Testing for Hendra virus: difficulties experienced by veterinarians in Queensland prior to 2011

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Objective To identify the perceived barriers to Hendra virus (HeV) management by private equine veterinarians in Queensland.

Design An exploratory qualitative study of private equine veterinarians registered and working in coastal Queensland.

Methods A questionnaire that included eight open-ended questions about the management of HeV was used in face-to-face in-depth interviews with 21 veterinary personnel working in equine or mixed private practice between Far North and South-East Queensland in 2009–10. The qualitative data was entered and analysed thematically using QSR’s International’s Nvivo 9 qualitative data analysis software.

Results This study revealed key issues associated with HeV testing: (1) inadequate knowledge of testing procedures and laboratory diagnostic pathways; (2) difficulty in accessing laboratory services; (3) responsibility for cost of collection and transport of specimen; and (4) the role of government. Participants perceived these issues as reducing potential HeV case management efficiency.

Conclusion Although HeV management plans have been modified in part since 2009–10, this study highlights the importance of considering the perspectives of private veterinary practitioners in any biosecurity protocols.

Keywords biosecurity; Hendra virus; infection control; laboratory diagnosis; qualitative research; veterinarians

Abbreviations HeV, Hendra virus; NSW, New South Wales; QLD, Queensland; VIC, Victoria

Materials and methods

Between December 2009 and September 2010 we conducted in-depth interviews with veterinary personnel from 14 veterinary practices in rural and urban areas in QLD (Figure 1). The aim was to identify HeV risk perceptions and related barriers to infection control in veterinary practices. Participants were purposively selected to be working in equine and mixed veterinary practices on the eastern coast of QLD in the far north, north, central and south-east regions. We approached potential participants by phone. Recruitment of new participants ceased when data saturation was reached. Of the 29 people approached, 21 agreed to participate. We conducted individual semi-structured face-to-face interviews using a questionnaire with eight open-ended questions after consultation with a HeV management reference group that included personnel from equine practice and government veterinary and occupational health and safety services. Responses were recorded as written notes and digital audio files.

Figure 1. Geographic distribution of participants according to the Australian Rural, Remote and Metropolitan Areas Classification System (adapted from Mendez et al.††).

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Transcripts were entered and analysed for units of meaning and themes identified by inductive thematic analysis using QSR International’s NVivo Version 9 qualitative data analysis software (QSR International Pty Ltd, 2010). Each participant was identified by a unique alphanumeric code (P*) and a unique alphanumeric veterinary practice code (VP*).

Results

All participants (10 principal veterinarians, 8 employee veterinarians, 2 veterinary nurses and 1 practice manager) worked in private practice. The study population demographic and employment characteristics have been described previously (Figure 2). Interviewees’ experiences with HeV cases varied: one or more confirmed cases (7); at least one suspicious case (12); no suspicious cases (2). A key topic raised by participants was their experience with testing for HeV. All participants were satisfied with the HeV test, but most reported that they had experienced problems with the laboratory diagnostic pathway for HeV exclusion testing. The four main themes were: (1) inadequate knowledge of testing procedures and laboratory diagnostic pathways; (2) difficulty in accessing laboratory services; (3) responsibility for cost of specimen collection and transport; and (4) role of government (Table 1).

Inadequate knowledge of testing procedures and laboratory diagnostic pathways

Knowledge about HeV sampling procedures was not uniform across the respondents. Young veterinary graduates were reported as understanding the risks involved with the management of a sick horse, but in some cases were uncomfortable mitigating the risks, such as sampling for HeV exclusion (P9/VP1). Some overseas veterinary graduates were said to have insufficient knowledge about the safety procedures recommended when sampling for HeV exclusion (P10/VP5). Some veterinarians, who had attended infection control/HeV educational workshops, found these inadequate and would prefer a more ‘hands-on’ approach rather than the theoretical training provided (P16/VP9). Some participants were also uncertain about the type of samples required for a HeV exclusion test and where samples should be sent (P14/VP7, P4/VP3).

Difficulty accessing laboratory services

The more rural and remote interviewees reported a number of difficulties with dispatching samples from suspected cases of HeV and turnaround of laboratory results: (1) finding a courier willing to carry HeV samples often delayed confirmation or exclusion of HeV (P11/VP6, P17/VP10); (2) accessing a testing laboratory after hours was a major issue (P13/VP7); (3) waiting too long for results (P15/VP8, P14/VP7); and (4) finding a commercial laboratory willing to perform routine blood tests before HeV had been excluded (P15/VP8, P14/VP7). A perception of high risk associated with HeV samples fuelled by the ‘media hype’ was cited as a possible explanation for non-HeV laboratory services being delayed or even denied (P10/VP5, P2/VP2).

