

Equine Infectious Anemia-A Rise in Iatrogenic Transmission

Equine Infectious Anemia (EIA) virus infection of equids has a worldwide distribution, can produce severe disease or death and can occur as a lifelong subclinical carrier state. The virus is related to the human AIDS Lentivirus but is not known to infect humans. The disease has been predominately spread by biting insects, especially horse and deer flies. However, in recent years clusters of cases have occurred due to iatrogenic transmission of the virus through indiscriminate use of needles, blood transfusion and the use of contaminated instruments. States currently regulate most aspects of EIA control in the United States. State testing intervals range from 2 months to 12 months. In Missouri, equidae must be tested for EIA when they are involved in a change-of-ownership, when they are imported from another state, when they are publicly exhibited, boarded, trained, bred and when they are sold through a livestock market. Discovery of the disease requires quarantining and retesting of the affected and exposed animal(s). Upon confirmation of a positive test results from the USDA National Veterinary Services Laboratory, the affected animal is permanently identified and either euthanized or permanently quarantined to the owner's premises until natural death occurs.

Between 1972 and 2015 the rate of reactors among the tested population declined from 3.8 percent to 0.005 percent and has plateaued in recent years.

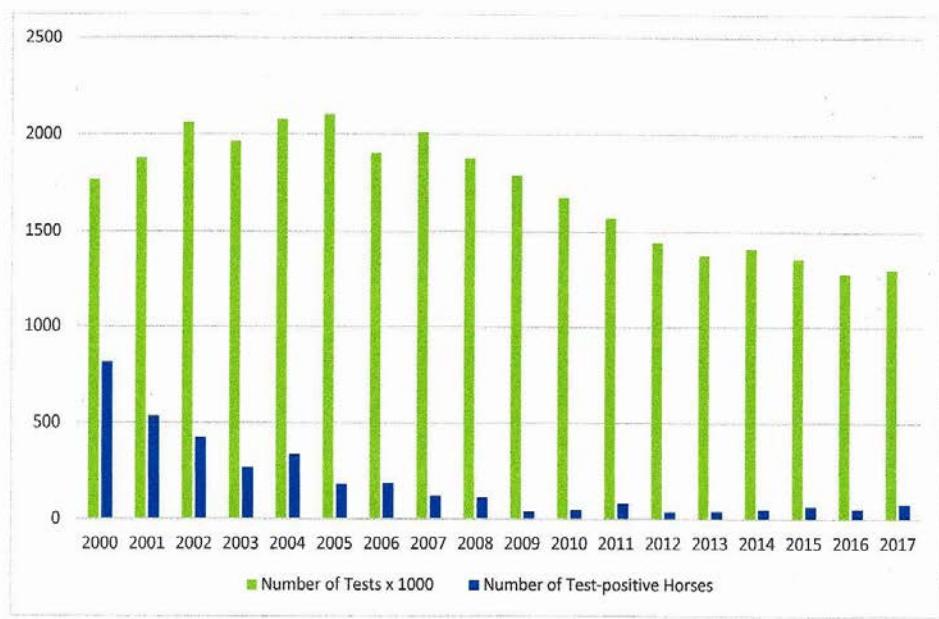
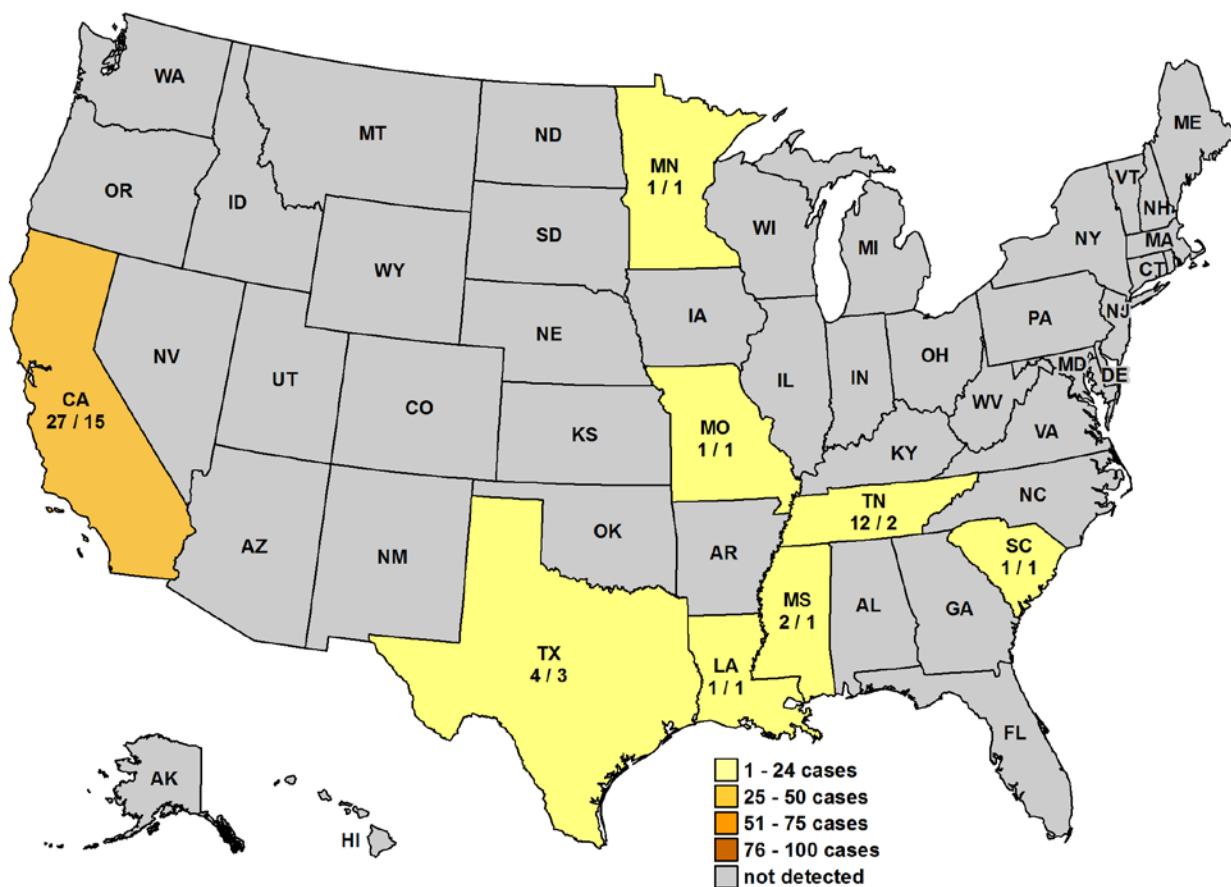


