact	State capability affected, important objectives not achieved	State political / organisational impact	Long term/ state damage to agency reputation/image
5	Catastrophic	Significant illness/injuries/deaths on multiple regions	Considerable damage/loss across multiple regions	Significant public health risk &/or human deaths/ long lasting well being issues	Major national economic implications	Major national financial loss	Irreversible environmental impact	National capability affected, most objectives not achieved	National political / organisational impact	Long term / (inter) national damage to reputation / image irreversibly impacted

		C – Consequence Rating				
		1	2	3	4	5
L-Likelihood Rating	A	M	M	H	X	X
	B	L	M	M	H	X
	C	L	L	M	H	H
	D	N	L	M	M	H
	E	N	N	L	M	H

Combined Likelihood and Consequence Risk Rating

Level of Risk Rating	Response
X - Extreme	Urgent attention
H - High	Intervention required
M - Medium	Active management
L - Low	On-going monitoring
N - Negligible	Acceptable risk

- Sources of Risk**
- Pest and disease
 - Trade and economic
 - Organisation and management
 - Environment and natural events
 - Community and human behavior
 - Commercial and legal
 - Political
 - Sabotage
 - Technology
 - Regulation and standards

- Areas of Impact**
- Animal health & production
 - Plant health & production
 - Human health, safety & well being
 - Economic
 - Commercial
 - Environmental
 - Organisational capability
 - Political
 - Reputation and image

L Likelihood

A	Almost certain	- may occur several times over short period or continuously
B	Likely	- may occur monthly to several times a year
C	Possible	- might occur once in a period of one to three years
D	Unlikely	- could occur over time (eg every five to ten years)
E	Rare	- may occur only in exceptional circumstances (eg every 10-20 years)

- Hierarchy of Control**
1. Elimination
 2. Substitution
 3. Isolation
 4. Engineering
 5. Administration
 6. PPE