Welcome to our EPM webinar! Thank you for joining us! We’ll be getting started at 8 p.m. EDT. Please press “play” on the video at that time. We’ll start answering questions soon!

Today, we have Dr. Stephen Reed of Rood & Riddle Equine Hospital, Dr. Frank Andrews of LSU, and Dr. Wendy Vaala of Merck Animal Health.

Molly: Since there is not a vaccine anymore. How can we protect our horses? I lost a mare to EPM and never want to see another horse suffer...

Dr. Vaala: Hi Molly, Since the only known route of transmission of *Sarcocystis neurona* (the organism that causes EPM) to horses is through ingestion of eggs (sporocysts) shed in the feces of opossums, prevention focuses on minimizing opossum access to horse feeds and pasture. All concentrates should be kept in “wildlife proof” containers. Avoid feeding dogs, cats or birds in the barn since their food may attract opossums. Rodents may mechanically spread sporocysts, so controlling these culprits may also help. “Relocating” opossums caught on the farm can also reduce the risk of exposure. There is ongoing research examining how to use existing FDA licensed drugs, Marquis (ponazuril) and Protazil (diclazuril) to reduce the risk of infection among horses considered to be at increased risk. Stay tuned for more information. A number of epidemiological studies have reported that the age group most at risk are horses 1 – 7 yrs old. Stress in the form of long distance transportation, strenuous performance schedules, or illness may suppress your horse’s immune system and render him more susceptible. My own horse contracted EPM when he was 5 yrs old, so I share your concern and wariness, both as a vet and a horse owner. Wendy

Darlene: What are the chances of a relapse? What is the time frame when a horse is safe from a relapse or does it lay dormant waiting for the immune system to be compromised and then re-infects? For instance, if my horse had EPM three years ago, was treated and has now been in full work for a year (including showing) is it likely he will get it again?

Stephen Reed: Relapses can certainly occur with EPM. Approximately 20-30% of EPM cases have been reported to relapse or have re-infections following the initial diagnosis. Relapses may occur at any time following the initial diagnosis and treatment. I am most suspicious of relapse when the horse exhibits the same clinical signs within 90 days of treatment. Re-infection may be more likely when the horse exhibits differing signs of neurologic disease or are many months or years from the initial diagnosis.

Sarah Cramsie-Smith: I live in the UK and own a 15-year-old Thoroughbred mare who has been falling over whilst resting, trotting aimlessly around the field, then sweating excessively. Full bloods came back clear. My vet wants her to be CT scanned. Would this show EPM?

Dr. Frank Andrews: Dear Sarah: From the clinical signs you describe, your horse has a lesion that localizes to the brain (cerebrum) and thus imaging of the brain would be helpful in making a diagnosis. The available EPM tests are quite good at ruling out disease, so if the blood test was negative then it is unlikely your horse has EPM. That being said, a follow-up test (2 weeks from the previous test) for EPM...
would be indicated to rule out acute or sudden onset EPM. Regarding the specific imaging modality, I would recommend an MRI, as it is more sensitive to pick up brain disease when compared to a CT scan. However, not all lesions in the brain can be picked up with MRI or CT, so a negative MRI or CT test is possible, even in the face of having a significant brain lesion.

Comment From Rosa: Hello! Thank you for doing this Webinar. Do you think there is a risk of EPM being ‘over diagnosed’ in horses? I’ve read that many horses who are seropositive, never demonstrate clinical signs. How definitive is positive test?

Stephen Reed: There are certainly many horses who are seropositive indicating exposure, but never show signs of disease. We do not diagnose EPM unless horses show signs of neurologic disease as well as positive test results. A positive blood test simply indicates exposure to the organism. A positive result in both blood and CSF along with clinical signs is likely indicative of actual disease from EPM. In addition, other testing can help rule out other causes of neurologic disease.

Comment From Sarah: Can EPM be spread by raccoons?

Dr Vaala: HI Sarah, opossums are the only animals shown to spread Sarcocystis neurona directly to horses. Raccoons are an intermediate host that help perpetuate the cycle and re-infect the opossum. So raccoons are part of the overall cycle, but are not directly responsible for infecting horses. Wendy

TheHorse.com: Cliff Slaughter: My question is what type activity or exercise can I be doing to help my horse deal with EPM?

Dr. Frank Andrews: Dear Cliff: Physical therapy is very helpful in horses with EPM. Remember, riding your horse while it has EPM may not be an option and in some cases may be dangerous. So, we recommend ground training with your horse, such as lunging (in both directions for 10 or 15 minutes to start and building-up from there), putting weights on the saddle (a bag of feed works well) while the horse is lunging will build strength, ground jumping over poles, and pasture exercise are all helpful. Ancillary therapy, such as acupuncture, transcutaneous electrical stimulation of affected weak muscles, therapeutic ultrasound, and message therapy (before and after exercise) can also be helpful during the recovery period. Some clinicians have suggested the use of Hyperbaric Oxygen Therapy in horses with EPM, however there is limited information on this treatment. You should wait approximately 14 days after the initiation of treatment before you start physical therapy, as some horses during the initial treatment period have a worsening of signs.

