





Legionellosis Surveillance 2014-2018

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 2014-2018 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, Legionnaires' disease has been increasing since 2000.

Data Overview, Legionnaires' Disease in Rhode Island



- There were 73 reported cases of Legionnaires' disease in Rhode Island in 2018.
- The rate and case counts of Legionnaires' disease have been steadily increasing in Rhode Island since 2015. This increase is consistent with the increasing rates of Legionnaires' disease in the country as a whole.
- The 5-year incidence rate of Legionnaires' disease increased directly with age, with the highest rates in adults 80 years and older.
- Rates of disease were higher among males than among females between 2014 and 2018.
- Reports of Legionnaires' disease are most common during the summer and early fall.

Reported Cases of Legionnaires' Disease, Rhode Island, 2014-2018

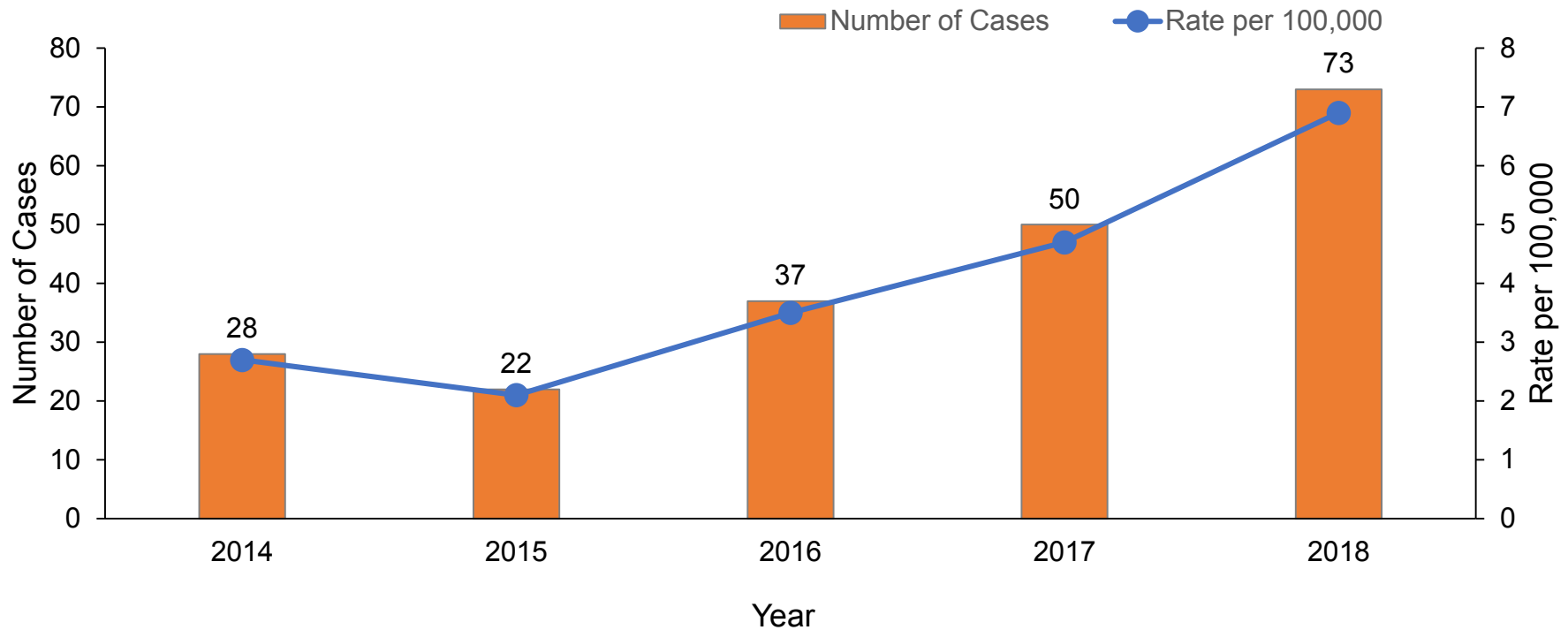


Figure 1: In 2018, there were 73 cases of Legionnaires' disease in Rhode Island, with a rate of 6.9 cases per 100,000 persons. Legionnaires' disease in Rhode Island has been increasing each year since 2015, consistent with national trends.

