





Legionellosis Surveillance 2011-2015

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 2011-2015 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 RI



- There were 21 reported cases of Legionellosis in RI in 2015
- The Average annual incidence rate between 2011-2015 was 2.9 per 100,000 people.
- Rates of disease between 2011-2015 were highest among patients over the age of 70.
- No cases were reported in individuals under the age of 30 from 2011-2015.
- Although rates of illness reported were relatively stable across the 5 RI counties from 2011-2015, Kent and Washington counties reported slightly higher rates.
- Rates of disease were **higher among males** compared to females from 2011-2015 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, 2011-2015

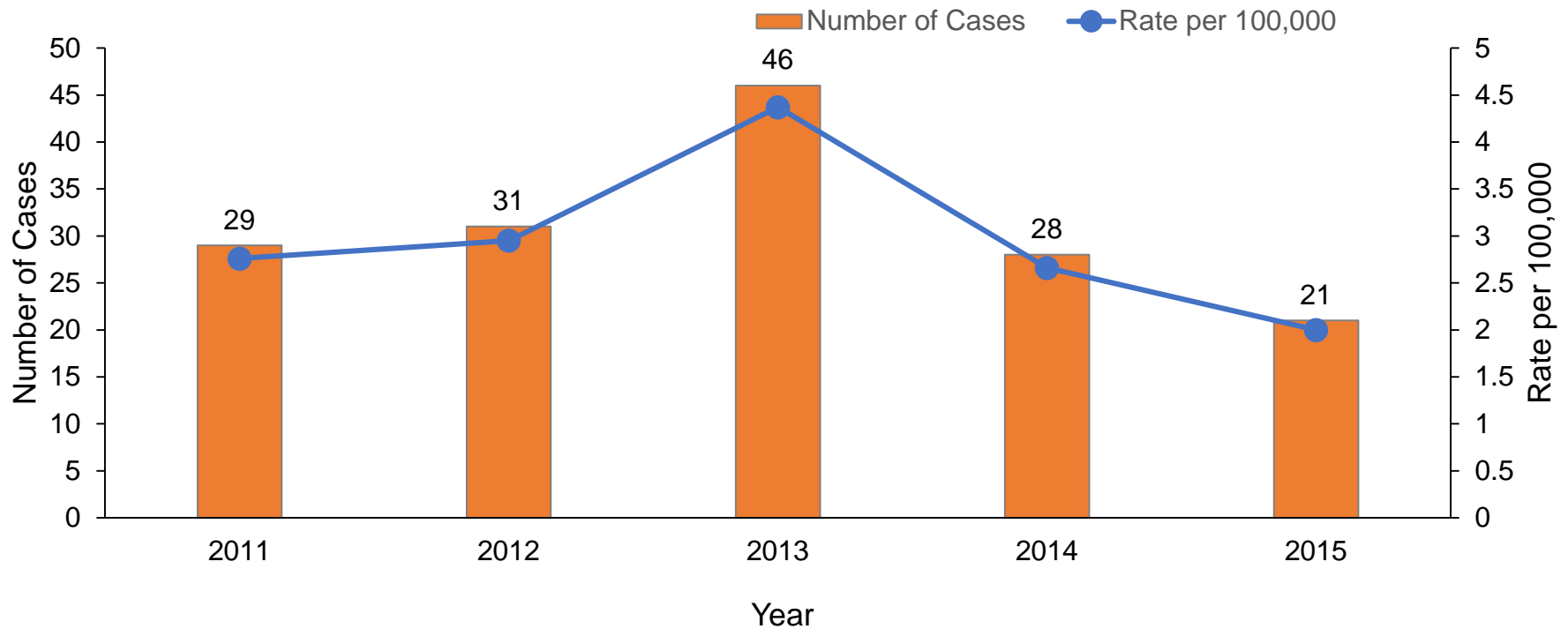


Figure 1: In 2015, there were 21 cases of Legionnaire’s Disease in RI, with a rate of 2.0 cases per 100,000 persons. Legionnaire’s Disease in Rhode Island remained relatively stable over the 5-year period, with a slight peak in 2013.

