





Lyme Disease 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 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 2017, Rhode Island had 1,132 cases of Lyme disease, with an incidence rate of 107 cases per 100,000 people.
- In 2016, Rhode Island was the state with the fourth highest rate of Lyme disease in the country.
- Rhode Island enhanced its Lyme disease surveillance system in 2013. Reported cases of Lyme were fairly stable from 2014-2016, however an approximately 20% increase in cases was observed in 2017.
- Washington County consistently has the highest rate of Lyme disease in Rhode Island with a rate of 214 cases per 100,000 people in 2017.

Reported Cases of Lyme Disease, Rhode Island, 2013-2017

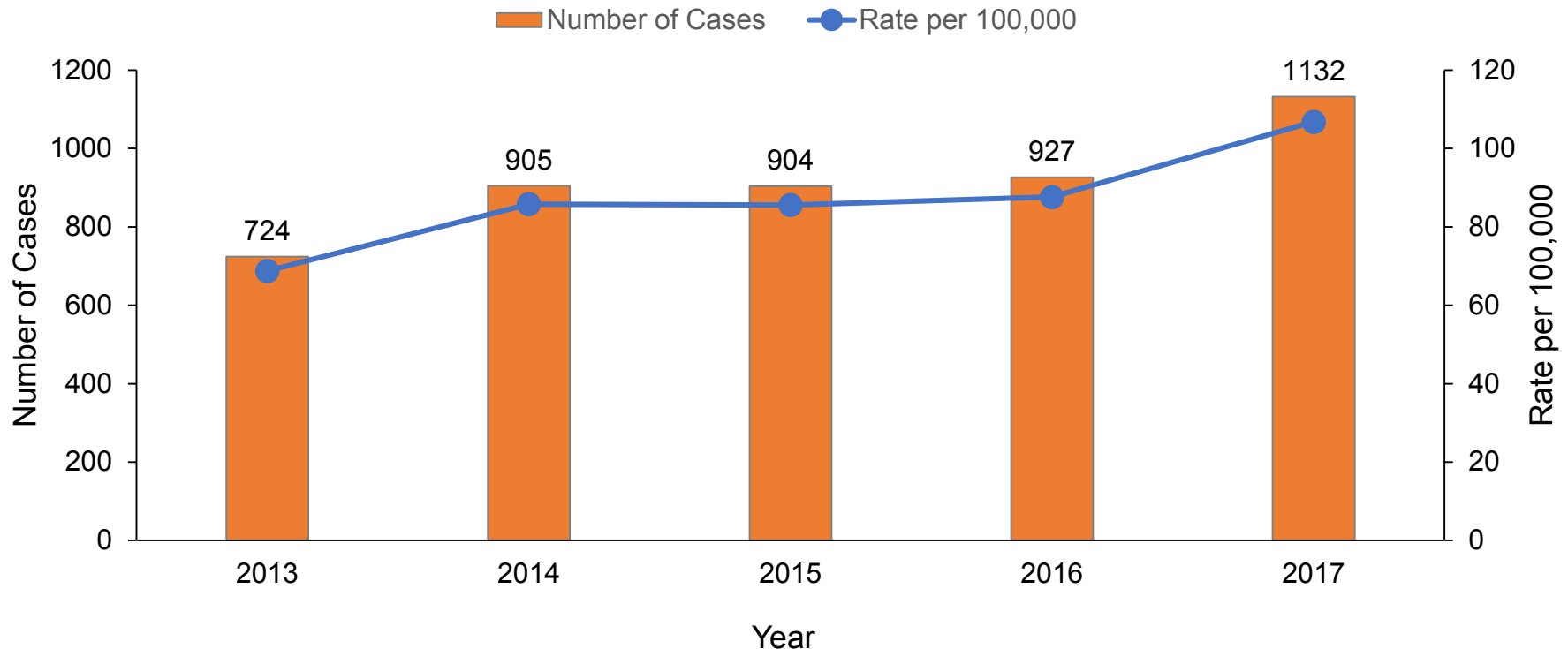


Figure 1: In 2017, there were 1,132 cases of Lyme disease in Rhode Island (rate of 107 cases per 100,000 people), which was higher than the number of cases reported in prior years. Rhode Island's Lyme disease surveillance system was enhanced in 2013 to incorporate active provider follow-up to obtain clinical information. The apparent increase in cases from 2013 to 2014 is likely 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, 2017

