





# **Varicella (Chickenpox) 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 Varicella

- Varicella (chickenpox) is a very contagious disease caused by the varicella-zoster virus.
- Symptoms include an itchy skin rash with blister-like lesions, covering the body. It may first appear on the face, chest, and back and then spread to other parts of the body. Most patients have a fever, which develops 1-2 days before the rash appears. People may also experience fatigue, loss of appetite, and headache.
- Varicella infection typically lasts 5-7 days and will resolve without treatment.
- Transmission is airborne, spread by breathing and talking.



# About Varicella

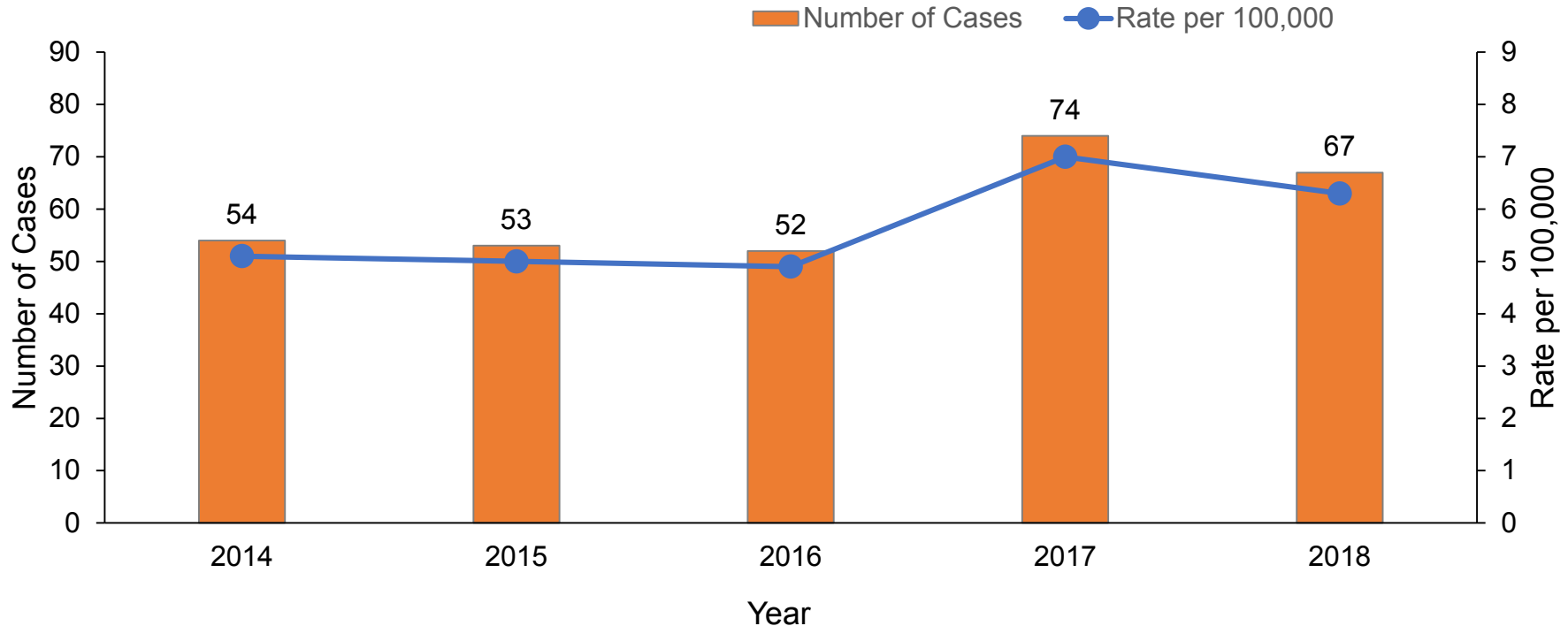
- Vaccination is the best prevention against varicella.
- Some people who have been vaccinated against varicella can still get the disease. However, the symptoms are usually milder with fewer red spots or blisters and low or no fever.
- Most cases of varicella in Rhode Island occur among vaccinated individuals.
- People at higher risk for complications from chickenpox include infants, pregnant women, and people with weakened immune systems.

