
RHODE ISLAND
DEPARTMENT OF HEALTH

Vibriosis 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 Vibriosis

- Vibrio is a family of bacteria that occur naturally in estuarine or marine environments. Roughly a dozen species of vibrio are known to cause disease in humans. Vibriosis can be broken down into three distinct types of illness:
  - Gastrointestinal illness
  - Wound infections
  - Primary septicemia

- Most people become infected by eating raw or undercooked shellfish, particularly oysters. When ingested, *Vibrio* bacteria can cause watery diarrhea, often accompanied by abdominal cramping, nausea, vomiting, fever, and chills. Usually these symptoms occur within 24 hours of ingestion and last about 3 days. Severe illness is rare and typically occurs in people with a weakened immune system.

About Vibriosis

- *Vibrio* bacteria can also cause a skin infection when an open wound is exposed to brackish or salt water.

- CDC estimates that *Vibrio* bacteria causes 80,000 illnesses and 100 deaths each year in the United States. About 52,000 of these illnesses are estimated to be the result of eating contaminated food.

Data Overview, Vibriosis

- In 2018, 13 cases of vibriosis were reported to the Center of Acute Infectious Epidemiology for a rate of 1.2 cases per 100,000 population. This incidence rate was higher than what was observed nationally in 2018 (0.92 cases per 100,000).
- Rhode Island has low case counts of vibriosis. In order to ensure patient privacy, data from 2014-2018 have been combined or averaged for analysis by age group, sex, county, and month of illness onset.
- National vibriosis data can be found at Nationally Notifiable Infectious Diseases and Conditions, United States: Annual Tables and https://www.cdc.gov/vibrio/surveillance.html