TheHorse.com: Pam: After EPM is it common for the horse to spook more easily? It seems like our horse is more spooky since his EPM episode.

Stephen Reed: I have certainly seen horses with a variety of neurologic conditions that have exhibited behavior changes, including increased spookiness. I don’t know that spookiness is indicative of EPM, but I do think behavioral changes can occur.

Comment From Sally: Could the increased spookiness be the result of the horse’s (as a prey animal) natural response to not being able to move as he normally would?

Stephen Reed: I’m not certain, but that certainly makes sense.

TheHorse.com: Kathy Herbert: I adopted an aged Paint mare, who I suspect (in retrospect) had contracted EPM previously. She was fine when I got her, but symptoms slowly progressed. It was heartbreaking to watch, and I eventually had the vet euthanize her. My question to the previous owner elicited the
response that Lucy had been inoculated against EPM probably in the mid-to late 1990’s. Is there any evidence that a vaccine could cause EPM?

Stephen Reed: There is no evidence that the vaccine can cause EPM. It may be possible that the mare had an allergic or immune-mediated response to the antigen in the vaccine, which could potentially result in neurologic signs. This may be similar to Guillain-Barre syndrome in people following influenza vaccination.

Comment From Patti A: Are we seeing more incidences of EPM or just better diagnosis?

Dr. Frank Andrews: Dear Patti A.: The incidence of EPM has not changed over the past 17 years. There was a spike in diagnosis in the mid to late 90’s when the test was discovered, but EPM remains at around an incidence of 1% of the population. We have better diagnostic test now than in the past.

Comment From Lynn: My horse was diagnosed with EPM and was prescribed a course of treatment by the vet, which we followed. He seemed to get better and then his health deteriorated. He also had many melanomas on his body, one of which was in his throatlatch area. Is it possible that a melanoma could have been pressing on the spinal cord and causing the neurologic problems, rather than EPM itself? In the end, he was a retired animal and we never went through with the extended diagnostic testing.

Stephen Reed: I have seen horses that had melanomas that caused neurologic signs. The symptoms that the horse had would be helpful to determine if the melanomas could have been the cause of your horse's signs. The neurologic examination helps determine the neuroanatomic location of a lesion. EPM typically causes lesions in multiple locations, which would result in different signs than a solitary lesion, such as a melanoma.

TheHorse.com: Romayne: When I had horses 25 years ago, I never heard of EPM. Now-a-days, I hear about it frequently. In the barn I boarded at, there were three horses that came down with EPM! Is this a disease that has developed in the past decade?

Stephen Reed: EPM was originally described as segmental myelitis in the 1960’s and 1970’s. We didn’t know the cause at that time and didn't confirm S. neurona as the causative organism until 1990. Our better diagnostic testing has allowed us to more accurately diagnose this problem. It likely went undiagnosed prior to the past 20 years.

TheHorse.com: PJ: Is there a history of mares not being able to become pregnant or having reduced fertility once they have had EPM and been “successfully” treated? What the chances that my mare’s fertility or ability to stay in foal could have been reduced by her having had EPM?

Dr Vaala: Dear PJ, Mares that have been treated successfully for EPM should not experience any EPM-related fertility problems or difficulties carrying the foal to term. EPM does not have any direct effect on the reproductive system. I have worked with a few broodmares that had lingering EPM-related neurologic defects, such as hindlimb weakness and ataxia, that showed increased difficulty getting up and down during late pregnancy, most likely due to the increased weight / pressure of the growing foal and enlarging uterus. We observed them closely so we could offer assistance if and when they needed help getting up after foaling. A thorough pre-breeding exam is always helpful if you are breeding a maiden mare, especially one that is older. Best of luck with your mare. Wendy

TheHorse.com: Roberta: Are facial tremors ever symptomatic of EPM?

Stephen Reed: Facial tremors are more typically associated with conditions such as West Nile Virus.
However, tremors may be a sign of weakness and can occur with any disease that causes damage to muscles and nerves, such as EPM.

TheHorse.com: Susan: I have several horses with EPM confirmed by testing. One was positive once, then reverted to negative. Others were symptomatic, tested negative, but responded to treatment with Marquis. Am I seeing a testing artifact such as prozoning, or is there a different unidentified protozoa that is not identified by the test, but is susceptible to the drug treatment? When testing, do labs automatically do dilutions on negatives to rule out false results on symptomatic horses?

