
RHODE ISLAND
DEPARTMENT OF HEALTH

Pertussis 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 Pertussis

- Pertussis, or whooping cough, is a respiratory illness caused by the bacteria *Bordetella pertussis.*
- Symptoms of pertussis include a persistent cough, coughing fits, vomiting after coughing, and a cough that makes a “whoop” sound.
- Pertussis is spread person-to-person by respiratory secretions from coughing or sneezing in close proximity.
- Babies under 1 year of age are at higher risk of infection from pertussis, because they are too young to receive the vaccine. If they contract pertussis, they are at higher risk of complications from infection.
- Pertussis is a vaccine-preventable disease, although immunity can wane with time. Vaccination of pregnant women is especially important to protect newborn infants.

Data Overview, Pertussis

- In 2015, there were 27 cases of pertussis in Rhode Island, with a rate of 2.6 cases per 100,000 population.

- There was an unusually low number of cases of pertussis in 2015— the lowest annual case count since before 2011.

- Pertussis tends to exhibit a cyclical trend, with varying rates of illness between years.

Reported Cases of Pertussis, Rhode Island, 2011-2015

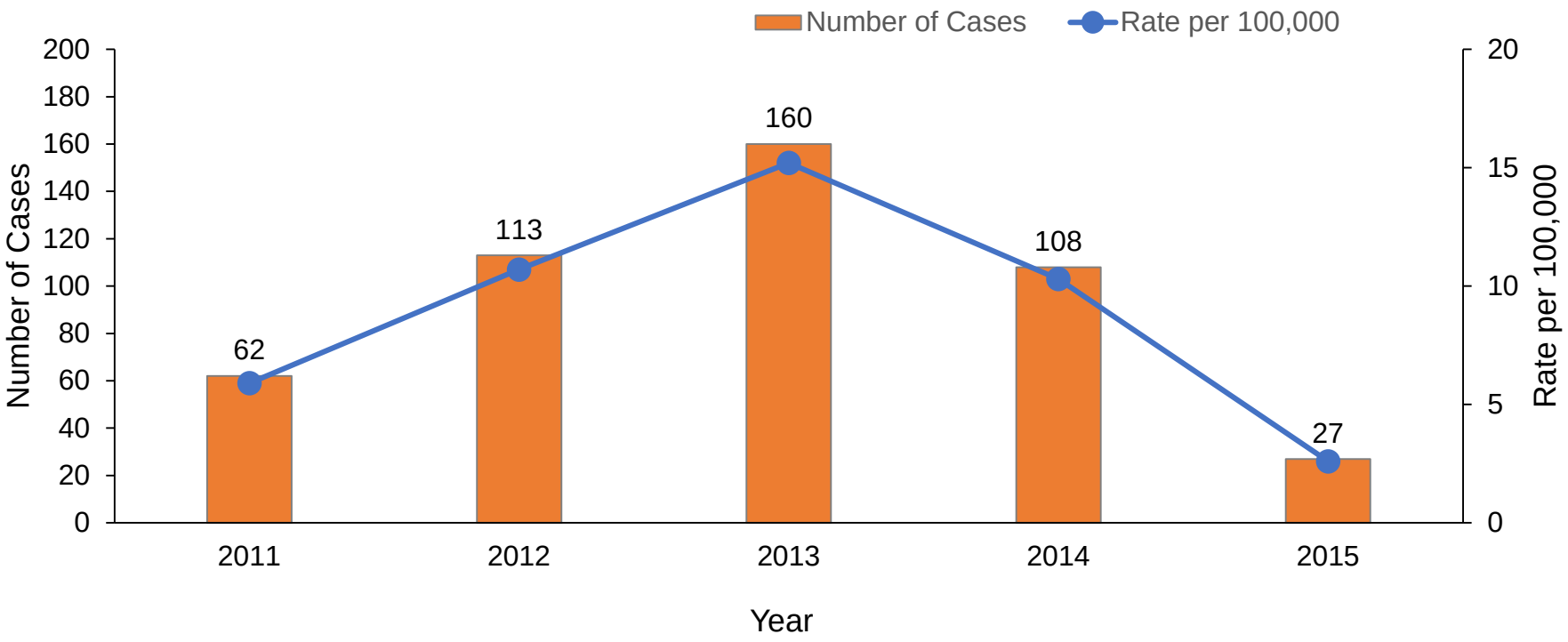

Figure 1: In 2015, there were 27 cases of pertussis in RI, with a rate of 2.6 cases per 100,000 population. This is the lowest number of cases since before 2011. It is not unusual to see this type of pattern with pertussis, which has a cyclical trend and peaks every 2-5 years.