Reported Cases of Vibriosis by Year, Rhode Island, 2014-2018

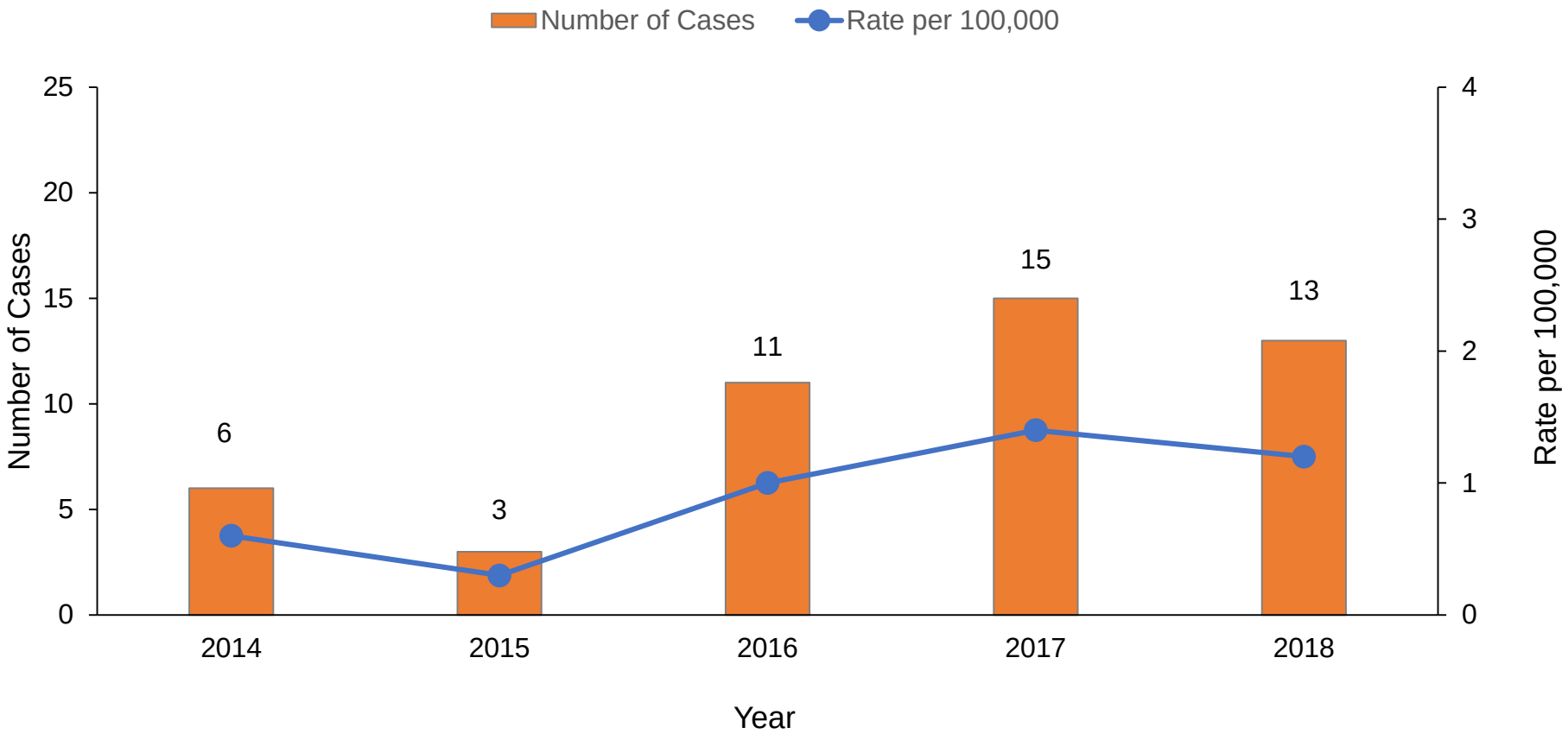

Figure 1: After observing the most vibriosis cases reported in a year in Rhode Island in 2013 (19 cases), the number of reported cases decreased in 2014 and 2015 and has increased since, with an average of 13 cases reported annually from 2016-2018.

Cumulative 5-Year Average Rate of Vibriosis Cases by Age Group, Rhode Island, 2014-2018

