



# ***AGRICULTURE AND ENVIRONMENT COMMITTEE***

**Members present:**

Mr GJ Butcher MP (Chair)  
Mr SA Bennett MP  
Mrs J Gilbert MP  
Mr JE Madden MP  
Mr EJ Sorensen MP

**Staff present:**

Mr R Hansen (Research Director)  
Mr P Douglas (Principal Research Officer)

## **PUBLIC BRIEFING—HENDRA VIRUS (HEV) EQUIVACC® VACCINE AND ITS USE BY VETERINARY SURGEONS IN QUEENSLAND**

### **TRANSCRIPT OF PROCEEDINGS**

**TUESDAY, 22 MARCH 2016**

**Brisbane**

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### Committee met at 2.00 pm

**CHAIR:** I declare this meeting of the Agriculture and Environment Committee open. I would like to acknowledge the traditional owners of the land on which we gather today and the meeting is taking place. My name is Glenn Butcher. I am the chair of the Agriculture and Environment Committee. Other members with me today are Steve Bennett, the deputy chair and member for Burnett; Julieanne Gilbert, member for Mackay; Jim Madden, member for Ipswich West; and Ted Sorensen, member for Hervey Bay. We do have an apology today from Robbie Katter, the member for Mount Isa, who cannot be with us today.

These proceedings are being transcribed by our parliamentary reporters and are being broadcast live on the parliament of Queensland website. Welcome to everyone watching today. The purpose of this meeting of the committee is to receive background briefings for our inquiry into Hendra virus vaccine and its use by veterinary surgeons in Queensland. We hope that these briefings will give everyone a clearer understanding of the issues of the inquiry.

In today's briefing we will hear from Biosecurity Queensland about the Hendra virus and how it is managed. We will also hear from the Australian Veterinary Association and Equine Veterinarians Australia about issues of veterinarians in their work with horses and the use of the vaccine, and the Office of Industrial Relations, which includes Workplace Health and Safety Queensland, about the workplace safety laws that apply to the treatment of horses by veterinarians in Queensland. I now welcome officers from Biosecurity Queensland to begin the first briefing of the day.

**CROOK, Dr Allison, General Manager, Animal Biosecurity and Welfare and Chief Veterinary Officer, Biosecurity Queensland**

**THOMPSON, Dr Jim, Chief Biosecurity Officer, Biosecurity Queensland**

**CHAIR:** Would you like to start the hearing with an opening statement?

**Dr Thompson:** Certainly. Thanks for the opportunity to speak today. Allison and I will both talk through a lot of the details of Hendra virus so we can give as good a background as we can about Hendra virus and where it has been in Queensland and New South Wales and what the issues have been.

Hendra virus has been an issue of prominence for 20-odd years in Queensland. I will go back to the first case in a minute, to briefly to give you a bit of a time line. During that time it has been an issue of considerable importance for Biosecurity Queensland to deal with. We address all outbreaks of the virus in Queensland as they occur. It has been and will continue to be an ongoing business. I will give a brief history and give you a summary of some of the things that have happened over the last 20-odd years. Allison will then take over and give some detail about Hendra virus and its management and about the virus itself.

The disease first emerged in September 1994 in racing stables in Brisbane in the suburb of Hendra. That is where it got its name from. There were seven horse cases at that time and, unfortunately, there was one person who died, who was Vic Rail, who was the trainer in that case. There had been retrospectively identified after that—because we did not know what that disease was at the time and it took many years of research to actually come up with a definition in the sense of Hendra virus—the cause of death of two horses and one person in an incident prior to that. I guess people can ask: were there many other incidents before that? We may never know, but you would have to suggest that is quite possible. We have had 53 incidents recorded since 1994 involving 72 confirmed cases in horses and seven in humans. Of those seven, four people died. Queensland has been the most prominent place for Hendra virus incidents with 39, but northern New South Wales has had 14 incidents over the last few years. All the human cases that have been reported have come from Queensland.

This slide shows the time line of the history of incidents. Obviously in the early days there were very few incidents. In 1994 there were a couple that are listed there. Over that period of time you can see there were many years when we recorded no incidents of Hendra virus whatsoever. They started getting perhaps more regular in the sense that we had annual cases from about 2006 and the first case in New South Wales—obviously blue and maroon represent the two states.

The year 2011 was the game-changer for Hendra virus. There are many reasons, and Allison will probably touch on some of those in her summary of the virus. The year 2011 was the real game-changer in terms of number of cases. There were 18 cases across the two states. It was then that a considerable effort was put in to try to do more research to find out the cause of the virus, how it was transmitted and also the treatment of the virus in terms of what we could do to mitigate its risk in horses and also treatment for people. There was \$12 million for research that was made available in that year from the Commonwealth and Queensland and New South Wales governments.

As you can see, that high incidence maintained over the next couple of years, but we have dropped away again in the last year or two, and one or two cases each year has been all we have had for the last couple of years. As I said, 2007 was the change that really made us focus on how we treat the disease. Obviously whenever we have had the disease in Queensland we quarantined properties and managed those properties for a period for the incubation period of the virus so that we see it to an end point. At that point there are often horses that have died in that circumstance. Then the incident is over and we declare those areas free.

The detection of the Hendra virus in a dog in 2011 also was one of the catalysts for the research effort in the virus under that program where \$12 million was available. There was concern that the virus may jump to other species. That was really the impetus to say, 'Let's try to find a different way of treating Hendra virus.' That is where the big effort was put into the vaccine, and the vaccine was actually a product of that program. There were 21 other projects hosted under that program. There was a significant amount of really good research that was done, some of which is ongoing. It is just about complete. We hope to have a summary of that program in a couple of months time in Brisbane to look at all the good work that was done under that program.

That is a really brief summary of the journey that we have been on. I might hand over to Allison to take you through in much more detail about the virus and some of the aspects that we have been looking at.

**Dr Crook:** I would like to give you an overview of the virus, how it works and an understanding of why it is we are interested in it and what it is that we do. That would be the context of my presentation. That slide shows an electron micrograph of the virus. It is a zoonotic disease. That means that it can transfer from animals to people, which makes it interesting of course, particularly because it does have such catastrophic potential, as you have seen from the numbers.

The Hendra virus disease itself has only been found in Queensland and New South Wales. The virus has been identified in the host, which is flying foxes, in other areas in the Pacific, but in terms of the disease it has been identified here. It is a member of a family of viruses called the Henipaviruses. That does include other emerging viruses such as the Nipah virus, particularly in South-East Asia. There is this group of viruses of intense interest.

The flying foxes are a natural host of Hendra virus. We have four types of flying foxes, which we will touch on in a little while. The transmission to the horses occurs directly from the flying fox and it is believed that this is most likely through urine. The recent research is pointing very much to the urine. When flying foxes are in their roosts during the day obviously they have an interesting way of urinating and they do quite a lot of that, but also they do it when they are out at night foraging.

One of the interesting facts about Hendra virus and flying foxes is that they carry the virus but they do not appear to be affected by it. That is an area of interest, particularly about what is unique about the immune system of flying foxes that allows that to happen but in other susceptible species it does have an impact. It has been found particularly in the black and spectacled flying foxes. Like I said, we have four species in Australia. That map does outline their range. The blacks and the spectacles—you can see the blacks are the blue hash and the spectacles are the ones that are up north—are the ones that research has shown do have a particularly higher prevalence of Hendra. If you have a look at their distribution and the distribution of cases that we have had, there is a strong overlay there. It has been identified in the other two species also, the little reds and the greys, but the highest prevalence is in the blacks and the spectacles. As I said before, the virus in the flying fox is excreted mainly through the urine, but it has also been found in other body secretions.

Interestingly, when it comes into a horse, Hendra does not have one single feature that says, 'I am Hendra virus in a horse.' The symptoms and the clinical signs are often vague and variable, so it may present with a range of symptoms. When we first were looking and trying to understand about Hendra virus, it was predominantly a respiratory presentation—so the lungs, coughing, froth, discharge, that type of thing. As we progressed our understanding of Hendra virus we started to see other systems affected, particularly the nervous system. Horses could not walk properly; they would collapse. They might appear blind—all sorts of ways. A lot of that has to do with the way the virus

acts inside of the horse or any affected animal and the system that it tends to attack first. It tends to attack the blood vessels and make them leak, and it is that impact that causes the clinical signs that you see. Depending on which systems it is affecting first, that is how it will present. That can be challenging, as I said, because there is not one single consistent presenting sign. Fever is one aspect, but a lot of things present with a fever as well. The case fatality rate—that means, if a horse is infected, how many of them die—is very high; about 80 per cent of them die and most of them within a very short period, within 48 hours, and there is no treatment for Hendra virus in horses.

Unfortunately, Hendra virus can transmit from infected horses to humans. The virus itself is not highly contagious, which means it does not spread very quickly—not like the flu. The flu can spread; the flu can stay on doorknobs, all sorts of things. It is not a highly contagious virus in that way. That means really close contact is required for infection to occur. That is close contact with infected secretions of a horse, so, again, nasal discharge, blood, those types of things. Because of the nature of the virus and because of the fact that it requires close contact, it is the people who are working most closely with horses who are at risk. The other thing that is important to note is that there is no evidence of direct transfer from flying foxes to people, so the horse in this case is an intermediate pathway to people.

In humans—these were some of the questions the committee did ask us; obviously Queensland Health may be better placed to provide more specific advice—it presents like a flu and, again, it depends on the system that is being impacted by the virus. There may be flu-like symptoms, pneumonias, headaches, tiredness and, again, if it does impact the nervous system, it is like an encephalitis, a really severe headache. Also obviously encephalitis can lead to convulsions and obviously more catastrophic impacts. In humans the case fatality rate is high as well—four out of seven. That is a 57 per cent case fatality rate. I have just noted there that before there was no treatment for horses infected with Hendra viruses. There are some monoclonal antibody therapy trials currently underway with Queensland Health, and that is for post-exposure therapy. I would defer to Queensland Health on that topic.

In terms of other animals that may be affected, experimentally there is a range that you can see have been infected. The cats, pigs, guinea pigs, ferrets, hamsters and some monkeys and mice all went on and developed clinical signs in a similar way to a horse in that the virus was impacting the systems and clinical signs developed. Interestingly though, with experimentally infected rats, dogs, rabbits and chickens, there were not any clinical signs. They could get infected but they did not display clinical signs and, indeed, that was brought out with the two known cases that we have had so far in dogs. In Queensland in 2011 and in New South Wales in 2013 neither of those dogs showed overt or obvious clinical signs either, but they were infected.

In terms of Hendra virus when and where, most cases tend to occur in the winter months. I will show you a pictorial of that as well, but it is important to note that infection can occur at any time of the year. We have had Hendra infection in horses in most months of the year so there is not just one period and it is not going to happen outside of that. That is important. In terms of why is it in those cooler months, it could be a feature of the virus in terms of survivability and also behaviours of flying foxes et cetera. That is the type of answers that the research is looking at.

As we have talked about before, it has been isolated in all four species, but there were the two species that it is most prevalent in, being the blacks, and if you think back to the distribution map, we are talking about Southern Queensland and Northern New South Wales particularly, and then also the spectacles up in North Queensland. As I said, those distribution maps of the flying foxes match the cases that we have recorded.

On this map, the red dots indicate the number of Hendra cases that we have had. This converts the pictorial that Jim had before into dots and also numbers of dots: the right-hand axis there, year along the bottom, and then on the left-hand axis that is about number of tests. The pale blue is measuring the number of samples from horses submitted to our laboratories—I am only reflecting on our laboratory—here at any one time. You can see prior to 2008 there were a lot of horse samples coming in, particularly in 2008 because that was the year we had equine influenza so there was a lot of proof-of-freedom testing going on then. The dark blue is the number of horses tested for Hendra per week. You can see that in 1994 that was obviously the index cases and then we have had lower levels coming in.

