

# EIA AND YOUR HERD

## KEY FACTS ABOUT EQUINE INFECTIOUS ANEMIA (EIA)



### What is equine infectious anemia (EIA)?

Equine infectious anemia (EIA) or swamp fever is a viral disease of horses, mules and donkeys. Once horses are infected with the EIA virus, they remain lifelong carriers and are a potential viral source. There is no cure for EIA, which is a reportable disease in Canada. The equine industry and Canadian Food Inspection Agency (CFIA) share responsibility for EIA control in Canada: detection is through voluntary industry testing while the CFIA is responsible for mandatory response.

### EIA is commonly transmitted by blood. How?

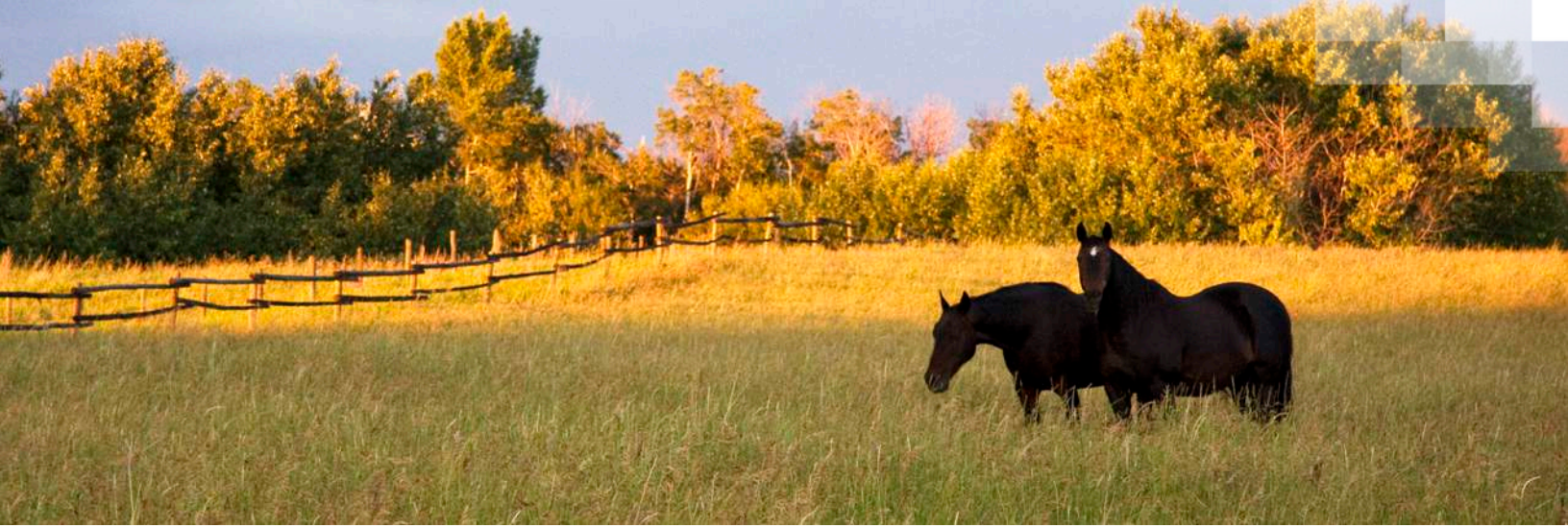
**By insects:** Large biting insects (horse flies and deer flies) transfer blood from one horse to another through successive bites. When a horse's defensive movements interrupt flies' blood meals, the insects will attack the same horse or a second host to complete feeding. Any infected blood present on the insects' mouthparts can be mechanically transferred to another host.

**By people:** Reusing contaminated needles and syringes, surgical instruments and other equipment are common sources for EIA infection. The use of contaminated equine blood transfusion products is another infection source.

