

Control of Common Infectious Horse Diseases

Planning a disease prevention program for your horse is an important aspect of horse management. Infectious diseases can result in losses for the horse owner through increased veterinary fees, loss of revenue from sales and shows, and loss of use or death of the animal. Additionally, since many horses are kept as recreational animals, there is often an emotional cost when the animal becomes ill or dies. Fortunately, most common infectious horse diseases can be controlled through routine health care and vaccination programs.

General Health Care Guidelines

Health care and vaccination programs vary slightly according to the age, use, and housing of the horse. But every horse, regardless of these factors, should be vaccinated yearly for tetanus (lockjaw) and eastern and western equine encephalomyelitis (sleeping sickness). Your veterinarian can help you plan additional vaccinations to suit your horse's needs. Most vaccination programs begin with more than one injection to build up antibody titers high enough to prevent the disease. Your veterinarian can see to it that your horse gets the proper vaccination doses at the proper time intervals to ensure disease prevention.

A healthy horse is usually alert, active, and responsive to noises and visual stimuli. Either a dull attitude or extreme excitability may indicate illness. Healthy horses usually try to remain with the herd, while sick or injured horses often stay separated from their group. Horses that are given proper nutrition should stay in good flesh and have shiny coats. In most cases, a healthy horse will eat feed offered to it. Refusal of feed or rapid or extreme weight loss may be a sign of illness. Other signs of illness include elevated temperature and elimination changes. The normal rectal temperature for an adult horse is approximately 100.5 degrees F. High environmental heat, humid conditions, and exercise usually increase a horse's temperature; such change is normal, not a sign of illness. On the other hand, a rectal temperature that remains above 103 degrees F for more than a few hours often indicates illness. Horses normally defecate every 2 to 3 hours and urinate every 4 to 6 hours. Color and consistency of fecal balls will vary according to the diet of the animal, but any sudden change may be a sign of illness. Watch for changes in defecation pattern or consistency or frequent or straining urination.

If you suspect illness in your horse, you should call your veterinarian. Prompt treatment usually lessens the severity and duration of the disease. A veterinarian should definitely be consulted if:

- The horse's rectal temperature is 103 degrees F or higher in the absence of exercise.
- The horse has a frequent, deep cough or a chronic cough.
- The horse is noticeably depressed or shows any abnormal behavior or posture.
- The horse is off feed.
- The horse has a thick nasal discharge.
- The horse shows any sign of colic (abdominal pain) such as frequent rolling, kicking, biting at the belly, and sweating. Either severe diarrhea or failure to pass manure can indicate colic or disease.
- The horse is severely lame or injured, or the horse is mildly lame for over 5 days.
- The birth process in the mare takes longer than 20 minutes after her water breaks, or she has hard contractions without any visible signs of progress.
- The horse has an eye injury.

Common Infectious Diseases

Tetanus. Tetanus, or lockjaw, is caused by a bacterial toxin. The bacteria is normally found in the soil and in the feces and intestinal tracts of horses. However, these bacteria can enter the horse's tissues through a wound or the naval stump of a newborn foal. Reduced oxygen in these areas may allow the bacteria to multiply and produce toxins that result in tetanus. While tetanus is normally associated with deep puncture wounds, any wound that has healed over may produce conditions that cause tetanus.

Usually, the first symptom of tetanus is the third eyelid protruding upward from the inner corner of each eye so that it covers one-third to one-half of the eye. The horse's head and neck may also appear stiff. As the disease progresses, the horse develops stiffness all over its body, and it has difficulty moving and turning. The horse usually stands in a "sawhorse" position with its legs extended, and it may seem nervous and excitable. Noises may cause general muscular spasms.

Most cases of tetanus in horses are fatal, but the disease can easily be prevented by a yearly vaccination with tetanus toxoid. Horses that have not been immunized can be protected temporarily by a tetanus antitoxin injection. However, the antitoxin is not a substitute for routine vaccinations. Horses may get many small, unnoticed wounds that can allow tetanus to develop.

Equine Encephalomyelitis. Equine encephalomyelitis (sleeping sickness) is a nervous system disease that can be caused by several different strains of virus. In Alabama, the eastern and western strains are the primary causes of equine encephalomyelitis. Eastern equine encephalomyelitis (EEE) and western equine encephalomyelitis (WEE) are transmitted from infected animals, such as wild birds and rodents, to healthy horses primarily by mosquitoes. The horse is considered a terminal host for WEE and EEE—that is, the disease cannot be passed on from an infected horse to another animal.

