



Anaplasmosis and Ehrlichiosis Surveillance 2010-2014

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Summary: Anaplasmosis and Ehrlichiosis in RI, 2010-2014



- Anaplasmosis and Ehrlichiosis are tickborne, bacterial diseases that typically cause fever, headache, fatigue, and muscle aches 1-2 weeks following a tick bite.
- In 2014, there were 121 cases of Anaplasmosis and Ehrlichiosis in Rhode Island, with an incidence rate of 11.5 cases per 100,000 people.
- Anaplasmosis and Ehrlichiosis occur consistently at the highest rate in Washington County.
- Nearly 50% of cases of Anaplasmosis and Ehrlichiosis in 2014 occurred in June and July, which is consistent with national patterns of disease.

Figure 1: Reported Cases of Anaplasmosis and Ehrlichiosis by Year, RI, 2010-2014



Figure 1: In 2014, Rhode Island had 121 cases of Anaplasmosis and Ehrlichiosis, with an incidence rate of 11.5 cases of disease per 100,000 people. 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.

Figure 2: Rate of Anaplasmosis and Ehrlichiosis by Age Group, RI, 2014



Figure 2: Anaplasmosis and ehrlichiosis occurred at the highest rate among adults ages 70-79 years, nearly 42 cases per 100,000 people. Overall, adults older than 40 had much higher rates of disease than individuals 39 years and younger. 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.

Figure 3: Rate of Anaplasmosis and Ehrlichiosis by Sex and Year, RI, 2010-2014





Figure 3: Anaplasmosis and ehrlichiosis occur at similar rates in females and in males. Although the overall rate has been trending upward, males and females continue to have equivalent rates.

Figure 4: Rate of Anaplasmosis and Ehrlichiosis by County and Year, RI, 2010-2014





Figure 4: Anaplasmosis and ehrlichiosis consistently occur at much higher rates in Washington County than in other counties in Rhode Island. In 2014, Washington County had 38.6 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 2014, with 14.5 cases of disease per 100,000 people.

Figure 5: Reported Cases of Anaplasmosis and Ehrlichiosis by Month and Year, RI, 2010-2014





Figure 5: Anaplasmosis and ehrlichiosis can occur at any point in the year, but peaks in June and July. These months feature an increase in black-legged ticks in the nymphal life stage, when they typically bite humans and transmit disease. In 2014, there were 60 cases of anaplasmosis and ehrlichiosis in June and July, 50% of the cases for the entire year.

Anaplasmosis and Ehrlichiosis Frequency and Rates by Year, RI, 2010-2014



Table 1. Frequency by Year							
2010 2011 2012 2013 2014							
Number of Cases	76	73	56	142	172		

Table 2. Rate by Year							
2010 2011 2012 2013 2014							
Rate per 100,000	3.9	7.0	10.2	11.2	11.5		

Anaplasmosis and Ehrlichiosis Frequency by Age Group and Year, RI, 2010-2014



Table 3. Frequency by Age Group and Year								
	2010	2011	2012	2013	2014			
0-4	0	0	<5	0	<5			
5-9	0	<5	<5	<5	<5			
10-19	<5	<5	6	5	5			
20-29	<5	<5	11	7	<5			
30-39	<5	8	<5	10	9			
40-49	7	12	17	15	25			
50-59	7	12	21	35	24			
60-69	12	19	27	26	22			
70-79	6	<5	12	12	24			
≥80	5	10	6	7	5			
Total	41	74	107	118	121			

Anaplasmosis and Ehrlichiosis Rates by Age Group and Year, RI, 2010-2014



Table 4. Rate by Age Group and Year							
	2010	2011	2012	2013	2014		
0-4	0	0	1.7	0	3.5		
5-9	0	3.3	3.3	1.7	1.7		
10-19	0.7	2.1	4.2	3.5	3.5		
20-29	1.4	2.7	7.4	4.7	2.7		
30-39	0.8	6.4	3.2	8.0	7.2		
40-49	4.5	7.8	11.0	9.7	16.2		
50-59	4.6	7.9	13.8	23.1	15.8		
60-69	11.7	18.5	26.3	25.3	21.4		
70-79	10.4	6.9	20.8	20.8	41.6		
≥80	9.7	19.5	11.7	13.6	9.7		

Anaplasmosis and Ehrlichiosis Frequency and Rates by Sex and Year, RI, 2010-2014



Table 5. Frequency by Sex and Year								
	2010 2011 2012 2013 2014							
Female	17	35	57	51	65			
Male	23	38	49	65	47			
Unknown	<5	<5	<5	<5	9			
Total	41	74	107	118	121			

Table 6. Rate by Sex and Year								
2010 2011 2012 2013 2014								
Female	3.1	6.4	10.5	9.4	11.9			
Male 4.5 7.5 9.6 12.8 9.2								

Anaplasmosis and Ehrlichiosis Frequency By County and Year, RI, 2010-2014



Table 7. Frequency by County and Year							
	2010	2011	2012	2013	2014		
Bristol	<5	0	0	<5	<5		
Kent	<5	6	34	25	16		
Newport	0	<5	5	8	12		
Providence	7	12	29	37	41		
Washington	27	52	39	46	49		
Unknown	1	0	0	0	0		
All	41	74	107	118	121		

Anaplasmosis and Ehrlichiosis Rates by County and Year, RI, 2010-2014



Table 8. Rate by County and Year									
	2010 2011 2012 2013 2014								
Bristol	4.0	0	0	4.0	6.0				
Kent	2.4	3.6	20.5	15.1	9.6				
Newport	0	4.8	6.0	9.7	14.5				
Providence	1.1	1.9	4.6	5.9	6.5				
Washington	21.3	41.0	30.7	36.2	38.6				

Anaplasmosis and Ehrlichiosis Frequency by Month and Year, RI, 2010-2014



Table 9. Frequency by Month and Year								
	2010	2011	2012	2013	2014			
Jan	<5	0	5	<5	<5			
Feb	<5	<5	7	<5	<5			
Mar	0	<5	7	<5	<5			
Apr	5	5	7	5	6			
Мау	5	12	12	12	10			
Jun	10	19	26	26	30			
Jul	7	10	22	26	30			
Aug	<5	<5	6	17	13			
Sep	<5	<5	6	10	8			
Oct	<5	11	5	9	7			
Nov	<5	6	<5	<5	7			
Dec	0	<5	0	5	<5			
All	41	74	107	118	121			

Notes on Data



- Case counts include patients classified as confirmed and probable.
- "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 people. The population denominator is based on 2010 US Census Population.