

# Coronavirus: A Cause of Enteric Disease in Adult Horses?

By [Erica Larson, News Editor](#)

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Although equine coronavirus is a commonly identified in foals--found in 27% of healthy and 29% of sick animals, according to one study--its significance as a gastrointestinal pathogen is still unclear. However, accumulating evidence indicates that coronavirus is associated with recent enteric disease outbreaks in adult horses.

Ron Vin, DVM, Dipl. ACVIM, an equine practitioner at Myhre Equine Clinic in Rochester, N.H., and a consultant for IDEXX Laboratories, and Nicola Pusterla, DVM, PhD, Dipl. ACVIM, a professor in the University of California, Davis, School of Veterinary Medicine Department of Medicine and Epidemiology, both presented lectures on the topic at the 9th International Conference on Equine Infectious Diseases, held Oct. 21-26 in Lexington, Ky.

Veterinarians have long suspected the relationship between coronavirus and enteric disease (intestinal issues, characterized by diarrhea and fever, among other clinical signs) in foals. However Vin relayed that a recent major outbreak in adult horses was reported in Japan in 2011. There, 132 horses, aged 2 to 4 years, residing at a draft horse racetrack that housed about 600 animals, developed fever and diarrhea that persisted for two to four days. The clinical signs were self-limiting (most cleared up in a few days), and the outbreak lasted only a few months, Vin said.

Japanese researchers were able to isolate and identify a strain of coronavirus from affected horses that was closely related to the first coronavirus strain isolated from a sick horse from North Carolina.

Five separate coronavirus outbreaks occurred at boarding stables in the United States from November 2011 to August 2012. Pusterla reported that the outbreaks--which occurred in California, Texas, Wisconsin, and Massachusetts--involved mainly adult horses ranging in age from 1 year to 39 years. A total of 75 horses (12 to 16 at each premises) developed clinical signs during the outbreaks. Sporadically, additional cases were reported from 11 states, Vin said.

Pusterla relayed that the most commonly reported clinical signs associated with the outbreak included anorexia in 65 horses, lethargy in 58 horses, and fever in 43 horses. Less common clinical signs included changes in fecal character and colic, he said.

In most cases, Pusterla relayed, clinical signs resolved in one to four days when horses received supportive care; however, four horses located at three farms died or were euthanized due to the rapid progression of clinical signs, he said.

"The cause of death could not be determined with necropsy evaluation in two horses, while septicemia secondary to gastrointestinal translocation was suspected in two horses," he said.

Vin relayed that researchers who were able to isolate the virus from fecal samples from Washington and Idaho found the strain affecting those horses was 99% similar to the initial North Carolina strain.

Pusterla relayed that in conjunction with the outbreaks, he and colleagues validated real-time PCR (polymerase chain reaction) test to identify the virus in feces. Pusterla tested fecal samples from 44 horses with clinical signs of disease and 99 apparently healthy horses. Of those, 34 affected horses tested positive for coronavirus via PCR, while 89 healthy horses tested negative.

He concluded that PCR is a "sensitive and fast diagnostic tool to document the presence of coronavirus in feces from horses with unspecified clinical signs."

Similarly, in his presentation, Vin discussed the use of a commercially available diarrhea panel to identify the presence of coronavirus--along with several other pathogens--in horses' feces. Of 560 horses older than a year of age tested with the panel, 35 were positive for coronavirus. Of those that tested positive, 16 samples came from horses involved with outbreaks.

Vin believes that coronavirus isn't likely to be an incidental finding in diarrhea panels and should be considered a significant pathogen in adult equine enteric pyrexia disease. Both he and Pusterla noted they believe more research and additional studies are needed to further the collective understanding of coronavirus' role in adult horses.

Disclaimer: Seek the advice of a qualified veterinarian before proceeding with any diagnosis, treatment, or therapy.