



Preventive Medicine Programs for Horses: Equine Vaccination Programs

Elisabeth J. Giedt, D.V.M.

Director of Continuing Education, Extension and Community
Engagement
Center for Veterinary Health Sciences
Oklahoma State University

Preventive medicine programs for horses address vaccinations, deworming, exercise and nutrition. Programs are designed by your veterinarian to address the risks and benefits of each aspect of each program.

Vaccinations are one aspect of preventive medicine programs designed by your veterinarian to protect the long term health of your horses. Vaccination programs may vary from farm to farm. Veterinarians design vaccination programs based on many factors including risk of exposure, history of disease, potential for adverse reactions and age of animal. Vaccination alone without good management is not adequate to prevent disease. Working with your veterinarian ensures the appropriate vaccination protocol is followed.

Infectious diseases are best managed by both vaccination and infection control. Control programs should be directed toward reducing exposure to infectious agents in the environment by isolating sick horses and new horses. Good management practices that reduce disease exposure include excellent ventilation for horses housed in barns and reducing overcrowding in paddocks and pastures. Ensuring an adequate nutrition and exercise program is in place will enhance immunity. The risk for disease increases with:

- Stress
- Parasitism (see Fact Sheet VTMD-3976)
- Contaminated water sources
- Poor rodent, bird and insect control
- Movement of vehicles, people, and equipment off and on facilities during an outbreak

Core Vaccines

The American Veterinary Medical Association defines core vaccinations as those "that protect from diseases that are widespread in 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."

For diseases transmitted by biting insects such as **West Nile Virus** and **Encephalitis**, all horses are at risk whether they reside at a large boarding stable, work or travel to competitions, or live on a large acreage without exposure to other horses. Veterinarians routinely recommend all horses be vaccinated for West Nile Virus and Encephalitis.

Rabies is spread by the saliva of any infected (rabid) mammal through a bite wound and vaccination for rabies is often considered part of the core vaccines. Many veterinarians will also recommend that all farm dogs and cats remain current on their rabies vaccination to help protect both them and the people and horses around them. (See Fact Sheet VTMD-9127.)

Horses are particularly sensitive to **Tetanus**. Wounds are

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infected by soil contact with the organism, so tetanus is also considered a core vaccine. This disease is often fatal to infected horses. When you purchase a new horse without a history of tetanus vaccination, it is essential to consult your veterinarian regarding protection. Even the smallest of puncture wounds can become deadly if the horse is infected.

Risk Based Vaccination Guidelines

These are vaccinations included in a vaccination program after the performance of a risk assessment by your veterinarian. The use of risk-based vaccinations may vary regionally, from population to population within an area, or between individual horses within a given population. Disease risk may not be readily identified by laypersons; it is important to consult a veterinarian when developing your vaccination program.

Anthrax is a serious and rapidly fatal disease caused by the organism *Bacillus anthracis*. Horses are infected when they ingest, inhale or have a wound contaminated by the soil-borne spores of the organism. Anthrax is encountered only in limited geographic areas where alkaline soil conditions favor survival of the organism. There have been reported outbreaks in Oklahoma. Vaccination is indicated only for horses pastured in prevalent areas.

Botulism is caused by another soil-borne organism, *Clostridium botulinum*. This organism produces lethal toxins that are ingested by horse. Botulinum toxin is very powerful toxin that blocks the transmission of impulses in nerves, resulting in weakness progressing to paralysis, inability to swallow, and frequently, death. Botulism in the horse may be associated with contaminated wounds. Horses may ingest toxin in decaying plant material including improperly preserved hay or haylage, or animal carcass remnants present in the feed. This is sometimes referred to as Forage Poisoning. Ingested organisms can produce Shaker Foal Syndrome in the newborn.

There are several types of **Equine Herpes Virus** that affect horses. Individual strains can attack different systems in the body. Equine herpesvirus type 1 (EHV-1) and equine herpesvirus type 4 (EHV-4) can each infect the respiratory tract, causing disease that varies in severity from sub-clinical to severe and is characterized by fever, lethargy, anorexia, nasal discharge, and cough.

Equine herpesvirus type 1 causes epidemic abortion in mares and the birth of weak nonviable foals. This strain is also responsible for sporadic neurologic disease (equine herpesvirus myeloencephalopathy-EHM) that may cause weakness and paralysis due to its impact on the brain and spinal cord.

Both EHV-1 and EHV-4 are spread via aerosolized secretions from infected coughing horses. The organism can also survive on equipment and clothes and spread from horse to horse. In the case of EHV-1, contact with aborted fetuses, fetal fluids, and placentas is associated with abortions.

Like herpes viruses in other species, these viruses may establish hidden infections in horses, which do not show clinical

signs, but may experience reactivation of infection and shedding of the virus when stressed. Those epidemiologic factors seriously compromise efforts to control these diseases and explain why outbreaks of EHV-1 or EHV-4 can occur in populations of horses. Horses may appear normal for weeks and months, but when stressed begin shedding the virus to expose other horses.

Both viruses are widespread in most equine populations. Most prevention programs use equine herpesvirus vaccines for the prevention of EHV-1-induced abortion in pregnant mares, and reduction of signs and spread of respiratory tract disease (rhinopneumonitis) in foals, weanlings, yearlings, young performance and show horses that are at high risk for exposure. Consult your veterinarian about the frequency and type of Rhino vaccines to use in your herd health program. (See Fact Sheet ANSI-3985 Foaling Management.)

