EQUINE DISEASE QUARTERLY

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COMMENTARY

IN THIS ISSUE

RESEARCH IS AN IMPORTANT, BUT NOT ALways visible, part of the horse industry. Basic research is often conducted in laboratories away from horse farms and racetracks. However, results from basic research are frequently the starting point for clinical research discoveries used in veterinary practices all over the world.

The Department of Veterinary Science at the University of Kentucky (UK) has a history of more than 100 years of basic and clinical equine research. We have a strong tradition of working with veterinary practitioners and horse owners/managers to address health concerns in horses. Vaccines for six of the 10 most common equine diseases were developed at UK. Research in response to infectious disease outbreaks, abortions, parasite problems, and fertility problems has provided important solutions to equine health problems. These UK accomplishments could not have been possible without strong support from the horse industry.

The Maxwell H. Gluck Equine Research Center is today a state-of-the-art facility, with more than 20 active research faculty who dedicate 100% of their time to equine research. Comprehensive research programs in infectious diseases and immunology, genetics and genomics, musculoskeletal science, parasitology, reproductive health, and pharmacology/toxicology are generating new knowledge that helps veterinary clinicians provide the best care for horses.

Human medical research is funded through federal and state tax dollars as well as many charitable, well-funded foundations. Research on horses is also important but is poorly supported. Almost no federal or state funds have been set aside for equine research. Equine researchers are dependent on support from private sources, horse organizations, and other groups to improve the health and well-being of horses. The total research funds available in North America from the major research contributors (the Grayson-Jockey Club Foundation, the American Quarter Horse Association, and the Morris Animal Health Foundation) is less than research dollars received by many individual departments at medical schools around the world.

Additional funding for equine research is therefore necessary. During the difficult financial times we currently face, charitable gifts are declining. However, equine health problems are not taking a break. In order to not fall behind, we need to bring together horse owners, breeders, managers, veterinarians, and others with an interest in horses to sufficiently fund research on equine health-related issues at universities and research centers.

Research has a central role in the health and well-being of horses. Financial gifts in support of that research help build a strong foundation for healthier horses, improved safety for the athletic horse, and protection against infectious diseases when horses are transported locally or internationally. Thank you for your continuing support.

For information about the Gluck Equine Research Center and making gifts to support research, visit our Web site at www.ca.uky.edu/gluck.

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LLOYD'S

INTERNATIONAL

First Quarter 2009

THE INTERNATIONAL COLLATING CENTRE, Newmarket, England, and other sources reported the following disease outbreaks.

Contagious Equine Metritis (CEM) was confirmed on four premises in France. In December 2008, four stallions (three Quarter Horses, one American Paint) were identified as CEM positive in Kentucky. The stallions had stood the 2008 breeding season along with 18 other stallions at a facility in Kentucky specializing in semen collection for artificial insemination (AI). Stallions on this premise had relocated on numerous occasions throughout several states since 2004.

As of May 26, 2009, 20 stallions and one gelding have been confirmed by USDA's National Veterinary Services Laboratories (NVSL) as positive for *Taylorella equigenitalis*, the causative organism of CEM. Five mares were also confirmed positive for CEM. The positive stallions were distributed in Georgia (1), Illinois (3), Indiana (3), Kentucky (4), Texas (1), Wisconsin (8), and the one gelding in Iowa. Mares were distributed in California (2), Illinois (2), and Wisconsin (1). All positive stallions have been or are in the process of being treated with antibiotics, test bred to two mares, and retested for CEM. Positive mares also are being treated and retested. Nine of the positive stallions (four in Kentucky, three in Indiana, one in Texas, and one in Wisconsin) have completed treatment and retesting and are now CEM negative.

Tracing of stallions and mares has so far identified 939 animals (272 stallions, 667 mares) in 48 states as infected or exposed to CEM by AI, natural cover, or location on the same premises. An exposed horse is one that was bred, either naturally or via AI, to a horse positive for CEM or one epidemiologically linked to a positive horse as determined by state and federal animal health officials.

