

## Control of Equine Influenza Requires Diligence

**From the Equine Research Coordination Group**

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The 2007 outbreaks of equine influenza (EI) in Japan and Australia are a jolting reminder that influenza viruses use simple but very effective strategies for their own survival, and that our lack of attention allows this virus to create epidemics. One of those strategies is very high contagiousness, with the capacity to infect large numbers of horses quickly within stables or across continents. Another is the ability to cause sub-clinical infections in partially immune animals.

Equine influenza is a common upper respiratory disease, which prevents the horse from being exercised. Typical clinical signs include fever, nasal discharge and a dry, hacking cough. Outbreaks can produce significant problems for horse industries by disrupting exercise and horse transport.

Equine influenza is enzootic in the USA, Canada, Europe, Scandinavia and South America (enzootic means constantly present though affecting only a small number of animals at any one time). Most other parts of the world have seen repeated outbreaks. The historic exceptions were Australia, New Zealand and Iceland. Australia and New Zealand, which import and export horses, have mandatory vaccination and quarantine systems designed to stop the viral disease, whereas for horses entering the United States, there are no specific regulations regarding EI.

Where influenza is enzootic, its level of morbidity (relative severity of disease) can range from severe to inapparent, depending on the animal's prior exposure. But even in previously unexposed horses, with the exception of young foals, fatalities are rare. Once horses are infected by EI, opportunistic bacterial invaders can cause secondary infections that produce more severe complications.

The EI outbreak in Japan started on Aug. 15, 2007, and was largely under control within about one month, although scattered cases persisted through the autumn. The number of horses affected and severity of disease during the outbreak were markedly less than Japan experienced in its most recent previous outbreak in 1971-72. The Japan Racing Association attributed the decrease to its long-standing requirement for twice-annual EI vaccinations. The virus isolated was highly similar to a known reference strain of EI, Wisconsin/03.

In the Australian EI outbreak, clinical signs of the index or earliest documented case were first observed on Aug. 17, 2007, in horses newly imported from Japan, the United Kingdom, Ireland and the U.S.A. that were quarantined in Sydney. These horses remained in quarantine, but on Aug. 22, other cases were observed elsewhere in Sydney. How the virus got past the quarantine may never be known. The virus was most likely transmitted on clothing or equipment of persons who had contact with the imported horses, or on a contaminated horse trailer. It appears that EI was unknowingly transmitted to at least one resident horse that carried it to an event held 100 miles away at Maitland on Aug. 18-19. Once there, it spread to many other horses and, in short order, EI was distributed to hundreds of premises in the states of New South Wales and Queensland in eastern Australia.

Unlike Japan, resident horses in Australia were never vaccinated for EI. Thus, the population was highly susceptible, and once introduced, EI was able to spread very rapidly. Movement restrictions on all horses were rapidly instituted, restricting the spread to eastern New South Wales and southeastern Queensland. No cases were identified elsewhere in Australia. Within the affected areas, over 50,000 horses contracted EI. Some fatalities were reported and though the actual number is unknown, it appears to be very low.

The Australian government has pursued a goal of eradication and return to EI-free status. It instituted a strategic vaccination program on Sept. 17. However, the government's aim is to stop vaccinating once the outbreak has burned itself out. The last known cases were reported on Dec. 24.

Influenza is a moving target-the viruses mutate and gradually change so that the vaccinated horse's immune system no longer recognizes them. Vaccines need to be updated to keep up with the changing virus.

The Australian EI virus (Sydney/2007) is also very similar to the Wisconsin/03 strain. Vaccine strain recommendations since 2004 include a Wisconsin/03-like strain, so these latest outbreaks do not change the recommendations. At present,

no EI vaccine has a strain more recent than 2002. The USDA has recently adopted a policy to streamline the updating of EI vaccines, so it is to be hoped that vaccines with strains similar to Wisconsin/03 and Sydney/07 will appear in short order.

What do we know?

- Horses transported internationally and not obviously infected themselves can spread diseases.
- Horse owners, workers and veterinarians should always be conscious of the danger of transmission of EI or other contagious diseases by passive transfer on objects such as clothing, equipment, horse trailers or unwashed hands.
- The EI virus particle is easily killed by soap or common disinfectants, but it can survive for hours or days in the environment and even longer if kept cool and moist.
- Vaccines by themselves do not provide absolute protection.
- Prompt diagnosis of equine respiratory diseases by testing of nasal swabs is essential if outbreaks are to be controlled or, even better, avoided.
- Effective quarantine is the best prevention against the introduction of the disease.
- Vigilance against the spread of influenza viruses on contaminated materials or unwashed hands is an essential part of quarantine.
- Research is needed to understand EI and other infectious diseases to help prevent and treat infection.

Infectious respiratory diseases constitute one of the major health and economic threats to the horse industry and therefore need to be a high priority for research. The veterinary community needs your assistance to increase funding for research on influenza and other equine diseases. Please contact the Grayson Jockey-Club Research Foundation ([www.grayson-jockeyclub.org](http://www.grayson-jockeyclub.org)), the American Quarter Horse Association ([www.aqha.com/foundation](http://www.aqha.com/foundation)), Morris Animal Foundation ([www.morrisanimalfoundation.org](http://www.morrisanimalfoundation.org)), the American Association of Equine Practitioners Foundation, or your favorite veterinary school to make a contribution.

Contact the AAEP Foundation ([www.aepfoundation.org](http://www.aepfoundation.org)) for information about making a donation for equine research, or call 1-800-443-0177 (within the U.S.) or 859-233-0147. This is just one of the many efforts that the AAEP is coordinating on behalf of the industry through the Equine Research Coordination Group (ERCG), which is comprised of researchers and organizations that support equine research. Formally organized in 2006, the ERCG has a mission of advancing the health and welfare of horses by promoting the discovery and sharing of new knowledge, enhancing awareness of the need for targeted research, educating the public, expanding fundraising opportunities and facilitating cooperation among funding agencies.

The ERCG is a group comprised of researchers and organizations that support equine research. Participants in the ERCG include equine foundations and multiple university research representatives. Current participants include: AAEP Foundation, American Horse Council, AQHA Foundation, Grayson-Jockey Club Research Foundation, Maxwell H. Gluck Equine Research Center, Morris Animal Foundation, Havemeyer Foundation, United States Equestrian Federation Foundation and university researchers: Rick Arthur, DVM (University of California-Davis), Noah Cohen, VMD, PhD (Texas A & M University), Greg Ferraro, DVM (University of California-Davis), Eleanor Green, DVM (University of Florida), Joan Hendricks, VMD, PhD (University of Pennsylvania), Dick Mansmann, VMD, PhD (North Carolina State University), Wayne McIlwraith, BVSc, PhD (Colorado State University), Jim Moore, DVM (University of Georgia), Rustin Moore, DVM, PhD (The Ohio State University), Corinne Sweeney, DVM (University of Pennsylvania) and Dr. Nat White DVM (Virginia Tech). For more information about the ERCG, please visit online at [www.aepfoundation.org](http://www.aepfoundation.org) and click on the ERCG link.