The first signs of encephalomyelitis in the horse are usually severe depression and a high fever (104 to 106 degrees F) for 1 to 2 days. The horse may then go through a period of excitement in which it appears nervous, blind, and uncoordinated. Infected horses may also show involuntary muscle tremors, yawning, and grinding of the teeth. A quiet period in which the horse appears depressed and drowsy follows the period of nervous activity. The horse may press its head against a solid object, and it eventually becomes completely paralyzed.

The mortality rate from equine encephalomyelitis varies according to the viral strain infecting the horse. Many horses that do recover are useless due to brain damage caused by the disease. Annual vaccination will prevent encephalomyelitis in horses. In areas with a long mosquito season, spring and fall vaccinations are usually recommended. Mosquito control is also helpful in preventing equine encephalomyelitis outbreaks.

West Nile Virus. West Nile Virus (WNV) causes encephalitis (inflammation of the brain) and interferes with central nervous system functioning. There are many signs of WNV infection in horses. Affected horses may be depressed and off-feed. They often have muscle tremors and may have convulsions. Some experience hypersensitivity and are easily startled by noise or touch, and others seem drowsy and less reactive than normal. Other signs include walking continuously without purpose or control, circling, exhibiting lack of coordination, and experiencing paralysis, especially in the hind legs. Signs of WNV infection are often similar to those of other diseases, including equine protozoal myelitis (EPM), eastern equine encephalomyelitis (EEE), and rabies. Any horse that seems depressed or shows any neurological signs should be examined by a veterinarian immediately.

West Nile Virus is transmitted by mosquitos. Usually the disease is passed from an infected bird to an uninfected bird via mosquito. Horses also get the disease from mosquitos. Horses are incidental (dead end) hosts because they cannot produce enough of the virus to pass the virus to another animal (mosquito, horse, human). Therefore, horses with the disease do not need to be isolated from other horses or from humans.

West Nile Virus is not as deadly to horses as are other encephalitic diseases, such as EEE. Only about 33 percent of horses that contract WNV die or are put down because of the disease. Most horses that contract the disease can recover with appropriate veterinary and nursing care. However, recovery is slow and effects of WNV infections may be present several years after contraction of the disease. The prolonged period of extra care may be costly in terms of time and money.

Even though the WNV vaccine is expensive compared to many of the other commonly administered equine vaccinations, it is probably cost-effective in the long run.

Two different types of WNV vaccines are approved to give horses effective protection against the virus. It is very important that horses initially receive two doses of the vaccine at the time interval recommended by the vaccine manufacturer. Maximal protection does not occur until several weeks after the second vaccination.

Alabama's mild winters create ideal conditions for WNV to become a year-round problem with more intense outbreaks in the summer and fall (similar to EEE outbreak patterns). Most veterinarians currently recommend that horses in Alabama receive spring and fall booster vaccinations after the initial two-dose vaccine series. This procedure enables horses to maintain a high level of antibodies against WNV.

Equine Infectious Anemia. Equine infectious anemia (EIA), also known as swamp fever or Coggins disease, is a viral disease that destroys red blood cells. The disease is transmitted by the introduction of body fluids, usually blood, from infected horses into healthy horses. The virus is transmitted by:

- Blood-sucking insects and lice
- Nonsterile needles, surgical instruments, and dental floats
- Improperly cleaned bits

Once infected, horses harbor this virus for life in their blood and body tissues.

Symptoms of EIA are a high intermittent or continuous fever (105 to 108 degrees F), depression, reduced appetite, rapid or chronic weight loss, weakness, anemia, loss of coordination, and edema (fluid swelling) along the abdomen, sheath, and legs. Horses infected with EIA can be classified into one of three categories according to severity:

1. Acute. Acute EIA is characterized by a sudden, severe attack of the virus. Acutely infected horses usually die within 14 days.

2. Subacute or Chronic. Horses with subacute EIA also experience a severe attack of the virus. However, they appear to recover after 1 to 3 weeks. They often remain free of the symptoms of the disease for weeks or months but may have relapses of increasing severity. Subacutely infected horses appear unthrifty, have a rough hair coat, lack stamina, and are anemic.

3. Carriers. Carriers appear to completely recover from the initial attack; however, they are still capable of transmitting the virus to healthy horses.

There is no vaccine or effective treatment for EIA. However, infected horses produce antibodies to the virus that can be detected in a diagnostic test commonly known as the Coggins test (after its developer, L. Coggins). Research has shown that the Coggins test and newer diagnostic tests are reliable and accurate diagnostic tools to identify horses carrying the virus. Once a horse tests positive for the EIA virus, it will test positive for the rest of its life. The exception to this rule is young foals. They may test positive at an early age if they have absorbed antibodies from their infected dam's colostrum, but they may test negative later. Control of EIA depends on:

- Identifying positive horses through diagnostic tests and isolating or destroying positive horses to prevent spread of the virus
- Properly sterilizing instruments and equipment used on more than one horse
- Controlling biting insects and lice

Equine Influenza. Equine influenza is a viral disease of horses that has many characteristics of influenza in humans. Equine influenza is spread through inhalation of droplets of infective material. Horses with influenza usually have a dry, hacking cough that increases the spread of the virus in areas where horses are concentrated, such as at public stables, shows, and sales.

