Equine Infectious Respiratory Disease Field Diagnostic Guidelines

Considerations for approaching equine respiratory disease of unknown etiology

Equine respiratory diseases, whether infectious or noninfectious, can significantly impact individual horse health and performance, and contagious respiratory disease may impact overall herd health. Equine respiratory disease etiologies range from viral and bacterial infections to environmental allergens or inflammatory factors. Diagnostic testing to determine the etiology of equine respiratory disease is strongly recommended in order to provide targeted treatment strategies, implement biosecurity protocols, and support overall herd health.

AAEP Respiratory Disease Differential and Diagnostic Flow Chart

Considerations for approaching acute respiratory cases of unknown etiology

The following scenarios are suggestive of underlying infectious disease and should prompt practitioners to implement biosecurity practices and establish a quarantine on the premises:

- Multiple febrile animals (with or without concurrent signs of respiratory, neurologic, or intestinal disease)
- One or more horses with acute respiratory abnormalities and fever

Whether the disease is spread via aerosolization, direct contact, or fomites, proper isolation and management of facilities and patients is critical to outbreak prevention. For further information regarding facility management and establishing a biosecurity perimeter during an outbreak, see the AAEP Biosecurity Guidelines.

State animal health officials (SAHO) should be alerted promptly per state guidelines when acute respiratory disease of an infectious and reportable etiology is suspected, including but not limited to influenza, EHV-1, or *Streptococcus equi* subsp. *equi* (Strangles).

Clinical signs that can indicate respiratory disease:

- Fever*
- Increased respiratory rate and/or effort
- Cough (persistent or intermittent)
- Lymphadenopathy
- Nasal or lacrimal discharge
- Abnormal or increased respiratory sounds (including tracheal rattle) or effort
- Possible urticaria, limb edema

  **Fever presenting alone should be considered as suggestive of contagious respiratory disease until proven otherwise. Absence of fever, in the presence of respiratory clinical signs, does not rule out contagious infectious disease.*

Differential diagnosis for acute respiratory disease *(listed alphabetically)*

Infectious:

- Equine Adenovirus 1
- Equine Viral Arteritis
- Equine Influenza Virus
- Equine Herpesvirus 1 and 4
- Equine Rhinitis Virus A and B
- Equine Multinodular Pulmonary Fibrosis (EMPF) in association with EHV-5
- Guttural pouch mycosis
- Pneumonia – bacterial or fungal
- *Rhodococcus equi*
- *Streptococcus equi* subsp. *equi* (Strangles)
- Verminous pneumonia via *Parascaris equorum* or *Dictyocaulus arnfieldi*

Non-infectious:

- Asthma
- Exercise-Induced Pulmonary Hemorrhage (EIPH)
- Heart failure
- Neoplasia
- Silicosis (California)
- Smoke inhalation
- Trauma with thoracic or mediastinal injury
- Toxins, e.g., pesticides, irritant gas

Diagnostic approach for suspected case of infectious respiratory disease:

- **Complete history** (including vaccine and recent travel history, exposure to other species such as donkeys, environmental changes, and anthelmintic use)

- **Physical examination**
  - Use personal protective equipment (PPE) if the horse is febrile or infectious etiology is suspected.

- **Respiratory examination**
  - Assess facial symmetry
  - Perform sinus percussion
  - Assess for bilateral nasal airflow
  - Auscultation over trachea and lungs
  - Thoracic percussion
  - Rebreathing bag exam (only for horses not exhibiting respiratory distress)

- **Diagnostic Testing**
  - Imaging may be indicated to supplement or facilitate diagnostic testing, including endoscopy of the upper and lower airways, thoracic ultrasound, and radiographs.
  - Samples to collect:
    - Serum (RTT)
    - EDTA and heparin plasma (LTT and GTT)
    - Nasal swab or nasopharyngeal swab/wash in sterile leak-proof container
    - +/- Fresh manure for fecal egg count
    - +/- Tracheal wash when bacterial/fungal pneumonia suspected
    - +/- Bronchoalveolar lavage when asthma, EIPH, EMPF, or verminous pneumonia suspected
    - +/- Guttural pouch lavage if *Strep. equi* subsp. *equi* suspected
  - Clinical Pathology - standard CBC/Chemistry, acute phase proteins (SAA, fibrinogen)
  - Further information regarding diagnostic sampling can be found in the AAEP Diagnostic Sample Collection, Handling, and Transport Guide.
  - If vaccine lack of efficacy is suspected in a vaccinated horse, communicate with the vaccine manufacturer regarding diagnostic testing.

- **Postmortem examination considerations**
  - Collect fresh and formalin-fixed pieces of lung from representative lesions of approximately $3cm^3$ in size and tracheobronchial or upper airway lymph nodes. Store fresh tissues refrigerated in a sterile leak-proof container. Ship specimens for next-day delivery to your diagnostic laboratory. If next-day delivery is not possible, freeze fresh tissues until next-day delivery is available. Store formalin-fixed tissues at room temperature.

If a definitive diagnosis is not achieved:

- Maintain biosecurity measures for 21-28 days after onset of last clinical case.
- Daily treatment and temperature logs should be maintained for all horses housed within the primary perimeter—regardless if they are clinically affected. Consult infectious disease expert or an ACVIM diplomate.

Prevention

- Vaccination
  - Based on risk profile including frequency of travel, geographic location, and use (breeding, travel, competition)
  - See AAEP Vaccination Guidelines
- Isolate sick horses in accordance with AAEP Biosecurity Guidelines
- Avoid overcrowding
- Provide proper ventilation and pasture management
- Follow routine deworming strategies in AAEP Internal Parasite Control Guidelines

Author: AAEP Field Guidelines Subcommittee
Supported and reviewed by: AAEP Infectious Disease Committee