Figure 2. Reported numbers of EIA tests and positive cases in the United States, 2000-2017

Chart courtesy of USDA

However, since 2013, a significant increase in EIA in Quarter Horse racehorses has been identified in a number of States with epidemiological evidence of iatrogenic transmission in most cases. The subclinical nature of the disease and the frequent repurposing of these racing animals for other uses

raise the risk of further outbreaks of EIA. Positive animals have increasingly been reported in States that have not found disease cases for many years. Disease investigations indicate the positive horses were exposed to the sharing of needles/syringes, reuse of IV blood sets, blood transfusion, and potentially the use of contaminated blood products from other countries. The figure below illustrates the large number of EIA positive horses in the California horse racing population in 2014.

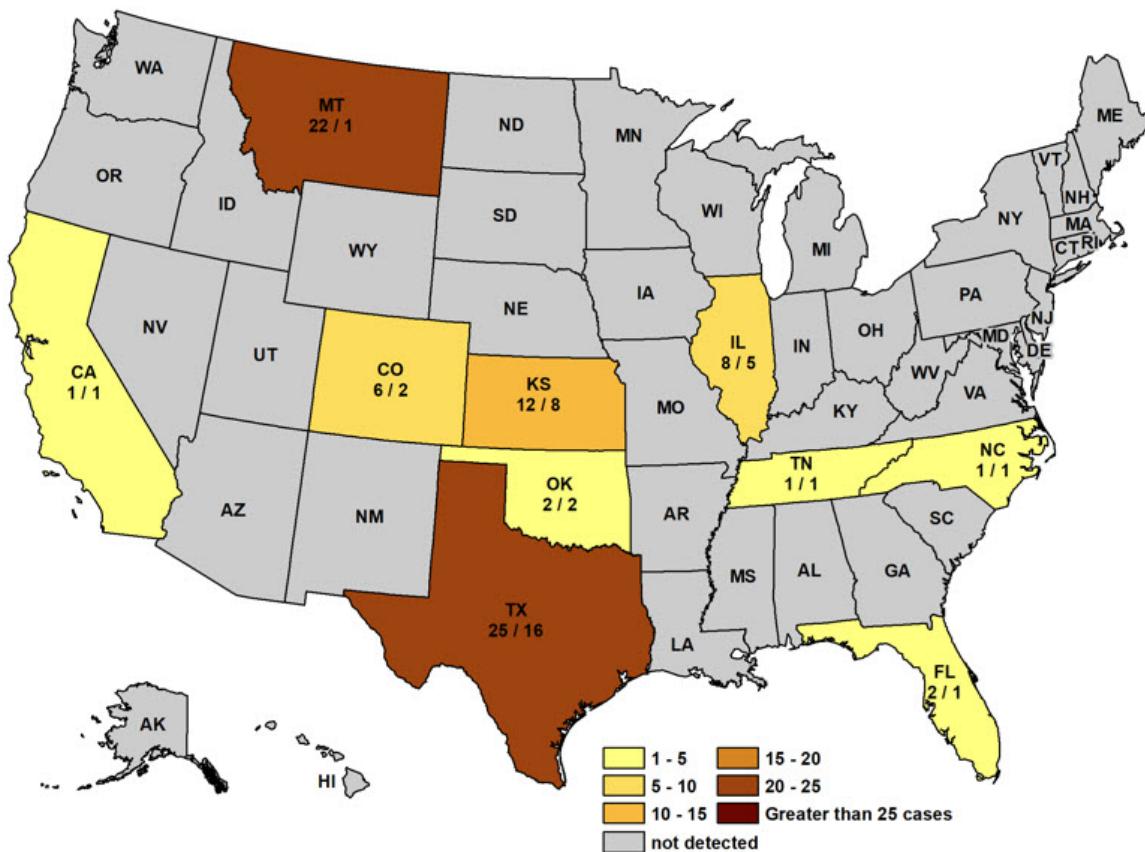


2014 EIA Confirmed Cases - Diagram courtesy of USDA

In addition to clusters of positive EIA horses in the Quarter Horse sanctioned and unsanctioned racing circles, cases of Equine Piroplasmosis have also occurred in recent years. Equine Piroplasmosis (EP) is a tick-borne disease that affects horses, donkeys, mules and zebras. There are two causative agents, *Babesia caballi* and *B. (Theileria) equi*. EP is not endemic in the U.S. due to the absence of natural tick-borne transmission of the disease currently, but several tick species capable of transmitting the disease are present in the U.S. This was identified during an EP outbreak in South Texas in 2009 where a number of ranch horses tested positive for the disease. Following an epidemiologic investigation and tick-transmission studies it was concluded the disease was spread primarily through natural tick transmission. ~~S~~The some sections of the ranch continue to be under quarantine, but the disease has been eradicated from the horses and the tick population on the premises. The vast majority of EP cases in recent years have been in racing Quarter Horses with transmission by management practices such as the use of shared needles/syringes/IV sets or transfusion of horses with infected blood or blood

