



Equine Enteric Coronavirus

Overview: Coronaviruses comprise a large group of RNA viruses that can cause both respiratory and enteric signs of disease in various species. They are further grouped based on genetic and serologic differences into alpha, beta and gamma coronaviruses. The equine coronavirus, a beta coronavirus, has been recently isolated from a number of outbreaks across the country. This is an enteric disease of the equine. At this time there has been no association with a respiratory component although in cattle enteric and respiratory disease is common.

Transmission: Fecal-oral route **Survival in environment:** Unknown

Age distribution: Most often diagnosed in adults, usually older than 2 years of age.

Seasonality: Seen during the cold weather months (in the Northeast areas), December through May.

Common Clinical Signs/Blood test changes

- Anorexia
- Lethargy
- Fever (usually ≤ 104.0)
- Changes in fecal character; diarrhea **not** routinely seen
- Mild colic-like signs (laying down; looking at sides)
- Neurologic abnormalities (ataxia, depression, recumbency) secondary to **hyperammonemia**
- Leukopenia (neutropenia, lymphopenia)
- Hypoalbuminemia

Morbidity ranges from about 20-57% (Pusterla et al., 2013) and **mortality** is typically rare, but secondary complications including dehydration, diminished perfusion, and gastrointestinal translocation, can occur (Pusterla et al., 2013). Hyperammonemia and associated neurological signs may be cause for mortality.

Duration: Signs generally resolve in 1-4 days with supportive care and outbreaks typically last for about 3 weeks (Pusterla et al., 2013).

AHDC Sample Submission/Requirements

The sample is fresh **feces** submitted in an unbreakable leak-proof container to the laboratory by overnight courier on ice packs. Samples must be kept chilled to prevent overgrowth of bacteria that may cause inhibition in the **PCR** testing. Feces are tested by: Equine Enteric Corona PCR. Lag Time: 3-days. Any questions contact the lab and speak to the VSS, Drs. Mittel, Goodrich and Thompson at 607.253.3900.

Biosecurity/ Control measures:

- If beta coronavirus is on your differential list, encourage the barn to practice appropriate biosecurity measures to control the spread of the virus.
- See the AAEP guidelines: <http://www.aaep.org/custdocs/BiosecurityGuidelinesFinal030113.pdf> for Biosecurity guidelines.
- Horses can continue shedding the virus in their feces for a few weeks (anecdotal reports have shown up to 21 days) from the onset of clinical signs. The virus is shed in the manure. Encourage the farm to take precautions by using footbaths, individual thermometers, and disposable gloves between horses. Attempt to isolate affected animals and handle them last and use separate manure handling equipment from the rest of the barn. Minimize traffic into/out of barn.

Recommended references:

Pusterla N. et al., 2013. Emerging outbreaks associated with equine coronavirus in adult horses. *Veterinary Microbiology*. Vol 162. pp. 228-231

Oue, YI, et al., 2011. Isolation of an equine coronavirus from adult horses with pyrogenic and enteric disease and its antigenic and genomic characterization in comparison with the NC99 strain. *Veterinary Microbiology*. Vol 150. Pp. 41-48.