VibrantWellness
Misdiagnosis and
Delayed Treatment:
The Consequences
of Chronic Lyme
Disease

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Lyme disease, a complex infection primarily transmitted by the bite of infected black-legged ticks, is caused by the bacteria Borrelia burgdorferi.

It's the most common vector-borne disease in the United States and presents a growing challenge for public health. The prevalence of Lyme disease has been steadily rising.

Over the past few decades, tick populations and the diseases they carry have surged—more than doubling in the past 13 years.

These statistics are striking. However, the true scope of Lyme disease is likely broader, as many cases go unreported or misdiagnosed.



Misdiagnosis is a critical concern with Lyme disease, owing to its chameleon-like symptoms that often mimic those of flu, arthritis, and chronic fatigue syndrome.

This mimicry can result in improper treatments and substantial delays in proper care, potentially escalating the disease to its more severe, chronic stages.

In this article, we'll explore the critical need for timely treatment, common hurdles in diagnosing Lyme and tickborne illness, and advanced diagnostic that support early diagnosis and interventions.

The Risks of Misdiagnosis

Lyme disease's nickname as the "Great Imitator" is well-earned. Its symptoms are notoriously diverse, ranging from fever, fatigue, and joint pain to more severe neurological and cardiac disorders.

This broad spectrum of signs often overlaps with those of multiple other ailments, such as multiple sclerosis, fibromyalgia, and chronic fatigue syndrome, leading to frequent misdiagnoses.

The initial stages of Lyme disease can present symptoms indistinguishable from common viral infections, making the ailment easy to miss, especially when a thorough history of tick exposure isn't taken.

Diagnostic Challenges

In addition to the challenges that accompany recognizing a potential tick infection, even when one is suspected, confirming tickborne disease is fraught with diagnostic hurdles.

The Complexity of Tickborne Disease Diagnosis

Recognizing and confirming tickborne diseases is complex. One reason is that ticks often transmit multiple pathogens at once, leading to co-infections that can obscure the clinical picture and confuse symptom-based diagnosis.





Furthermore, the symptoms of tickborne diseases are nonspecific and vary widely among patients, which makes it challenging to pinpoint the cause without considering a patient's exposure history and conducting comprehensive testing.

It's also difficult to diagnose persistent symptoms of Lyme due to potential repeat exposures to B. Burgdorferi—you don't know if you've been exposed once and have persistent symptoms or if you've been exposed multiple separate times.

Shortcomings of Traditional Testing Options

The CDC recommends a two-tiered approach as the gold standard for Lyme disease diagnosis.

The initial test is an enzyme-linked immunosorbent assay (ELISA), or immunofluorescence assay (IFA), used to detect antibodies against Borrelia burgdorferi. If this test returns positive or equivocal results, patients will then take a Western blot test to confirm the diagnosis.

For other tickborne illnesses, specific serological tests are used to identify antibodies against individual pathogens, such as Anaplasma spp. and Babesia spp.

Despite its prevalence, the two-tiered testing method has notable limitations.

One major limitation is the reliance on the immune response —specifically, the production of antibodies.1

Early in the infection, antibody levels might be too low to detect, leading to false negatives.

This delay means that early Lyme disease often goes undiagnosed in its most treatable stages.



The Western blot, while useful, also has shortcomings. It requires subjective interpretation of bands that indicate the presence of antibodies to specific antigens, which can lead to inconsistencies between laboratories.

As a result, the ELISA and Western blot tests can miss up to 60% of well-defined Lyme disease cases.

For other tickborne diseases, the situation is even more precarious, as many lack standardized or widely accepted testing protocols, further complicating the clinical management of these infections.



CDC Clinical Testing and Diagnosis for Lyme Disease



Development of a metabolic biosignature for detection of early Lyme disease



Delayed Treatment & Chronic Lyme Disease

When Lyme disease isn't addressed in its initial stages, Borrelia burgdorferi can spread throughout the body.