Symptoms of equine influenza are the onset of a sudden fever (103 to 106 degrees F), a dry cough, a watery nasal discharge, weakness, stiffness, loss of appetite, and depression. Some horses develop only a mild case of influenza, and symptoms may go unnoticed. Others may develop a severe infection and remain ill for weeks.

Equine influenza is rarely fatal, but horses weakened by the virus can develop serious complications such as pneumonia, emphysema, or chronic bronchitis. There is an effective vaccine for equine influenza, and generally it is recommended for horses kept in high-risk situations (large groups with frequently changing members).

Equine Viral Rhinopneumonitis. Equine viral rhinopneumonitis, commonly called rhino or viral abortion, causes mild upper respiratory infections and may cause abortions in pregnant mares. The virus is transmitted through direct contact with infected horses or infected aborted fetal material and through inhalation of droplets of infective material.

Symptoms of rhinopneumonitis include a watery nasal discharge, congestion, and fever (102 to 105 degrees F). Respiratory symptoms are more noticeable in young horses, and rhinopneumonitis can lead to serious secondary infections. However, the most serious losses from the disease are the abortions caused in pregnant mares. Abortions may occur up to 4 months after the respiratory symptoms are seen. In older horses, the respiratory symptoms may be so mild that they go undetected. Often an "abortion storm" is the first indication that horses have had rhinopneumonitis. Viral abortions occur most frequently during the last trimester of pregnancy.

There are effective vaccines against rhinopneumonitis that control both respiratory infections in young horses and viral abortions in mares. The duration of immunity given by the vaccines is usually short, so pregnant mares are generally vaccinated at 5, 7, and 9 months of pregnancy with a vaccine labeled to prevent abortions. Consult your veterinarian for the most effective use of this vaccine in your herd.

Strangles. Strangles, sometimes called shipping fever, is a contagious respiratory disease. Symptoms include a thick, yellow nasal discharge and swelling and abscessing of the lymph nodes under the jaws. The disease is spread when the nasal discharge or material from the draining abscess contaminates pastures, barns, feed troughs, etc. Young horses are the most susceptible to strangles, and many horses seem to have a lifetime immunity after recovering from the disease.

Besides the nasal discharge and enlarged lymph nodes, horses with strangles often have a high fever (104 to 106 degrees F), are depressed, and are not eating. Some horses become very ill with the disease, and others show no obvious symptoms other than swelling and rupture of the lymph nodes under the jaw. With severe infections, lymph nodes other than those under the jaw may be affected. Abscesses may occur in lymph nodes surrounding the internal organs or near the body surface in a condition called "bastard strangles." Abscesses in the internal organs usually result in death of the horse.

The mortality rate from strangles is usually low. However, the disease can severely debilitate horses. A vaccine is available, and although it does not always prevent the disease, it does seem to lessen the severity of outbreaks. Because of the limited effectiveness of the vaccine and because outbreaks of the disease are sporadic, consult your veterinarian about using the vaccine in your situation. Isolation of new horses for 4 to 6 weeks, immediate isolation of infected horses, and disinfection of stalls, water buckets, feed troughs, and equipment will help prevent strangles.

Rabies. Rabies is a viral infection of the central nervous system that can affect any warm-blooded animal. However, it is not common in horses. Rabies can be transmitted to horses from the bite of an infected animal such as a skunk, raccoon, fox, dog, or bat. Because a curious horse may push at rabies-infected animals with its nose, bite wounds often occur on the horse's muzzle and face. Any horse with noticeable bite wounds or any horse that has been sprayed by a skunk should be monitored closely for behavioral or physical changes for the next 3 months.

Rabies symptoms in horses vary greatly. Lameness, paralysis, grinding of the teeth, blindness, viciousness, colic, and inability to swallow are all symptoms of the disease in horses. However, often there is no sign, and the horse is found dead.

There are effective rabies vaccines for horses. The incidence of rabies in your area and your horse's housing situation will help your veterinarian decide whether to vaccinate for rabies.

