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Protecting Florida Horses through Vaccination[1]

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Key Points

- The American Association of Equine Practitioners (AAEP) recommends that **all** horses be vaccinated for tetanus, encephalomyelitis, rabies, and West Nile virus.
- Individual vaccination programs should be developed and delivered by your veterinarian to ensure that your horse receives the right vaccines at the optimal time of year.
- Vaccination generally requires a primary series of 2–3 doses, followed by annual or semiannual booster doses thereafter.
- Broodmares require specific vaccines during gestation to prevent abortion and provide antibody-rich colostrum to the newborn foal.

Routine vaccination is a critical component of developing a preventative health program for horses. Vaccinations help to prime the immune system to respond quickly when a horse is exposed to an infectious agent. Although vaccinations cannot guarantee disease prevention in all circumstances, they help to minimize the risk of infection and lessen the severity of certain diseases. Vaccination is not a substitute for other good management practices, and should be used in conjunction with proper nutrition, deworming, pasture management, and minimizing stress and overcrowding. It is important to emphasize that there is no standard vaccination program that is suitable for every horse; individual programs should be developed with your veterinarian. Whenever possible, all horses in a group should be on the same vaccination and preventative healthcare schedule.

Vaccination programs for individual horses or herds take into account factors such as age, sex, geographic location, use of the horse, pregnancy status, and risk of developing disease. Currently, there are FDA-approved equine vaccines available for tetanus, encephalomyelitis, West Nile virus, rabies, rhinopneumonitis (equine herpesvirus), influenza, strangles, Potomac horse fever, botulism, equine viral arteritis, anthrax, leptospirosis, snake envenomation, and rotavirus. The vaccines are administered by an intramuscular or intranasal route depending on the disease. Influenza, equine herpesvirus, and strangles have both intramuscular and intranasal vaccines available. Adverse reactions to vaccination are not common but are a potential risk of vaccination. Signs of an adverse reaction may include muscle soreness, swelling, fever, anorexia, and lethargy. While most vaccine reactions are mild and self-limiting, more severe reactions may require veterinary intervention.

When considering a vaccination program for your horse, it is important to remember that each horse's immune system will respond a little differently to vaccination. Not every horse will be protected to the same degree or for the same amount of time following vaccination. A "primary series" of the vaccines with booster doses is required to produce a protective immune response and is routinely administered to horses in the first year of life. A primary series may also be necessary in adult horses with unknown vaccine histories. After the initial vaccine series, most horses will

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require annual or semiannual booster vaccinations. In the southeastern United States, where mosquito pressure is present year-round, boosters for arboviral diseases (viruses spread by insects) may be administered more frequently. It generally takes 1–2 weeks after a completed vaccine series for your horse to be protected against the disease.

An overview of the most common infectious diseases preventable by vaccination is presented below. The information is presented as general guidelines; a specific plan for your horse should be developed with your veterinarian.

Vaccination is recommended for all horses for tetanus, encephalomyelitis, rabies, and West Nile virus. These are considered "core vaccines" by the American Association of Equine Practitioners (AAEP; www.aaep.org), and are recommended for all horses regardless of breed, use, or geographic region.

Vaccination for influenza and equine herpesviruses (EHV-1 and EHV-4) is recommended in most cases, especially in performance horses and horses exposed to transient or young equine populations. Broodmares require specific vaccines during gestation to prevent abortion and provide antibody-rich colostrum to the newborn foal.

Infectious Diseases That Can Be Prevented through Vaccination

Tetanus

Tetanus is caused by *Clostridium tetani*, an anaerobic, spore-forming bacterium. The bacteria are present in the intestine and manure of horses, as well as in the soil. *Clostridium tetani* produces spores that can survive for years in the environment. The spores can gain access to the horse through wounds or lacerations, or the umbilicus in foals. The clinical signs of tetanus are a result of toxin production, and include muscle stiffness and rigidity, third eyelid prolapse, stiff legs and "sawhorse" stance, nostril flare, and lockjaw. Horses with severe disease are unable to eat; they may be down and unable to get up. Many progress to death or require euthanasia. All horses should be revaccinated annually for tetanus. They should receive a booster immediately if they sustain a wound or undergo surgery more than 6 months after their previous vaccine. Tetanus antitoxin can be administered to unvaccinated horses that sustain a wound and require immediate protection.

Equine Encephalomyelitis Viruses

The **equine encephalomyelitis viruses (eastern equine encephalomyelitis [EEE]** and **western equine encephalomyelitis [WEE])** are transmitted by mosquitoes to horses and humans from wild birds. Horses and humans are considered dead-end hosts for the disease and cannot pass it to others. Infection with these viruses can cause fever and neurological symptoms such as depression, difficulty walking/staggering gait, changes in behavior/mentation (e.g., profound depression, abnormal mental responses), and seizures. The mortality rate is around 90% for horses with EEE and about 50% for horses with WEE. All horses should be vaccinated for EEE/WEE in the spring, prior to mosquito season. Horses in the southeastern states such as Florida should be vaccinated at least 2–3 times per year. Venezuelan equine encephalomyelitis (VEE) is another encephalomyelitis virus that can cause neurologic disease and high mortality in horses. VEE is a reportable foreign animal disease and has not been seen in the US for many years. However, recent reports of cases of VEE in Mexico horses represent a potential source of infection for US horses, especially those residing in the southern United States.

