





Legionellosis 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 Legionellosis

- Legionellosis includes two epidemiologically distinct illnesses caused by the bacteria *Legionella*: Legionnaires' disease and Pontiac Fever.
 - All cases reported to RIDOH between 2013-2017 were identified as Legionnaires' disease.
- The typical defining symptom of Legionnaires' disease is pneumonia, but symptoms can also include anorexia, fatigue, myalgia, headache, fever, abdominal pain, diarrhea, cough, and shortness of breath.
- People acquire Legionnaires' disease from water sources, most often from aspiration (breathing in) of water or exposure to aerosolized water or soil. Legionnaires' disease is rarely spread person-to-person.
- *Legionella* bacteria are commonly found in hot water tanks, hot tubs, cooling towers, plumbing systems, and decorative fountains.
- Most healthy people exposed to *Legionella* bacteria do not get sick. Older individuals, and those with weakened immune systems or lung disease are at increased risk of illness.
- Nationally, Legionnaire's disease has been increasing since 2000.

Data Overview, Legionnaire's Disease in Rhode Island



- There were 50 reported cases of Legionnaire's disease in Rhode Island in 2017.
- The rate of Legionnaire's disease has been fairly stable in Rhode Island over the last 5 years.
- The 5-year incidence rate of Legionnaire's disease increased directly with age, with the highest rates in adults 80 years and older.
- No cases were reported in individuals under the age of 20 between 2013 and 2017
- Rates of disease were higher among males than among females between 2013 and 2017.
- Reports of Legionnaire's disease are most common during the warmer months of the year.

