



Equine Vaccination Programs

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Vaccinations for horses save money—and lives. For relatively little investment, vaccinations for horses prevent diseases that cost considerably more to treat. While your local veterinarian should be consulted for the best vaccination program for your particular situation, the list below describes important equine diseases that vaccines can prevent.

Tetanus

Cause—Tetanus is caused by a bacteria, *Clostridium tetanus*, found in the soil. The bacteria usually enters the body through a wound, such as from a wire cut or a puncture. The bacteria produces a toxin that affects the horse's nervous system. Horses are very susceptible to tetanus, and the disease is fatal to more than 80 percent of the affected horses.

Symptoms—Signs of this disease include lameness, stiffness, inability to eat ("lockjaw"), protrusion of the third eyelid, and distortion of the muscles of the face (sardonic grin).

Preventive Treatment—Two products are available: (1) tetanus antitoxin—gives immediate but short-lived protection and is given to unvaccinated horses that have a wound, to newborn foals from unvaccinated mares, and to unvaccinated mares at parturition; (2) tetanus toxoid—gives long acting protection but adequate protection takes two week to develop after the initial vaccination series is given. Tetanus toxoid is given as two shots, one month apart, followed by a yearly booster. Foals can be given the vaccine at three to five months of age then a booster one month later followed by a yearly vaccination. Pregnant mares should be given tetanus toxoid one month before foaling and any vaccinated horse with an injury or about to have surgery should be given a booster. *The preferable method of protecting horses from tetanus is the toxoid. Tetanus antitoxin, in rare instances, can possibly cause fatal serum sickness and should only be used in unvaccinated horses.*

Rhinopneumonitis

Cause—Equine Rhinopneumonitis is recognized as several different disease syndromes caused by two different herpes viruses that are fairly common in most horse populations.

Symptoms—Both viruses can cause respiratory disease with clinical signs such as coughing and a clear nasal discharge. One of the herpes viruses also causes abortion, stillborn, or weak foals (that only live a short time after birth) and a paralytic neurologic problem. Mature horses usually

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develop an immunity to the respiratory form of the disease but not to the abortogenic or neurogenic forms.

Preventive Treatment—Rhinopneumonitis vaccines are recommended to prevent abortion in pregnant mares and the respiratory disease in young horses. Label recommendations for pregnant mares are to vaccinate during the 5th, 7th, and 9th months of gestation. To protect foals against the respiratory form of this disease, it is recommended to administer a three dose primary series starting at 2-4 months of age vaccinating at monthly intervals. This initial vaccination series is followed by boosters every 2-3 months. Since immunity to this virus is short-lived, some veterinarians will vaccinate foals, young horses, and performance horses (basically any horse at high risk for exposure to infected horses) at 2-3 month intervals.

Influenza

Cause—Influenza virus is one of the most common causes of respiratory disease in horses.

Symptoms—The disease is extremely contagious with the typical clinical signs being fever, clear nasal discharge, coughing, and loss of appetite. Damage caused by the virus may predispose the horse to secondary bacterial infections of the respiratory tract or to chronic obstructive pulmonary disease ("heaves").

Preventive Treatment—Vaccination is helpful in preventing influenza but the protection is short-lived (3-4 months), so the frequency of vaccination varies according to how often the horse will likely come in contact with the virus. Horses with very little risk of exposure to the virus will need an initial vaccination followed by a booster in 3-4 weeks along with a yearly booster. Horses in contact with a large number of horses, for example at a boarding stable, training centers, racetracks, shows, and other such events, should be vaccinated every 2-3 months. Foal vaccinations should begin at 3-6 months of age, with a booster at 4-7 months, again at 5-8 months, and repeated every three months if the foal is at high risk of exposure. A three-dose primary series has been shown to induce a higher and more persistent immunity than the recommended two-dose series regardless of the age. The serologic response of foals born to mares vaccinated more than once a year may be blocked for up to 24 weeks by the maternal protection provided by colostrum. Therefore, these foals should not receive their first influenza vaccination before 6 months. Pregnant mares need to be vaccinated one month before foaling.

Strangles

Cause—Strangles is a highly contagious upper respiratory disease caused by *Streptococcus equi*. *Streptococcus equi* is transmitted through direct contact or environmental contamination of discharges from infected horses.

Symptoms—This disease occurs in horses of all ages but horses 1-5 years of age are more susceptible. Clinically affected horses may show the following signs: acute fever (103-106°F), nasal discharge, moist cough, loss of appetite, difficulty in swallowing, and abscesses of the lymph nodes under the jaw (which usually break and drain pus 10-14 days after onset of clinical signs). Some horses may develop pneumonia or internal abscesses (“bastard strangles”).

Preventive treatment—Since strangles is so highly contagious, horses need to be isolated as soon as early clinical signs suggest the horse may be infected. To prevent this disease, strict quarantine is recommended for all new arrivals on a farm for at least 2 weeks. Also, primary vaccinations should be administered in 2-3 doses, at intervals 2-4 weeks apart (depending on the product used to vaccinate), followed by an annual booster. There have been reports of vaccine failure and abscesses occurring at the injection sites. As a result, this vaccine is best given under the supervision and advice of a veterinarian familiar with the horses or farm having problems with strangles. Research on efficacy of this vaccine suggest clinical infection rate is decreased by 50% in vaccinated versus unvaccinated horses. For the vaccinated horses that develop a clinical infection, the vaccine helps to reduce the severity and duration of strangles.

