



## FOCUS ARTICLE

### Summary of the report into the Australian equine influenza outbreak - what happened

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As regular readers will be aware an outbreak of equine influenza virus (EIV) occurred in the previously EIV free country of Australia in August 2007. The outbreak resulted in huge financial losses for the equine industry with many race meetings and other equine competitions cancelled during the second half of 2007. An inquiry was launched into the outbreak and in this focus article part of the report of the inquiry (The Callinan report) is summarised. The full report is available on line ([Click here](#)).

On 8<sup>th</sup> August 2007, 13 horses arrived in Australia on a flight from Japan. The horses landed in Melbourne, nine of the horses went into quarantine at Spotswood Quarantine Station (SQS) and the remaining 4 horses flew on to Sydney where they went into quarantine at Eastern Creek Quarantine Station (ECQS).

On 17<sup>th</sup> August an Irish stallion at Eastern Creek was observed to have clinical signs consistent with EIV. On the 20<sup>th</sup> August the horse in the neighbouring stable showed similar clinical signs. In response to these clinical signs several horses at ECQS had naso-pharyngeal swabs and blood samples taken for further investigation. Analysis of the swabs showed five horses in ECQS to be infected with equine influenza virus (EIV). Samples were also taken at SQS; seven horses tested positive for EIV. Retrospective analysis of blood samples taken pre-export, in conjunction with samples taken at the time of clinical signs being seen, indicated that the horses had become infected at some point before the 13<sup>th</sup> August. Other horses in the quarantine stations were also tested, including horses from Ireland, UK and USA. Results indicated that the horses from Ireland, UK and USA were not EIV positive at the time of arrival. The virus from Eastern Creek (called Sydney/07) was determined, by the Animal Health Trust in collaboration with laboratories from Japan and Australia, to have identical haemagglutinin protein spikes to the EI virus isolated in Japan (Iberaki/07) that caused an outbreak there around the same time.

From this testing it was concluded that there was likely to have been a common source of infection bringing EIV into the quarantine stations. The results of the serological and virological testing indicated that the source of infection was most likely horses from Japan. The Japanese horses had undergone pre-export quarantine on Hokkaido between 17<sup>th</sup> July and 6<sup>th</sup> August, and subsequently there were several reports of outbreaks of influenza at the Japanese quarantine stations where nine of the horses had been quarantined.

Investigations concluded that the most likely scenario for EIV introduction was that one of the stallions that went into ECQS on 8<sup>th</sup> August was already infected with EIV on arrival; other horses taken into SQS may also have been infected by the virus on arrival as well.

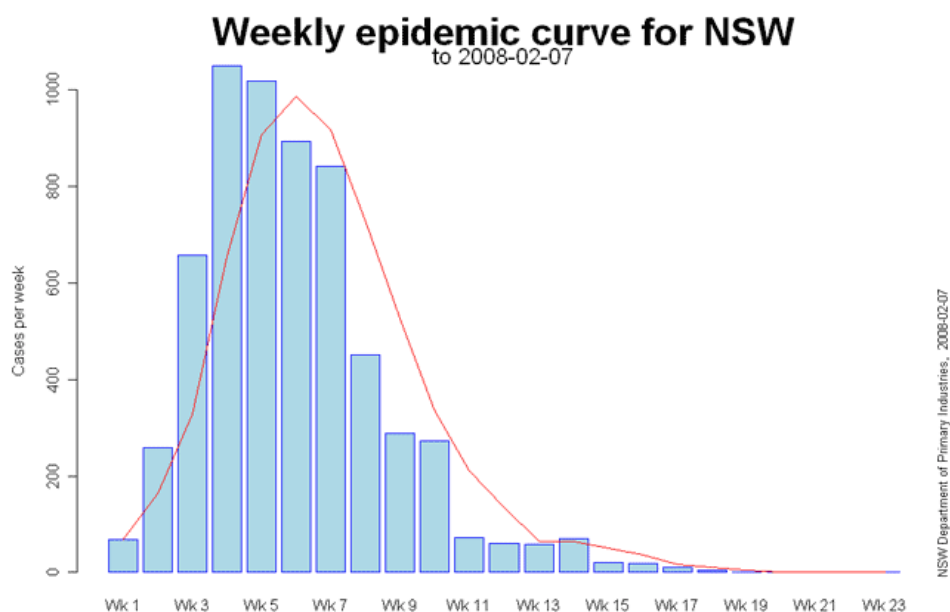


Air travel of horses to and from Australia is evermore frequent.



On 22<sup>nd</sup> August two horses at a suburban equestrian centre in Sydney showed clinical signs of EIV infection, the two horses were tested and found to be positive for EIV infection on 25<sup>th</sup> August. Around this time other cases were being reported in New South Wales and on the outskirts of Brisbane in southern Queensland. Investigations revealed that all these affected horses had attended a one day event near Maitland in New South Wales which was held on 17<sup>th</sup> August.