Equine viral arteritis (EVA) is a contagious disease of horses caused by equine arteritis virus, found in horse populations in many countries. While typically not life-threatening to otherwise healthy adult horses, EVA can cause abortion in pregnant mares; uncommonly, death in young foals; and establish a long-term carrier state in breeding stallions.

Historically, outbreaks of EVA have been relatively infrequent. However, the number of confirmed occurrences appears to be increasing, likely attributable to increases in:

- 1) global movement of horses
- 2) accessibility of carrier stallions through fresh or shipped semen

*Cooled and frozen semen can both transmit the virus to a mare. (See Fact Sheets VTMD-9132 and ANSI-3985 Foaling Management.)

Equine influenza is one of the most common infectious diseases of the respiratory tract of horses. It is prevalent in the equine population of the U.S. and throughout much of the world. Equine influenza virus does not constantly circulate, even in large groups of horses, but is sporadically introduced by an infected horse.

Infection can be avoided by preventing entry of the virus into an equine population (i.e. by the quarantine of newly arriving horses for at least 14 days), and by appropriate vaccination before exposure. All horses should be vaccinated against equine influenza unless they live in a closed and isolated facility.

To date, the most important factors associated with increased risk of infection have been identified as age and frequent contact with large numbers of horses. Horses under the age of five are more susceptible, but all horses can be infected when exposed to large amounts of virus at shows or similar athletic events. Equine influenza is highly contagious and the virus spreads rapidly through groups of horses in aerosolized droplets dispersed by coughing. Your veterinarian should be consulted about the type and frequency of your influenza vaccination program. (See Fact Sheet VTMD-9120 Respiratory Diseases in Horses: What You Can Do to Prevent Them.)

Equine monocytic ehrlichiosis / **Potomac Horse Fever** is caused by *Neorickettsia risticii* (formerly *Ehrlichia risticii*). Originally described in 1979 as a sporadic disease affecting horses residing in the eastern U.S. near the Potomac River, the disease has since been identified in various other geographic locations in the U.S. and Canada. The disease is seasonal, occurring between late spring and early fall in temperate areas, with most cases in July through September, at the onset of hot weather.

Clinical signs are variable but may include: fever, mild to severe diarrhea, laminitis, mild colic, and decreased abdominal

sounds. Uncommonly, pregnant mares infected with *N. risticii* (usually in the middle trimester between 90 and 120 days) can abort due to fetal infection at seven months of gestation.

If Potomac Horse Fever has been confirmed on a farm or in a particular geographic area, it is likely that additional cases will occur in future years. Your veterinarian should be consulted about the type and frequency of your PHF vaccination program.

Rotavirus, an RNA virus, is a major infectious cause of foal diarrhea and has been documented to cause 50 percent or more of foal diarrhea cases in some areas. Fifty percent of susceptible foals may become ill when exposed to the virus but the mortality is low (less than 1 percent) with veterinary intervention.

Equine rotavirus is transmitted via the fecal-oral route and damages the small intestinal villi, resulting in cellular destruction, maldigestion, malabsorption, and diarrhea.

As many as 70 percent of all foals in the U.S. will have at least one diarrheal episode prior to weaning. Mare owners need to be aware that strict biosecurity and disinfection during the foaling season also lessens the morbidity associated with most types of infectious foal diarrheas and other contagious diseases.

Vaccination of mares results in a significant increase in foals' rotavirus antibody titers. Field trials of rotavirus vaccination in pregnant mares have shown a decrease in incidence and severity of foal diarrhea on farms that historically had annual rotavirus diarrhea cases. (See Fact Sheet ANSI-3985 Foaling Management.)

Streptococcus equi subspecies *equi* (*S. equivar. equi*) is the bacterium which causes the highly contagious disease **Strangles** (also known as distemper). Strangles commonly affects young horses (weanlings and yearlings), but horses of any age can be infected. Vaccination against *S. equi* is recommended on premises where strangles is a persistent prevalent problem OR for horses that are expected to be at high risk of exposure.

Snake Bite

Venomous snake bite of equids occurs in certain areas of North America. The risk of rattlesnake envenomation may justify the use of *Crotalus atrox* (Western Diamondback Rattlesnake) toxoid vaccine in equids. Pre-exposure vaccination may be recommended for those animals in geographic areas or for those traveling to areas where exposure to venomous snakes justifies vaccine usage.

The organism is transmitted by direct contact with infected horses or sub-clinical shedders, or indirectly by contact with: water troughs, hoses, feed bunks, pastures, stalls, trailers, tack, grooming equipment, nose wipe cloths or sponges, attendants' hands and clothing, or insects contaminated with nasal discharge or pus draining from lymph nodes of infected horses. *Streptococcus equi* has demonstrated environmental survivability, particularly in water sources and when protected from exposure to direct sunlight and disinfectants, and can be a source of infection for new additions to the herd.

Your veterinarian will consider the overall health, age, breeding status, and travel and show plans when designing a program appropriate for your horse. Your veterinarian can provide valuable guidance in the development of an appropriate vaccination program for the horses on your farm.

References

American Association of Equine Practitioners
Infectious Disease Committee
<http://www.aaep.org/> Go to "Owners page."

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