

SALMON BROOK  |
VETERINARY HOSPITAL

Equine Vaccinations

Core Vaccines

CORE VACCINES are those “that protect from diseases that are endemic to a region, those with potential public health significance, required by law, virulent/highly infectious, and/or those posing a risk of severe disease. Core vaccines have clearly demonstrated efficacy and safety, and thus exhibit a high enough level of patient benefit and low enough level of risk to justify their use in the majority of patients.”

- Rabies
- Tetanus
- West Nile Virus
- Eastern/Western Equine Encephalitis

Rabies

- Rhabdovirus
- Zoonotic
- Transmission:
 - Bite wound (most common) from rabid animal
 - Droplet inhalation
 - Orally
 - Transplacentally
- Occurs year round.
- Replication occurs in the myocytes at the site of inoculation.
- Virus may be undetected for weeks to months
- Incubation Period: 9 days to 1 year
- Virus travels to the brain causing encephalitis

Rabies Continued...

- Signs:
 - Rapid progression
 - Behavioral changes
 - Anorexia
 - Low grade fever
 - Lameness
 - Neurologic
 - Ex. Head tilt, ataxia, paralysis, light sensitivity, hypersensitivity to stimuli, muscle tremors, convulsions, aggression, gnawing at bite wound
 - Colic
 - Recumbency
 - Sudden death
- Treatment:
 - Exposed horses should be quarantined for six months and watched carefully for neurological signs
 - If contracted death is inevitable and occurs within 5 to 10 days after the onset of clinical signs
- Diagnosis
 - Submit intact head for testing
 - fluorescent antibody test on parts of the brain

Rabies Vaccination Protocol

- Foals:

- Born to a unvaccinated mare:
 - First dose: 3 months of age
 - Second dose: 4-6 weeks after first dose
 - Annually after two dose series
- Born to a vaccinated mare:
 - First dose: 6 months of age
 - Second dose: 4-6 weeks after first dose
 - Annually after two dose series

- Adults:

- Unvaccinated:
 - First dose
 - Revaccinate annually
- Previously Vaccinated:
 - Annually
- Brood Mare:
 - Unvaccinated:
 - Give 4-6 weeks prior to foaling
 - Previously Vaccinated:
 - Booster 1 month prior to foaling
- Or
 - Give annually prior to breeding

Tetanus

- Anaerobic Bacteria
 - *Clostridium tetani*
- Found in soil
- Contract tetanus from a wound or at a surgical site
 - Bacteria multiplies in necrotic tissue
 - When the bacteria cells undergo autolysis they release a neurotoxin
- Occurs year round
- Incubation Period: 3-21 days
- Affects the nervous system and brain
- **Horses are highly susceptible to tetanus!!!**

Tetanus Continued...

- Signs:
 - Localized/general stiffness
 - Difficulty moving
 - Muscle spasms/contractions
 - Lockjaw/ difficulty swallowing
 - Third eyelid protrusion
 - Sweating
 - Increased Heart and Respiratory Rate
- Diagnosis:
 - Clinical signs
 - Blood test
 - Bacterial culture
- Treatment:
 - Supportive Care
 - Tetanus Antitoxin
 - Prognosis: Most cases result in death

Tetanus Vaccination Protocol

- Foals:

- Born to an unvaccinated mare:
 - First dose: 1-4 months of age
 - Second dose: 4 weeks from first dose
 - Third dose: 4 weeks from second dose
- Born to a vaccinated mare:
 - First dose: 4-6 months of age
 - Second dose: 4-6 weeks from first dose
 - Third dose: 10-12 months of age

- Adults:

- Unvaccinated:
 - First dose
 - Second dose: 4-6 weeks after first dose
- Previously Vaccinated:
 - Annually
- Broodmare:
 - Unvaccinated
 - First dose
 - Second dose: 4-6 weeks after first dose
 - Third dose: 4-6 weeks prior to foaling
 - Previously Vaccinated:
 - Vaccinate annually 4-6 weeks prior to foaling

Eastern/Western Equine Encephalomyelitis

- Eastern Equine Encephalomyelitis:
 - East of the Mississippi
 - Mortality rate: 75-95%
- Western Equine Encephalomyelitis
 - West of the Mississippi
 - Milder form
 - Mortality Rate: 30-50%
- Also known as “Sleeping Sickness”
- Virus
- Transmitted by mosquitos that feed on infected birds
- Occurs in summer and fall
- Incubation Periods: 1-3 weeks
- Infects the nervous system

Eastern/Western Equine Encephalomyelitis Continued...

