





# **Lyme Disease Surveillance 2011-2015**

Rhode Island Department of Health

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

Center for Acute Infectious Disease Epidemiology



# About Lyme Disease

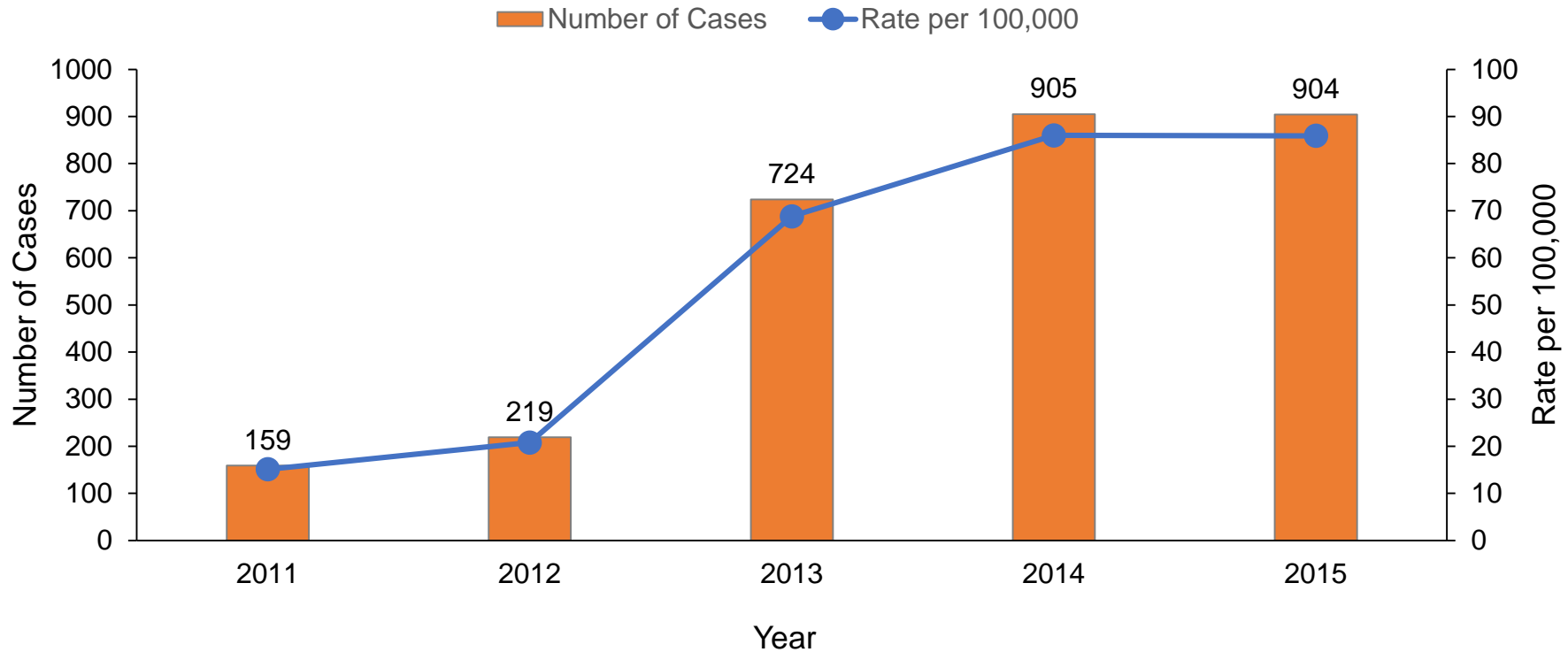
- Lyme disease is a tickborne bacterial disease, causing symptoms such as fever, headache, fatigue, and a characteristic bullseye rash. Late symptoms can include arthritis, neurological problems, and heart disease. Lyme disease can be successfully treated with a course of antibiotics.
- Lyme disease is most commonly transmitted in upper Midwest and Northeast states, in wooded or grassy areas, and during warm months.



