



# Infectious Disease Epidemiology Report

## Anaplasmosis/Ehrlichiosis Surveillance Report, Maine - 2014



### Background

#### Anaplasmosis

Anaplasmosis is a bacterial disease transmitted through the bite of an infected deer tick (*Ixodes scapularis*) which is common in Maine. It was previously known as human granulocytic ehrlichiosis. Signs and symptoms include fever, headache, malaise, and body aches. Encephalitis or meningitis may occur in rare instances.

#### Ehrlichiosis

Ehrlichiosis is a bacterial disease transmitted through the bite of an infected lone star tick (*Amblyomma americanum*) which is not common in Maine. Signs and symptoms include fever, headache, nausea, rash, and body aches. Encephalitis or meningitis may occur.

#### Methods

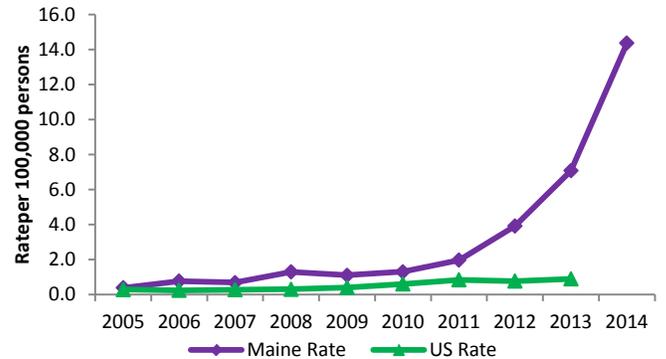
Anaplasmosis and ehrlichiosis are reportable conditions in Maine and standardized case report forms are completed for all cases. Confirmed, probable, and suspect cases are reported to federal CDC, but only confirmed and probable cases are included in this report. Cases are classified using CSTE's case definition. When a patient tests positive for both anaplasmosis and ehrlichiosis by serology, the higher titer is counted as a probable case and the lower titer is counted as not a case. Anaplasmosis and ehrlichiosis are known to cross-react on serology tests so if a patient has the same titer for both bacteria, the case is classified as ehrlichiosis/anaplasmosis undetermined.

#### Results

In 2014, a total of 191 confirmed and probable anaplasmosis cases were reported to Maine CDC. This represents a state case rate of 14.4 cases per 100,000 persons (Figure 1). This represents the fourth year in a row with a dramatic increase in anaplasmosis cases.

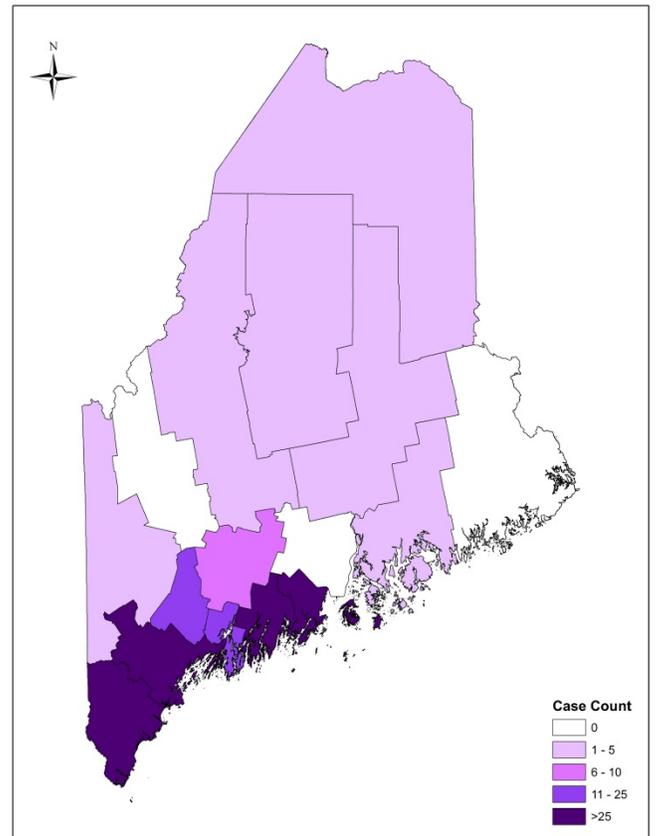
There were eight reported cases of *Ehrlichia chaffeensis* (one confirmed and seven probable), and six reported cases of ehrlichiosis/anaplasmosis undetermined (all probable) in 2014 for a state case rate of less than one case per 100,000 persons. The one confirmed ehrlichiosis case had travel outside of the state.

