Immunizations and Coggin's Test Guidelines

The following immunizations (Core) are recommended for horses attending the Muskegon County Fair:

- Eastern Encephalomyelitis (EEE)
- Western Encephalomyelitis (WEE)
- West Nile (WNV)
- Tetanus
- Rabies

From the Equine Disease Communication Center: http://www.equinediseasecc.org/vaccination.aspx

- Core vaccines are defined as:
  - those that protect horses from diseases that are endemic (very common) to a region
  - have potential public health significance (e.g., rabies)
  - protect against virulent (deadly) and/or highly infectious organisms.

Core vaccines have clearly demonstrated a high degree of safety and efficacy and thus are considered to provide a high enough level of patient benefit and low enough level of risk to justify their use in the majority of horses regardless of where they reside or what they do for a living.

Below are additional immunizations that may be administered to horses.

- Equine Influenza Virus (EIV)
- Equine Rhinopneumonitis (Rhino-EVH 1 & Equine Herpesvirus EVH 4)
- Potomac Horse Fever
- Strangles

Immunizations (Must be given in current year)

Excellent Website for up to date info:
American Association of Equine Practitioners - https://aaep.org/
Equine Disease Communication Center - http://www.equinediseasecc.org

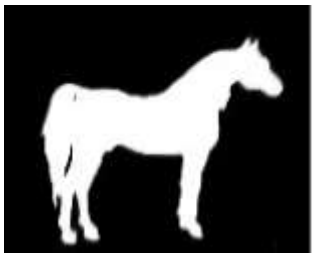
Coggin's Test (Drawn within last 12 months)

- Readable
- If registered/show name is on coggin's, please add barn name
- Horse's Name on coggin's needs to match horse's name on project book.

What is EIA?
http://www.michigan.gov/mdard/0,4610,7-125--11813--,00.html
Do I Need to Have My Horse Tested for Equine Infectious Anemia?
http://www.michigan.gov/mdard/0,4610,7-125-48096_48097_68355-62163--,00.html
How is EIA transmitted?
http://www.michigan.gov/mdard/0,4610,7-125-48096 48097 48107 48114-11814--,00.html
How can I prevent EIA?
http://www.michigan.gov/mdard/0,4610,7-125-48096 48097 68355-11823--,00.html
How do you detect and treat the EIA virus?
http://www.michigan.gov/mdard/0,4610,7-125-48096 48097 68355-11820--,00.html

What is EIA?

Contact: Animal Industry Division (517) 373-1077



EIA
Equine Infectious Anemia

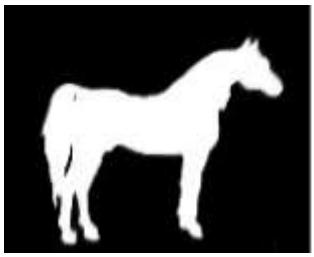
Equine infectious anemia (EIA) is a disease caused by a virus that produces anemia, intermittent fever, and severe weight loss. Equidae (e.g., horses, ponies, mules, and donkeys) are the only animals known to be affected by the virus. Once an animal is infected with the virus it is infected for life, regardless of the severity of the symptoms. No treatment is effective against the EIA virus.

When the virus enters the bloodstream, it invades lymphocytes (a form of white blood cells that are important in the body's defense against disease). The virus then reproduces in the lymphocyte, increasing in numbers until the lymphocyte bursts, releasing more virus into the bloodstream to repeat the cycle. The animal attempts to fight off the viral infection by producing antibodies against the virus. However, this antibody is not effective in eliminating the virus from the body, and enough lymphocytes are destroyed over time to reduce the effectiveness of the immune system. When the animal reaches this stage, it usually succumbs to other bacterial or viral infection. The death rate of infected Equidae varies from 30 to 70 percent, and is usually higher when the virus is introduced into a new geographical region.

The anemia that sometimes accompanies this disease is caused by the animal's immune system attacking the cells that produce red blood cells in the bone marrow. The reasons for this event are unknown.

Other common names for EIA are: swamp fever, mountain fever, slow fever, and Coggins' disease.

How do you detect and treat the EIA virus?



The AGID test, also known as the Coggins test, is the most commonly used official test to detect antibodies from equine blood against the EIA virus. It is extremely likely that an equine animal that tests positive on one occasion will do so for the rest of its life (except young foals who absorbed antibodies from their positive dam's colostrum).

Michigan law requires that, for interstate movement of equidae into Michigan, the animal tests negative on an official EIA test within the past year before entry into the state. The animal must also be accompanied by an official interstate health certificate or official interstate certificate of veterinary inspection.

At present, there is no vaccine or cure available.

What is EIA?

