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2018 CSTE Annual Conference — Roundtable Presentation

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National Surveillance of Spotted Fever Rickettsioses: What we know, what we don't know, and what we could learn

Key Objectives

- Discuss best practices for spotted fever rickettsiosis serology: differentiating between persistent antibodies and incident infections
- Discuss the increased use of polymerase chain reaction (PCR) assays for spotted fever rickettsiosis, now available through the Laboratory Response Network (LRN)
- Discuss differences in spotted fever rickettsiosis case investigations at state and local level health departments

Brief Summary

Incidence of spotted fever rickettsiosis (SFR) has been increasing for decades, with preliminary case counts for 2017 exceeding any previous year of reporting. SFR are common in the United States, with national serosurveys finding detectable antibodies in 5-10% of the population. Differentiation of persistent and incident antibodies requires the use of indirect immunofluorescence antibody assays (IFA) on paired samples, taken 2-4 weeks apart, performed at the same laboratory. However, laboratory criteria for the majority of SFR cases fall short of this standard, resulting in a skewed understanding of SFR epidemiology.

Reliance on serologic techniques stems from the previous lack of sensitive acute diagnostic assays. Due to the endothelial nature of *Rickettsiae,* PCR techniques were thought to have minimal diagnostic value until late stages of infection. However, more sensitive and less resource-intensive real-time PCR assays are now available through the LRN. While the true utility of these tests is largely unknown, they could contribute significantly to our understanding of SFR, providing species-specific diagnoses.

Investigation of suspected SFR in support of a case classification substantially burdens state and local health departments. High incidence states have taken different steps in how they process and gather information on SFR cases in order to limit undue effort. Sharing of these practices may be helpful for other health departments investigating large numbers of SFR cases.

Currently, fewer than 1% of SFR cases are confirmed, and most of our understanding of SFR is based on incomplete, and often times uninterpretable diagnostic evidence including single serologic titers and/or qualitative antibody results. Improvements in the diagnostic criteria can provide opportunities to identify specific SFR and differentiate between incident cases and persistent serologic titers. A Roundtable would be an ideal opportunity to discuss current challenges in SFR reporting and to identify possible ways to reduce inconsistencies through improved guidance.