Equine Infectious Diseases & Prevention

Maximizing your own knowledge of horse health enables you to make intelligent decisions that save you money while providing the best care for your horses. Understanding the fundamentals of equine infectious disease and vaccination is an important part of that.

In the world of infectious diseases, things are constantly changing. Diseases wax, wane, and evolve over time in response to poorly understood and complex biologic pressures. The battle to control these agents is also ever changing as we learn more about the diseases and develop new vaccines and control methods. Vaccine types and availability change frequently as well. This article summarizes my current perspective on equine infectious disease prevention. See also Deciding When to Use "Risk-Based" Vaccines.

FUNDAMENTALS

Bacterial and viral organisms commonly cause infectious (contagious) disease in horses. These organisms, called "infectious agents" are transmitted in many different ways (specific to the agent) from direct contact between horses to transmission by insects. Whether or not a horse becomes infected in a given situation depends on a balance of several factors including:

- *The animal's susceptibility to the disease*: A combination of genetics, health, general immunity and immunity to the specific disease in question (altered by vaccination). Good general health is critical to a functioning immune system and disease prevention.
- *The characteristics of the infectious agent:* This includes how potent and contagious the infectious agent is, how high a dose of the agent contacts the horse, and

the mode by which this dose is presented (ingested, inspired, etc..).

Prevention of infectious disease thus involves much more than just vaccination. Smart management means keeping horses in excellent general health, maintaining specific immunity through appropriate vaccination, and reducing exposure to infectious disease agents by understanding how they spread.

The American Association of Equine Practitioners (AAEP) regularly publishes updates and guidelines for horse owners and veterinarians regarding recommended vaccines. You can find these recommendations and a variety of other helpful information at www.aaep.org. Generally, I agree with the AAEP's recommendations, but I always seek to customize them based on a client's unique needs. Specific protocols also should be followed with pregnant mares and foals. They have special vaccination requirements.

CURRENT STATUS OF SOME EQUINE DISEASES & VACCINE RECOMMENDATIONS

West Nile Virus has been a severe problem for the horse industry since the first cases in the U.S. on the East Coast in 1999. It spread rapidly westward over the next few years, killing large numbers of birds, horses and some people. The peak incidence in New Mexico occurred in 2003. There were hundreds of cases in New Mexico that year and our practice treated a very large number of cases. Since then, West Nile infection has become less common in our area, but it is now considered endemic (established permanently) throughout the United States. This disease is transmitted by a mosquito that has fed on an infected bird, and is not transmitted directly from horse to horse.

Recommendation: West Nile is a core vaccine strongly recommended by the AAEP. All horses in the U.S. should be vaccinated for West Nile Virus once annually. This is generally done in the spring, before mosquito season. There are now several vaccines available which rely on different

technology in their formulation. All are considered effective if used annually. At least one of the newer vaccines may provide faster immunity than the others, and with fewer initial doses. Your veterinarian will have an opinion on which product is best for your situation.

Symptoms of Eastern and Western Encephalomyelitis (a/k/a sleeping sickness) are similar to those caused by West Nile Virus and the virus itself is similar. These important mosquito-transmitted diseases have been overshadowed by West Nile Virus over the past 10 years, causing some horsemen to de-emphasize vaccinating for them. Like West Nile, these diseases fluctuate on a cycle dependent on immunity in bird populations, and many other factors. In the summer of 2010, there was an epidemic of Eastern Equine Encephalitis in New York and Ohio that killed many horses. The severity and extent of the outbreak may partly have been caused by the poor economy. Financially stressed horse owners cut expenses by reducing vaccination, resulting in more susceptible horses.

Recommendation: Encephalitis is a core vaccine strongly recommended by the AAEP. The vaccine is effective and inexpensive. It is usually combined with West Nile Virus and Tetanus. Recommendation is annual vaccination, timed before mosquito season in the spring.

Tetanus is a paralytic disease caused by a toxin produced by the bacteria *Clostridium tetani.* This organism is common in the environment, present on many surfaces, and becomes a potentially fatal problem primarily when it is introduced into wounds.

