

Hendra submission

aec@parliament.qld.gov.au

Dr Rosemary Craig MBBS FRACGP

Adjunct Professional Fellow

School of Health and Human Sciences

Southern Cross University

Lismore NSW

[REDACTED]

[REDACTED]

I am a fully registered medical practitioner, with over 20 years of clinical experience in rural practice. I breed, own and ride horses, with currently 9 horses living on the home farm in the Northern Rivers of NSW. I compete with Riding for the Disabled as well as in open competition and am currently the NSW State Champion and Australian National Champion in my division. I am currently working at the Southern Cross University as both a General Practitioner who provides vaccinations and a research scientist exploring a form of glycoscience and biomolecular physics.

The Hendra Virus has been isolated from flying foxes, horses, dogs and humans. The only vaccination developed has been the Equivac HeV vaccine which is a subunit vaccine for horses, containing the Protein G, the surface attachment protein from the Hendra Virus which is instrumental in invading host cells. This type of vaccine is an easy one for the virus to evolve to bypass. Because the virus only needs to slightly change their Protein G it can easily slip past the immune system of a vaccinated animal and create an infective carrier status in that animal. This is a cause for concern for all of the domesticated host species; horses, dogs and humans. This vaccine is not species specific and should be able to be given to all of the domesticated at risk species, it would still block the high grade disease associated with the Hendra virus because it blocks Protein G.

The ideal type of vaccine is one which presents multiple surface identifiers to the immune system of a vaccinated recipient. The Measles Mumps Rubella (MMR) vaccine is an example of this ideal type. It is alive and "attenuated" so the 3 types of viruses are complete. Many of their surface identifying proteins are not similar to the Hendra Virus, none include Protein G, however it is possible that some of the surface markers are the same.

Interestingly, although various people have been in contact with Hendra infectious horses, only older men have died. This group, especially men born before 1966, have been under immunized with MMR according to the Australian Immunisation Schedule. Women are checked for their immunity to the MMR with every pregnancy and boosted if their immunity titre is less than 20. Because of the similarity in the Hendra Virus to the Measles Virus (it was originally named the Equine Morbilliform Virus which translates to Horse Measles-like Virus) it is feasible that they share some of the protein markers on their capsule because these proteins determine their shape and appearance as well as their function. I have hypothesized that the MMR vaccine may have the capacity to provide human immunity to the Hendra Virus.

I discussed my hypothesis with the CSIRO scientist Deborah Middleton and she confirmed that no work had been done assessing the MMR vaccine against Hendra however at that stage she had already developed the horse vaccine with the aim to specifically neutralise the viral attachment process.

My hypothesis has not been tested.

The schedule for boosting the Equivac HeV appears illogical. After 3 initial shots there should be adequate immunity. Similar types of vaccines in humans normally are only given over a 6 month initialisation schedule and are then only boosted many years later and only if the immunity titres are low. For comparison the Hepatitis B immune titres over 10 are considered immune. After the initial schedule of 3 vaccines in 6 months the Hepatitis B boosters are often unnecessary for more than 10 years, in my own case I only needed a booster after more than 20 years. I have seen immune titre results for horses who have not been boosted with the Equivac HeV vaccine for over 18 months which are well over 200.

The issue of veterinary surgeons refusing to treat horses who have not yet received the Equivac HeV appears a serious ethical breach. In human medicine doctors are obliged to treat sick and infectious patients and consequently use personal protection such as regular hand washing, gloves, sometimes also masks and gowns. I regularly use antiviral suits (not in my usual general practice work) and find them comfortable, only possibly too hot if too much is worn underneath. These suits readily allow water molecules to pass through and they do not get overtly sweaty (even under spotlights).

Many of the various vets who have attended my horses over the years have not washed their hands nor used gloves nor used anything like the infection control strategies used in human medicine.

I manage the potential risk of Hendra virus at my property by vaccinating the horse which is most often ridden and living closest to the house. He is fed and watered under cover and kept out of the orchard. The other horses are at lower risk, not being hand fed and living further from the house in larger paddocks, they are not vaccinated.

In the event of a sick horse, I am the only person to manage it, wearing gloves and washing hands afterwards. I have not had a case of Hendra infection on my property to date although it has been tested for in one case several years ago.

I am concerned that in my capacity as a doctor I heard of an attitude of not treating nor declaring a sick horse because of the Hendra infection implications of destroying other healthy livestock. This appears similar to the vets who refuse to treat horses who are unvaccinated and is based upon fear and unscientific public health attitudes. The only human cases of Hendra appear to have been transmitted by close contact with pre-terminal horses. This is extremely unlikely to occur at a horse event since such a horse would be incapable of being worked. The ruling of mandatory HeV vaccination with an excessive booster schedule for competing horses appears to be a consequence of the panic generated by the Horse Influenza outbreak in 2007 when poor quarantine techniques allowed the infection to rapidly spread across NSW.

The future management of the risk of Hendra Virus infection needs to include a combination of improved clinical hygiene by vets, sensible vaccination of all species at risk and exploration of my hypothesis because that could potentially protect the human population very rapidly and at virtually no cost since all humans should be vaccinated with MMR anyway.