### What is the virus' incubation period?

The time before the symptoms of a viral infection appear is called the incubation period. The incubation period for EIA depends on several factors including the initial dose of virus and the horse's individual immune system. Once a horse is infected, it can be a source of infection whether it shows clinical signs or not. The incubation period can range from two weeks to two months. A variable incubation period means there may be a slight chance that a horse testing negative for EIA is actually in the early stages of infection. During this period, a horse may receive a negative test result because its immune system hasn't responded to a level that can be detected by available screening tests. This is why veterinarians recommend that owners test their horses each spring, even if their animals are only in contact with EIA-negative horses.





### What are clinical signs of EIA?

All EIA-infected horses are carriers of the virus and considered infectious. Clinical signs of EIA include fever, weight loss, icterus (yellowing of body tissues), anemia, swelling in the limbs and weakness. However, not all infected horses show all signs of illness — many are non-apparent carriers. Stressful events can trigger this change from the inapparent form of EIA to the clinical form of the disease. When clinical signs are present in a horse, its level of infectiousness also increases.

### EIA generally has three forms: acute, chronic and non-apparent.

**Acute:** This phase occurs within one to two weeks after exposure to the virus. It may be difficult to accurately diagnose horses since antibodies aren't immediately produced and there is no anemia present. A horse may develop a mild fever or lose its appetite — signs that may go unnoticed.

**Chronic:** Clinical signs of EIA (fever, depression, weight loss, anemia and pinpoint-sized hemorrhages on the mucous membranes) are most likely seen in this phase. During times of stress or when a horse is on immune-suppressing drugs, clinical signs may flare up repeatedly.

**Non-apparent:** Within one year, many horses begin to control the infection and show no clinical signs. These non-apparent carriers are infected for life and may be a source of infection for other horses.

### How is EIA diagnosed?

A lack of specific symptoms associated with EIA makes blood screening critical in identifying the disease. To accurately determine whether a horse is infected with the EIA virus, a CFIA-accredited veterinarian will take a blood sample and test it for the presence of EIA antibodies. There are two laboratory tests available to detect EIA antibodies.

- **c-ELISA (competitive enzyme-linked immunoabsorbent assay):** While this newer, initial screening test provides more rapid results, there will also be some false-positive outcomes. In Canada, a positive c-ELISA result is confirmed using a standard Coggins test. If the test is negative, a negative EIA test certificate is issued to the horse owner.
- **Coggins test or agar gel immunodiffusion (AGID) assay:** A negative Coggins test means there are no detectable antibodies at the time of testing. A positive Coggins test indicates the horse is infected and is a carrier of the virus. A horse that tests negative through a Coggins test will be issued a negative EIA test certificate.



Veterinarians draw and test blood to determine if a horse carries the EIA virus.

Large biting insects and contaminated needles are the most common sources of EIA infection.



## If test results can only confirm my horse is negative for EIA at that particular moment, why test?

It's true that EIA testing only confirms a horse's current status, but the results enable you to act appropriately.

- If a horse tests positive, you and your veterinarian can ensure that the animal is isolated from other horses.
- If a horse tests negative, you can continue to protect the animal's EIA-negative status through preventive measures such as controlling insects and only attending events that require a current negative EIA certificate.



EIA-positive horses remain infected for life.

## Do EIA-positive horses have to be euthanized?

EIA-positive horses carry the virus for life and serve as a reservoir of infection for other horses. While humane euthanasia is recommended, EIA-positive horses can be kept in lifelong isolation from other horses. However, horses are social animals and solitary isolation can be stressful for them. Owners could house a pair of EIA-positive horses together as long as they are sufficiently isolated from other horses to prevent the spread of EIA. Under the CFIA control program, any EIA-positive horse must remain in permanent quarantine.

The EIA virus survives for about 30 minutes on an insect's mouthparts.



