





Lyme Disease Surveillance 2012-2016

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 2016, Rhode Island had 927 cases of Lyme disease, with an incidence rate of 88 cases per 100,000 people.
- In 2015, 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 181.1 cases per 100,000 people in 2016.

Reported Cases of Lyme Disease, Rhode Island, 2012-2016

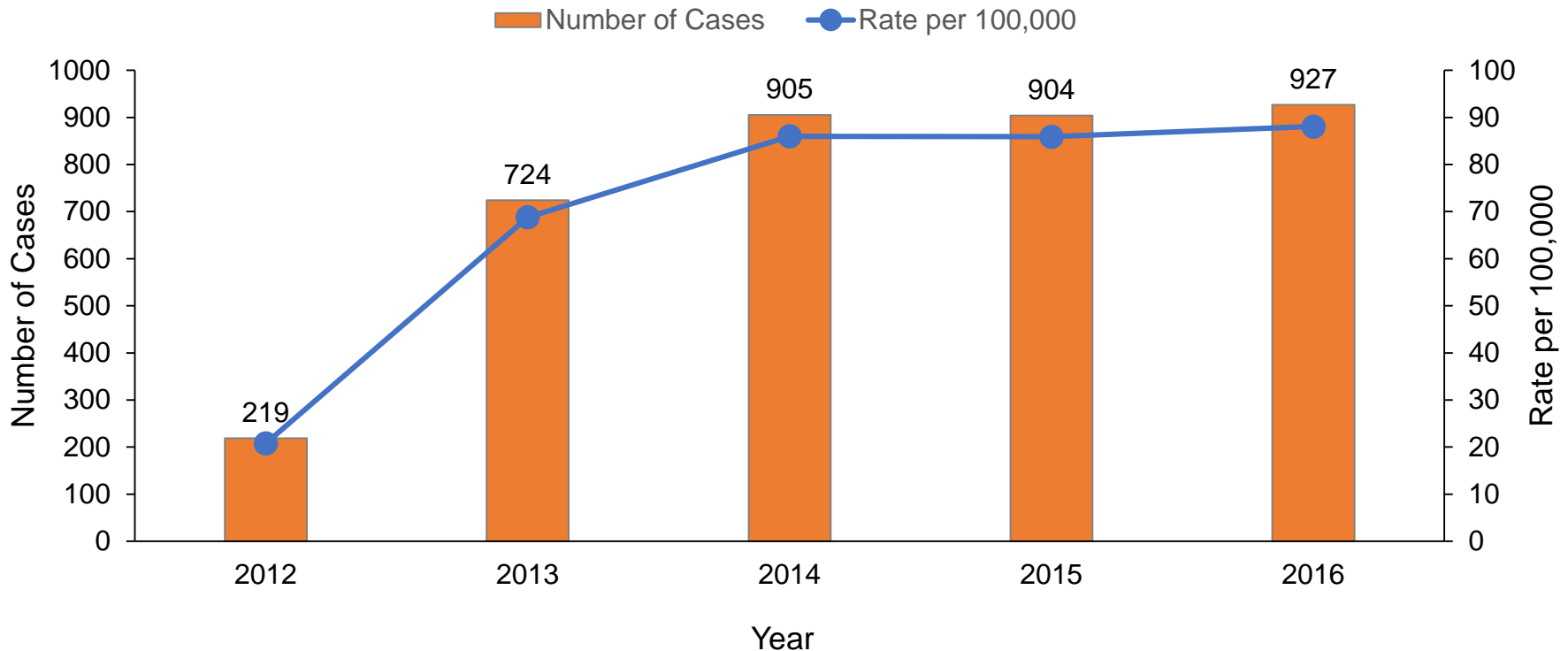


Figure 1: In 2016, there were 927 cases of Lyme disease in Rhode Island (rate of 88 cases per 100,000 people), which was fairly consistent with the number of cases observed in 2014 and 2015. Rhode Island's Lyme disease surveillance system was enhanced in 2013 to incorporate active provider follow-up 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, Age Group, Rhode Island, 2016