Reported Cases of Legionnaire's Disease, Rhode Island, 2013-2017

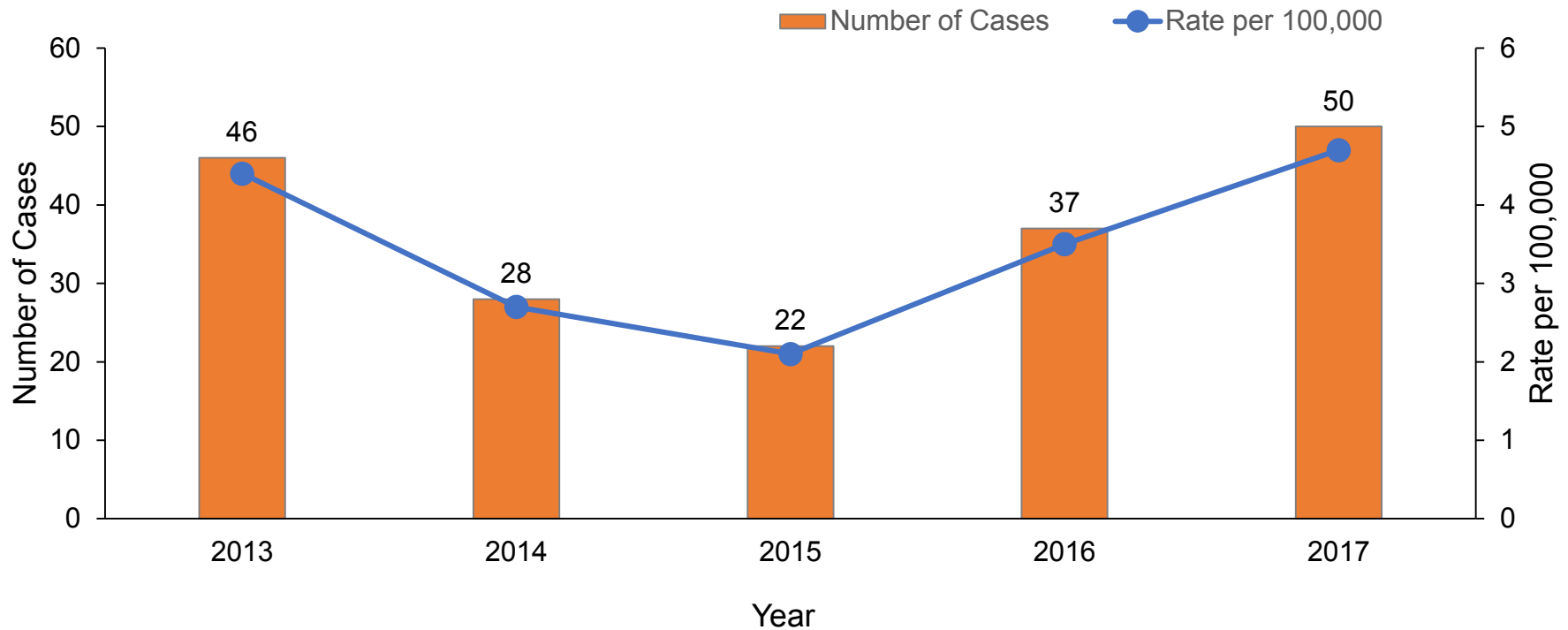


Figure 1: In 2017, there were 50 cases of Legionnaire's disease in Rhode Island, with a rate of 4.7 cases per 100,000 persons. Legionnaire's disease in Rhode Island remained relatively stable over the five-year period, with a dip in 2015.