Figure 1: Anaplasmosis incidence – Maine and US, 2005-2014



Anaplasmosis cases were reported in thirteen Maine counties (Figure 2).

Table 1: Confirmed and probable anaplasmosis cases, by county – Maine, 2014



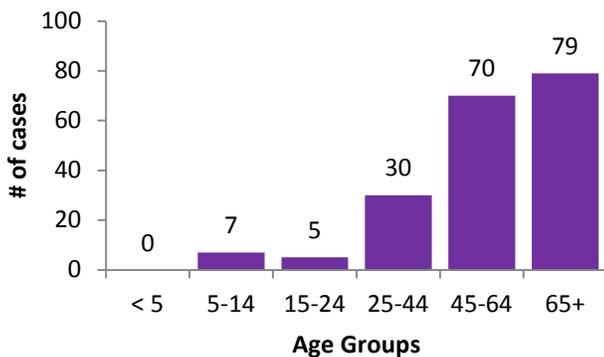
Ehrlichiosis cases were reported from four counties (Androscoggin, Cumberland, Hancock, and Oxford). Undetermined cases were reported from five counties (Androscoggin, Cumberland, Knox, Lincoln, and York).

## Anaplasmosis/Ehrlichiosis – Maine, 2014

Sixty-two percent of anaplasmosis cases were male. The median age was 58 years, with a range from 5 to 96 years. Thirteen percent of ehrlichiosis cases were male. The median age was 55 years with a range from 29 to 93 years. Fifty percent of the undetermined cases were male. The median age was 41 with a range from 9 to 66 years.

More adults than children were reported with anaplasmosis with the 65 years and older group having the most reported cases (Figure 2).

**Figure 2: Anaplasmosis cases by age group – Maine 2014**



Seventy-four (39%) of anaplasmosis cases were hospitalized. Two (25%) of ehrlichiosis cases were hospitalized, and none of the undetermined cases were hospitalized.

### Discussion

Lyme disease is firmly established in Maine, but there are other tick-borne illnesses that are becoming more common. The agents that cause anaplasmosis and babesiosis are transmitted by the same tick that carries Lyme disease, and the numbers of both of these diseases are on the rise. The number of cases of anaplasmosis doubled again from 2013 to 2014. The expansion and increase in anaplasmosis cases matches the known deer tick range, and is following a similar trend to Lyme disease when it was first identified in the state.

A single tick can carry more than one pathogen. In 2014, there were twelve reported co-infections of Lyme disease and anaplasmosis, six reported co-infections of Lyme disease and babesiosis, one reported co-infections of Lyme disease and ehrlichiosis, and one reported co-infection of Lyme disease and ehrlichiosis/anaplasmosis undetermined.

Ehrlichiosis is transmitted by a tick that is infrequently found in Maine but is being monitored as an emerging disease in Maine. *Ehrlichia* is difficult to distinguish

from *Anaplasma* when testing by serology, which is why Maine had six cases of ehrlichiosis/anaplasmosis undetermined.

Health care providers are encouraged to consider tick-borne diseases in patients with appropriate clinical presentations. Polymerase Chain Reaction (PCR) is the preferred method of testing for anaplasmosis and ehrlichiosis (this would eliminate the undetermined cases).

### Prevention

To lower the chances of contracting a tick-borne disease, measures should be taken to prevent tick bites both at home and while traveling:

- Using caution in tick-infested areas
- Using EPA-approved repellents on uncovered skin and clothing
- Wearing long sleeved shirts and long pants
- Checking for ticks after being outside
- Removing attached ticks with tweezers or a tick spoon immediately to avoid them becoming engorged
- Using “tick-safe” landscaping such as removing leaf litter, tall grass and brush, creating borders between woods and lawn and discouraging deer with physical barriers

All cases of anaplasmosis and ehrlichiosis in Maine must be reported within 48 hours by calling 1-800-821-5821, or by faxing reports to 207-287-6865.

Ticks can be identified for free by UMaine Cooperative Extension: <http://extension.umaine.edu/ipm/tickid/>. Ticks will not be tested for presence of disease.

Additional information about anaplasmosis and ehrlichiosis can be found at:

- Maine CDC  
<http://www.maine.gov/dhhs/mecdc/infectious-disease/epi/vector-borne/index.shtml>
- Federal CDC  
<http://www.cdc.gov/anaplasmosis/>  
<http://www.cdc.gov/ehrlichiosis/>