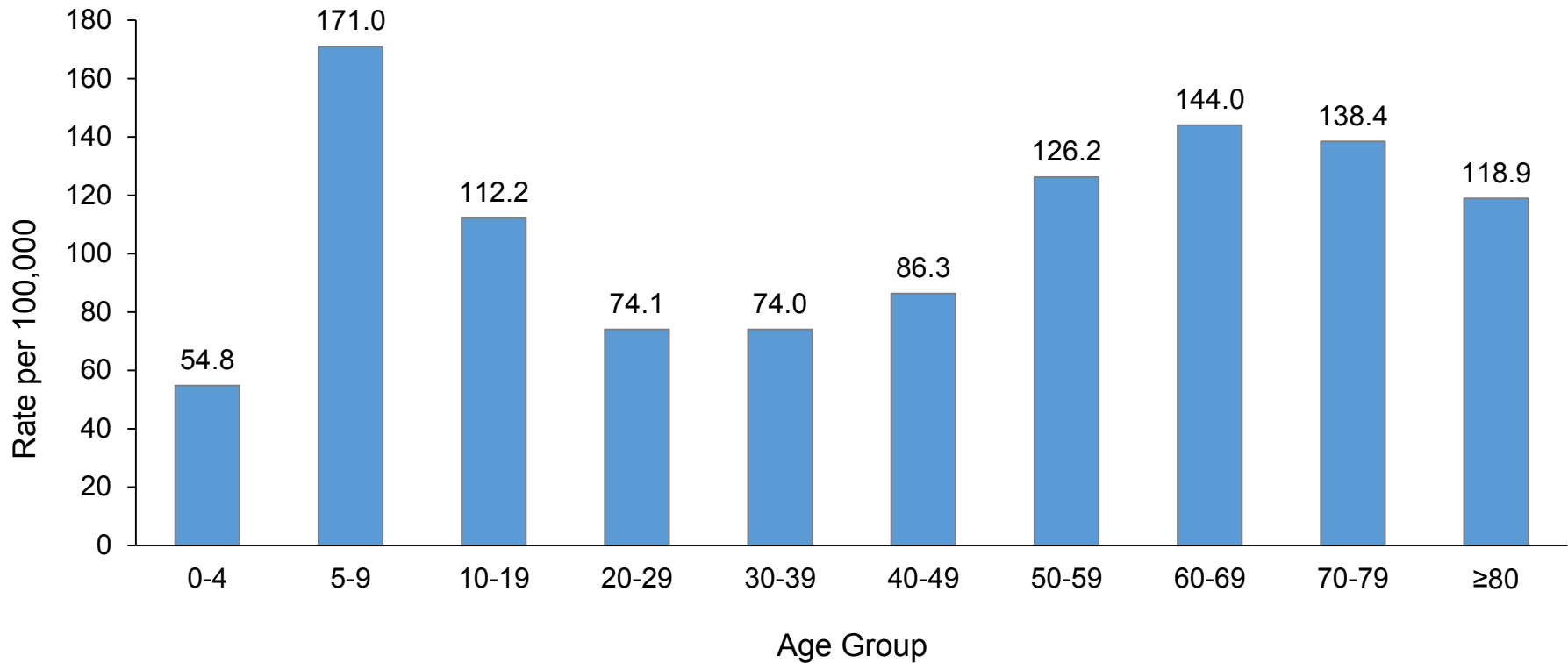


Figure 2: In 2017, children 5-9 years old experienced the highest rate of Lyme disease at 171.0 cases per 100,000 people. Adults 70-79 years old and 60-69 years old also had similarly high rates of Lyme disease at 138.4 cases per 100,000 people and 144.0 cases per 100,000 people, respectively.