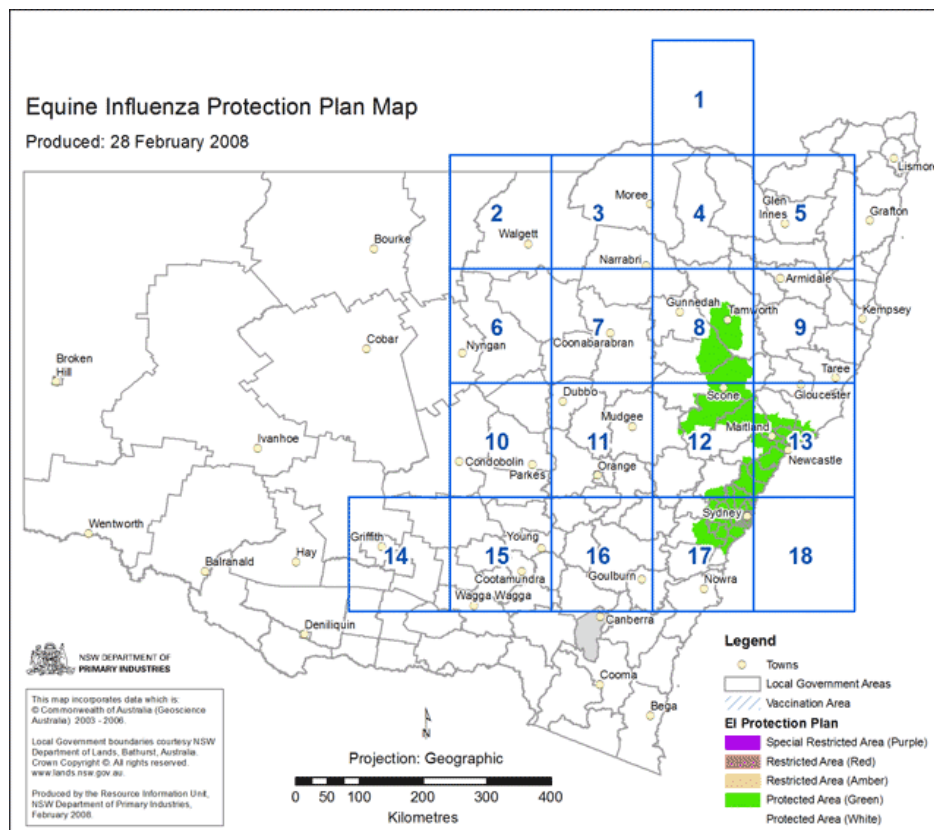
A rapidly spreading outbreak of equine influenza in New South Wales and Queensland followed. By 10<sup>th</sup> October about 4.500 premises were affected. The horse/horses that were first infected in the general Australian equine population has/have never been identified, but it is assumed it/they attended the Maitland one day event and transmitted infection to several susceptible horses which on their return home spread the infection to other immunologically naïve horses.





In order to try and contain the outbreak and minimize spread and numbers of affected animals, restriction zones were set up around the affected areas with strict movement controls. Vaccination was also used in the areas around the outbreaks to form a “buffer zone” again to help limit spread of the virus beyond the restricted areas. Merial’s Proteq Flu® vaccine was selected for use as it has “DIVA” capability i.e. it is possible to distinguish with laboratory tests between vaccine derived immunity and infection derived immunity. This is very important for tracing the spread of the virus among a vaccinated population.

The last confirmation of active EIV infection in Australia was on 25<sup>th</sup> December 2007 and on February 28<sup>th</sup> 2008 movement restrictions were finally lifted, although serological monitoring of the equine population continued. On 1<sup>st</sup> July 2008 Australia was declared free of Equine Influenza Virus.



The inquiry found four possible theories for how the virus escaped into the general Australian horse population were

- 1) Airborne spread from Sydney airport
- 2) Contaminated people, equipment or vehicles associated with the transport to ECQS.
- 3) Airborne spread from ECQS
- 4) Contaminated people or equipment or other from ECQS.



It was thought unlikely that cross-infection by dogs or birds or by some other vector such as straw carried by a bird was unlikely.

Airborne spread was thought to be an unlikely source of virus dissemination due to factors such as the prevailing weather conditions, low horse population density in the areas surrounding the airport and ECQS and due to the timing of clinical signs in relation to the actual spread of the virus

The time scale of the outbreak (in relation to the disease incubation period) did not fit with contamination associated with the transfer to ECQS.

Based on the above factors, and the timing of cases being identified in the general horse population (none reported before 21<sup>st</sup> August), it was considered most likely that EIV was taken out of ECQS by movement of a person, animal or equipment contaminated with EIV after 10<sup>th</sup> August.

The Callinan report concluded that grooms, farriers and vets who attended horses potentially infected with EIV at ECQS could have carried EIV out of ECQS and transmitted the virus to the general horse population. The report indicated that personnel left ECQS without following appropriate bio-security procedures such as showering, however the vets did wear overalls and wash their hands and faces prior to leaving. The inquiry also revealed that no records were kept of personnel movements to and from the quarantine station. The grooms at ECQS did not work with horses outside of the station however vets and farriers did. No individual has been held responsible for the escape of the virus, however it is thought most likely to have occurred via this route.

The findings of the report indicate that a failure of fundamental bio-security measures occurred at ECQS. Some of the reasons given for the failures included chronic understaffing, lack of appropriate training of staff and lack of adequate funding. Recommendations have been made and action is to be taken to address these issues as well as reviewing the whole pre- and post-import system of quarantine for horses entering Australia.