Borrelia miyamotoi Surveillance in New Jersey, 2017-2018

Background

Borrelia miyamotoi was first identified in ticks in Japan in 1995, and subsequently in the United States in 2001. In the northeast United States, *B. miyamotoi* is transmitted by *Ixodes scapularis* (blacklegged or deer tick), which is the same tick that transmits Lyme disease. The first case in the United States was reported in New Jersey in 2013. Cases have been reported in the Upper Midwest, the Northeast, and the mid-Atlantic states, in places where Lyme disease occurs. Unlike Lyme disease, which is most common in June and July, *B. miyamotoi* infection occurs most commonly in July and August and may be spread by larval blacklegged ticks.

The incubation period is unknown but may range from days to weeks. Symptoms of illness have ranged from flu-like to more severe manifestations such as meningoencephalitis. Commonly reported symptoms include fever, chills, fatigue, severe headache, and arthralgia/myalgia. Less common symptoms include dizziness, confusion, vertigo, rash, dyspnea, nausea, abdominal pain, diarrhea, and anorexia. General laboratory findings include leukopenia, thrombocytopenia, and elevated hepatic transaminase values.

B. miyamotoi surveillance in New Jersey

B. miyamotoi is an emerging tickborne disease and is not nationally notifiable. The New Jersey Department of Health (NJDOH), in consultation with CDC and neighboring states, has developed a working case definition to help characterize the define the spectrum of illness associated with *B. miyamotoi* infection. NJDOH requested voluntary reporting of *B. miyamotoi* infections by healthcare and laboratory partners in 2017. There were no reported infections in New Jersey in 2017.

B. miyamotoi Surveillance Summary - 2018

In 2018, NJDOH received 28 laboratory reports of *B. miyamotoi* in residents from 8 counties (Bergen, Burlington, Cape May, Essex, Morris, Ocean, Sussex, Warren). Local health departments investigated these reports and determined if they met the working public health surveillance case definition.

After investigation, 7 out of 28 reports (25%) met the surveillance case definition for a *B. miyamotoi* case. Cases were in residents from 4 counties, primarily in the Northwestern part of the state (Morris, Sussex, Warren), but also including one county in the south (Cape May, Figure 1). Two cases met the classification of a “confirmed” case (Cape May, Warren) and 5 met the classification of a “probable” case (Morris-2, Sussex -3).

The working case definition requires clinical evidence of infection and must include the presence of fever or chills. The most commonly reported signs/symptoms in the 2018 reported cases include: fever/chills (100%), myalgia (86%), fatigue (86%), and joint pains (71%). Other symptoms reported were dizziness, headache, abdominal pain, nausea, photophobia and anorexia. One patient was hospitalized for 4 days with relapsing fever.

Figure1. *B. miyamotoi* cases

The median age was 54 years with a range of 22-71 years indicating *B. miyamotoi* is present among both younger and older adult age groups. 4 of the 7 cases were female.

Resources:

- New Jersey Department of Health Communicable Disease Service: Vector-borne Illness www.nj.gov/health/cd/topics/vectorborne.shtml
- Centers for Disease Control and Prevention: Tick-Borne Diseases of the United States www.cdc.gov/ticks/tickbornediseases/borrelia-miyamotoi.html
- Centers for Disease Control and Prevention: Diseases transmitted by ticks www.cdc.gov/ticks/miyamotoi.html