Rate of Legionellosis, by Age Group, Rhode Island, 2011-2015

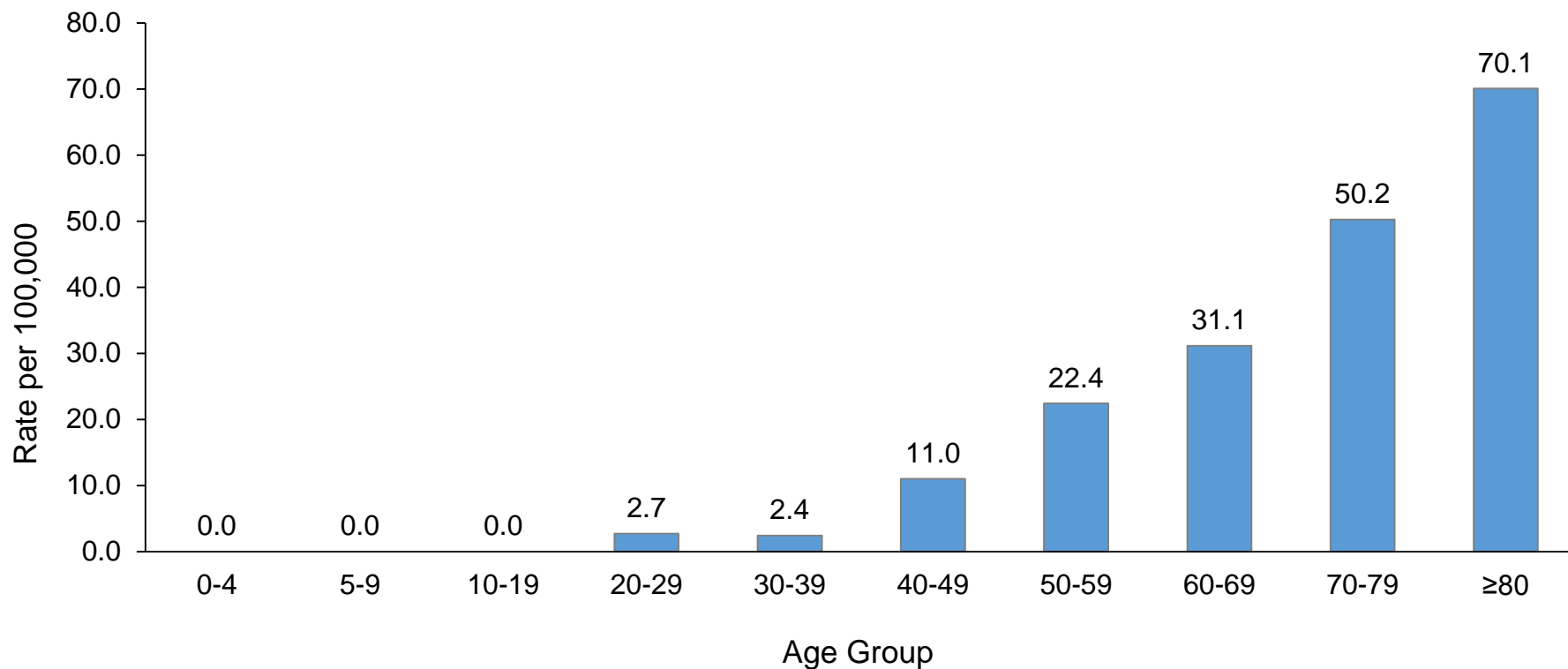


Figure 2: From 2011-2015, Legionnaires' Disease primarily affected adults over the age of 20, with rates highest among adults over 40. The five-year age-adjusted rate between 2011-2015 was highest among adults over 80 (70.1 per 100,000 persons). In 2015, there were no cases of Legionnaires' Disease among individuals under 40 years of age.