# Data Overview, Varicella



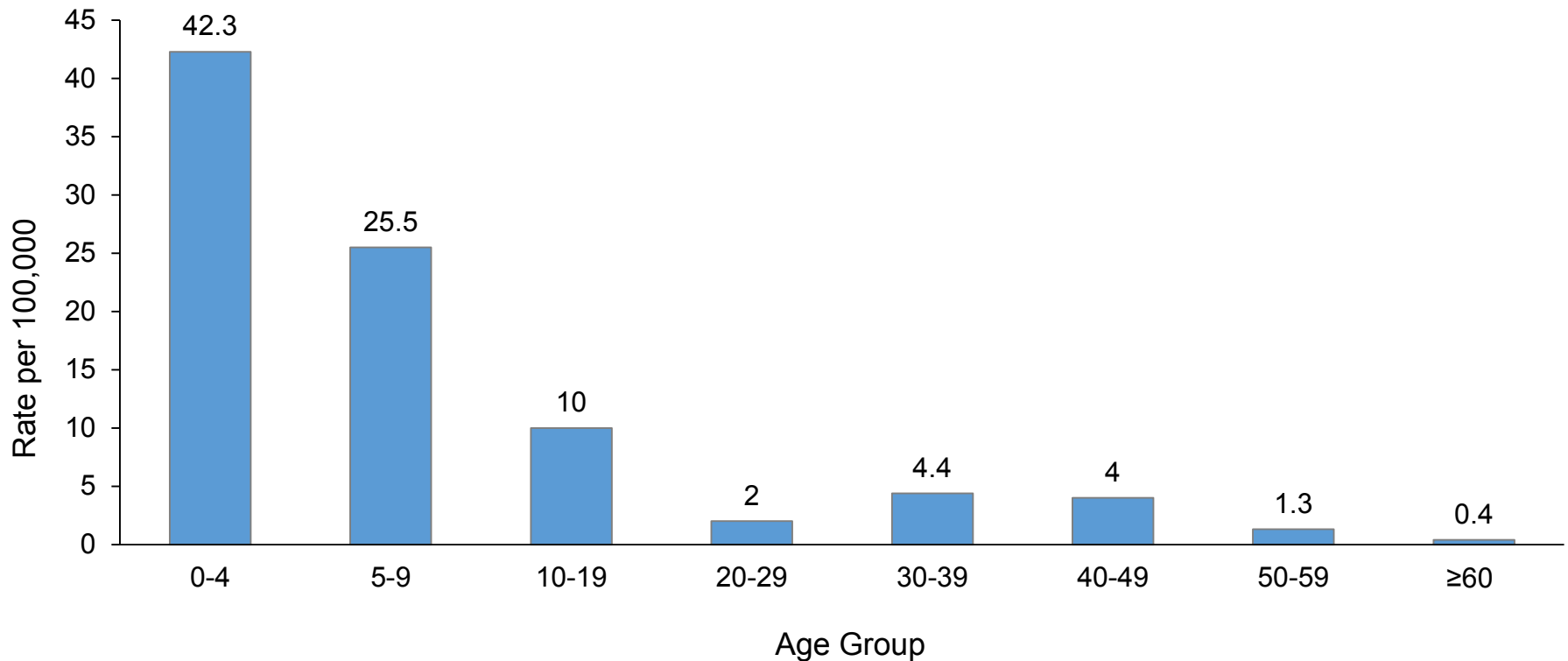
- In 2018, 67 cases of varicella were reported in Rhode Island, with a rate of 6.3 cases per 100,000 population.
- Rates of varicella have remained relatively stable over the last several years, but the case count increased by approximately 20 cases between 2016 and 2017.
- Children four years of age and under had the highest rates of varicella in Rhode Island in 2018: 42.3 cases per 100,000 population.
- Most cases of varicella in Rhode Island occurred in vaccinated children. Of cases in children old enough to receive vaccine, 93% occurred in children who were up-to-date on vaccine.

