
RHODE ISLAND
DEPARTMENT OF HEALTH

Anaplasmosis and Ehrlichiosis Surveillance 2013-2017

Rhode Island Department of Health

Division of Preparedness, Response, Infectious Disease and Emergency Medical Services

Center for Acute Infectious Disease Epidemiology

About Anaplasmosis and Ehrlichiosis

- Anaplasmosis and ehrlichiosis are tickborne, bacterial diseases that typically cause fever, headache, fatigue, and muscle aches 1-2 weeks following a tick bite.
- Anaplasmosis is most common in the upper Midwest and Northeast states, corresponding with the geographical distribution of Lyme disease. Co-infections are possible as the blacklegged tick that carries the bacteria can also transmit Lyme disease and babesiosis.
- Ehrlichiosis is most common in the Southeast and Southcentral US, corresponding with the geographical distribution of the Lone Star tick which transmits the disease. However, the range of the Lone Star tick has been expanding and these ticks have been found in Rhode Island and other Northeast states.

Data Overview, Anaplasmosis and Ehrlichiosis

- In 2017, there were 225 total cases of anaplasmosis and ehrlichiosis in Rhode Island, with an incidence rate of 21.2 cases per 100,000 people. Anaplasmosis (151 confirmed and probable cases) was more commonly observed than ehrlichiosis (74 confirmed and probable cases).
- Of the 151 reported anaplasmosis cases, 75 (49.7%) met the confirmed case criteria, compared to only 1 of the 74 reported ehrlichiosis cases (1.4%).
- Anaplasmosis and ehrlichiosis occur consistently at the highest rate in Washington County.
- The majority of anaplasmosis and ehrlichiosis cases are reported during the summer months, with a peak observed during June and July.
- Although it appears that the incidence of these diseases has been steadily increasing in the last five years, the increase is likely attributable to enhancements in the tickborne disease surveillance system.