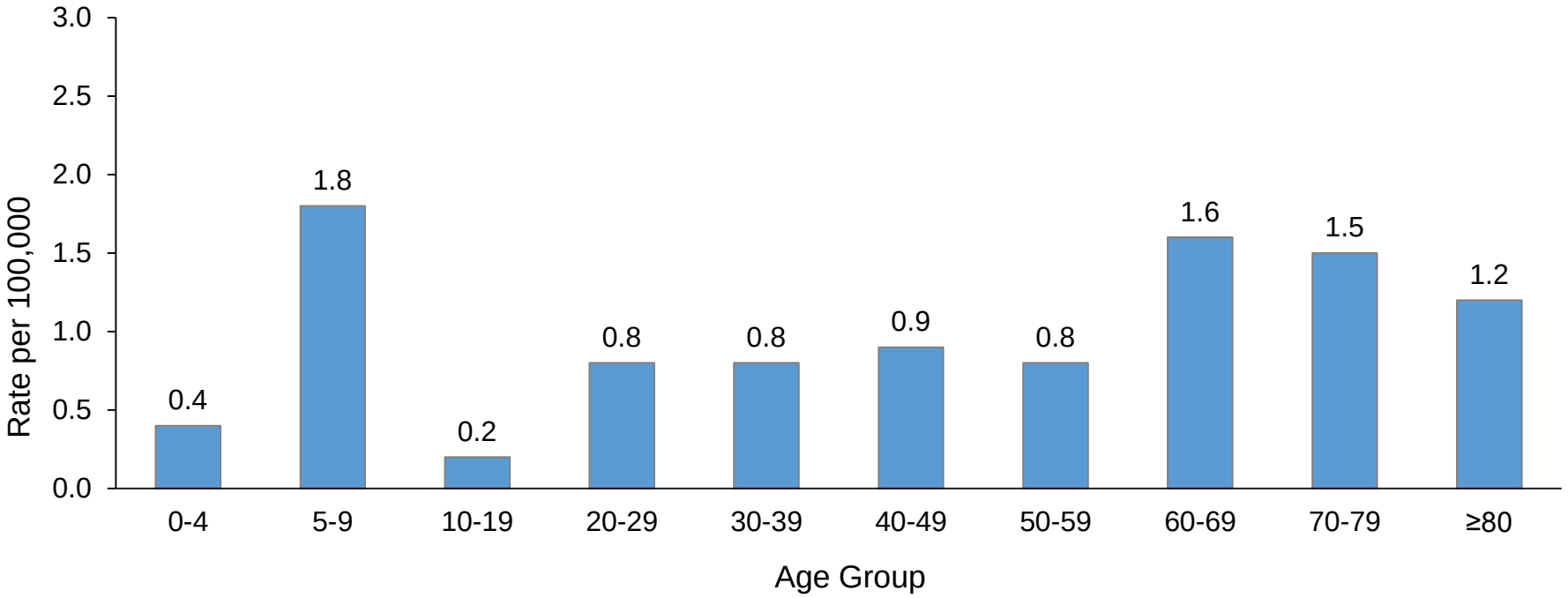

Figure 2: Over the five-years from 2014-2018, the incidence rate of vibriosis in younger age groups was relatively low, with the exception of those 5-9 years of age, but increased in those 20 years of age and above. This trend is similar to what was observed nationally in 2018. The seven cases that were under 20 years of age over the 5-year period had either lower body or ear infections due to either *V. parahaemoyticus* or *V. alginolyticus.*

Cumulative 5-Year Average Rate of Vibriosis Cases by Sex, Rhode Island, 2014-2018

