

Equine Infectious Anemia

What You Need To Know

Answers to the most common questions
and myths about EIA, for horse owners

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What is EIA?

Equine infectious anemia (EIA), also known as “swamp fever,” is a viral disease of horses and other equids (i.e. donkeys, mules, and zebras) that causes recurrent episodes of fever, lethargy and destruction of red blood cells (anemia) and platelets (thrombocytopenia).

Horses are infected for life and remain a potential source of virus for other horses. The episodes of overt disease, which may occur weeks to months apart, are the result of mutations that occur in the virus over time, thus creating a novel “strain” that causes clinical signs in the same horse, until its immune system responds and is once again able to suppress the virus. Other clinical signs of EIA may include swelling (edema) of the limbs and abdomen, rapid weight loss, swollen lymph nodes, and abnormal bleeding tendencies. It is not unusual for an EIA-infected horse to have no history of illness due to EIA, especially since mild episodes (e.g. mild fever and anemia for a few days) may go undiagnosed.



The EIA virus is transmitted on the mouth parts of horseflies and deerflies when they feed on an infected horse, and then feed on another horse within a few hours. Stable flies can also transmit the virus, but not as easily. There is no evidence that the virus is transmitted by mosquitoes. The virus can also be transmitted via blood product transfusions and use of blood-contaminated equipment such as surgical and dental instruments, hoof knives and hypodermic needles. Transmission is much more likely to occur from a horse when it is showing signs of illness, but transmission from persistently infected but healthy horses is possible.

There is no treatment available that will allow a horse to fully eliminate the EIA virus from its body once infected, nor is a vaccine currently commercially available. The virus poses no risk to humans or other non-equid animals.



The Virus

The EIA virus is a lentivirus in the family *Retroviridae*, similar to several immunodeficiency viruses in other species, including human immunodeficiency virus (HIV). These viruses cause persistent, lifelong infection in their hosts by inserting DNA sequences into the DNA of white blood cells. However, unlike other immunodeficiency viruses that cause slowly progressive illness, signs of EIA are usually the most severe when a horse is initially infected, and episodes become less severe over time.



While the majority of horses survive initial infection with EIA, a small proportion develop very severe acute anemia and other signs of illness which can be fatal. In some persistently infected horses, disease episodes may become more frequent and severe, resulting in debilitating chronic anemia, thrombocytopenia (low platelet count), edema (swelling) and weight loss, which may lead to euthanasia.

Testing for EIA in Canada

All commercially available tests for EIA are based on detecting **antibodies** to the EIA virus in blood. Because the EIA virus can never be completely eliminated, any horse that has produced antibodies to EIA is also carrying the virus.

All EIA testing in Canada is performed at CFIA-approved laboratories only. The first screening test performed on each sample is an **ELISA test**, which is very sensitive (meaning it is highly unlikely to miss a positive horse by producing a “false negative” result). If the result is positive (weak or strong), the sample is sent to the CFIA EIA National Reference Laboratory in St. Hyacinthe, QC, where the ELISA test is repeated. If the second ELISA test is also positive, then the **AGID test** (commonly known as the “Coggins test”) is performed. This test is very specific, meaning it is highly unlikely to produce a “false positive” result. It is the internationally-recognized confirmatory test for EIA.

What happens when a horse is confirmed positive for EIA in Canada?

A confirmed positive horse is one that has tested positive twice on the ELISA test and once on the AGID test. By law, the Canadian Food Inspection Agency (CFIA) must take the following **mandatory** actions for any confirmed positive case of EIA:

- **Quarantine:** The positive horse must immediately be quarantined at least 200 m from all other horses due to the risk of virus transmission from insects. All other horses that were within 200 metres of the positive horse within the last 30 days must also be quarantined, regardless of whether they are on the same or an adjoining property, or if they were moved to another property elsewhere in that time.
- **Testing of other horses:** The other horses that were within 200 metres of the positive horse are considered “potentially exposed” and must also be tested for EIA. Because these horses can take a few weeks to either show signs of illness and/or to produce antibodies after being exposed to the virus, they must be tested at least once 45 days or more after their last exposure to the EIA-positive horse before the quarantine is lifted. In Canada, additional testing may be required before 45 days depending on the risk of transmission within the group (e.g. during fly season).

EIA occurs in horses all over the world, but there are many countries where the prevalence of infection is very low, primarily due to ongoing control programs. The equine industry negotiated to have Canada’s EIA control program put in place. As an OIE-listed disease, it is internationally expected that measures of this kind are taken to prevent the spread of EIA within (and from) the country.

