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UNIVERSITY OF KENTUCKY
College of Agriculture
Department of Veterinary Science

LLOYD'S

COMMENTARY

THE HORSE IS A CENTRAL THEME in our lives. Sharing our passion for horses and creating learning or work opportunities for other people are great ways to serve the next generation of horse men and women. The smiles of those I have taught in the classroom, laboratory, veterinary clinic, and the field are a major part of my self-worth. Today's young people need opportunities just as we did. As mentors and role models, we need to offer our time and experience to encourage young people to explore the equine industry and perhaps find their life's work in it.

A number of caring people gave me opportunities to become a rider, then a horsewoman, and ultimately a veterinarian specializing in large animal internal medicine. My unconventional overseas childhood (one of five children of a diplomat) did not include much farm experience, but many generous horse owners let me ride. Back in Maryland for my senior high school year, two pioneering female veterinarians gave me a summer job at their small animal clinic, my first step into veterinary medicine. In college, I was able to shadow at a veterinary practice on Saturdays. A generous dairy farmer in upstate New York gave me, a clueless urban gal, a summer job milking cows and a chance to go on calls with his veterinarian. Dr. Jack Lowe championed my veterinary school application because he believed in this out-of-state applicant in an era of gender inequity in admissions. The Hamiltons taught me valuable lessons about raising beef cattle in Colorado and breaking horses. In veterinary college, Drs. Bob Whitlock and Joe Mayhew inspired me to pursue internal medicine. Drs. Paul Gibbs and Ashley Robinson mentored my interest and that of many others in infectious diseases, epidemiology, and clinical research. I thank all these people all for their time and guidance.

Finding opportunities to mentor and help others interested in the health and welfare of horses is easy, if we just look around. I've had a blast teaching horse health to children with the Pony Club, enlisting eager young learners for research projects, and creating more equine community interactions for veterinary students. Best of all has been the experience of helping lead other veterinarians into international service for the working equids of the poor through the Equitarian Workshops in Veracruz, Mexico. Veterinarians from The Donkey Sanctuary, World Horse Welfare, the American Association of Equine Practitioners, and Mexico City's veterinary college, Universidad Nacional Autonoma de México Facultad de Medicina Veterinaria y Zootecnia, team up to give veterinarians a great introduction to an effective model for the delivery of health care and education at the village level. Where else might one get a chance to see 10 donkeys with subcutaneous tuberculosis in a single day? So, go ahead, make a difference in someone's life by sharing your expertise and passion. That person will perhaps then make a world of difference to both horses and those who depend on them.

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INTERNATIONAL

Third Quarter 2011*

THE INTERNATIONAL COLLATING Center, Newmarket, United Kingdom (UK), and other sources reported the following disease outbreaks:

Contagious equine metritis (CEM) was reported from France (one case), Germany (one case), and South Africa, which confirmed the carrier state in five stallions, each on separate premises, presumably exposed through indirect contact with a carrier stallion imported in February 2011.

Italy diagnosed a mild case of dourine in one mare.

Three cases of coital exanthema caused by equine herpesvirus-3 (EHV-3) were confirmed in the UK.

Equine influenza was reported from Ireland, the UK, and the USA. The disease was diagnosed in four horses on one premises in Ireland. Two outbreaks of H3N8 virus, clade 2, Florida sublineage, American lineage were recorded in the UK, and the USA confirmed three outbreaks on individual premises in Kentucky and New York.

Strangles was reported from Chile, Ireland, Italy, Singapore, South Africa, Sweden, Switzerland, the UK, and the USA. In Chile, Italy, and Singapore, the disease occurred as sporadic or isolated cases. In the other listed countries, strangles is considered endemic.

Chile, Germany, and the USA confirmed cases of EHV-1 and EHV-4 respiratory disease. In Chile, both viruses were detected in three out of 150 vaccinated horses on one premises. Germany and the USA reported isolated cases on individual premises. EHV-1 abortions were reported from France, Germany, Ireland (one case each), and South Africa.

EHV-1 myeloencephalopathy was reported from the USA. Five separate outbreaks were confirmed, three in California and one each in Michigan and Tennessee. All of the strains of EHV-1 that were detected had the neuropathogenic genomic motif.

The USA recorded association of EHV-2 with respiratory illness in six horses on one premises.

Equine arteritis virus infection was reported by France (one clinical case) and Germany (carrier state in a stallion).