Responsibility for cost of specimen collection and transport

Although HeV tests in QLD in 2010 were done at no cost, the cost of specimen collection and transport was not funded by the government. Participants from rural and remote areas incurred a higher cost to dispatch samples to a testing laboratory and felt they were at a disadvantage (P19/VP12). One participant had been asked to carry out HeV testing on behalf of the government, but later experienced great difficulty in recovering the cost for the provided service (P5/VP4). Some participants passed the cost of HeV testing onto their clients without major difficulty, but others were confronted with clients refusing to bear the cost incurred by HeV testing (P18/VP11, P5/VP4, P19/VP12). In some instances, suspicious cases of HeV were reportedly not investigated as a result of the added cost, thereby putting people’s health and safety at risk and discouraging targeted opportunistic surveillance (P17/VP10).

Role of government

Many participants from rural and remote areas perceived the role of government in the mitigation of HeV risks as insufficient. They complained about the apparent lack of government power to enforce HeV testing when HeV was suspected (P11/VP6). HeV is a notifiable
Inadequate knowledge of testing procedures and laboratory diagnostic pathways

- ‘Students are well aware of the risks to the point of being scared to do things right in some cases’ (P9/VP1)
- ‘A locum from the UK used open needle to draw blood from horses. He put blood everywhere. We had to teach him how to do it without putting blood everywhere’ (P10/VP5)
- ‘These seminars look a bit unpractical...I would like to be taught in a very practical, hands on way...It forces the issue because when the moment arrives you don’t need any confusion’ (P16/VP9)
- ‘Is there PCR testing? Should we use acute phase blood?...We need more information on where to send samples’ (P14/VP7)
- ‘An inexperienced nurse sent the samples to the wrong place; by the time the samples were found 5 days had passed’ (P4/VP3)

Difficulty accessing laboratory services

- ‘Finding a courier accepting to transport zoonotic samples was left up to the vet’ (P11/VP6)
- ‘We had some courier companies that did not want to take the samples...We had to make half a dozen phone calls to find where we had to send the samples’ (P17/VP10)
- ‘Being able to get samples to the lab on a Friday after 1 pm would be good. After that nothing leaves for Brisbane. This is a big issue for vets in remote areas’ (P13/VP7)
- ‘As usual you get into the frustration of waiting for results. There is no sense of urgency; the lab takes so long to process the samples. This creates a new issue: what do you do with the horse while you are waiting for the results’ (P15/VP8)
- ‘With my first suspicious case I was faced with a slow response from the DPI. Serology was done before and after acute illness and convalescence. It took a month to get results back’ (P14/VP7)
- ‘With Hendra there is a presumption the disease is there and CBC are not run until sample comes back negative...Media hype can also blind the scientists. It can generate fear, hysteria that can drive away rational thought’ (P10/VP5)
- ‘Once a sample has been labelled as coming from a potential Hendra case: nobody wants to do the postmortem or further testing’ (P2/VP2)

Responsibility for cost of specimen collection and transport

- ‘When you need to get the sample there quickly you incur costs with express couriers’ (P19/VP12)
- ‘I didn’t the testing of the horses on neighbouring properties for the DPI. The DPI contacted me to do this work and they weren’t being flexible about it: they wanted me there and then. Even with my busy business I dropped and ran for them...They still haven’t paid the bill about this service. The vet from the DPI was a qualified vet so why was I the one doing the sampling? Next they’d have to pay me up front. I am a private vet’ (P5/VP4)
- ‘Cost is not an issue for me because we just charge the owner’ (P18/VP11)
- ‘If the horse turns out to be negative the owner will whinge about the money spent’ (P5/VP4)
- ‘We have had one issue when somebody was not happy about the cost’ (P19/VP12)
- ‘I have had owners burr up at the cost. They were upset at the price and said I don’t want the horse tested, if you are the one who wants the horse tested, why don’t you pay for it?’ (P17/VP10)

Role of government

- ‘They also don’t have any legislative power. A horse was sick and dying near a flying foxes colony and there were aborted fetuses on the property. The owner didn’t want to have the horse’s blood tested. We contacted DPI and they didn’t force the owner to do the test’ (P11/VP6)
- ‘We thought because it is a notifiable disease the government would pay for it’ (P17/VP10)
- ‘The government should be more proactive in helping with sampling dispatch’ (P11/VP6)
- ‘There would be cases out there that have not been reported because of the cost. I think it puts people at risk because it means that cases are going undetected and are not being reported’ (P17/VP10)
- ‘I think there has been a big failure from government to have a good surveillance system for notifiable diseases. It would be very cost effective’ (P1/VP1)

Each participant identified by a unique alphanumeric code (P*), followed by a unique alphanumeric veterinary practice code (VP*). All participants quoted are veterinarians.