Due to extensive and frequent interstate movement of stallions between breeding seasons prior to the detection of the outbreak, it has not been possible to identify the outbreak's source. In addition to transmission by AI and natural mating, lateral (on-farm) transmission between stallions as a result of communal use of contaminated equipment played a significant role in dissemination of CEM.

NVSL has completed antibiotic sensitivity testing of CEM isolates from 17 stallions, two test-positive mares, and the five infected mares. They all possess the same antibiotic profile and are resistant to streptomycin.

The last outbreak of CEM in the United States occurred in 2006 among three Lipizzaner stallions imported to Wisconsin from Eastern Europe.

Respiratory disease attributable to equine herpes virus (EHV) was reported from Turkey on a single premise and to EHV-4 on two premises in the United Kingdom. Abortion attributable to EHV-1 was reported among three non-Thoroughbred mares on three premises in France; six Thoroughbred mares on one premise in Germany; two mares on two premises in Ireland plus a foal that died; and 23 mares on 11 premises in Japan. The United Kingdom reported EHV-1 abortions involving multiple cases on two premises and single cases on five premises. Twelve cases on 11 premises involving Thoroughbred mares were reported from central Kentucky. One case attributable to EHV-4 was reported from the United Kingdom.

One case of paralysis attributable to EHV-1 was reported from France. Coital Exanthema (EHV-3) was diagnosed in a stallion from Ireland and a stallion and a donkey in the United Kingdom.

France reported a single case of Equine Infectious Anemia (EIA). Equine influenza was reported among Standardbred horses on eight premises in France and a single premise in the United Kingdom.

Turkey reported a mild clinical outbreak of leptospirosis on one premise and a mild single case of equine piroplasmosis (EP). In the United States, the last premises to house an infected EP horse involved in the 2008 outbreak in Florida was released from state quarantine on March 12. All positive animals had been removed; in-contact horses tested serologically negative 60 days later. The premises involved underwent tick surveillance; no EP-positive ticks were found.

Turkey reported a single case of rabies. Strangles was reported from Chile, France, Ireland, Switzerland, Turkey, and the United Kingdom.

Equine Disease Quarterly

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2008 EEE Outbreak in Québec

FOLLOWING IS A REPORT BY THE ANIMAL health surveillance network (RAIZO) of the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec.

Only two cases of Eastern equine encephalitis (EEE) had been reported in Québec in the past 35 years until the fall of 2008, when the province experienced an outbreak of the disease. The first case was reported by Sonia Chénier, doctor of veterinary medicine and animal pathologist with the Laboratoire d'épidémiologie animale du Québec (the state animal epidemiology laboratory), which is associated with the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ).

The situation was analyzed by MAPAQ's animal health surveillance network (RAIZO), which rapidly relayed the information to veterinary practitioners, Québec horse industry stakeholders, and public health authorities. The 2008 report that is currently being drafted will provide a clearer idea of the threat posed by EEE for equine and human health in North America.

RAIZO, whose activities are overseen by MAPAQ, is mandated to protect Québec's herds and public health. It consists of a number of sentinel networks that correspond to the various animal industry sectors. The equine network works mainly on collecting, analyzing, and distributing the information required in order to protect equine and public health. Thanks to the veterinary practitioners who make up this equine network, it was possible to quickly detect the EEE outbreak in Québec last fall.

In early September 2008, Dr. Chénier issued an advisory about suspected EEE in two horses from the same stable presenting with neurological and pathological lesions compatible with the disease. On September 25, 2008, laboratory tests confirmed the diagnosis. The information was immediately transmitted by RAIZO. In the weeks that followed, other horses were diagnosed and found to be EEE positive along with a flock of severely affected emus. None of the EEE-positive horses had been vaccinated in the previous 12 months.

Cases were reported in the four Québec regions of Estrie, Centre-du-Québec, Lanaudière, and Montérégie. All but one of the horses died or had to be euthanized as a result of the infection. As of December 31, 2008, the annual count of equine cases of EEE in Québec was 16 confirmed cases and three presumed cases. It has been mandatory in Québec since 2003 to report cases of human EEE. None were reported.