Rate of Lyme Disease, Gender and Year, Rhode Island, 2013-2017

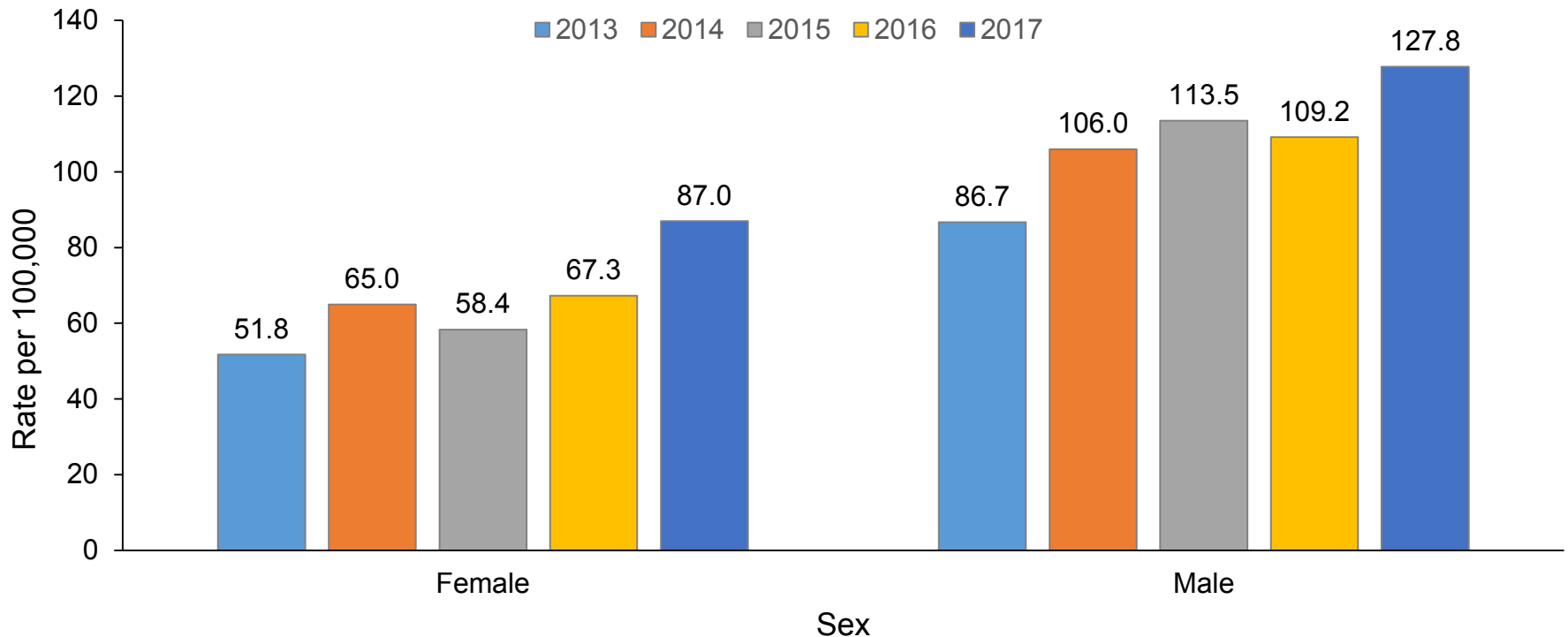


Figure 3: In 2017, the observed rate of Lyme disease among males (127.8 cases per 100,000 people) was nearly 1.5 times higher than the rate among females (87.0 cases per 100,000 people). From 2013 to 2017, Lyme disease was consistently observed at higher rates among males, which is consistent with disparities observed in national level data.

