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
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.

EEE 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.

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.

Potomac Horse Fever
Potomac Horse Fever (PHF) is caused by a bacterium called *Ehrlichia 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.

*Ehrlichia risticii* is a bacterium that lives in white blood cells and cells lining the intestine. It causes Potomac Horse Fever, which affects horses in Michigan and other eastern and northwestern states. The disease can spread to horses through contact with wild animals or through bites from infected insects like horse flies. Early detection and treatment are important to control the spread of the disease.
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: Yes
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.

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