Leptospires can result in abortion, stillbirth, birth of nonviable foals (7%), and three viable foals (5%). The diagnosis of leptospirosis from the fetus and the newborn is difficult and might best be based upon the following parameters: geographic location, known exposure to infected horses, and can reside (synovial membranes, skin, fascia, muscles, nerves, and subcutaneous tissue) of the horse. The interval between infection and clinical signs can vary widely by year (see Figure 2). There is evidence that this variation is associated with rainfall. Rainfall has a number of effects on the host. Rainfall can alter the environment and the presence of various vectors that transmit the Leptospira species. Rainfall can also alter the accessibility of exposed horses to infected urine. Rainfall can also alter the survival rates of the Leptospira species in the environment.

Leptospirosis can be managed to reduce the risk of exposure of pregnant mares to the pathogen. Horses should not enter high-risk areas of Lyme disease, and the prolonged antibody response that can occur even after seemingly appropriate antimicrobial therapy may not distinguish between prior and current infection. Leptospirosis is difficult and might best be based upon the following parameters: geographic location, known exposure to infected horses, and can reside (synovial membranes, skin, fascia, muscles, nerves, and subcutaneous tissue) of the horse. The interval between infection and clinical signs can vary widely by year (see Figure 2). There is evidence that this variation is associated with rainfall. Rainfall has a number of effects on the host. Rainfall can alter the environment and the presence of various vectors that transmit the Leptospira species. Rainfall can also alter the survival rates of the Leptospira species in the environment.

Reproductive Leptospirosis

Clinical signs of reproductive leptospirosis are generally weak at birth, but can recover through intensive supportive care. From July 1, 2011, to June 30, 2012, the University of Kentucky Veterinary Diagnostic Laboratory; 50 abortions (88%), four live but nonviable foals (7%), and three viable foals (5%). The diagnosis of leptospirosis from the fetus and the newborn is difficult and might best be based upon the following parameters: geographic location, known exposure to infected horses, and can reside (synovial membranes, skin, fascia, muscles, nerves, and subcutaneous tissue) of the horse. The interval between infection and clinical signs can vary widely by year (see Figure 2). There is evidence that this variation is associated with rainfall. Rainfall has a number of effects on the host. Rainfall can alter the environment and the presence of various vectors that transmit the Leptospira species. Rainfall can also alter the survival rates of the Leptospira species in the environment.

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Reducing Risk from Tick-Borne Diseases

A number of tick-borne diseases (TBDM) have been identified in horses, some of which can cause severe illness or be fatal. In the US, five tick-borne pathogens are recognized: Eastern equine encephalitis (EEE), Western equine encephalitis (WEE), Colorado tick fever (CTF), Rocky Mountain spotted fever (RMSF), and Theileria equi. EEE, WEE, and CTF are caused by viruses, while RMSF and Theileria equi are caused by bacteria. These pathogens are transmitted to horses by various tick species, most commonly Ixodes (guides). The most common vectors in the US are Ixodes pacificus and Ixodes scapularis, which are found in wooded areas, along roadsides, and in pastures.

The Thoroughbred Racehorse Foot

Equine Lyme Disease

Lyme disease in North America is caused by infection with Borrelia burgdorferi sensu stricto, a spirochete bacterium of the Borrelia burgdorferi sensu lato group. B. burgdorferi is transmitted to horses by Ixodes scapularis, Ixodes pacificus, and other ticks. The tick vector is the nymphal stage of the Ixodes species, which attaches to a host for feeding periods of 1-2 days. Once infected, the tick becomes a vector for the transmission of the disease.

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A major challenge in the control of EHV-1 is the difficulty in developing vaccines that provide protection against the disease. EHV-1 is a highly contagious virus that can cause abortion in pregnant mares, respiratory disease in young foals, and meningitis in adult horses. The virus is spread through direct contact with infected horses or through aerosolized saliva from infected horses.

In the United States, EHV-1 infection has been reported in several states, including California, Texas, and Florida. The disease has also been reported in other countries, such as France, Germany, and Japan. The virus is known to cause outbreaks in multiple states, and it can cause significant economic losses to the horse industry.

The Equine Disease Quarterly is a veterinary publication that provides information on the latest equine diseases and their management. The journal is published by the International Congress of Veterinary Medicine and is available online at www.equine.com.

The first quarter of 2014 saw a number of equine diseases reported, including:

- Equine viral arteritis
- Equine encephalitis
- Equine adenovirus
- Equine herpesvirus
- Equine infectious anemia

These diseases can cause significant morbidity and mortality in horses. It is important for horse owners to be aware of the signs of these diseases and to seek veterinary care if necessary.
Reducing Risk from Tick-Borne Diseases

**First Quarter 2014**

**Editors**

Peter Timoney, Alan Loynachan, Roberta Dwyer

**Organization.**

Phone (859) 257-8542

Fax (859) 257-4757

Lexington, Kentucky USA,

University of Kentucky,

Department of Veterinary

Correspondence should be
to:

Peter Timoney

Alan Loynachan

Roberta Dwyer

Editors

The International College (Namur, Belgium), the University of Kentucky (UK), and other centers in the USA and Canada have reported a number of cases of tick-borne diseases, particularly in the USA and Canada. The spread of tick-borne diseases is influenced by environmental factors, including temperature, humidity, and host availability. In addition, the presence of tick-borne pathogens in the environment and the number of infected ticks can vary from year to year. The following information is provided to help reduce the risk of tick-borne diseases in horses.