Rate of Lyme Disease, County and Year, Rhode Island, 2013-2017

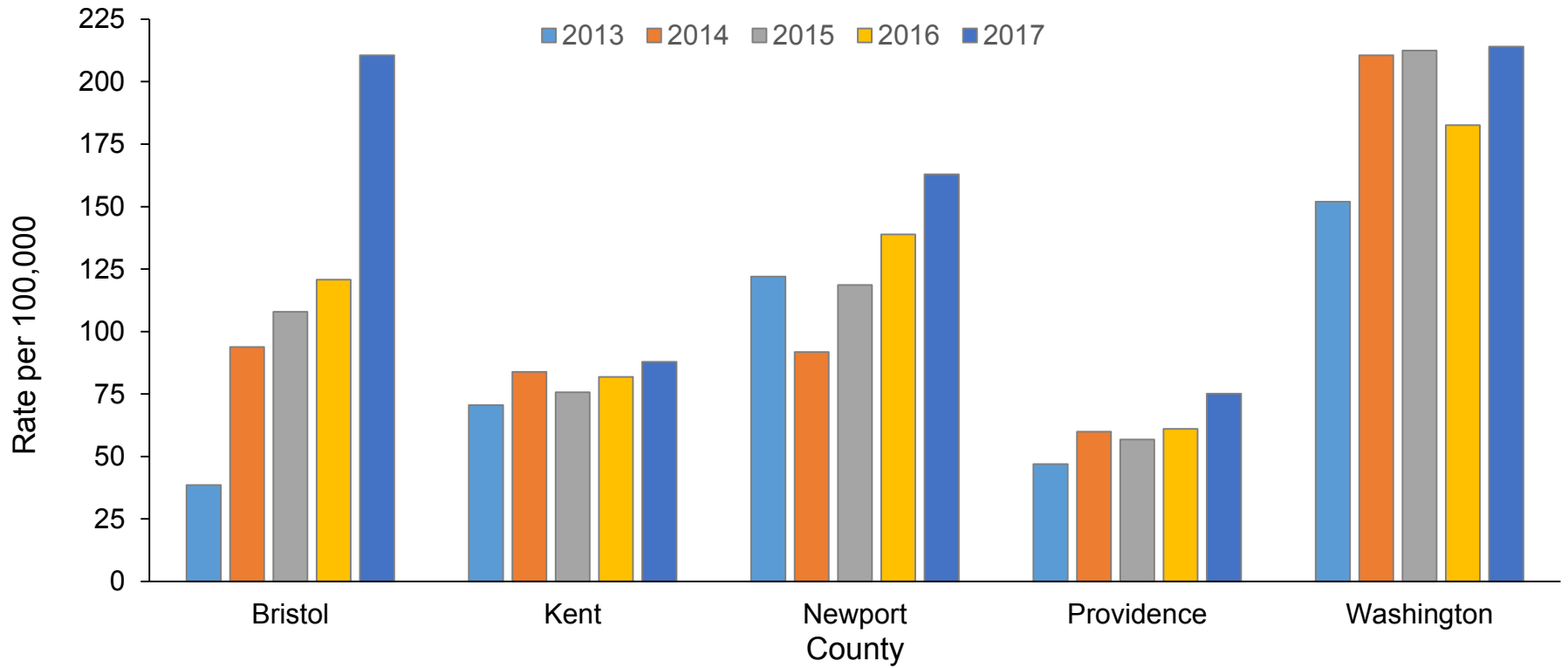


Figure 4: Lyme disease is clustered geographically within Rhode Island. Washington County consistently has the majority of disease burden, with a rate of 214.0 cases per 100,000 people reported in 2017. The second highest rate of Lyme disease in 2017 was observed in Bristol County (210.6 cases per 100,000 people), followed by Newport County (163.0 cases per 100,000 people).