- Signs:

- Neurologic:

- Ex. Hypersensitivity to stimuli, Involuntary muscle movements, ataxia, aimless wandering or circling, seizures, paralysis of throat or tongue, inability to stand

- Fever lasting 24-48 hours

- Depression/ lethargy (Sleepy appearance)

- Behavior changes

- Anorexia

- Impaired Vision/ Blindness

- Infected horses usually die within 3 days of showing signs

- Diagnosis:

- Blood Test

- Treatment:

- Supportive Care

- Fluids

- Anti-inflammatory Drugs

- Nutritional Support

Eastern/Western Encephalomyelitis Vaccination Protocol

- Horses should be vaccinated just before or at the beginning of mosquito season
- Foals:
 - Born to a unvaccinated mare:
 - First dose: 3-4 months of age
 - Second dose: 30 days after first dose
 - Third dose: 60 days after second dose if not during mosquito season but, if during mosquito season give 30 days after the second dose.
 - Born to a vaccinated mare:
 - First dose: 4-6 months of age
 - Second dose: 4-6 weeks after first dose
 - Third dose: 10-12 months of age prior to mosquito season
- Adults:
 - Unvaccinated:
 - First dose
 - Second dose 4-6 weeks after first dose
 - Previously Vaccinated:
 - Annually in the spring
 - Broodmare:
 - Unvaccinated:
 - Immediately give a first dose
 - Second dose 4 weeks after first dose
 - Give a booster 4-6 weeks prior to foaling
 - Previously Vaccinated:
 - Give 4-6 weeks prior to foaling

West Nile Virus

- Virus
- Endemic in the USA
- Transmitted by mosquitos that feed on infected birds.
- Occurs in summer and fall
- Incubation period: 3-15 days
- Virus attacks the Central Nervous System

West Nile Virus Continued...

- Signs:
 - Neurologic
 - ex. Ataxia, weakness of legs, partial paralysis, muscle twitching, seizures, head pressing, aimless wandering
 - Fever
 - Teeth Grinding
 - Anorexia
 - Altered mental state/behavior
 - Impaired vision
- Diagnosis:
 - Blood test
 - IgM capture ELISA
- Treatment:
 - Supportive Care:
 - Anti-inflammatory drugs (ex. Banamine, bute, etc.)
 - Fluids/nutritional support
 - Tranquilizers
 - Anti-seizure meds (if needed)
 - Broad-spectrum antibiotics
 - Prognosis: 33% mortality rate

West Nile Virus Vaccination Protocol

- Horses should be vaccinated just before or at the beginning of mosquito season
- A second vaccine may be given 6 months later if mosquitos are still around
- Foals:
 - Born to a unvaccinated mare:
 - First dose: 4 months of age
 - Second dose: 3-4 weeks after first dose
 - Annually after two dose series
 - Born to a Vaccinated mare:
 - First dose: 4-6 months of age
 - Second dose: 3-4 weeks after first dose
 - Annually after two dose series
- Adults:
 - Unvaccinated:
 - First dose
 - Second dose: 3-4 weeks after first dose
 - Previously vaccinated:
 - AnnuallyOr
 - Biannually if mosquito season is longer
 - Broodmares:
 - Unvaccinated:
 - Immediately give first dose
 - Second dose: 3-4 weeks after first dose
 - Previously vaccinated:
 - 4-6 weeks prior to foaling

Risk-Based Vaccines

RISK-BASED VACCINES are selected for use based on risk assessment performed by, or in consultation with, a licensed veterinarian. Use of these vaccines may vary between individuals, populations, and/or geographic regions based on exposure, age and use of the horse and severity of the disease.

