What is Lyme Disease?
Lyme disease is caused by bacteria and transmitted by ticks. Lyme disease is an infection caused by *Borrelia burgdorferi*, a spirichete (corkscrew shaped bacteria). In Manitoba the bacteria is transmitted by deer ticks, *Ixodes scapularis*. The ticks acquire the bacteria by feeding on infected wildlife such as mice, deer, and other animals. About 10% of Manitoban deer ticks have been found to carry the Lyme disease organism.

Species/Ages affected
Dogs are most often affected by Lyme disease, although cattle, horses and cats have also been reported to be infected. Humans can also be infected with Lyme disease. Young dogs appear to be more susceptible than older dogs. Some experts estimate that dogs are 50% more likely to get Lyme disease than humans.

Risk of Infection/Exposure
Though Lyme disease is present in Manitoba, the incidence of infection in dogs and humans in our province is still relatively low. Also, only about 5% of dogs who are exposed to Lyme disease will develop clinical signs of infection. It appears that the majority of dogs exposed to Lyme disease (95%) will have a sufficient immune response to clear the infection without ever developing signs of illness.

Clinical Signs of Disease
The first clinical sign of disease is often a “bulls-eye” or target shaped rash around the tick bite. However, a dog’s coat will often obscure the rash. The most common early sign of infection is a fever, and decreased appetite. This can be accompanied by polyarthritis, or inflammation of multiple joints. A pet with polyarthritis will often show signs of lameness and swollen joints. Enlarged lymph nodes can also be found. Rarely, the organism can also cause renal (kidney) disease and heart problems. The nonresponsive chronic arthritis seen in humans as a result of Lyme disease is not noted in dogs.

Treatment
Lyme disease can be treated with broad spectrum antibiotics. Doxycycline is the antibiotic of choice, followed by amoxicillin. Treatment is usually administered for at least 4 weeks. The effectiveness of treatment for this disease frequently depends upon how quickly a diagnosis is reached and therapy begins. Early detection and treatment are important in preventing the more serious forms of this disease.
Diagnosis
There is an in-clinic test that detects antibodies to *B. burgdorferi*. There are also serology tests available in diagnostic laboratories.

Method of Transmission
As previously mentioned, Lyme disease is transmitted by deer ticks, *Ixodes scapularis*, or related *Ixodes* ticks in other parts of North America. It is important to note that the organism that causes disease is believed to be transmitted after the tick has been attached for 24-48 hours. The more common wood tick (*Demacentor variabilis*) is not an effective transmitter of Lyme disease.

Prevention
Prevention of Lyme disease has two major components:

The first is preventing deer ticks from attaching to and feeding on your pet. There are several effective topical medications used to prevent ticks from attaching to dogs, as well as daily manual checking and removing any ticks found. Because of the deer tick’s small size, this can be challenging. By the time an infected tick engorges and grows to visible size your dog may have become infected by the *Borellia* bacteria.

The second avenue of prevention is through vaccination. Vaccines are available for *Borellia burgdorferi*. However, it should be noted that no vaccine is 100% effective. Your veterinarian can help you decide which methods of prevention are most suitable for your pets.

Transmission to Humans
Lyme disease cannot be transmitted directly from your pet to you or your family. However, if deer ticks are found in your area, your family is at risk. To reduce the risk, inspect your dog and every family member for ticks several times a day when enjoying outdoor activities.

Consequences of Infection
As previously mentioned, most dogs exposed to Lyme disease will clear the organism without developing any problem. Most dogs who do become ill respond very well to treatment with antibiotics. Rarely, a dog exposed to Lyme disease will develop chronic renal failure, which can be fatal.