

How can Lyme disease be prevented and controlled?

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Lyme disease is the most commonly reported vector-borne disease in the United States, with the majority of cases occurring in the Northeast. It has been three decades since the agent of the disease, the spirochete *Borrelia burgdorferi*, and the ticks that vector it were identified. However, the number of Lyme disease cases have steadily increased.

In a new article appearing in the forthcoming issue of the [Journal of Medical Entomology](#) called "What Do We Need to Know About Disease Ecology to Prevent Lyme Disease in the Northeastern United States?" authors from Colorado State University and the Centers for Disease Control assess the potential reasons for the continued lack of success in prevention and control of Lyme disease in the northeastern United States, and they identify conceptual areas where additional knowledge could be used to improve Lyme disease prevention and control strategies.

Some of these areas include: 1) identifying critical host infestation rates required to maintain enzootic transmission of *B. burgdorferi*, 2) understanding how [habitat diversity](#) and [forest fragmentation](#) impacts acarological risk of exposure to *B. burgdorferi* and the ability of interventions to reduce risk, 3) quantifying the epidemiological outcomes of interventions focusing on ticks or vertebrate reservoirs, and 4) refining knowledge of how human behavior influences Lyme disease risk and identifying barriers to the adoption of personal protective measures and environmental tick management.

The article briefly summarizes existing prevention and control strategies and tools aimed at reducing human exposure to vector ticks and *B. burgdorferi*, and highlights conceptual areas where additional studies on the enzootic transmission cycle or the human-tick interface are needed to fill in the [knowledge gaps](#) preventing the development of novel, more effective [Lyme disease](#) prevention strategies and tools or the implementation of existing ones.

Because the likelihood of human exposure to the tick and the pathogen both can be influenced by human behavior, the authors focus not only on the density of infected ticks, which represents the fundamental (or acarological) risk of [human exposure](#) to *B. burgdorferi*, but they also provide an overview of studies that identify behavioral risk factors and explore areas where additional information in this field are needed.

More information: The full article is available at www.entsoc.org/PDF/2012/EC-11-138.pdf

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