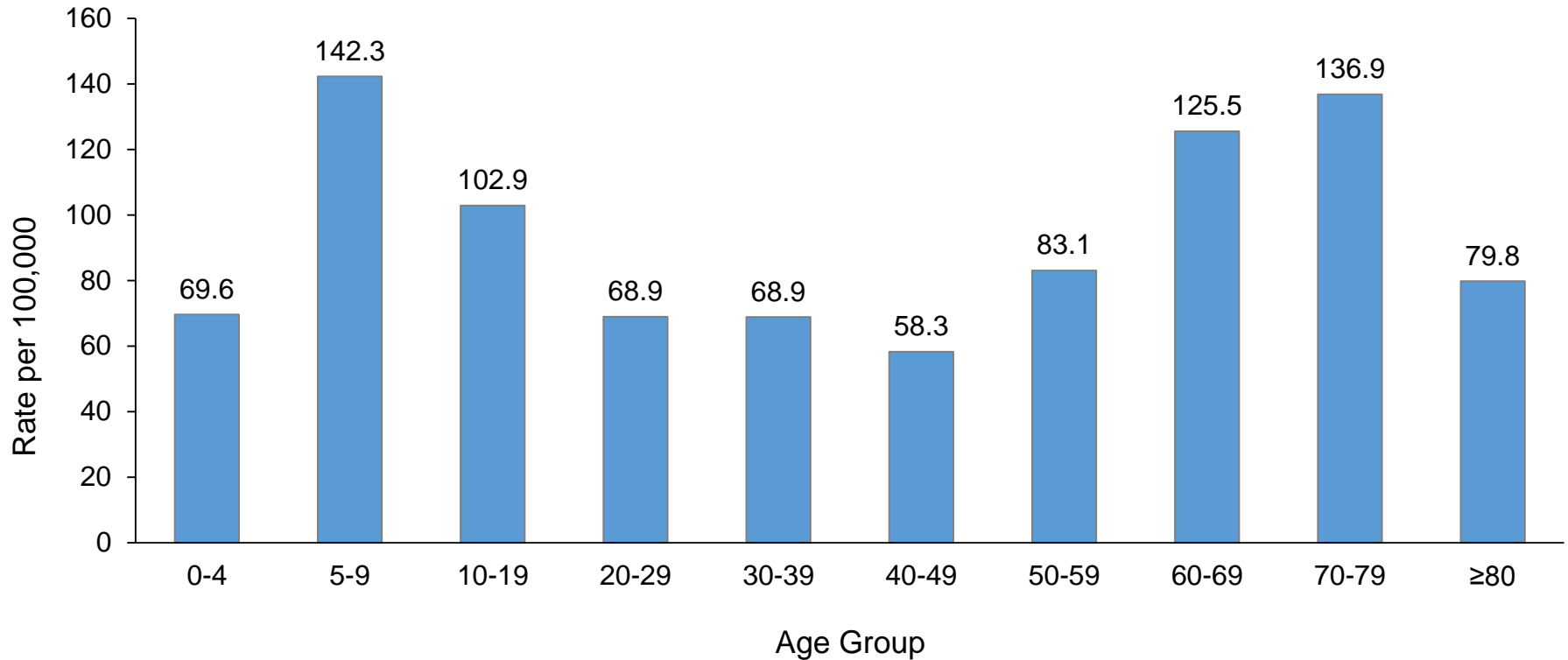


Figure 2: In 2016, children 5-9 years old experienced the highest rate of Lyme disease at 142.2 cases per 100,000 people. Adults 70-79 years old and 60-69 years old also had similarly high rates of Lyme disease at 136.9 cases per 100,000 people and 125.5 cases per 100,000 people, respectively.

