

High prevalence of *Babesia microti* in Suffolk County, New York

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<http://danielcameronmd.com/high-prevalence-babesia-microti-suffolk-county-new-york/>

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Ticks were collected in 2015 and 2016 by tick dragging at 5 sites in Suffolk County, New York (Southampton, Mannorville, Southold, Islip, and Huntington) and 3 sites in Connecticut (Mansfield in Tolland County and Stamford and Greenwich in Fairfield County).

Ticks were collected through tick dragging at sites in New York and Connecticut.

“As expected, *B. burgdorferi* (*Bb*) was the most frequently detected agent in ticks from Suffolk County with 21% of nymphs and 67% of adult ticks infected,” [says Tokarz from the Center for Infection and Immunity at Columbia University in New York City](#). [1] In Connecticut, the prevalence of *B. burgdorferi* was similar. Twenty-five percent of nymphs and 62% of adult ticks carried *Bb*.

The real surprise was the high prevalence of *B. microti*, the causative agent of babesiosis. *B. microti* was present in 17% of nymphs and 30% of adults in Suffolk County, which reported 197 babesiosis cases in 2014. The incidence of *B. microti* in Connecticut was lower but still noteworthy with 7% of nymphs and 14% of adults infected.

“Our finding of a high frequency of ticks infected with *Babesia microti* in Suffolk County, NY, implicates this agent as a probable frequent cause of non-Lyme tick-borne disease in this area,” explains Tokarz and colleagues.

In contrast, the incidence of *B. miyamotoi* was much lower. Only 3% of both nymphs and adult ticks in Suffolk County were infected, while in Connecticut 3 adults were positive.

A. phagocytophilum was present in 7% of nymphs and 11% of adults in Suffolk County and 7% of nymphs and 8% of adults in Connecticut. The Powassan virus was detected in 2% of adults in Suffolk County and 1 adult tick in Connecticut.

Study identifies multiple infections in the same tick

The team of researchers also identified multiple infections in the same tick:

- 1 nymph and 7 adults (4%) were positive for *A. phagocytophilum*, *B. burgdorferi*, and *B. microti* in Suffolk County;
- 1 adult tick was positive for *A. phagocytophilum*, *B. burgdorferi*, and *B. miyamotoi* in Suffolk County;
- 1 tick was positive for 3 agents (*B. burgdorferi*, *B. microti*, and *B. miyamotoi*).

Multiplex real-time PCR assays can typically identify *B. burgdorferi*, *B. microti*, and *A. phagocytophilum*. They cannot, however, target *B. miyamotoi* or the Powassan virus – two agents rarely included in tick-borne pathogen surveillance studies, according to the authors. This limitation is significant given that the Powassan virus (POWV) can cause life-threatening encephalitis.

“To enable surveillance for all major *I. scapularis*-borne pathogens, we developed a multiplex one-step real-time reverse transcription-PCR (RT-PCR) assay that targets *A. phagocytophilum*, *B. microti*, *B. miyamotoi*, *B. burgdorferi*, and POWV,” explains Tokarz.

Having the ability to identify and monitor tick-borne pathogens is critical in developing effective diagnostic and treatment approaches. In a separate study, Curcio and colleagues found that 29% of Lyme disease patients also tested positive for antibodies to *B. microti*. “The importance of this finding is underscored by the fact that antibiotics against Lyme disease have no impact on the clinical course of babesiosis,” states Tokarz.

References:

1. Tokarz R, Tagliafierro T, Cucura DM, Rochlin I, Sameroff S, Lipkin WI. Detection of Anaplasma phagocytophilum, Babesia microti, Borrelia burgdorferi, Borrelia miyamotoi, and Powassan Virus in Ticks by a Multiplex Real-Time Reverse Transcription-PCR Assay. mSphere. 2017;2(2).

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