5-Year Rate of Legionnaire's Disease, by Age Group, Rhode Island, 2013-2017

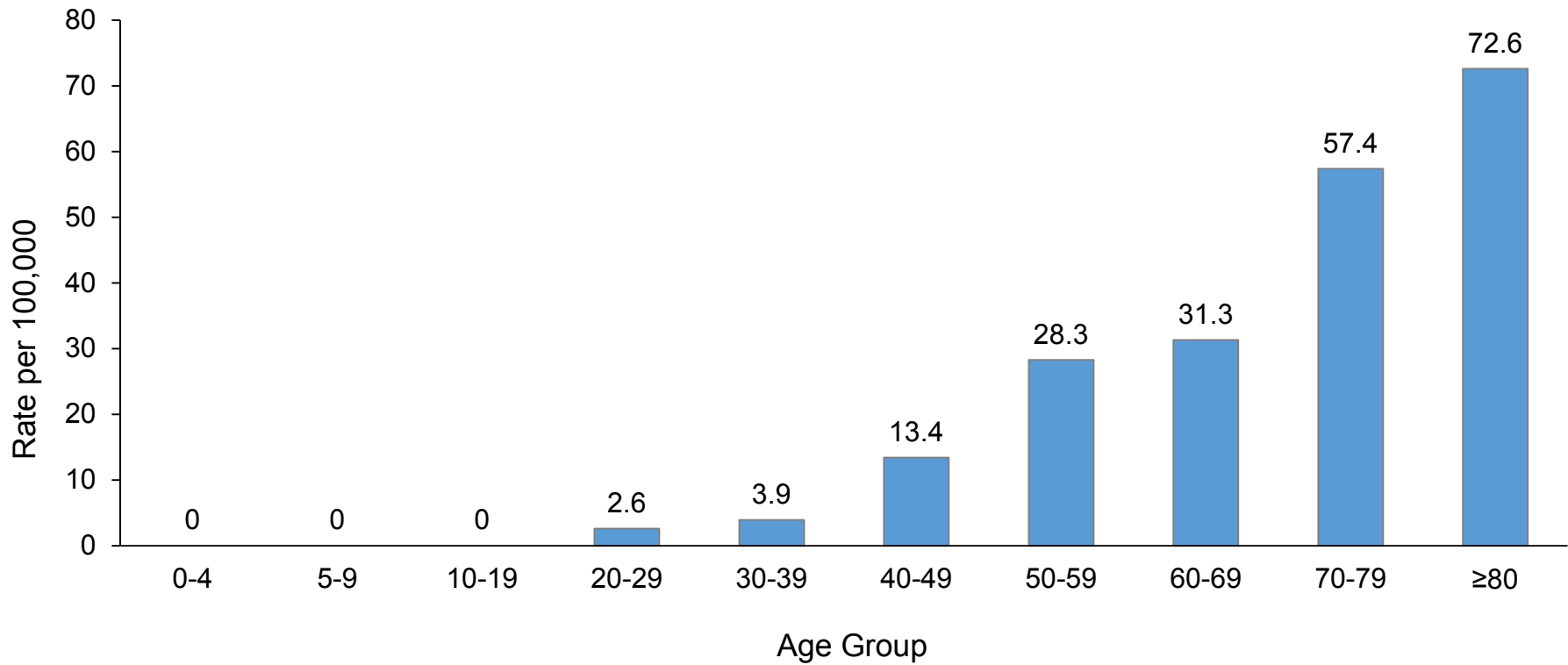


Figure 2: In Rhode Island, the five-year incidence rate of Legionnaire's disease increased with age, with the highest rate in adults 80 or older (72.6 cases over five years per 100,000 population). Between 2013 and 2017, there were no cases of Legionnaires' disease among individuals under 20 years of age.

Rate of Legionnaire's Disease, by Sex and Year, Rhode Island, 2013-2017

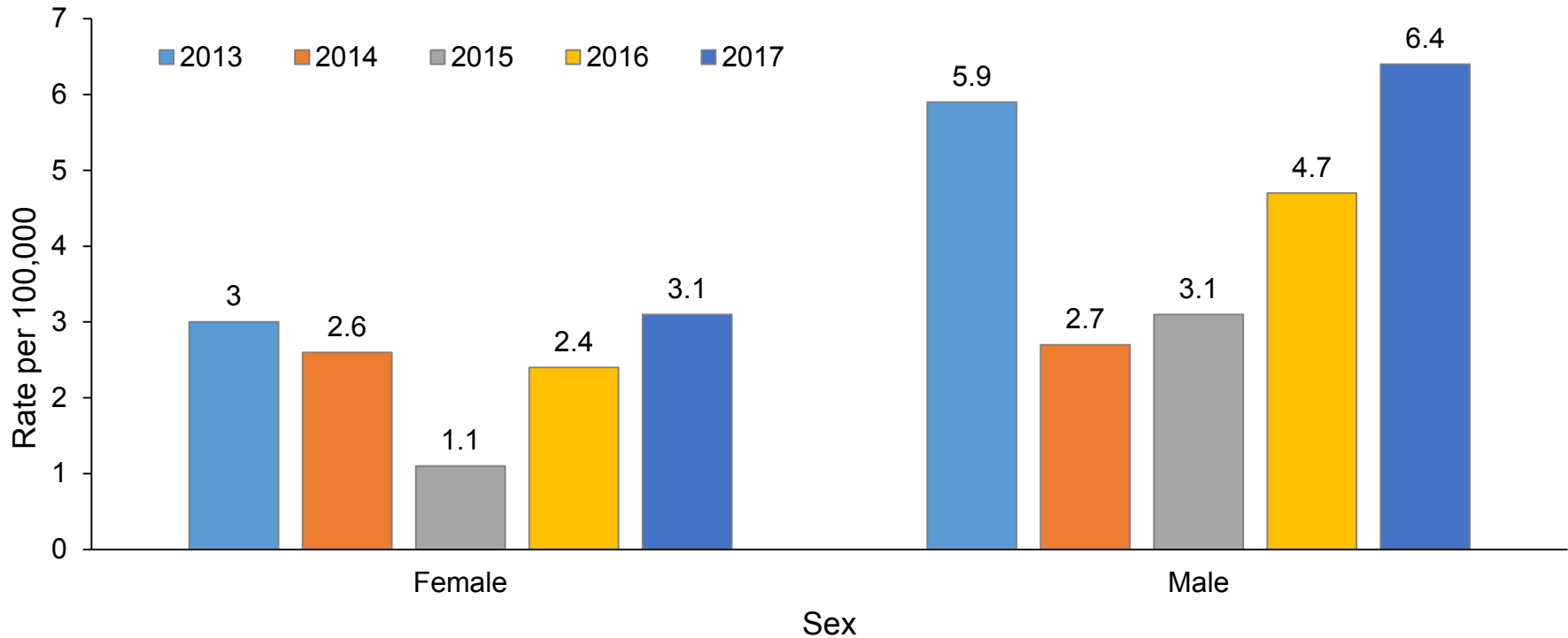


Figure 3: Between 2013 and 2017, rates of Legionnaire's disease were consistently higher among males than females in Rhode Island.