Rate of Legionellosis, by Gender and Year, Rhode Island, 2011-2015

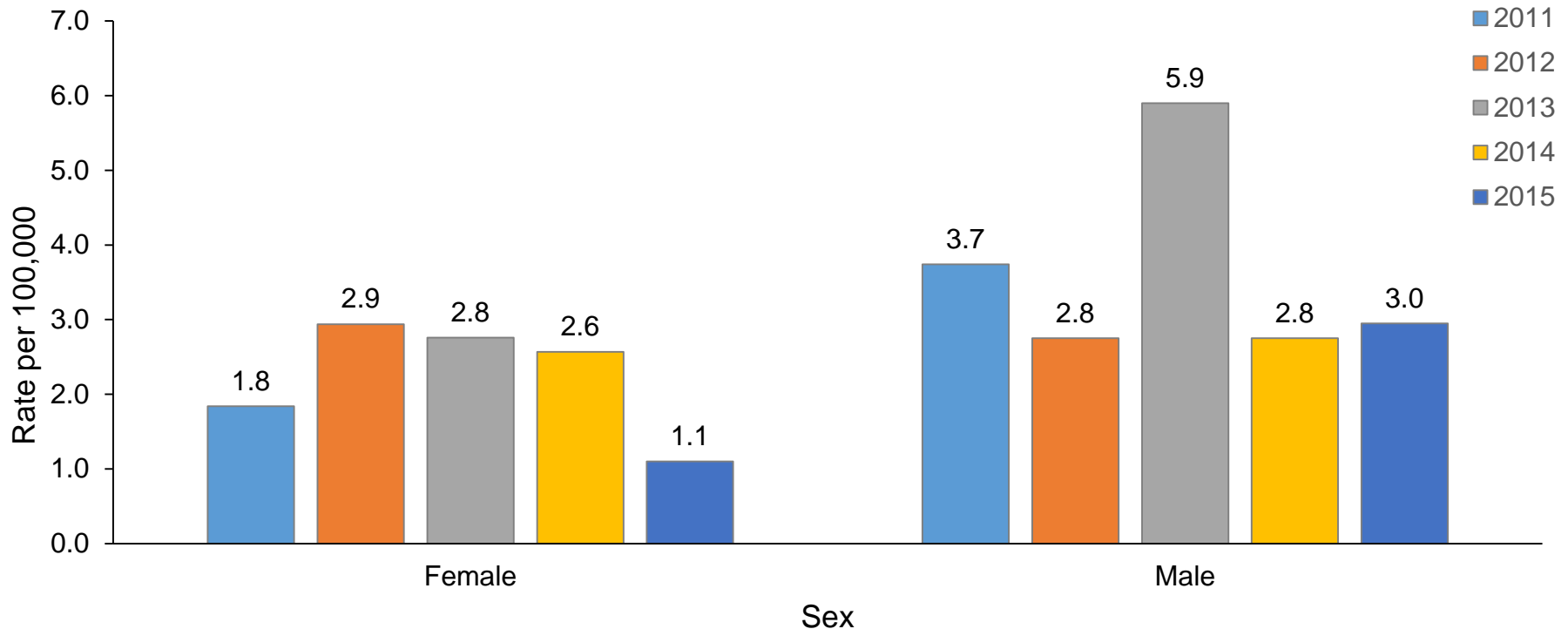


Figure 3: With the exception of 2012, rates of Legionellosis were higher among males than among females between 2011 and 2015. Notably, the rate decreased from 5.9 to 2.8 per 100,000 people among males from 2013 and 2014. In 2015, the rate of Legionellosis was 3.0 per 100,000 males compared to just 1.1 per 100,000 females.