Reported Cases of Lyme Disease, Month and Year, Rhode Island, 2013-2017

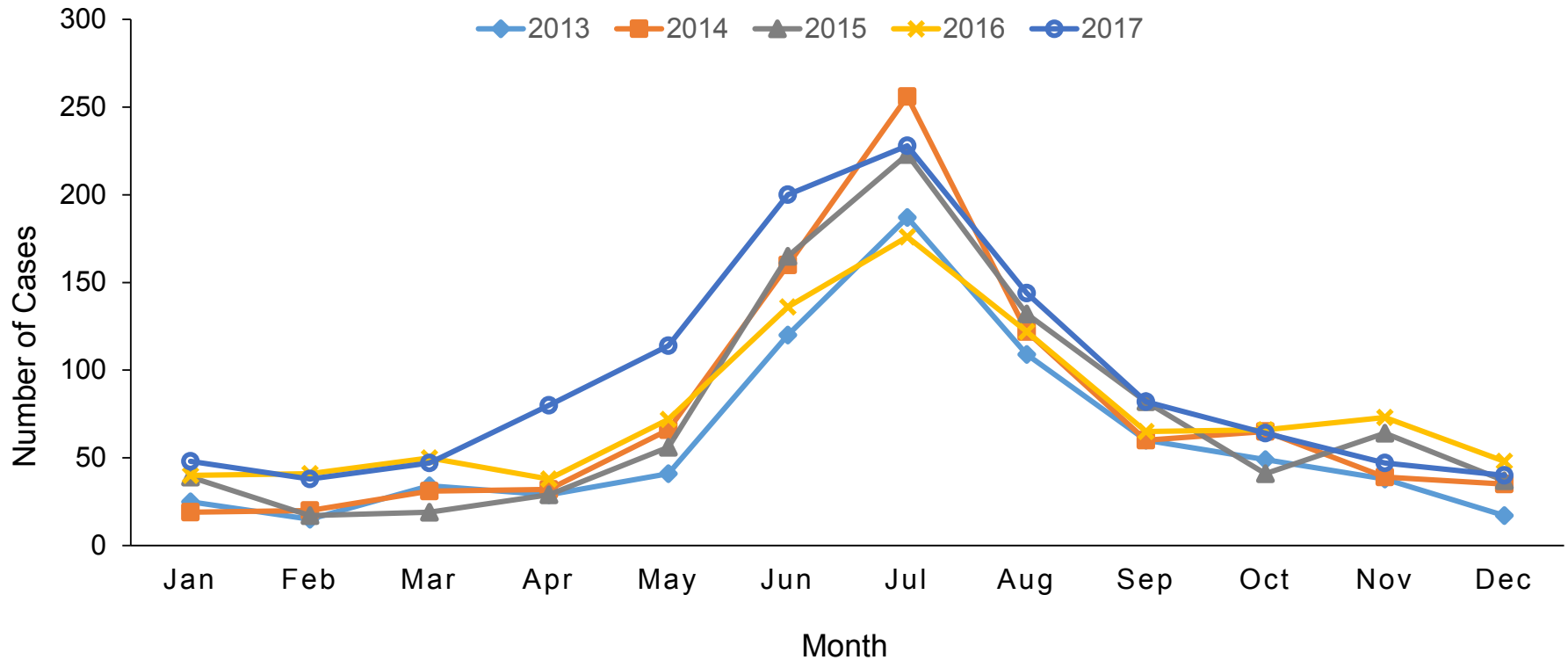


Figure 5: Lyme disease can occur at any point in the year, but peaks between June and August, with the most cases in July. Nationally, cases of Lyme disease peak in these months as well. In New England, these are the months when people spend the most time outdoors. In 2017, 572 cases of Lyme disease were observed between June and August, over half (50.5%) of Rhode Island's cases for the entire year.

Lyme Disease Frequency and Rates by Year, Rhode Island, 2013-2017



Table 1. Frequency by Year

	2013	2014	2015	2016	2017
Number of Cases	724	905	904	927	1132

Table 2. Rate by Year

	2013	2014	2015	2016	2017
Rate per 100,000	68.8	85.8	85.6	87.7	106.8

Lyme Disease Frequency, Age Group and Year, Rhode Island, 2013-2017



Table 3. Frequency by Age Group and Year

	2013	2014	2015	2016	2017
0-4	28	29	40	40	30
5-9	77	89	81	86	95
10-19	104	134	129	148	148
20-29	64	72	79	102	115
30-39	49	65	70	86	99
40-49	90	85	92	90	110
50-59	127	166	142	126	193
60-69	92	134	161	129	184
70-79	57	84	83	79	100
≥80	36	45	27	41	58
Unknown	0	2	0	0	0
Total	724	905	904	927	1132

Lyme Disease Rates, Age Group and Year, Rhode Island, 2013-2017



Table 4. Rate by Age Group and Year

	2013	2014	2015	2016	2017
0-4	50.9	52.8	73.1	73.1	54.8
5-9	130.8	154.2	142.7	153.5	171.0
10-19	76.3	99.2	96.3	111.3	112.2
20-29	41.9	46.7	50.9	65.5	74.1
30-39	39.3	51.5	54.7	65.9	74.4
40-49	63.2	61.5	68.6	69.1	86.3
50-59	81.0	105.7	90.7	81.3	126.2
60-69	80.9	114.0	132.2	102.4	144.0
70-79	92.3	131.7	126.5	117.0	138.4
≥80	71.1	89.7	54.7	83.8	118.9