Reported Cases of Anaplasmosis and Ehrlichiosis, Rhode Island, 2013-2017

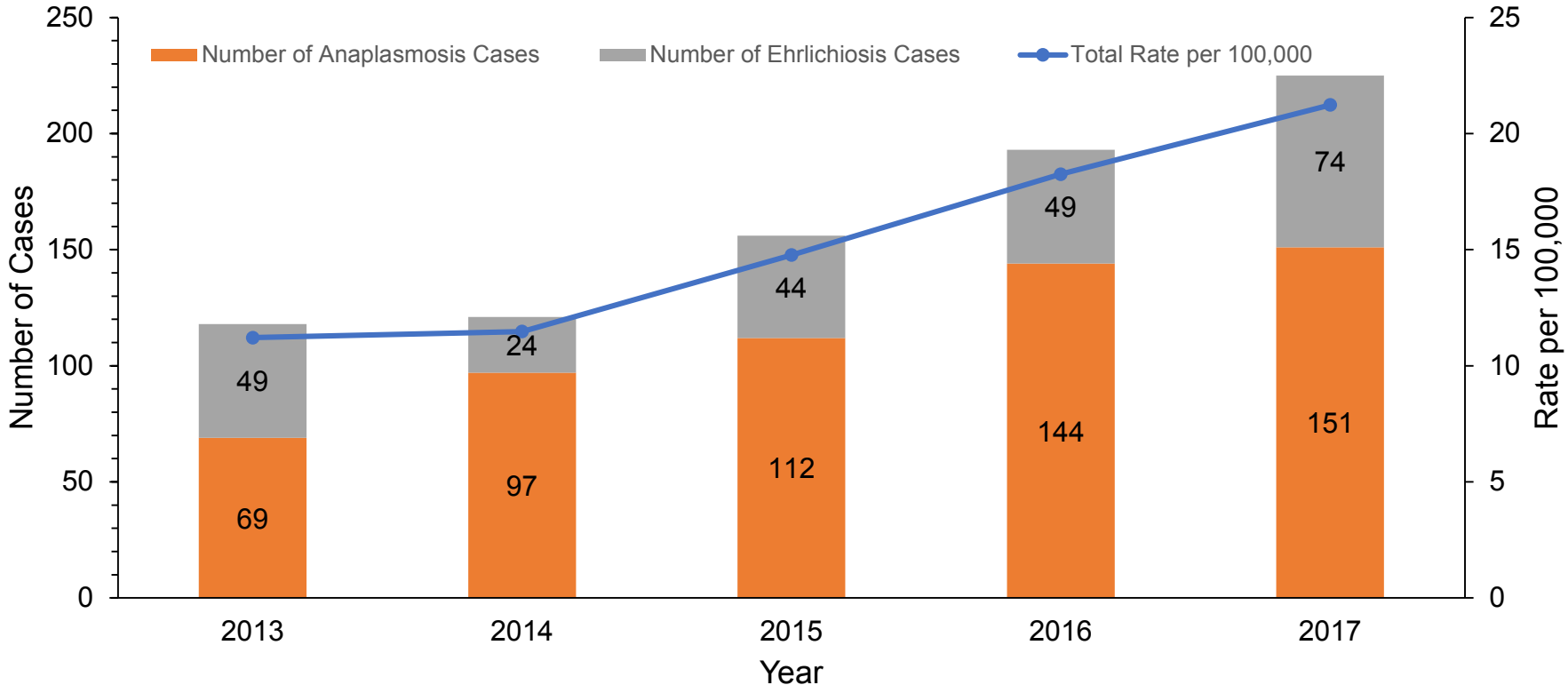

Figure 1: In 2017, Rhode Island had 225 total cases of anaplasmosis and ehrlichiosis, with an incidence rate of 21.2 cases per 100,000 people. Although the incidence has steadily increased over the last five years, the increase is likely attributable to enhancements in the tickborne disease surveillance system. An increased number of ehrlichiosis cases was observed in 2017, however 73 of the 74 cases were not laboratory confirmed (probable cases), thus this increase may not represent a true increase in disease.