# Data Overview, Lyme Disease

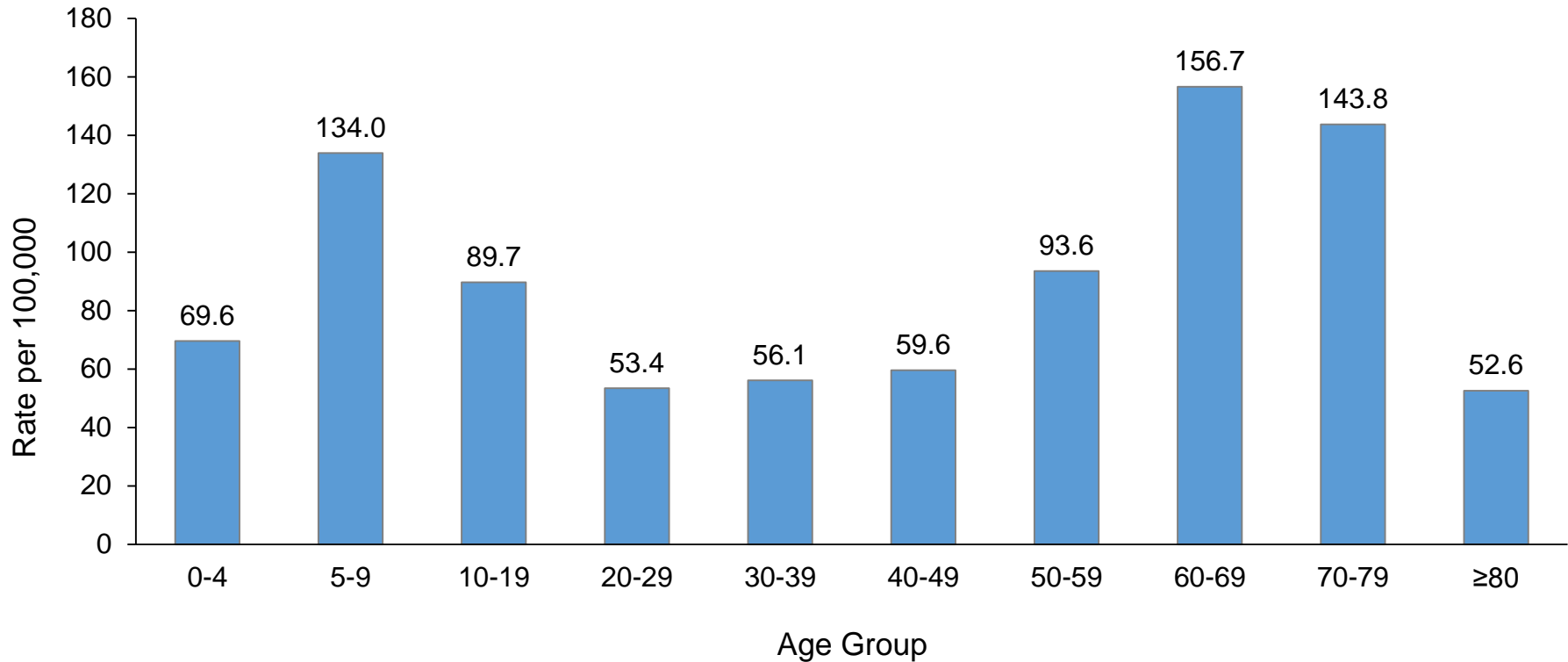
- In 2015, Rhode Island had 904 cases of Lyme disease, with an incidence rate of 86 cases per 100,000 people.
- In 2014, Rhode Island was the state with the fourth highest rate of Lyme disease in the country.
- In 2013, Rhode Island enhanced its Lyme disease surveillance system, so the dramatic increase in reported disease is due to increased surveillance rather than increased illness.
- Washington County consistently has the highest rate of Lyme disease in Rhode Island with a rate of 211.1 cases per 100,000 people in 2015.