Rate of Lyme Disease, Gender and Year, Rhode Island, 2012-2016

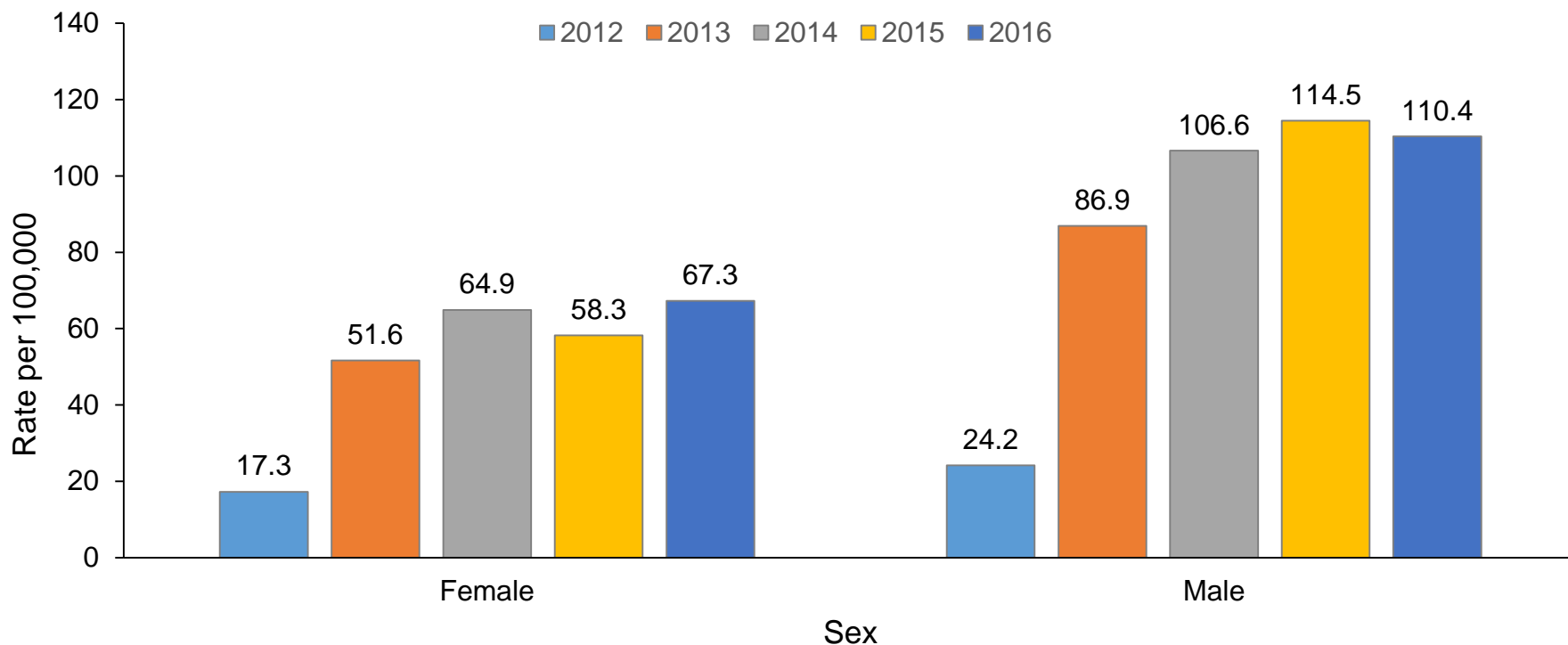


Figure 3: In 2016, the observed rate of Lyme disease among males (110.4 cases per 100,000 people) was more than 1.5 times higher than the rate among females (67.3 cases per 100,000 people). From 2012 to 2016, Lyme disease was consistently observed at higher rates among males, which is consistent with disparities observed in national level data.