- Equine Herpes Type 1 & 4 (Rhino)
- Equine Influenza
- Potomac Horse Fever
- *Streptococcus equi*. Aka Strangles

Equine Herpes Type 1 & 4

- Also known as Rhinopneumonitis
- Virus
- Occurs year round
- The virus can remain dormant in a horse and recur at anytime
- Stress may cause horses to exhibit signs again
- Adult horses can carry and shed the virus without showing any signs
- Younger horses are highly susceptible
- Incubation Period: 2-10 days
- Transmitted from horse to horse via:
 - Direct Contact: nose to nose
 - Indirect contact:
 - Infected horses cough and sneeze releasing droplets into air or wipe their noses.
 - Other horses then come in contact with a person or equipment contaminated with the aerosolized droplets or nasal secretions
 - Contact with aborted tissue and fluid

Equine Herpes Type 1 & 4 Continued...

- **Type 1 causes:**

- Respiratory disease
 - Affects nasal mucosa and lungs
 - Cause lesions to form in the lungs
- Abortions
 - Occurs without warning
 - Usually between 7-9 months of gestation
- Neurological disease
 - Can be fatal
 - Brought on by stress
 - Virus attacks the spinal cord and brainstem

- **Type 4 causes:**

- Respiratory disease
 - Affects respiratory tract and associated lymph nodes
- Abortions
 - rarely

Equine Herpes Type 1 & 4 Continued...

- Signs:

- Fever
- Coughing
- Nasal Discharge:
 - Starts clear and progresses to a thick yellow secretion
- Lethargy
- Anorexia
- Swollen lymph nodes
- Neurologic: rear limb weakness, incoordination, dog-sitting, toe dragging, incontinence

- Diagnosis:

- Nasal Swab or Blood Test

- Treatment:

- Supportive Care:
 - Non-steroidal Anti-inflammatory drugs
 - Fluids
 - Antibiotics for secondary bacterial infections



Equine Herpes Type 1 & 4 Vaccination Protocol

- Foals:

- First dose: 6 months of age
- Second dose: 4 weeks after first dose
- Third dose: 10-12 months of age
- Then vaccinate at 6 month intervals after 3 dose series

- Adults:

- Unvaccinated:

- First dose
- Second dose: 4-6 weeks after first dose
- Third dose: 4-6 weeks after second dose

- Previously Vaccinated:

- Give every six months

- Brood mares:

- Give EHV 1 vaccine licensed for prevention of abortion during the 3rd, 5th, 7th, and 9th months of gestation
- Give EHV-1&4 vaccine 4-6 weeks prior to foaling

- Stallions:

- Vaccinate before the start of breeding season

Equine Influenza

- Virus
- Highly contagious and spreads rapidly in groups of horses
- Young horses are highly susceptible
- Some horses can carry and shed the virus without showing any signs
- Occurs year round
- Incubation period: 1-3 days
- Virus replicates inside cells that line the upper respiratory tract.
- Replication damages the lining and mucous membranes of the respiratory tract
- Transmitted from horse to horse via:
 - Direct Contact: nose to nose
 - Indirect contact:
 - Infected horses cough and sneeze releasing droplets into air or wipe their noses.
 - Other horses then come in contact with a person or equipment contaminated with the aerosolized droplets or nasal secretions

Equine Influenza Continued...

- Signs:
 - Watery nasal discharge (may become thicker due to a secondary infection)
 - Dry Cough
 - Fever
 - Anorexia
 - Labored breathing
 - Pneumonia as a secondary infection
 - Depression
- Diagnosis:
 - Nasal Swab
- Treatment:
 - Supportive Care:
 - Non-steroidal anti-inflammatory drugs
 - Antibiotics for secondary infections
 - Rest for at least 6 weeks to allow respiratory tract to heal fully
 - Prognosis: low mortality rate

Equine Influenza Vaccination Protocol

- Foals:

- First dose: 6 months of age
- Second dose: 4 weeks after first dose
- Third dose: 10-12 months of age

- Adults:

- Unvaccinated:

- First dose
- Second dose: 3-4 weeks after first dose
- Third dose: 3-6 months after second dose

- Previously Vaccinated:

- Give every six months

- Brood Mares:

- Unvaccinated:

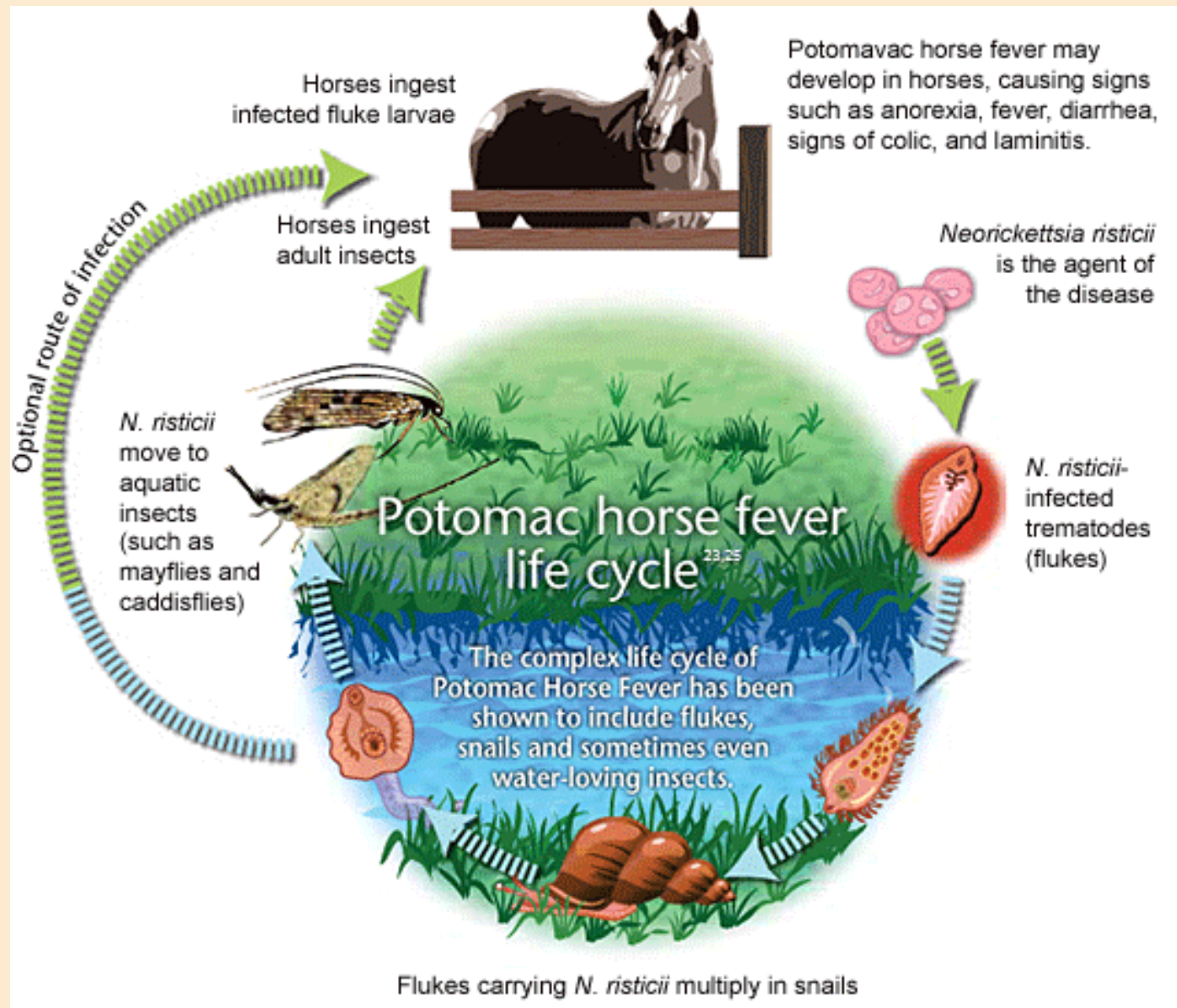
- First dose
- Second dose: 4-6 weeks after first dose
- Third dose: 4-6 weeks prior to foaling

- Previously Vaccinated:

- Give 4-6 weeks prior to foaling

Potomac Horse Fever

- Also known as Equine monocytic ehrlichiosis
- Bacteria
 - *Neorickettsia risticii*
- Occurs near bodies of water such as swamps, rivers, streams, etc.
- Occurs from late spring to mid fall with most cases occurring at the end of summer beginning of fall
- *Neorickettsia risticii* infects aquatic insects or flukes that multiply in snails
- Horses become infected by ingesting contaminated insects or larvae
- Incubation period 10-18 days



Potomac horse fever may develop in horses, causing signs such as anorexia, fever, diarrhea, signs of colic, and laminitis.