# Reported Cases of Lyme Disease, Rhode Island, 2011-2015



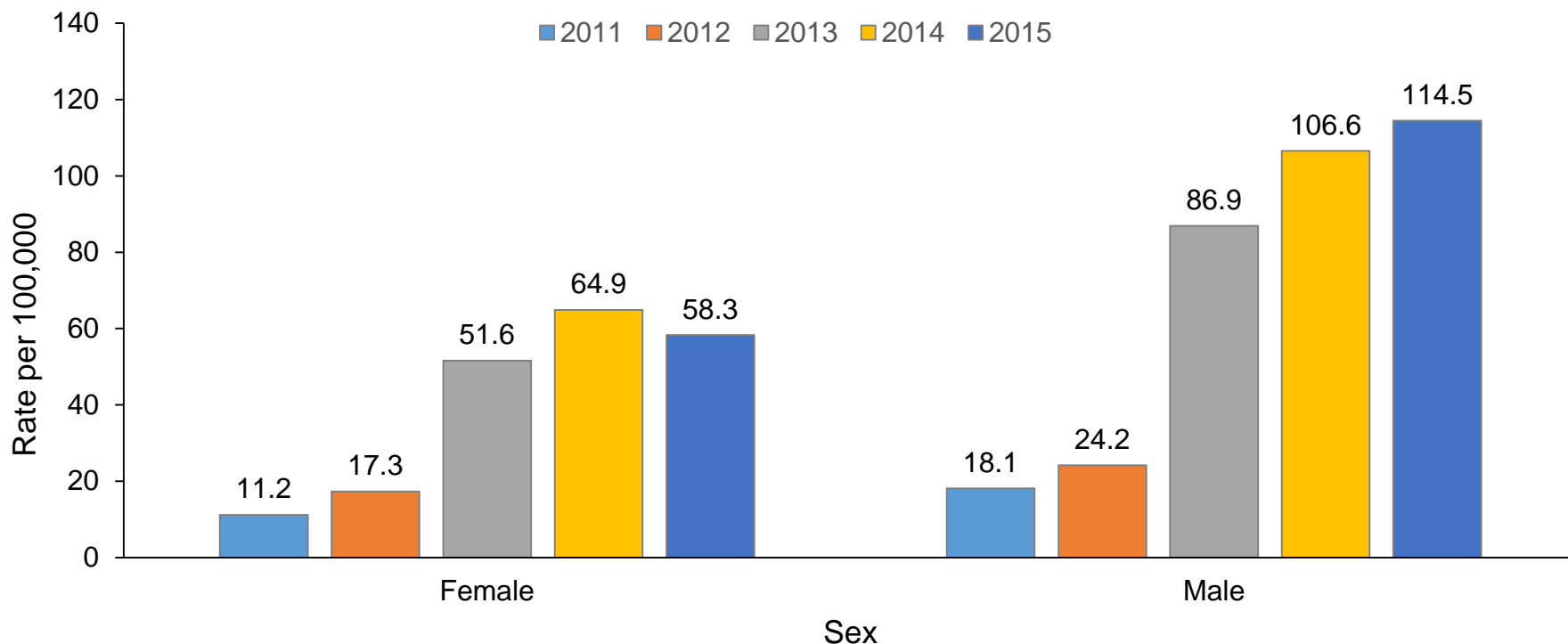
**Figure 1:** In 2015, there were 905 cases of Lyme disease in Rhode Island (rate of 86 cases per 100,000 people), which was consistent with the number of cases observed in 2014. Rhode Island's Lyme disease surveillance system was enhanced in 2013 to incorporate active provider follow-up to obtain clinical information. The apparent increase in cases beginning in 2013 is attributable to these changes in surveillance, rather than a true increase in disease. Although underreporting of Lyme disease remains a concern, this enhanced surveillance system may reduce the discrepancy between reported cases and actual burden of disease in Rhode Island.