Birds are the reservoir for the EEE virus, and their movement may have contributed to extending the range of the infection to include Québec. Note that cases were recorded in the northeastern United States, notably in New York, Maine, and New Hampshire (see http://diseasemaps.usgs.gov/eee_us_veterinary.html). Another possible explanation for this unusual outbreak of EEE is the presence of infected mosquitoes borne by hurricane-induced air currents on the East Coast and mosquito reproduction due to the damp 2008 summer in Québec.

In Canada, EEE is a disease that must be reported immediately by the diagnostic laboratories to the Canadian Food Inspection Agency. Until now, in Canada and the northeastern United States, the incidence of the disease has been sporadic at most. It is hard to predict what Eastern equine encephalitis has in store for us in the future. However, given that the disease has mosquito vectors and that the birds that are reservoirs are found in Québec, precautions are called for. The most important recommended courses of action in preventing a fresh outbreak in 2009 are the vaccination of horses and measures to protect horses and humans from mosquito bites.

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NATIONAL

Horse-Related Human Injuries

THE AMERICAN HORSE COUNCIL'S 2005 report "The Economic Impact of the Horse Industry on the United States" documents that more than 2 million horse owners are involved in a variety of activities (see sidebar). Millions more people ride horses every year or handle horses as industry workers, family members of owners, and volunteers.

Horse-related human injuries are a reality of working with powerful animals with an intrinsic fight-or-flight response to perceived danger. Most people immediately think of horseback riding as the primary cause of significant injuries, but experienced horsemen and women have been seriously injured and even killed by horses while working with them on the ground.

The National Electronic Injury Surveillance System, or NEISS, (Web site at http://www.cpsc.gov/LIBRARY/neiss.html), is part of the United States Product Safety Commission's National Injury Information Clearinghouse. It provides anonymous patient data from a sample of hospital emergency rooms across the United States. From this information, the total number of injuries nationwide can be estimated by the commission.

The American Horse Council's 2005
The Economic Impact of the Horse Industry on the United States
reports 9.2 million horses
in the United States.

By horse activity, this breaks down into:

Racing	844,531
Showing	2,718,954
Recreation	3,906,923
Other*	1,752,439
Total	9,222,847

**Includes farm and ranch work, rodeo, carriage horses, polo, police work, informal competitions, etc.*

Source: http://www.horsecouncil.org/nationaleconomics.php

Doris Bixby-Hammett, MD, of the Equestrian Medical Safety Association (Web site at http://www.emsaonline.us/emsafaq.html) analyzed the NEISS data specifically for horse-related injuries. Of the 78,279 injuries in 2007, the most common injuries included fractures (28.5%); contusions/abrasions (28.3%); strain/sprain (14.5%); internal injury (8.1%); lacerations (5.7%); concussions (4.6%); dislocations (1.9%); and hematomas (1.2%).

Most frequent injury sites are the lower trunk (19.6%); head (15.0%); upper trunk (13.4%); shoulder (8.2%); and wrist (6.8%).

Within this study patients were treated and released (86.2%), were hospitalized (8.7%), were transferred (3.6%), left without being treated (0.8%), remained for observation (0.6%), and arrived at the hospital deceased (0.1%). Of the 51,768 injuries in which the location of the incident was known/recorded, 60% occurred at home or on the farm and 29.5% occurred at sports events. These percentages are consistent with horse-related injury data from 2002-2006.

Not all people with horse-related injuries are accounted for in this data. Some are not seen at a hospital and not all those with fatal injuries are transported to emergency rooms.

Much more data are available at the EMSA Web site on gender, age distribution, and specific types of injuries; data requests may be made at the NEISS Web site. However, the injury rate can't be assessed, because the number, gender, and age distribution of people riding and working with horses in the United States isn't known.

Other studies have concluded that the use of approved riding helmets could mitigate riding-related head injuries, and this recommendation is strongly supported by the EMSA. The entire equine community needs to make human safety a number one priority through education, required safety equipment at events, and research.

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Equine Herpesvirus Myeloencephalopathy (EHM)

IN JULY 2008, THE USDA ANIMAL AND Plant Health Inspection Services, Centers for Epidemiology and Animal Health released a 74-page report on equine herpesvirus myeloencephalopathy (EHM), for which equine herpesvirus-1 (EHV-1) has been identified as a causative agent.