products by non-veterinarians. Since 2010 USDA epidemiologists report finding horses that have dual infections of both EP and EIA. Although the numbers of horses infected with both EIA and EP are relatively small, investigators are finding outbreaks at both bushtrack and sanctioned race tracks with a mixed bag of infections where some horses are positive for EIA while others are positive for EP. All spread by poor hygienic practices and iatrogenic transmission of blood borne pathogens.

In 2017, as illustrated by the map below, there was a significant increase in the number of horses testing positive for EIA. Twenty-two of the 80 cases were on a ranch in Montana in an isolated herd of dude string and breeding animals with a history of limited testing and previous reactor horses quarantined on the ranch in 1989, which may have been the source of continued infection in the herd. The epidemiological investigation concluded the disease had been spread by natural insect vector transmission. Of the 80 positive horses, 41 were Quarter Horse racehorses with iatrogenic transmission either suspected or confirmed. One of the 41 EIA racehorses was also positive for EP. Of the 41 EIA positive Quarter Horse racehorses 2/3 had a history of racing in unsanctioned races while the remaining 1/3 had raced primarily in sanctioned races. The positive horses in Kansas all raced in unsanctioned Quarter Horse races and there was a mixture of horses with either EIA or EP.



2017 Confirmed EIA Cases - Diagram courtesy of USDA

Despite the fact that there have been few positive EIA or EP horses identified in Missouri in recent years, Missouri has one of the largest Quarter Horse populations in the country. Recent history has demonstrated that this subset of the horse population is a high-risk group for developing either or both of the diseases. It's important to not only practice good hygiene when treating horses but to discuss

poor hygienic practices and iatrogenic transmission of blood borne pathogens with clients. For additional information on EIA and EP or to check the status of current disease outbreaks, go to the USDA website at <https://www.aphis.usda.gov>.