AFRICAN HORSE SICKNESS

Animal Group(s) Affected	Transmission	Clinical Signs	Severity	Treatment	Prevention and Control	Zoonotic
Equidae, carnivores, camel	Infectious, non-contagious vector borne disease transmitted by *Culicoides* midge; mechanical transmission by biting flies is possible; ingestion of virus infected meat	Respiratory form: fever, dyspnea, nasal discharge, conjunctivitis. Cardiac form: fever, swollen head and neck, colic. Mixed form: combination of respiratory and cardiac form signs. Fever form: fever	Mortality depends on serotype and species affected - most severe in horses and mules, typically acute or sub-acute illness with high morbidity and mortality of respiratory, cardiac and mixed forms, fever form is mild with no mortality	No effective treatment but supportive care warranted	Vaccinate, reduce exposure to vector, test and quarantine prior to importation	No

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Susceptible animal groups: Equidae, carnivores. Horses are highly susceptible with a mortality rate as high as 95% with per-acute disease, while mules are less susceptible. African donkeys, zebra, elephant and camels are generally resistant to disease. Antibodies to all 9 serotypes have been reported in elephants and zebra. Dogs are susceptible to disease if they ingest virus infected meat while African carnivores are less susceptible.

Causative organism: Orbivirus of the family Reoviridae including 9 serotypes (1-9)

Zoonotic potential: No. However vaccine strains have caused encephalitis and retinitis in humans following trans-nasal transmission

Distribution: Endemic in Africa and outbreaks reported in the Middle East and Europe. Dependent on climatic factors favoring the *Culicoides* vector such as warm, humid weather and high rainfall. Distribution of disease has potential to expand with changes in climate and potential vector distribution. Virus transmission greatly reduced when midge activity is reduced following onset of winter and frost.

Incubation period: 3-14 days depending on form of infection: acute respiratory form 3-5 days, cardiac form 1-2 weeks, fever form 4-14 days.

Clinical signs: The respiratory form can be acute or peracute causing fever (40-42 °C), respiratory distress (RR>50), paroxysmal coughing, nasal discharge, congested conjunctiva, and abnormal stance. Mortality rate may reach 95%. The cardiac form causes fever (39-41 °C), swelling of the supraorbital fossa extending to head and neck causing dyspnea and colic. Mortality rate may be as high as 50%. The most common form is the mixed form. A combination of respiratory signs with head and neck swelling is seen with a mortality rate of 70%. The fever form is characterized by mild pyrexia with occasional congestion of conjunctiva, depression and inappatence but minimal mortality. In endemic areas, this disease can be confused with equine encephalosis or

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equine viral arteritis. Dogs usually develop the respiratory form of disease. Zebra may develop a mild fever.

Post mortem, gross, or histologic findings:
Gross lesions vary based on the form of disease. In the respiratory form, lesions include pulmonary edema, hydrothorax, frothy fluid in the trachea, bronchi and bronchioles, occasional pleural effusion, edematous lymph nodes, congestion and hyperemia of abdominal viscera, and petechiae of the epicadium and endocardium. In the cardiac form yellow, gelatinous infiltrations of subcutaneous and intramuscular tissues of the head and neck, as well as hydropericardium, myocarditis with petechiae of the endocardium and epicardium, petechiae of the peritoneum and ventral tongue, flaccid or slightly edematous lungs, and hemorrhagic gastritis may be seen. The mixed form of disease produces a combination of lesions characteristic of the respiratory and cardiac forms.

Diagnosis: Virus neutralization is the gold standard test although RT-PCR is used for rapid screening samples from suspected clinical cases. Serology (ELISA, complement fixation, virus neutralization) and virus isolation are also available. For determination of serotype use virus neutralization or RT-PCR. Outbreaks should be diagnosed using more than one test when possible.

Material required for laboratory analysis: Serum, whole blood, (Lithium heparin or EDTA blood tubes), fresh tissue not frozen (spleen, lymph node, lung), formalin fixed tissue (10:1).

Relevant diagnostic laboratories:
Foreign Animal Disease Diagnostic Laboratory
USDA-APHIS-VS-NVSL-FADDL
40550 Route 25 (for packages)
Orient Point, NY 11957
P.O. Box 848 (for letters)
Greenport, NY 11944-0848
Director: Dr. Fernando Torres-Velez
Phone: (631) 323-3256
Fax: (631) 323-3366
Email: Fernando.J.Torres-Velez@aphis.usda.gov

Treatment: None but supportive care is warranted.

Prevention and control: Imported equids should be free of clinical signs on day of export and should not have received AHS vaccine within 40 days (infective period) prior to export, and be quarantined in vector protected facilities for 14-40 days prior to export and throughout transportation. Importation of equine semen follows the same guidelines. Review the OIE website for the most up to date recommendations on export/import requirements. In endemic areas, vaccinate susceptible animals using approved vaccines. Reduce vector exposure by stabling equids at peak times of vector activity. Establish vector control methods.
During an outbreak, quarantine the area, stop all equid movement in or out, test suspect cases, vaccinate susceptible equids and conduct epidemiological investigation. Do not feed carcasses from infected individuals to carnivores.

Suggested disinfectant for housing facilities: Commercial chlorine, iodine and quaternary ammonia based compounds

Notification: Reportable to the OIE

Measures required under the Animal Disease Surveillance Plan: Currently none

Measures required for introducing animals to infected animal: Do not introduce naive animals to infected animals. Animals at risk of exposure should be vaccinated prior to introduction to new groups.

Conditions for restoring disease-free status after an outbreak: Clean areas with appropriate disinfectants.

Experts who may be consulted:
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