Rate of Legionnaires' Disease, by Age Group, Rhode Island, 2018

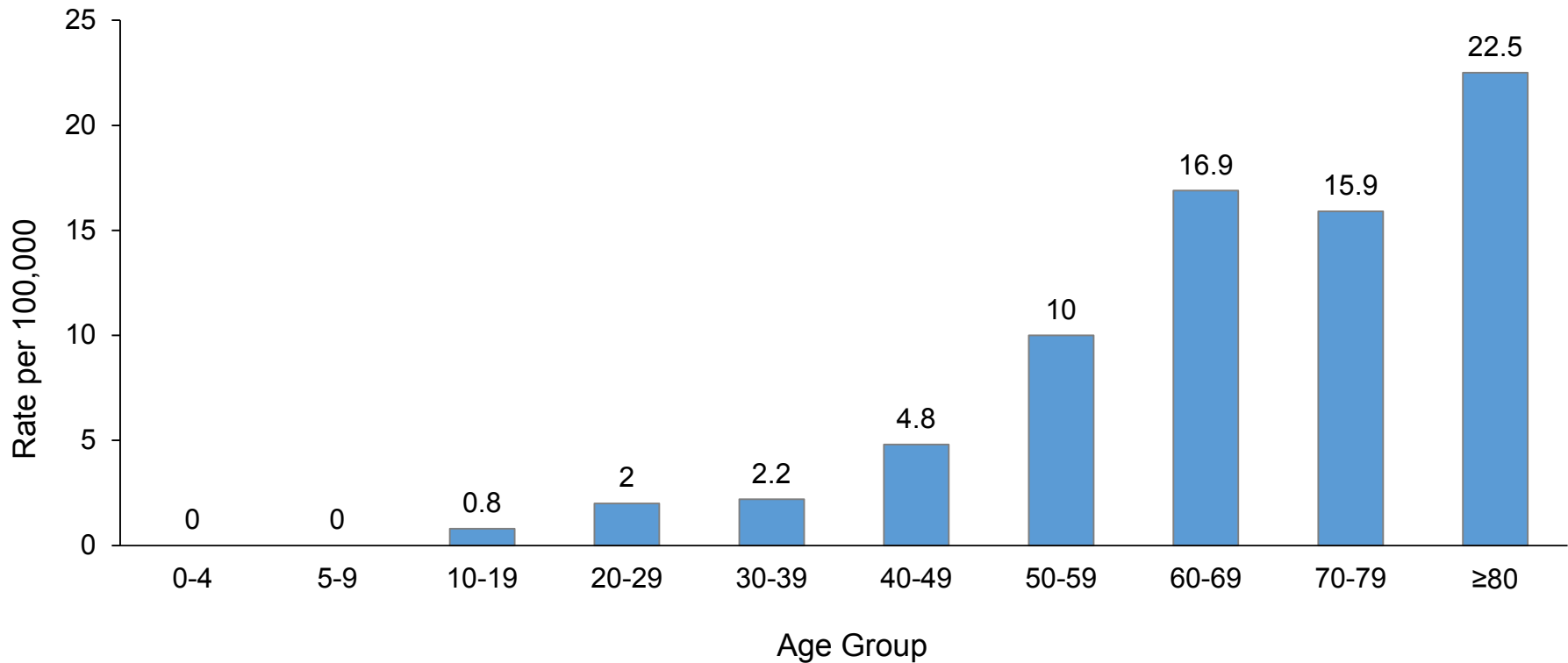


Figure 2: Legionnaires' disease occurs at higher rates in older populations in Rhode Island and nationally. Adults fifty years and older are considered at increased risk for contracting Legionnaires' disease, as well as those with underlying health conditions.

