

This information is a professional communication for the equine industry. The OAHN group is a dedicated group of veterinarians from primary care practices, academia, government and laboratories, who meet regularly to discuss Equine disease and health issues. It is the intent of this program to monitor and protect the health of horses in Ontario.



Ontario Animal Health Network (OAHN) Equine Expert Network Quarterly Report

Oct-Dec 2015

Report #3

Highlights

- Network Call key points
- Box Elder Toxicity
- Looking Ahead - Equine Herpesvirus-1 – Be on the Alert

Ontario Equine Disease Surveillance (October-December 2015) - Key points

- Horses with diarrhea were diagnosed sporadically across Ontario. Outbreaks occurred on some farms. No causative agents were identified
- One case of Eastern Equine Encephalitis was reported at the end of October in the District of Parry Sound
- Two cases of atypical myopathy due to box elder toxicity were reported (see below)
- An abortion due to *Neorickettsia risticii* (Potomac Horse Fever) was reported in Eastern Ontario



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Box Elder Toxicity (Atypical Myopathy)

In November, two horses were diagnosed at the Ontario Veterinary College with atypical myopathy (severe muscular disease) caused by seed related toxins from Box Elder trees. One horse was from Dufferin County and the other from Peterborough County. Atypical myopathy is a fatal muscle disease, not related to exercise, that occurs mainly in the fall and early winter but may also occur in the spring. It usually affects young male horses grazing poorly maintained pasture (with dead wood and leaves) who are not provided supplemental feed. Not all horses in the same pasture are similarly affected. Clinical signs include muscular weakness, stiffness, trembling, sweating, and dark urine due to muscle protein breakdown with rapid progression of signs leading to death. Respiratory muscles and those controlling posture are most often affected. Blood levels of muscle enzymes are extremely increased.

Toxic metabolites of hypoglycin A, a product found in the seeds of box elder trees (*Acer negundo*), can be identified in urine and serum of affected horses. Box elder seeds can vary in their concentration of hypoglycin A depending on environmental conditions. There is no specific treatment for this condition. Owners are advised to keep horses away from pastures surrounded by these trees during fall and early winter and/or to reduce the amount of seeds in the pasture. Supplementing feed in sparse pastures is also recommended to prevent horses from foraging amongst dead wood and leaves.

Box elder leaves may have 3 to 7 leaflets



Photo credit: Mike Kent



Box elder seeds

Photo credit: Chris Earley

Did you know?

The ability of a virus to hibernate in the body and remain inactive for a period of time is not unique to EHV-1. The human virus, Varicella-Zoster virus (VZV) that causes **Chicken pox** is also a member of the same herpesvirus family as EHV-1. After infecting children, the chicken pox virus remains latent within the nervous system and may be reactivated later in life as Shingles.

Although the clinical signs of disease in people with VZV are different than in horses with EHV-1, in both species the immune system determines whether the virus becomes reactivated and the severity of disease.

The National Farm and Facility Biosecurity Standard for the Equine Sector is now available at:

www.equinecanada.ca

Looking Ahead

Equine Herpesvirus-1- Be on the alert

Equine herpesvirus-1 (EHV-1) has been associated with outbreaks of neurologic disease called equine herpes myeloencephalopathy in two states (New Mexico, Illinois). Within the next few months, horses will be making the trek back to the North from competition and racing grounds in the US. Now is a good time to be prepared with an understanding of the disease and to ensure appropriate biosecurity measures are in place.

A few points about EHV-1:

- **At least 70% of horses have been infected with EHV-1 as foals by their dams,** and current vaccines and management practices cannot prevent this.
- **EHV-1 produces a latent infection,** meaning these foals don't show any clinical signs at the time, and the virus "hibernates" in the lymph nodes and in a group of nerve cells in the head where it remains inactive, or latent, establishing a carrier state that is life-long.
- **Carrier horses do not show clinical signs** and there is no laboratory test presently to detect them.
- **Stress and suppression of the immune system causes carrier horses to start shedding the virus.** Stressful situations such as shipping (especially over long distance), overcrowding, mixing, illness, or pregnancy can cause the virus to become active and shed by the horse. It is thought that most outbreaks of EHV-1 are caused by reactivation from a carrier state.
- **EHV-1 is transmitted by respiratory secretions.** Horses become infected by inhaling the virus shed by another horse, from nose- to-nose contact, or contact with infectious viral particles in the environment (tack, grooming supplies, stalls, trailers, clothing).
- **Fever is an important clinical sign.** Fever occurs days before the onset of neurologic signs are noticed. It is, therefore, very important to take temperatures twice daily on all new horses arriving at your stable as a fever may be the only indication that an active virus is present.
- **Neurologic disease is characterized by decreased coordination (ataxia) and hind limb weakness.** After gaining access through the nose and entering the blood stream, the virus is delivered to the spinal cord. Loss of balance and recumbency may then ensue.
- **Only 10% of infected horses develop neurologic signs during an EHV-1 outbreak.** The reason the virus attacks the vessels of the CNS in only certain horses is not completely known, although there is a strong relationship between the dominance of specific immune cells and the susceptibility to and recovery from EHM.
- **After infected, the horse will shed the virus for 10-21 days.**

Biosecurity

- **Quarantine new horses upon arrival** for at least 2 weeks taking daily temperatures and making sure not to go back and forth between resident and quarantined horses.
- **Report any abnormalities** (fever or neurologic signs) to your veterinarian.
- **Ensure your horses are vaccinated.** Although vaccines exist to prevent respiratory disease and abortion due to EHV-1, at present there is no vaccine licensed to prevent the neurologic form of the disease. Some veterinarians promote the use of the respiratory/abortion vaccines to reduce the shedding of the virus and limit the spread through the barn. Discuss this with your veterinarian and decide upon the best approach for you and your horse or stable.