The report, *Equine Herpesvirus Myeloencephalopathy: Mitigation Experiences, Lessons Learned, and Future Needs* (at http://www.aphis.usda.gov/vs/nahss/equine/ehv/equine_herpesvirus_nahms_2008report.pdf) is based on interviews with 18 veterinarians or state equine program managers who worked to control recent outbreaks of EHM.

In all situations discussed in the report, control strategies were implemented once an EHM case was identified because further spread of the virus was possible. Horse movement was stopped. In some instances the state veterinarian imposed an official quarantine, and in others, horse movement was voluntarily halted by the veterinary hospital or racetrack or stable owner. The body temperatures of potentially exposed horses were monitored in all outbreaks in order to quickly detect any fever and thus a potential EHV infection.

Potentially exposed but clinically normal horses were tested in some outbreaks but not in others. Some of the veterinarians and equine program managers interviewed for the report indicated that this testing allowed them to determine the potential for future cases of EHM. Others indicated that, given the difficulty of test interpretation for these horses and limited knowledge about the risk they pose, there was no reason to test. Commonly used biosecurity methods included restricting traffic of people into the area where affected horses were housed; using barrier precautions; and prohibiting the sharing of all equipment, including tack, water buckets, and tongue ties. In several of the outbreaks the affected horses were moved off-site to an isolated area, thereby reducing the viral challenge for horses initially housed in the same barn as the affected horse. Continual monitoring of exposed horses and off-site isolation of affected horses expedited a return to normal activities. At racetrack venues, protocols were developed that allowed potentially exposed horses to exercise without increasing the risk to unexposed horses.

A number of those interviewed for the report emphasized the need for clear, concise, and accurate communication regarding the plan for outbreak control. A person with infection control experience needs to be on site to review the protocols with caretakers of affected and exposed horses in order to be certain that all methods of disease transmission are adequately managed.

An educational brochure about EHM has been developed by USDA Animal and Plant Health Inspection Service: Veterinary Services. Entitled *Equine Herpesvirus (EHV) Myeloencephalopathy: A Guide to Understanding the Neurologic Form of EHV Infection*, it is available at http://www.aphis.usda.gov/vs/nahss/equine/ehv/equine_herpesvirus_brochure_2009.pdf.

To obtain hard copies of the report and brochure, call Abby Fienhold (970) 494-7252 or e-mail: NAHMS@aphis.usda.gov.

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Risk Reduction

INFECTIOUS DISEASES ARE A CONSTANT risk to the health and welfare of horses. Along with vaccination, preventive management techniques, including those mentioned here, are critical to disease prevention.

You should:

- Develop a comprehensive biosecurity plan with a veterinarian and communicate it to all employees. This plan should include disinfection of stalls, barn equipment, and horse trailers.
- Group horses of similar use. Show horses, yearlings, broodmares, etc., should not be commingled.
- Plan a traffic pattern to take farriers, veterinarians, and other personnel first to barns and pastures with at-risk horses (for example, pregnant mares or mares and foals). Work toward horses that have multiple exposures to pathogens (show and trail riding horses).
- Isolate horses returning from a hospital stay or any new horses for a minimum of 14 days and ideally 21 days so they can be monitored for infectious diseases.
- If a horse develops clinical signs (cough, runny nose/eyes, diarrhea, fever, etc.), it should be isolated immediately and protective, disposable clothing should be used by everyone working with the animal (gloves, booties, and overalls).
- Stalls with sick horses should be mucked out last. Properly disinfect tools before using them again.
- Manure and bedding from stalls housing sick animals, including those experiencing abortions, should not be spread on fields.
- Provide running water, liquid hand soap (pump-style container), and disposable paper towels in every barn for hand washing. During an outbreak or when running water is not available, use waterless hand foams or gels (at least 62% ethyl alcohol) after handling horses. Remember, these products are flammable!
- Rodent, insect, bird, and bat control is important year-round! Remove standing water, bird nests, and other habitats.
- Clean and disinfect stalls, water buckets, grooming tools, pitchforks, and other items routinely, and increase the cleaning/disinfecting frequency during an outbreak.
- Continually re-evaluate and update the biosecurity plan.

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