

Equine Vaccination Guide:

*How to help prevent infectious
disease through proper vaccination*



MERCK
Animal Health

You and your veterinarian: The first line of defense

Your horse faces a variety of threats, including infectious diseases.

This guide is designed to give you an overview of the causes of many health problems and how you can help prevent them.

Fortunately, you have a partner to give you expert advice on your horse.

Your veterinarian brings you the combined benefits of medical knowledge, hands-on experience and the latest advances in products and technology specifically focused on keeping your horse healthy. Establish a partnership with him or her today.

The importance of immunization

Equine infectious diseases can attack suddenly and be devastating to your horse — lowering performance levels, causing significant illness and possibly even jeopardizing life. The key to a good infectious disease control program is a good vaccination program developed in conjunction with your veterinarian. Preventing a disease through proper vaccination 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, risk of exposure to infectious agents, and geographic location. Your veterinarian can advise you about the individual requirements of your horse.

If you own more than one horse, it's important that all horses be included in the vaccination program. Just a single unprotected horse in a herd can provide a reservoir of infection to all others.



Fortunately, abnormal or adverse vaccination reactions are rare, and, if they do occur, they are generally mild and self-limiting. It is wise to have your veterinarian administer vaccinations. He or she will be prepared to handle a reaction if one occurs.



Core vaccinations



American
Association
of Equine
Practitioners

Core vaccines have clearly demonstrated efficacy and safety, with a high-enough level of patient benefit — and low-enough level of risk — to justify their use in all horses. These include:

- Eastern/Western Encephalomyelitis (EEE/WEE)
- Rabies
- Tetanus
- West Nile Virus

Eastern/Western Encephalomyelitis (EEE/WEE)

EEE and WEE are viral infections of the horse's brain and spinal cord. The virus is transmitted to the horse by the bite of an infected mosquito. There are two types of equine encephalomyelitis commonly seen in North America – EEE and WEE. A third type, Venezuelan (VEE), is seen in Central America and northern South America but has not been reported in the United States since 1971.

Clinical signs can include:

- Behavioral changes
- Loss of appetite and fever

These can progress in 12 to 24 hours to:

- Dementia with head-pressing
- Teeth-grinding
- Circling
- Blindness
- Ataxia (incoordination)

The disease is fatal in 50 to 90 percent of cases. Surviving horses often have residual mental dullness. Treatment is generally supportive because antibiotics are ineffective.

Why Vaccinate?

1. Successfully prevents disease
2. Less expensive than treating a disease
3. Less down time than treating a disease
4. Helps prevent outbreak of disease to many horses

Rabies

Rabies is an infrequently encountered virus that causes neurologic disease. **But while the incidence of rabies in horses is low, the fatality rate is high.** Because there is no treatment, rabies disease is invariably fatal. And it has considerable public health significance because it can be transferred from animals to humans.

Clinical signs vary widely and can include:

- Colic
- Lameness
- Ataxia (incoordination)
- Incontinence
- Muscle spasms
- Paralysis
- Blindness
- Depression
- Possible aggression

Exposure occurs through the bite of an infected (rabid) animal, typically a wildlife source such as raccoon, fox, skunk or bat. Bites to horses occur most often on the muzzle, face and lower limbs.



Tetanus

All horses are at risk of developing tetanus, an often fatal disease caused by a potent neurotoxin that comes from bacteria called *Clostridium tetani* (*Cl. tetani*).

Spores of *Cl. tetani* survive in the environment for many years, resulting in an ever-present risk of exposure to horses and people. Tetanus is not a contagious disease but is the result of *Cl. tetani* infection of puncture wounds (particularly those involving the foot or muscle), open lacerations, surgical incisions, exposed tissues such as the umbilicus of foals and reproductive tract of the postpartum mare (especially in the event of trauma or retained placenta).

Tetanus toxin affects the horse by causing:

- Rigid paralysis
- Spasms of the muscles (often the jaw muscles are affected first, hence the name “lockjaw”)
- Anxious expression
- Reaction to noises or movements with spasms or convulsions
- Respiratory paralysis and dehydration that can lead to death



West Nile Virus

West Nile virus (WNV) is the leading cause of arbovirus encephalitis in horses and humans in the United States. Transmitted by mosquitoes that can infect horses and humans, WNV has been detected in horses in all 48 continental states, as well as most of Canada and Mexico.

Clinical signs include:

- Ataxia (incoordination)
- Stumbling
- Loss of appetite
- Fever
- Muscle-twitching
- Partial paralysis
- Neurologic signs may include:
 - Head-pressing
 - Inability to stand up
 - Convulsions
 - Possible death

All horses, regardless of geography and lifestyle, should receive core vaccines as outlined by the American Association of Equine Practitioners (AAEP).