In 2008 and 2009—2008 was the Redlands case and 2009 was the Cawarral case—you can see subsequent to that there has been increased submissions of samples. A lot of that is due to increased awareness of people and, indeed, veterinarians about Hendra virus and the fact that it may be something they will be needing to consider in their diagnostic work-ups. The other interesting thing about the increased number of submissions through a laboratory is that it will tend to increase the

number of times we find it. If we have more samples coming in it may increase the number of times we find it. You can see the levels there, but 2009 and 2011 were busy years in terms of Hendra incidents. That is the translation of that graph.

**Mr BENNETT:** Is there a percentage on that of the horses? Ten seems a low number on average.

**Dr Crook:** They are hard numbers.

**Dr Thompson:** Per week that was. They were number of samples per week.

**Dr Crook:** In terms of how many samples positive per week or per year, I do not have that to hand but I can find that easily enough. That is basically the virus and a little bit about how it behaves. What I would like to talk about now is how we reduce the risk of it—this is of particular interest to our area of responsibility—and then I will also talk about our roles here. The first thing that we are looking to do is to reduce the risk of infection in horses, so from bats to horses. If we can break that cycle we are a long way in front of the next step, which is horses to humans.

There are a number of risk mitigation strategies we have that can be used. One of the first ones is actually limiting horse contact with flying foxes. Remembering that we are talking about urine contamination as a likely source, it is about making sure that feed and water for the horses is not in a position where it can be contaminated. Another strategy is removing horses from areas where we know flying foxes are active, particularly when particular trees are fruiting or flowering. Another strategy people use is night stabling, so having horses stabled at night-time. The photo there is from an actual IP—infected premises—and that shows feed and water directly under flowering, fruiting trees. This is part of the research work we did. That is a fig tree on one of the IPs, and that is nine flying foxes sitting in that tree at 6.12 pm. They are very active. We often find when we go onto a property after a case people say, 'Well, no, I don't see flying foxes,' and most people do not see flying foxes, but they are very, very active.

The second step in this is in terms of adopting sound hygiene and biosecurity measures: simple things such as isolating sick horses until you can get someone, a veterinarian, to make an assessment about what is going on; implementing basic hygiene around contact with a horse, so washing hands, simple things like that; and then also if we are going to be interacting with horses, undertaking a risk assessment about what is the level of interaction, what are the risks of exposure et cetera; and vaccinations. A vaccine became available in 2012. It is the single most effective way of reducing the risk of Hendra virus infection in horses. It is strongly encouraged by the Queensland government and we strongly encourage horse owners to discuss it with their veterinarians in terms of making choices around vaccination.

The vaccine was released by a commercial manufacturer under a minor-use permit firstly in November 2012. The body responsible for that is the Australian Pesticides and Veterinary Medicines Authority. A minor-use permit is a form of registration but with restrictions. When a minor-use permit is issued it comes out saying, 'Yes, use it,' but there are certain things that you need to do and there are requirements around who could vaccinate horses, notifying to registers and notifying adverse reactions et cetera. The vaccine was developed by CSIRO but it was an international collaborative effort including a pharmaceutical company and some US based organisations that had an interest in the Henipavirus family as well. Full registration was received in August last year, so that meant the minor-use permit was replaced with full registration, and then the requirement came to use it as per the label. Then in late January that registration was updated to include the use in pregnant mares. I have mentioned before that in Australia it is the APVMA that oversees registration and use of all the products and they carry the responsibility for assessment of their safety and efficacy and also recording and investigating adverse reactions. I note that in terms of the development of the Hendra virus vaccine, the Queensland government did contribute \$300,000 towards its development and that contribution was made in 2010.

Finally, I would like to touch on the role of the Department of Agriculture and Fisheries when it comes to Hendra virus, pulling together the things we have just talked about. Our main role here is to manage positive cases in animals. That is what our responsibility is. We also undertake laboratory exclusion testing for Hendra virus in Queensland. We are the only laboratory that does that in Queensland. We provide comprehensive advice in risk management strategies to veterinarians and horse owners. I have provided an example for you of our guidelines for veterinarians, just noting that they are currently being updated at this point in time. We also, given our experience in management of Hendra virus incidents, provide expert advice to national and jurisdictional policies around Hendra virus and, of course, as you have seen, we do collaborating research projects to help us understand the virus.

What support do we offer? We are very experienced in dealing with Hendra virus incidents. You have seen the numbers. We have a very well practised response that we enter into on the confirmation of a positive case. We also have very active stakeholder engagement about awareness of strategies for risk mitigation in horses and we do deliver that in numerous ways and with numerous stakeholder groups. We provide subsidised laboratory diagnostic services for exclusion testing for Hendra virus. Essentially what that means is if a veterinarian suspects Hendra virus they submit the samples to our laboratory and we will test them and there is no charge for that testing. People and some enterprises need Hendra virus testing of horses to undertake certain activities, whether they are going for stud purposes or if they are for export or whatever, and we do also offer health testing for those but that is on a fee-for-service basis.

Finally, we have had in place since 2012 a Hendra virus PPE—which is personal protective equipment—rebate scheme. That has been in place and available for veterinarians to avail themselves of. The requirement is that once they have submitted a diagnostic test to the laboratory they are eligible to have claims made against PPE equipment that they used and also for top-up PPE. That scheme is due to end in the end of June this year.

**CHAIR:** You said in the study that there were two dogs that were affected but did not show any signs of the virus. How did you come to the conclusion that two dogs were affected?

**Dr Crook:** In both cases those dogs were on infected premises where there were infected horses. As part of our risk assessment we do assessment around what is going on on the property and we will test susceptible animals, at-risk animals. In both cases—one was in New South Wales, one was in Queensland—those dogs were tested and returned positive results.

**Dr Thompson:** All dogs and cats have been tested on the properties where we have found Hendra virus as a means of tracking where the virus might go as well, but in that case two positives came up.

**CHAIR:** Would there be potential that the two dogs on those properties caught the virus the same way that the horse would: from bat urine under a tree or in drinking water under a tree, or where they reside?

**Dr Crook:** It is not exactly known because it is a very small number, but it is more likely that they were exposed to the infected horses and the secretions or excretions of the infected horses. In both cases those dogs had ample opportunity to be interacting with the horses that were sick, they were subsequently confirmed positive and subsequently died.

**CHAIR:** In what way would a dog have interaction with a horse to catch Hendra virus?

**Dr Crook:** Dogs like to eat all sorts of things and there was opportunity in terms of rolling in excretions.

**Mrs GILBERT:** With the dog contracting Hendra virus, would the dog then be able to pass that on to humans? Is it a possibility that a human could catch it from the dog?

**Dr Crook:** Potentially. There is some early work being done through CSIRO around dogs, and the first thing it showed was that infected dogs do not show clinical signs. They do clear the infection quite quickly and move on, but there is a small window of opportunity where Hendra virus was actually able to be identified in the saliva. As part of our risk considerations on those properties, we do make that around dogs and put a management plan in place.

**Mrs GILBERT:** Are the dogs then put down?

**Dr Crook:** In both these cases both those dogs were euthanased, yes.

**CHAIR:** We are quite clear that this virus comes from bats. Do we do any active testing of colonies to see if that virus is active in certain colonies so that we can explain the risk to those people in those areas or do we just wait until it happens?

**Dr Crook:** There has been an extensive project under the National Hendra Virus Research Program, which I think ran over a period of four or five years, and there were 14,000 individual samples taken monitoring colonies from North Queensland into New South Wales. That gave us a lot of evidence around prevalence and where bats were and that is actually the work that pointed to the two species being the most likely.

**CHAIR:** Do we still do that testing now?

**Dr Crook:** That testing has now finished as part of that project.

**Dr Thompson:** Certainly in 2011 there was an increased prevalence of the disease in the colonies being tested. It was much higher than in other years, which mirrors the results that we have seen. Flying foxes, as you know, can turn up in massive colonies. They are also extraordinarily mobile, so you might have colonies that move. The makeup of them can change quite significantly with different species coming in and going. I guess it is always a mobile issue about the fact of where they are and what sort of prevalence of the disease there is at the time. Why is there an increased prevalence in the disease in the flying foxes at that time? I guess there is a whole range of potential reasons for that. You look at climate, you look at what is happening at that time and where the flying foxes have come from. It is quite a difficult and complex situation to measure.

**Mr BENNETT:** I make the point that 2011 and 2013 were particularly wet years as well, weren't they?

**Dr Thompson:** Correct, yes.

**Mr BENNETT:** Was any work done around that? It is still a bit of moving feast, the exact science, but could that have been a trigger? I suppose it could have been. Anything could have been a trigger.

**Dr Thompson:** Certainly at the time people said, 'It's been a wet year; is that the reason?'

**Mr BENNETT:** 2011 and 2013 were particularly wet, though, weren't they?

**Dr Thompson:** Yes. I guess the number of data points we have is so low that it is hard to say that that was the cause. It does correlate with wet years, but there were other wet years when perhaps we did not measure it, but were we looking as hard? It is a bit difficult to know, because research of this sort of scale really started only a few years ago—not a long time ago.

**Dr Crook:** One of the biggest impacts to be considered is—and when we are dealing with Hendra virus our sentinel is the horse, obviously; that is where we find it—what might be changing to actually bring the flying fox into the horse environment and, with the wetter years, whether there is some impact on how they are feeding, where they are feeding, what is available to them.

**Mrs GILBERT:** You said that you believe the virus is spread through the urine of the flying foxes. How long does the virus live outside the body? Once it is on the ground, is it always there or does it have a lifespan?

**Dr Crook:** It is a very fragile virus, which is interesting, in terms of the way it behaves. In terms of living outside the flying fox, it has been measured over numbers of days that it can exist in protected environments, say, mango juice et cetera. The maximum, though, is five days. When we are thinking of our control programs, we double that and allow 10 days for natural decontamination, for the environment to actually negate the virus.

**Mrs GILBERT:** Does it need moisture to survive? When you said mango juices—

**Dr Crook:** Moisture will help it—moisture and cool—like flu viruses and things like that, but it is quite a fragile virus.

**Mr SORENSEN:** How long will the virus last in the host animal, the flying fox itself?

**Dr Crook:** The interesting thing about flying foxes is that they tend to be able to carry it and it does not impact them. In the monitoring that they did, they could see it cycling through populations. That would be a function of maybe a carrier flying fox coming into a colony and if there were naive or unexposed animals it would cycle through them as well. It is potentially cycling all the time. Once the spillover occurs into a susceptible host like a horse, as we saw before, it tends to be a limited time that it is in the host because it is very effective at killing them.

**Mr SORENSEN:** Yes, it is all over when the horse dies.

**Dr Crook:** That is right, yes.

**Mr MADDEN:** Have there been any cases of Hendra virus outside of New South Wales and Queensland?

**Dr Crook:** No, not cases.

**Mr MADDEN:** Is it more towards the northern part of New South Wales?

**Dr Crook:** Yes, northern New South Wales is the key area. Again, that tends to reflect the distribution of the species.

**Dr Thompson:** And along the coast, too. Obviously, we do not find it too far inland. In Queensland we had one case close to Chinchilla, which was the furthest west, but generally it is in that coastal strip.

**Mr MADDEN:** We have a vaccine for horses; do we have one for humans?

**Dr Crook:** No, there is no vaccine for humans at this point in time. That is not to say there may not be work going on with that. The main area of work for humans is that monoclonal antibody, which is for post exposure.