# Reported Cases of Varicella, Rhode Island, 2014-2018



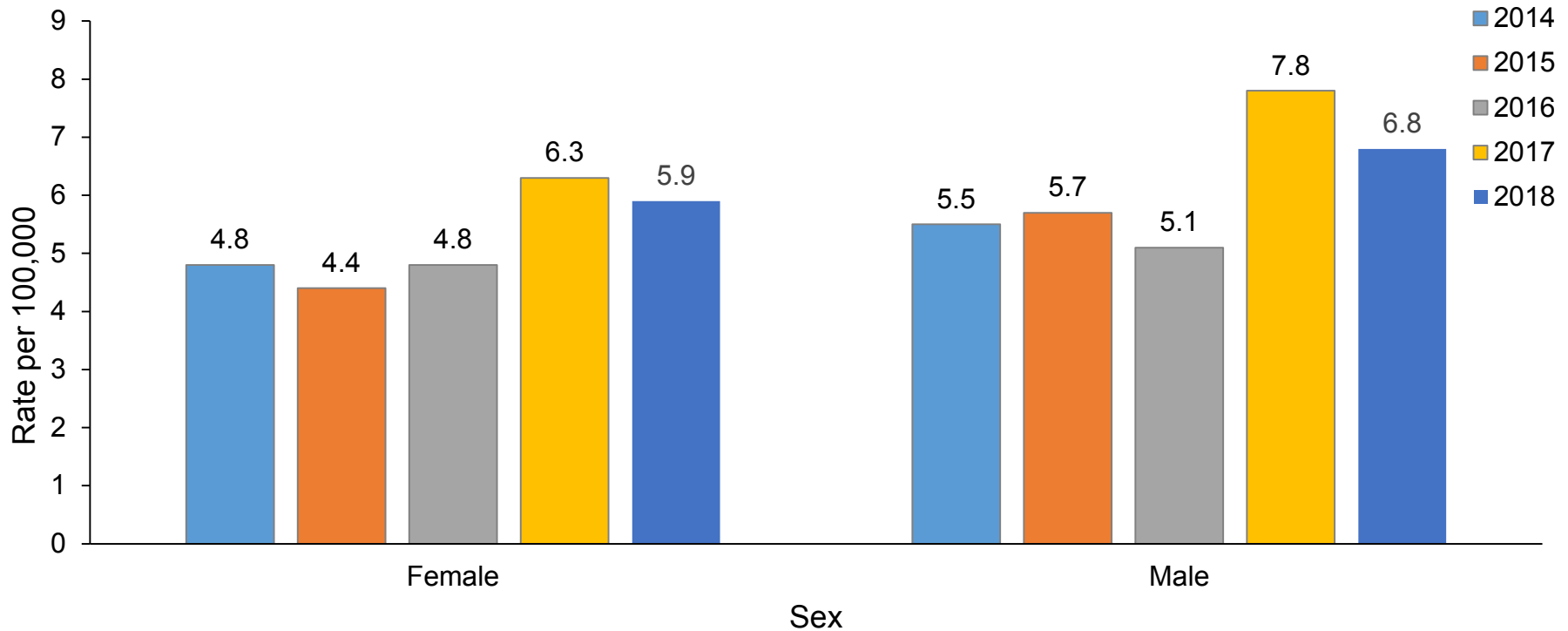
**Figure 1.** In 2018, there were 67 cases of varicella reported in Rhode Island with a rate of 6.3 cases per 100,000 population. Varicella infections have remained relatively stable over the last 5 years in Rhode Island, with an increase between 2016 and 2017.

