Submission No. 273

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TVC TOWNSVILLE VET CLINIC

Submission to Queensland Parliament inquiry into Hendra virus (HeV) Equivacc vaccine and its use by Veterinary Surgeons in Queensland.

To the Chairperson,

Thank you for the opportunity to make a submission for the enquiry's consideration into this important matter.

Hendra virus infection is a deadly disease affecting both horses and people, and Hendra virus infection is preventable through vaccination.

Hendra virus and other related viruses such as Nipah Virus are bat-borne paramyxoviruses and have wide ranging implications not just for horse owners and people who work with horses, but to the wider community. It is well documented that other species are susceptible to Hendra Virus, most likely through horse transmission. Nipah virus is endemic in areas of Asia and also carried in flying fox populations. Nipah virus has been responsible to many hundreds of human deaths in Asia and the potential for spill-over to occur into Australian flying fox populations exists. Studies showing the HeV-sG subunit immunogen as a successful vaccine against lethal Hendra virus or Nipah virus challenge have been carried out in the cat (McEachern et al., 2008 and Mungall et al., 2006), ferret (Pallister et al., 2011b) and nonhuman primates (Bossart et al., 2012) As such the implementation of an effective

benefits and play a significant role in breaks of these diseases.

y fluids (particularly nasal secretions and s in infected horses. These results were d "that the data indicated that the nasal risk during the early phase of disease and exposure or while performing invasive where operator risk is increased even in appening is probably low, ultimately it is a t with the greater the chance of exposure.

To put it in perspective the Townsville Veterinary Clinic examines over 2000 horses per year. While we do practice universal precautions based on the level of risk of exposure (eg face mask, goggles, gloves, overalls etc). Playford *et al*, 2010, estimated the Hendra Virus attack rate for humans was approximately 10%, and it is widely acknowledged that people and professions working with horses and performing at risk or invasive procedures are at higher risk of exposure than the general population. The attack rate is the proportion of the population that develops illness during an outbreak. Such that an attack rate of 10% means 1 in 10 people in the exposed population will become infected in the event of an outbreak.

This should also be interpreted in light of the presenting signs of more recent Hendra virus cases in which infected horses initially demonstrated colic like signs. For example, if a veterinarian performed an invasive procedure on a horse that initially presented with colic-like signs and then subsequently developed overt Hendra Virus infection, the ramifications for the veterinarian, assistants, horse owner or handler and the veterinarian's employer would be enormous. Hendra virus is a notifiable disease which means as veterinarians we have a legal obligation to notify relevant authorities. Biosecurity Queensland, Queensland Health and Work Place Health are all subsequently involved in managing and investigating a confirmed positive case of Hendra Virus infection.

It is not our intention, nor our right to force horse owners to vaccinate – that is a choice that owners must make for themselves. All we would ask is that horse owners make that choice based on factual information. The Townsville Veterinary Clinic Hendra Virus policy is not about panicking over the potential risk of being infected with Hendra virus. It is about reviewing the facts, weighing up the pros and cons and making an informed decision. In the 20 or so years since Hendra Virus first became known the only way of trying to prevent Hendra Virus infection was by taking precautions (which are not always failsafe), now thanks to hard work by a collaborative team of researchers at the Australian Animal Health Laboratory in Geelong, and Zoetis we have an effective vaccine against Hendra Virus.

Extract from Middleton, D. *Vet Clinics*; 2014: *In press* "A candidate vaccine based on the antigen HeVsG was first efficacy tested in cats against Nipah virus and subsequently in ferrets against HeV, and the success of the outcomes to virus exposure in these species encouraged translation of the work into the horse. For use in the horse, sG was specifically reformulated with a proprietary adjuvant approved for use in that species and delivered as an inactivated subunit vaccine. Data gathered after using a prime-boost immunization regime confirmed development of neutralizing antibody in vaccinated horses, and all immunized horses were protected from disease following exposure to an otherwise lethal HeV challenge under BSL4 conditions. More recent serologic studies using different vaccination regimes suggest that antibody titre persists at high level 12 months after a priming series that comprises three immunizations (Day 0, Day 21, 6 months); horses exposed to HeV 12 months after receiving a third vaccine showed no evidence of HeV replication in swabs, blood, or tissues (Deborah Middleton,

unpublished observations, 2014). Following a high dose oronasal challenge with Hendra virus, all vaccinated horses remained clinically disease-free, and there was no evidence of virus replication or virus shedding in any of the immunized horses. On November 1, 2012, the vaccine called Equivac HeV® was released for use in Australia, and it is the first vaccine licensed and commercially deployed against a BSL-4 agent and currently is the only licensed prophylactic treatment for henipaviruses. (Broder *et al*; 2013:Antiviral Research; 100;1;8-13)

