





Legionellosis 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 Legionellosis

- Legionellosis includes two epidemiologically distinct illnesses caused by legionella bacteria: Legionnaires' disease and Pontiac Fever.
 - All cases reported to RIDOH between 2012-2016 were identified as Legionnaires' disease.
- Symptoms of Legionnaires' disease include anorexia, fatigue, myalgia, headache, fever, abdominal pain, diarrhea, cough, shortness of breath, and pneumonia. Pneumonia is not a symptom of Pontiac Fever, which is a milder illness.
- People get Legionellosis from water sources, most often by aspiration of water or exposure to aerosolized water or soil.
- Legionella bacteria are commonly found in hot water tanks, hot tubs, cooling tanks or towers, plumbing systems, and decorative fountains.
- Legionnaires' disease is most common among elderly and immunocompromised individuals.

Data Overview, Legionellosis in Rhode Island



- There were 37 reported cases of Legionellosis in Rhode Island in 2016
- The average annual incidence rate between 2012-2016 was 3.1 per 100,000 people.
- Rates of disease between 2012-2016 were highest among patients over the age of 70.
- No cases were reported in individuals under the age of 30 in 2016.
- Although rates of illness reported were relatively stable across the five Rhode Island counties from 2012-2016, Kent and Washington counties reported slightly higher rates.
- Rates of disease were **higher among males** compared to females from 2012-2016, except in 2012, when the rates were slightly higher among females.
- Reports of Legionellosis are most common during the warmer months of the year.