# Rate of Varicella, Age Group, Rhode Island, 2018



**Figure 2:** Varicella disproportionately affects children, with rates highest among those four years of age and under (42.3 cases per 100,000 population in 2018). The rate of varicella in Rhode Island remains high through childhood, decreasing with age. Two doses of varicella-containing vaccine are recommended for children: a first dose between 12-15 months of age and a second dose between 4-6 years of age.

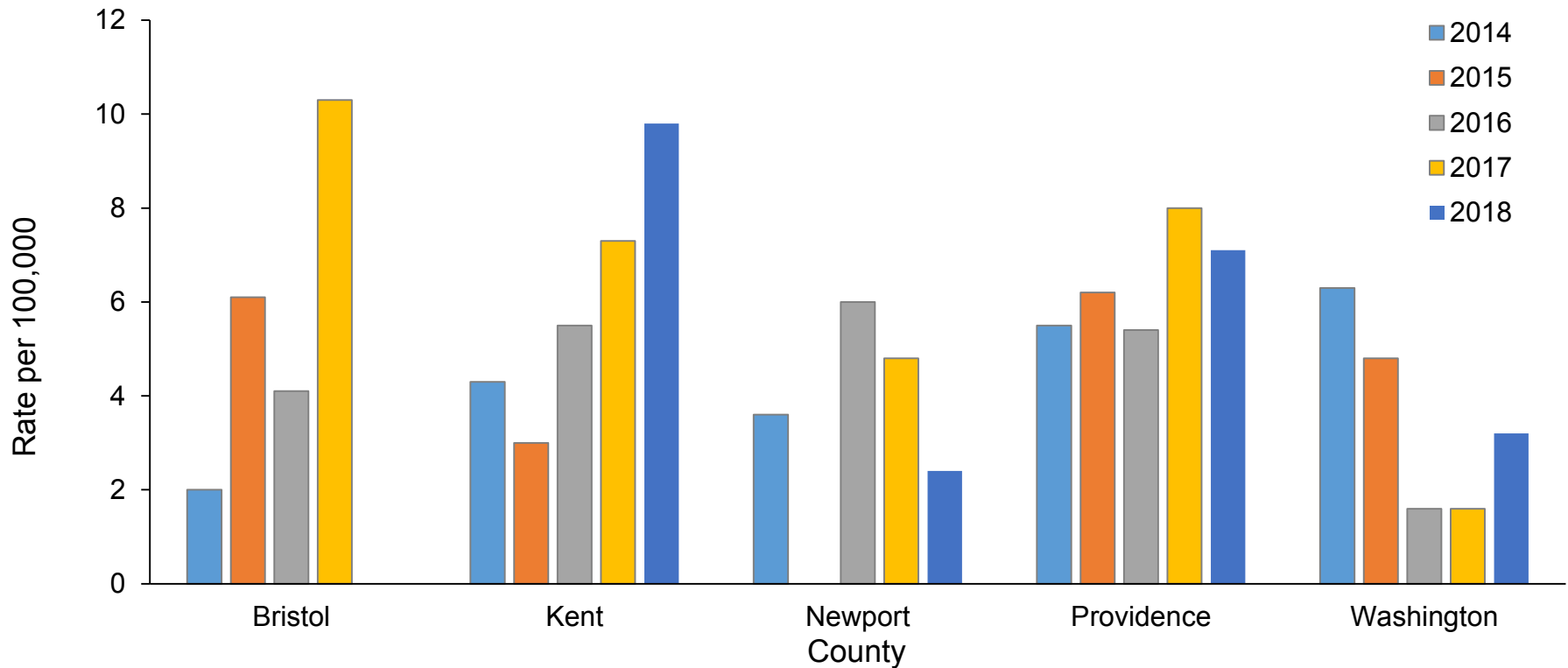
# Rate of Varicella, Sex and Year, Rhode Island, 2014-2018



**Figure 3:** During the last 5 years, varicella has been reported at slightly higher rates among males than among females. In 2018 varicella infections were reported at a rate of 6.8 cases per 100,000 population of males, and 5.9 cases per 100,000 population of females.