Equine infectious anemia (EIA) is a viral disease that causes anemia, intermittent fever, and severe weight loss. Equidae, e.g., horses, ponies, mules, zebras, and donkeys, are the only animals known to be affected by the virus. Once an animal is infected with the virus, it is infected for life. Other common names for EIA are swamp fever and Coggins disease. At present, there is no vaccine or cure available. The death rate of infected equidae varies from 30 to 70 percent.

Spread of Infection

EIA is transmitted by the exchange of certain body fluids, usually blood, from an infected to a noninfected animal. Methods of transmission include:

- Insect bites - blood-feeding flies such as horseflies, stable flies, and deer flies. Note: mosquitos are not capable of transmitting EIA.
- Mechanical means - hoof knives, needles (tattooing or bleeding), syringes, etc.
- Blood transfusions

Testing for EIA

A screening test, the competitive enzyme-linked immunosorbent assay (cELISA) test, is commonly used as the initial test for EIA. If the animal tests positive on cELISA, the positive result is verified by the more specific agar gel immunodiffusion (AGID) test, also known as the Coggins test. The AGID test detects antibodies from equine blood against the EIA virus. It is extremely likely that an animal that tests positive on one occasion will do so for the rest of its life. The cELISA test is accepted for movement throughout the U.S. and Canada. You should have your veterinarian contact the United States Department of Agriculture (USDA) concerning equidae movement to other countries.

Michigan's Mandatory EIA Testing Requirements

Michigan equidae owners must have an official EIA test with negative results within the past 12 months if equidae are:

- Entered into fairs, shows, exhibitions, or similar events. Show authorities are required to confirm proof of negative test status for entered animals.
- Consigned to or entering within one-quarter mile of the premises of horse sales or auctions, even if they are not being offered for sale.
- Sold and the change of ownership requires relocation of the animal. Testing is not required if the animal resides at the same stabling location.

Michigan law also requires any equidae entering Michigan to have a negative EIA test within the past 12 months prior to entry.

Please note:

Foals under six months of age who are nursing their dam are excluded from testing requirements of this act.

In addition to state testing requirements, sponsors, coordinators, and managers of equine events may place additional testing requirements for participation in such events.

For More Information

Contact your local veterinarian or
Michigan Department of Agriculture and Rural Development - Animal Industry Division
P.O. Box 30017, Lansing, MI 48909
PH: 1-800-292-3939
FX: (517) 373-6015
www.michigan.gov/mdard

If an Animal Tests Positive for EIA:

- The state of Michigan will retest the animal to ensure an accurate test.
- If a positive test is confirmed, the animal and its herd mates will be quarantined.
- The animal's owner will then have three options:

  1. Have the EIA animal(s) euthanized.

     If the owner wishes to maintain the animal, any positive animal(s) will be freeze branded on the neck to identify them as Michigan EIA reactors.

  2. Isolate all EIA animals at least one-quarter mile from all other non-infected equine.
  3. Isolate the EIA animals in an insect-free enclosure.

- No compensation is provided by the state to the owner of an EIA animal.

Law Violations

Intentional misrepresentation or violation of a quarantine is a felony and is punishable by a fine of $1,000 to $50,000, not more than five years imprisonment, or both. Other violations are at the misdemeanor level and are subject to fines up to $300, up to 30 days imprisonment, or both. Court and attorney fees incurred in the prosecution may also be charged to the defendant if convicted. Administrative fines and other penalties may also apply.

Signs of Infection

Most equidae do not show any sign of disease. In some, signs of EIA appear seven to 21 days after primary infection and may include:

- An intermittent or continuous fever, sudden rise from 100-105°(F)
- Profuse sweating
- Rapid breathing
- Depression
- Weight loss (even though the animal continues to eat well)
- Swelling of the lower legs and underline

The initial signs of EIA then pass quickly into one of four patterns: carrier, chronic, subacute, or acute.

- Carrier animals appear to be healthy but harbor the agent of the disease. An animal will carry the virus for its entire life and never show signs of the disease, but is potentially able to transmit the disease. These animals may develop into acute or chronic cases after hard work, severe stress, or from other diseases.
- Chronic cases may have occasional attacks and develop classic symptoms that include a poor hair coat, weight loss, weakness, anemia, and swelling of lower legs, chest, and abdomen. These signs will later subside but may never recur. These symptoms commonly develop after stress from hard work, hot weather, pregnancy, or from other diseases.
- Subacute cases can also be very sick and then become chronic. These animals exhibit no signs of the disease for a long time, then progress to a state of continuing weight loss, rough hair coat, and anemia. Relapses of increasing severity are common.
- Acute cases are the exception rather than the rule. These animals rarely survive and can die within three to 10 days after the virus enters the bloodstream.