Rate of Pertussis, by Age Group, Rhode Island, 2015

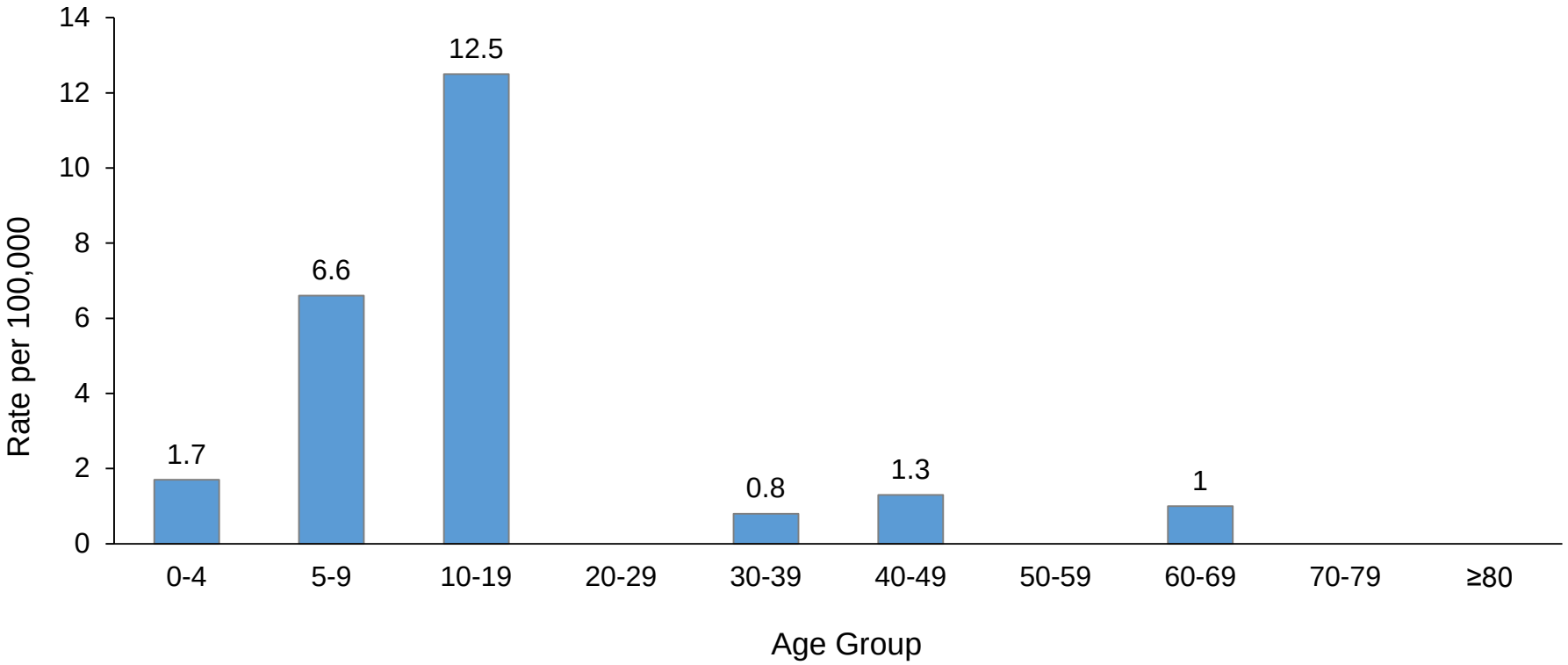

Figure 2: The highest rate of pertussis cases in RI is in the adolescent age group of 10-19 years of age, followed by the 5-9 age group and the 0-4 age group. This is similar to national trends in which pertussis affects the adolescent age group most due to waning vaccine immunity.

