

Rabies in Florida: Update for 2012

By Amanda M. House,
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In Florida, 128 animals were killed by the rabies virus in 2010. The vast majority of affected species were wildlife such as raccoons and foxes, but one horse and 15 cats were also lost. In the first half of 2012, 49 fatalities have been reported to the state veterinarian's office, including two horses in Lee County.

According to the Journal of the American Veterinary Medical Association's rabies surveillance publication by Blanton *et al*, cases of rabies in horses and mules across the United States increased 12.8% from 2005 to 2006. Fortunately, the publication has shown a decrease in cases over subsequent years, with a 9.8% decrease in cases in 2010 from 2009. Since 2006, nine horses in Florida have died from the rabies virus.

Rabies is a rapidly fatal RNA virus in the Rhabdovirus family. There is no available treatment for an infected animal, and infected animals can transmit the disease to people and other animals.

Classically, infection with the rabies virus causes neurologic signs in most species. In infected horses, the signs can vary and include agitation that may be confused with colic, excessive salivation, dysphagia, abnormal behavior, ataxia, paralysis, seizures, and/or self-mutilation. Sometimes only one or two of the signs will occur in affected cases. Horses typically contract the virus from the bite of a rabid animal. The virus is passed in saliva. Depending on where the horse is bitten, signs of infection can take two to 10 weeks to develop. Once clinical signs of disease are apparent, death typically occurs in three to five days. Fortunately, when compared to many other equine problems, rabies is an uncommon disease in the horse. However, in any areas where rabies is endemic in the wildlife population, horses can be exposed through a bite from infected bats, raccoons, skunks, and other animals.

Since rabies is a zoonotic disease, any horse that dies of unexplained or neurologic causes should be tested.

Unfortunately, there is no definitive ante-mortem test for rabies. Testing must be completed on the brain once the suspected animal has been euthanized. This likely means that there are many more cases of rabies in wildlife and stray animals than the statistics would lead us to believe.

Rabies testing is performed by the Florida Department of Health, following consultation with the county health department. Bronson Animal Diagnostic Laboratory (BADL) (321-697-1499) and Live Oak Animal Diagnostic Laboratory (LOADL) (386-330-5700) will provide rabies sample collection from large animals by request of the submitting county health department. The lab should be called prior to submitting animal samples. Details on sample submission can be found online in the 2012 Florida Rabies Guide at <http://www.doh.state.fl.us/Environment/medicine/rabies/Documents/RabiesGuide2012Final.pdf>.

Horse owners and veterinarians should take every precaution in handling animals that are behaving abnormally or are suspected of having rabies. The horse should be confined, if possible, and exposure to people and other animals should be limited. Ideally, wear gloves and maintain a list of any individuals that may have been exposed.

Transmission of the virus occurs from direct contact with saliva into an abrasion in the skin, a wound, or mucous membranes. Handling a rabid animal or contact with blood, urine, or feces does not constitute a true exposure.

The good news about rabies is that vaccination is inexpensive and very effective. Vaccination is recommended by the American Association of Equine Practitioners (AAEP) for all horses in areas where rabies is endemic in the wildlife population, which includes most of the eastern seaboard of the United States, including Florida. For foals, rabies immunization is a three-dose series beginning at about 3 months-of-age (unvaccinated dam) or 6 months-of-age (vaccinated dam). Correlation between rabies titer and protection is not known in the horse. However, titers are used to predict protection in vaccinated people. Challenge studies demonstrating effectiveness are required for licensing of all rabies vaccines (including

those used in horses). The studies must indicate that the vaccination is good for 12 months, and a minimum of 80% of vaccinated animals must be resistant to severe challenge with rabies virus.

Rabies vaccines are not licensed for use in pregnant mares; however, only a limited number of vaccines are licensed for use in the pregnant mare (herpesvirus, rotavirus, etc.). Rabies vaccines are frequently given to pregnant mares, but may also be boosted prior to breeding since antibody levels are maintained which provide adequate passive transfer to protect the foal. Vaccinated horses that are exposed to a confirmed rabid animal should be immediately revaccinated and observed for 45 days for clinical signs. Unvaccinated horses exposed to a confirmed rabid animal should be managed in conjunction with recommendations from the state veterinarian's office. Texas has had good success with immediate post-exposure vaccination, strict isolation for 90 days, and booster vaccines during the third- and eighth-week of the vaccination period (Wilson and Clark, JAVMA, 2001). ☛

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Case Reports: *Rabies*

Submitted By Ruth-Anne Richter, BSc (Hon), DVM, MS

The economic downturn has left horse owners making decisions about vaccinating their horses, and more often, deciding to drop vaccines from the health maintenance program. Recently two cases came to light that serve to remind us that we must continue to strive to educate our clients, stress the importance of a good vaccination program, and a healthy client veterinarian relationship.