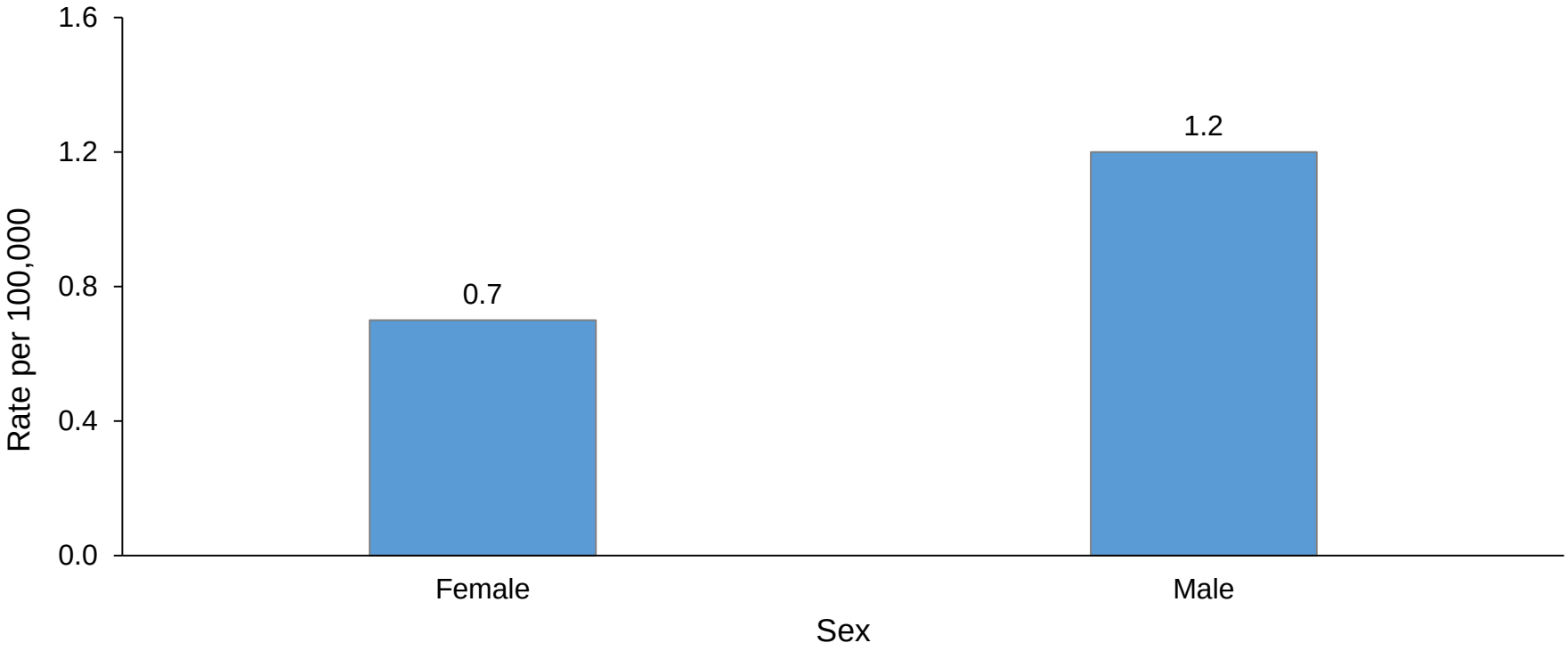

Figure 3: Over the five years from 2014-2018, the incidence rate of vibriosis in males was higher than the incidence rate seen in females. This is comparable to 2018 national data, where the incidence rate in males (1.08 cases per 100,000) was higher than the incidence rate in females (0.76 cases per 100,000).

Cumulative 5-Year Average Rate of Vibriosis Cases by County, Rhode Island, 2014-2018