# Rate of Lyme Disease, by Age Group, Rhode Island, 2015



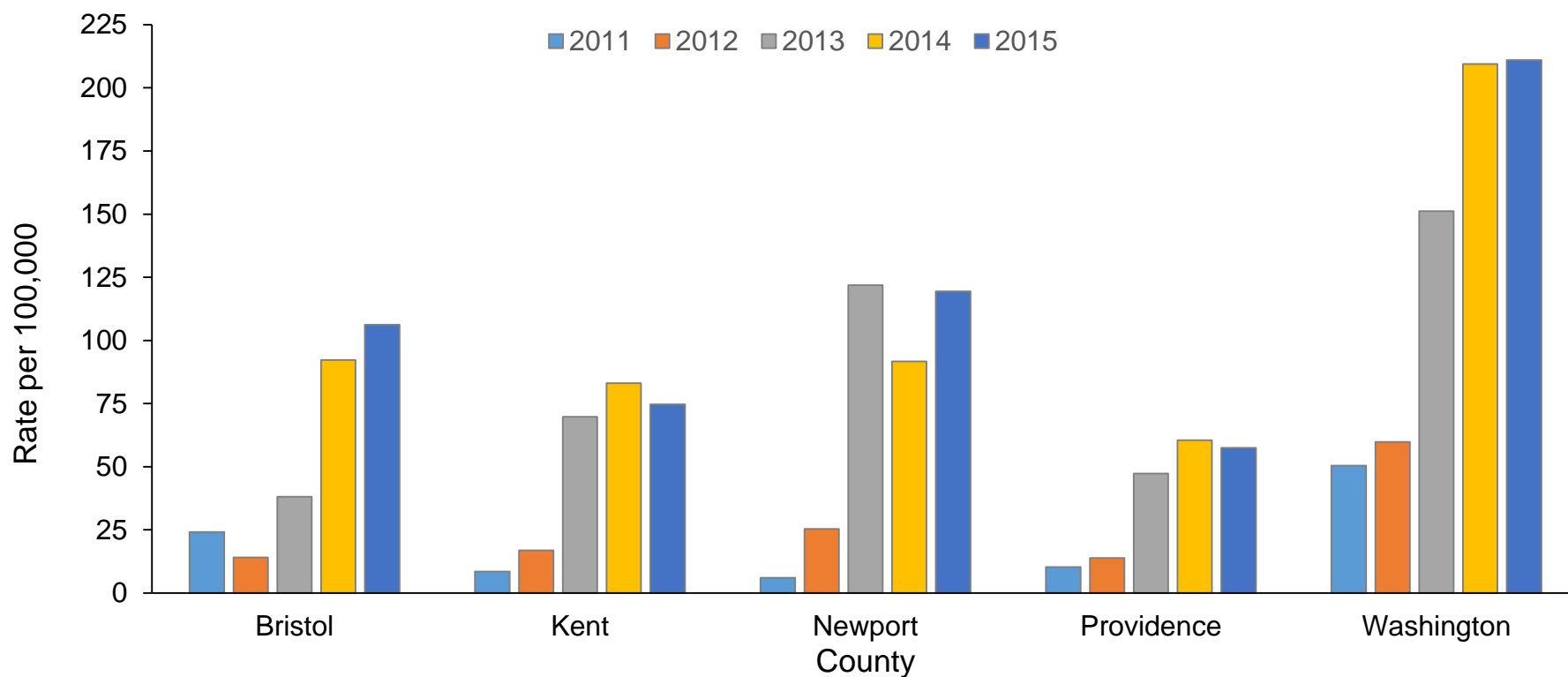
**Figure 2:** In 2015, adults 60-69 years old and 70-79 years old had the highest rates of Lyme disease in Rhode Island (156.7 cases per 100,000 people and 143.8 cases per 100,000 people, respectively). Children 5-9 years old also experienced high rates of Lyme disease at 134.0 cases per 100,000 people.

# Rate of Lyme Disease, by Gender and Year, Rhode Island, 2011-2015



**Figure 3:** In 2015, observed rates of Lyme disease were nearly twice as high in males (114.5 cases per 100,000 people) compared to females (58.3 cases per 100,000 people). Between 2011 and 2015, Lyme disease has consistently been observed at higher rates among males, which is consistent with disparities observed in national level data.

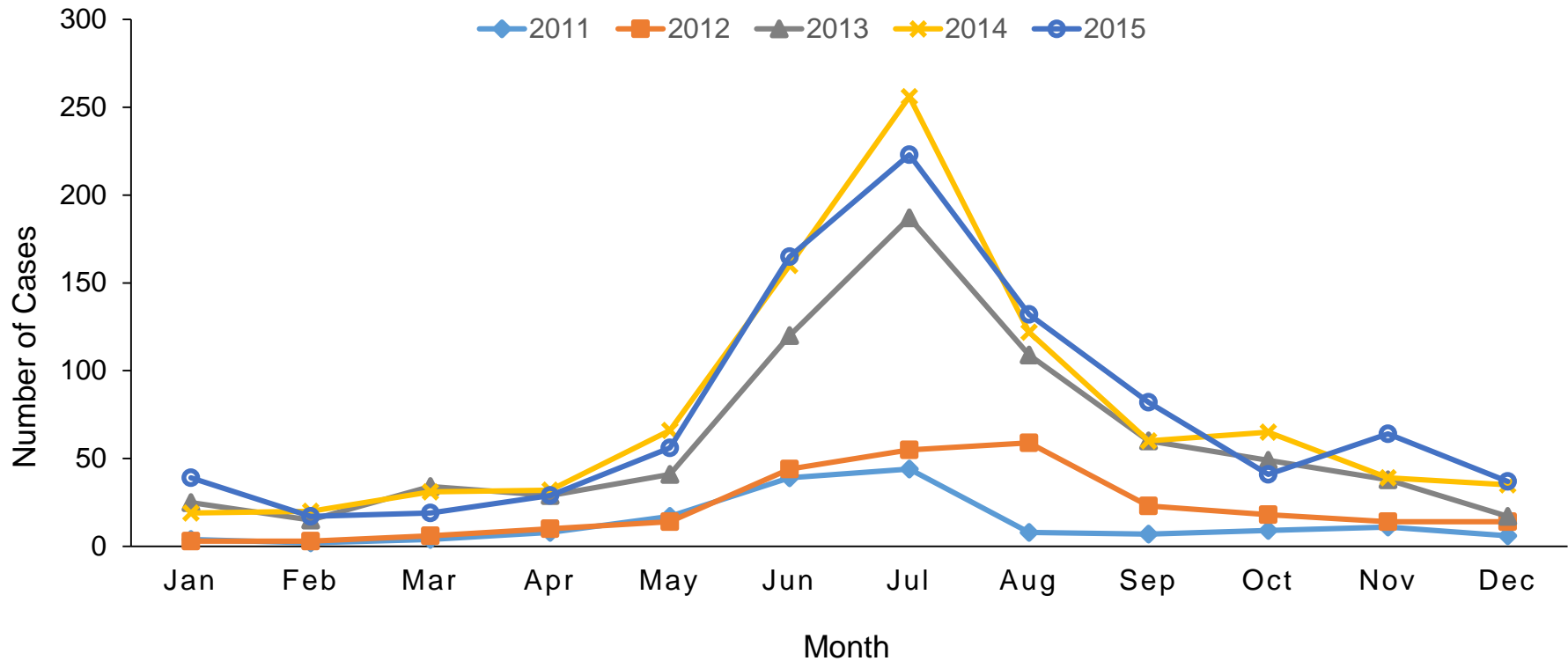
# Rate of Lyme Disease, County and Year, Rhode Island, 2011-2015



