

Equine Core Vaccination Guidelines

The AVMA defines core vaccinations as those “that protect from diseases that are endemic to 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.” The following equine vaccines meet these criteria and are identified as ‘core’ in these guidelines:

Eastern/Western Encephalomyelitis:

In the United States, equine encephalitis for which vaccines are available include eastern equine encephalomyelitis (EEE), western equine encephalomyelitis (WEE), Venezuelan equine encephalomyelitis (VEE) and West Nile Virus encephalomyelitis. The distribution of EEE has historically been restricted to the eastern, southeastern and some southern states (but disease incidence is also reported in the upper Midwestern states of Ohio, Michigan and Wisconsin). Outbreaks of WEE have been recorded in the western and mid-western states. Variants of WEE have caused sporadic cases in the northeast and southeast, most notably Florida. VEE occurs in South and Central America but has not been diagnosed in the United States for more than 40 years. The availability of licensed vaccine products combined with an inability to completely eliminate risk of exposure justifies immunization against EEE and WEE as core prophylaxis for all horses residing in or traveling to North America and any other geographic areas where EEE and/or WEE is endemic.

Transmission of EEE/WEE/VEE is by mosquitoes, and infrequently by other bloodsucking insects, to horses from wild birds or rodents, which serve as natural reservoirs for these viruses. Human beings are also susceptible to these diseases when the virus is transmitted to them by infected mosquitoes; however, horse-to-horse or horse-to-human transmission by mosquitoes is highly unlikely, because the level and duration of viremia is insufficient to infect mosquitoes that might feed on a horse affected with EEE or WEE. On the other hand, the viremia that occurs in horses infected with VEE virus subtypes 1AB and 1C is much higher. Direct horse-to-horse or horse-to-human transmission of VEE is possible. Of these 3 encephalomyelitis, WEE has the lowest mortality (approx. 50%). Eastern equine encephalomyelitis is the most virulent for horses, with mortality approaching 90%. Epidemiological evidence indicates that young horses are particularly susceptible to disease caused by EEE virus. Venezuelan equine encephalomyelitis caused by subtypes 1AB and 1C can give rise to mortality rates ranging from 20 to 80%; however, some horses develop subclinical infection that results in lasting immunity.

The risk of exposure and geographic distribution of EEE and WEE vary from year-to-year with changes in distribution of insect vectors and reservoirs important in the natural ecology of the virus. EEE activity in mosquitoes and birds, and resultant disease in humans and equids, continues to cause concern along the East Coast and demonstrates northward encroachment. WEE has caused minimal disease in horses in the last two decades; however, the virus continues to be detected in mosquitoes and birds throughout the Western states. In addition, variants that cause clinical disease in equids have been detected in the eastern U.S.

Rabies:

Rabies is an infrequently encountered neurologic disease of equids. While the incidence of rabies in horses is low, the disease is invariably fatal and has considerable public health significance. It is recommended that rabies vaccine be a core vaccine for all equids.

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. The virus migrates via nerves to the brain where it initiates rapidly progressive, invariably fatal encephalitis.

West Nile Virus:

West Nile virus (WNV) is the leading cause of arbovirus encephalitis in horses and humans in the United States. Since 1999, more than 25,000 cases of WNV encephalitis have been reported in U.S. horses. Horses represent 96.9% of all reported non-human mammalian cases of WNV disease.

This virus has been identified in all of the continental United States, most of Canada and Mexico. Several Central and South American countries have also identified WNV within their borders. The virus is transmitted from avian reservoir hosts by mosquitoes (and infrequently by other bloodsucking insects) to horses, humans and a number of other mammals. West Nile virus is transmitted by many different mosquito species and this varies geographically. The virus and mosquito host interactions result in regional change in virulence of the virus; therefore, no prediction can be made regarding future trends in local activity of the viruses. Horses and humans are considered to be dead-end hosts for WNV; the virus is not directly contagious from horse to horse or horse to human. Indirect transmission via mosquitoes from infected horses is highly unlikely because these horses do not circulate a significant amount of virus in their blood.

Tetanus:

All horses are at risk of development of tetanus, an often fatal disease caused by a potent neurotoxin elaborated by the anaerobic, spore-forming bacterium, *Clostridium tetani*. Tetanus toxoid is a core equine vaccine and is indicated in the immunization program for all horses.

Clostridium tetani organisms are present in the intestinal tract and feces of horses, other animals and humans, and are abundant as well as ubiquitous in soil. Spores of *Cl. tetani* survive in the environment for many years, resulting in an ever-present risk of exposure of horses and people on equine facilities. 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).