Reported Cases of Legionellosis, Rhode Island, 2012-2016

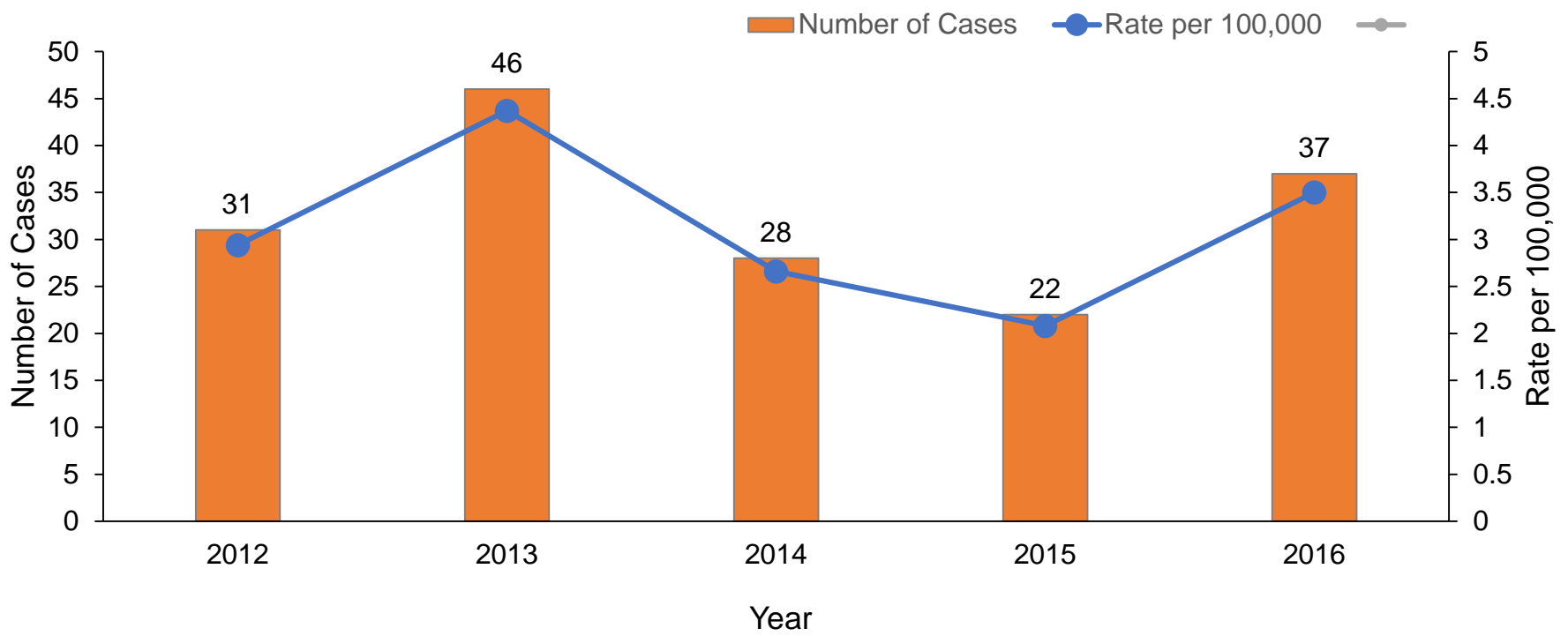


Figure 1: In 2016, there were 37 cases of Legionnaire’s Disease in Rhode Island, with a rate of 3.5 cases per 100,000 persons. Legionnaire’s Disease in Rhode Island remained relatively stable over the five-year period, with a slight peak in 2013.

