Botulism

Definition
Disease caused by toxins produced by Clostridium botulinum an anaerobic, spore forming bacteria ubiquitous in soil. Toxin proliferates under vegetative conditions.

Botulism is a rapid and progressive neurologic disease with high mortality (100% in untreated animals). Horses can ingest either bacteria which then proliferate in the gastrointestinal tract and secrete toxin (toxicoinfectious) or ingest pre-formed toxin.

Clinical Signs
Severe muscle weakness
Flaccid paralysis with normal mentation
Inability to swallow (foals will reflux milk from nostrils)
Poor tail, tongue and eyelid tone
Hypoventilation, respiratory arrest
Paresis/inability to stand for extended periods
Limb paralysis
Progression to muscular weakness and recumbency

Incubation
12-24 hours post-ingestion of toxins
Toxicoinfectious and wound botulism have a variable onset based on proliferation of bacteria and toxin. Once elaborated, effects due to toxin occur within 24 hours as with ingestion of preformed toxin.

Transmission
Ingestion of pre-formed toxin in contaminated feed
Toxicoinfectious—Shaker Foal Syndrome
Large amount of bacteria overgrows in gut then elaborates toxin
Direct contact—wound contamination or via umbilicus in foals

Diagnostic Testing
Clinical signs
Confirmatory testing is difficult and expensive:
Definitive diagnosis is achieved by identification of toxin in plasma, liver, or gastrointestinal tract.

Tentative diagnosis is based on identification of C. botulinum spores in gastrointestinal contents or wounds.

Animals that recover from the disease do have antibody present but commercially available testing is limited

Shedding Time of Organism Past Resolution of Clinical Signs
There is no demonstrable shedding of C. botulinum once clinical signs occur, particularly if the source of infection is that of a wound or umbilicus.
Environmental persistence (toxins)
Toxins are susceptible to sunlight, 1-3 hours

Specific Control Measures

Environmental management
Bleach is effective disinfectant (after thorough removal of organic material) for toxins and/or vegetative cells.

Clostridial spores are resistant to most environmental conditions and disinfectants.

Vaccination
Prevention of botulism in foals is approached through vaccination of broodmares. Understanding of regional variation in prevailing antigenic type is helpful in determining vaccine selection.

Release of Animals from Isolation
There are no isolation requirements for horses with this disease.

Biosecurity Issues for Receiving Animals
There are no biosecurity issues for housing and/or handling of these animals.

Zoonotic Potential
None.