**Mr MADDEN:** Is it true that some vets refuse to treat horses unless they have been vaccinated?

**Dr Crook:** There have been reports about that, but I think we have our colleagues here to talk to that.

**Mr MADDEN:** Leading on from that, what do you have to say about the possibility of making vaccinations mandatory, at least in certain areas such as the racing industry for example?

**Dr Crook:** I guess that is something that has been talked about quite regularly. It is not a practice that we have done in terms of making vaccination against an endemic disease, which Hendra virus is, mandatory. There have been moves by some organisations, particularly for events, to say that if horses are to attend those events they are to be vaccinated. I guess a good example of that would be the Ekka here in Brisbane.

**Mr MADDEN:** Does the vaccine last the life of the animal?

**Dr Crook:** No. The vaccine requires a certain schedule of injections. There is the boosting program and then there are regular boosters that have to be given. At the moment, the label requirement is for six-monthly boosters, but I understand work is being done to extend that out.

**Mr MADDEN:** So it is like other diseases such as tetanus, where you have boosters?

**Dr Crook:** That is right.

**Dr Thompson:** With vaccinations, obviously you have a time since the vaccination was first used and there is lots of testing done to see how long something remains immune from a disease. Because this is a new vaccine, the work is still new. That is one of the reasons that the vaccine time period was quite short, but they are trying to extend that, get the research, get it to the APVMA, to allow them to give booster shots at a greater interval than six months.

**Dr Crook:** It is like human vaccinations: you have to have your priming dose and your regular boosters, like the tetanus shots and things like that.

**Mr MADDEN:** Finally, you must be very pleased with those results, that you are now down to one or two cases a year from the highs of 2011.

**Dr Thompson:** I do not think we can take credit for that. It is very much around vaccination, the way that people treat their horses and the awareness program. I guess all that plays a role.

**Mr MADDEN:** That is what I am saying.

**Dr Thompson:** Undoubtedly there are issues around the amount of virus floating around the flying fox colonies, which is not something we can control.

**CHAIR:** Are some breeds of horses more likely to get infected than others? Of the total cases that we have had, are particular types of horses involved?

**Dr Crook:** No. The virus works at a cellular level, so essentially all cells are the same.

**CHAIR:** So any horse is susceptible?

**Dr Crook:** That is right.

**CHAIR:** Does the APVMA release a report on the results that they get and the work that they do on the number of vaccinations, whether it is working, if there are issues with the vaccine and so on?

**Dr Crook:** On their website they publish data about registered products. In the case of this particular product, they do publish adverse reaction reports. That is available on their site.

**CHAIR:** Have any horses died after receiving the vaccine?

**Dr Crook:** In terms of the adverse reactions, there is 'probable' and 'possible' causes that they have linked to.

**CHAIR:** So the answer is yes, maybe?

**Dr Thompson:** There are seven adverse experience reports listed on the APVMA website where death is listed as possible. There are no cases listed as probable.

**Mr BENNETT:** The clinical signs that you referenced before were definitive and a long list. Do we see variations of those clinical signs? I am thinking if veterinarians and horse owners being able to detect it. Are the clinical signs very consistent or can you can have one or two symptoms, or a mix? Does that make sense?



**Dr Crook:** Absolutely. It is highly variable. The most consistent one is a fever, but, again, that is not specific to Hendra virus. It is putting together the combination of what is being looked at, the history and the professional judgement of the veterinarian.

**Mr BENNETT:** You have put out guidelines, and I am sure they are very well worded, about taking notice and so on. It is somewhat difficult for veterinarians to make an immediate diagnosis, except through a blood sample and a laboratory test.

**Dr Crook:** Yes. The samples required are a blood sample and also a swab, so a swab from orifices. We offer a service to make that diagnosis, yes or no.

**Mr BENNETT:** What is the turnaround following the submission of a test to the laboratory?

**Dr Crook:** Once the sample is received in the laboratory, the initial test, which is the PCR test, is in the order of four hours.

**Mr BENNETT:** In your presentation you said that there is a 48-hour window for horses that may go down.

**Dr Crook:** That is right—in terms of ill horses deteriorating, yes.

**Mr BENNETT:** Does Biosecurity Queensland have a rating list? Where does Hendra sit on the list of biosecurity issues in terms of infection to humans, working horses and pets? We have had some unfortunate fatalities in humans, but where does Hendra virus sit on the big scale of things, as opposed to other biosecurity threats that we may face in Queensland?

**Dr Crook:** It is very high on our list, obviously because of the catastrophic zoonotic potential. It is very high.

**Mr BENNETT:** We have had three deaths. Have there been deaths from other biosecurity threats in Queensland?

**Dr Crook:** In terms of the diseases that we are managing, no. In terms of the zoonotic diseases, we are looking more towards avian influenza and those types of things, but Hendra is one that we live with in Queensland so it is of intense interest to us.

**Dr Thompson:** Obviously impacts on numbers of animals from other diseases can be much greater but they do not carry that same risk of a disease that can transfer to humans.

**Mr BENNETT:** That puts it in perspective. I was wondering where it sat on the list.

**Dr Thompson:** Avian influenza, we have not had foot-and-mouth disease—with those types of ones, there would be thousands or hundreds of thousands of animals that potentially could be affected. The numbers are enormous in those categories.

**Dr Crook:** In particular, they have a trade impact, which is huge. With Hendra it is the zoonotic, the human aspects of it.

**Mr BENNETT:** Going back a few years, I was briefly involved when Warwick was quarantined and we had to put in all those fences. Was that when the vaccine was developed? I think those horses were kept there until the vaccine was prepared, is that right, in 2010? Do you recall that?

**Dr Crook:** It was 2007 and 2008 with equine influenza at Morgan Park.

**Mr BENNETT:** I have lost a few years, obviously.

**Dr Thompson:** It was locked down as a means of trying to prevent the spread of equine influenza at that time. Obviously, equine influenza is a very different disease.

**Dr Crook:** It is highly contagious and that is the difference, in that it would spread very quickly. Hendra virus is not contagious, but if it does transmit it has catastrophic impacts.

**Mr MADDEN:** That is an interesting point, that it is not contagious. What does that mean? Does it mean that it is not contagious between animals?

**Dr Crook:** It is not as infective. For example, the flu will spread very quickly in this room. It will spread quite easily between us all, whereas Hendra virus would require very close contact.

**Mr MADDEN:** I understand. Thank you for that.

**CHAIR:** I am guessing that you are paying particular attention to the racing and other equine industries, such as equestrian shows and so on. Are we seeing anything at the moment? Is there anything highlighted or potential?

**Dr Crook:** The main thing that we are discussing with both of those industries is their biosecurity planning and biosecurity planning for events, because obviously whenever we bring horses together or animals together, it is an aggregation point that brings with it biosecurity

challenges. Only one of those is Hendra. When we are talking to those agencies, we are talking about their biosecurity planning and also the risk mitigation that they can put in place around that. We go through the options that they have. We work with the event organisers on the best biosecurity plans that they can have in place.

**CHAIR:** You are actively looking at what shows are coming up or what big equestrian events or race meets there will be?

**Dr Crook:** We tend to work more with the peak bodies about a broad approach to biosecurity. If they have a special event or something that they want our advice on, we are more than happy to talk to them about that.

**CHAIR:** If next week I bought myself a farm with big fruit trees down the back paddock and decided to put a couple of horses in it, where would I find information? Would I go to the local vet?

**Dr Crook:** Local vets are a good start. Our website has comprehensive information. There is plenty of available information out there. 132523 is our call centre.

**CHAIR:** How much difference would it make if vaccines were mandatory across the board for every horse in Queensland?

**Dr Crook:** If every horse in Queensland was vaccinated, your risk mitigation strategies are changed, they are different, but you still need to be careful about everything.

**CHAIR:** Has anything ever been done about the wild horse population? There are plenty of wild horses roaming the state.

**Dr Crook:** There has been some limited work in those and also during EI we did take a look at some of those animals.

**CHAIR:** And did any of that show up in those?

**Dr Crook:** No.

**CHAIR:** I guess if it takes only 48 hours for them to die—

**Dr Crook:** We may not see it.

**Mr BENNETT:** Most of them are west of the Great Divide, I would imagine, outside the flying fox—

**Dr Crook:** No, there are some on the coast.

**Mr BENNETT:** But the majority of them are western, are they not?

**Dr Thompson:** You get many more horses west. Yes, that is correct.

**CHAIR:** There are plenty on the islands.

**Dr Thompson:** Yes, there are up the coast and particularly on the Sunshine Coast in the forest there.

**Mr SORENSEN:** Yes, plenty through there.

**CHAIR:** Some submissions have said that the transmission mechanism for Hendra virus is not well understood, that horse-to-horse transmission has not happened and that bat-to-horse transmission has not been proven. Is this right and how much do you understand about how it spreads? I guess you may have answered that.

**Dr Crook:** I think we understand a lot about how Hendra virus spreads and its transmission. There may always be some unanswered questions, but I think the body of work, particularly the body of work that has been undertaken under the national program, has given us a good, very strong body of evidence.

**CHAIR:** If the husband goes out and catches Hendra virus, is it possible to spread to other humans as well?

**Dr Crook:** There is no evidence of that at all.

**CHAIR:** We have not seen that at all?

**Dr Crook:** No, there is no evidence.

**Mr BENNETT:** Has anyone done the economics of the cost of the vaccine? I know that it is not Biosecurity's issue, but do you know if any work has been done on possibly reducing the fee by more participation? Do you know if anyone has done any work, because some of the push back is obviously about price.

**Dr Crook:** There is some work that has been done by some of the universities around people's approaches to vaccination and what some of the potential blockages might be. I am broadly across it, but not specifically across it. I can provide you with those references, if you are interested.

**Mr BENNETT:** I think it is going to be important for the committee to understand why we have people who are bitterly opposed to vaccinations.

**Dr Crook:** Sure.

**Mr BENNETT:** So would you be kind enough—

**Dr Crook:** Yes.

**Mr SORENSEN:** With the wild pig populations around the place, does it transfer to pigs, because humans have the same body function as a pig?

**Dr Crook:** That is true and pigs are recognised as a susceptible species. There has been some experimental work, but if you think to the related virus in the Henipa family, which is the Nipah virus, that is where it was found in pigs as well. Again, we have done some work. There has been some survey work, particularly in feral pig populations and in commercial populations, with no evidence.

**Mr SORENSEN:** Because pigs hang under the mango trees waiting for the flying foxes to drop the mangoes down.

**Dr Crook:** Then we have to talk about the susceptibility and the transmission load.

**CHAIR:** Because there is quite a population out there in Queensland who love to get in their utes and chase down pigs. They get gouged and the whole lot—their dogs and themselves—which is a potential risk as well.

**Dr Crook:** Sure, but there are also some other zoonotic diseases out there that would be of higher consideration.

**Mr BENNETT:** Can I ask a question about mutations? Since 2008, or since we started seriously testing, have we seen any mutations of Hendra developing? I think that is the risk with this stuff, is it? It changes.

**Dr Crook:** Hendra virus is a very stable virus. What we are looking at now and what we saw in 1994 is very similar with little difference between them.

**Mr MADDEN:** What is the approximate cost to get a horse vaccinated?

**Dr Crook:** I would not have that with me. There will be more expertise in the room about that than me.

**Mr MADDEN:** Do you know of any subsidy that applies with regard to the vaccination?

**Dr Crook:** Not a government subsidy. The subsidy that we provide is around the diagnostic testing and the PPE rebate.

**Mr MADDEN:** Thank you.

**CHAIR:** Thank you very much for your presentation and also for answering your questions.

**ANTHONY, Dr Nathan, Hendra Virus Spokesperson and Past President, Equine Veterinarians Australia**

**POOLE, Dr Ben, State Representative for Queensland, Equine Veterinarians Australia**

**CHAIR:** We welcome you today to the hearing.

**Dr Anthony:** I am the immediate past president of Equine Veterinarians Australia. I am on the current committee and I am a practising equine veterinarian here in Brisbane.