Initially, the infection might present only mild symptoms, such as rash, fever, fatigue, and mild joint pain, which can easily be overlooked or mistaken for the flu.

However, as the bacteria disseminate, they can affect various body systems, leading to a range of more severe and disruptive symptoms.



This is known as chronic Lyme disease or Post-Treatment Lyme Disease Syndrome (PTLDS) Chronic Lyme symptoms can be triggered by many factors, including the persistence of the bacteria, immune dysregulation through inflammation or an autoimmune response, or altered neural networks, like central sensitization.1

If left untreated, the bacteria can invade the joints, heart, and nervous system.1

This can lead to more severe manifestations that impact the joints, heart, and brain, including Lyme arthritis and Lyme carditis.

These conditions deteriorate quality of life and can become chronic issues that are difficult to manage, making prevention essential.

Advanced Testing Techniques

To improve accuracy and expedite the detection of Lyme and tickborne illnesses, precision testing such as the Vibrant Tickborne Test is a significant advancement.

This test uses an innovative customizable multiplex protein microarray and chemiluminescence to evaluate 121 analytes, capturing both antibody responses and direct pathogen DNA.

It simultaneously identifies antibodies for a spectrum of pathogens, including those responsible for Lyme disease, tickborne relapsing fever (TBRF), and common co-infections.

The panel detects a broad range of antibodies and exposure to multiple pathogens simultaneously, including Lyme disease and TBRF and co-infections of tickborne diseases like Anaplasma, Babesia, Borrelia, Bartonella, Ehrlichia, and Rickettsia species.

(continued on next page)

An ultra-high-density protein microarray for high throughput single-tier serological detection of Lyme disease:





When compared with traditional testing methods, Vibrant's technology provides several advantages, including:

- **Optimization:** Allows testing for many different antigens at the same time, without sacrificing accuracy or sensitivity
- Automation: The automated process enhances efficiency
- **Utilization of Resources:** Reduces turnaround time and labor costs and removes the need for manual handling and subjective result interpretation
- Streamlined Process: Detects all antibodies in a single run

The test's microarray, structured in pillars with individual microchips, isolates each protein, preventing the cross-reactivity that plagues conventional blot tests.2 This method not only identifies a broad range of infections but, by combining antibody and DNA testing, it significantly increases the chances of early intervention, promoting better health outcomes.

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	Borrelia afzelii	BmpA		
	Borrelia garinii	DbpA		
Bartonella infection	Bartonella henselae	26 kDa.SucB	SucB	POSITIV
Cutomegalovirus	Cytomegalovirus	GlyBap52		

Lyme Disease Early Detection & Its Implications

Recognizing Lyme disease early and leveraging accurate, reliable testing are essential for effective symptom management and preventing severe, lasting effects.

Staying alert to and actively managing tick exposure risks, combined with using advanced diagnostics like the Vibrant Tickborne Test, plays a crucial role in lessening the public health impact of this prevalent condition.

Vibrant's Tickborne Diseases Test:







References:

1. Front. Med., 25 February 2020. Sec. Infectious Diseases – Surveillance, Prevention and Treatment. Volume 7 - 2020 https://doi.org/10.3389/fmed.2020.00057.

2. https://blog.vibrant-wellness.com/research-spotlight-protein-microarray-for-comprehensive-tickborne-testing

Unlock the Power of Precision Lab Testing

Integrate advanced lab testing into your practice to transform patient outcomes.

Get Started



Regulatory Statement:

The general wellness test intended uses relate to sustaining or offering general improvement to functions associated with a general state of health while making reference to diseases or conditions. This test has been laboratory developed and its performance characteristics determined by Vibrant America LLC and Vibrant Genomics, a CLIA-certified and CAP-accredited laboratory performing the test. The lab tests referenced have not been cleared or approved by the U.S. Food and Drug Administration (FDA). Although FDA does not currently clear or approve laboratory-developed tests in the U.S., certification of the laboratory is required under CLIA to ensure the quality and validity of the tests.