Rate of Legionellosis, by Age Group, Rhode Island, 2012-2016

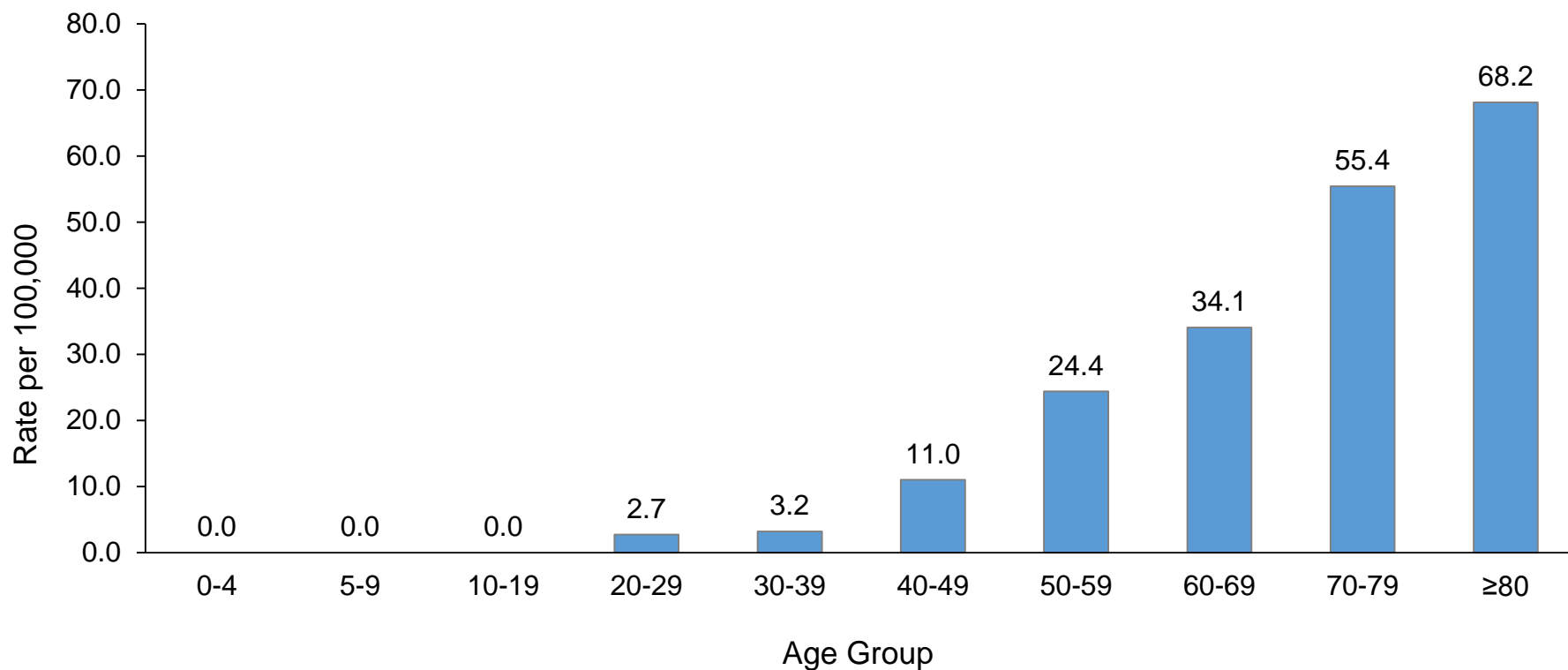


Figure 2: From 2012-2016, Legionnaires' Disease primarily affected adults over the age of 20, with rates highest among adults over 40. The five-year age-adjusted rate between 2012-2016 was highest among adults over 80 (68.2 per 100,000 persons). In 2016, there were no cases of Legionnaires' Disease among individuals under 30 years of age.