Rate of Legionnaire's Disease, by County and Year, Rhode Island, 2013-2017

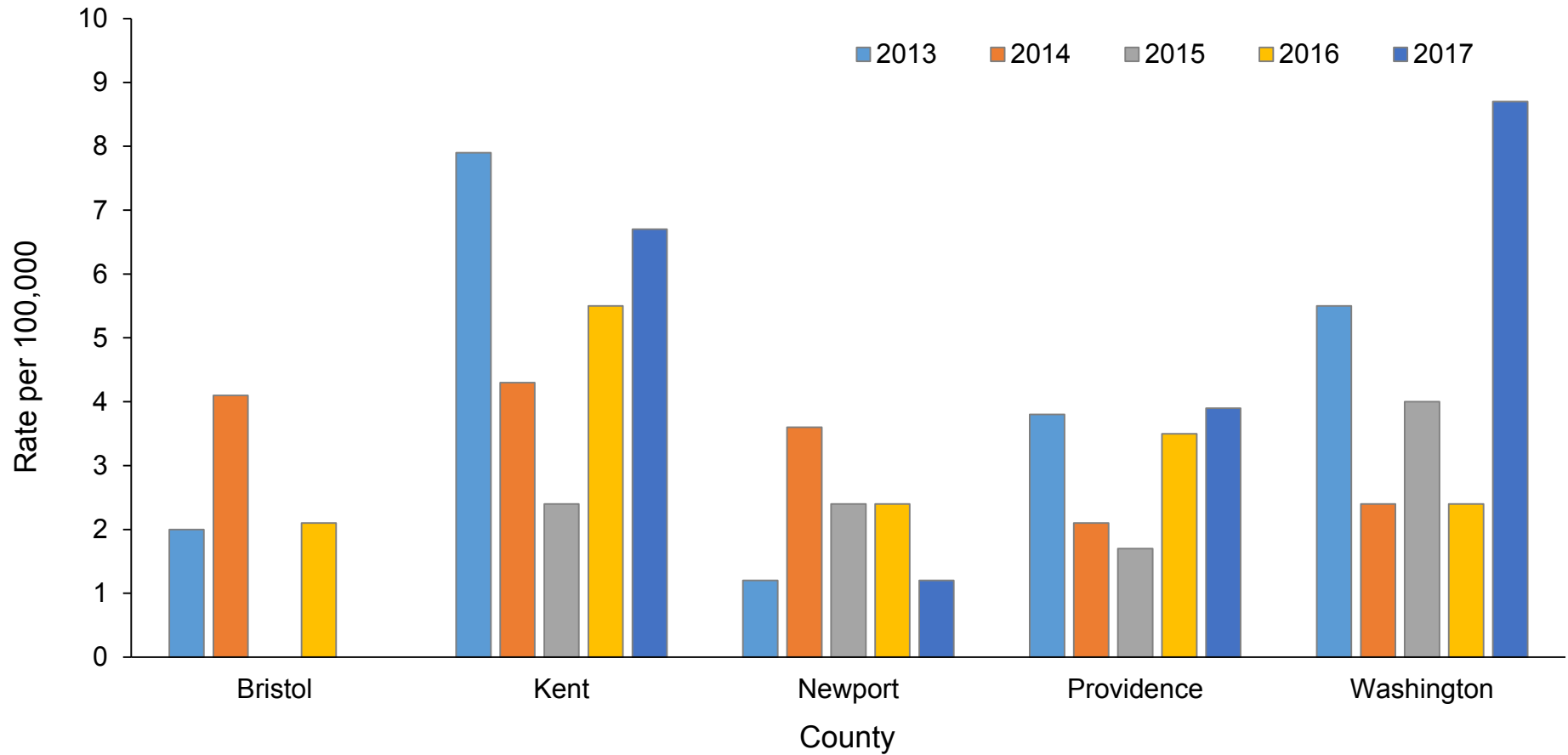


Figure 4: In 2017, Washington County had the highest rate of Legionnaire's disease cases (8.7 cases per 100,000 people). County rates fluctuate over time due to low annual case counts.