**CHAIR:** You are the immediate past president?

**Dr Anthony:** Our president terms are for one year in our association.

**Dr Poole:** I am a practising veterinarian on the Sunshine Coast.

**Dr Anthony:** Can I just say that, in representing the Australian Veterinary Association, we represent about 90 per cent of practices in Queensland, about 9,000 individuals across the country and about 1,600 vets in Queensland.

**CHAIR:** Wonderful. Would you like to make any opening submission?

**Dr Anthony:** I thought we would start talking about the human cost of Hendra disease, because, clearly, that is a big one for us. Safe workplaces are at the forefront for us. This is because, of the seven confirmed cases in people since 1994, four of those people have died and all seven people did have contact with blood and bodily fluids. Five out of those seven were veterinarians or veterinary assistants so, clearly, there is an occupational risk for our profession.

Another important point in relation to the occupational risk is that one of those seven people who have been infected to date was infected during the preclinical period. That means that that horse that infected that person—it was a vet nurse who became infected—was seemingly normal. It was not a sick horse. Scientists at the CSIRO have shown that horses excrete the virus for some days prior to becoming sick. Certainly, in that 72-hour window before they show any sign of illness they can excrete enough virus to infect a human being, and it has happened.

The big change for us was in 2008 when the virus got into the largest private equine hospital here in Queensland, Redlands Veterinary Clinic. Sadly, one of our colleagues died, Ben Cunneen, and a nurse was infected and a huge viable business was decimated. It still has not recovered to this day. About a year later another veterinarian died in Rockhampton.

We are often told that Hendra virus is a rare disease, that we should just put up with this, the chances of us being exposed are pretty low. But that is not the case if you are a veterinarian. Allison will correct this, but, based on Allison's slides, there have been 53 confirmed incidents resulting in the deaths of 75 horses. Just about every one of those incidents was diagnosed by a private veterinarian, so they are the ones who are there at the beginning.

Like you have seen, the majority of cases have occurred in the last five years. The reality is that, for veterinarians, some of them are seeing this disease with frequency and putting themselves at risk on frequent occasions. There are veterinarians who are now coming around for their third Hendra incident that they have diagnosed. There is a practice in North Queensland that does less than 10 per cent horses. I think they have had four cases. It is a serious occupational hazard for us.

We are also reminded by some that this is just an occupational hazard for veterinarians and there is no risk to anyone else. That is not the case. Of those 75 horses that have been infected—the 53 incidents—there was a person, an owner, often a family attached to that horse involved and potentially contaminated by that horse. That was highlighted in 2014 when six people experienced sufficiently high exposure levels to be treated with that experimental monoclonal antibody that Allison talked about. All of those six people were not involved in the veterinary industry—not one of them.

The big issue for us is the fact that we cannot simply, quickly and efficiently identify a Hendra horse. If we could, we would not be here having this discussion; it would be easy to manage our risk. But the reality is that horses with Hendra can present with any number of clinical signs. Some guidelines produced by BQ and the Australian Veterinary Association showed that horses can present with any one or a combination of the following signs: acute illness, high temperature, high heart rate, just depressed or rapid deterioration. You do not have to have all of those things; you could have just one and that could tick the Hendra box.

If we look at the 75 horses that have died from Hendra to date, and we look at the symptoms that they presented with, some of them had a fever. But some did not have a fever at the time of the examination, so that is unreliable. Some had colic, which is abdominal pain. Colic is a really common

presentation. There would not be a horse vet who would not see a horse with colic every day. Some had respiratory signs, some had neurological signs, some were simply depressed and did not eat and they turned out to have Hendra. This is the dilemma for us. We just cannot pick the disease.

I want to give you a feel for what it is like as a Queensland practising veterinarian working with this risk. The first thing is that there are guidelines that are produced by the government—three sets actually. Workplace Health and Safety, Biosecurity and the Queensland government produced the interagency document on Hendra disease prevention. Those guidelines really set the rules as to how we need to manage ourselves in relation to this risk.

Our very first obligation is to perform an exclusion test if Hendra exists on that list of differentials. As I explained before, it is very hard for it to not exist. Why do we have to perform the exclusion test? Because this is a notifiable disease. It is a legal requirement, even if you are just suspicious of the case. The process of submitting a sample is the notification. When we do the exclusion test, that effectively pulls the trigger. It means that we need to manage that horse and all the people in contact as if it is a confirmed Hendra, even though it is not—and it is very unlikely to come back as a confirmed Hendra—but our obligations are to manage that horse as such from that point. That means wearing full personal protective equipment, carrying enough in the car to supply the handler and we have to coach that handler on putting on this gear appropriately.

Hendra is a level 4 biosecurity hazard. That is as dangerous as it gets. Ebola is the same category. We are armed with that responsibility of getting the owner of that horse into the gear and then we head off to the horse to collect our samples and to examine the horse. We have to set decontamination barriers, we have to isolate the horse, and we have to then go through a process of decontamination for ourselves and the handlers. We have to dispose of all of that biological waste appropriately. There are requirements for the packaging of those samples that go off to the lab—clearly, that is a hazard—and we have a duty of care to the owners, the family perhaps and even the neighbours. If you look at these guideline, we have to notify the neighbours of the risk. There are legal responsibilities for us as well.

That is how we manage a sick horse and that is how we meet our obligations in relation to a sick horse but, as I said earlier, preclinical transmission has occurred and it is a risk. When we refer to the guideline, particularly the Queensland government's Hendra disease prevention advice, it certainly directs us towards taking measures to ensure that we are not put at risk when just performing routine procedures on seemingly healthy horses.

The big risk for us in horse practice is dentistry. There is a little picture down the bottom of a horse's mouth. In my practice, we perform close to 1,000 of these dentals a year with nine vets. Our face is close to that open mouth. We certainly wear protective equipment when we are doing this, but this is an animal that is not anaesthetised. It is sedated, fractious, and we are using power tools, aerosolised material and tooth particles are flying around the place. The picture up the top is performing an endoscopy, looking at an airway. This is standard in sport horse and racehorse practice. Passing a nasogastric tube is everyday racetrack practice. That is standing next to a horse in a stable and passing a tube through its nose, into its pharynx and down into its stomach. These are all high-risk procedures.

Personal protective equipment is absolutely necessary to manage our risk, and we acknowledge that, but it carries with it another workplace hazard. Horses are large animals. They are often fractious and can be easily frightened. When we approach these animals wearing this gear, some of these horses just do not like it. There is already an occupational hazard associated with working with these animals and wearing PPE makes the risk even higher. There is heat stress. It is hot in that gear. A couple of weeks ago we all experienced the heat here in Brisbane, and in North Queensland all the time. It is tough in this gear. Your goggles fog up, and you cannot see properly. It is cumbersome gear. Your chance of not only being hurt by the horse but putting a needle through your own finger is much higher. As I said, we have that horse owner who potentially may be a teenager who is home alone with their pony who is sick. We have that person kitted up as well.

The other risk for veterinarians relates to business and liability. The business risk for us that we really want to bring to your attention is the risk of quarantine of our equine hospitals. There are numerous facilities in Queensland that take sick horses to perform more intensive treatments and surgical procedures. I have one of these facilities. We would have anywhere from 15 to 25 or 30 horses in hospital at any one time. When you are in the business of looking after sick horses, there is a high probability that we could admit a horse that went positive for Hendra. If that were the case, if this horse went positive on testing for Hendra virus, clearly there would be workplace health and

safety concerns for my staff, but my practice would also be subject to the same quarantine that would apply under the legislation for private property, and that is 20-plus days. Usually it is close to 30 days, and that would close our business down.

We cannot obtain income protection or business interruption insurance for infectious disease outbreaks in our hospitals. It is just not possible. Guild Insurance is the big insurer of veterinary practices and they do not supply this. The reason for this is that it opens a can of worms. In EI years ago everyone would claim that. We are uninsurable for this, and the reality is that it would devastate many practices. The recent prosecution before the courts of three veterinarians has brought to the forefront our obligations under the Workplace Health and Safety Act and liability for us as well.

I also want to touch on horse welfare, because I imagine this would feature in some of the submissions that you have received. I have already mentioned this infection prevention advice, the Queensland government document. It clearly states that when dealing with a suspect Hendra case—this is a horse we have performed an exclusion test on—we need to limit the invasive nature of diagnostic tests and treatments that we can perform on that horse. That, in its own right, is resulting in some welfare issues in only the unvaccinated horse population, of course.

The first point is that, when we take that exclusion test and send it to the laboratory, there is a delay in receiving results. At the very least you might have it back in 12 hours, but you would need to get the sample there by 2 pm. If you can get it there by 2 pm Monday to Friday you would have a result by 5.30 pm or 6 pm that night, but the laboratory is closed on the weekends—on Saturday and Sunday—so the sample that you take on Friday that gets to the lab after 2 pm would be reported Monday evening. It is closed on public holidays. It was closed for an extensive period during the Christmas period as well. If your sample gets there after 2 pm, you wait until 5.30 pm to 6 pm the following day, and there are issues associated with practitioners in North Queensland and Central Queensland.

These delays inadvertently result in the inability for certain horses that are unvaccinated to get into an equine hospital to receive life-saving treatment and they limit the extent of the treatment that can be provided in the field for that horse as well. That really is at the crux of our welfare concerns, but veterinarians are meeting their obligations. We are not suggesting that our obligations should be diluted greatly in relation to this. It is a serious disease and hazard for us, and we would like to know that this horse is negative prior to performing invasive procedures.

What are the consequences of all of this for our profession here in Queensland? Some equine veterinarians are leaving practice here in Queensland. A question was asked before about whether this virus has infected horses south of northern New South Wales. No, it has not. They would appear free of the risk of Hendra down there. It limits the number of veterinarians wanting to come here to Queensland to work. It is resulting in quite a number of veterinarians no longer being willing to provide services to equestrian events on weekends. Many vets provide this work pro bono. When you go to an equestrian event, the scenario of mum, dad and three horses turns into sometimes 200 to 300 horses, with twice as many people living in their horse floats—or goosenecks—or their trucks. There is an amenities blocks with two showers, three toilets and two sinks. Our liability—as we said, brought to the forefront recently and in our minds—is considerably greater in these situations given our duty of care that we would need to exercise.

It is the case that some practitioners and some practices are making decisions to manage their risk along the lines of vaccination policies—not visiting unvaccinated horses. There are some practices choosing to do that. There are not a lot of practices that are doing that. All practices are certainly performing exclusion testing and limiting treatments that are being performed. Some practices are limiting routine work—non-essential work—on non-vaccinated horses. Many veterinarians are now relying on what we believe is a safe and effective vaccine that lowers the risk of Hendra and effectively removes it from that differential diagnosis list.

I will turn to the vaccine. Allison has already talked about the development of the vaccine so we will not revisit that. It is the single most effective way of breaking the transmissions of the virus from horses to people. It clearly protects horses, which is a wonderful thing, but the reality is that this vaccine was brought to market because of the public health benefit. When we look at the guidelines for veterinarians managing Hendra virus risk produced by Biosecurity Queensland under the work health and safety precautions, the very first thing listed is a requirement for us to discuss the benefit and use of the vaccine with our clients. We do that.

The adverse reaction rate—and I will go on to talk more about reactions—is reported by the Australian Pesticides and Veterinary Medicines Authority to be less than 0.3 per cent, and that is on total number of doses administered. There have been 434,000 doses of Hendra vaccine administered roughly today. Less than 0.3 per cent adverse events per dose equates to about one in 350.