Stephen Reed: False positives and false negatives occur with every type of test. I believe that testing of both blood and cerebrospinal fluid (CSF) provides the most information, regardless of the type of testing used. In my opinion, the decision about which test to pursue should be based on validation of the testing method, which involves comparison of the testing method to the “gold standard.” At this time, the gold standard test for diagnosing EPM is necropsy examination. There may be additional protozoa that have not yet been detected that could cause signs of EPM and respond to treatment. All laboratories perform serial dilutions regardless of whether they are performing western blot, IFAT, or ELISA testing.

Comment From Guest: My horse was diagnosed by symptom only because blood tests came back negative. He had Marquis for 6 months, and improved, then slowly began to lose both sight and hearing. He is now nearly blind. Can EPM cause the loss of sight and hearing?

Dr. Frank Andrews: Dear Guest: EPM can infect any portion of the brain and spinal cord, although in my opinion EPM rarely causes blindness and deafness. I would suggest that you have the horse further evaluated by a veterinary ophthalmologist to determine if the loss of eyesight and hearing is due to EPM or another condition like recurrent uveitis or retinal detachment. I would suggest a hearing test using Auditory Brainstem Response (ABR) testing to determine the extent of the hearing loss. This test is performed by some specialists. Also, a thorough examination of the ear canal and x-rays of the head at the level of the ears can rule out ear infections and damage to the ear bones. Consult your veterinarian on the best test for your horse.

Dr. Frank Andrews: Can you give us more information?

Comment From Guest: My vet looked into my horse’s eyes and saw nothing structural that was not normal. Since losing his sight he is terrified to get in a trailer, so I haven’t been able to transport him to an opthamologist. I’d like to take him for a complete neuro workup at the university, but the trailer problem is huge.

TheHorse.com: Guest, the vets would like to know the breed of your horse. What breed?

Comment From Guest: Red is a gaited mustang. He and I became friends when he was a wild stallion and he followed me home.

Stephen Reed: This is interesting. There are ocular abnormalities that have been reported in some gaited breeds, such as Rocky Mountain Horses. An examination by an ophthalmologist may be beneficial.

Comment From Pattia: My horse is 9months post EPM and doing well after treatment with Oroquin 10...... YEAH !

Dr. Frank Andrews: :-))

Comment From Mary: Dr. Our horse was diagnosed with epm (blood) He is 25 yrs old and currently is on
meds for epm (2weeks) Is it possible for him to founder on his back hind leg he is putting all his weight on? That hoof is now cracking on the outside wall. Thank you

Dr Vaala: Hi Mary, laminitis (founder) is a complication of many diseases, but EPM per se does not cause the condition. Horses can certainly founder in only their hindfeet. Older horses are also at risk for Equine Cushing’s Syndrome (Pituitary tumor) and that condition can predispose to laminitis. Wendy

Comment From haychgo: I’m treating my 1900lb Belgian with Toltrazuril with 10cc’s a day(paste) has this drug been taken off the market? Sidebar. How long do you typically treat this disease?

Stephen Reed: Toltrazuril is not an FDA approved drug for the treatment of EPM. There have been no studies performed using this medication for the treatment of EPM. There are several studies evaluating the pharmacokinetics of toltrazuril in horses. Once toltrazuril passes through the liver of the horse, it becomes ponazuril, which is the active ingredient in Marquis, which is FDA approved.

Comment From Liane: Do you recommend something to help the immune system if a horse tested positive and has done the treatment and would this help prevent a relapse?

Stephen Reed: There are numerous products that people have used to support the immune function. It does appear that products that help support cellular immunity may be beneficial for EPM. Some immune stimulants may result in positive testing results in FEI or racing jurisdictions.

Comment From Lynn: Where is most of the effort focused with EPM research right now? Where do you think researchers will look next?

Dr. Frank Andrews: Dear Lynn: Most of the research is focusing on better diagnostic testing and the horse’s immune system.

Comment From Silverpurkat: Hi my mare has problems with a slight locking left stifle. Very similar to the 4 yr old TB case. I had her checked over and she was tested for EPM when she was younger around 3 years old. Right now she will be turning 6 yrs in May. My question is I want to go to the best in the field with these types of issues. Could you give me a good vet that specializes in this as a recommendation in the New England area?

Dr Vaala: There are a number of well-qualified equine practitioners in the New England area. I suggest you go to the AAEP (American Association of Equine Practitioners) website and go to Find a Vet to locate an equine vet in your area. If you are looking for an equine neurologist, you can contact one of two vet schools in your region - Cornell or Tufts.

TheHorse.com: Dr. Reed just posted a response to an upcoming question.

