



# Equine Infectious Anemia

## The Only Protection is Prevention

Equine Infectious Anemia (EIA) is a disease that threatens the world's horse, donkey, and mule populations. Despite testing and measures to eradicate the equine infectious anemia virus (EIAV), more than 500 new cases are identified each year in the U.S.

There is no cure for EIA. Although most infected horses show no symptoms, they remain contagious for life, endangering the health of other horses. For this reason, the United States Department of Agriculture (USDA; [www.USDA.gov](http://www.USDA.gov)) and state animal health regulatory agencies require euthanasia or strict lifelong quarantine for horses testing positive for EIAV.

## EIA EXPLAINED

Equine infectious anemia is a potentially fatal viral disease. EIAV reproduces in white blood cells that circulate throughout the body. The immune system, via antibodies, may attack and destroy red blood cells leading to anemia. Inflammation associated with the viral infection may damage vital organs, such as the bone marrow, liver, heart, and kidney. Secondary infections, e.g. pneumonia, may occur due to subsequent immunosuppression. EIAV-infected horses may die from the direct effects of the virus or from secondary infections.

### EIA generally has three forms:

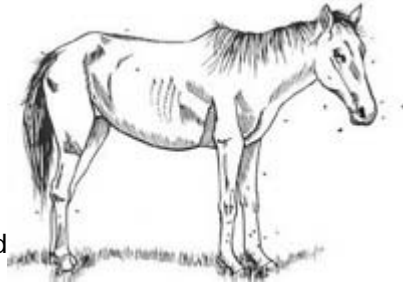
- 1) **Acute:** Seen within 1-4 weeks after the horse's first exposure to the virus, this phase is the most detrimental. It may be difficult to accurately diagnose acutely infected horses, as antibodies are not immediately produced and anemia is not present at this stage. However, the virus is active, multiplying and damaging the immune system and other organ systems.
- 2) **Chronic:** If the horse survives the acute phase, a subacute or chronic phase may occur. The classic signs of EIA such as fever, depression, weight loss, anemia, and petechial (pinpoint sized) hemorrhages on the mucous membranes are most likely seen in this phase. Repeated flare-ups of clinical signs often occur. Such episodes are seen with recrudescence of the virus and viremia (virus present in

the bloodstream) during periods of stress or the administration of corticosteroids.

3) **Inapparent:** Over time, the periodic episodes decrease in severity and frequency. Within a one-year period many horses begin to control the infection and show no clinical signs. These inapparent carriers are infected for life and may be a source of infection for other horses

## TRANSMISSION

EIAV is transmitted by blood or by in-utero passage from mare to foal. Blood transmission can occur via blood-sucking insects, such as horse flies, deer flies, and mosquitoes. The virus is carried in the residual blood on the insect's mouthparts as it travels from one horse to the next. Transmission may also occur via blood transfusion, or blood-contaminated needles and instruments. The virus may also be found in semen and milk.



EIA is also known as "swamp fever" because the disease has been associated with warm, wet regions, but the disease is not limited by geography.

States reporting the highest incidence of EIA (2001 data) include: Texas, Oklahoma, Arkansas, Louisiana, South Dakota, Mississippi, Minnesota, Michigan, Alabama, and Florida.

## SYMPTOMS

EIA may be difficult to diagnose because the symptoms are not specific and may vary from horse to horse. Additionally, individuals may demonstrate no obvious signs (inapparent carriers). Signs may include one or more of the following:

- Fever (temperature may even exceed 105 degrees F)
- Depression
- Mucosal petechial hemorrhages
- Decreased Platelet numbers (thrombocytopenia)
- Decreased Red Blood Cell numbers (anemia)
- Swelling of legs, lower chest, and abdomen (edema)
- Decreased appetite (anorexia)
- Fatigue, reduced stamina, or weakness
- Rapid breathing
- Sweating
- Rapid weight loss
- Nasal bleeding (epistaxis)
- Pale or yellowish (icteric) mucous membranes
- Irregular heartbeat and/or weak pulse
- Colic
- Abortion

## **THE COGGINS (AGID) and C-ELISA TESTS**

The only way to accurately determine whether a horse is infected with the EIA virus is by identifying antibodies in the blood via agar gel immunodiffusion (AGID) or competitive enzyme linked immunoadsorbent assay (C-ELISA) tests. The AGID method is considered the “gold-standard” and is commonly known as the Coggins test. This test was developed 25 years ago by veterinary researcher; Dr. Leroy Coggins. A negative Coggins test means there are no detectable antibodies at the time of testing. A positive test indicates the horse is infected and a carrier of the virus. C-ELISA tests offer the advantage of rapid results. However, false-positive results are more common with the C-ELISA tests, and positive results should be verified by a standard Coggins (AGID) test. Foals may be false positive due to maternal antibodies passed via colostrum for as long as 6 months with either test.