Reported Cases of Legionnaire's Disease over 5 years by Month, Rhode Island, 2013-2017

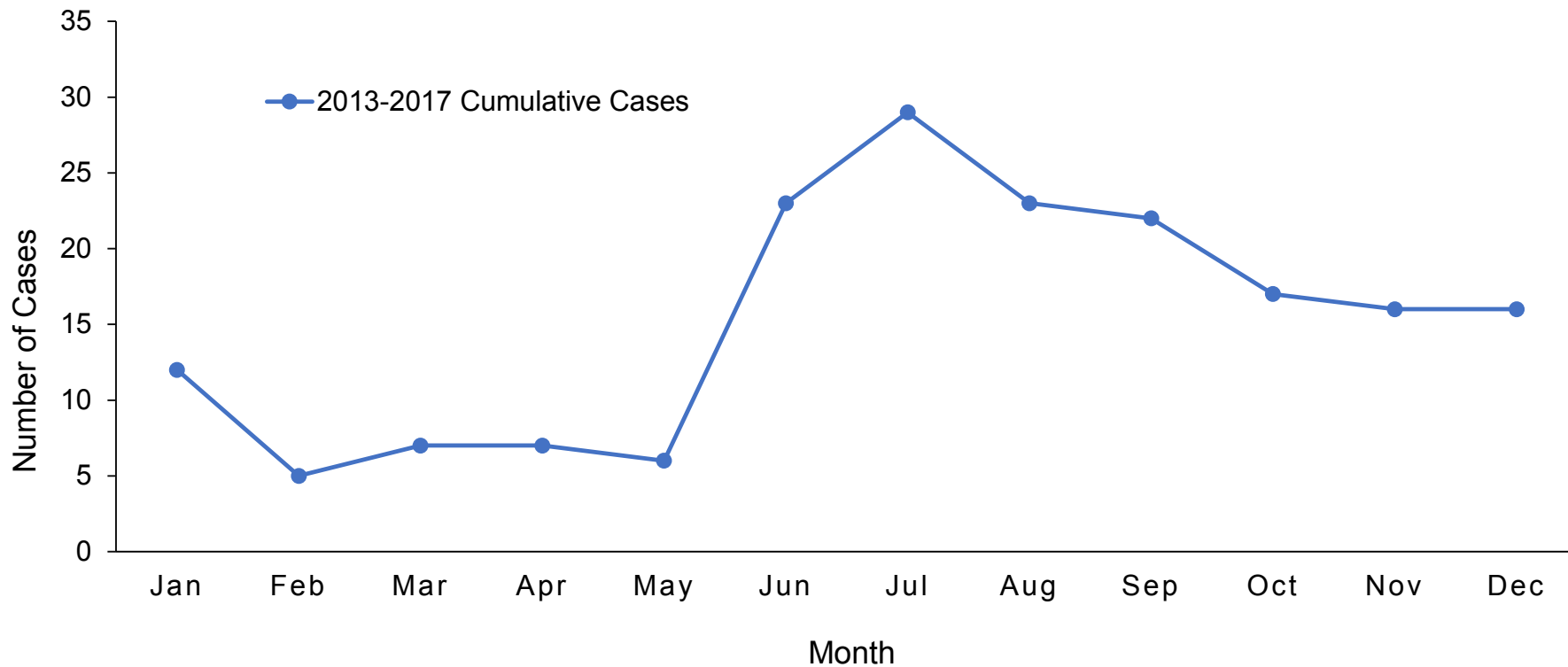


Figure 5: Although cases of Legionnaire's disease are reported throughout the year in Rhode Island, more reports of disease occur during the summer and early fall months. This pattern mirrors the national trend of Legionnaire's disease.