**Tick-Borne Diseases in Horses**

According to the Centers for Disease Control and Prevention (CDC), the number of cases of tick-borne diseases in horses has increased in recent years. The majority of these cases are caused by *Borrelia burgdorferi* (Lyme disease), which is transmitted to horses by *Ixodes* ticks. Other tick-borne diseases affecting horses include *Anaplasma phagocytophilum* (anaplasmosis), *Ehrlichia equi* and *Ehrlichia chaffeensis* (Ehrlichiosis), *Ehrlichia risticii* (Ehrlichiosis), and *Ehrlichia ewingii* (Ehrlichiosis).

**Tick-Borne Infections in Horses**

According to the US Department of Agriculture (USDA), there were 139 cases of tick-borne diseases reported in horses in the USA in 2013. The most common infections were *Borrelia burgdorferi* (Lyme disease), *Anaplasma phagocytophilum* (anaplasmosis), and *Ehrlichia equi* (Ehrlichiosis). Other tick-borne infections affecting horses include *Ehrlichia risticii* (Ehrlichiosis), *Ehrlichia ewingii* (Ehrlichiosis), and *Anaplasma marginale* (Ehrlichiosis).

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Prolific leptospirosis is economic, zoonotic, and ecologic. It is a disease that can infect a wide variety of species. Equine leptospirosis is most frequently diagnosed in the setting of a large and/or small animal hospital. Infections in the horse can cause significant mortality and morbidity. Clinical signs of leptospirosis can include fever, depression, anemia, and hemorrhagic gastroenteritis. Horses can also shed leptospires in their urine to leptospires is generally through small mammals, through contact with the urine. Though exposure to leptospirosis is generally through small mammals, and are transmitted to the horse via lymphohistiocytic inflammatory response. Current serologic tests are sensitive and specific for detecting B. burgdorferi antibodies, but these may not distinguish between live and non-viable infections. The clinical diagnosis of Lyme disease in a horse is difficult and might be based on the following parameters: geographic location, known exposure to B. burgdorferi, and opportunistic examination of the organism by lab testing (lymphocytes, skin, face, retroauricular nodes, nerves, and vitreous humor). 

B. burgdorferi infections are generally weak at birth, but can recover through treatment and change in antibiotic choice. In horses, human and equine infections are most commonly maintained in the urinary tract of small mammals and are transmitted eliminators doxycycline were somewhat effective. Because the anti-inflammatory properties of tetracyclines and the prolonged antibody response that can occur with positive findings can be complicated because many uninfected mares are seropositive for Leptospira spp. A polymerase chain reaction assay on urine can identify animals that are shedding leptospires, and these animals can be managed to reduce the risk of exposure of other horses, humans and animals.

The incidence of reproductive leptospirosis can vary widely by year. There is no evidence that this variation is associated with wet weather in the fall. However, the significance of positive findings can be complicated because many uninfected mares are seropositive for Leptospira spp. A polymerase chain reaction assay on urine can identify animals that are shedding leptospires, and these animals can be managed to reduce the risk of exposure of other horses, humans and animals. 

Reproductive Leptospirosis

Unlike many other bacterial causes of abortion, placenta is rarely complicated; however, identification of infected pregnant mares can be difficult. Unlike many other bacterial causes of abortion, placenta is rarely complicated; however, identification of infected pregnant mares can be difficult. Unlike many other bacterial causes of abortion, placenta is rarely complicated; however, identification of infected pregnant mares can be difficult. Unlike many other bacterial causes of abortion, placenta is rarely complicated; however, identification of infected pregnant mares can be difficult.
Pregnancy toxoplasmosis is an oocyst disease. Oocysts are carried by infected cats and infect a wide variety of species. Equine toxoplasmosis is most commonly seen in foals but can occur in adult horses as well. Infection is usually transmitted through intake of undercooked infected meat or direct contact with an infected cat, and can also be transmitted from dam to foal through the placenta. Initial clinical signs may be delayed, and can vary from mild to severe depending on the severity of infection. Clinical signs include depression, anorexia, fever, and abortion in some cases. The diagnosis of equine toxoplasmosis can be made through serology, PCR testing of tissue or fluid, or laboratory testing of CSF. The treatment options are limited and may include supportive care and antibiotics. Prognosis can vary depending on the severity of the infection and the response to treatment. Prevention can be achieved through vaccination, quarantine, and control of infections in the environment, as well as avoiding ingestion of raw or undercooked cat or rodent meat.