

# LymeMDNews

LYME DISEASE RESEARCH FOUNDATION



Lyme Disease, alive and ticking . . .

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## UNDERSTANDING THE IMPACT OF THE SLICE STUDY

The power of our *SLICE* study comes from its original design that captures all the study participants at the same early point of their infection with Lyme disease. Since all *SLICE* participants must have the Lyme rash, and because this rash occurs only during the first few weeks of infection, we know that all of our *SLICE* participants enter the study at the same point of the Lyme disease illness.

This *prospective study design* allows us to collaborate with other scientists who are looking for more accurate blood tests to diagnosis the very earliest stage of Lyme disease when it is easiest to treat. In our recent publication, we demonstrated that with **supper-sensitive, new-generation PCR tests we can identify early Lyme disease when the currently available antibody tests are still showing false negative results.**

The *SLICE* study also collects blood samples after the initial diagnosis and treatment phase of Lyme disease with samples up to two years following infection. These important late samples comprise the current focus of our investigations to find biomarkers of the later stages of Lyme disease.



Dr. Kate Kortte, SLICE Study coordinator Lauren Crowder and Dr. Mark Soloski answer questions at a recent poster session presentation.

Biomarkers are blood molecules used to monitor the course of an illness and to establish the prognosis and the patient's response to therapy.

An example of a well-known biomarker is the PSA test for prostate cancer, which is used to estimate the severity of disease before treatment and also helpful in evaluating the patient's response to treatment. Thus, the PSA can act as a "test of cure." When the PSA is zero, the prostate cancer is in remission or it is cured.

That is precisely the type of biomarker we need for Lyme disease — one that informs physicians and patients about the stage and severity of Lyme disease

before treatment and the patients' response to treatments. In the future, such a Lyme biomarker will be essential to the study of new treatments because it will serve as the measurement of the effectiveness of any new therapeutic approaches.

The *SLICE* study and its powerful biorepository of blood samples is fulfilling its promise to advance knowledge. Look for more discoveries to come!

## THE OFFICIAL NUMBERS DON'T TELL THE TALE

How many new cases of Lyme disease are there each year? Counting cases of Lyme disease might seem like a pretty elementary task.

Here's how it works:

- Doctor makes diagnosis.
- Lab test, if ordered, confirms the diagnosis.
- Lab notifies County Health Department of each positive test.
- County Health Department sends a reporting form to the physician who fills it out and returns it to the county.
- County sends case report to State Department of Health.
- State sends to the Center for Disease Control (CDC) in Atlanta.

Not so easy after all, is it? There are lots of opportunities for things to go wrong. That's why the true number of annual new cases is probably at least *10 times higher* than what is currently reported by the CDC. Thus, if the current reported number is approximately 30,000, **the actual number of new cases of Lyme Disease is hundreds of thousands each year.**

Even less known is the true number of acute cases of Lyme disease that become chronic each year after initial treatment. (Chronic cases are called Post-Treatment Lyme disease Syndrome by the CDC).

Chronic Lyme cases are not reportable to the CDC, so we can only *estimate* the actual number. A conservative estimate suggests that 10% of people who *are diagnosed with Lyme disease and treated with antibiotics* go on to develop chronic health problems. Thus, there are potentially 30,000 new cases of chronic Lyme disease each year. Since chronic Lyme disease is, by definition, potentially a persistent condition, then the number of total cases grows steadily as new cases are added to the prior years' cases.

And since the Lyme epidemic has been getting steadily worse since the early 1980s, the cumulative number of cases of chronic Lyme disease could potentially be in the hundreds of thousands.

The numbers don't tell the real story; the magnitude of the problem is vastly under reported. LymeMD is hard at work on the problem and is analyzing an alternative source of data to understand the magnitude of this epidemic. Health insurance claims data may show a more accurate picture of how physicians are diagnosing and treating Lyme disease. This alternative source of information may paint a different picture of Lyme disease's impact across the United States. Stay tuned for our findings.



