

## Countryside Veterinary Service PC – A Guide To Proper Immunization

- **Why Vaccination Is So Important**

- Equine disease can attack suddenly. Without protection, they can be devastating to your horse, lowering performance levels and possibly even jeopardizing life. Unfortunately, many horse owners may be unaware of the importance of immunization to protect their horses from disease. Preventing a disease through proper vaccination programs is far safer, easier and more economical than treating the disease after the horse is already sick.
- Vaccination programs vary according to your horse's specific needs. Variables include the horse's age, environment, exposure risk and geographic region. Your veterinarian can advise you regarding the individual requirement of your horse.
- If you own more than one horse, it is important that all be included in the vaccination program. Just a single unprotected horse in a herd can provide a reservoir of infection to all the others.

- **Bacterial Diseases**

- Botulism
  - Botulism is caused by the exotoxin of *Clostridium botulinum*. Horses are extremely susceptible to the toxin, which is the most potent biological toxin known. It causes neuromuscular weakness that progresses to paralysis. Clinical signs include weakness, frequent lying down, muscle tremors, drooping tail, protruding tongue, constipation, stumbling and collapse, and ultimately paralysis. Death is due to respiratory paralysis.
  - Adult horses contract botulism, or "forage poisoning," by eating decayed vegetable matter, animal carcasses or improperly prepared haylage or silage. These sources support sporulation, growth and toxin production by the bacteria, so the horse is ingesting preformed toxin.
  - Foals with botulism are referred to as "shaker foals." Foals either ingest unsporulated spores or the spores may gain entry to the foal through the umbilical cord.
  - Cases of wound contamination with botulism spores have also been reported to cause the disease.
  - Rapidity of onset and severity of signs depend on the dose of toxin received and the individual animal's immunity. Disease that progresses rapidly has a very poor prognosis. Disease may be less severe in animals that develop signs slowly over several days, however, recovery may take weeks.
  - Treatment with antibiotics and antitoxin can help if given early in the course of disease. Supportive care with fluids and tube feeding may be necessary. Activity should be restricted because muscle contractions may precipitate spasms. Deep bedding should be provided to protect the skin if the horse is down.
  - In areas where this disease occurs regularly, mares should be vaccinated before foaling to help protect the foal from "shaker foal" syndrome.
- Potomac Horse Fever ( PHF )

- Potomac Horse Fever is caused by *Ehrlichia risticii*. It was first recognized in 1979 in Maryland, but has since been confirmed in many areas of the United States and Canada. The disease is seasonal, occurring from late spring until early fall. It can occur in only a few horses on a farm, or as a major outbreak with many horses being affected. Evidence suggests that freshwater snails and the larvae of flukes (parasitic flatworms) may play a role in transmission. This also suggests that PHF may be prevented by keeping horses away from freshwater streams, ponds, etc.
    - The severity of clinical signs varies greatly. Most horses develop a fever accompanied by depression, loss of appetite, diarrhea and colic. Other cases may involve founder (laminitis) and pregnant mares have been reported to abort. The common underlying entity in all cases is colitis (inflammation of the colon).
    - Treatment includes antibiotics and supportive therapy, including intravenous fluids therapy, gastrointestinal protectants and anti-inflammatory drugs. Vaccination is recommended for horses at risk.
  - Tetanus ( Lockjaw )
    - Tetanus is caused by a bacterium, *Clostridium tetani*, which is present in the intestinal tract of most mammals and in the soil. The tetanus bacterium produces a potent toxin that, when liberated in the tissues, attacks the nervous system. Horses are very susceptible to this toxin, and their risk of exposure is great because the bacteria are present in the environment and easily contaminate any wounds the horse may have, especially on its feet. Penetrating wounds, such as a nail in the foot, are especially dangerous because oxygen-free conditions promote growth of the bacteria.
    - Tetanus toxin affects the horse by causing rigid paralysis and spasms of the muscles. Often the jaw muscles are affected first, hence the name lockjaw. Often the horse has an anxious expression and may react to noises or movements with spasms or convulsions. Respiratory paralysis and dehydration can lead to death.
    - Tetanus can be treated if detected early, but full recovery can take months. Treatment may require antitoxin, tube feeding, sedation, fluids, extra bedding and bandaging or padding to prevent skin ulcers in a horse that is down. Because the risk is great and the consequences severe, annual preventative vaccination with tetanus toxoid is advisable.
  - Streptococcus Equi ( Strangles, Distemper, Barn Fever )
    - Strangles is a highly contagious bacterial disease caused by *Streptococcus equi*. It begins when the bacteria invade the mucous membranes of the horse's nose and throat and causes severe inflammation and pain in the throat. Common clinical signs are swollen lymph nodes, anorexia, fever, nasal discharge and difficulty in swallowing. The swollen lymph nodes (especially in the throat area) may abscess. Most horses recover, but some develop secondary complications such as pneumonia or internal abscesses (bastard strangles).
    - Treatment includes supportive therapy, anti-inflammatory drugs and possibly antibiotics. The use of antibiotics is controversial. Antibiotics may or may not be recommended depending upon the status of the