**CHAIR:** Over how long?

**Dr Anthony:** Since the launch of the vaccine, which was in November 2012. I will talk more about that in a minute.

Are vets getting rich because of this vaccine? The answer is no, absolutely not. It is in the best interests of veterinarians to price this as affordably as they can—to make it as affordable as they can. That is what veterinarians have done. There was a lot of talk about gouging at the launch of the vaccine but we just did not see it. The cost of the vaccine ranges from practice to practice, but it is about \$100 a dose. Some are as low as \$80 or \$85; some are \$120, but on average it is about \$100 a dose.

**CHAIR:** How many doses?

**Dr Anthony:** You need two doses three to six weeks apart as your priming doses and then a booster every six months. How does \$100 per dose compare in relation to the other expenses of owning a horse? It depends on what we are comparing. If it is a yearling from the Magic Millions sales, it is purchased for \$100,000. I probably do not have to go any further. For the average person who has a pleasure horse, many shoe their horse. They get a farrier to put shoes on their horse. They do that every five to six weeks. Shoeing now is about \$120, sometimes up to \$150. The cost of routine dentistry—I showed you a horse's mouth before—is \$120. That is once a year and sometimes twice a year. People vaccinate against tetanus and another disease called strangles quite happily. That is a \$50 vaccine. We believe that in the bigger picture in terms of the costs of owning a horse it is affordable for the majority of people.

I turn to the adverse possible side effects of the vaccine. I thought I would put this up here. This is the APVMA label of possible side effects. That is what is on the label in the pamphlet inside. I thought I would run through these and tell you our experience. In my case, in our practice we have administered about 7,000 doses of the vaccine. For Ben, it is about 4½ thousand doses of the vaccine. Transient swelling at the injection site: this is a lump that can come up. It is not painful, it could last for about a week and no treatment is required. Yes, you will see this in a small number of horses.

Swelling and soreness at the injection site: this is not supercommon, but it is by far the most common reaction that we see. The swelling that I referred to before is a little bigger and it is painful. If you push and prod on that, the horse does not like it. This is what, as veterinarians, we consider an expected vaccine reaction. To put it into perspective, it is no different from a tetanus shot in your arm. It is exactly the same. For horses with a pain in the neck, it is a bit different from us with a pain in the arm. They put their head down to eat and drink, and they could be a bit stiff and reluctant to do that. This is transient; it does not last for long—sometimes a day, a couple of days but no more than a week. Some horses require no treatment. For an owner who wanted to treat, we would provide them with a non-steroidal anti-inflammatory—not exactly Panadol but a similar sort of thing. They could ice the neck if they like and that resolves without any serious consequences.

Increased body temperature or fever: it does not happen very commonly but we do see it. Again, this is no different from our children when they are young having a vaccine and then spiking a fever that night. Again, we can administer a non-steroidal anti-inflammatory or owners can do that themselves, and that lowers the temperature and it does not last for very long.

Lethargy, loss of appetite, muscle stiffness: this really ties in to those other symptoms that I mentioned. They mention skin rashes. The word they use on the label is urticaria, which is an allergic reaction. We have seen that once out of our 7,000-odd doses. We are aware of the odd veterinarian who has seen that, but, again, that resolves simply.

Colic is abdominal pain. We have not seen that. Ben and I have discussed this. We certainly have not seen abdominal pain associated with the vaccine. I suspect if it is happening in the odd horse it could be because they are a bit bothered by their neck. That is our experience. We did a poll leading into this. We contacted 10 practices in Queensland. Collectively they had administered more than 60,000 doses, and they agreed with our experiences in relation to this.

We are aware that there are claims or allegations, if you like, that this vaccine causes severe debilitating reactions, even death, on a large scale. We believe as veterinarians that there is very limited evidence—in fact, no evidence—to support these claims. I am sure that this is going to form a major part of the committee's investigation. I am sure a lot of these submissions will relate to those adverse reactions. I would like to provide you with our insight and explanation for why we think this is being reported and why there is some concern from some of the horse-owning community out there.

As I mentioned before, there have been 434,000 doses of vaccine administered. That is 434,000 opportunities—just opportunities—for a horse to become sick for another reason, not necessarily related to the vaccine, two days later, one week later or one month later. There are even

claims that six months later their horse's feet developed severe disease. Where we are struggling as veterinarians is communicating that an association in time is not necessarily evidence. In fact, that is not evidence to support that there was a cause and effect. We think that is one of the issues.

The other issue for us is the misinformation and allegations that lack evidence that are circulating not just on the local grapevine but through social media sites. It is quite prevalent. There are a couple of predominant sites that are certainly not favourable towards the vaccine in any way. A lot of these discussions around adverse reactions are discussed on these sites. What I wanted to bring to your attention was an example of the power of social media and part of our problem in correcting misinformation.

It is a real situation about a horse called Bella. Bella was a lovely little coloured horse—a paint horse, a pleasure horse. She lived near Gympie with her owner. It was about nine months ago at least that Bella was administered her first dose of the Hendra vaccine by the local vet. Ten days later Bella developed some bizarre symptoms. She developed neurological symptoms. That meant that she was lacking coordination in her movement and staggering. This progressed to a horse that fell down and could not get up, and when it could get up it was pretty messy. The owners were very concerned about this and they communicated that the horse had been vaccinated. The consensus from the people that they communicated with was that this was a classic Hendra vaccine reaction. This went viral. There were videos of this horse. In fact, they still appear on Facebook sites. WIN TV and even the ABC ran some stories on this horse. They picked it up and ran it. The clip on the left is the original news footage that ran with WIN Television where the claim was that this was a Hendra vaccine reaction. It is horrific footage. This horse is staggering and collapsing—it is awful. I would not blame anybody who looked at that and thought, 'There is no way I am sticking that needle in my horse.' That has had 89,900 views as of today. About 80,000 of those views occurred very quickly, within a number of days.

We did have an opportunity through the Australian Veterinary Association to be interviewed by those journalists. We did explain that it was very unlikely that this was a Hendra vaccine reaction. There were many other explanations for why the horse could be showing those symptoms. We did get a bit of air time, but by comparison it was about two seconds and we went unheard. Sadly, Bella was euthanased and her body was sent to the University of Queensland Gatton campus. A post-mortem was performed by a specialist veterinary pathologist. The report is available and we can provide it to the committee. Bella had a cancer in her spleen that went to her kidney and then got into her central nervous system in her spine—a clear explanation for her symptoms. This was never a Hendra vaccine reaction, but the damage was done. We really struggled to get that corrected. The little footage on the right was after we convinced WIN TV to run another story, and they did. They took some convincing. That is the total number of people who have viewed the story that tells the truth, if you like. I think this is a perfect example of the struggle that we are having in relation to communicating the safety around this vaccine.

The concern for us is that this vaccine, as I said at the beginning, has been brought to market—it is available; it was developed by Australia's CSIRO—to prevent further deaths in people. Unfortunately, this is all being corrupted by some information that we really believe lacks any evidence. I will hand over to Ben to provide a quick summary.

**Dr Poole:** What you are going to hear today from the three groups is a lot of factual information. Unfortunately, we know what is coming from a number of other groups that are going to present to the inquiry when it proceeds. There is going to be a lot of fiction. There are going to be a lot of unsubstantiated claims. It is very important that the allegations that are going to be made are not taken at face value and are rigorously investigated so that we can try to make sure that scientific truth prevails over what could probably at best be described as scurrilous opinion.

We know that vaccine reactions occur, but they are usually expected reactions rather than adverse reactions. We are just not seeing the evidence in our profession that there is anything more than mild reactions occurring. Certainly my own experience in my practice is that we see sore necks and that is it. They can be easily treated by some anti-inflammatory medication and they resolve. They resolve quickly and it is really not a problem. If the client communicates with us that their horse has a problem, we can certainly deal with it.

We understand that the workplace health and safety guidelines are a necessary part of our working environment. They are there to help protect us and others from this deadly disease. I think we do need some recognition of the difficulties of complying with these guidelines under certain circumstances. Often we are faced with noncompliant owners. We are faced with often hostile owners



in dealing with their horses, which they swear black and blue have not got Hendra. They may be right; they often do not have Hendra, but we have to take that precaution and treat it as it could be a Hendra case. It is very difficult to know a sick horse from a Hendra horse. They are all the same.

We could have very hot weather or rainy weather which breaches our personal protective equipment. We could have difficult terrain, darkness and, of course, a noncompliant patient. Despite our best intentions to comply with the guidelines, in many circumstances to follow the guidelines in dealing with these horses is neither reasonable nor practicable.

We do realise that we need help to get the message across to decent horse owners who are very worried that their horse could die from this vaccine. There is a lot of social media out there that this vaccine is killing horses. We are not seeing that, but we are having trouble getting the message across to decent people that this is a safe and effective means of preventing Hendra virus, not only in the horse but in anyone who comes into contact with their horse. The reason why our message is not getting across is that there is interference being played by those in the community who are putting their own interests ahead of that of public health and animal health and welfare.

We do acknowledge that horse welfare is being negatively impacted by a refusal to treat unvaccinated horses. However, animal welfare is a shared responsibility between the animal owner and the veterinary profession. The power to solve the impasse solely lies in the hands of the horse owner. Refusal to treat by veterinarians is based on a number of risk assessments which include health and safety, the risk of prosecution and a fear of business interruption. We ask that the truth prevails in this inquiry and that firm recommendations are presented at the conclusion to give certainty and assurance to horse owners and the equine industry at large.

**CHAIR:** Thank you for that detailed submission. It was very good. Do you know how many horses are believed to have died from the vaccine?

**Dr Anthony:** There was a mistake made before in relation to the APVMA classification. It is a bit confusing between 'possible' and 'probable'. The deaths, if you are looking at the detail of the APVMA classification, are listed under the 'possible' category but not under the 'probable' category. I think Jim accidentally mixed that up before.

**CHAIR:** How many? Have autopsies been done on the other ones as well or just the one specific case you mentioned?

**Dr Anthony:** I think there are seven with the APVMA in the 'possible' and none in the 'probable'. It is because of that complexity. Even in a horse practice we get called out to a horse that is just dead in the paddock and we are unable to confirm whether it is due to a snakebite. There are numerous reasons. Just as people can pass away unexpectedly, horses can do it without any gross pathological changes.

**CHAIR:** You gave us one example and you used that as a good example to put your case forward that it could be from anything.

**Dr Anthony:** Yes.

**CHAIR:** How come they sent that one away for autopsy in particular and not the others?

**Dr Anthony:** You would be able to take that to the APVMA. Of those seven, some were autopsied and some were not. It would be up to the owners as to whether they did. The APVMA had the opportunity to classify those horses as 'probable' but they did not. They classified them as 'possible'. It means that there are other explanations, other disease processes, which could explain the fatality. They were unable to shift them into the 'probable' category. From our perspective, those 434,000 doses have been administered by veterinarians. If one of those veterinarians administered a vaccine and that horse died as a consequence, I am sure that veterinarian would hear about it and know about it and be involved. Those veterinarians do not believe that there is evidence to classify those horses as vaccine fatalities.

**CHAIR:** On the issue of horses that are not vaccinated, you say that if there is a risk you need to get the horse tested for Hendra before you will do any work on it, and that can take time. Does that have to be done by a veterinarian or can the owner take a sample and get it sent for testing before you get there?

**Dr Poole:** No. It must be performed by a vet wearing full personal protective equipment. Then any further medications that that horse may require during the ensuing period waiting for the results also must be performed by a vet.

**CHAIR:** What would be the average cost? You say the cost of the vaccine is \$120. What does it cost for a vet to come and do that test?