Contrary to public opinion it is not true that this vaccine is in any way experimental. This vaccine would not have been released to the horse community unless it was proven safe and effective, both of which it has been proven to be. The only reported and confirmed reactions to the vaccine when administered to healthy horses (the only horses that the vaccine SHOULD be administered to), is some mild lethargy, fever, and soreness and swelling of the injection site (reported rate of 0.22% of vaccinated horses). At the Townsville Veterinary Clinic we administer in excess of 600 doses of Equivac He-V per annum and over the past 3 years I am personally aware of 4 horses that have experienced injection site swelling and pain and or lethargy after Hendra vaccinations. Three of those horses now receive pre-medication with non-steroidal anti-inflammatories prior to vaccination and the fourth horse been recommended to undergo serological testing to monitor antibody titres to determine when revaccination should be performed. To put this in context a recent report on vaccination reactions in humans following H5N1 Influenza vaccination reported over 50% of patients experienced localised reactions at the injection site. By way of comparison approximately 4% of horses were reported to have local injection site reactions following vaccination for west Nile virus (Ng *et al* 2002) while a report out of Sweden found vaccination site reactions made up 13% of suspected adverse medication reactions (Tjalve *et al* 1997). While there is potentially a risk for an adverse, idiosyncratic reaction, following any treatment or medication, we not aware of any neurological side effects or death following Hendra vaccination in healthy horses in our clinic. There have been anecdotal reports of 'vaccine reactions' in horses which have subsequently been reported as suffering from other viral illness, for example Ross River Virus. One needs to be careful in assuming that illness following a vaccination is directly attributable to the vaccine itself given other illness may have been incubating at the same time.

The following extract from Middleton, D. *Vet Clinics*; 2014: *In press* on community impact of Hendra virus is worth consideration. "The 18 equine HeV incidents of 2011 and the first reported field infection of a dog were associated with increased national coverage in the mass media, and those communications to the public sent the message that burgeoning infection risk to the community was attributable to expansion of flying fox populations into urban areas rather than to direct contact with infected horses. As a result, there was increasing pressure to instigate measures for the control or extermination of flying fox populations, despite their key environmental role in pollination of native forests and any attendant practical and ethical considerations. Mendez and colleagues also reported increasing numbers of veterinarians and other equine health care staff to be departing equine practice because they believed that they were unable to adequately manage HeV-associated risks and liability within their workplace. Follow-on effects included increased occupational risk for some equine veterinarians, especially practice principals who elected to undertake all the equine work themselves and those veterinarians who elected to work in a less than ideal environment to meet animal welfare needs. A growing level of resentment was also described that was attributed to some practices that would only deliver preventative medicine services to healthy horses."

The implementation of a Hendra virus vaccination policy by veterinary clinics is in no way an income generating exercise as has been suggested by some members of the equine industry. While it is true that income derived from Hendra vaccinations in our practice has increased over the past 2 years (because we are vaccinating more horses) it is more than offset by the reduction in income associated with not pursuing intensive medical treatment or surgery on unwell unvaccinated horses. Income analysis indicates gross revenues are down by approximately 20% when compared to the same periods prior to introduction of a Hendra virus vaccination policy. As veterinarians we are not doing this to generate income, we are doing this to protect our staff, horses, clients and ourselves from Hendra virus infection.

As veterinarians we do not always have the luxury of making decisions purely based on how something may affect one individual or one horse. We do however have a right and a legal obligation under new Work Place Health and Safety laws to implement appropriate strategies that protect our staff, our clients and other members of the community from Hendra Virus infection. There are two very important reasons why we are recommending Hendra vaccination in horses – one is to prevent the disease in horses and the other is to prevent the disease in humans in contact with horses. If your horse was in a veterinary clinic and a horse was admitted to that clinic that subsequently proved to be infected with Hendra Virus and your horse was exposed the consequences would be disastrous. If you have any doubt read the report following the Hendra Virus outbreak at Redlands Veterinary Clinic in 2008. The Townsville Veterinary Clinic has attended 2 positive Hendra virus infected horses and until

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anyone has witnessed a horse infected with Hendra virus and experienced the consequences that follow I would urge caution before passing judgment on the right of a veterinary clinic to implement a Hendra Virus policy that recommends vaccination in order to protects its staff, clients and horses.

Thank you for your consideration.

Regards,

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