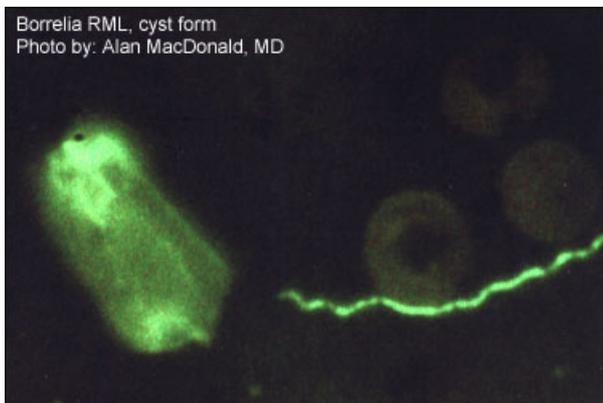


# What is Lyme Disease?

Lyme disease is caused by a spiral-shaped bacteria, *Borrelia burgdorferi* (Bb), or by newly discovered *Borrelia mayonii*. It is usually transmitted by the bite of an infected tick—*Ixodes scapularis* in the East, *Ixodes pacificus* in the West.



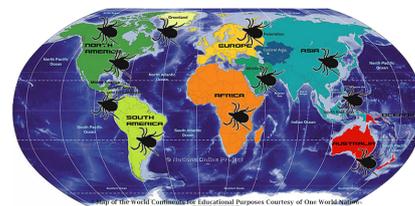
**How is Lyme disease transmitted?**

In the USA, the bacteria are transmitted to people and animals by the bite of an infected tick, *Ixodes scapularis*, (commonly called the blacklegged or deer tick), and *Ixodes pacificus* (western blacklegged tick) in the West. Although other types of ticks such as the *Dermacentor variabilis* (American dog) and some insects have been shown to carry the Lyme bacteria, to date, transmission of Lyme through those vectors has not been proven. The longer a tick is attached, the greater risk of disease transmission.

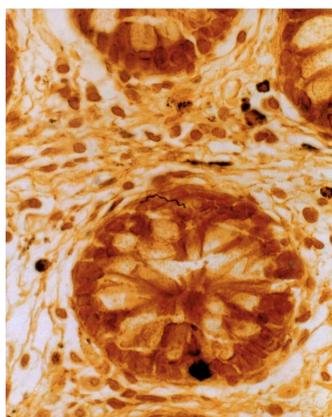
The Lyme bacteria has been proven to survive blood banking conditions; however, to date, no transmission has been proven through blood transfusions in humans. Studies have shown transmission through this route in mice in the lab. Note: Other tick-borne diseases have been transmitted through the blood supply.

The bacteria can also be passed through the placenta of a pregnant woman to the fetus—congenital transmission. The DNA of the bacteria has been found in breast milk, but no transmission has been proven to date in humans.

There is no proof to date that Lyme is sexually transmitted, although some preliminary studies have found PCR positives for the DNA of the Lyme bacteria in semen and in cervical tissue. These findings do not prove sexual transmission, but some physicians feel because the Lyme and syphilis spirochete (bacteria) are similar, Lyme may be sexually transmitted.



Lyme disease is found in approximately 80 plus countries worldwide, and 50 states in the USA, although different types of ticks and different strains of bacteria may be involved. In the USA the number of new cases of Lyme disease contracted each year is approaching 400,000. Many of those cases will include co-infections.



### **Where can Lyme disease be found in the body?**

Lyme is a multi-systemic disease, and the Lyme disease bacterium, *Borrelia burgdorferi* (Bb), may be found in many different organs, although it is often difficult to test for and to culture. To the left is an image that shows *Borrelia burgdorferi* (Bb) in the human colon.

*Image Borrelia burgdorferi (Lyme disease bacterium) in the Human Colon. Courtesy of Martin Fried, MD*

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