Rate of Anaplasmosis and Ehrlichiosis, Age Group, Rhode Island, 2017

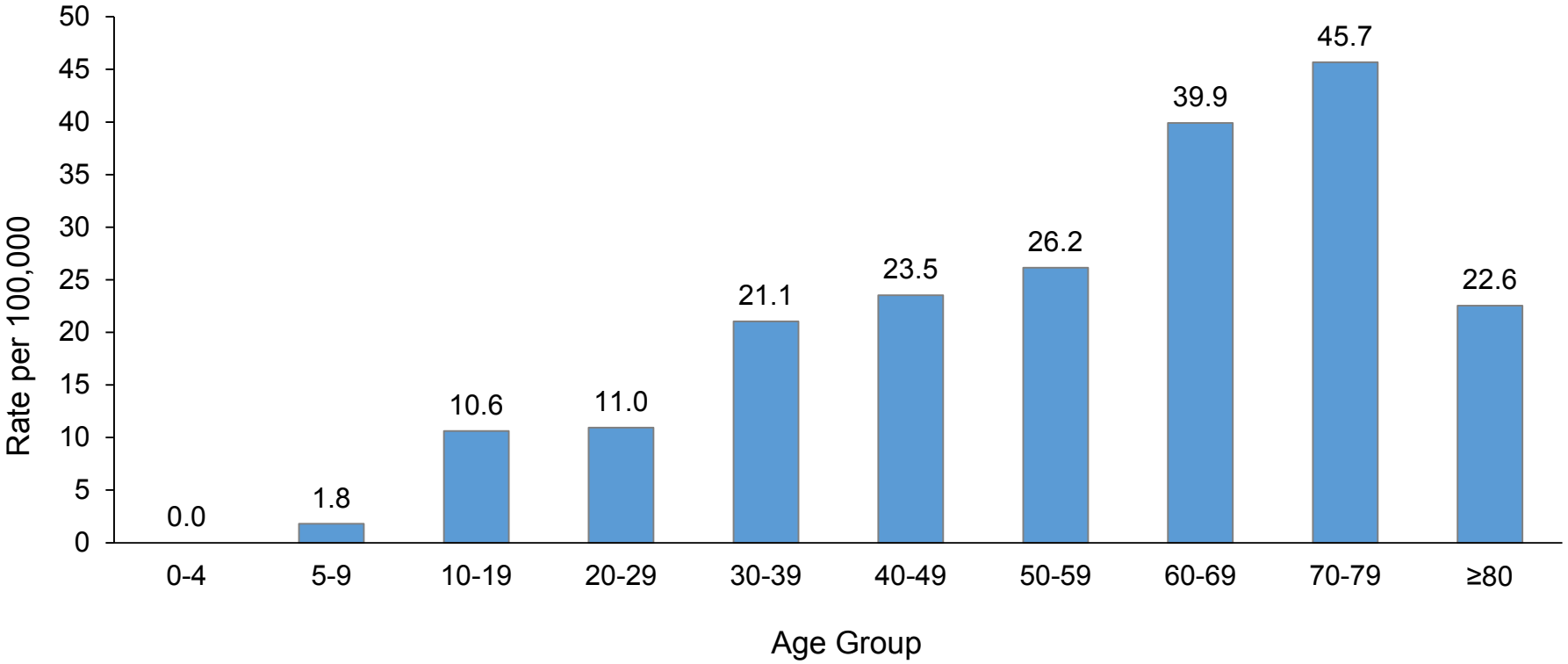

Figure 2: Rates of anaplasmosis and ehrlichiosis generally increased with age. Overall, adults 50 years and older had much higher rates of disease than individuals younger than 50 years old. As anaplasmosis and ehrlichiosis are chronically underreported, it may be that older adults experience worse clinical outcomes than younger individuals, and are therefore more likely to seek medical attention and undergo laboratory testing.