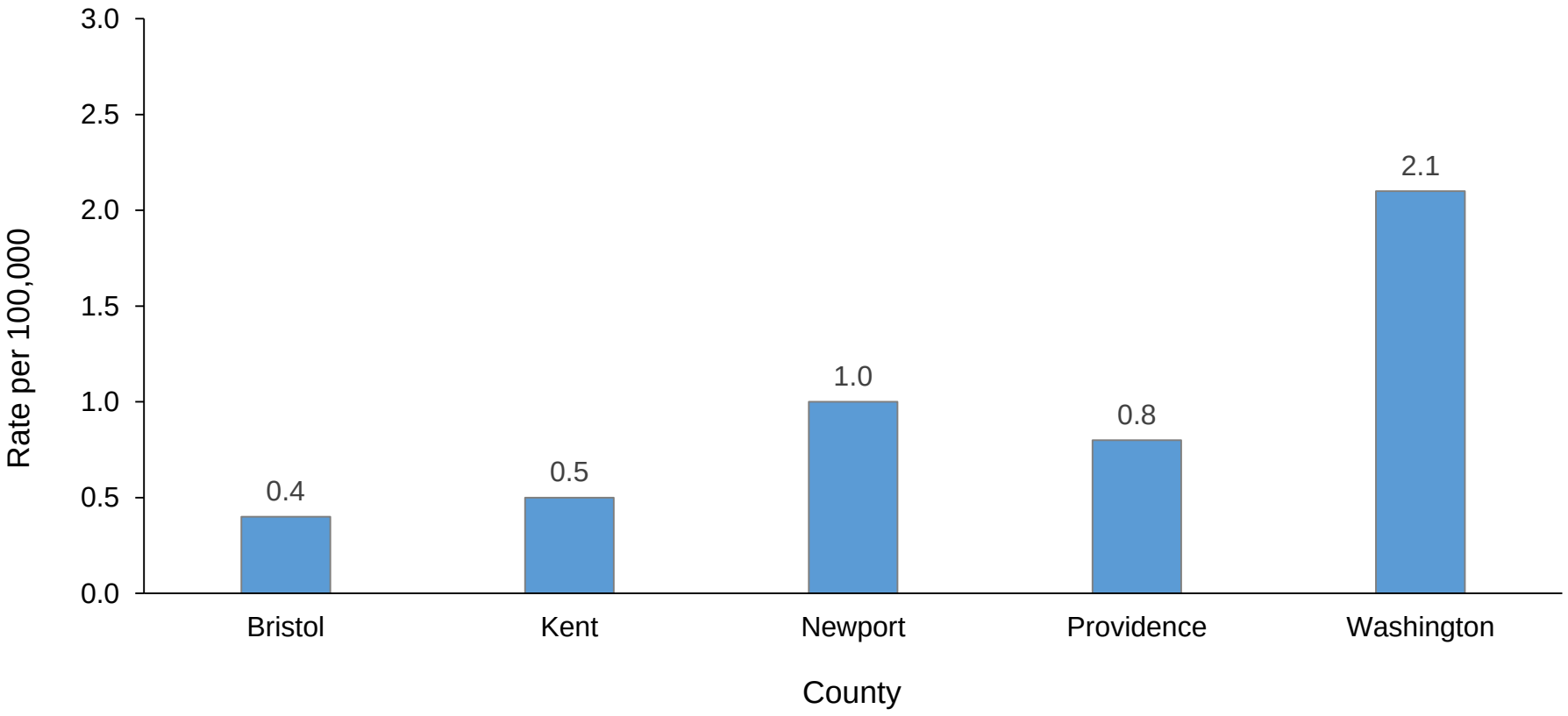

Figure 4: From 2014-2018, Washington County residents had the highest cumulative 5-year rate of vibriosis followed by Newport County residents.

