

## 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 horse 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 colostrums 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.



# Equine Diseases in Michigan



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



For more information contact:

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