The fatality rate for horses exhibiting clinical signs of WNV infection is approximately 33 percent. Data shows that 40 percent of horses that survive the acute illness caused by WNV still exhibit residual effects, such as gait and behavioral abnormalities, six months post-diagnosis.¹

¹Wilson JH, Davis A, Bender JB, Minicucci, LA. Residual Effects of West Nile Viral Encephalomyelitis in Horses. In: 49th Annual Convention of the American Association of Equine Practitioners, 2003, New Orleans, Louisiana, (Ed.)



Risk-based vaccinations

According to the AAEP, risk-based vaccines are administered on the basis of a risk assessment performed by your veterinarian. Criteria can include your horse's age, exposure level and geography. Use of these vaccines may vary among individuals, populations and/or geographic regions.

Influenza (EIV)

Equine influenza virus is one of the most common infectious diseases of the respiratory tract of horses. It is endemic in the equine population of the United States and throughout much of the world. It is highly contagious and spreads quickly because the incubation period is only 24 to 48 hours, and the virus can be transmitted through the air. Coughing can spread nasal droplets more than 200 yards. Horses that are sick for the first time can shed the virus in nasal secretions for as long as seven to 10 days. Indirect transmission of the virus can also occur via hands, clothing and common use articles such as bits, brushes and buckets.

All horses should be vaccinated against equine influenza unless they live in a closed and isolated facility.

Clinical signs include:

- Fever (102.5° to 106.5° F)
- Frequent dry cough
- Nasal discharge
- Lethargy
- Anorexia
- Possible secondary bacterial pneumonia



Equine Herpesvirus (EHV)

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 subclinical (not apparent) to severe. **EHV-4 is typically associated with upper respiratory disease in younger horses, while EHV-1 can cause respiratory disease, late-term abortions, early foal deaths and neurologic disease.** After initial infection, equine herpesvirus remains dormant (latent) in the horse. Stressful events, such as hauling, handling and training, can reactivate the virus, and viral shedding can occur “silently” – without symptoms.

Clinical signs of the respiratory form of EHV-1/EHV-4 include:

- Fever
- Lethargy
- Anorexia
- Nasal Discharge
- Cough

A horse affected by the neurologic form of EHV-1 (equine herpesvirus myeloencephalopathy – EHM) may not show outward signs of respiratory disease associated with EHV-1 but does exhibit fever and depression, in addition to neurologic deficits. Currently, there is not a vaccine labeled to prevent the neurologic form of EHV-1. Vaccination protocols decrease the severity of respiratory disease and reduce nasal shedding and circulating virus in the blood in infected horses, thereby increasing herd immunity.

Both EHV-1 and EHV-4 spread via coughing horses, by direct and indirect contact and nasal secretions and, in the case of EHV-1 abortion, contact with aborted fetuses, fetal/placental fluids and the placenta.

Risk-based vaccines take into account your horse's unique lifestyle.



Strangles (*Streptococcus equi*)

Strangles is a highly contagious disease caused by the abscess-forming bacteria *Streptococcus equi*. Young horses (weanlings and yearlings) are most commonly affected, but horses of any age can be infected. A hallmark of the disease is enlarged, swollen and tender lymph nodes around the head, under the jaw and around the throat latch that frequently abscess, rupture and drain. **Vaccination against *S. equi* is recommended on premises where strangles is a persistent endemic problem or for horses that are expected to be at high risk of exposure. In addition, a good biosecurity plan is paramount in controlling this disease.**

The organism is transmitted by direct contact with infected horses or subclinical shedders, or indirectly by contact with people, water troughs, hoses, feed bunks, pastures, grooming equipment and even insects contaminated with nasal discharge from infected horses. The bacteria itself is hardy and survives in a moist environment and organic debris such as manure for up to six to seven weeks.

Clinical signs may include:

- Fever (102° to 106° F)
- Difficulty swallowing or anorexia
- Harsh, high-pitched breathing sound
- Swollen lymph nodes (with or without abscess)
- Abundant nasal discharge with mucous and pus

Other risk-based diseases

Potomac Horse Fever (PHF)

Originally described as a sporadic disease affecting horses residing in the eastern United States near the Potomac River, PHF has since been identified in various other geographic locations in the United States and Canada.

If PHF has been confirmed on a farm or in a particular geographic area, it is likely that additional cases will occur in future years. Foals appear to have a low risk of contracting the disease.

Equine Viral Arteritis (EVA)

While typically not life-threatening to otherwise healthy adult horses, EVA can cause abortion in pregnant mares and, uncommonly, death in young foals; it can also establish a long-term carrier state in breeding stallions.

Rotavirus

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

Vaccination of mares results in a significant increase in foals' rotavirus antibody titers. Rotavirus is generally not an issue for otherwise healthy adult horses.

For more information on other risk-based diseases, including anthrax, botulism, leptospirosis and snakebite, talk to your veterinarian or visit AAEP.org and click on vaccination guidelines.



Special care for broodmares

Broodmares should be placed on specific vaccination programs that include equine herpesvirus type 1 (EHV-1). This is the leading cause of infectious viral abortions in mares.