Equine infectious anemia was reported from Italy (endemic) and Japan (12 cases).

Equine piroplasmosis (EP) was reported from France, South Africa, Switzerland, the United Arab Emirates (UAE), and the USA. The disease is considered endemic in France, South Africa, and the UAE. Two clinical cases were diagnosed in Switzerland. The USA reported an estimated 20,000 horses were serologically screened for EP infection during the third quarter of 2011, of which five were confirmed seropositive for *Theileria equi*. One infected animal had been imported from Mexico; infection was considered to be iatrogenic and not by tick transmission.

Thirty-eight cases of Eastern equine encephalomyelitis were diagnosed in the USA: 20 in Wisconsin and the remainder of the cases in New York, Florida, Michigan, Louisiana, and North Carolina. West Nile encephalitis cases were reported in the USA (52) with 11 in California, nine in Pennsylvania, and the remainder in 19 other states.

Australia reported a very significant increase in the incidence of neuro-invasive disease due to infection with Kunjin virus, a lineage 1 strain of West Nile virus. New South Wales and Victoria were most severely affected, with over 250 neurologic cases each. Queensland, Northern Territory, and Western Australia also reported cases. The case-fatality rate varied between 10 and 15%.

Cases of Murray Valley encephalitis were reported in Queensland and New South Wales. Infection with Ross River virus was seen in a limited number of horses in Tasmania. One equine case of Hendra virus infection was confirmed in Queensland.

Germany recorded single cases of rotavirus and *Salmonella* infection. The USA confirmed three outbreaks of *Clostridium perfringens* type A diarrhea in foals, 21 cases of equine monocytic ehrlichiosis, and four outbreaks of *Lawsonia intracellularis* enteropathy.

Three mild cases of anaplasmosis due to *A. phagocytophilum* were confirmed in Switzerland, which also reported eight cases of equine grass sickness on four premises.

**Second Quarter Report for Australia*

Equine Disease Quarterly

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NATIONAL

Being Prepared for Weather Disasters

IN 2010, MORE THAN HALF of the United States, from Texas to Maine, was engulfed in a major winter storm. Millions of people were without power, road/highway access, or viable communications. Loss of electricity, impassable roads, and breaks in communications can, however, happen in any climate, at any time, due to floods, straight-line winds, tornadoes, hurricanes, and other natural disasters. The start of a new year is a good time to review farm disaster plans. Planning will help keep family, employees, and horses safe in the event of a weather disaster.

Human health and safety must come first, so having a family disaster plan should precede preparation of horse facilities. At www.redcross.org you will find a wealth of resources on family disaster preparedness. Information on business disaster planning is available at www.ready.gov.

Water and electricity are major considerations. Water is essential to the health of horses, especially when they can drink 8-12 gallons per day. Do not expect a horse to be able to get its required water intake by eating snow, even if there is plenty around. A loss of electricity means no lighting in the barn, but sometimes more importantly, no power can cause several problems related to horses' water intake. First, without power, you cannot pump well water, which might be horses' only water source. Second, automatic waterers are run on electricity, which means that without power, you will have to use buckets or water tanks. Third, water pipes can freeze if pipe-heating tape is no longer powered. Finally, to encourage horses to drink more volume in winter, water should be maintained at 45-65°F, which can be a problem without electricity.

Because loss of electricity can cause significant problems for farms at any time of year, it's essential to have a backup generator along with the knowledge of how to properly run and maintain it. Carbon monoxide toxicity from running generators is a very real threat. Fuel is of course also required. As farmers in ice-coated western Kentucky learned in 2009, generators do little good after the fuel source (and supply) runs out. Make a plan for safely storing generator fuel, and contact neighbors so you can share resources if need be.

All people on the farm should know how to turn off the water, electricity, and other utilities to buildings in case of burst pipes, power outages, or fire hazards.

If a frozen pond is in a field where horses are kept, the animals should be moved to another pasture or if at all possible, moved into a barn. All too often animals will walk onto the frozen ice and snow only to break through and fall into the freezing water. Dangerous water rescues of horses in these circumstances can be prevented by fencing off ponds prior to winter. Temporary fencing materials should be kept on hand for this use as well as for repairs to downed fencing.

With roads closed due to ice, downed trees, and debris, transportation on and off a farm could be shut down for weeks at a time. If weekly deliveries of feed are required, make plans to stockpile at least two weeks of feed in rodent-proof containers. Several weeks' worth of hay should be kept on hand, even more in very cold weather areas.

