

One Health in Action: Lyme Disease

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Introduction

Lyme disease is an emerging disease in Michigan and is the most commonly reported vector-borne illness. The bacterium causing Lyme disease, *Borrelia burgdorferi*, is transmitted to humans or dogs through the bite of an infected tick. In the spring of 2015, a veterinarian from an island on Lake Michigan began to see locally-acquired Lyme disease in pets. In previous years the vector of Lyme disease, *Ixodes scapularis*, had not been found on the island. The Michigan Department of Health and Human Services (MDHHS) was invited to the island to conduct an environmental investigation and provide health education to local residents.

Methods

To determine the tick population on the island, tick drags were conducted, which is a method for collecting ticks. The method involves dragging a 1-square-meter strip of white cloth mounted on a dowel tied to rope through terrain that may harbor ticks. Tick drags were done in multiple locations on the island.

Results

Multiple life stages of *Ixodes scapularis* were found on the island. In total, 24 *I. scapularis* ticks were collected on the day of the island visit and two were positive (8.3 percent) for *B. burgdorferi*. Health education was presented at a town meeting and included information about Lyme disease, the vector for the disease, and methods on how to prevent tick-borne disease in humans and pets. "Ticks and your health" brochures and tick identification cards were provided to the residents.

Conclusions

The intersection of people, animals, and the environment is well represented in this response to public concern of Lyme disease. Animal health surveillance for Lyme disease prompted environmental surveillance for ticks and led to proactive health education. By collaborating effectively with individuals from many fields, the One Health approach allowed for a comprehensive response of the emergence of Lyme disease on the island.

Keywords

One Health; Lyme disease; Ticks

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