Vaccinate your pregnant mare with Prodigy® at the start of months 5, 7 and 9 of gestation. All horses in close contact with broodmares — such as barren mares, stallions and teaser stallions — should also be maintained on a rigorous EHV-1 vaccination program. It's also important to reduce your pregnant mare's exposure to groups of young horses and any new arrivals that may be shedding EHV-1.

Booster your mare 4 to 8 weeks prior to foaling against the following diseases in order to produce high levels of protective antibodies that can be passed on to her newborn foal through colostrum:

- Eastern/Western Encephalomyelitis (EEE/WEE)
- Tetanus
- West Nile Virus (WNV)
- Rabies (if not administered pre-breeding)
- Equine Influenza Virus (EIV)
- Equine Herpesvirus (EHV-1 and EHV-4)

Vaccination against strangles, Potomac horse fever, botulism and rotavirus is recommended only if there is a high risk of disease in your region or on your farm. Consult with your veterinarian to determine if these vaccines are indicated for your mare.

Just for foals

At birth, foals inherit immediate disease protection through their vaccinated dams' colostrum. Eventually these maternal antibodies decline and vaccines help the foal add needed protection.

Work with your veterinarian to develop a customized vaccination schedule that takes into account your region of the country, endemic diseases on your farm and your foal's risk of disease exposure.

To learn more about vaccinations for foals, go to AAEP.org and click on vaccination guidelines.



For horses that travel

If your horse participates in horse shows or competitive events, you must take these travel plans into consideration when you decide on an immunization program. Certain vaccines will be important if your horse is exposed to other horses from many locations.

Equine herpesvirus and equine influenza vaccinations are essential to protect any horse that travels regularly and/or is exposed to other horses. These vaccinations should be given at least 2 weeks prior to the event so that your horse will have time to develop immunity. If you are using an intranasal equine influenza vaccine, such as Flu Avert® I.N., it can be administered just 5-7 days before the event.

Five Biosecurity Tips You Can Implement Today

1. Include all horses in your vaccination program.
2. Monitor your horse's temperature daily. An elevated temperature is often the first sign of disease.
3. Practice good hand hygiene — wash hands after you touch one horse before touching another.
4. Minimize nose-to-nose contact and avoid use of communal equipment and water sources.
5. Separate and monitor horses post-travel, as well as new arrivals.



Vaccines are not all the same

At Merck Animal Health, we have two unique reasons our vaccines have low reaction rates and high degrees of effectiveness — our Antigen Purification System™ and Havlogen® adjuvant.

Antigen Purification System™

A vaccine must be safe. Our technology, known as the Antigen Purification System (APS), has been utilized for more than 20 years for removing unwanted protein and cellular debris from the vaccine antigen. By purifying the vaccines in this method, we reduce the debris that can cause undesirable injection site reactions in the horse.

Exclusive Havlogen® Adjuvant

Our killed vaccines are highly effective because of our exclusive Havlogen adjuvant. Havlogen produces a booster effect, stimulating high, long-lasting protection through the slow release and gradual absorption of antigens. Because of Havlogen, the vaccine stays in suspension and doesn't settle to the bottom of the vial — for consistency and potency in every dose.

By combining our APS system and Havlogen adjuvant, we are able to produce a line of killed virus vaccines that are highly effective and have an exceptional safety profile – shown to be 98 percent reaction-free in field safety trials.²

² Data on file, Merck Animal Health.



“The only thing a vaccine should provide is protection. That’s why Merck uses state-of-the-art technology in all its products to minimize the risk of reactions and provide consistency in each and every dose.”

D. Craig Barnett, D.V.M.
Director of Equine Veterinary Technical Services
Merck Animal Health

Unwanted Horse Veterinary Relief Campaign



With every Merck Animal Health vaccine purchased, we donate vaccines to help provide care for horses in need through the Unwanted Horse Veterinary Relief Campaign (UHVRC). A nonprofit partnership between Merck Animal Health and AAEP, the UHVRC provides qualifying equine rescue and retirement facilities with complimentary equine vaccines for horses in their care. Since the program's inception, we have provided more than 25,000 doses of vaccine to horses in rescue. To learn more, visit UHVRC.org.

We stand by our vaccines

Every Merck Animal Health vaccine is backed by our **Equine Vaccine Performance Guarantee**, which provides up to \$5,500 in reasonable diagnostic and treatment costs for any horse properly vaccinated by a veterinarian that contracts EEE, WEE, VEE, EIV, WNV, rabies, tetanus or respiratory disease caused by EHV-1 and/or EHV-4. Ask your veterinarian for more information.



The Science of Healthier Animals[®]

At Merck Animal Health, we are driven by one mission — to help horses live long, healthy and productive lives. Our products, our research and our horse owner programs are all focused on providing a better life for our equine companions and better medicine for the veterinarian. Our vaccines are safe, convenient and, of course, effective.

For more information,
visit GetVaccinatingRight.com.



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