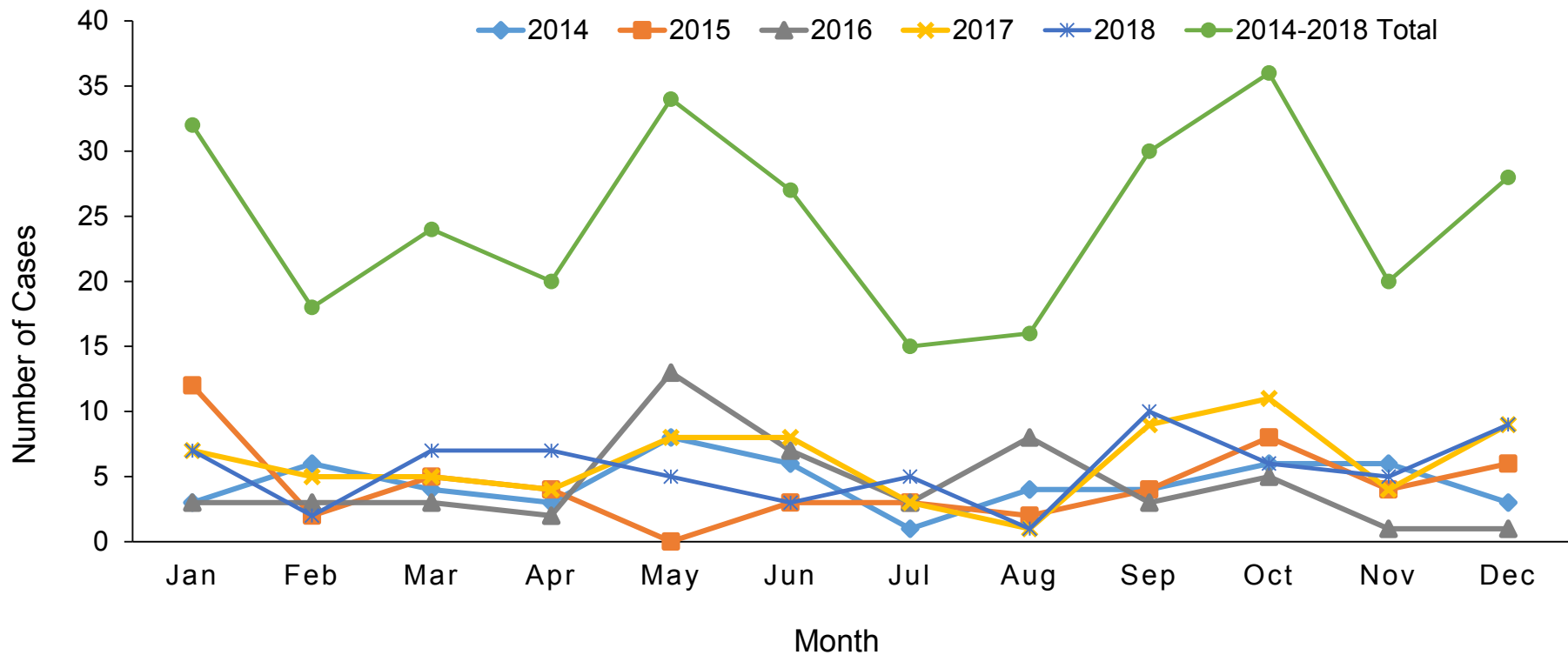


# Rate of Varicella, County and Year, Rhode Island, 2014-2018



**Figure 4:** In 2018, the highest rate of varicella cases occurred in Kent County (9.8 cases per 100,000 population). Varicella rates vary among counties over the years with no clear trend.