Rate of Legionellosis, by Gender and Year, Rhode Island, 2012-2016

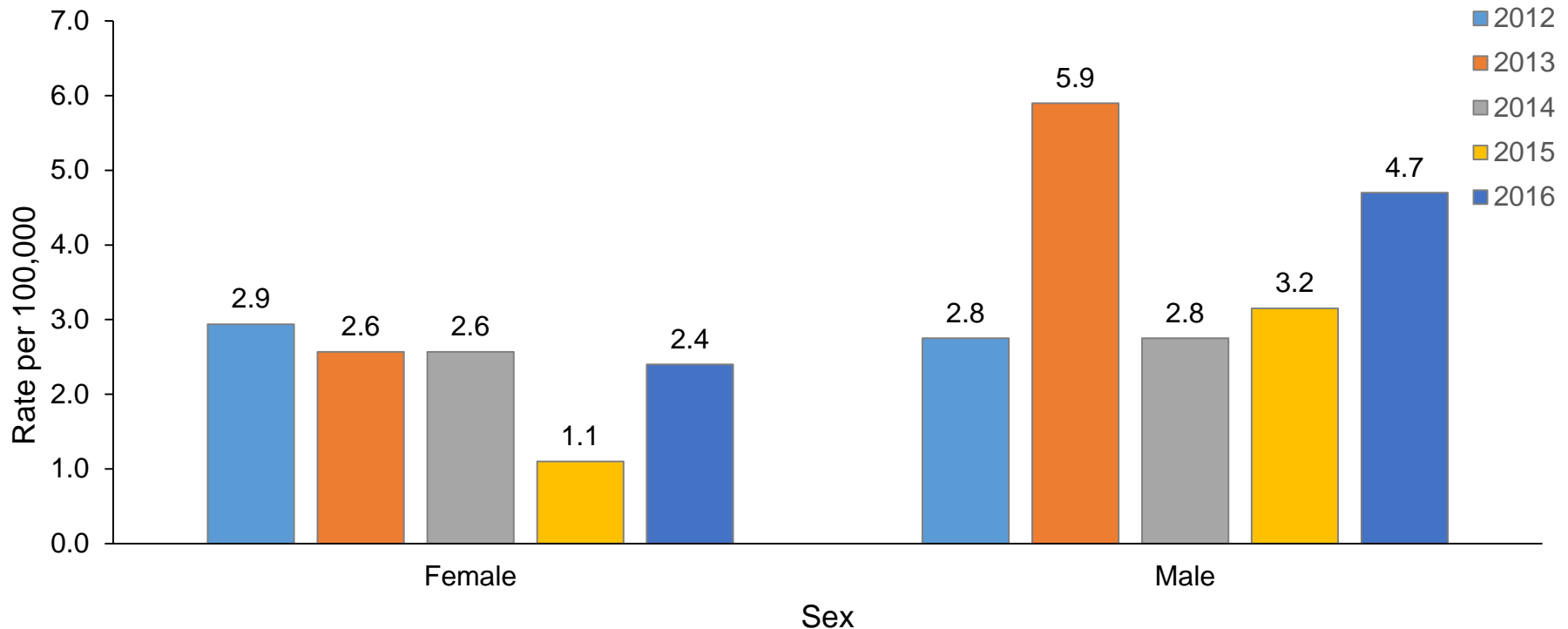


Figure 3: With the exception of 2012, rates of Legionellosis were higher among males than among females between 2012 and 2016. Notably, the rate increased from 3.2 to 4.7 per 100,000 people among males from 2015 to 2016.