Potomac Horse Fever. Potomac horse fever (PHF) was first recognized as an equine disease in 1979 near the Potomac River in Maryland. Since then, the disease has spread to 32 states and Canada. Potomac horse fever has not been confirmed in Alabama. The disease is a bacterial infection of the blood and tissues. It is thought to be transmitted between horses through arthropod vectors such as ticks, lice, mites, and fleas. Antibodies have been found in cats, dogs, foxes, rabbits, and mice. These animals may serve as carriers of the disease.

Potomac horse fever infections occur in two stages. First, the horse has a slight fever (101 to 102 degrees F), depression, and possibly a reduced appetite. It is often difficult to detect the disease in this phase. Several days to a week later, a more severe phase begins. Symptoms include a high fever (up to 107 degrees F), depression, and decreased gut sounds. The horse often develops a profuse, watery, projectile diarrhea that may last for up to 10 days. If untreated, the diarrhea may lead to dehydration, shock, and death. Horses with PHF may also

develop laminitis (founder), colic, and edema (swelling) under the skin.

Potomac horse fever can be detected through laboratory tests that identify the presence of the antibodies to PHF in the horse's blood. Horses infected with PHF can be treated with antibiotics, antidiarrheal agents, and fluid replacement therapy. Generally, the earlier the veterinary care is started, the more successful the outcome. There is a vaccine available that protects horses from PHF. Also recommended is routine use of pesticides that control arthropods.

Equine Viral Arteritis. Equine viral arteritis (EVA) is a disease that affects a horse's upper respiratory tract and causes arterial damage and abortions. Equine viral arteritis is transmitted easily between horses through contact with infected airborne droplets, nasal secretions, and semen.

Horses with EVA develop a fever and nasal discharge, similar to the symptoms of rhinopneumonitis and influenza. They may also exhibit depression, labored breathing, and coughing. The most consistent symptoms of the disease are congestion and swelling of the mucous membranes, especially in the eye, and swelling of the lower legs, abdomen, and sheath. Abortion of pregnant mares usually occurs late in the course of the disease or during the early days of recovery. The abortion rate is approximately 50 percent, and horses with severe infections may suffer permanent arterial damage.

An effective vaccine is available, but it usually is administered only in areas where EVA is known to be a problem. Your veterinarian can advise you about the need for vaccination in your area.

Equine Protozoal Myeloencephalitis. Equine protozoal myeloencephalitis (EPM) is a disease caused by the protozoan *Sarcocystis neurona*. The parasite's normal life cycle does not include the horse; therefore, the horse is a dead-end host that cannot spread the disease.

Horses ingest the protozoan through contaminated feces of an infected animal (the opossum is thought to be the natural host and birds the intermediate hosts). In most horses, the only effect is that the horse's blood tests positive to antibodies to the disease, indicating that the horse has been exposed to the parasite. However, in a very small percentage of horses, the protozoan travels to the brain or spinal cord, causing a variety of neurological signs. These signs usually are not the same on both sides of the body and can range from toe dragging, incoordination, a drooping eyelid or lip, to complete recumbency and death.

There is no vaccine for EPM; however, there are treatments for the disease. The current antibiotic treatment is expensive, and many horses relapse after treatment is

stopped. However, more effective treatments are being developed. Horses that exhibit signs of neurological disease can be tested for EPM through analysis of spinal cord fluid. Control measures for EPM include controlling opossums around horse facilities. Store feed in sealed containers, and check it for opossum droppings (similar in appearance to cat feces) before feeding it to horses. Also check outdoor feed and water frequently for contamination. Discourage opossum traffic through paddocks by installing a low electric wire or wire mesh fencing that is buried about 6 inches underground.

General Disease Prevention

In addition to the diseases discussed in this publication, there are many other diseases and health problems that affect horses. This publication is not intended to replace veterinary consultation or health care. Its intention is to make horse owners aware of some common infectious diseases of horses. Veterinarians can give horse owners the most current information about equine diseases and can help horse owners design vaccination programs that fit their specific management situations.

However, by following good general health management practices, horse owners can prevent many health problems. Using the following general guidelines should promote effective horse health programs.

- Observe horses daily for any changes in appearance, posture, or behavior.
- Maintain accurate records.
- Follow your veterinarian's guidelines for continuous vaccination and deworming programs.
- Reduce insect populations in stable and pasture areas through the proper use of insecticides and manure and debris disposal practices.
- Always thoroughly clean and disinfect dental equipment, tattooing instruments, and other equipment after use on each animal. Use a clean disposable needle on each animal.
- Avoid exposing horses to infected animals. Isolate new horses and sick horses.

Many horse owners do not take all these precautions. For example, it is common practice to take a blanket or girth off of one horse and put it on another one rather than keeping each horse's tack separate. However, an ounce of prevention may indeed be worth a pound of cure. Following these guidelines can help greatly in reducing the incidence of infectious diseases in your horse or herd.



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