

Botulism

Is your horse at risk?



BotVax® B vaccine provides simple and safe protection from equine botulism. Consult your veterinarian to determine how your horse is at risk, and learn just how easily botulism can be prevented.



What is equine botulism?

Equine botulism is a progressive neuromuscular disease that quickly leads to weakness and flaccid paralysis (lack of muscle tone with reduced ability to move). This disease can be severe and typically leads to death via respiratory failure when not treated soon after the onset of clinical signs. Botulism can present in a variety of ways, including forage poisoning, wound botulism, and toxicoinfectious botulism (shaker foal syndrome).



As horses are transported longer distances to shows and sales, and as feedstuffs are increasingly shipped from one region to another, a greater number of horses are now at risk for botulism.

Is your horse at risk?





What causes botulism?

Equine botulism is caused by botulinum toxin, a dangerous protein produced by the gram-positive anaerobe, *Clostridium botulinum*. The spore-forming bacterium dwells naturally throughout the environment and is commonly found in soils east of the Mississippi River, namely in the Northeast, Ohio Valley, and along the Atlantic Coast. *C. botulinum* has also been discovered in Western states soil. Under the right conditions, *C. botulinum* produces one of many different toxins (A-H), with type B being the most common botulinum toxin affecting horses (more than 85% of cases).

What are the different forms of botulism?

- Forage poisoning occurs in adult horses that ingest preformed botulinum toxin in improperly dried/processed forages (baled hay, hay cubes, etc.) or feed contaminated with animal carcasses containing *C. botulinum*.
- Wound botulism ensues when *C. botulinum* establishes infection within a sealed wound, including injection site abscesses, umbilical infections, deep puncture wounds, and castration sites.
- Toxicoinfectious botulism (shaker foal syndrome) sporadically affects foals from a few days old to several months age (70% of cases occur between 2 and 5 weeks age). Soilborne *C. botulinum* spores are ingested by the foal, infect the gastrointestinal tract, and locally produce type B botulinum toxin that the foal absorbs systemically.

How dangerous is the toxin that causes equine botulism?

Botulinum toxin is considered the most poisonous naturally occurring substance in the world. One milligram (0.000035 ounce) of toxin can kill a 1,200-pound horse. One teaspoon of toxin is sufficient to kill 5,000 horses.

Clinical signs of equine botulism

The onset of clinical signs is variable. Usually clinical signs are observed within 24 hours of exposure to botulinum toxin; however, signs may be seen in as little as 12 hours post-exposure, to as long as several days following exposure. While the route of toxicosis may differ, clinical signs exhibited by the equine patient are generally the same.

- Dysphagia (difficulty in swallowing)
- Eating more slowly
- Leaking milk from mouth while suckling (in foals)
- Poor muscle tone:
 - Reduced tongue tone
 - Weak eyelid tone (droop)
 - Poor tail tone
- Reduced ability to retract tongue
- Weakness
- Muscle fasciculations/tremors
- Recumbency/Inability to rise
- Colic
- Abnormal respiratory pattern and rate



Equine botulism can be very difficult to diagnose since clinical signs mirror other diseases. A simple test veterinarians use to aid diagnosis of botulism is to gently pull the tongue out, release it, and observe how quickly the horse retracts it back into the mouth. Veterinarians also use the “grain test,” in which a small amount of sweet feed is offered to the horse in a large flat feed tub, and the horse is monitored for the length of time it requires to consume the sweet feed. Reduced tongue tone and dysphagia often present before other clinical signs of botulism appear, making these two tests useful.

Are there effective treatments for equine botulism?



If equine botulism is recognized early, there is a chance to save the horse using specific antiserum (antitoxin) treatment in addition to good supportive therapy. The affected horse typically requires several days of round-the-clock intensive nursing care

at an equine hospital, in order to potentially survive. Prognosis depends on a number of factors but tends to be poor with equine botulism, despite well-intended efforts and costly hospitalization (\$10,000+).

Can botulism be prevented?

Yes. Prevention of equine botulism is easily achieved through the administration of three doses of BotVax[®] B vaccine, each one month apart. BotVax B is the only USDA-approved *Clostridium botulinum* type B* toxoid licensed for preventing equine botulism in healthy horses. First approved in 1987 and for sale exclusively to veterinarians, BotVax B has safely and successfully protected hundreds of thousands of horses and foals from equine botulism and shaker foal syndrome. Preventing botulism is the simple, inexpensive, and effective alternative to the futile outcome that this severe neuromuscular disease often brings.

*Does not confer protection against other *Clostridium botulinum* toxin types.

Dosage information



Unvaccinated horses should receive three 2 mL doses of BotVax B in the muscle at one-month intervals, including broodmares (starting at ninth month of pregnancy).

Previously immunized horses are vaccinated once annually. BotVax B is safe to administer to foals as young as 2 weeks age.

**When transporting your horse or feedstuff,
no matter what region you live in—**

PREVENTION IS THE SMART CHOICE!

**Your veterinarian can advise you on the AAEP
vaccination guidelines, which includes botulism,
or answer any questions you may have.**

References

American Association of Equine Practitioners 2008 Vaccination Guidelines: <http://www.aaep.org/botulism.htm>

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Whitlock, RH: Botulism (Shaker Foals; Forage Poisoning). In Smith, BP: Large Animal Internal Medicine, ed. 3, St. Louis, 2002, Mosby.



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Photo of *Clostridium botulinum* bacteria on page 3 courtesy of the Centers for Disease Control and Prevention's Public Health Image Library.