



RESEARCH PROGRESS REPORT SUMMARY

Grant 02284-A: Lyme Disease in Dogs: Prevalence, Clinical Illness, and Prognosis

Principal Investigator: Jason Stull, VMD, PhD
Research Institution: The Ohio State University
Grant Amount: \$14,148.00
Start Date: 7/1/2016 **End Date:** 6/30/2019
Progress Report: Mid-Year 3
Report Due: 12/31/2018 **Report Received:** 1/14/2019

(The content of this report is not confidential and may be used in communications with your organization.)

Original Project Description:

Lyme disease (or Borreliosis) is a bacterial disease of dogs and humans that is transmitted by tick bites. In people, Lyme is the most common tick-transmitted disease in the US, with over 25,000 cases in 2014. While most common in the northeastern coastal states and the upper Midwest, Lyme disease is moving into other regions of the U.S. and Canada. Dogs infected with Lyme disease rarely show signs of illness (typically lameness), but can be severe (e.g., kidney disease). Diagnosis, treatment and prevention of Lyme disease in dogs are complicated by limited research and conflicting professional guidance. Current practices may unnecessarily place dogs at risk for illness and negative outcomes. The investigators will follow a large group of dogs from different regions of the U.S. and Canada. During this period the investigators will determine how often healthy dogs test positive for Lyme disease (meaning they have been bitten by an infected tick) and identify how often they later develop a Lyme-related illness. The risks and benefits of management strategies for Lyme-positive dogs and obstacles to effective tick prevention will be determined to help clarify unmet pet owner education needs. These findings are likely to extend to better understanding of canine and human Lyme disease, and improve health outcomes. Collectively, this work will allow us to identify, define and improve upon best practices for prevention and control of Lyme disease in areas with different Lyme risks, ultimately improving the health of dogs and people.

Publications: None at this time.

Presentations:

Stull. Canine Lyme Disease – Is the Clock Ticking? National Parent Club Canine Health Conference. St. Louis, MO. August 12, 2017



Report to Grant Sponsor from Investigator:

Three US veterinary clinics across the gradient of Lyme endemicity along the East Coast (2 clinics in Maine, 1 in Western Pennsylvania) have participated in the study. Since June 2017 the three clinics have been collecting and providing to the study team data on all dogs tested with an antibody test for *B. burgdorferi* (including dog signalment, *B. burgdorferi* and co-pathogen results from current antibody test, and prior results for *B. burgdorferi* and co-pathogen screening). For two of the clinics, data collection ceased in July 2018, with testing data on 1,800 dogs (clinic 1) and 600 dogs (clinic 2) provided to the study team. Data collection for the third clinic was closed on December 31, 2018, with data on 2,400 dogs reported to the study team. These data (results for a total of 4,800 dogs) are now being analyzed to determine the seroprevalence of *B. burgdorferi* in dogs living in regions of the US with varying levels of infected-tick exposure risk and to identify important factors associated with dogs testing positive for *B. burgdorferi*. Approximately 11% of these dogs have had a current positive *B. burgdorferi* result, of which 6% were also positive for *Ehrlichia* and 18% positive for *Anaplasma*. These data are consistent with the study team's expectations.

At the time of testing, 2 of the clinics have also been enrolling owners of test-positive and test-negative dogs into the survey component of the study. To-date, over 400 dog owners have completed the initial survey (~25% of which had a dog with a current *B. burgdorferi*-positive test). This proportion of positive dogs is as planned.

After completion of the initial survey, dog owners are invited to take additional surveys 3 and 6 months later (to assess for dogs' clinical signs and owners' changes in tick prevention practices). To-date, over 180 and 100 dog-owners have completed the 3- and 6-month follow-up surveys, respectively.