**Figure 4:** Lyme disease is clustered geographically within Rhode Island. Washington County consistently has the majority of disease burden, with rates of 211.1 cases per 100,000 people in 2015, nearly twice the rate of the next highest counties (Newport and Bristol, with 119.4 cases per 100,000 people and 106.3 cases per 100,000 people, respectively).



# Reported Cases of Lyme Disease, by Month and Year, Rhode Island, 2011-2015



**Figure 5:** Lyme disease can occur at any point in the year, but peaks between June and August, with the most cases in July. Nationally, cases of Lyme disease peak in these months as well. In New England, these are the months when people spend the most time outdoors. In 2015, there were 520 cases of Lyme disease between June and August, 58% of Rhode Island’s cases for the entire year.

# Lyme Disease Frequency and Rates by Year, Rhode Island, 2011-2015



**Table 1. Frequency by Year**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Number of Cases</b>	159	219	724	905	904

**Table 2. Rate by Year**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Rate per 100,000</b>	15.1	20.8	68.8	86.0	85.9

# Lyme Disease Frequency, by Age Group and Year, Rhode Island, 2011-2015



**Table 3. Frequency by Age Group and Year**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>0-4</b>	8	12	28	29	40
<b>5-9</b>	24	22	77	89	81
<b>10-19</b>	15	31	104	134	129
<b>20-29</b>	13	19	64	72	79
<b>30-39</b>	10	15	49	65	70
<b>40-49</b>	21	24	90	85	92
<b>50-59</b>	27	40	127	166	142
<b>60-69</b>	28	29	92	134	161
<b>70-79</b>	5	18	57	84	83
<b>≥80</b>	8	9	36	45	27
<b>Unknown</b>	0	0	0	2	0
<b>Total</b>	159	219	724	905	904

# Lyme Disease Rates, by Age Group and Year, Rhode Island, 2011-2015



**Table 4. Rate by Age Group and Year**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>0-4</b>	13.9	20.9	48.7	50.5	69.6
<b>5-9</b>	39.7	36.4	127.4	147.3	134.0
<b>10-19</b>	10.4	21.6	72.3	93.1	89.7
<b>20-29</b>	8.8	12.8	43.3	48.7	53.4
<b>30-39</b>	8.0	12.0	39.2	52.0	56.1
<b>40-49</b>	13.6	15.5	58.3	55.0	59.6
<b>50-59</b>	17.8	26.4	83.7	109.4	93.6
<b>60-69</b>	27.3	28.2	89.5	130.4	156.7
<b>70-79</b>	8.7	31.2	98.8	145.5	143.8
<b>≥80</b>	15.6	17.5	70.1	87.6	52.6

# Lyme Disease Frequency and Rates, by Gender and Year, Rhode Island, 2011-2015



**Table 5. Frequency by Sex and Year**

	2011	2012	2013	2014	2015
<b>Female</b>	61	94	281	353	317
<b>Male</b>	92	123	442	542	582
<b>Unknown</b>	6	2	1	10	5
<b>Total</b>	159	219	724	905	904