**Dr Anthony:** About \$350.

**CHAIR:** Which is about the cost of a full vaccination for 12 months.

**Dr Anthony:** In my practice you would get change for your three doses—your first two in six months.

**Mr BENNETT:** Dr Anthony, I made a note that you mentioned that horse owners do administer some medicines.

**Dr Anthony:** Yes.

**Mr BENNETT:** It is very confusing to me. This is obviously your concern as well as—the frustrations of how you deal with a horse that could be or could not be, even with a clinical diagnosis. What examples would a horse owner be administering medications or vaccinations separate—

**CHAIR:** It was anti-inflammatories, didn't he say?

**Mr BENNETT:** Was it anti-inflammatories?

**Dr Anthony:** Are we talking in relation to a sick horse that could have Hendra or just in general?

**Mr BENNETT:** I wrote it down when you mentioned it in your presentation. You mentioned horse owners can administer medicines. Is that only for anti-inflammatories?

**CHAIR:** I think the comment you made was that if it has a stiff neck you can leave it and the owner can give it an injection.

**Dr Anthony:** That is right. It is a common practice for horse owners to administer prescription medication by injection into the muscle, not commonly intravenously but by an intramuscular injection to their horse, under the supervision, if you like, or guidance of the veterinarian who prescribed the drug and showed them how to safely use it. Horse owners do do that. In relation to your suspect Hendra case, when you refer to the guidelines, that is absolutely a no-no. It is very dangerous for that owner to do that, and the veterinarian would be advising them not to.

In the case of self-administration of vaccinations, tetanus and strangles can be administered—strangles is another bacterial respiratory disease of horses and it is commonly vaccinated against. Horse owners can vaccinate their horses themselves, administer the injection. In the case of the Hendra vaccine, this is a veterinarian-only administration. There are multiple reasons it is a veterinarian-only administration and they all relate to the human health aspect. Firstly, the cold chain needs to be tight so that the vaccine works and it is not compromised. Secondly, if you administer the vaccine to a sick horse it may not respond, so the veterinarian needs to do it. Thirdly and most importantly, that information, that data, specifically the microchip number for that horse, is then uploaded or put on to a general registry. That is the most important thing because that is how Biosecurity Queensland would confirm that a horse involved in a Hendra incident was, in fact, protected. If there was an outbreak or an event, the same thing would apply. For a veterinarian managing risk, we would scan and microchip, refer to the registry and we could be confident in the vaccination status of that horse because a veterinarian has administered it.

**CHAIR:** In your personal opinion, why are horse owners not getting this vaccination done if it is such a risk to their horse's life and their own life? Why are they not getting it done?

**Dr Anthony:** Why are they not getting it done? Firstly, a lot of them are. There are 120,000 horses that have been vaccinated.

**CHAIR:** Do we know what percentage of horses are vaccinated in Queensland?

**Dr Anthony:** No-one knows exactly how many horses there are in this state. Maybe Allison might. I think the first thing is that these people who are vehemently opposed are, in fact, the minority. They are not the majority. They are very vocal clearly and they have concerns, but they are a minority. A lot are doing it. Cost certainly plays a part. Prior to the launch of this vaccine everybody wanted it. There were equestrian events cancelled because Hendra had popped up 100 kilometres away. We all wanted it and then the vaccine turned up.

What happened? How did this go pear-shaped? One, you had to pay for it. No-one thought about that. Two, there was confusion about what a minor use permit was. Now it is fully registered; we do not have to really go there now, but back then a minor use permit was not really explained well. So it was perceived by some as suggesting that the vaccine was still experimental and not safe. The third thing was export. There was restriction on export of vaccinated horses to Hong Kong, Singapore, the United Arab Emirates. That affected thoroughbreds and it affected the endurance market to the UAE. Those export restrictions have now been lifted; vaccinated horses can go there. There were other reasons for groups to become resistant. When you resist this you might look at multiple reasons why you are going to resist. It is not just the economic—

**Dr Poole:** The other point is that moving on from all those previous problems, now a big problem is that there are reasonable people who do really want to vaccinate their horse, but they are scared because of what they are seeing on social media. They are genuinely frightened that their horse is going to die from the vaccine.

**CHAIR:** Is the vaccine getting cheaper? Usually when this sort of stuff is introduced it is quite expensive and it gets cheaper and cheaper as time goes on and the volume—

**Dr Poole:** It certainly has become cheaper to administer. We do not believe the vaccine price itself will come down any further than what it is now.

**CHAIR:** Are there different companies that are looking to get into the market with the same vaccine, or is it a secluded market for a company?

**Dr Anthony:** There is no reason another company could not. There may be something there in the pipeline. It is certainly not—

**CHAIR:**—not your business?

**Dr Anthony:** Yes.

**CHAIR:** It is interesting if you could get it down to a lower cost if that is one of the main factors why people are not getting it done. One person might have one horse but another might have 10.

**Dr Anthony:** Yes, that is right.

**CHAIR:** So it starts to get a bit expensive.

**Dr Anthony:** That is correct.

**Mr BENNETT:** You do not have 10 horses if you do not have any capacity, I would have thought.

**Dr Poole:** Unfortunately, people do have 10 horses without capacity.

**Dr Anthony:** In terms of some organisations moving towards mandatory vaccination, for those people who have the 10 or the 30 horses, often the 30 horses do not go to the competition and compete. So if mandatory vaccination were to be implemented for some organisations, only those horses perhaps that need to go to those events would be vaccinated and some of the younger stock may not be until they are ready to go.

**CHAIR:** That is not compulsory now?

**Dr Anthony:** No, it is not compulsory. Some event organiser groups have made it compulsory. The Brisbane royal show was the first. They were the first and are still strong there. There are little pony clubs that are obviously managing risk with children that have mandated it. There are some schools that have equestrian clubs that have made it compulsory for their equestrian teams to protect the teachers who are involved, the staff and the students. In Queensland the horse sport discipline of eventing—I am not sure if you know it; it is an Olympic discipline. The majority of event organisers in eventing have mandated vaccination. In fact, just two weeks ago the Queensland Endurance Riders Association announced that they would support clubs who went down that path. I think there is a handful of clubs who are doing that. It is slowly creeping in.

**CHAIR:** So you would give out a certificate to someone whose horse gets the Hendra vaccine just like when I have to put my dog into the kennels when I go on holidays I get a certificate to say my dog has been vaccinated?

**Dr Anthony:** They can have a certificate and they can generate their own certificate off a website, too. Most of the entries for these events are now online. So they simply put their microchip number in and that can interface with the registry.

**Mr MADDEN:** You talked about three vets being prosecuted. I did not follow what you were talking about.

**Dr Anthony:** We certainly cannot talk about the detail of the prosecutions. Three veterinarians are currently being prosecuted under the Work Health and Safety Act 2011, section 28, for risks that they put themselves in and risks to other people—horse owners, for example—when managing Hendra cases.

**CHAIR:** We just have to be careful if it is before the court for prosecution.

**Mr MADDEN:** That is why I was pretty much cutting you off there. I am interested in what insurance you can get and what insurance you cannot get. I presume you get WorkCover?

**Dr Anthony:** Yes.

**Mr MADDEN:** Life insurance?

**Dr Anthony:** Veterinarians can get life insurance but interestingly on that, apparently we are the second highest risk category to motorsport drivers.

**Mr MADDEN:** I think you did mention income protection. Is there a difficulty getting income protection?

**Dr Anthony:** The only insurance that we cannot get in relation to Hendra is business interruption. We cannot get business interruption. It comes into play because there are large equine hospitals like the one we talked about before, but there are also smaller clinics and multiple vets that have a few stables as well. If a case turned out to be Hendra and it went positive on those premises, those premises would be shut down under quarantine—it would be at the discretion of Biosecurity Queensland. We saw what happened with the Redlands Veterinary Clinic outbreak—the media, the hype, the threat of a class action. They became quite famous for all the wrong reasons. Certainly it did serious damage.

**Mr MADDEN:** What about professional indemnity insurance?

**Dr Anthony:** Yes, we do have professional indemnity cover. That certainly comes into play in relation to our liability. However, you cannot be insured against criminal acts. If you were found to be in breach of or guilty of work health and safety and there were fines—we are not insured for that.

**Mr MADDEN:** Is it your submission to the committee that vaccination should be mandatory?

**Dr Anthony:** I believe that vaccination should be mandatory in situations where there are large gatherings of horses. We see that as a very high risk area. We believe it also should be considered in the racing industry, not just for a significant workplace health and safety risk to that industry, but also even just considering the business interruption there, the damage that would be done with a positive case in the new stabling precinct that has been built at Eagle Farm, for example, and the impact that would have on race meetings and revenue. There are many good reasons to strongly consider this.

**CHAIR:** Does it affect the performance of a thoroughbred when racing if, say, it gets a stiff neck and is sore?

**Dr Anthony:** Queensland Racing have a local rule of racing. In complying with that local rule, you cannot administer the vaccine within seven days of racing. That is what they put in place to protect the punter, if you like.

**Mr BENNETT:** I was curious about two things. I was wondering about possible other examples—it might have been a better question for biosecurity—where we do mandate vaccinations, particularly where there is such a high risk of contamination and death to humans. In selling the message I would have thought there would be other examples. If the horses can be given a certificate that they have been vaccinated, do your practices change—the PPE has dropped and you basically go back to a reasonable understanding about your practice and how you would administer your practice on that particular horse?

**Dr Anthony:** I will answer that question first. In relation to the vaccination status of the horse, this is an excellent vaccine. We have seen the work produced by the CSIRO presented by Dr Deb Middleton, acclaimed Australian scientist. It is what we nearly call a sterilising vaccine: you vaccinate a horse, you inoculate it with 100,000 times the dose of Hendra that you would expect to occur in a natural infection transmission, and not only do these horses not become sick, but when they are post-mortem and tested they cannot find Hendra virus anywhere. It is a fantastic vaccine. The reality is that we do a risk assessment and we make a judgement call. If the horse is fully vaccinated, we do perform invasive procedures certainly. It does not stop us from using some PPE.

In relation to other compulsory vaccinations, I am not sure. In the horse sector in Australia I cannot think of an example, but internationally there are many. In Europe and in Great Britain equine influenza vaccination is mandatory. Interestingly, it is not mandated at government level; it is industry groups that actually got there in the end. There are other examples around the world.

**Dr Poole:** West Nile virus in the states is mandatory in some states. In Australia, no, I do not think there is any precedent.

**Dr Anthony:** Is there another zoonotic disease—horses to humans—in Australia that we are concerned about that is endemic? I think that is the point: there is nothing else.

**Mr SORENSEN:** On the vaccination costs and the veterinarian cost, what is it per horse? Is it just per horse, or if you go out to somebody who has 30 horses and you have to do the whole lot—what is the cost?

**Dr Anthony:** Veterinarians are pricing this to make it as affordable as they can. To give an example, we had a client recently ring up and ask for a price for 30 horses. I acknowledge that it is wonderful that they are looking at coming on board and we priced that ridiculously low because we are happy to help them out. I can assure you that veterinarians are not recommending vaccination because there is a buck in it for us. We would be happy to provide you with some information in a submission about the purchase cost of the vaccine and the margins, but there is no example in the veterinary industry I would think where our margins would be so low and ridiculously low—well not ridiculous, it is for good reason.

**Mr MADDEN:** Dr Anthony, you mentioned if a vet vaccinated a horse it would be recorded on a database. Where is this? Is it at Gatton college?

**Dr Poole:** The database is actually administered by Zoetis, the company who manufactures and markets the vaccine. So they have control over that database. It is accessible by the vets, who do an online training module and then are obliged to enter that data onto the computer. It has the owner's details, the address where the vaccine was administered, the age of the horse et cetera.