Rate of Legionnaires' Disease, by Sex and Year, Rhode Island, 2014-2018

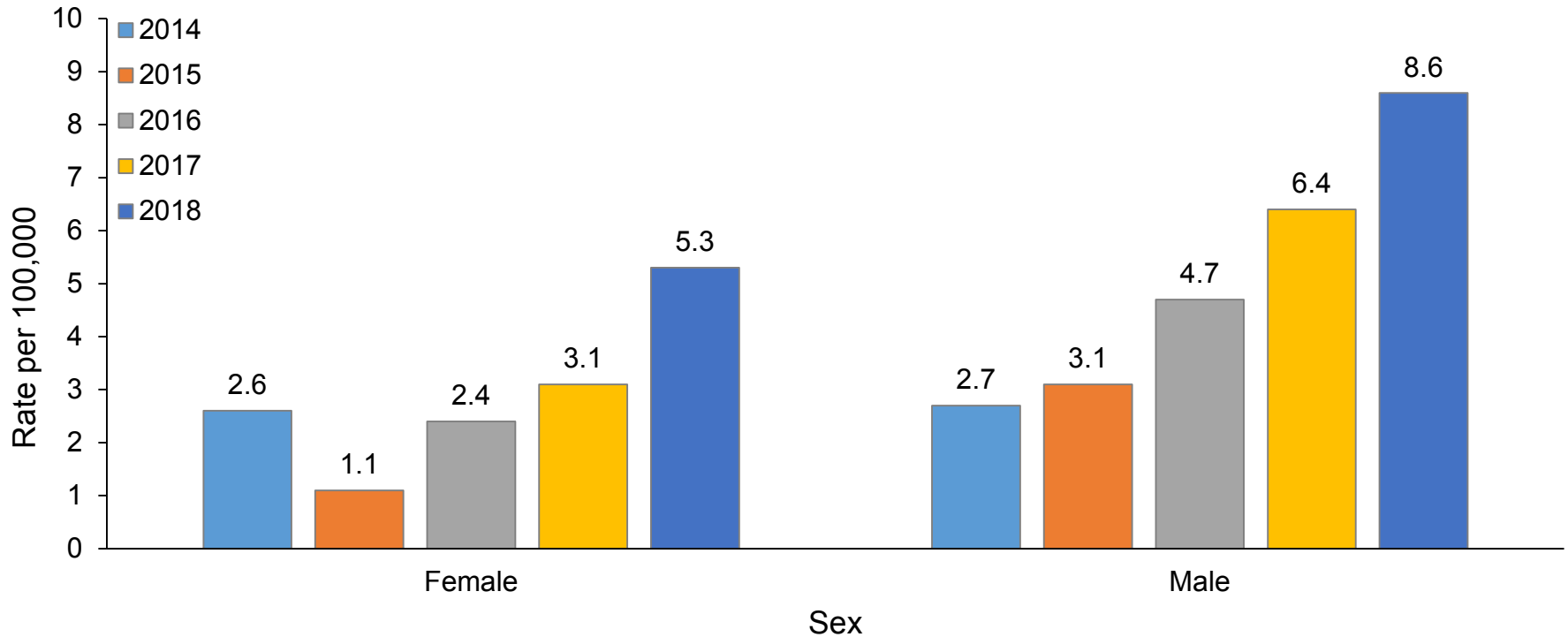


Figure 3: Between 2014 and 2018, rates (cases per 100,000 population) of Legionnaires' disease were consistently higher among males than females in Rhode Island.