Legionnaire's Disease Frequency and Rates by Year, Rhode Island, 2013-2017



Table 1. Frequency by Year

	2013	2014	2015	2016	2017
Number of Cases	46	28	22	37	50

Table 2. Rate by Year

	2013	2014	2015	2016	2017
Rate per 100,000	4.4	2.7	2.1	3.5	4.7

Legionnaire's Disease Frequency, by Age Group and Year, Rhode Island, 2013-2017



Table 3. Frequency by Age Group and Year

	2013	2014	2015	2016	2017	5-Year Total
0-4	0	0	0	0	0	0
5-9	0	0	0	0	0	0
10-19	0	0	0	0	0	0
20-29	2	1	0	0	1	4
30-39	3	0	0	1	1	5
40-49	6	1	4	3	4	18
50-59	10	8	4	11	11	44
60-69	7	7	5	9	10	38
70-79	10	4	3	6	15	38
≥80	8	7	6	7	8	36
Total	46	28	22	37	50	183

Legionnaire's Disease Rate by 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	0	0	0
5-9	0	0	0	0	0
10-19	0	0	0	0	0
20-29	1.3	0.7	0	0	0.6
30-39	2.4	0	0	0.8	0.8
40-49	4.2	0.7	3.0	2.3	3.1
50-59	6.4	5.1	2.6	7.1	7.2
60-69	6.2	6	4.1	7.1	7.8
70-79	16.2	6.3	4.6	8.9	20.8
≥80	15.8	14.0	12.2	14.3	16.4

Legionnaire's Disease 5-Year Rate by Age Group, Rhode Island, 2013-2017



Table 4. 5-Year Rate by Age Group

Age Group	2013-2017
0-4	0.0
5-9	0.0
10-19	0.0
20-29	2.6
30-39	3.9
40-49	13.4
50-59	28.3
60-69	31.3
70-79	57.4
≥80	72.6

Legionnaire's Disease Frequency and Rates, by Sex and Year, Rhode Island, 2013-2017



Table 5. Frequency by Sex and Year

	2013	2014	2015	2016	2017	Total
Female	16	14	6	13	17	66
Male	30	14	16	24	33	117
Total	46	28	22	37	50	183

Table 6. Rate by Sex and Year

	2013	2014	2015	2016	2017
Female	3.0	2.6	1.1	2.4	3.1
Male	5.9	2.7	3.1	4.7	6.4

Legionnaire's Disease Frequency by County and Year, Rhode Island, 2013-2017



Table 7. Frequency by County and Year

	2013	2014	2015	2016	2017	Total
Bristol	1	2	0	1	2	6
Kent	13	7	4	9	11	44
Newport	1	3	2	2	1	9
Providence	24	13	11	22	25	95
Washington	7	3	5	3	11	29
Total	46	28	22	37	50	183

Legionnaire's Disease Rates by County and Year, Rhode Island, 2013-2017



Table 8. Rate by County and Year

	2013	2014	2015	2016	2017
Bristol	2.0	4.1	0.0	2.1	4.1
Kent	7.9	4.3	2.4	5.5	6.7
Newport	1.2	3.6	2.4	2.4	1.2
Providence	3.8	2.1	1.7	3.5	3.9
Washington	5.5	2.4	4.0	2.4	8.7

Legionnaire's Disease Frequency by Month and Year, Rhode Island, 2013-2017



Table 9. Frequency by Month and Year

	2013	2014	2015	2016	2017	5-Year Total
Jan	4	3	3	0	2	12
Feb	1	2	0	2	0	5
Mar	0	4	2	1	0	7
Apr	2	2	1	1	1	7
May	2	1	0	2	1	6
Jun	12	2	0	2	7	23
Jul	7	2	4	5	11	29
Aug	4	3	5	6	5	23
Sep	3	2	5	6	6	22
Oct	3	4	2	6	2	17
Nov	2	1	0	3	10	16
Dec	6	2	0	3	5	16
All	46	28	22	37	50	183



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/legionella/index.html>
- <https://www.cdc.gov/legionella/outbreaks.html>
- <https://www.cdc.gov/legionella/fastfacts.html>