



Equine Infectious Anemia Disease Guidelines

Definition

Equine Infectious Anemia (EIA) is caused by equine infectious anemia virus (EIAV), a lentivirus in the family Retroviridae. EIA has been found nearly worldwide. Countries free of EIA include Iceland and Japan.

Clinical Signs

Clinical signs can vary widely. Most infected horses are asymptomatic, showing no signs of disease. Acutely infected animals may develop a fever, go off feed, or die suddenly. A chronically infected equine may develop non-specific signs such as weight loss, weakness, anemia, and swelling of the legs, chest, and abdomen.

Incubation Period

The incubation period is a week to 45 days or longer. Some horses remain asymptomatic until they are stressed or may never show clinical signs.

Risk Factors

- Sharing of blood-contaminated equipment (dental, tattoo, surgical)
- Sharing of blood-contaminated needles, syringes, IV sets
- Inadequate sterile technique when accessing injectable multidose bottles of drugs or fluids
- Blood transfusions or contaminated blood/biologic products
- Horses residing in EIA-endemic regions (presence of deer, horse, stable flies)

Transmission

Once acquired, EIA is a chronic, lifelong infection with no known cure and no vaccine for prevention. Chronically infected equids serve as reservoirs of the virus for potential transmission to other equids.

- Vector Transmission
 - Tabanidae family of flies are the most effective vectors, especially horse flies and deer flies.
 - Virus is transmitted mechanically on the mouthparts of biting insects.
 - Virus persists in the blood leukocytes of the horse for life and in the plasma during the febrile episodes.
- Iatrogenic transmission can occur and can be an important means of spread. This virus can also be transmitted in blood transfusions or on contaminated needles/syringes/IV sets, surgical instruments, and dental equipment. It is reported to persist for up to 96 hours on hypodermic needles.



- EIA virus may also be passed from mare to foal in utero. Possible transmission through milk has been reported in some nursing foals.
- Virus can be found in semen. Although venereal transmission does not seem to be a major route of spread, one stallion appears to have transmitted the virus to a mare with a vaginal tear during breeding.
- Aerosol transmission to close contacts via inadvertent spraying of infectious material (blood) was implicated during the 2006 outbreak in Ireland.

Diagnostic Sampling, Testing, and Handling

- Equine infectious anemia is often confirmed by serology. The two available serologic tests are the agar gel immunodiffusion (AGID), commonly known as the “Coggins” test, and the enzyme-linked immunosorbent assay (ELISA).
- Horses are usually seronegative on the AGID test during the first several weeks after infection, and in some cases may not develop antibodies until 60 days post-exposure or longer. Experimental evidence suggests that antibody production may be further delayed in donkeys and mules.
- A positive test indicates the presence of EIA-specific antibodies. The ELISA test can detect antibodies earlier than the AGID test. As the ELISA test may produce false positive results, the confirmatory test for EIA is the AGID test.
- All tests for EIA are official regulatory tests and must be performed at a USDA-approved laboratory. See listing of [approved laboratories](#).

Regulatory Considerations

- For international, interstate, intrastate, or change of ownership testing, consult the appropriate regulatory authority (i.e., state veterinarian or USDA).
- Consult export requirements for EIA diagnostic test selection.
- All non-negative EIA tests are reported by the laboratory to state or federal animal health officials within 24 hours of the non-negative test result, as EIA is a regulated disease in the U.S. A state or federal animal health official will locate the non-negative animal, quarantine the horse, and obtain a serum sample for confirmatory testing at National Veterinary Services Laboratories (NVSL). Reporting of confirmed EIA cases in the U.S. can be found at <https://www.aphis.usda.gov/sites/default/files/approved-labs-eia.pdf>.
- If there is a confirmed positive horse at a facility, a regulatory veterinarian will perform an investigation to identify exposed horses which includes:
 - Any horse that resides with or near confirmed positive horses.
 - Any horses exposed to a confirmed positive horse’s blood via needles, syringes, dental equipment, tattooing or surgical equipment, or other fomites.
 - Nursing offspring of the confirmed positive horse or exposed horse.
 - Horses epidemiologically linked to the confirmed positive horse that may be located at another facility.

- All horses classified as exposed are placed under quarantine and tested for EIA. To identify recently infected horses incubating the disease, all exposed horses are retested 60 days after the removal of the EIA-positive horse from the premises. Exposed horses are placed under quarantine until the retest confirms negative EIA status of the horse.

Postmortem Findings

Postmortem examination may reveal enlarged spleen, liver and/or abdominal lymph nodes and pale mucous membranes. In chronic cases, emaciation may also be noted. Edema is often found in the limbs and along the ventral abdominal wall. Petechiae may be observed on internal organs, including the spleen and kidney. Mucosal and visceral hemorrhages and blood vessel thrombosis have also been reported.

Chronically infected horses that die between clinical episodes usually have no gross lesions, but some animals may have proliferative glomerulonephritis or ocular lesions.

Care should be taken when cleaning after the necropsy of suspected EIA-infected horses as aerosol transmission to close contacts via inadvertent spraying of infectious material (blood) was implicated during the 2006 outbreak in Ireland.

Specific Control Measures

[AAEP General Biosecurity Guidelines](#)

- There is no known treatment.
- Infected horses become lifelong carriers and pose a risk of infection to other horses. As such, management options for an EIA-positive horse are euthanasia or lifetime quarantine with permanent isolation at least 200 yards away from non-infected horses. Note, some states' animal health laws may require euthanasia.
- Prevention is key to stopping the spread of EIA. There is no approved vaccine for EIA in the U.S. Below are some ways to protect horses from contracting the EIA virus:
 - Use a sterile needle, syringe, and IV set for all injections or treatments.
 - Use best biosecurity practices during surgical or medical procedures to eliminate potential transmission through blood contamination of equipment.
 - Disinfect dental equipment, tattoo equipment, surgical instruments, lip chains, and bits thoroughly between horses. Remove all debris and blood with soap and water before disinfection. See "Disinfection" section below.
 - Only administer commercially licensed blood or blood products.
 - Use a sterile needle and syringe each time when puncturing a multi-dose medication bottle.
 - Use sterile technique when drawing up and administering medications.
 - Keep open wounds clean and covered, if possible.



- Practice good fly control by regular mucking of stalls, use of fans, proper disposal of manure away from horse stabling areas, and use of fly sprays or other means (parasitoid insects or feed-through insect growth regulators) to minimize fly presence.

Biosecurity Issues for Receiving Animals

- Regardless of state EIA testing requirements, horses with an unknown/questionable EIA status or no testing record should be tested for EIA at the time of purchase or entrance to a new premises.
- Separate horses with fevers, reduced feed intake, and/or lethargy from other horses and test horses for EIA.

Disinfection

- First, clean all surfaces with detergent to remove organic material (i.e., manure and soil), as organic matter can inactivate disinfectants.
- Next, allow all surfaces to completely dry before applying disinfectant.
- This virus is readily destroyed by most common disinfectants. For more details on applicable disinfectants, see the [AAEP General Biosecurity Guidelines](#) disinfectant table.
- Pressure washing of contaminated surfaces should be avoided as aerosolization of the virus from blood and bodily fluids on the surfaces could occur.

Zoonotic Potential

There is no evidence that equine infectious anemia is a zoonotic risk.

Authors: Katie Flynn, BVMS, and Angela Pelzel-McCluskey, DVM, MS

Supported and reviewed by: AAEP Infectious Disease Committee