DPI, Department of Primary Industries; CBC, complete blood count.

disease and as such, some participants believed the government should have had a ‘more proactive’ role and should have ‘covered the cost’ for private veterinarians to collect samples and send off specimens for HeV testing (P17/VP10, P11/VP6). Some participants felt that this lack of government involvement encouraged underreporting of potential HeV cases, which could be detrimental to biosecurity and public health (P17/VP10). Government support of targeted opportunistic surveillance was perceived as being beneficial to both veterinarians and the government by improving the understanding of the epidemiology of HeV and HeV management strategies (P1/VP1).

**Discussion**

All participants in this study were engaged in private veterinary practice and as such their perspectives were those of owners or employees in small businesses. The HeV testing-related issues they raised covered
four main topics: (1) sampling and sample dispatch procedures; (2) access to laboratory services; (3) sampling and sample dispatching cost and (4) government support.

In 2010, some of the veterinarians still lacked confidence in carrying out adequate HeV sampling procedures and dispatching samples via the correct laboratory diagnostic pathways. Although the information and training opportunities provided by the government and professional associations in QLD may have been ignored by some veterinary practitioners, these reports indicate that, prior to 2010, HeV and related infection control education programmes may have not been suitable or did not reach their target population; that is, undergraduates, Australian and overseas trained veterinarians working in QLD.

Accessing laboratory services was also perceived by participants as a hurdle in the management of HeV. Ensuring that routine samples and samples for HeV exclusion from suspicious HeV cases are rapidly processed is essential to the efficient management of cases. In some instances, the difficulty lay with non-veterinarians being indirectly involved in the management of a suspicious case of HeV. Their perceptions about handling HeV samples seemed to be based on a lack of biosecurity knowledge. Non-veterinarians, such as couriers and veterinary administration staff, also need to be informed that appropriately packed and processed diagnostic specimens are safe.

Participants in more rural and remote areas incurred a higher cost for transporting HeV samples to a competent laboratory. Additionally, our participants reported that some horse owners refused to pay for HeV sampling and sample transport, preventing the identification and adequate management of potential cases of HeV. Horse owners may need to be better informed about the cost benefit of HeV testing. Alternatively, the QLD government could remove a potential barrier to HeV testing by following the NSW model where courier costs for HeV exclusion are met by the government.12

Veterinarians who were more distant from the HeV testing laboratory in Brisbane emphasised the difficulty in utilising laboratory services owing to higher costs and greater delays. At the time of our survey, veterinarians outside south-east QLD could submit diagnostic specimens to the closer regional government laboratories in Toowoomba and Townsville. The decision by the state government to close these regional veterinary laboratories will remove this service,13 which is likely to exacerbate the access and cost problems because rural practitioners will no longer be able to submit specimens to these laboratories.

As for government services, participants would have preferred a more active involvement in the management of a potential case of HeV through financial support to cover transport costs (as discussed) and enforcement of sampling. If a veterinarian suspects an animal is infected with HeV, the case should be notified whether the owner allows samples to be taken or not. However, some practitioners appeared to be unclear about how to proceed with notification if the owner did not give permission for sampling. Provision of clear, concise guidelines by government for veterinary practitioners about what to do in this situation is recommended.

Although the aim of this qualitative exploratory study was not to evaluate the role of laboratories and government in the management of HeV, the issues raised by our participants are important and echo those presented in the Australian Veterinary Association’s Queensland Branch newsletter.14 However, only some issues were similar to the testing issues identified in the 2011 QLD Ombudsman’s report.15 Prior to confirmation of an HeV outbreak, the management of a suspicious case lies almost completely with the private veterinary practitioner who is expected to act on behalf of the government and therefore should be supported by the government.

Veterinarians are increasingly at the forefront of new public health and biosecurity challenges posed by emerging zoonotic diseases. In QLD, private veterinarians have a legal responsibility to prevent transmission of zoonoses to the public and their staff, but have no power to enforce disease investigation.16,17 The clinical components of the case definition of HeV are non-specific and quite broad, so laboratory diagnosis is critical.18 Delays in HeV exclusion or confirmation may result in suboptimal management of a sick horse from a patient and public health perspective and may leave the attending veterinarian in a ‘grey’ legal area. The issues raised here were those faced by private veterinarians in QLD in managing HeV prior to 2011. Although HeV management plans and laboratory pathways have been modified since the interviews were conducted, this study highlights the importance of considering the perspectives of private veterinary practitioners, particularly their logistical and legal issues, when formulating biosecurity protocols. Using qualitative research methods allows the voices of private veterinary practitioners to be heard, which is an essential step in finding the best strategies to manage these complex problems.

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References


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