Recommendation: Tetanus is a core vaccine strongly recommended by the AAEP. This vaccine is highly effective, safe, and inexpensive, and should be given to every horse each year. It is often combined with encephalitis and West Nile vaccines and so is often given at the same time, in the spring. While immunity to tetanus probably persists longer than one year after vaccination, our recommendation still is to vaccinate

annually. Until there is more convincing scientific evidence that equine immunity lasts longer than a year, it makes more sense to be safe than sorry.

“Strangles” (a/k/a Distemper) is a respiratory disease caused by an abscess forming bacteria, *Streptococcus equi.* The classic sign of strangles is abscess formation around the throat and under the jaw. The name “Strangles” comes from these often large swellings, which in their most severe form can cause difficulty in swallowing and breathing. Abscess formation is often combined with nasal discharge, fever and cough. The abscesses typically break open and drain yellow pus. The disease is common and is highly contagious to at-risk horses. It is easily transmitted by contact with secretions and drainage containing the organism. It is also carried on the hands of handlers and on shared tack and equipment and through shared water.

Vaccination has proven difficult for this disease. There is a modified-live intranasal strangles vaccine available and considered relatively effective. The intramuscular vaccines have not been very effective. The problem with all of the vaccines has been a relatively high adverse reaction rate and limited effectiveness. The modified live intranasal vaccine causes a form of strangles in a very small percentage of vaccinated horses. It is also dangerous because it can be inoculated into and cause abscesses in the tissues at other vaccination sites.

Recommendation: We currently recommend the use of the intranasal vaccine 1-2 times per year, only for horses in which the risk of strangles infection outweighs the risk of side effects from the vaccine. We feel that the vaccine does help reduce likelihood of infection and severity of disease in a population of horses. A critical part of reducing strangles incidence is management of horses to reduce strangles exposure (quarantine before introduction of new horses into a herd) and immediate quarantine of any affected horses. Your veterinarian

is the right person to help you decide the need for this vaccine and to administer it for you if needed.

Influenza. There has been lots of talk in the past few years about human and bird influenza. Influenza virus is common in horses also, causing high fever, cough and nasal discharge. It is highly contagious, spreading rapidly through a group of horses. It is expelled by coughing horses and can infect horses up to 30 feet away. As with all flu viruses, the equine influenza virus is constantly changing, making it difficult to make a vaccine which contains the most current version of the virus.

Recommendation: We currently recommend vaccinating for this disease using one of several recently developed vaccines which contain the more appropriate strains. Some vaccines are given intra-nasally while others use the intramuscular route. Horses in contact with others (show and performance horses, horses boarded at barns) are at risk for the disease and should be vaccinated more frequently. Vaccination is less crucial for isolated horses. Vaccines with more current strains have been shown to produce better immunity to more currently relevant versions of the virus. Typically, influenza vaccines are given at least twice annually to at-risk horses.

Equine Herpes Virus (a/k/a rhino or rhinopneumonitis) are several related viruses that can cause respiratory, neurologic signs, or abortion in horses. In the past several years, there have been significant outbreaks of EHM, (Equine Herpes Myeloencephalopathy), the neurologic form of disease in the U.S. Many horses have died or been euthanized in these outbreaks. One unique characteristic of equine Herpesviruses is that they can lay dormant in infected horses and then can causes signs of disease when immunity decreases because of stress or other factors.

Recommendation: We recommend frequent (at least twice a year) vaccination using specific, newer generation vaccines, based on the specific situation and risk. Pregnant mares should be

vaccinated as directed with a vaccine licensed to protect against the abortive form of this disease. Vaccination probably does not prevent the neurologic form of disease. The benefit of giving rhino vaccine may be less for older and more isolated horses. Your veterinarian can help you decide whether or not the vaccine is needed for your situation.

Rabies is a rare but fatal disease in horses that is transmitted by the bite of an infected animal (bats and skunks in our area). The AAEP recently made rabies a core vaccine for horses. In the past year, there have been cases of equine rabies in Colorado and a higher incidence of rabies in wildlife in New Mexico.

Recommendation: For our region, we recommend vaccinating horses for rabies annually. The vaccine is relatively safe, effective and inexpensive but should be administered by a veterinarian.