Case 1: A veterinarian was called to the farm to evaluate a 6-year-old mare that was in foal at 10-months gestation. The mare was recumbent and flank watching, and was thought to be colicking. The owner also reported that the mare would periodically chew at her front legs. The owner had administered ketoprofen prior to the veterinarian's examination. This mare had not had any water for an approximately 24-hour period, and was in a paddock with no shade. When the mare was encouraged to stand, she was seen to be weak in the hindquarters, and had muscle tremors in all four limbs. Vital parameters included a rectal temperature of 103 degrees Fahrenheit, and Pulse 72 beats per minute. Gastrointestinal sounds were present in all quadrants. Mucous membranes were slightly red tinged. Blood was taken for CBC and Chemistry profile. The horse was administered intravenous fluids with added calcium for possible hypocalcemia. A nasogastric tube was passed and when there was no reflux, the mare was administered oral fluids with electrolytes. She was also started on prophylactic antimicrobial therapy. Results of the blood work showed a mild leukocytosis, and mild, nonspecific chemistry elevations.

On day two, the mare was unable to stand for extended periods of time, as she had the day before. When the mare was down, it was reported that she would kick with her hind limbs, but was not observed kicking at her belly as with colic. She was again administered intravenous and oral fluids. She had reportedly eaten a little and taken water.

By day three, the mare was unable to rise, and was seen paddling with all limbs. The mare was anesthetized for a C section in an attempt to salvage the foal, following which the mare was euthanized. Unfortunately, the foal did not survive. The mare's brain was submitted and was positive for the rabies virus.

Because of the exposure, the farm owner, the veterinarian and his assistant all received rabies treatment. This mare had no vaccination history, and because of this, the farm was quarantined for six months. Other horses on the property were also not vaccinated, and subsequently received rabies vaccination.

Case 2: Another veterinarian was called to see a 25-year-old grade mare with a history of being mildly inappetent for two days prior to examination. The horse had arrived at the boarding facility within the previous three-month period with no known vaccination history. She had reportedly been picking at her hay and grass, but would not eat her grain. There was no report of the mare showing overt signs of colic. The owners had administered flunixin meglumine on the first day the mare was abnormal. The veterinarian was called out when there was no improvement on the second day. At the time of the veterinary examination, the

mare was quiet, would eat her hay, and then attack her LF leg. Vitals: T 107.4 degrees Fahrenheit, Pulse 120 beats per minute, Respirations 32 breaths per minute, and gastrointestinal motility was decreased. The mare was also mildly ataxic.

While the veterinarian was present, the mare began to show rapidly deteriorating neurologic signs with sudden explosive outbursts and self-mutilation to her LF limb.

During the exam, the mare seized and died. (This all occurred over a period of approximately six hours) The brain was submitted and returned positive for rabies.

Because this horse was housed at a boarding facility, her case resulted in nine adults and seven minors requiring treatment. The veterinarian had two post-exposure vaccines from the local department of health. The other people involved were treated in the emergency department at the hospital; an initial visit and four subsequent visits thereafter. One mother and two children incurred more than \$100,000 in treatment expenses related to the exposure, some of which was picked up by insurance. Most of the others treated through the emergency department at the local hospital were covered by their medical insurance.

This facility had a mandatory 90-day quarantine implied on it by the state. It was reported that the barn owner had self-vaccinated the horses for rabies, but when this was pursued further by the state veterinarian, the vaccine had expired in 2010. Vaccination status of other horses present at the facility was not entirely known. Horses that were free of fever were vaccinated for rabies by the veterinarian and administered a 30-day booster when there was no history of rabies vaccination within the previous two years.

These two cases illustrate the unfortunate reality of the current economy as well as the importance of client education. Many horses are succumbing to diseases that are otherwise controlled with adequate vaccination by their veterinarian. These two cases also serve to remind us that zoonotic disease is ever present and that we, as veterinarians, need to be cognizant of the fact that rabies is always a possibility in the (unvaccinated) horse exhibiting atypical symptoms. Another important point to consider is to ensure that our own rabies titers are sufficient; one of the veterinarians involved in these cases had his titer measured and found that it was grossly inadequate. This resulted in him receiving a total of four rabies boosters. The owner and assistant received immunoglobulin treatment as well as a series of four rabies vaccinations. A point to remember is that insurance may not cover all of the costs incurred related to post-exposure treatments resulting in large out of pocket expenses. Case in point, the mother and her two children that were exposed at the boarding facility have incurred \$100,000 of medical bills associated with their treatment of which only a portion was covered by insurance. When treated by the department of health, costs are one-tenth that of the hospital, but may also be out-of-pocket. Let these horses serve as our reminder – check your rabies titers! 🐾

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