**Mr MADDEN:** It is a little bit similar to microchips that are put in pets.

**Dr Poole:** It is the same microchip that is put in a pet.

**Mr MADDEN:** They are administered by the companies that manufacture them; they maintain the databases.

**Dr Poole:** Certainly a central animal registry for small animals for locating a lost animal—it is a different database. It is a stand-alone Hendra vaccination database.

**CHAIR:** We have received a lot of submissions from people who are saying that the rift between themselves and vets is getting bigger and bigger. Is there anything that your organisation is doing to try to appease this and make the gap smaller?

**Dr Poole:** Certainly, it is very disappointing. In my 25 years as a vet I have not seen this sort of level of disconnect. I think it is partly fuelled by refusal to see unvaccinated animals. However, it is a communication really. It is up to vets to communicate with their clients what their individual practice policies are. We are getting there, but we are facing this interference. It is very difficult to get this message across because of the fairly vocal minority groups who are making it very difficult for us. We are finding communication at an individual practice level is really what is required because there are different practice policies. Each practice has a different policy based on the risk assessments they have performed, which is based on their geography as much as anything. If you are in a very high likely Hendra area, you are probably going to face a veterinary practice with a more stringent policy. It is really up to those individual practices to try to communicate with their clients as to what they have to expect when they call the practice with a sick horse that has not been vaccinated.

**CHAIR:** Are you doing work in a flyer or something to hand out to horse owners to say, 'This is—

**Dr Poole:** Yes, certainly, email communication.

**CHAIR:**—'why we go down this path, because of the risk to us,' and that sort of stuff?

**Dr Poole:** That is correct. We are trying to communicate the fact that this is the way that you can protect your horse from dying from Hendra, but more importantly it is how you can protect yourself and others—anyone who comes into contact with that sick horse, and obviously vets are in the higher risk group.

**CHAIR:** That brings this session to a close. I thank you both for your time and effort today and the presentation you gave to us.

**Proceedings suspended from 3.47 pm to 3.57 pm**

**GOLDSBROUGH, Mr Paul, Executive Director, Policy and Workers Compensation Services, Office of Industrial Relations, Queensland Treasury**

**NIELSEN, Ms Julie, Executive Director, Compliance and Business Engagement, Office of Industrial Relations, Queensland Treasury**

**CHAIR:** Welcome and I thank you for coming. I invite you to make a brief opening statement.

**Mr Goldsbrough:** I am happy to make a statement. We were under the impression we would talk for a bit and then there would be some questions.

**CHAIR:** That is how it works. If you want to make that opening statement now, that would be fantastic.

**Mr Goldsbrough:** The Work Health and Safety Act deals with all people at work and people who are affected by work. In that context, it is broad in nature. For example, if a worker is undertaking work that gives rise to impact on other people then that comes under the provisions of the legislation. Hendra virus typically causes acute illness in horses that is rapidly fatal. There are no specific clinical signs that define Hendra virus infection of horses. Clinical signs may be variable and sometimes vague. Hendra infection can only be confirmed by laboratory testing. Infected horses may shed Hendra virus before showing signs of illness, become increasingly infectious as the disease progresses and are maximally infectious during the late stages of the disease and at death. It is a complex problem for regulators to deal with.

Human infection with Hendra occurs from close contact with an infected horse and its blood, tissues and body fluids. Although uncommon, when human infection occurs it causes serious illness with a high death rate—approximately 57 per cent. While there is a Hendra virus vaccine for horses, there is currently no Hendra virus vaccine or effective treatment for the infection of humans. Persons having regular close contact with blood and body fluids of horses have greatest Hendra virus exposure risks.

Although Hendra virus infection in horses is uncommon, veterinarians and their staff are regularly exposed to the risk of Hendra virus when attending to horses, especially when attending to sick horses and/or performing high-risk veterinary procedures that involve a high level of contact with blood, tissue and body fluids and the use of veterinary shafts such as needles. Hendra virus creates serious health risks for veterinary professionals and requires veterinarians to implement stringent risk management practices. In Queensland, seven workers have acquired Hendra infections—three veterinarians, one veterinary nurse, one veterinary assistant, one horse trainer and one stablehand. Four of these seven people have died. All cases were attributed to close occupational contact with an infected horse involving a high-level exposure to blood and respiratory secretions.

Personal protective equipment is an important component of infection control for veterinarians managing potential Hendra risk from horses. However, there are PPE challenges, particularly for persons working in hot and humid environments like Queensland and unpredictable field situations, such as horses misbehaving and so on. The challenges in use of PPE, or personal protective equipment include: heat stress; restricted movement; restricted vision; the horse becoming spooked by the PPE; PPE failure, tears, fluid strike-through and so on; accidental personal contamination when removing the PPE; incorrect selection, use and fit of PPE, reducing the effectiveness; inadequate training in the use of PPE; worker compliance and management supervision to make sure people are doing it properly; and the extra time and cost involved. They are some of the challenges with actual personal protective equipment in the field.

The act has practices that we would expect vets and others dealing with horses to use. The Work Health and Safety Act places health and safety duties on various persons. Broadly, the act requires a person with a health and safety duty to eliminate the risks to health and safety so far as is reasonably practicable and, if not reasonably practicable, eliminate risks to health and safety to minimise those risks so far as reasonably practicable. In the context of the act, deciding what is reasonably practicable to protect people from harm requires taking into account and weighing up all relevant matters, including the likelihood of the hazard or risk, the degree of harm that might result, knowledge about the hazard or risk and availability of suitable ways to eliminate or minimise the risk.

One of the things that we have in place, which has been there since 2007, is the *How to manage work health and safety risks: Code of practice*, commonly known as the risk management code. This provides practical guidance for persons who have duties under the act and regulations to manage the risks to health and safety. The code outlines a four-step process. They are: to identify the hazards, which means to find out what could cause harm; to assess the risks if necessary, which

means to understand the nature of the harm that could be caused by the hazard, how serious the harm could be and the likelihood of it happening; to control the risks, which means to implement the most effective control measure that is reasonably practicable in the circumstances, and this depends on the environment they are in, whether it is in a controlled setting like stables and so on; and to review the control measures to ensure they are working as planned.

The regulation also provides for duty holders to follow a hierarchy of control, which is set out in the code, for the ways to manage and control risks. There are many ways to control risks, with some measures being more effective than others. Duty holders need to consider various control options and choose the control that most effectively eliminates the hazard or minimises the risks in the given circumstances. This may involve a single control measure or a combination of different controls that together provide the highest level of protection that is reasonably practicable.

I would like to hand up some copies of the hierarchy of risk control so members get an understanding of the way in which our inspectors and others would look at a situation where they were brought in where there was some dispute over whether risks would be adequately managed. The first level, which is the highest level of protection, is to eliminate the hazards. The second level is to substitute the hazard with something safer, isolate the hazard from people, and reduce the risk through engineering controls, which might not always be reasonably practicable in the circumstances we are discussing today, which is the management of Hendra. The third level is to reduce exposure to the hazard using administrative actions and personal protective equipment. As I briefly mentioned before, there are a number of difficulties with PPE in a lot of these settings.

When managing a work health and safety risk, the cost control measures in terms of time, effort and money are just one factor to consider when determining the best control option. The cost of controlling a risk may be taken into account in determining what is reasonably practicable but it cannot be used as a reason for not doing anything. That is a really important point from our perspective. The greater the likelihood of a hazard occurring and/or the greater the harm that could result if the hazard or risk did occur, the less weight should be given to the cost of controlling the hazard or risk.

While the likelihood of human infection is low because the Hendra virus is not readily transmissible, the consequence of human infection can be catastrophic because the disease has a high casualty rate as I mentioned before—that is, 57 per cent. The workplace health and safety legislation does not have prescriptive requirements for veterinarians regarding mandatory practice standards when providing veterinary services to horses that may be infected with Hendra virus. That is a really important point from our end. The way the act is geared is around education and encouragement rather than saying, 'You will do it this way.' It is very difficult to consider the broad range of circumstances a veterinarian might find themselves in when dealing with a sick animal. That is why the risk management approach is there and we encourage people to work through that process.

Workplace Health and Safety Queensland has three fact sheets providing advice about Hendra virus and the measures that can be taken to minimise risk for different occupational groups. The content is based on the advice of the Hendra Virus Interagency Technical Working Group, which is made up of Biosecurity Queensland, which I think will be briefing you, Queensland Health, Workplace Health and Safety Queensland and some others. It is based on the best available scientific evidence. All the fact sheets advise that the Hendra virus vaccine for horses is available and is the single most effective way of reducing the risk of Hendra virus infection in horses and provides a work health and safety and public health benefit. There are no statutory provisions mandating Hendra virus vaccine of horses under the Work Health and Safety Act. Horse owners are encouraged to discuss the vaccine with their veterinarian.

In terms of the fact sheets, the first is 'Hendra virus—information for veterinarians'. This fact sheet summarises the work health and safety precautions and refers to the guidelines for veterinarians handling potential Hendra virus infection in horses. The second fact sheet is 'Hendra virus—information for horse properties and other horse businesses'. The third fact sheet is 'Hendra virus—information for businesses that dispose of horse carcasses'.

What I would like to do with the chair's agreement is hand up some documentation. This is fairly broad ranging and I think it will help to inform the review. The package consists of: the National compliance and enforcement policy of Safe Work Australia, which my colleague Ms Nielsen will shortly speak on; the Memorandum of understanding: Incident management of threats to human or animal health; the Multiagency coordination standard operating procedure supporting the MOU between Biosecurity Queensland and Queensland Health for emergency management of zoonotic diseases; the Multiagency coordination Hendra virus standard operating procedure; the Enforcement action for Hendra virus; the Office of Industrial Relations operational document and enforcement note;

the Summary report: Outcomes of an audit of Hendra virus risk management in the veterinary industry, which we undertook in May 2011; and the information fact sheets. I will hand those up for the committee.

**CHAIR:** Thank you.

**Mr Goldsbrough:** There is one more bit I would like to go through. The Work Health and Safety Act and regulation applies to any person conducting a business or undertaking within the scope of the act. The act does not apply to work covered by the mining legislation. The act applies to veterinarians and other persons carrying out work as part of their business or undertaking. One of the objects of the act includes 'protecting workers and other persons against harm to their health, safety and welfare through the elimination or minimisation of risks arising from work or from specified types of substances or plant'. Regard must be had to the principle that workers and others should be given the highest level of protection against harm to their health, safety and welfare from risks arising from work and from particular types of substances or plant as is reasonably practicable. The Work Health and Safety Act requires risks to a person's health and safety arising from the conduct of the work to be eliminated or minimised so far as is reasonably practicable. Various persons have health and safety duties which reflect the degree of influence or control they have in relation to eliminating or minimising the exposure to risk.

What is required of a veterinarian or other person who carries out work to provide veterinarian services to horses will depend on whether the person is an employer, a self-employed person, a worker for a business or undertaking, or possibly a horse owner who is assisting a veterinarian while the horse is being provided a veterinary service. However, the work health and safety legislation is focused on managing risks associated with carrying out work and, as I said before, does not prescribe standards in relation to veterinary practice or treatment of horses. On that note, if you are okay, I would like to hand over to Ms Nielsen.

**CHAIR:** Of course.

**Ms Nielsen:** I want to take you through some of the operations. Paul has taken you through more of the policy around Hendra. As Paul mentioned in his opening comments, Workplace Health and Safety Queensland, Biosecurity Queensland and Queensland Health have developed more of a collaborative response to the whole issue of Hendra. That is very much the philosophy in which we operate. We have formalised that and that is in the documents we handed up in the folder. We formalised that in that memorandum of understanding between the agencies and that is supported via an interagency standard operating procedures document as well.