Rate of Legionellosis, by County and Year, Rhode Island, 2012-2016

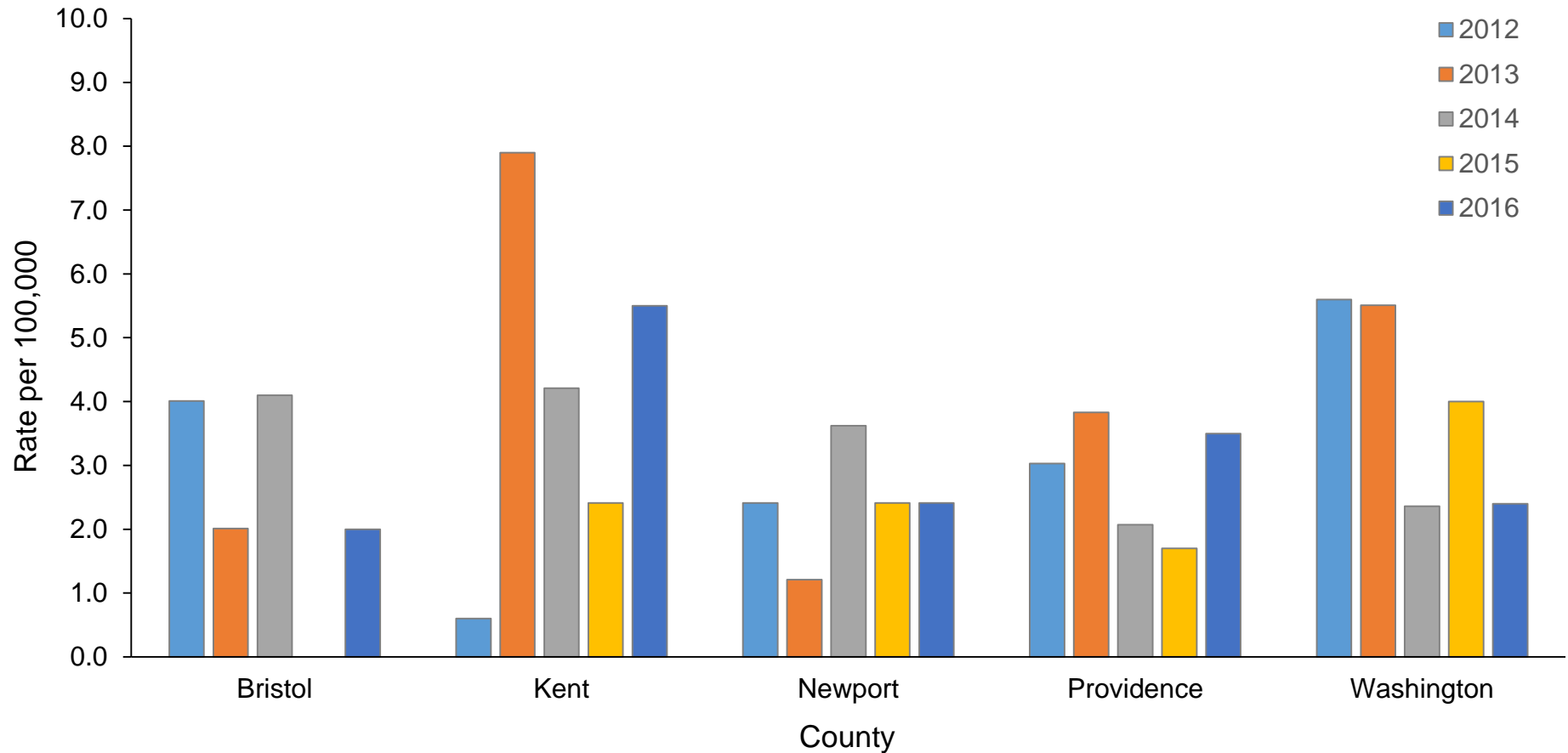


Figure 4: In 2016, Kent County had the highest rate of Legionellosis cases (5.5 cases per 100,000 people). County rates fluctuate over time due to low annual case counts.