Lyme Disease Frequency and Rates, Gender and Year, Rhode Island, 2013-2017



Table 5. Frequency by Sex and Year

	2013	2014	2015	2016	2017
Female	281	353	317	366	474
Male	442	542	582	561	658
Unknown	1	10	5	0	0
Total	724	905	904	927	1132

Table 6. Rate by Sex and Year

	2013	2014	2015	2016	2016
Female	51.8	65.0	58.4	67.3	87.0
Male	86.7	106.0	113.5	109.2	127.8

Lyme Disease Frequency, County and Year, Rhode Island, 2013-2017



Table 7. Frequency by County and Year

	2013	2014	2015	2016	2017
Bristol	19	46	53	59	103
Kent	116	138	124	134	144
Newport	101	76	99	116	136
Providence	296	379	360	388	479
Washington	192	266	268	230	270
All	724	905	904	927	1132

Lyme Disease Rates by County and Year, Rhode Island, 2013-2017



Table 8. Rate by County and Year

	2013	2014	2015	2016	2017
Bristol	38.6	93.8	108.0	120.7	210.6
Kent	70.6	83.9	75.7	81.9	87.9
Newport	122.0	91.8	118.7	138.9	163.0
Providence	47.0	60.0	56.8	61.1	75.2
Washington	151.9	210.6	212.5	182.6	214.0

Lyme Disease Frequency, City and Year, Rhode Island, 2013-2017



Table 9. Frequency by City and Year

	2013	2014	2015	2016	2017
Barrington	8	13	14	18	26
Bristol	7	22	22	33	53
Burrillville	34	45	43	28	49
Central Falls	2	3	2	8	11
Charlestown	17	26	21	13	17
Coventry	38	43	48	46	46
Cranston	17	27	29	29	31
Cumberland	33	37	33	41	51
East Greenwich	18	23	23	20	19
East Providence	15	20	24	33	31
Exeter	8	22	12	15	14
Foster	33	27	22	25	23
Glocester	14	20	22	19	28
Hopkinton	13	30	27	24	27
Jamestown	12	14	13	15	17
Johnston	12	20	12	13	21
Lincoln	18	23	23	28	31

Lyme Disease Frequency, City and Year Continued, Rhode Island, 2013-2017



Table 9. Frequency by City and Year

	2013	2014	2015	2016	2017
Little Compton	20	10	12	18	20
Middletown	8	7	11	13	22
Narragansett	15	30	21	22	21
New Shoreham	31	2	11	4	3
Newport	13	13	8	10	16
North Kingstown	30	44	53	38	43
North Providence	6	6	11	7	15
North Smithfield	27	25	12	22	23
Pawtucket	7	12	12	19	25
Portsmouth	25	16	15	24	29
Providence	25	44	37	42	59
Richmond	6	10	9	16	12
Scituate	34	37	40	35	34
Smithfield	7	15	20	16	16
South Kingstown	47	60	72	52	78

Lyme Disease Frequency, City and Year Continued, Rhode Island, 2013-2017



Table 9. Frequency by City and Year

	2013	2014	2015	2016	2017
Tiverton	23	16	40	36	32
Warren	4	11	17	8	24
Warwick	29	32	34	47	50
West Greenwich	21	19	9	3	12
West Warwick	10	21	10	18	17
Westerly	25	42	42	46	55
Woonsocket	12	18	18	23	31
Total	724	905	904	927	1132

Lyme Disease Frequency, Month and Year, Rhode Island, 2013-2017



Table 9. Frequency by Month and Year

	2013	2014	2015	2016	2017
Jan	25	19	39	40	48
Feb	15	20	17	41	38
Mar	34	31	19	50	47
Apr	29	32	29	38	80
May	41	66	56	72	114
Jun	120	160	165	136	200
Jul	187	256	223	176	228
Aug	109	122	132	122	144
Sep	60	60	82	65	82
Oct	49	65	41	66	64
Nov	38	39	64	73	47
Dec	17	35	37	48	40
All	724	905	904	927	1132



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