My colleague also mentioned that we are represented on the Hendra Virus Interagency Technical Working Group, along with Biosecurity Queensland and Queensland Health but importantly also along with the Australian Veterinary Association and Equine Veterinarians Australia. The group has published a range of evidence based materials around: Hendra virus infection; prevention advice, which includes advice on vaccination of horses and ways to minimise the interaction between horses and flying foxes at properties; infection prevention and control practices; biosecurity practices; and the selection and use of personal protective equipment.

As stated by my colleague, currently there are no statutory provisions to mandate Hendra virus vaccination for horses, as you have heard previously, under the Work Health and Safety Act. However, we do see that the vaccination is an important way to prevent Hendra infection and to provide health and safety protections as such.

Over the years we have sought to work quite closely with the industry to continue to develop and further the guidance material that has been made available. The materials that we have been able to develop is a range of web based guidance material. We have also done presentations at various conferences. We have held workshops. We have done statewide audits, which you have the results of in your folders. We have published newsletters and articles in veterinary newsletters and journals. We have regular stakeholder meetings as well. The most recent stakeholder meeting we had involving the Australian Veterinary Association and Equine Veterinarians Australian was held on 14 October last year.

The guidance material provides advice on how to manage those Hendra virus risks. Where a veterinarian considers a horse has potential Hendra virus infection we advise the veterinarians to consider restricting high-risk veterinary procedures to those to obtain a Hendra virus samples and/or to provide immediate treatment and to attend to the horse's welfare. They are also advised to avoid high-risk procedures that have the potential to result in a level of exposure to the horse's blood, respiratory fluids, tissues or other bodily fluids. Although the guidance material does not state that such a procedure cannot be performed, these do involve a high level of risk and should only be



undertaken if health and safety can be assured. They further advise that nonveterinarians should not undertake any invasive procedures on horses with potential Hendra virus infection, including injection, until the Hendra virus has actually been excluded. We are currently, as we continue to do, reviewing and updating our Hendra virus guidance material with the active participation of the two associations that I mentioned earlier—the Australian Veterinary Association and Equine Veterinarians Australia.

When we respond to a notification of suspected Hendra virus we assess and monitor compliance with the Work Health and Safety Act. We have a number of sanctions that we actually may apply when we respond to a Hendra incident in line with the national compliance and enforcement policy, which my colleague referred to. I am not sure whether it would be useful to hand up a copy of that enforcement triangle or the sanctions that will be provided. I do not know whether that will provide you with some additional guidance or information on how we apply that.

If you have a look at the compliance and enforcement pyramid you will see that typically the approach that we like to take, down the bottom, is encouraging and insisting on compliance. We move through to perhaps directing compliance. We typically direct compliance through the issuing of improvement notices and prohibition notices. At the top end of the triangle, which is the smallest component, sometimes we may use other sanctions such as prosecution.

When we respond to an incident and we commence an investigation into that incident it may be escalated through to what we call a comprehensive investigation. If a person contracts the Hendra virus during the course of their work and/or if other circumstances warrant an escalation and response we would be more interested in that. For example, where a person is assessed as having had a high level of exposure to Hendra virus, even if they do not subsequently go on to acquire the disease, that presents a serious risk to their health and safety and also to them actually going on to acquire the disease.

Policy documents that direct a workplace health and safety response to Hendra virus include the national compliance and enforcement policy and the Hendra virus enforcement notice. These documents have been included in the folder which has been provided to you. The documents clarify the regulator's position on how the act should be applied to Hendra incidents to ensure that compliance and enforcement outcomes are consistent and constructive, transparent, accountable, proportionate, responsible and targeted.

Since 2008 we have responded to 30 separate Hendra virus incidents. I will give you some idea of what we have found in responding to those 30 Hendra virus incidents. Information and advice has been provided on 19 of those occasions. In 19 of the 30 occasions we provided information and advice. Improvement notices were issued on eight occasions. We currently have prosecutions or court proceedings on foot for three of the 30 incidents that we actually responded to.

The three matters that are currently before the courts relate to Hendra virus incidents that occurred between 2013 and 2014. Each matter concerns an allegation that the obligation that was owed under the Work Health and Safety Act to control those virus risks were not controlled.

It is important also to note that the purpose of a comprehensive investigation or any investigation that we undertake within Workplace Health and Safety is primarily to determine what gave rise to the circumstances that led to the incident occurring and to prevent the reoccurrence of that incident. Prosecution may be an outcome of that, but primarily we seek to understand how it actually occurred in the first place and how we can prevent it from reoccurring.

One of the areas which we understand that the committee may be interested in is the offence provisions that relate under the Work Health and Safety Act. We have been able to provide these to you. I can hand these up also.

**Mr Goldsbrough:** That involves the categories of offences and the maximum fine penalty levels and so on.

**CHAIR:** That was a very comprehensive. I have worked in industry for 21 years prior to this new role of mine. If something is a danger or risk to me in industry then PPEs are mandated to be worn. As uncomfortable as they are at times, it is still a requirement that you wear them in your set job. Are PPEs not part of their work—they have not had to put this gear on so this is a change and it will take time to get used to it?

**Mr Goldsbrough:** As Julie said, I think there were 30 incidents that we have responded to. When you think of all the horse treatments with veterinarians that would occur over the period of a year that is not significant. On one hand you have a lag problem. How do you get people to maintain robust safety standards when these things do not occur that often? That has to be part of it all. If you have the opportunity to have something that eliminates the risk—that is, a vaccine that removes the

risk—then that is always preferable to the PPEs. It does not matter if you are working at Gladstone port or working at a coalmine somewhere, everyone seeks to eliminate risk and have the highest levels of control.

**CHAIR:** Can you explain to the committee what a vet has to wear? We have not actually heard that. We were hoping to get a visual demonstration today.

**Mr BENNETT:** There was a slide.

**CHAIR:** It was in a paddock a fair way away. Can you explain what the level 3 PPE protective equipment is for a vet who has to go to attend a suspect horse?

**Ms Nielsen:** In high-risk situations a vet may have to wear overalls.

**CHAIR:** Just a thin coverall?

**Ms Nielsen:** A coverall.

**Mr Goldsbrough:** It would be one that would not allow bodily secretions to come through.

**CHAIR:** So it is not the paper ones that you buy at protective safety stores; it is a bit heavier than that?

**Mr Goldsbrough:** Yes.

**Ms Nielsen:** They would wear gloves. They would also be required to wear a respirator and a face shield. The transmission is through fluids or aerosols. It is about placing a barrier between the person—

**Mr BENNETT:** Like a raincoat. Is it that sort of material?

**Mr Goldsbrough:** I would have thought so. It depends on the circumstances. Certainly it would not allow body secretion through the membrane.

**CHAIR:** Is the mask they wear like a dust mask or is it a full respirator with a canister on it?

**Ms Nielsen:** It is a P2.

**Mr Goldsbrough:** We have a video of that.

*A video was then shown—*

**CHAIR:** That video was quite comprehensive. Are you happy with how the system works now for the protection of workers who have potential contact with horses with Hendra?

**Mr Goldsbrough:** On a positive note—I will get Julie to talk generally—there are very good working relationships within government and with the industry now. That is really important because education is so important rather than dealing with things when we have another Hendra incident. We have people with good knowledge who are responding well. The way the agencies are working together is really reassuring.

**Ms Nielsen:** Certainly I would agree with that. The obvious realisation is that any one single agency does not have all of the answers or all of the solutions so it is very important that we continue to work with the veterinarians associations, but also with as many different stakeholder groups that are affected as possible, as well as working with our other colleagues within the different government agencies. It has to very much be a collaborative effort.

**CHAIR:** Thinking out of the box with workplace health and safety, has anyone had a look at coming up with a suit for the horse and covering the horse?

**Mr Goldsbrough:** With respect, that is more one for agriculture. We are worried about the people.

**CHAIR:** I saw something on social media where they put a suit on a horse. I think they did it with Black Caviar when they took Black Caviar overseas. You can actually put a suit on the horse.

**Mr Goldsbrough:** But you would still have to get the person kitted out to go and put the suit on the horse because of the potential risk at that point.

**CHAIR:** Sorry, I am diverting. I just like to think outside the box sometimes. Why put humans at risk when a horse can wear a suit?

**Mr BENNETT:** Thanks for coming along. You mentioned 30 incidents where on 19 occasions information and advice was provided, eight improvement notices were issued and there were three prosecutions. I assume that is because they were not vaccinated horses and that triggered Workplace Health and Safety's interest?

**Ms Nielsen:** What triggered Workplace Health and Safety's interest was that we alleged that there was a breach of the Work Health and Safety Act.

**Mr BENNETT:** If they are vaccinated horses the risk is not there?

**Ms Nielsen:** If the horses were vaccinated that does not, as I understand it—I defer to my technical colleagues—remove the risk completely.

**Mr BENNETT:** A vet turns up, as I understand from it today's deliberations, and they get a certificate saying their horse is vaccinated. The database proves that. The procedures, as I understand it, would be different operationally than they would be if we could not determine that the horse was vaccinated. We are okay so far?

**Ms Nielsen:** Correct.

**Mr BENNETT:** There are some prosecutions in play. I assume that that means that those horses were not vaccinated.

**Ms Nielsen:** The difficulty that I would have is that the three matters are actually before the courts.

**Mr BENNETT:** We have established the protocols are quite different for vaccinated horses and unvaccinated horses.

**Ms Nielsen:** We would still use the standard procedures for dealing with the horses.

**Mr BENNETT:** There has been a vague, grey area that I have seen today with people's determination of what are the clinical signs that a horse may or may not be affected. You are making that determination. Surely if you have a certificate saying, 'My horse is vaccinated,' I would assume that the vet would go about their practices operationally a little bit different.

**Ms Nielsen:** Yes, I would agree. Workplace Health and Safety are called in when there is a Hendra incident. Typically we would go out there in response to workers and others being exposed to Hendra.

**CHAIR:** The question would be: has the employer put the person at risk by not employing set conditions?

**Mr BENNETT:** It is a little bit more than that. My concern is that we have gone and made a risk assessment and tried to establish a blood test or a diagnostic about whether it is Hendra A or B. So we send that off to the lab. The processes between that point in time until some point 48 hours or even later down the track, if the laboratory is closed over a weekend or whatever—if it is not just a muscle disease and the owner wants to do an inflammatory injection—

**Mr Goldsbrough:** Could I suggest in relation to that that we come back with a business process map of how we would see it under each scenario—when there has been vaccination and when there has not—so that we step through the process.

**Mr BENNETT:** I will be guided by the chair. I will pull back on that, thank you.

**CHAIR:** You said that you are in the process of upgrading the way you do your systems. Why the need for an upgrade and what has changed to force an upgrade, or is it just how things change with technology?

**Ms Nielsen:** We provide our field staff, our inspectorate staff, with guidance when they respond to a Hendra incident about how they should actually respond to that incident. Like any policy or procedure, it has a review date built into it. The review date is April 2016, so it is up for review at the moment. Importantly, the reason we are updating it and reviewing it presently is to go back out again to the stakeholders, to industry itself, to see whether or not the current regulatory approach that we have is still reflective of those industry procedures to make sure it is current.

**CHAIR:** It is an upgrading procedure type of event?

**Ms Nielsen:** Yes.

**CHAIR:** There being no further questions, I thank you for your attendance today and your very comprehensive report. That brings today's hearing to a close. We thank everyone who has assisted us today. If there were any questions taken on notice could we please have responses by Tuesday, 29 March. The transcript of today's briefings and the PowerPoint presentations will be available from the Hendra virus inquiry page on our website shortly. I also remind everyone with an interest in this inquiry that the closing date for lodging written submissions is Friday, 22 April. I now declare this meeting closed.

**Committee adjourned at 4.38 pm**