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
      • Give annually prior to breeding
Tetanus

• Anaerobic Bacteria
  • Clostridium tetani

• Found in soil

• Contract tetanus from a wound or at a surgical site
  • Bacteria multiples 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:
    - Annually
    - Or
    - 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 is caused by Neorickettsia risticii, an agent of the disease. Horses ingest infected fluke larvae, which develop into adult insects. These insects may move to aquatic insects such as mayflies and caddisflies. N. risticii-infected flukes multiply in snails, completing the complex life cycle of Potomac Horse Fever. The disease 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 1-2 days 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 then 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
For more information visit the American Association of Equine Practitioners website:

- http://www.aaep.org/info/vaccination-guidelines