Rate of Lyme Disease, County and Year, Rhode Island, 2012-2016

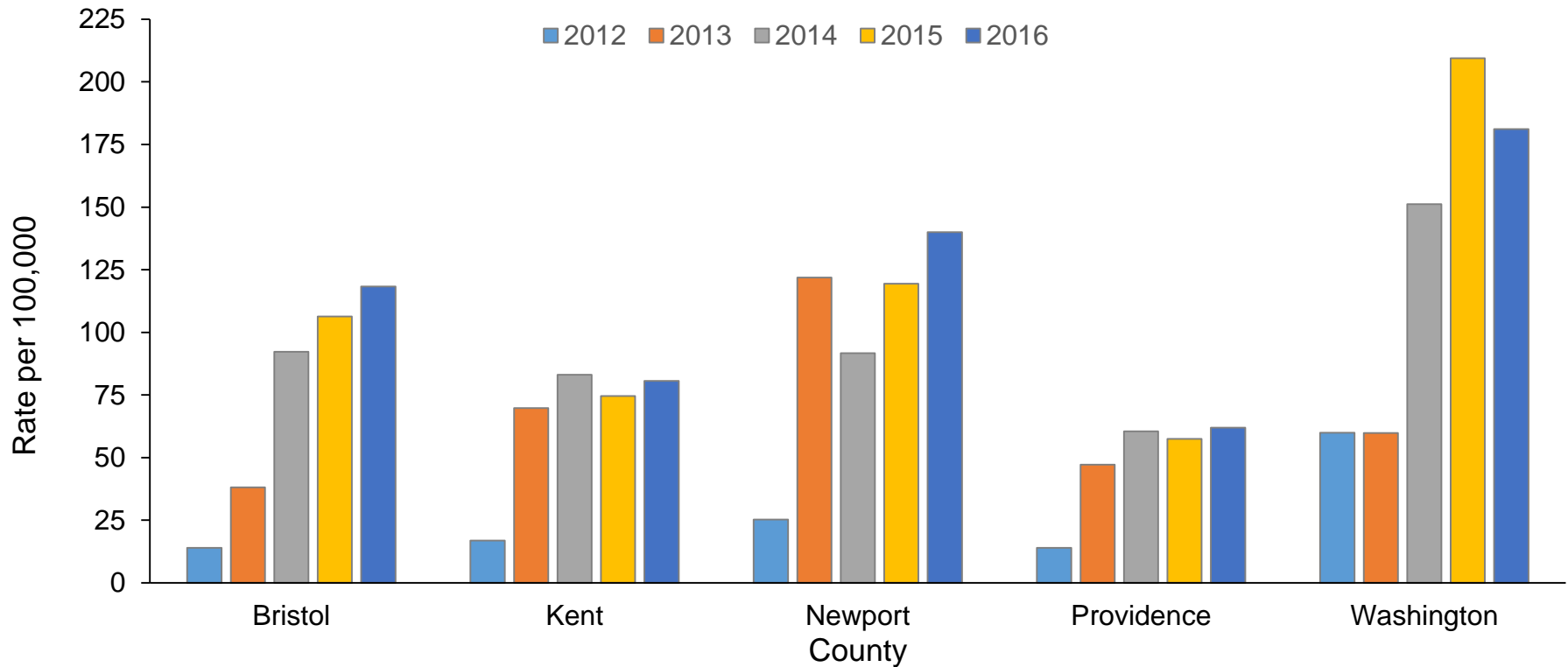


Figure 4: Lyme disease is clustered geographically within Rhode Island. Washington County consistently has the majority of disease burden, with a rate of 181.1 cases per 100,000 people reported in 2016. The second highest rate of Lyme disease in 2016 was observed in Newport County, with a rate of 140.0 cases per 100,000 people.