Rate of Anaplasmosis and Ehrlichiosis, Gender and Year, Rhode Island, 2013-2017

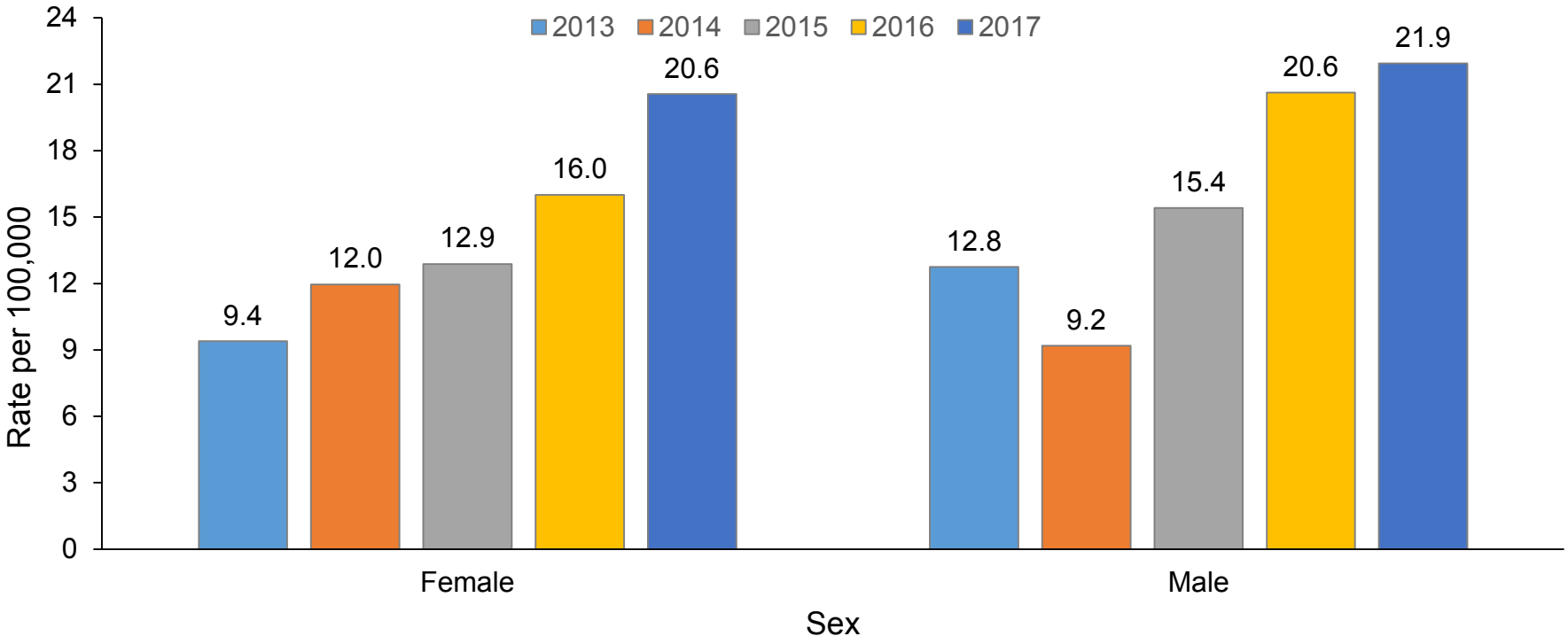

Figure 3: In 2017, the rate of anaplasmosis and ehrlichiosis was observed to be slightly higher in males compared to females. Increasing rates of anaplasmosis and ehrlichiosis have generally been observed over time for both females and males. Despite these increases, within years rates have been fairly equivalent between males and females.

Rate of Anaplasmosis and Ehrlichiosis, County and Year, Rhode Island, 2013-2017

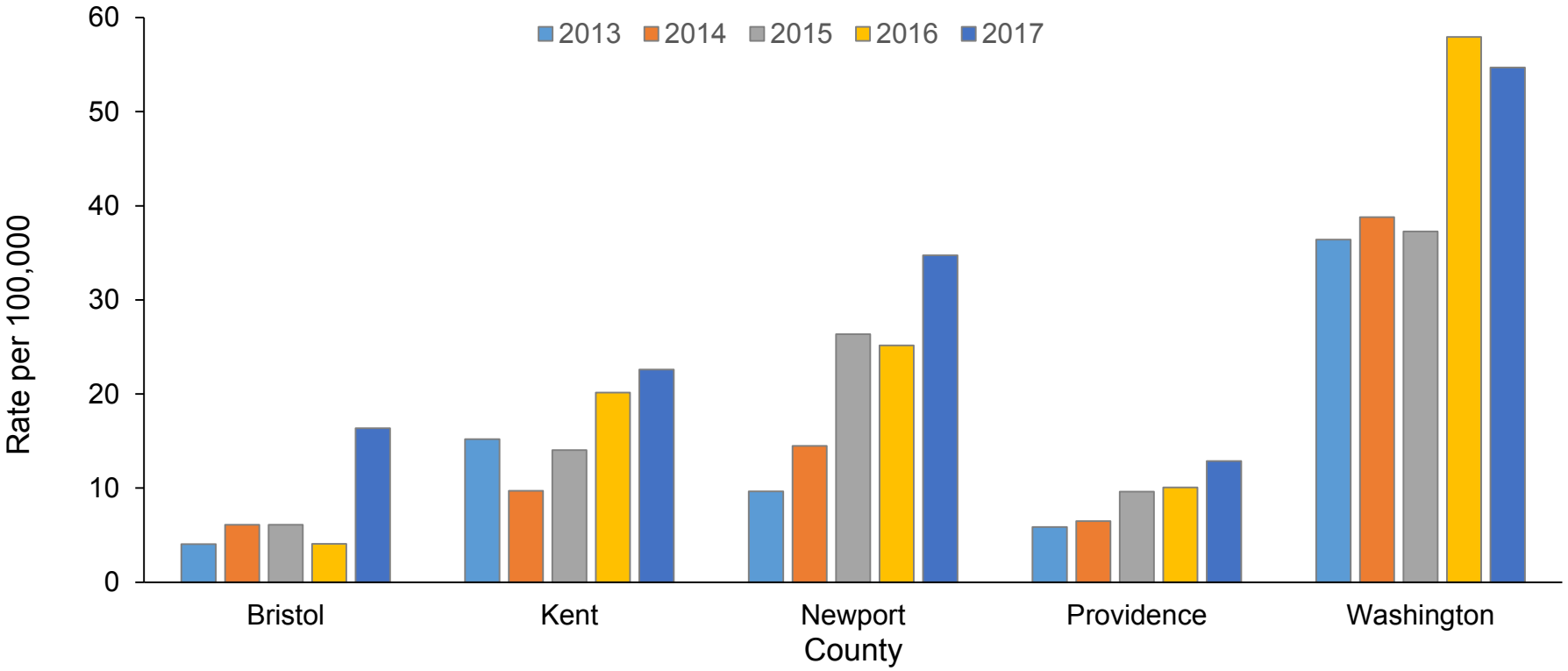

Figure 4: Anaplasmosis and ehrlichiosis consistently occur at much higher rates in Washington County than in other counties in Rhode Island. In 2017, Washington County had 54.7 cases of anaplasmosis and ehrlichiosis per 100,000 people. Much of Washington County is wooded and rural, an ideal habitat for ticks. Newport County had the next highest rate in 2017, with 34.8 cases of disease per 100,000 people.