Why do confirmed EIA-positive horses have to be permanently quarantined or euthanized?

If the positive horse has no detectable clinical signs of EIA, the CFIA will re-test the horse, if requested. The likelihood of both the ELISA tests and the AGID test producing a false-positive result is extremely remote; therefore, the main reason for re-testing at this stage is to ensure that the horse and sample were correctly identified. If the results of re-testing are also positive, or if no re-testing is requested, then steps must be taken to ensure that the virus can never be transmitted to other horses.

Horses with overt signs of EIA

The CFIA will order confirmed positive horses with clinical signs of EIA to be humanely euthanized, because these horses have high levels of virus in their blood and are therefore a much greater risk to other horses in terms of being a reservoir for transmission of the virus.

Healthy horses with EIA

For healthy confirmed-positive horses with no clinical signs of EIA infection, there are two options:

- 1. Lifetime quarantine:** The horse must be quarantined for the remainder of its life, keeping it at least 200 metres from any EIA-negative horse. In the US, a brand or a lip tattoo is also typically applied to permanently identify the horse as an EIA “reactor”. The horse also cannot be moved from the premises at any time except under special permit in a sealed trailer to either a research or slaughter facility, or its home farm.
- 2. Euthanasia:** If permanent quarantine is not possible, the horse must be euthanized. In these cases, the CFIA will pay compensation to the owner up to \$2000 per animal.

Although these measures may seem extreme, EIA is an unpredictable disease, and these steps help to protect every horse with which the infected animal may otherwise come into contact over the course of its lifetime, as well as all the horses with which those animals may come into contact, and so on.

What would happen if Canada stopped testing for EIA?

The virus would likely spread within the Canadian horse population from the small number of EIA-positive horses that are already present in the country. The spread would likely be very slow at first, but as more horses became infected the speed of spread would rapidly increase. Clinical illness due to EIA, including debilitating or potential fatal infections, would also become more common.

As a result of this increased risk of EIA, people might stop bringing their horses to events in Canada. Other countries that are trying to control or eradicate EIA would still require a negative EIA test in order for horses from Canada to cross their borders. In the worst case, some countries may stop allowing horses from Canada to be imported altogether due to the increased risk that Canadian animals may be carrying EIA, which may then infect the resident population.





Canada's EIA Control Program

The EIA control program in Canada is in place to help protect the Canadian equine industry, in terms of the overall health of the national herd, and particularly in terms of international trade and competition. The program is based on international disease control standards set forth by the World Organization for Animal Health (OIE). Without the control program, many countries would not allow Canadian horses to be imported for breeding, sale or competition, and they would not allow their horses to travel to and back from Canada for the same purposes, due to the risk of EIA spreading to their own animals. The cost of the EIA test paid by owners does not even cover the CFIA's operating costs for the program - this is done as a service to the industry.

What can I do to protect my horse from Equine Infectious Anemia?

1. The best way to protect your horse from EIA is to **avoid exposure to EIA-positive horses**; because many EIA-positive horses look healthy most of the time, a strong testing and reporting program is needed.
 - Whenever possible, ensure that all horses that come within 200 metres of your horse are tested for EIA. This includes **only taking your horse to shows and events where all horses are required to be tested for EIA** before being allowed on the premises, and requiring testing of any new horses coming to your property or boarding facility.
2. **Control horseflies, deerflies and stable flies** on and around your horse at all times, and especially at any large gathering of horses, as these are the natural means of transmission of EIA between horses. Insect control includes appropriate use of repellants and insecticides as well as management of manure and environmental moisture to discourage insect breeding.
3. Ensure that any blood products (including plasma) given to your horse are from EIA-negative donors. **Do not reuse hypodermic needles**, and any medical equipment (e.g. surgical and dental instruments, hoof knives) that may be contaminated with blood must be thoroughly disinfected between uses on different horses. The EIA virus is easily killed by almost any disinfectant if the surface or object is not visibly dirty, but can survive for up to four days on a hypodermic needle at room temperature.

The CFIA provides **maps showing areas in Canada where horses have been diagnosed with EIA** on an annual basis. Regions where positive horses have been reported (particularly over several years) would be considered higher risk for other horses that travel or live there. These maps are available on the CFIA website at <http://www.inspection.gc.ca/> under Animals > Terrestrial Animals > Reportable Diseases > Equine infectious anemia.

More Information

For more information about EIA in Canada, a full-length version of this information sheet, including references, is available on the Worms & Germs website under Resources > Horses. Visit:

www.wormsandgermsblog.com

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