Rate of Legionnaires' Disease, by County and Year, Rhode Island, 2014-2018

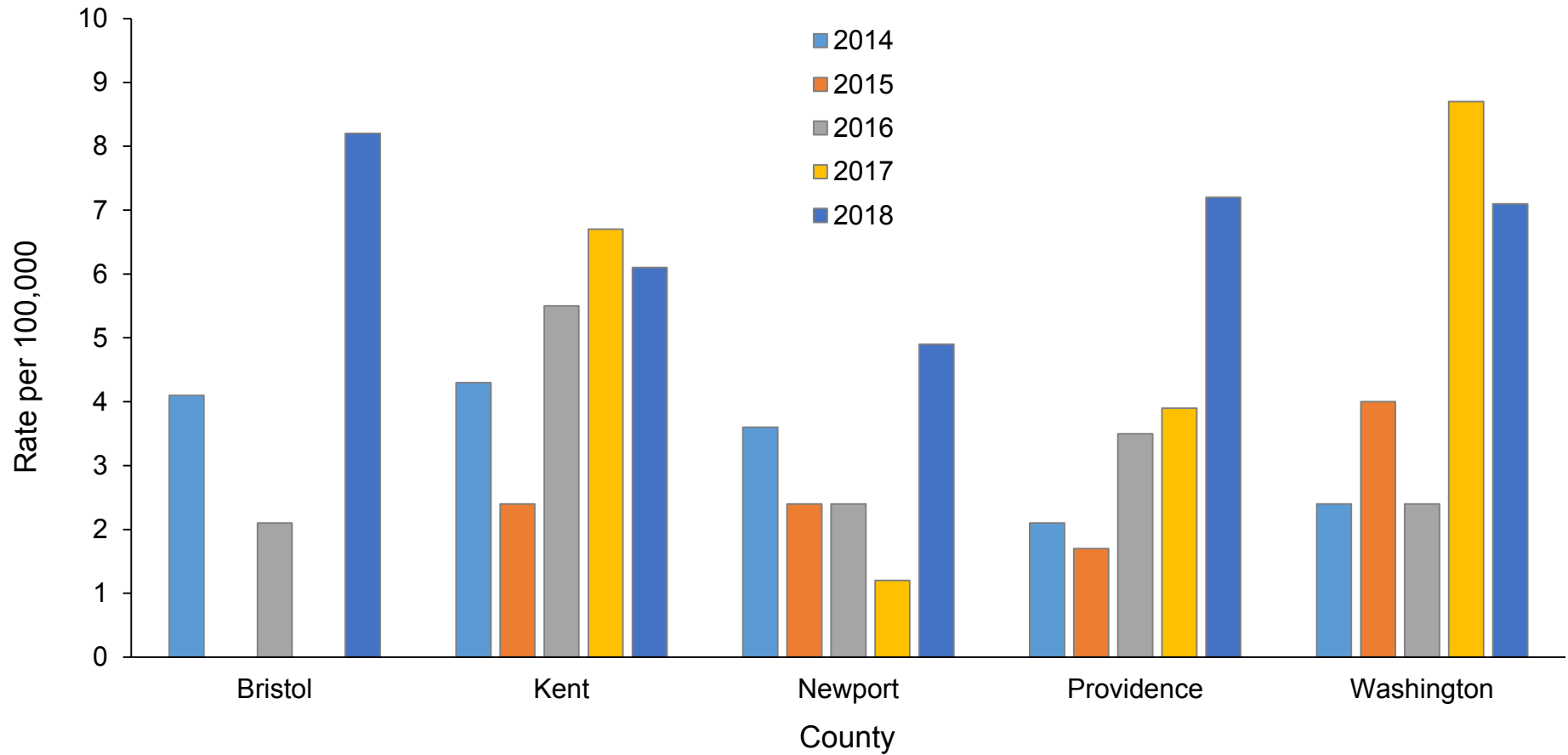


Figure 4: There is no discernible geographic trend in Legionnaires' disease incidence in Rhode Island.