Rate of Pertussis, by Sex and Year, Rhode Island, 2011-2015

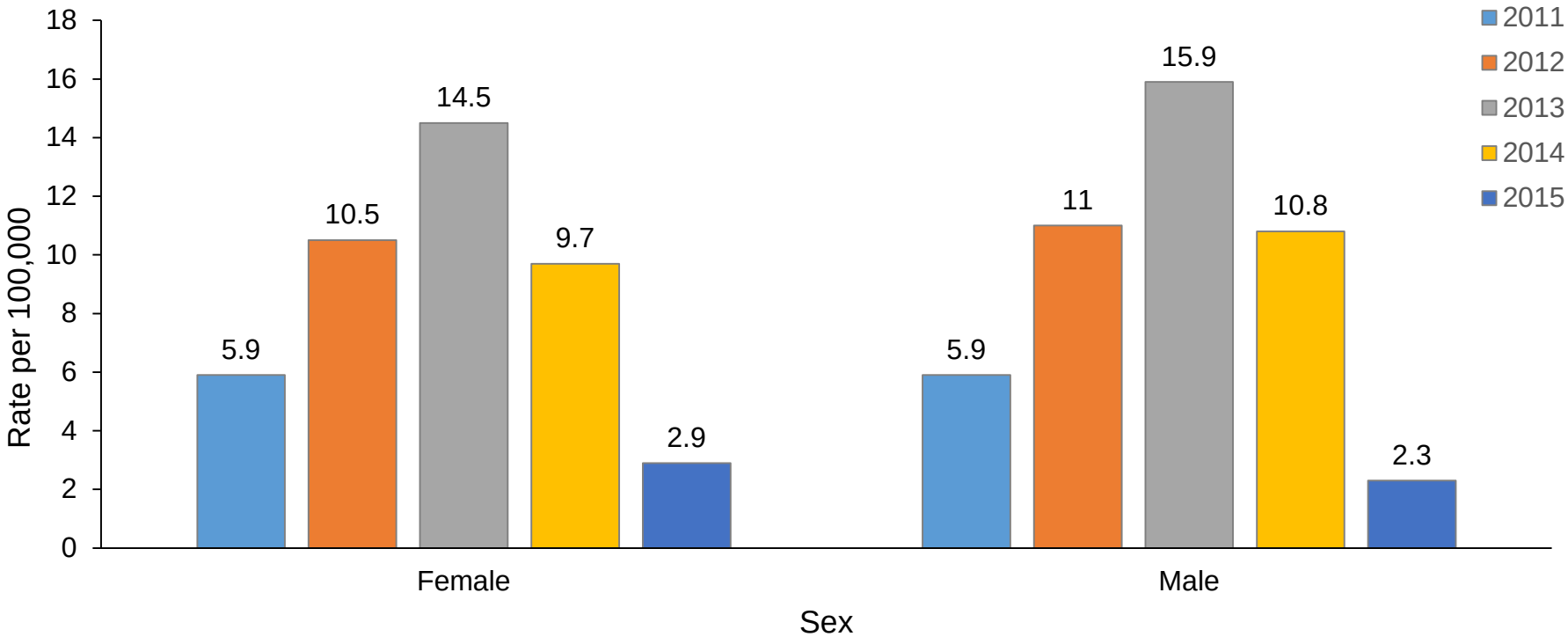

Figure 3: Pertussis was reported in males and females at approximately the same rates over the last five years. In 2015, there were 16 cases in females (rate of 2.9 per 100,000) and 11 cases (rate of 2.6 per 100,000) in males. Nationally, rates of pertussis are nearly the same in males and females.