Reported Cases of Anaplasmosis and Ehrlichiosis, Month and Year, Rhode Island, 2013-2017

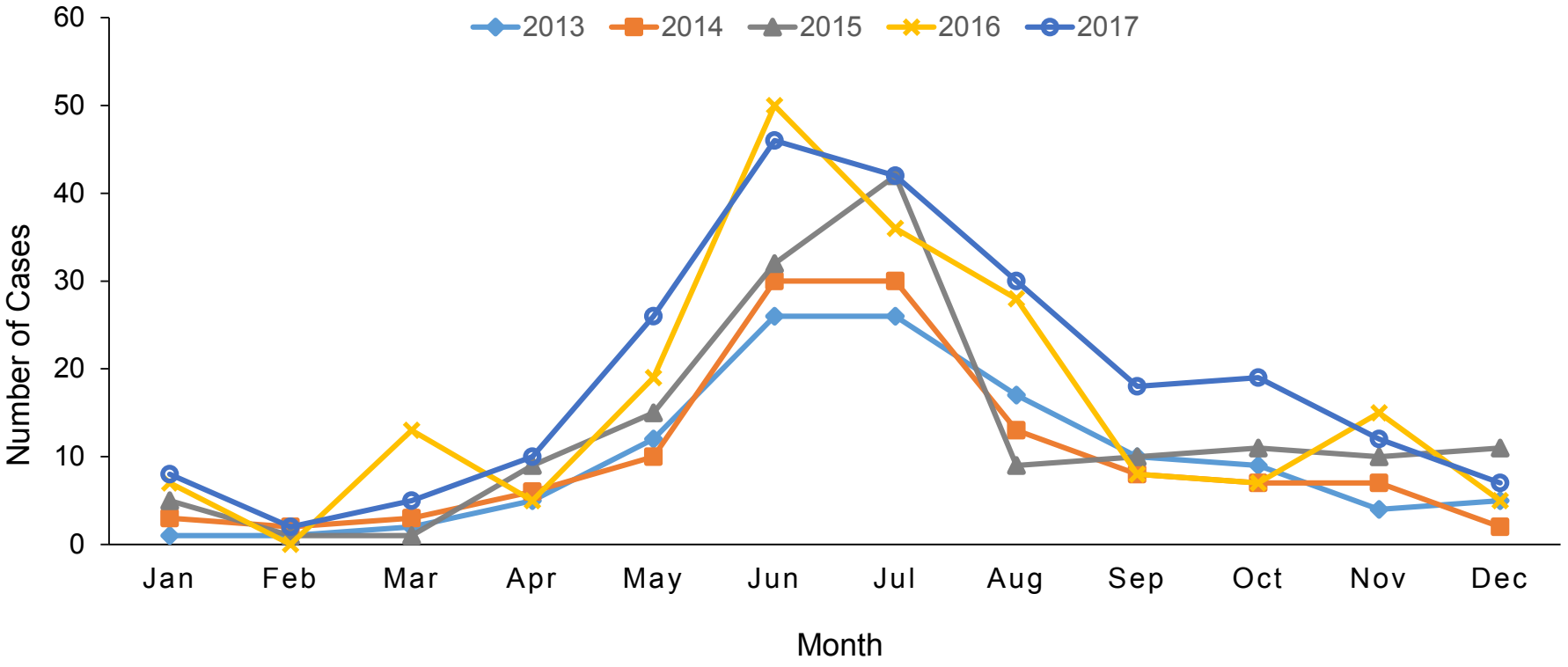

Figure 5: The majority of anaplasmosis and ehrlichiosis cases are reported during the summer months, with a peak observed during June and July. This is consistent with when black-legged ticks are in their nymphal life stage and most commonly transmit disease to humans.