West Nile Virus (WNV)

West Nile virus (WNV) is another virus transmitted by mosquitoes that can cause neurological symptoms such as muscle tremors, loss of coordination, hypersensitivity to touch, and recumbency (inability to stand up). The death rate for infected horses is about 33%. Horses should be vaccinated annually for WNV.

Rabies

Rabies is a fatal neurologic disease that can be transmitted from wildlife to horses, and from horses to humans. Fortunately, rabies is an uncommon disease in the horse. However, in areas where rabies is endemic in the wildlife population, horses can be exposed through a bite from an infected animal. Rabies results in progressive neurological disease and is fatal in all cases. Horses should be vaccinated annually for rabies.

Equine Influenza

Equine influenza is one of the most common infectious respiratory diseases in the horse. The virus is highly contagious and can be transmitted through the air from horse to horse via coughing. The most common signs of infection are fever, cough, nasal discharge, and reduced appetite. Young horses (under 5 years of age) and horses exposed to large numbers of other horses through showing or transport seem to be most susceptible to infection. Most horses recover from infection in about 10–14 days, and treatment consists of supportive care. Vaccination is available in

intramuscular and intranasal formulations. Discuss the best option for your horse with your veterinarian. Vaccination is recommended every 6 months and is done more frequently (every 3–4 months) in some horse populations.

Equine Herpesviruses

Equine herpesvirus type 1 (EHV-1) and **equine herpesvirus type 4 (EHV-4)** can both cause respiratory infections (rhinopneumonitis) in horses, generally affecting the upper respiratory tract and causing fever, nasal discharge, and sometimes cough. However, EHV-1 can also result in neurological disease, abortion, and foal death. EHV-1 and EHV-4 are transmitted through the air or by direct contact with secretions from the nose, on equipment, or in drinking water. It is likely that initial infection with EHV-1 and EHV-4 first occurs in foals, but clinically apparent infections are seen as they get older and are exposed to new horses. Vaccination is recommended for prevention of abortion in pregnant mares (with a vaccine product specifically licensed for use in pregnant mares) and for reduction in signs and spread of respiratory disease in foals, weanlings, yearlings, young performance, and show horses. Vaccination does not prevent the neurological form of EHV-1. Vaccination is recommended every 6 months for at-risk populations.

Other Diseases

Additionally, vaccines for **strangles** (*Streptococcus equi* infection) and **Potomac horse fever** (PHF) are available, and their use should be discussed with your veterinarian. The strangles vaccine is often recommended for horses exposed to horses outside of their home group through travel or competition. The strangles vaccine can be helpful for preventing or lessening the severity of infection, but it can also cause serious side effects in some horses. These side effects are more common in horses that have previously had strangles infection.

Potomac horse fever is not typically seen in Florida, but vaccination may be considered in horses that are traveling to the northeast and mid-Atlantic regions. The vaccine for PHF is not completely protective, but it may lessen the severity of disease in affected horses.

Vaccination for **botulism** is effective for preventing type B botulism, which usually occurs after horses ingest botulinum toxin in round bales or moldy hay. It is not effective for preventing type C botulism, which occurs when horses ingest hay or feed contaminated with the remains of dead animals. Vaccinations for **rotavirus** and **equine viral arteritis** are used more commonly in breeding populations under the guidance of a veterinarian.

For more information, the American Association of Equine Practitioners (AAEP) regularly updates their guidelines for vaccination of horses, and provides detailed vaccine charts available for download at www.aaep.org.

Vaccination Q&A

Do Florida horses have special vaccination requirements?

Yes! Florida's subtropical climate and mild winters mean that mosquitoes remain active year-round, putting Florida horses at an increased risk for the mosquito-borne encephalitis viruses (EEE) and West Nile virus. Thus, it is recommended that horses in the southeastern United States be vaccinated 2–3 times per year for EEE, and 1–2 times per year for West Nile virus. This ensures strong immunity against mosquito-borne illnesses year-round.

Who should administer my horse's vaccines?

Your veterinarian should administer your horse's vaccines. Veterinarians can develop an individual vaccination program that ensures your horse receives the right vaccines at the optimal time of year. Veterinarians are also trained in proper storage and handling of vaccine products, which can become inactivated if they are allowed to expire or are stored at the wrong temperature. Finally, if your horse experiences an adverse reaction to a vaccine, most vaccine manufacturers will only back their products (this may include paying for any incurred medical expenses) if the vaccine was administered by a licensed veterinarian.

My horse had a reaction the last time he was vaccinated. Can I measure antibody levels to avoid having to give him a booster every year?

At this time, measuring antibody levels (also called "titers") is not recommended as a method for determining if a horse needs to be revaccinated. In nearly all cases, the risk of serious illness or death from infectious disease is greater than the risk of serious adverse effects from vaccination. Horses that have had reactions to vaccination in the past often benefit from receiving vaccines individually over multiple visits rather than receiving all of them during one appointment. Administering an anti-inflammatory prior to vaccination may also be helpful.

Reference

American Association of Equine Practitioners. 2022. "AAEP: American Association of Equine Practitioners." https://www.aaep.org