## My herd has no contact with other horses, and they don't leave my property. Why should I test?

Horses can be asymptomatic carriers of the EIA virus, but stress or another illness can cause them to develop the clinical and more infectious form of the disease. Spread of the disease among your own horses could occur. An initial test confirms that your horses are not infected with EIA. If all horses test negative for EIA infection twice in a row, you can presume negative status. After that point, you would only need to test if your herd has contact with other horses or if you need a current negative EIA certificate to attend an event.

## My neighbour does not test his horses for EIA. Are my horses at risk?

Biting flies tend not to travel too far: they stay in one congregated area, and the EIA virus can only survive for about 30 minutes on the mouthparts of a biting fly. If your neighbour's horses are more than 200 metres away, the risk is low. If you share a pasture fence line with your neighbour, then the risk is higher.

## Can the EIA virus be spread through breeding practices?

Although venereal transmission doesn't seem to be a major route of spread, the EIA virus is found in semen and can be spread through live cover breeding.

## Can a pregnant mare pass the EIA virus on to its unborn foal?

Yes, foals infected before birth are often aborted or die within two months of birth. EIA antibodies can also pass to the foal, so a test-positive foal can be separated from its mother and retested when it's more than six months old to confirm if it is reacting to acquired antibodies from the EIA-positive mare — or if it has an actual infection. Research has shown that the transmission rate of EIA virus from mare to foal is low. But in one Saskatchewan case, several foals tested positive for EIA after separation and retesting. The foals could have been infected *in utero* or through biting flies since they were with EIA-positive horses.



The EIA virus can spread from infected dam to foal both before and after birth.





### How can I protect my horses from EIA infection at home?

- **Regular testing:** Screen all horses for EIA infection at least once every spring before fly season begins. Test any new horse before purchasing. If your horse frequently travels to shows or other high equine traffic areas where negative EIA test certificates are not required, consider testing more frequently (twice a year).
- **Isolation:** Test new horses for EIA before they arrive at a new facility. Isolate them for 45 days and watch for any signs of illness (EIA or other diseases) before introducing them to other horses.
- **Insect control:** Use insecticide spray, fly sheets and masks, screens and fans to deter biting flies. Any type of standing water provides insects with ideal breeding sites; drain standing water and remove any old tires or equipment from your property.
- **Medical equipment:** Use disposable needles and syringes (one per horse) for vaccinations and medication. Disinfect dental tools and other instruments before reuse.

### How can the horse community help?

- **Regular testing:** All farm, stable and arena operators should require that all horses on the premises be regularly tested for EIA. A current negative EIA test certificate should also be a requirement for new boarders and participants in any hosted events — such as clinics or trail rides — where horses are gathered together.
- **Requirement of entry:** It is strongly recommended that organizers of horse shows, racetracks, rodeos and other equine events require entrants to provide a current negative EIA test certificate.



### ADDITIONAL INFORMATION

- EIA Fact Sheet, Saskatchewan Ministry of Agriculture ([agriculture.gov.sk.ca](http://agriculture.gov.sk.ca))
- EIA Fact Sheet, EIA Control Program and Premises Infected with EIA, Canadian Food Inspection Agency ([inspection.gc.ca](http://inspection.gc.ca))
- EIA Disease Information (including videos and fact sheet), U.S. Department of Agriculture ([usda.gov](http://usda.gov))
- EIA: The Only Protection is Prevention, American Association of Equine Practitioners ([aaep.org](http://aaep.org))
- "Equine infectious anemia threat for horses," Townsend Equine Health Research Fund ([ehrf.usask.ca](http://ehrf.usask.ca))

**Sources:** Saskatchewan Ministry of Agriculture, Western College of Veterinary Medicine, Canadian Food Inspection Agency, U.S. Department of Agriculture, American Association of Equine Practitioners

### QUESTIONS? PLEASE CONTACT:

Western College of Veterinary Medicine (WCVM)

- **Email:** [horse.health@usask.ca](mailto:horse.health@usask.ca)
- **Phone:** 306-966-7178  
(Large Animal Clinic, Veterinary Medical Centre)



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Veterinary Medicine

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