disease. If breathing becomes difficult due to swollen lymph nodes in the throat, a tracheotomy may be required. Strict attention to hygiene is essential, because bacteria can be transmitted to other horses by contaminated tack, utensils, buckets, bedding and even the boots, clothes and hands of handlers. Recovered animals may continue to shed infectious bacteria for weeks to months.

- The decision to vaccinate against strangles should be made based upon risk assessment. Quarantine of affected horses and all newly-acquired horses is recommended.

- **Viral Diseases**

- Equine Encephalomyelitis ( Sleeping Sickness )

- Encephalomyelitis is a viral disease for which the virus is maintained in reservoir hosts (primarily birds and rodents) and transmitted to the horse by the bite of an infected mosquito. Clinical signs include loss of appetite, fever and neurological signs that may include head pressing and blindness. The horse appears depressed and will often walk into objects. Permanent brain damage or even death can result.
- There are two types of equine encephalomyelitis commonly seen in North America: Eastern Equine Encephalomyelitis (EEE) and Western Equine Encephalomyelitis (WEE). A third type, Venezuelan (VEE), exists in Central America and northern South America, but VEE clinical disease has not been reported in the U.S. since 1971 when an outbreak occurred in Texas. All three are impossible to distinguish clinically. All are carried by mosquitoes and tend to occur primarily during the summer.
- Because antibiotics are ineffective against viruses, treatment consists primarily of supportive care. The prognosis for full recovery is poor and residual neurologic deficits are usual. Death rates due to EEE can reach 75 to 100% of affected horses, while that for WEE is 20-50%. In view of the dismal outlook for recovery from this disease, and because for most horses there is a significant risk for exposure to the disease, vaccination is strongly recommended. Routine vaccination should take place one month prior to mosquito season. Elimination of standing water and use of insecticides is also recommended. In areas with prolonged or continuous mosquito seasons, biannual or triannual vaccination is suggested.

- Equine Herpesvirus ( EHV ) ( Rhinopneumonitis )

- Equine herpesvirus actually exists in five types. The two of primary clinical significance are EHV-1 and EHV-4. EHV-1 is the most virulent, causing respiratory disease, abortion, foal death and paralysis. EHV-4 usually causes only respiratory disease and is most prevalent among young horses.
- Respiratory signs of both herpesviruses include fever, depression, loss of appetite, swollen lymph nodes and a profuse nasal discharge.
- Most EHV-1 abortions occur during the last trimester of pregnancy (usually 7 to 11 months). Mares usually abort suddenly without any outward signs of infection or warning signs of impending abortion.
- Especially in horses undergoing strenuous training, it is important to recognize early signs of the disease. Continuing to work the horse during

the acute phase of the infection is believed to contribute to long-term loss of performance.