Seasonal Trends: Average Cases of Legionnaires' Disease by Month, Rhode Island, 2014-2018

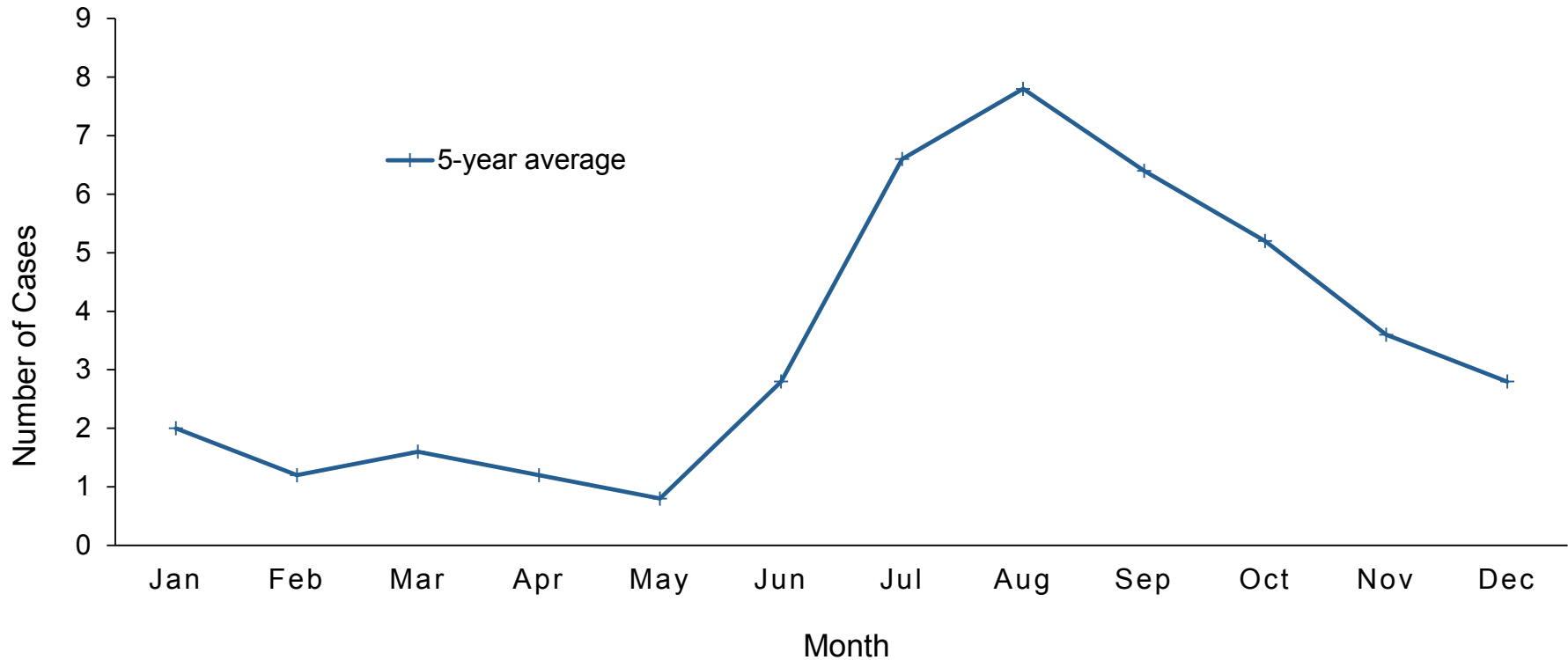


Figure 5: Although cases of Legionnaires' disease are reported throughout the year in Rhode Island, more reports of disease occur during the summer and early fall months. This pattern mirrors the national seasonal pattern of Legionnaires' disease.