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

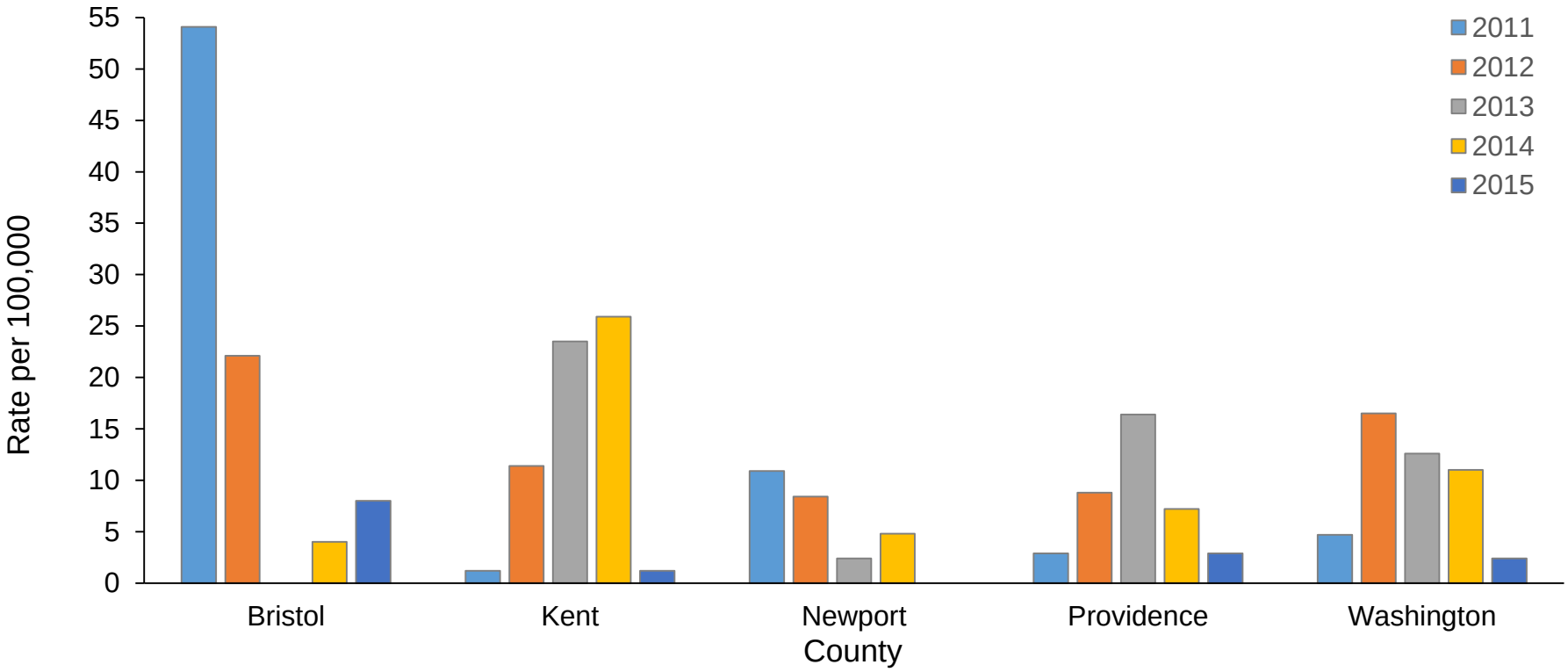

Figure 4: In 2015, the highest rate of pertussis occurred in Bristol County with 8 cases per 100,000 population. The notably high rate of pertussis during 2011 in Bristol County (54.1 cases per 100,000 population) was due to an outbreak linked to an elementary school.