Reported Cases of Lyme Disease, Month and Year, Rhode Island, 2012-2016

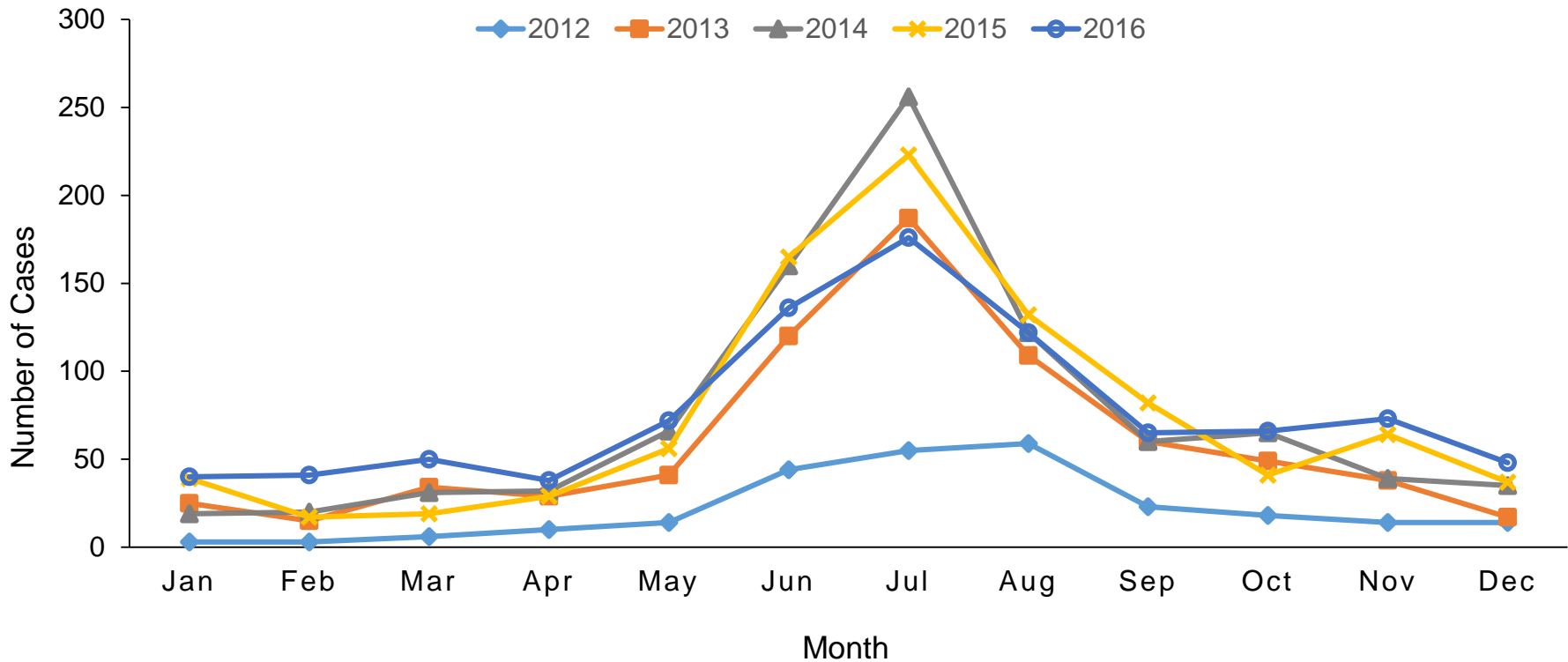


Figure 5: Lyme disease can occur at any point in the year, but peaks between June and August, with the most cases in July. Nationally, cases of Lyme disease peak in these months as well. In New England, these are the months when people spend the most time outdoors. In 2016, 434 cases of Lyme disease were observed between June and August, nearly half (47%) of Rhode Island’s cases for the entire year.

Lyme Disease Frequency and Rates by Year, Rhode Island, 2012-2016



Table 1. Frequency by Year

	2012	2013	2014	2015	2016
Number of Cases	219	724	905	904	927

Table 2. Rate by Year

	2012	2013	2014	2015	2016
Rate per 100,000	20.8	68.8	86.0	85.9	88.1

Lyme Disease Frequency, Age Group and Year, Rhode Island, 2012-2016



Table 3. Frequency by Age Group and Year

	2012	2013	2014	2015	2016
0-4	12	28	29	40	40
5-9	22	77	89	81	86
10-19	31	104	134	129	148
20-29	19	64	72	79	102
30-39	15	49	65	70	86
40-49	24	90	85	92	90
50-59	40	127	166	142	126
60-69	29	92	134	161	129
70-79	18	57	84	83	79
≥80	9	36	45	27	41
Unknown	0	0	2	0	0
Total	219	724	905	904	927

Lyme Disease Rates, Age Group and Year, Rhode Island, 2012-2016



Table 4. Rate by Age Group and Year

	2012	2013	2014	2015	2016
0-4	20.9	48.7	50.5	69.6	69.6
5-9	36.4	127.4	147.3	134.0	142.3
10-19	21.6	72.3	93.1	89.7	102.9
20-29	12.8	43.3	48.7	53.4	68.9
30-39	12.0	39.2	52.0	56.1	68.9
40-49	15.5	58.3	55.0	59.6	58.3
50-59	26.4	83.7	109.4	93.6	83.1
60-69	28.2	89.5	130.4	156.7	125.5
70-79	31.2	98.8	145.5	143.8	136.9
≥80	17.5	70.1	87.6	52.6	79.8