Legionnaires' Disease Frequency and Rates by Year, Rhode Island, 2014-2018



Table 1. Frequency by Year

	2014	2015	2016	2017	2018
Number of Cases	28	22	37	50	73

Table 2. Rate (cases per 100,000 population) by Year

	2014	2015	2016	2017	2018
Rate per 100,000	2.7	2.1	3.5	4.7	6.9

Legionnaires' Disease Frequency, by Age Group and Year, Rhode Island, 2014-2018



Table 3. Frequency by Age Group and Year

	2014	2015	2016	2017	2018	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	1	1
20-29	1	0	0	1	3	5
30-39	0	0	1	1	3	5
40-49	1	4	3	4	6	18
50-59	8	4	11	11	15	49
60-69	7	5	9	10	22	53
70-79	4	3	6	15	12	40
≥80	7	6	7	8	11	39
Total	28	22	37	50	73	210

Legionnaires' Disease Rate by Age Group and Year, Rhode Island, 2014-2018



Table 4. Rate (cases per 100,000) by Age Group and Year

	2014	2015	2016	2017	2018
0-4	0	0	0	0	0
5-9	0	0	0	0	0
10-19	0	0	0	0	0.8
20-29	0.7	0	0	0.7	2
30-39	0	0	0.8	0.8	2.2
40-49	0.7	3.0	2.3	3.1	4.8
50-59	5.1	2.6	7.1	7.2	10
60-69	6	4.1	7.2	7.9	16.9
70-79	6.3	4.6	8.9	20.8	15.9
≥80	13.9	12.2	14.3	16.4	22.5

Legionnaires' Disease 5-Year Rate by Age Group, Rhode Island, 2014-2018



Table 4. 5-Year Rate (cases per 100,000) by Age Group

Age Group	Count 2014-2018	Rate 2014-2018
0-4	0	0.0
5-9	0	0.0
10-19	1	0.8
20-29	5	3.2
30-39	5	3.8
40-49	18	13.8
50-59	49	31.8
60-69	53	42.6
70-79	40	58.0
≥80	39	79.2

Legionnaires' Disease Frequency and Rates, by Sex and Year, Rhode Island, 2014-2018



Table 5. Frequency by Sex and Year

	2014	2015	2016	2017	2018	Total
Female	14	6	13	17	29	79
Male	14	16	24	33	44	131
Total	28	22	37	50	73	210

Table 6. Rate (cases per 100,000 population) by Sex and Year

	2014	2015	2016	2017	2018
Female	2.6	1.1	2.4	3.1	5.3
Male	2.7	3.1	4.7	6.4	8.6

Legionnaires' Disease Frequency by County and Year, Rhode Island, 2014-2018



Table 7. Frequency by County and Year

	2014	2015	2016	2017	2018	Total
Bristol	2	0	1	2	4	9
Kent	7	4	9	11	10	41
Newport	3	2	2	1	4	12
Providence	13	11	22	25	46	117
Washington	3	5	3	11	9	30
Total	28	22	37	50	73	210

Legionnaires' Disease Rates by County and Year, Rhode Island, 2014-2018



Table 8. Rate (cases per 100,000 population) by County and Year

	2014	2015	2016	2017	2018
Bristol	4.1	0.0	2.1	4.1	8.2
Kent	4.3	2.4	5.5	6.7	6.1
Newport	3.6	2.4	2.4	1.2	4.9
Providence	2.1	1.7	3.5	3.9	7.2
Washington	2.4	4.0	2.4	8.7	7.1

Legionnaires' Disease Frequency by Month and Year, Rhode Island, 2014-2018



Table 9. Frequency by Month and Year

	2014	2015	2016	2017	2018	5-Year Total
Jan	3	3	0	2	2	10
Feb	2	0	2	0	2	6
Mar	4	2	1	0	1	8
Apr	2	1	1	1	1	6
May	1	0	2	1	0	4
Jun	2	0	2	7	3	14
Jul	2	4	5	11	11	33
Aug	3	5	6	5	20	39
Sep	2	5	6	6	13	32
Oct	4	2	6	2	12	26
Nov	1	0	3	10	4	18
Dec	2	0	3	5	4	14
All	28	22	37	50	73	210



Notes on Data

- Case counts include patients classified as confirmed cases according to the [CDC case definition](#).
- “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, 2018, 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>