Rate of Legionellosis, by County and Year, Rhode Island, 2011-2015

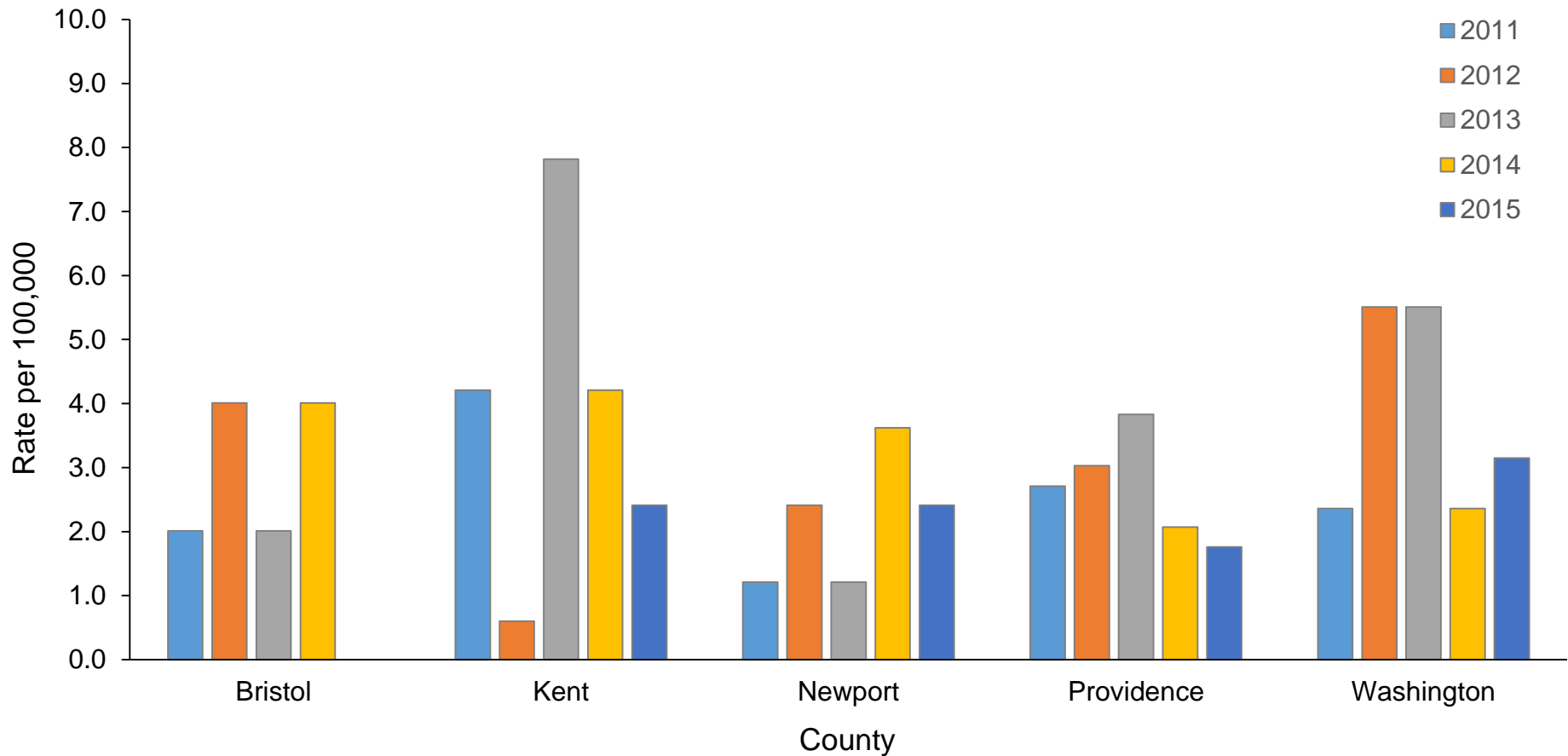


Figure 4: Between 2011 and 2015, rates of Legionellosis were relatively stable across the 5 Rhode Island counties, although rates were slightly higher in Kent and Washington counties. No cases of Legionellosis were reported among residents of Bristol County in 2015.