Equine Viral Arteritis

Cause—Equine Viral Arteritis (EVA) is a viral disease of horses that can cause severe outbreaks of respiratory disease and abortion. Transmission of EVA occurs through inhalation of the virus, exposure to virus contaminated objects, or environment. Venereal transmission also occurs; a high percentage of infected stallions become chronic carriers shedding virus for a variable length of time. Even though the virus has a worldwide distribution, outbreaks are uncommon. However, the EVA vaccine has been used to control outbreaks.

Symptoms—Clinical signs can be quite variable among, both horses and separate outbreaks. Clinical signs may include any combination of the following: fever, depression, loss of appetite, excessive tearing, diarrhea, clear nasal discharge, and coughing. Other signs that have been reported include edema or swelling of the legs, body, head, and scrotum (stallion) along with abortion (pregnant mares).

Preventive Treatment—The vaccine may provide complete to partial protection against clinical signs of EVA. The vaccine is given on an annual basis; stallions and mares need to be vaccinated three weeks before breeding. Pregnant mares should not be vaccinated during the last 2 months of pregnancy. The vaccine has also been given to control outbreaks of the respiratory form of EVA in concentrated populations of performance horses. Some countries will not allow horses that carry a vaccine titer to EVA to enter their country. *Check with your local veterinarian if you have questions concerning the need for vaccinations on a farm or about export regulations.*

Rabies

Cause—The occurrence of rabies in horses is very low; but, in horses, the disease is fatal. Since rabies is also of public health significance, vaccinations are recommended for horses kept in rural wooded areas where rabies is prevalent in the wildlife population.

Preventive Treatment—Only use a rabies vaccine approved for use in horses with an annual revaccination. Foals should be vaccinated starting at 3-4 months followed by a second dose at one year of age with an annual revaccination.

Potomac Horse Fever (Equine Monocytic Ehrlichiosis)

Cause—Potomac Horse Fever (PHF) is caused by the ehrlichial parasite, *Ehrlichia risticii*. The disease is most common in the eastern United States but has now been identified in many regions of the United States, Canada, and elsewhere. The occurrence of PHF is seasonal, occurring primarily between late spring and fall in the more temperate areas of the country, with the majority of the cases occurring during the summer months. It is generally thought but not proven that insects such as ticks or mosquitoes are involved in the transmission of this disease.

Symptoms—Clinical signs of a horse affected with PHF will include fever, loss of appetite, and mild gastrointestinal signs varying from a mild colic to a profuse diarrhea.

Preventive Treatment—Horses traveling or living in endemic areas (areas where confirmed cases of PHF have occurred) should be protected by vaccination. The vaccine is given in a two dose primary series administered 3-4 weeks apart. A revaccination in 4-6 months is recommended in highly endemic areas because protection is short-lived. A three dose primary series may be needed for foals starting at 3-4 months of age. Pregnant mares need to be vaccinated twice a year with one dose timed 4-6 weeks before foaling.

Encephalomyelitis (Eastern/Western)

Cause—In the U.S., encephalomyelitis in horses is caused by either the eastern (EEE) or western (WEE) equine encephalomyelitis virus. The eastern or western encephalitis virus is probably transmitted from asymptomatic wild birds and rodents to horses by biting insects like mosquitoes.

Symptoms—Infected horses may exhibit: fever, drowsiness, seizures, or blindness.

Preventive Treatment—The disease is generally fatal, especially in the case of eastern encephalomyelitis. Prevention of viral encephalitis includes insect control and vaccination. Primary vaccination of unvaccinated horses involves two doses of vaccine 3-4 weeks apart. Horses should receive an annual revaccination in the spring before mosquito season. Pregnant mares need to be given a booster at 4-6 weeks before foaling.

West Nile Encephalitis

Cause—West Nile Encephalitis is caused by a mosquito-borne virus. Mosquitoes become infected with the West Nile Virus (WNV) by feeding on infected wild birds. Occasionally infected

mosquitoes can transmit the virus to people and horses when biting to consume blood.

Symptoms—WNV infects the central nervous system of animals and people. The clinical course of this disease typically progresses from nonspecific signs such as fever, loss of appetite, and depression to severe neurological signs. These signs may include behavior changes, ataxia (wobbliness), head pressing, excitability, teeth grinding, muscle tremors of face or neck, blindness, inability to swallow, seizures, and coma. Infection with this virus though does not always cause illness.

Preventative treatment—Mosquito control and vaccination of horses may significantly reduce the incidence of this diseases (Refer to OSU Extension Fact Sheet F-3925 for more information on WNV prevention and mosquito control).

Vaccines are labeled to provide protection for one year after the appropriately timed vaccination series (initial dose and second booster in 4-6 weeks). Even though the USDA approved label is for once yearly boosting of vaccines after the initial series, many experts recommend an additional booster be given around July/August prior to the peak of mosquito season or twice yearly booster timed appropriately. A typical vaccination schedule for a foal may vary with the particular West Nile vaccination product utilized and if the foal is born from a non-vaccinated or vaccinated mare. The vaccine is restricted to veterinary use only. Contact your local veterinarian about the appropriate timing for WNV vaccinations in the area of Oklahoma that your horses live. It is important to maintain accurate vaccination records for each horse receiving the vaccine.

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