## **FEDERAL & STATE REGULATIONS**

The USDA requires that horses being imported from foreign countries have a negative AGID EIAV test. Within the U.S., each state drafts its own specific requirements regarding EIAV and the movement of horses interstate, intrastate, and in change of ownership. Learn what is required in your state and states you will be visiting. Be aware that laboratory results take time, and plan to have your horse tested in time to get results before you must transport your horse. By law, EIA is a reportable disease. All positive cases must be filed with the state veterinarians and the federal Animal and Plant Health Inspection Service (APHIS; [www.aphis.usda.gov](http://www.aphis.usda.gov)).

## **RISK FACTORS**

There are management and geographic factors that put horses at greater risk for contracting EIA. These include:

- Close proximity to regions where EIA outbreaks have been identified.
- Stabling or pasture environments that have a steady influx of new horses, especially if negative Coggins certificates are not required.
- Exposure to horses at shows, sales, or events, especially where stringent health care regulations are not enforced, and verification of a current negative Coggins test is not required.
- Pasturing horses in swampy areas and in areas where all horses have not been regularly tested for EIA.

## **THE ONLY PROTECTION IS PREVENTION**

There is no effective treatment for EIA. There is no vaccine to prevent it. There is no cure. However, good management can reduce the potential of infection. The following guidelines will help:

- Use disposable needles and syringes, one per horse, when administering vaccines and medications.

- Sterilize dental tools and other instruments before using them on another horse.
- Test all horses for EIA at least annually.
- Test horses at the time of purchase examination
- Stable owners, horse show and event managers should require and verify current negative Coggins certificates for all horses entering the premises.
- New horses should be quarantined for 45 days and observed for any signs of illness, including elevated temperatures, before introducing them to the herd. They should be retested if exposure to EIA is suspected at a 45 day interval.
- All stable areas should be kept clean, dry, and waste-free. Good pasture management techniques should also be practiced. Remove manure and provide adequate drainage to discourage breeding sites for pests.
- Horses that are at greater risk, such as animals who are in frequent contact with outside horses or who live or travel in geographic regions known for EIA outbreaks should be tested more frequently, every 4-6 months.

## **DIFFICULT CHOICES**

If your horse tests positive for EIAV, your options are extremely limited. Federal and state health agencies, as well as the American Association of Equine Practitioners, support euthanasia as the most prudent, albeit emotionally difficult, option. Lifelong quarantine in a screened stall is another, less acceptable, alternative. EIAV-positive horses will always pose an unnecessary health risk to other horses, whether or not they show signs of illness. Even in the best management situations, blood-sucking insects cannot be totally controlled or eliminated. The only way to eradicate the disease is to eliminate the carriers.

Horses testing positive for EIAV are required by law to be permanently identified via branding or tattooing and to be quarantined. Transportation and housing are severely restricted. You should contact your state animal health agency for specific requirements.

Owners who choose quarantine must post signs clearly stating: "Quarantined: Equine Infectious Anemia" or "Swamp Fever." Horses should be quarantined at least 200 yards away from all other animals.

## **CONTINUED VIGILANCE NEEDED**

Stopping the spread of EIAV is everyone's responsibility. If you suspect a horse has EIA, call your veterinarian or state animal health agency immediately. They can assess the animal and initiate the required tests.

Owner compliance with EIAV testing and the destruction of most known reactors has aided in a marked decline in EIA cases in the last 20 years. Today less than 1 percent of the 1 million horses tested annually are found to be carriers. But with an estimated 6.6 million horses in the U.S., more widespread screening is needed. Even backyard horses that never leave the property will benefit.

By having your horse tested, you will be doing yourself and the entire equine industry a favor. The cost is minimal and the price well worth the peace of mind. For more information contact your veterinarian, the American Association of Equine Practitioners (AAEP; [www.aaep.org](http://www.aaep.org)), or the Animal Plant Health Inspection Service.