Lyme Disease Frequency and Rates, Gender and Year, Rhode Island, 2012-2016



Table 5. Frequency by Sex and Year

	2012	2013	2014	2015	2016
Female	94	281	353	317	366
Male	123	442	542	582	561
Unknown	2	1	10	5	0
Total	219	724	905	904	927

Table 6. Rate by Sex and Year

	2012	2013	2014	2015	2016
Female	17.3	51.6	64.9	58.3	67.3
Male	24.2	86.9	106.6	114.5	110.4

Lyme Disease Frequency, County and Year, Rhode Island, 2012-2016



Table 7. Frequency by County and Year

	2012	2013	2014	2015	2016
Bristol	7	19	46	53	59
Kent	28	116	138	124	134
Newport	21	101	76	99	116
Providence	87	296	379	360	388
Washington	76	192	266	268	230
All	219	724	905	904	927

Lyme Disease Rates by County and Year, Rhode Island, 2012-2016



Table 8. Rate by County and Year

	2012	2013	2014	2015	2016
Bristol	14.0	38.1	92.2	106.3	118.3
Kent	16.9	69.8	83.1	74.6	80.7
Newport	25.3	121.9	91.7	119.4	140.0
Providence	13.9	47.2	60.5	57.5	61.9
Washington	59.9	151.2	209.5	211.1	181.1

Lyme Disease Frequency, City and Year, Rhode Island, 2012-2016



Table 9. Frequency by City and Year

	2012	2013	2014	2015	2016
Barrington	2	8	13	14	18
Bristol	0	7	22	22	33
Burrillville	4	34	45	43	28
Central Falls	0	2	3	2	8
Charlestown	3	17	26	21	13
Coventry	9	38	43	48	46
Cranston	6	17	27	29	29
Cumberland	11	33	37	33	41
East Greenwich	5	18	23	23	20
East Providence	6	15	20	24	33
Exeter	6	8	22	12	15
Foster	13	33	27	22	25
Glocester	11	14	20	22	19
Hopkinton	1	13	30	27	24
Jamestown	2	12	14	13	15
Johnston	2	12	20	12	13
Lincoln	4	18	23	23	28

Lyme Disease Frequency, City and Year Continued, Rhode Island, 2012-2016



Table 9. Frequency by City and Year

	2012	2013	2014	2015	2016
Little Compton	2	20	10	12	18
Middletown	3	8	7	11	13
Narragansett	7	15	30	21	22
New Shoreham	16	31	2	11	4
Newport	2	13	13	8	10
North Kingstown	10	30	44	53	38
North Providence	1	6	6	11	7
North Smithfield	3	27	25	12	22
Pawtucket	0	7	12	12	19
Portsmouth	4	25	16	15	24
Providence	4	25	44	37	42
Richmond	2	6	10	9	16
Scituate	10	34	37	40	35
Smithfield	5	7	15	20	16
South Kingstown	21	47	60	72	52

Lyme Disease Frequency, City and Year Continued, Rhode Island, 2012-2016



Table 9. Frequency by City and Year

	2012	2013	2014	2015	2016
Tiverton	8	23	16	40	36
Warren	5	4	11	17	8
Warwick	5	29	32	34	47
West Greenwich	6	21	19	9	3
West Warwick	3	10	21	10	18
Westerly	10	25	42	42	46
Woonsocket	7	12	18	18	23
Total	219	724	905	904	927

Lyme Disease Frequency, Month and Year, Rhode Island, 2012-2016



Table 9. Frequency by Month and Year

	2012	2013	2014	2015	2016
Jan	3	25	19	39	40
Feb	3	15	20	17	41
Mar	6	34	31	19	50
Apr	10	29	32	29	38
May	14	41	66	56	72
Jun	55	120	160	165	136
Jul	59	187	256	223	176
Aug	23	109	122	132	122
Sep	18	60	60	82	65
Oct	14	49	65	41	66
Nov	14	38	39	64	73
Dec	0	17	35	37	48
All	219	724	905	904	927



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