- Early recognition of sickly newborn foals and of aborted fetuses is also important in preventing spread of the virus. These newborn foals are potentially contagious and should be promptly removed from contact with other pregnant mares. The environment should be thoroughly disinfected and all bedding should be burned. Quarantine of all sick and newly-arrived animals is especially important on a breeding farm.
  - Treatment for EHV disease is limited to rest and supportive therapy. Secondary bacterial infections should be treated with antibiotics.
  - In addition to good management practices, vaccination for both EHV-1 and EHV-4 is recommended. Vaccination against EHV-1 abortion should include an EHV vaccine that is specifically labeled as an aid in the prevention of EHV-1 abortions.
- Equine Influenza
    - Equine influenza is a common disease that causes acute respiratory disease signs in horses. The clinical signs caused by equine influenza are fever (102.5 to 106.5 degrees F), frequent dry cough, nasal discharge, dehydration, lethargy, anorexia and possible secondary bacterial pneumonia.
    - Influenza is currently considered to be the most economically important respiratory disease in horses. The incidence of equine influenza is between 50 to 60% in most field studies. The disease has a high infection rate with a low death rate.
    - Vaccination is critical for the control and prevention of equine influenza, along with quarantine of affected horses, rest, good stable hygiene and a dust-free, well-ventilated environment. A good immunization program protects the healthy horse by reducing the amount of virus shed after infection, and lessening the duration and severity of the clinical signs in an infected horse. Pregnant mares should be vaccinated 4 to 6 weeks before they foal using an inactivated equine influenza vaccine to booster their antibody level to transfer to the foal via colostrum. This vaccine, given to the mare, will aid in the protection of the foal for the first 6 months of its life. It is now recommended that a foal's first set of vaccination against equine influenza should be after the foal is 6 months of age. Consult with your veterinarian to discuss the level of risk and the proper time to vaccinate your horse for equine influenza.
  - Equine Viral Arteritis ( EVA )
    - Equine viral arteritis can cause respiratory disease and abortion. Clinical signs are variable, but commonly include fever, loss of appetite, depression, skin rash, diarrhea, watery eyes and fluid buildup in the limbs, head, trunk and genitalia of the stallion. Abortion usually occurs during or shortly after the acute phase of the illness.
    - As with other respiratory viral infections, rest, supportive therapy and antibiotics for secondary bacterial infection are the most common treatments. Good management on breeding farms, hygiene, and vaccination are necessary for control of this disease. EVA in stallions can cause from 30 to 50% to become carriers. Some stallions shed virus for

several seasons.

- Rabies
  - Equine rabies is contracted from the bite of a rabid animal and is frequently misdiagnosed, due to the wide variety of clinical signs. Rabies should be considered in any horse with a rapidly progressive illness that includes neurological signs. Death follows within 3 to 5 days. Affected horses may exhibit colic, lameness, muscle incoordination, incontinence, muscle spasms and paralysis, blindness and depression. A few rabid horses exhibit aggression.
  - Humans are often exposed to equine rabies when they attempt to examine the animal's mouth, believing that a foreign body may be causing salivation or difficulty swallowing or chewing. Any horse that is suspected to have rabies should be handled as little as possible, and a veterinarian should be contacted immediately.
  - There is no treatment for equine rabies. All horses should be vaccinated annually for this fatal disease.
  
- West Nile Virus
  - Equine West Nile Virus (WNV) infection is a new, emerging disease first isolated in horses in the U.S. in 1999. This viral disease is maintained in reservoir hosts (primarily birds) and transmitted to the horse by the bite of an infected mosquito (vector). Although WNV is primarily seen along the east coast of the U.S., it is anticipated the disease will most likely continue to spread westward, following the migratory pattern of wild birds. The disease tends to occur primarily during the late spring and summer months. While mosquitoes can transmit this disease to humans and horses, horses appear to be dead-end hosts, which means they are unable to transmit the disease.
  - Clinical signs of horses infected with West Nile Virus may include the following: Lack of coordination, stumbling, loss of appetite, fever, muscle twitching, partial paralysis and neurological signs that may include head pressing, inability to stand up, convulsions and possibly death.
  - Because antibiotics are ineffective against viruses, treatment consists primarily of supportive care. The prognosis for full recovery is poor and residual neurologic deficits are common. Death rates due to WNV can reach 25 to 40% of affected horses.
  - In view of the poor outlook for recovery from this disease, vaccination is recommended one month prior to mosquito season in affected areas. Elimination of standing water and use of insecticides are also recommended. In areas with prolonged or continuous mosquito seasons, biannual or triannual vaccination may be suggested. Consult with your veterinarian to discuss the level of risk and the proper time to vaccinate your horse for West Nile Virus.