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

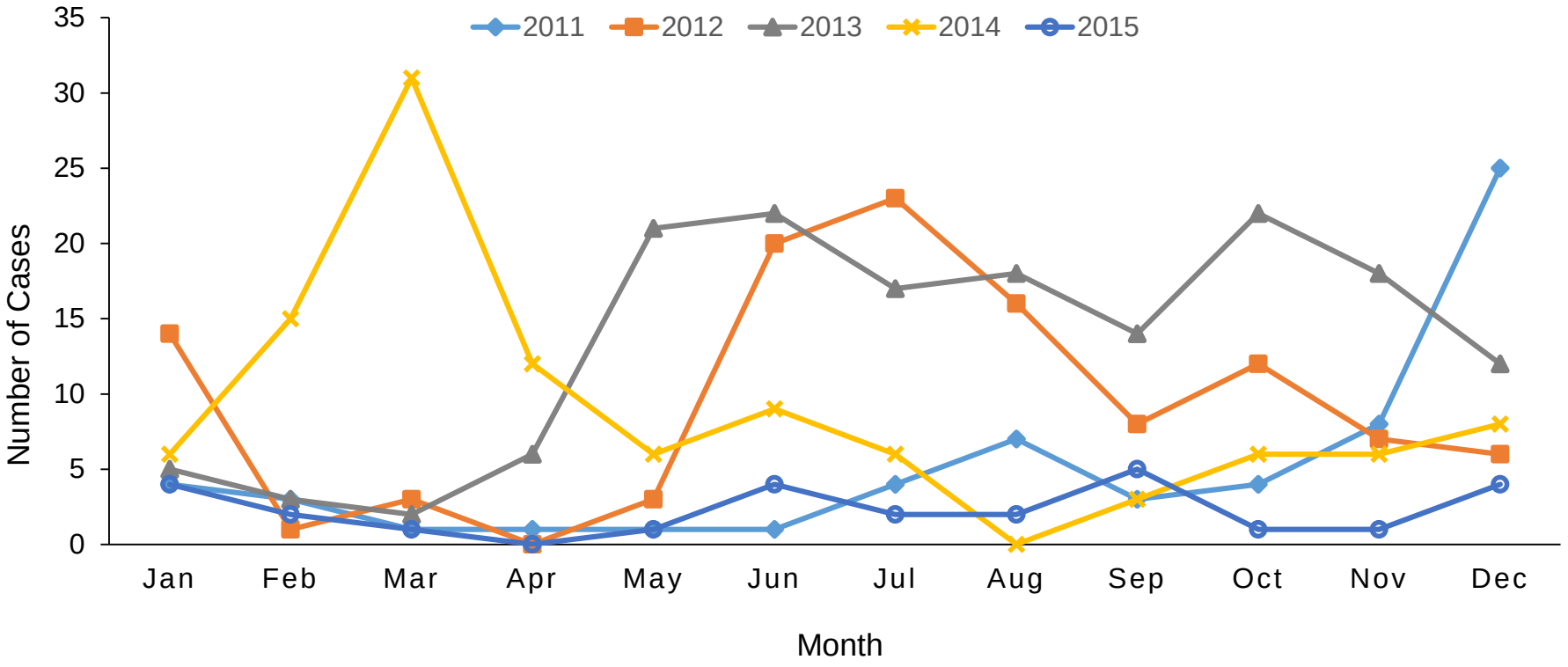

Figure 5: There is no seasonal trend for pertussis cases in RI. The large peak in March 2014 (31 cases) was linked to several outbreaks in schools across the state.

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

Table 1. Frequency by Year					
	2011	**2012**	**2013**	**2014**	**2015**
Number of Cases	62	113	160	108	27

Table 2. Rate by Year					
	2011	**2012**	**2013**	**2014**	**2015**
Rate per 100,000	5.9	10.7	15.2	10.3	2.6

Pertussis 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	15	23	30	12	1
5-9	12	28	39	18	4
10-19	21	47	73	68	18
20-29	4	4	5	1	0
30-39	2	3	2	3	1
40-49	4	6	7	1	2
50-59	1	1	1	2	0
60-69	3	0	2	1	1
70-79	0	0	1	1	0
≥80	0	1	0	1	0
Total	62	113	160	108	27

Pertussis 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	26.1	40.0	52.2	20.9	1.7
5-9	19.9	46.3	64.5	29.8	6.6
10-19	14.6	32.7	50.7	47.3	12.5
20-29	2.7	2.7	3.4	0.7	0.0
30-39	1.6	2.4	1.6	2.4	0.8
40-49	2.6	3.9	4.5	0.7	1.3
50-59	0.7	0.7	0.7	1.3	0.0
60-69	2.9	0.0	2.0	1.0	1
70-79	0.0	0.0	1.7	1.7	0.0
≥80	0.0	2.0	0.0	2.0	0.0

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

Table 5. Frequency by Sex and Year					
	2011	**2012**	**2013**	**2014**	**2015**
Female	32	57	79	53	16
Male	30	56	81	55	11
Total	**62**	**113**	**160**	**108**	**27**

Table 6. Rate by Sex and Year					
	2011	**2012**	**2013**	**2014**	**2015**
Female	5.9	10.5	14.5	9.7	2.9
Male	5.9	11.0	15.9	10.8	2.3

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

Table 7. Frequency by County and Year					
	2011	**2012**	**2013**	**2014**	**2015**
Bristol	27	11	0	2	4
Kent	2	19	39	43	2
Newport	9	7	2	4	0
Providence	18	55	103	45	18
Washington	6	21	16	14	3
All	**62**	**113**	**160**	**108**	**27**

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

Table 8. Rate by County and Year					
	2011	**2012**	**2013**	**2014**	**2015**
Bristol	54.1	22.1	0.0	4.0	8.0
Kent	1.2	11.4	23.5	25.9	1.2
Newport	10.9	8.4	2.4	4.8	0.0
Providence	2.9	8.8	16.4	7.2	2.9
Washington	4.7	16.5	12.6	11.0	2.4

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

Table 9. Frequency by Month and Year					
	2011	**2012**	**2013**	**2014**	**2015**
Jan	4	14	5	6	4
Feb	3	1	3	15	2
Mar	1	3	2	31	1
Apr	1	0	6	12	0
May	1	3	21	6	1
Jun	1	20	22	9	4
Jul	4	23	17	6	2
Aug	7	16	18	0	2
Sep	3	8	14	3	5
Oct	4	12	22	6	1
Nov	8	7	18	6	1
Dec	25	6	12	8	4
All	**62**	**113**	**160**	**108**	**27**

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/pertussis/index.html
- https://www.cdc.gov/pertussis/vaccines.html
- https://www.cdc.gov/pertussis/downloads/pertuss-surv-report-2015-provisional.pdf
- http://www.health.ri.gov/diseases/vaccinepreventable/?parm=12
- http://www.pkids.org/diseases/pertussis.html