Preventing EIA

- Reduce flies in barns or stables and pastures by removing manure, eliminating standing water, and controlling brush.
- Use new, sterile needles on each animal.
- Clean and sterilize all instruments (knives, needles, and dental and surgical equipment, etc.) thoroughly after each use.
- Do not share saddles, bridles, or other pieces of equipment between any animals with open or bleeding wounds or sores.
- Do not breed mares or stallions that you suspect or know are infected.
- Observe your animal daily. A veterinarian should be called at the first sign of disease.
- Purchase animals only after they have been tested and found to be free of any evidence of disease. Require a copy of the test report.
- Only participate in events (show, sale, racetrack, trail ride, etc.) that require prior testing for all animals.
- Establish a routine EIA testing schedule with your private veterinarian.

Michigan Department of Agriculture & Rural Development
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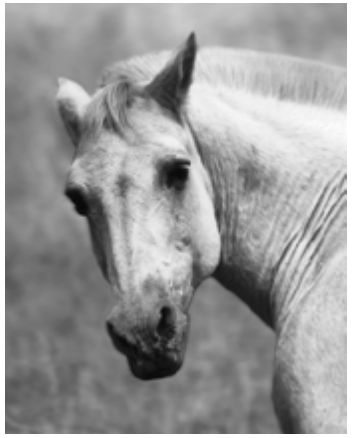
Michigan Department of Agriculture & Rural Development

Equine Infectious Anemia (EIA)



Viral Disease of Horses, Ponies, Mules, and Donkeys

Introduction

The horse industry is a vital component of Michigan agriculture. Understanding some of this industry's disease issues can enhance continued expansion of the industry. The obvious economic losses resulting from these diseases include: death, increased veterinary costs, and cancellation of events.

Eastern Equine Encephalomyelitis, Equine Infectious Anemia, and Potomac Horse Fever are three diseases of horses commonly confused with each other because the early signs for all three are similar and they all have complicated and often misunderstood transmission patterns. These signs include fever, depression, and loss of appetite and are so general it is often impossible to tell if a horses has one of these conditions, or some other disease. Laboratory tests, definitive symptoms observed by a veterinarian, and sometimes, postmortem exams, are required for a final diagnosis.

Equine Protozoal Myeloencephalitis is a disease affecting horses in Michigan and other eastern and northwestern states. Affected horses may show signs ranging from mild lameness to an inability to rise.

Rabies virus is a concern because it can affect any mammal, including humans, and common horse husbandry practices place horses in contact with wild animals that potentially carry the disease.

Eastern Equine Encephalomyelitis

Eastern Equine Encephalomyelitis (EEE), also known as "sleeping sickness," is caused by a virus that attacks the nervous system. Horses, people, birds, and a variety of small mammals can contract this disease from a mosquito bite. Mosquitoes spread the virus among wild birds. These birds serve as a reservoir of infection for other animals and mosquitoes act as the transmission vector to horses and people. The disease is not spread from horse to horse or from a horse to a human. An effective vaccine for horses is available and recommended to protect them from EEE.

Equine Infectious Anemia

Equine Infectious Anemia (EIA), also known as "swamp fever," is caused by a virus that attacks red blood cells. Only equine species are affected. Introducing certain body fluids, usually blood, from an infected horse to a healthy horse transmits this disease. This can be accomplished by an insect (most likely horse flies) or by a variety of mechanical means (such as the repeated use of a single needle on a number of horses, one of which is infected). Once infected, horses harbor the virus for life. The initial signs of EIA pass quickly into one of four patterns: acute, subacute, chronic, or carrier.

- **Acute** cases are more the exception than the rule. These horses rarely survive and die within three to 10 days after the virus enters the bloodstream.
- **Subacute** cases can also be very sick and symptoms become chronic. These horses may have no sign of disease for a long time then progress to a state of continuing weight loss, rough hair coat, and anemia. Relapses of increasing severity are also common.
- **Chronic** cases may have occasional attacks and usually have a poor hair coat, unhealthy appearance, edema, and anemia.
- **Carrier** animals appear healthy, but harbor the virus. A horse may be a carrier for its entire life and never show signs of disease but can potentially transmit disease to a healthy horse.

EIA tests detect the presence of antibodies to the EIA virus in the blood of the horse. Antibodies are proteins manufactured by the horse in an attempt to fight the virus. A horse testing positive on one occasion will do so for the rest of its life (except young foals that absorbed antibodies from their positive dam's colstrums but are not actually infected with the virus). There currently is no effective treatment or vaccination program available for this disease.

The Coggins test, an Agar-gel immunodiffusion test, is the original test for EIA. It takes several days to run and is considered the standard test by which other more recently developed tests are evaluated. These tests, called Enzyme-linked immunosorbent assay (ELISA) tests, require only a few hours to complete. Positive ELISA tests are confirmed by running the Coggins test.