Emergency managers know well that communication capabilities are often the first services to be compromised during and after disasters. Telephone lines and cell towers might be downed during severe weather or cellular service may be overwhelmed, so that calls cannot go through. Having a car charger for a cell phone is a necessity in case power is interrupted. You may need to call on neighbors for assistance, request emergency help, or get veterinary advice for a sick horse by phone when roads are closed. Ham radio operators in the area are another means of emergency communication.

Keeping the barn perimeter free of debris is not only tidy but reduces dangerous airborne projectiles in high winds and hidden, frozen tripping hazards to people and animals after winter storms.

For safety tips for standby generators go to http://extension.missouri.edu/p/EMW1015 and http://extension.missouri.edu/p/EMW1016.

For questions and answers on carbon monoxide, go to http://www.cpsc.gov/cpscpub/pubs/466.html.

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KENTUCKY

Potomac Horse Fever

POTOMAC HORSE FEVER (PHF), or equine monocytic ehrlichiosis, as it is currently termed, still occurs in areas of the United States. It can often pose a diagnostic challenge because of its varied clinical presentations. Potomac Horse Fever was first recognized in the early 1980s in the Potomac River area of Maryland. The cause was found to be a microorganism initially named *Ehrlichia risticii*, which has since been renamed *Neorickettsia risticii*. This disease is not contagious between animals. Much of the early research dealt with investigating how it is transmitted. It was initially discovered that transmission could occur by horses ingesting *N. risticii*-containing flukes that develop within aquatic snails; however, more recently researchers have found that insects, including damselflies, caddis flies, and mayflies, can also harbor the flukes containing the organism. Ingestion of these insects has resulted in PHF. This discovery is significant, since these flying insects can swarm in large numbers and be numerous on pastures. Furthermore, the insects are attracted to lights in horse stabling areas, increasing the risk of exposure. Horses do not have to be in close vicinity to a water source to contract PHF; even dead insects on pasture or in feed or water buckets can pose a risk.

Since August 2009, the University of Kentucky Veterinary Diagnostic Laboratory has diagnosed seven cases of PHF in horses presented for necropsy (Table 1). The primary clinical sign was diarrhea. Additional signs reported included anorexia, toxemia, colic, edema, ataxia, and laminitis. Apart from necropsy cases, the laboratory received blood and fecal material for PHF testing by indirect fluorescent antibody (IFA) and polymerase chain reaction (PCR) methods. Over the period of October 2010 through October 2011, 238 serum samples were tested for antibodies to the PHF agent using the IFA method. Of these samples, 89 were positive. The IFA test indicates prior exposure but does not necessarily signify active infection and cannot differentiate natural exposure from a vaccine-induced titer. Paired serum samples two to three weeks later may yield more definitive information.

TABLE 1.

Potomac Horse Fever necropsy cases. August 2009-October 2011

DATE	AGE	BREED	SEX
August 2009	5 yr	Quarter Horse	male
August 2009	3 yr	Thoroughbred	female
September 2009	5 yr	Quarter Horse	male
July 2010	10 yr	Tennessee Walking Horse	female
June 2011	unknown (adult)	Thoroughbred	female
June 2011	unknown (adult)	American Saddlebred	female
July 2011	9 yr	Thoroughbred	female

TABLE 2.

Antemortem and postmortem Potomac Horse Fever cases by month when diagnosed.

Month[1]	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
IFA[2] & PCR[2] positive	1	3	2	3	3	
PCR[2] positive	1	9	11	7	6	1
Necropsy cases		2	2	2	1	

[1] *Other months had no cases.*

[2] *IFA= indirect fluorescent antibody; PCR= polymerase chain reaction.*

Additionally, 225 whole blood and/or fecal samples were tested by PCR, and 35 samples were positive. The PCR test detects the presence of specific nucleic acid of *N. rickettsia*, indicating presence of the organism. There were 87 cases/samples in which both the IFA and PCR tests were performed, of which 12 were positive in both tests. Table 2 depicts the time of year that the diagnoses were made, indicating that PHF is a warm-weather disease, as would be expected with an insect-borne disease.

If horses live in an area where PHF is known to occur, it is important to limit possible exposure to the vectors. Owners should consider keeping food covered, using insect control around barns, and restricting grazing near water sources during the warmer months. A vaccine is available, but while it is safe, its ability to protect against infection is not fully established. Horse owners should consult their veterinarians for specific recommendations appropriate to their situation.