Equine Viral Arteritis (EVA) is a viral respiratory disease that is transmitted either through venereal means (through breeding) or through transmission from coughing horses. It is carried by infected stallions, which can infect mares through their semen. An outbreak in 2006 prompted New Mexico to require testing and vaccination of commercial breeding stallions. In our state, commercial breeding stallions must be blood tested initially, and then vaccinated annually with a modified live vaccine (ARVAC).

Recommendation: Commercial breeders should familiarize themselves with this disease and their state regulations related to it. This may include annual vaccination of breeding stallions.

OTHER DISEASES

There are common diseases for which we do not have a working vaccine. An example of this is Dryland Distemper (a/k/a “Pigeon Breast” or “Pigeon Fever”). This disease is common in the Southwest, and most commonly presents as large abscesses

on the chest, belly or sheath. Since there is no commercial vaccine, control measures for this disease are limited to management. Management centers on minimizing contamination of the environment by infected horses and good fly control.

There are other, less common infectious diseases that affect horses in the United States for which there may be vaccines available, but the cost/ benefit of their use may be questionable. An example of this is Potomac Horse Fever, a rare disease in our area. This disease can cause life-threatening diarrhea in horses. It is a difficult disease to diagnose the disease definitively. The vaccine is of questionable effectiveness. For these reasons we do not recommend routine vaccination for this disease in our area. However, in the Northeast where the disease is more common, the cost/benefit is different and the vaccine is used more.

VACCINES – IMPORTANT POINTS TO CONSIDER

Vaccines are not all created equal and are constantly being improved. Your equine veterinarian should be current on new vaccine development and can help you select the best vaccine for your needs.

Vaccines have historically been created by preparation of all or part of the infectious agent, either killed, or inactivated and alive, mixed with a delivery liquid called an adjuvant. The agent (or part of an agent) in a vaccine agent stimulates the immune system to produce antibodies against the disease. Antibodies are infection fighting proteins which bind to a specific agent and help destroy it. Some new vaccines take advantage of great advances in our understanding of the immune system and genetic engineering. These products may contain only a small, key part of the organism or its genetic code but still promote excellent immunity. They tend to be more effective and safer than older vaccines. New delivery approaches target key organ systems more directly and so may produce better immunity; Examples include the newer intranasal vaccines.

ALTERNATIVE APPROACHES & THE CHOICE NOT TO VACCINATE

There is currently debate in the horse community (and beyond) over how much vaccination is necessary. There is some suggestion that holistic means are sufficient to prevent infectious disease and that vaccination is not necessary. Current research and experience supports core vaccination as critical to good horse health care. Ask your veterinarian before you rely exclusively on alternative approaches. While we cannot rule out that some holistic or natural agents may be helpful, there is very little known at this time about their true effects. The best policy for now is not to take a chance. We are lucky to have highly effective and safe vaccines which have been proven to safely reduce your horse's chances of succumbing to serious disease. Let your veterinarian help meld your own philosophies on equine health care with their latest research.

DO IT YOURSELF?

Anyone can give a vaccine if they have learned the proper technique involved. While many vaccines are now available over-the-counter, there are several key reasons to continue to involve your equine veterinarian in vaccinating and examining your horses. Your veterinarian stays educated on new vaccine development and so can provide the most effective, current and safest vaccines. He or she administers these vaccines correctly and on a proper schedule, and maintains complete vaccination records.

As of the time of this writing, many vaccine manufacturers will stand behind their vaccines. If after vaccination a horse becomes infected by a disease that the vaccine was intended to prevent, some manufacturers will pay for part or all of the veterinary treatment required. However, in order to receive such compensation, many of these companies require that their product be administered by a licensed veterinarian., Your veterinarian may actually save you money. They will discourage you from over-vaccinating your horses or using inappropriate

or unneeded vaccines.

Most importantly, I believe vaccination of horses should be combined with veterinary consultation and examination of the horse. For me, this is an opportunity to talk to my client and examine the horse, and to get to know horses in health rather than in crisis. I enjoy discussing goals and management of my clients' horses as it relates to their health care, and I feel that the time spent is of real value to horses and their owners.

Douglas O. Thal DVM Dipl. ABVPBoard Certified in Equine PracticeThal Equine LLCUpdated March 2013