Cumulative 5-Year Frequency of Vibriosis Cases by Month, Rhode Island, 2014-2018

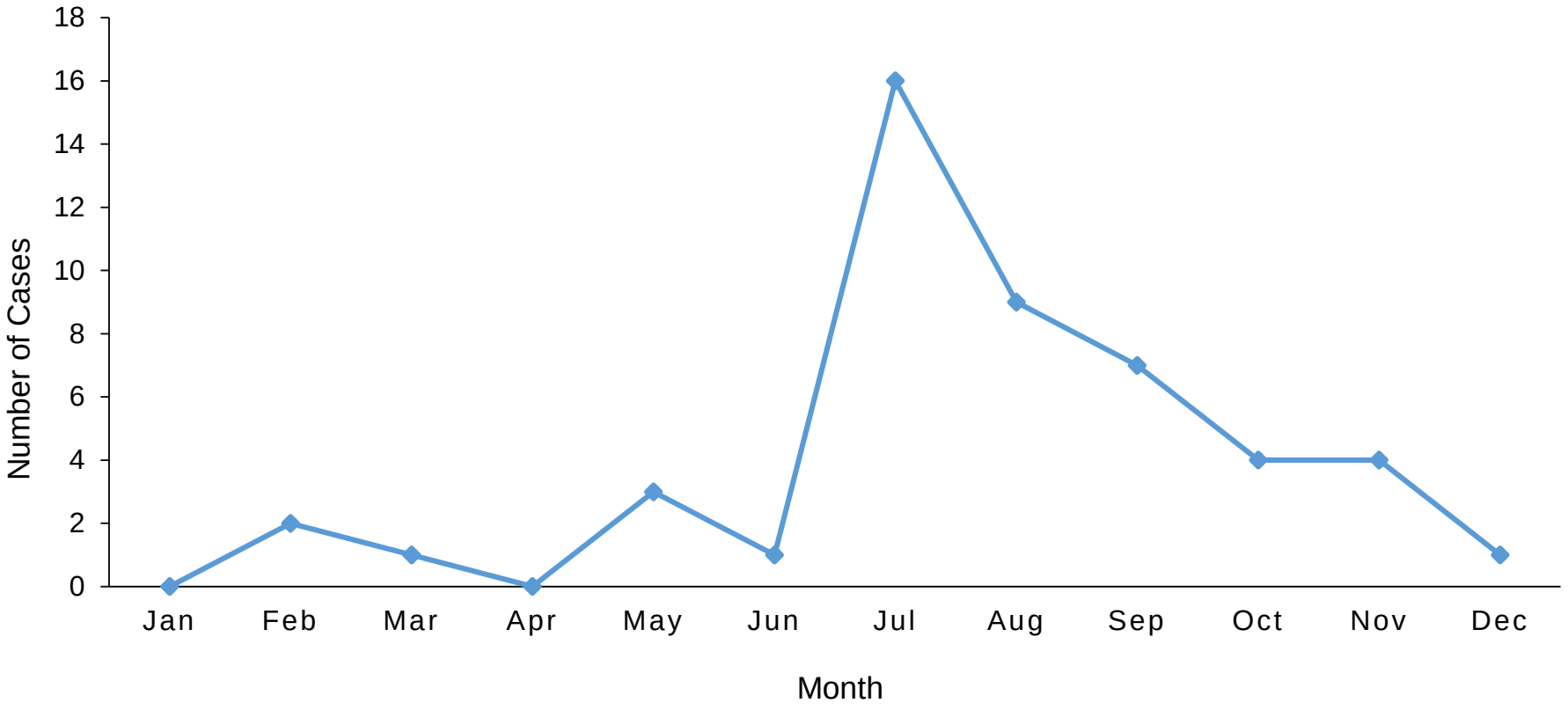

Figure 5: When analyzing the 5-year period 2014-2018 cumulatively, vibriosis displays a seasonal trend with a peak in July and August. This is similar to what was observed nationally in 2018.

Vibriosis Case Frequency and Rate by Year, Rhode Island, 2014-2018

Table 1. Frequency by Year					
	2014	**2015**	**2016**	**2017**	**2018**
Number of Cases	6	3	11	15	13

Table 2. Rate by Year					
	2014	**2015**	**2016**	**2017**	**2018**
Rate per 100,000	0.6	0.3	1.0	1.4	1.2

Cumulative 5-Year Vibriosis Case Frequency and Rate, By Age Group, Rhode Island, 2014-2018

Table 3. 5-Year Cumulative Frequency and Rate by Age Group and Year		
	2014-2018	Rate
0-4	1	0.4
5-9	5	1.8
10-19	1	0.2
20-29	6	0.8
30-39	5	0.8
40-49	6	0.9
50-59	6	0.8
60-69	10	1.6
70-79	5	1.5
≥80	3	1.2
Total	48	0.9

Cumulative 5-Year Vibriosis Case Frequency and Rate by Sex, RI, 2014-2018

Table 4. Cumulative 5-year Frequency by Sex	
	2014-2018
Female	18
Male	30
Total	48

Table 5. Average 5-year Rate by Sex	
	2014-2018
Female	0.7
Male	1.2
Total	0.9

Cumulative 5-Year Vibriosis Case Frequency and Rate By County, Rhode Island, 2014-2018

Table 6. Frequency by County and Year		
	2014-2018	Rate
Bristol	1	0.4
Kent	4	0.5
Newport	4	1.0
Providence	26	0.8
Washington	13	2.1
Total	48	0.9

5-Year Cumulative Vibriosis Case Frequency by Month, RI, 2014-2018

Table 7. Frequency by Month	
	2014-2018
Jan	0
Feb	2
Mar	1
Apr	0
May	3
Jun	1
Jul	16
Aug	9
Sep	7
Oct	4
Nov	4
Dec	1
Total	48

Frequency of Vibrio Species Identified, RI, 2014-2018

Table 8. Frequency of Species	Year									
	2014		2015		2016		2017		2018	
	No.	%	No.	%	No.	%	No.	%	No.	%
V. alginolyticus	1	16.7	2	66.7	6	54.5	7	46.7	4	30.8
V. cholera, non-O1/non-0139	0	0	0	0	0	0	1	6.7	2	15.4
V. fluvialis	1	16.7	0	0	0	0	0	0	1	7.7
V. mimicus	0	0	0	0	0	0	1	6.7	0	0
V. parahaemolyticus	4	66.7	1	33.3	4	36.4	4	26.7	5	38.5
V. vulnificus	0	0	0	0	0	0	2	13.3	0	0
Not Speciated	0	0	0	0	1	9.1	0	0	1	7.7
Total	6	100	3	100	11	100	15	100	13	100

Frequency of Type of Illness Associated with Vibriosis Cases, RI, 2014-2018

Table 9. Frequency of Type of Illness	Year									
	2014		2015		2016		2017		2018	
	No.	%	No.	%	No.	%	No.	%	No.	%
Gastrointestinal	3	50.0	1	33.3	3	27.3	4	26.7	9	69.2
Sepsis	0	0	0	0	0	0	2	13.3	0	0
Wound	3	50.0	2	66.7	8	72.7	9	60.0	4	30.8
Total	6	100	3	100	11	100	15	100	13	100

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, 2018, U.S. Census Bureau.