## NO CRYSTAL BALLS WHERE LYME DISEASE IS CONCERNED

Many experts had predicted an especially high number of ticks and Lyme disease this year because of a bumper crop of acorns that feed the mice that feed the ticks.

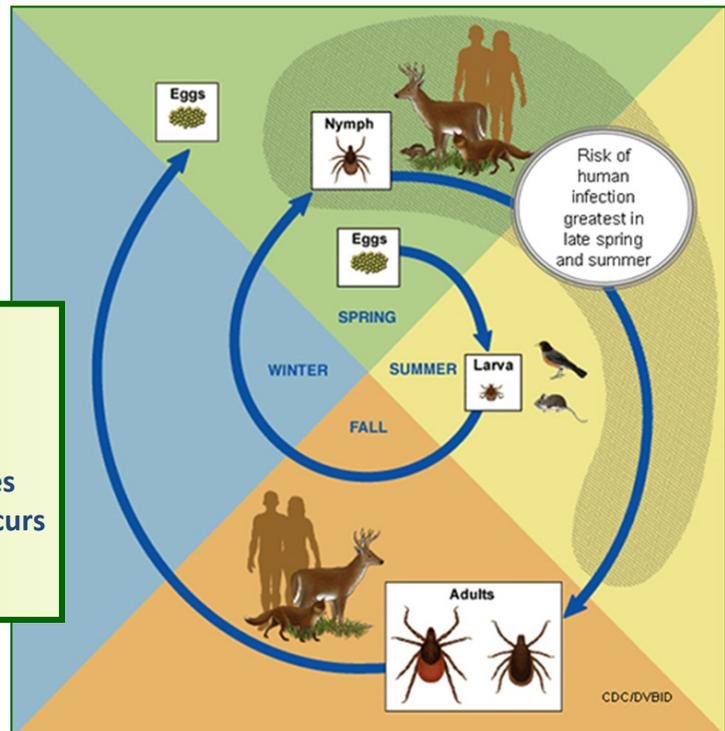
What do acorns and mice have to do with Lyme disease? Here's how it works: mice carry the Lyme disease bacteria, called *Borrelia burgdorferi*. When the mice are fat and happy there is more opportunity for ticks to feed on mice where they acquire the Lyme disease bacteria. This results in more infected ticks to bite us humans.

But predicting outcomes with such a complex ecology is very tricky. This summer, the extremely hot weather across the mid-Atlantic region interrupted the typical peak Lyme disease transmission season that occurs each summer. Because it was too hot, both ticks and people stayed out of the sun and the transmission cycle was interrupted. We saw relatively few new cases of Lyme disease this spring and summer. But the story isn't over.

Adult deer ticks re-emerge each fall to have one last feeding cycle before mating and laying eggs. Adult ticks like to feed on large animal hosts like deer and humans. In September, we saw a surge in cases that corresponds to this tick feeding cycle. And on it goes.

Tick eggs will hatch next year and the baby larvae will find a mouse to feed on from which the tick will acquire the Lyme disease bacterium. The infected ticks will be alive for the next 18 months, infected and ready to transmit disease with their next bite.

**Lyme Disease:**  
**The 2 Year Tick Life Cycle Determines**  
**When the Risk of Human Infection Occurs**



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We welcome all contributions.  
They can be made safely via our  
website.

### MISSION STATEMENT

The Lyme Disease Research Foundation is a 501(C)3 public non-profit established in 2007 to address the lack of clinical research into the scientific understanding of Lyme disease and the persistent illness that may result from Lyme disease.

Our mission is to promote research that bridges patient care and science in order to advance our understanding of Lyme disease and its overall impact on human health.

Our goal is to promote research that leads to the discovery of improved biomarkers for the diagnosis and management of Lyme disease.

The strategy of the Foundation is to raise funds through individual and foundation to fund collaborative research programs at our nation's premier medical institutions.