Potomac Horse Fever

Potomac Horse Fever (PHF) is caused by a bacterium called *Erhlichia risticii* that inhabits white blood cells and cells lining the intestine. First recognized in Maryland in 1979, this disease is now found in many U.S. states, including Michigan. The bacteria are ingested when the horse grazes in areas containing snails. After initial disease signs, horses show one of two patterns. Some horses recover from their signs of illness and appear to be healthy but may experience relapses of fever, depression, and loss of appetite. Other horses develop diarrhea or colic, and/or may founder. Early treatment with appropriate antibiotics is often effective. There is a vaccine available to aid in the protection of horses from this disease.

Equine Protozoal Myeloencephalitis

Equine Protozoal Myeloencephalitis (EPM) is caused by a protozoal organism that invades the central nervous system of the horse, most commonly the spinal cord. The organism causes a neurological disorder resulting in clinical signs that may include frequent falling or stumbling, gait abnormalities, head tilt, severe weakness, and muscle wasting. Transmission of the organism is not completely understood, although opossums are thought to be the primary hosts in the organism's life cycle. Collection of cerebrospinal fluid by spinal tap may be necessary to diagnose the disease. Horses may be treated for the disease, although success rates vary.

Rabies

Rabies is caused by a virus that attacks the nervous system and is always fatal. Bats, skunks, foxes, raccoons, and other wild animals are the reservoirs of this disease. Humans, as well as horses and other domestic animals, may become infected when exposed to fluids such as saliva from rabid animals through bites or scratches. Horses with rabies may appear sleepy or depressed; stumble; are unable to eat, swallow, or drink; make unusual vocal sounds, or are aggressive. Because the shelters built to house horses are also attractive to wild animals, rabies should always be considered when evaluating an ill horse. A vaccine to protect horses against rabies is available and its use is strongly recommended.

Prevention Checklist for Equine Diseases

- Observe your horse(s) daily.
- Keep horses on a continuous preventative medicine program designed with help from your veterinarian.
- To the greatest extent possible, take steps to reduce mosquitoes and flies in barns and stables.
- Do not re-use needles or share needles from horse to horse.
- At the first appearance of any of the disease signs – fever, depression, or loss of appetite – isolate sick animals and call your veterinarian.
- Avoid exposing your horse to sick horses.

Eastern Equine Encephalomyelitis
Causative Agent……..Virus
Transmission……Mosquito bite
Detection test available……..……Yes
Effective treatment program……..……No
Vaccination available……..……..……Yes
Human infection……..Yes

Equine Infectious Anemia
Causative Agent……..…….Virus
Transmission…….Horse fly or Deer fly bite, or mechanical (sharing needles or other blood contaminated equipment)
Detection test available……..……..…Yes
Effective treatment program……...No
Vaccination available……..……No
Human infection……..……No

Potomac Horse Fever
Causative Agent……..…….Bacteria
Transmission……..Ingestion of contaminated feed
Detection test available……..……Yes
Effective treatment program……..……...Yes
Vaccination available……..……..……Yes
Human infection……No

Equine Protozoal Myeloencephalitis
Causative Agent……..…..Protozoal organism
Transmission……..Ingestion of contaminated feed
Detection test available……..……Yes
Effective treatment program…..……Variable
Vaccination available……..……..No
Human infection……..……No

Rabies
Causative Agent……..……Virus
Transmission……...Saliva exposure
Detection test available……*No
Effective treatment program……..No
Vaccination available……..……..……Yes
Human infection……..Yes
*except postmortem

This brochure is intended to provide only a basic introduction to EEE, EIA, Potomac Horse Fever, EPM, and Rabies. More information is available from your veterinarian.

For more information contact:

Michigan Department of Agriculture and Rural Development
Animal Industry Division
P.O. Box 30017, Lansing, MI 48909
PH: 1-800-292-3939
FX: (517) 373-6015
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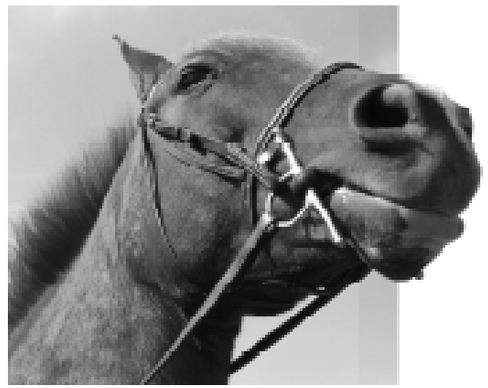
Equine Diseases in Michigan



- ***Eastern Equine Encephalomyelitis***
- ***Equine Infectious Anemia***
- ***Potomac Horse Fever***
- ***Equine Protozoal Myeloencephalitiis***
- ***Rabies***