Reported Cases of Legionellosis, by Month and Year, Rhode Island, 2012-2016

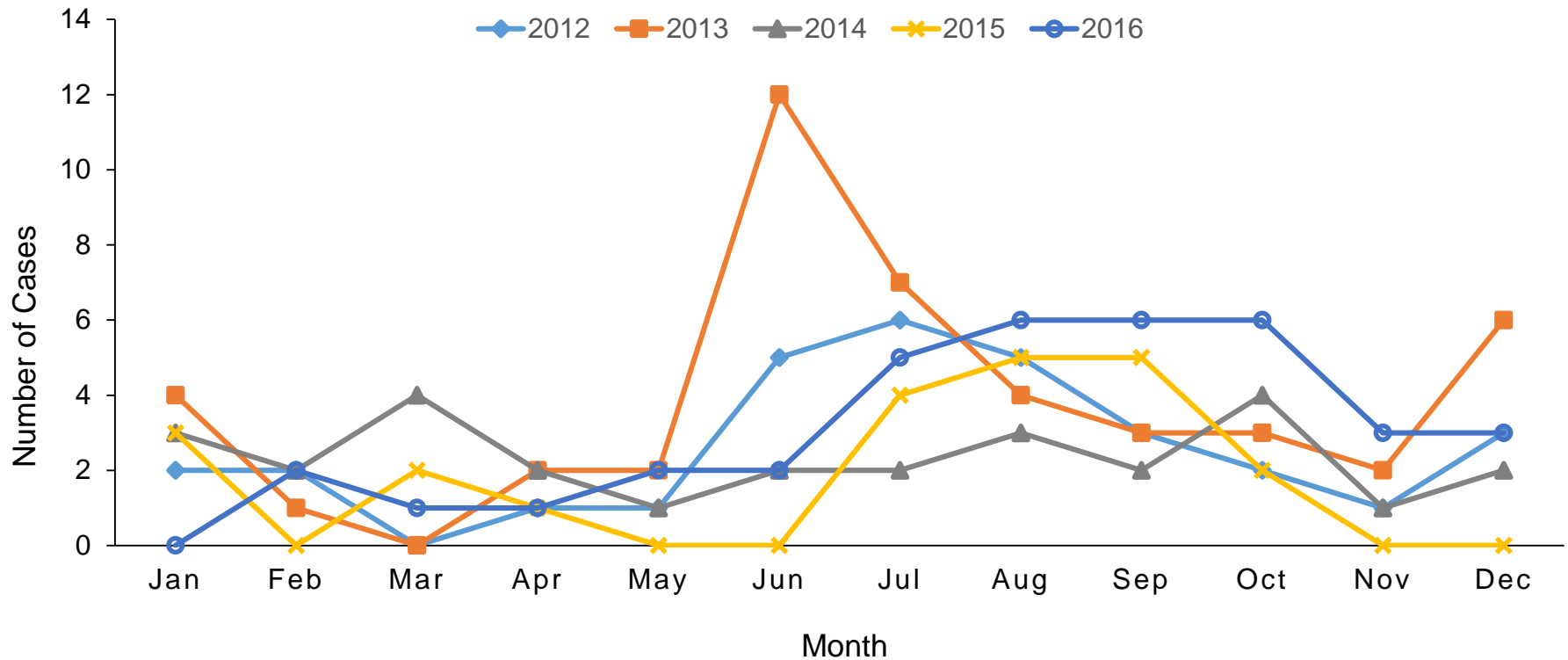


Figure 5: Although cases of Legionellosis are reported throughout the year in Rhode Island, most reports of disease occur during the warmer months of the year. A slightly higher count of cases was reported during early autumn in 2016 compared with previous years.

Legionellosis Frequency and Rates by Year, Rhode Island, 2012-2016



Table 1. Frequency by Year

	2012	2013	2014	2015	2016
Number of Cases	31	46	28	22	37

Table 2. Rate by Year

	2012	2013	2014	2015	2016
Rate per 100,000	2.9	4.4	2.7	2.1	3.5

Legionellosis Frequency, by Age Group and Year, Rhode Island, 2012-2016



Table 3. Frequency by Age Group and Year

	2012	2013	2014	2015	2016
0-4	1	2	1	0	0
5-9	0	3	0	0	1
10-19	3	6	1	4	3
20-29	4	10	8	4	11
30-39	7	7	7	5	9
40-49	9	10	4	3	6
50-59	7	8	7	6	7
60-69	1	2	1	0	0
70-79	0	3	0	0	1
≥80	3	6	1	4	3
Total	31	46	28	22	37

Legionellosis 5-Year Rate by Age Group, Rhode Island, 2012-2016



Table 4. 5-Year Rate by Age Group

Age Group	2012-2016
0-4	0.0
5-9	0.0
10-19	0.0
20-29	2.7
30-39	3.2
40-49	11.0
50-59	24.4
60-69	34.1
70-79	55.4
≥80	68.2

Legionellosis Frequency and Rates, by Gender and Year, Rhode Island, 2012-2016



Table 5. Frequency by Sex and Year

	2012	2013	2014	2015	2016
Female	16	15	14	6	13
Male	14	30	14	16	24
Unknown	1	1	0	0	0
Total	31	46	28	22	37

Table 6. Rate by Sex and Year

	2012	2013	2014	2015	2016
Female	2.9	2.8	2.6	1.1	2.4
Male	2.8	5.9	2.8	3.2	4.7
Unknown	0.2	0.2	0.0	0.0	0.0

Legionellosis Frequency by County and Year, Rhode Island, 2012-2016



Table 7. Frequency by County and Year

	2012	2013	2014	2015	2016
Bristol	2	1	2	0	1
Kent	1	13	7	4	9
Newport	2	1	3	2	2
Providence	19	24	13	11	22
Washington	7	7	3	5	3
All	31	46	28	22	37

Legionellosis Rates by County and Year, Rhode Island, 2012-2016



Table 8. Rate by County and Year

	2012	2013	2014	2015	2016
Bristol	4.1	2.0	4.1	0.0	2.0
Kent	0.6	7.9	4.2	2.4	5.5
Newport	2.4	1.2	3.6	2.4	2.4
Providence	3.0	3.8	2.1	1.7	3.5
Washington	5.6	5.5	2.4	4.0	2.4

Legionellosis Frequency by Month and Year, Rhode Island, 2012-2016



Table 9. Frequency by Month and Year

	2012	2013	2014	2015	2016
Jan	2	4	3	3	0
Feb	2	1	2	0	2
Mar	0	0	4	2	1
Apr	1	2	2	1	1
May	1	2	1	0	2
Jun	5	12	2	0	2
Jul	6	7	2	4	5
Aug	5	4	3	5	6
Sep	3	3	2	5	6
Oct	2	3	4	2	6
Nov	1	2	1	0	3
Dec	3	6	2	0	3
All	31	46	28	22	37



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