Anaplasmosis and Ehrlichiosis Frequency and Rates by Year, Rhode Island, 2013-2017

Table 1. Frequency by Year					
	2013	**2014**	**2015**	**2016**	**2017**
Number of Cases	118	121	156	193	225

Table 2. Rate by Year					
	2013	**2014**	**2015**	**2016**	**2017**
Rate per 100,000	11.2	11.5	14.8	18.3	21.2

Anaplasmosis and Ehrlichiosis Frequency, Age Group and Year, Rhode Island, 2013-2017

Table 3. Frequency by Age Group and Year					
	2013	**2014**	**2015**	**2016**	**2017**
0-4	0	2	0	0	0
5-9	1	1	2	1	1
10-19	5	5	5	9	14
20-29	7	4	14	17	17
30-39	10	9	14	9	28
40-49	15	25	24	26	30
50-59	35	24	20	54	40
60-69	26	22	36	45	51
70-79	12	24	19	22	33
≥80	7	5	22	10	11
Total	118	121	156	193	225

Anaplasmosis and Ehrlichiosis Rates, Age Group and Year, Rhode Island, 2013-2017

Table 4. Rate by Age Group and Year					
	2013	**2014**	**2015**	**2016**	**2017**
0-4	0.0	3.6	0.0	0.0	0.0
5-9	1.7	1.7	3.5	1.8	1.8
10-19	3.7	3.7	3.7	6.8	10.6
20-29	4.6	2.6	9.0	10.9	11.0
30-39	8.0	7.1	10.9	6.9	21.1
40-49	10.5	18.1	17.9	20.0	23.5
50-59	22.3	15.3	12.8	34.9	26.2
60-69	22.9	18.7	29.6	35.7	39.9
70-79	19.4	37.6	29.0	32.6	45.7
≥80	13.8	10.0	44.6	20.4	22.6

Anaplasmosis and Ehrlichiosis Frequency and Rates, Sex and Year, Rhode Island, 2013-2017

Table 5. Frequency by Sex and Year					
	2013	**2014**	**2015**	**2016**	**2017**
Female	51	65	70	87	112
Male	65	47	79	106	113
Unknown	2	9	7	0	0
Total	118	121	156	193	225

Table 6. Rate by Sex and Year					
	2013	**2014**	**2015**	**2016**	**2017**
Female	9.4	12.0	12.9	16.0	20.6
Male	12.8	9.2	15.4	20.6	21.9

Anaplasmosis and Ehrlichiosis Frequency, County and Year, Rhode Island, 2013-2017

Table 7. Frequency by County and Year					
	2013	**2014**	**2015**	**2016**	**2017**
Bristol	2	3	3	2	8
Kent	25	16	23	33	37
Newport	8	12	22	21	29
Providence	37	41	61	64	82
Washington	46	49	47	73	69
All	118	121	156	193	225

Anaplasmosis and Ehrlichiosis Rates by County and Year, Rhode Island, 2013-2017

Table 8. Rate by County and Year					
	2013	**2014**	**2015**	**2016**	**2017**
Bristol	4.1	6.1	6.1	4.1	16.4
Kent	15.2	9.7	14.1	20.2	22.6
Newport	9.7	14.5	26.4	25.2	34.8
Providence	5.9	6.5	9.6	10.1	12.9
Washington	36.2	38.8	37.3	58.0	54.7

Anaplasmosis and Ehrlichiosis Frequency, Month and Year, Rhode Island, 2013-2017

Table 9. Frequency by Month and Year					
	2013	2014	2015	2016	2017
Jan	1	3	5	7	8
Feb	1	2	1	0	2
Mar	2	3	1	13	5
Apr	5	6	9	5	10
May	12	10	15	19	26
Jun	26	30	32	50	46
Jul	26	30	42	36	42
Aug	17	13	9	28	30
Sep	10	8	10	8	18
Oct	9	7	11	7	19
Nov	4	7	10	15	12
Dec	5	2	11	5	7
All	118	121	156	193	225

Notes on Data

- Case counts include patients classified as confirmed and probable cases.
- “Event Date” (used to classify cases by month and year) is generated based on the availability of data in the following order:
  1. Illness onset date
  2. Specimen collection date
  3. Date of report to public health agency
- Rate is calculated per 100,000 population.
- Population denominators are based on the Annual Estimates of the Resident Population: April 1, 2010-July 1, 2017, U.S. Census Bureau.

References

- https://www.cdc.gov/anaplasmosis/
- https://www.cdc.gov/ehrlichiosis/