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Nocardioform Placentitis Affecting the 2011 Foal Crop

IN NOVEMBER AND DECEMBER of 2010, the number of nocardioform placentitis cases submitted to the University of Kentucky Veterinary Diagnostic Laboratory (UKVDL) increased markedly. This increase was observed both by pathologists and through the use of a diagnostic surveillance tool monitored by the epidemiology section. The increasing incidence of nocardioform placentitis continued into 2011, causing growing concern among practitioners, farm owners, and managers, the University of Kentucky Department of Veterinary Science, and the horse industry media. Following several meetings with stakeholders in the equine industry, an ad hoc task force was assembled to further investigate the unusual number of cases. Full participation by the equine industry, including subsidies for placental examinations by local organizations, led to the largest number of nocardioform placentitis submissions on record, more than 325 laboratory confirmed cases. Of those placentitis cases, 30% resulted in abortions or stillbirths, and 70% resulted in a live foal.

Nocardioform placentitis was first identified in central Kentucky in the mid-1980s. The term "nocardioform" was adopted due to similarities of the causative agents to the broad category of bacterial organisms called nocardioform actinomycetes. Through sequence analysis of 16S rRNA genes, the most common organisms have been identified as *Crossiella equi* sp., *Amycolatopsis* spp., and *Streptomyces* spp. The clinical ramifications of nocardioform placentitis range from late gestation abortions, stillbirths, and prematurity to small and weak foals that may or may not survive. Due to the fact that even mild cases of nocardioform placentitis were submitted in 2011, a number of foals were healthy and vigorous at birth even though the placenta was affected with nocardioform placentitis.

Lesions of nocardioform placentitis are distinctive. The cervical star region is spared. Lesions most commonly occur in the body of the placenta at the bifurcation of the horns. Most typical cases of bacterial (non-cardioform) placentitis are ascending and begin in the cervical star region. Lesions may be single or multiple. The affected chorion is covered by a thick, light brown, tenacious exudate, described by some as resembling peanut butter, that overlays a rough, tan chorion with marked loss of villi. Loss of chorionic villi severely compromises fetal nutrition, leading to the characteristic emaciated appearance of most aborted fetuses. The bacteria do not cross from the fetal membranes to the fetus, another unusual feature.

In the past, theories about nocardioform placentitis have been largely limited to anecdotal observations. Common theories are that nocardioform

(Nocardioform Placentitis continued from page 5)

placentitis occurs when the previous fall has been dry and that mares are affected sporadically, without any one farm having a greater number of cases in proportion to the number of mares. Nocardioform placentitis has been documented in Florida, New York, South Africa, and Italy as well as Kentucky.

It is hoped that significant inroads can be made in the understanding of this unusual disease process through the tremendous number of cases received and with the collaboration among practitioners, owners, the UKVDL, and the University of Kentucky Gluck Equine Research Center. Currently, studies are in progress to better understand this condition, the route of infection, early diagnosis, and better means of treatment.

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Equine Disease Quarterly Newsletter

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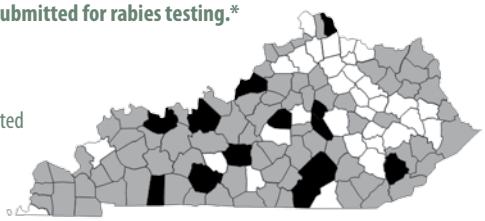
Kentucky 2011 Rabies Map through November 15, 2011

RESULTS for all samples submitted for rabies testing.*

Black—Positive test results

Grey—Samples submitted

White—No samples submitted



Animals testing positive

Bat—6

Canine—3

Equine—1

Skunk—6

TOTAL—16

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**Sample testing was performed by the Breathitt Veterinary Center, the Kentucky Division of Laboratory Services, or the USDA-APHIS Wildlife Services.*

Eastern Equine Encephalomyelitis Cases

Jan. 1, 2009 – Nov. 15, 2011

The American Association of Equine Practitioners recommends an EEE vaccination as a core vaccine for all U.S. horses. Not all horses with clinical signs of neurologic disease are tested for EEE, and not all horses that succumb to neurologic disease are necropsied, which means that all horse owners should be concerned about this disease in the United States and not just those in the eastern half of the country.

Source of map data: The U.S. Department of Agriculture (www. aphis.usda.gov) and the Centers for Disease Control and Prevention Arbonet (www.cdc.gov).