Potomac Horse Fever Continued...

- Signs:
 - Depression
 - Fever
 - Watery diarrhea
 - Purplish-color along the gum line
 - Colic
 - Decreased gut sounds
 - Abortion in pregnant mares
 - Laminitis
- Diagnosis:
 - Fecal test
 - Blood test
- Treatment:
 - Antibiotics (Oxytetracycline)
 - Flagyl
 - Electrolytes
 - Fluids
 - Non-steroidal anti-inflammatory drugs
- Prognosis:
 - If caught early low mortality rate.
 - Most horses die from secondary complications

Potomac Horse Fever Vaccination Protocol

- Horses should be vaccinated in the spring or beginning of summer
- Foals:
 - First dose: 5 months of age
 - Second dose: 3-4 weeks after first dose
 - Third dose: recommended but not required at 12 months of age
- Adults:
 - Unvaccinated:
 - First dose
 - Second dose: 3-4 weeks after first dose
 - Previously Vaccinated:
 - Annually
 - Or
 - Biannually if horses are located in a highly endemic area
 - Brood Mares
 - Unvaccinated:
 - First dose
 - Second dose: 3-4 weeks after first dose. Schedule second dose so it is given 4-6 weeks prior to foaling.
 - Previously Vaccinated:
 - Give annually or biannually based on horses location
 - Schedule one dose to be given 4-6 weeks prior to foaling

Streptococcus equi Aka Strangles

- Bacteria
 - Streptococcus equi subsp equi
- Highly Contagious
- Young horses are very susceptible
- Occurs year round
- Bacteria can survive up to 4 weeks outside of horse
- Incubation period: 3-14 days
- Transmitted horse to horse via:
 - Horses begin to shed the bacteria 1-2days after the onset of fever
 - Direct contact: nose to nose
 - Indirect contact: Contaminated buckets, equipment, tack, handlers clothing/footwear

Streptococcus equi Aka Strangles

- Signs:
 - First sign: fever
 - Enlarged, painful lymph nodes
 - Mandibular lymph nodes (under the jaw)
 - Retropharyngeal lymph nodes (located deep to the throat latch)
 - Lymph nodes may abscess and burst
 - Nasal Discharge
 - Depression
 - Difficulty swallowing
 - Anorexia
- Diagnosis:
 - Bacterial Culture of nasal or abscess swab
- Treatment:
 - Isolate patient from rest of horses at first signs
 - Warm compresses to assist maturation of the abscess
 - Lance, drain and flush abscesses
 - Non-steroidal anti-inflammatory drugs
 - Use of antibiotics contraindicated because it will prolongs the progression of the disease
 - Prognosis: less than 5% of horses die

Streptococcus equi Aka Strangles Vaccination Protocol

- Foals:

- Killed Vaccine:
 - First dose: 4-6 months of age
 - Second dose: 4-6 weeks after first dose
 - Third dose: 4-6 weeks after second dose
- Modified-live Vaccine:
 - First dose: 6-9 months of age
 - Second dose: 3 weeks after first dose

- Adults:

- Unvaccinated:
 - First Dose
 - Second dose: 3 weeks after first dose
 - Then give at 6 or 12 month intervals
- Previously Vaccinated:
 - Annually
 - Or
 - Biannually based on risk
- Brood Mares:
 - Unvaccinated:
 - First dose: killed vaccine
 - Second dose: killed vaccine 2-4 weeks after first dose. Schedule the second dose at 4-6 weeks prior to foaling
 - Previously Vaccinated:
 - Give 4-6 weeks prior to foaling

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- For more information visit the American Association of Equine Practitioners website:
 - <http://www.aaep.org/info/vaccination-guidelines>