Comment From Marla: I’m the mustang gal. Red now has much less ataxia 3 yrs post-treatment, but still gets his hind legs twisted around each other. I don’t feel he is safe to ride (aside from the blindness), and wonder if the ataxia will always be present.

Stephen Reed: Some horses do have permanent damage, regardless of effective treatment. This may result in neurologic deficits that are life-long.

Comment From PattiA: Please continue to work on a Vaccine... this is a terrible disease, and even with recovery.... relapse is always lurking in the corner....
Comment From Mary: Dr. After 2 weeks of meds. We took our horse for a walk and the next day he seemed a little worse...What should we do for exercise for him during the medication phase of treatment. Also is it rare for a 25 yr old horse to develop EPM. and do you think his age will be against him for recovery? Thanks

TheHorse.com: Answer for Patti coming ...

Stephen Reed: Patti, at this time there is not anyone working on a vaccine. However many veterinarians are interested in developing a way to prevent this disease.. Although the vaccine was not effective it is possible that as new technologies develop it may be possible to work on or develop a new vaccine. For example if it was easy to develop an anti-protozoal vaccine then malaria may not be a world-wide problem.

Comment From Sally: We live in opossum central, and the horse pasture is between two creeks and wooded areas. No opossums in barn area, but I’m sure the horses must be ingesting the nasties left behind by opossums. I live in fear that one of my horses is going to start having neuro signs and I won’t recognize it soon enough, so this was very helpful...thanks!

Dr. Frank Andrews: Dear Sally: You probably have opossums that go in and out of the barn! You are right that the signs of EPM are initially subtle. Watch your horses closely and consult your veterinarian if you have any questions.

TheHorse.com: Answer for Mary coming ...

Dr Vaala: Hi Mary. Some horses do show mild to moderate exacerbation of signs during the early course of treatment. Light exercise is still a good idea. for horses while on treatment. Older horses do develop EPM. Horses with compromised immune systems may be more at risk. Older horses are at risk for Cushing's Syndrome, which is associated with immunosuppression. So in addition to treating your horse for EPM I recommend that you discuss endocrine testing with your vet to rule out concurrent Cushing's Syndrome.

Comment From Barb: My husband’s horse tested SAG1 positive, treated w/o significant improvement with oroquin 10. Began levamizole 2 weeks later. At the 2 week mark, when he was supposed to drop to .5mg/kg, questionable improvement. Kept on 1mg/kg for another week and he looked like he was 80 - 85% better, became optimistic that he may be rideable again. He rapidly digressed again and fluctuates daily. He's currently on QOD dosing. Do you think the diclazuril might be an option, or likely this is as good as it’s going to get?

Stephen Reed: Barb, there are several aspects to address in your comment, ranging from testing to treatment. Oroquin 10 is not currently FDA approved, although horses have been reported to improve with this treatment. Not every horse makes a full response, regardless of treatment. However, I would certainly try treating your horse with Protazil, the FDA approved diclazuril product, before deciding if he won't respond to treatment.

TheHorse.com: RuthAnn: I own a mare who has a recent negative titer for EPM but who has no other diagnostics (bone scan, PSSM testing, cervical radiographs) to support her somewhat vague clinical symptoms. Symptoms started 3-4 months ago. Is it possible that she has not yet produced antibodies to the protozoan and that a re-test is merited? Or the general question would be, how long after the horse is exposed to the organism can it take for the antibody to show up?

Dr. Frank Andrews: Dear RuthAnn: In my opinion it is always prudent to re-test your horse for EPM if vague signs persist after a negative test. Sometimes horses don’t make antibodies immediately when
they become infected. In fact, it may take up to 2 weeks for horses to make testable antibodies to EPM after initial infection. So, re-testing your horse 2 to 3 weeks after the first test is best and should give the horse a chance to make antibodies. In rare cases, the horse may not produce adequate antibodies to EPM, so a trial treatment with an FDA-approved drug (Marquis or Protozil) may be helpful, especially if the horse’s clinical symptoms improve while being treated. Discuss this option with your veterinarian.

**TheHorse.com:** The vets are still online. Do we have any last-minute question?

**Comment From PattiA:** Thank you professionals for your time and input tonight :)

**Stephen Reed:** thanks for being such a great audience!

**TheHorse.com:** We’re just about out of time...

**Dr. Vaala:** Thank you for your questions! Wendy

**Dr. Frank Andrews:** Thank you for your questions!! Good luck!!

**TheHorse.com:** Thank you for joining us!

**TheHorse.com:** You will find an archive of this event early next week!

**TheHorse.com:** If you are interested in additional information about EPM, please search on TheHorse.com or contact your veterinarian.

**TheHorse.com:** Have a wonderful night!