Potomac Horse Fever Disease Guidelines

(Equine Monocytic Ehrlichiosis, Equine Ehrlichial colitis, or Acute Equine Diarrhea Syndrome, Neorickettsia risticii, Neorickettsia findlayensis)

Definition

Potomac Horse Fever (PHF) is a non-contagious, infectious equine disease caused by the rickettsial organisms *Neorickettsia risticii* (previously known as *Ehrlichia risticii*) and *Neorickettsia findlayensis*. Horses of all ages and breeds residing in endemic areas are susceptible. PHF cases usually occur in summer and fall but may occur in any season depending on weather conditions.

Clinical Signs

Highly variable, including:

- High fever up to 107° F (41.6° C) reported. Fevers may occur 7–14 days before signs of colitis develop
- Toxic mucous membranes
- Diarrhea: variable, ranging from absent to severe, which may occur prior to, concurrent with, or after fever
- Anorexia
- Lethargy
- Laminitis (with or without diarrhea)
- Mild to moderate colic
- Altered gastrointestinal motility
- Edema of limbs and ventrum, prepuce of males
- Abortion (by transplacental transmission) 65–111 days post-inoculation

Note: Concurrent infections with *Salmonella* have been documented.

Incubation Period

Approximately 1–3 weeks

Risk Factors

- Housing near (within approximately 5 miles) a freshwater stream or river or on irrigated pasture in endemic areas.
- Nighttime use of barn lights which attract parasitized insects, drawing them into close contact with horses.

Transmission

- Oral ingestion of trematodes in freshwater sources or trematodes present in aquatic insects (caddisflies, mayflies, damselflies and dragonflies)

- Whole blood transfusion from an infected donor
- Transplacental

Note: Affected horses are not considered to be contagious by natural contact with other horses.

Diagnostic Sampling, Testing and Handling

Sample	Test	Shipping	Handling
Fresh Feces	PCR (check if lab will test feces)	Leakproof container	Chilled overnight
Whole Blood	PCR*	EDTA tube	Chilled overnight
Serum	IFA**	Red top tube; leakproof container	Chilled overnight
Large intestinal tissue, cecum	PCR	Leakproof container	Chilled overnight
Aborted fetal tissue (not placenta)	PCR	Leakproof container	Chilled overnight

*A specific PCR for *N. findlayensis* has been developed but availability varies by diagnostic laboratory.

**Immunofluorescent assay (IFA) titers (serum): This test yields many false positive results. Interpretation of results must be made in consultation with laboratory personnel with consideration of PHF vaccination history. Single serum titers are of limited value in the confirmatory diagnosis of PHF.

NOTE: Bacterial culture is the gold standard for diagnosis but has delayed results relative to other diagnostic methods and is rarely used clinically.

Treatment

- Treatment is focused on supportive care (including aggressive laminitis therapy) combined with appropriate antimicrobials. Given that horses with PHF can have significant dehydration, IV fluids should be administered concurrently with antimicrobials in an effort to prevent kidney damage.
- The antimicrobial family of choice for PHF are tetracycline antibiotics. Treatment is often started prior to a definitive diagnosis of PHF based on clinical signs and has been shown to improve clinical outcomes. While specific treatment protocols vary, treatment for 3–5 days is typical. Horses receiving concurrent tetracyclines with NSAIDS should be monitored closely for renal injury.

Postmortem Findings
Gross necropsy findings in the acute stage of PHF disease include:

- Distended large colon and cecum filled with watery, malodorous, brown contents
    - Small intestinal lesions are similar but uncommon
- Mucosal hyperemia, petechiation, and ulceration, which may be widespread
- Hyperplasia of lymphoid follicles and lymph nodes
- Aborted fetus lesions include:
    - Increased content within the small and large intestine
    - Lymphoid hyperplasia or lymphoid depletion
- +/- laminitis

Submission of tissues for microscopic examination is indicated to facilitate a definitive diagnosis.

Shedding of Virus Following Resolution of Clinical Signs
Confirmed PHF cases are not considered contagious.

Environmental Persistence
The organism is not known to be free in the environment but is instead harbored by certain aquatic insects and snails.

Specific Control Measures
As definitive diagnosis is not always known upon initial presentation, routine isolation and disinfection guidelines should be followed, including appropriate disposal of manure.

Maintain clean and insect-free water sources. Avoid placement of light sources above or directly adjacent to water troughs, as this may attract flying insects and promote water contamination.

Release of Animals from Isolation

- Any diarrheic horse should be isolated until the cause can be established (Differential diagnoses include Salmonella, Clostridial disease, Coronavirus, etc.).
- Coinfection with additional contagious agents is possible in PHF-affected horses, therefore a comprehensive fecal diagnostic investigation should be undertaken.
- If PHF is proven to be the only cause of the observed illness, isolation protocols can be relaxed as it is not considered a contagious disease.

Biosecurity Issues for Receiving Animals
Diarrheic horses should be isolated as a matter of routine until contagious causes can be ruled out and normal feces are produced. Further guidance is available in the AAEP Biosecurity Guidelines.

Prevention
One commercial vaccine (killed, adjuvanted) is currently available and has shown variable results, likely due to different strains of the organism. Further information can be found in the Potomac Horse Fever Vaccination Guidelines.

Zoonotic Potential
None known.

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