Reported Cases of Legionellosis, by Month and Year, Rhode Island, 2011-2015

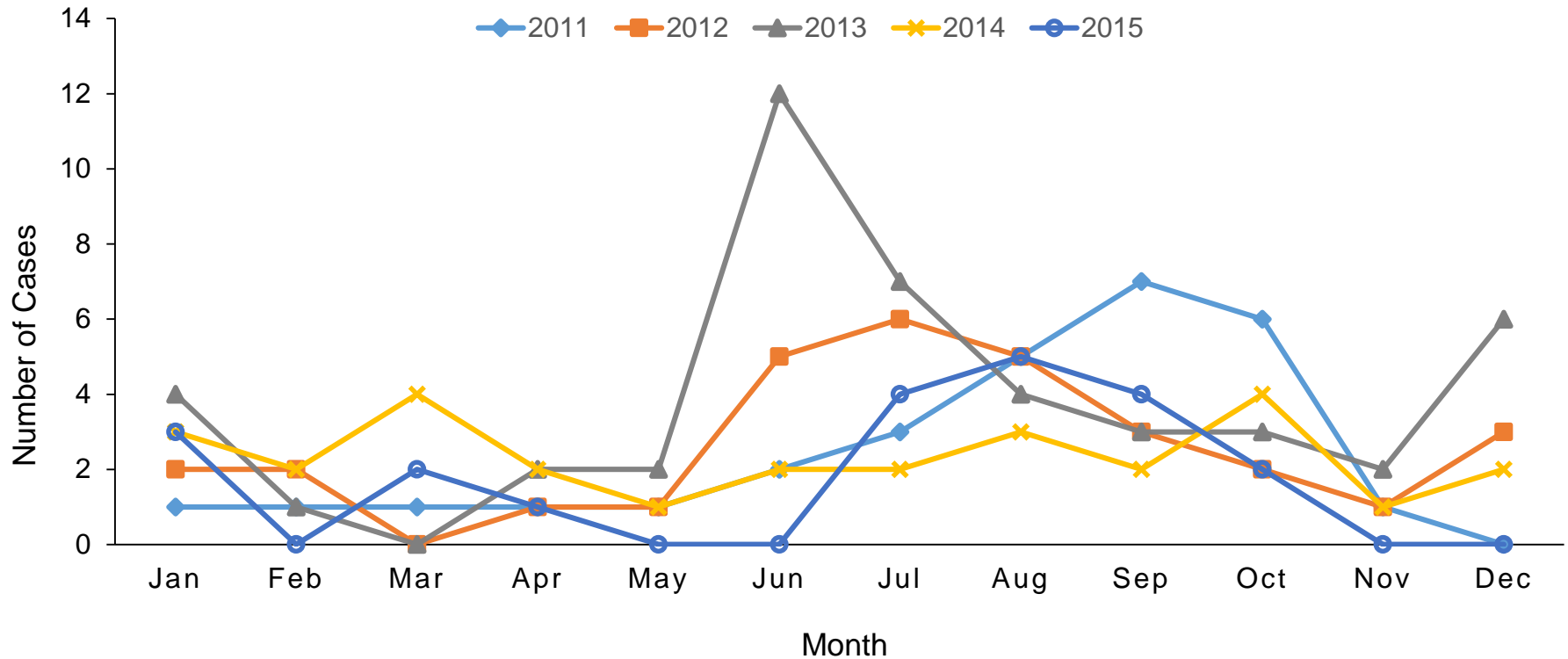


Figure 5: Although cases of Legionellosis are reported throughout the year in Rhode Island, most reports of disease occur during the warmer months of the year. A disproportionately high number of cases were reported in June 2013.

Legionellosis Frequency and Rates by Year, Rhode Island, 2011-2015



Table 1. Frequency by Year

	2011	2012	2013	2014	2015
Number of Cases	29	31	46	28	21

Table 2. Rate by Year

	2011	2012	2013	2014	2015
Rate per 100,000	2.8	3.0	4.4	2.7	2.0

Legionellosis Frequency, by Age Group and Year, Rhode Island, 2011-2015



Table 3. Frequency by Age Group and Year

	2011	2012	2013	2014	2015
0-4	0	0	0	0	0
5-9	0	0	0	0	0
10-19	0	0	0	0	0
20-29	0	1	2	1	0
30-39	0	0	3	0	0
40-49	4	3	6	1	3
50-59	8	4	10	8	4
60-69	6	7	7	7	5
70-79	3	9	10	4	3
≥80	8	7	8	7	6
Total	29	31	46	28	21

Legionellosis Rates, by Age Group and Year, Rhode Island, 2011-2015



Table 4. Rate by Age Group and Year

	2011	2012	2013	2014	2015
0-4	0	0	0	0	0
5-9	0	0	0	0	0
10-19	0	0	0	0	0
20-29	0	0.7	1.4	0.7	0
30-39	0	0	2.4	0	0
40-49	2.6	1.9	3.9	0.7	1.9
50-59	5.3	2.6	6.6	5.3	2.6
60-69	5.8	6.8	6.8	6.8	4.9
70-79	5.2	15.6	17.3	6.9	5.2
≥80	15.6	13.6	15.6	13.6	11.7

Legionellosis Frequency and Rates, by Gender and Year, Rhode Island, 2011-2015



Table 5. Frequency by Sex and Year

	2011	2012	2013	2014	2015
Female	10	16	15	14	6
Male	19	14	30	14	15
Total	29	30	45	28	21

Table 6. Rate by Sex and Year

	2011	2012	2013	2014	2015
Female	1.8	2.9	2.8	2.6	1.1
Male	3.7	2.8	5.9	2.8	3.0

Legionellosis Frequency by County and Year, Rhode Island, 2011-2015



Table 7. Frequency by County and Year

	2011	2012	2013	2014	2015
Bristol	1	2	1	2	0
Kent	7	1	13	7	4
Newport	1	2	1	3	2
Providence	17	19	24	13	11
Washington	3	7	7	3	4
All	29	31	46	28	21

Legionellosis Rates by County and Year, Rhode Island, 2011-2015



Table 8. Rate by County and Year

	2011	2012	2013	2014	2015
Bristol	2.0	4.0	2.0	4.0	0.0
Kent	4.2	0.6	7.8	4.2	2.4
Newport	1.2	2.4	1.2	3.6	2.4
Providence	2.7	3.0	3.8	2.1	1.8
Washington	2.4	5.5	5.5	2.4	3.2

Legionellosis Frequency by Month and Year, Rhode Island, 2011-2015



Table 9. Frequency by Month and Year

	2011	2012	2013	2014	2015
Jan	1	2	4	3	3
Feb	1	2	1	2	0
Mar	1	0	0	4	2
Apr	1	1	2	2	1
May	1	1	2	1	0
Jun	2	5	12	2	0
Jul	3	6	7	2	4
Aug	5	5	4	3	5
Sep	7	3	3	2	4
Oct	6	2	3	4	2
Nov	1	1	2	1	0
Dec	0	3	6	2	0
All	29	31	46	28	21



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>