**Table 6. Rate by Sex and Year**

	2011	2012	2013	2014	2015
<b>Female</b>	11.2	17.3	51.6	64.9	58.3
<b>Male</b>	18.1	24.2	86.9	106.6	114.5

# Lyme Disease Frequency, by County and Year, Rhode Island, 2011-2015



**Table 7. Frequency by County and Year**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Bristol</b>	12	7	19	46	53
<b>Kent</b>	14	28	116	138	124
<b>Newport</b>	5	21	101	76	99
<b>Providence</b>	64	87	296	379	360
<b>Washington</b>	64	76	192	266	268
<b>All</b>	159	219	724	905	904

# Lyme Disease Rates by County and Year, Rhode Island, 2011-2015



**Table 8. Rate by County and Year**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Bristol</b>	24.1	14.0	38.1	92.2	106.3
<b>Kent</b>	8.4	16.9	69.8	83.1	74.6
<b>Newport</b>	6.0	25.3	121.9	91.7	119.4
<b>Providence</b>	10.2	13.9	47.2	60.5	57.5
<b>Washington</b>	50.4	59.9	151.2	209.5	211.1

# Lyme Disease Frequency, by City and Year, Rhode Island, 2011-2015



**Table 9. Frequency by City and Year**

	2011	2012	2013	2014	2015
<b>Barrington</b>	6	2	8	13	14
<b>Bristol</b>	5	0	7	22	22
<b>Burrillville</b>	4	4	34	45	43
<b>Central Falls</b>	1	0	2	3	2
<b>Charlestown</b>	3	3	17	26	21
<b>Coventry</b>	3	9	38	43	48
<b>Cranston</b>	4	6	17	27	29
<b>Cumberland</b>	6	11	33	37	33
<b>East Greenwich</b>	1	5	18	23	23
<b>East Providence</b>	3	6	15	20	24
<b>Exeter</b>	2	6	8	22	12
<b>Foster</b>	6	13	33	27	22
<b>Glocester</b>	3	11	14	20	22
<b>Hopkinton</b>	0	1	13	30	27
<b>Jamestown</b>	2	2	12	14	13
<b>Johnston</b>	1	2	12	20	12
<b>Lincoln</b>	7	4	18	23	23



# Lyme Disease Frequency, by City and Year Continued, Rhode Island, 2011-2015



**Table 9. Frequency by City and Year**

	2011	2012	2013	2014	2015
Little Compton	0	2	20	10	12
Middletown	0	3	8	7	11
Narragansett	3	7	15	30	21
New Shoreham	30	16	31	2	11
Newport	0	2	13	13	8
North Kingstown	3	10	30	44	53
North Providence	0	1	6	6	11
North Smithfield	6	3	27	25	12
Pawtucket	3	0	7	12	12
Portsmouth	1	4	25	16	15
Providence	7	4	25	44	37
Richmond	1	2	6	10	9
Scituate	7	10	34	37	40
Smithfield	2	5	7	15	20
South Kingstown	16	21	47	60	72

# Lyme Disease Frequency, by City and Year Continued, Rhode Island, 2011-2015



**Table 9. Frequency by City and Year**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Tiverton</b>	2	8	23	16	40
<b>Warren</b>	1	5	4	11	17
<b>Warwick</b>	7	5	29	32	34
<b>West Greenwich</b>	2	6	21	19	9
<b>West Warwick</b>	1	3	10	21	10
<b>Westerly</b>	6	10	25	42	42
<b>Woonsocket</b>	4	7	12	18	18
<b>Total</b>	159	219	724	905	904

# Lyme Disease Frequency, by Month and Year, Rhode Island, 2011-2015



**Table 9. Frequency by Month and Year**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Jan</b>	4	3	25	19	39
<b>Feb</b>	2	3	15	20	17
<b>Mar</b>	4	6	34	31	19
<b>Apr</b>	8	10	29	32	29
<b>May</b>	17	14	41	66	56
<b>Jun</b>	39	55	120	160	165
<b>Jul</b>	44	59	187	256	223
<b>Aug</b>	8	23	109	122	132
<b>Sep</b>	7	18	60	60	82
<b>Oct</b>	9	14	49	65	41
<b>Nov</b>	11	14	38	39	64
<b>Dec</b>	6	0	17	35	37
<b>All</b>	159	219	724	905	904



# 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. The population denominator is based on 2010 US Census Population.

# References



- <https://www.cdc.gov/lyme/stats/index.html>