# Reported Cases of Varicella, Month and Year, Rhode Island, 2014-2018



**Figure 5:** Varicella occurs throughout the year in Rhode Island, but appears to spike in May/June and September/October. In May of 2016, an outbreak in a prison in Rhode Island accounted for 5 of the reported cases of varicella in that month. The dip in the summer months may be associated with the school vacation, as many cases of varicella are initially reported by school nurse teachers.

# Cases of Varicella in Children by Vaccination Status, 2018



- In 2018, there were 50 cases of varicella in children aged 0-19 years (75% of total cases)
- Of the 50 childhood cases,
  - 10 (**20%**) were **underage for vaccination** (<1 year old)
- Of the 40 cases eligible for vaccination,
  - 37 cases (**93%**) aged 1-19 were **up-to-date** on vaccine
  - 3 cases (**7%**) aged 1-19 were **not up-to-date**
- **The majority of childhood varicella cases in Rhode Island occur in children who are properly vaccinated.**

# Varicella Frequency and Rates by Year, Rhode Island, 2014-2018



**Table 1. Frequency by Year**

	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Number of Cases</b>	54	53	52	74	67

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

	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Rate per 100,000</b>	5.1	5.0	4.9	7.0	6.3

# Varicella Frequency, Age Group and Year, Rhode Island, 2014-2018



**Table 3. Frequency by Age Group and Year**

	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>0-4</b>	16	18	20	24	23
<b>5-9</b>	15	12	10	19	14
<b>10-19</b>	13	11	4	12	13
<b>20-29</b>	3	5	5	6	3
<b>30-39</b>	0	1	6	5	6
<b>40-49</b>	3	2	4	5	5
<b>50-59</b>	3	2	3	2	2
<b>≥60</b>	1	2	0	1	1
<b>Total</b>	<b>54</b>	<b>53</b>	<b>52</b>	<b>74</b>	<b>67</b>

# Varicella Rates, Age Group and Year, Rhode Island, 2014-2018



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

<b>Age Group</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>0-4</b>	29.1	32.8	36.6	44.1	42.3
<b>5-9</b>	25.9	21.1	17.8	34.2	25.5
<b>10-19</b>	9.6	8.2	3	9.1	10.0
<b>20-29</b>	1.9	3.2	3.2	3.9	2.0
<b>30-39</b>	0	0.8	4.6	3.8	4.4
<b>40-49</b>	2.2	1.5	3.1	3.9	4.0
<b>50-59</b>	1.9	1.3	1.9	1.3	1.3
<b>≥60</b>	0.4	0.9	0	0.4	0.4

# Varicella Frequency and Rates, Sex and Year, Rhode Island, 2014-2018



**Table 5. Frequency by Sex and Year**

	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Total 2014-2018</b>
<b>Female</b>	26	24	26	34	32	<b>142</b>
<b>Male</b>	28	29	26	40	35	<b>158</b>
<b>Total</b>	<b>54</b>	<b>53</b>	<b>52</b>	<b>74</b>	<b>67</b>	<b>300</b>

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

	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Female</b>	4.8	4.4	4.8	6.3	5.9
<b>Male</b>	5.5	5.7	5.1	7.8	6.8

# Varicella Frequency, County and Year, Rhode Island, 2014-2018



**Table 7. Frequency by County and Year**

	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Bristol</b>	1	3	2	5	0
<b>Kent</b>	7	5	9	12	16
<b>Newport</b>	3	0	5	4	2
<b>Providence</b>	35	39	34	51	45
<b>Washington</b>	8	6	2	2	4
<b>Total</b>	<b>54</b>	<b>53</b>	<b>52</b>	<b>74</b>	<b>67</b>



# Varicella Rates by County and Year, Rhode Island, 2014-2018



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

	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Bristol</b>	2.0	6.1	4.1	10.3	0.0
<b>Kent</b>	4.3	3.0	5.5	7.3	9.8
<b>Newport</b>	3.6	0.0	6.0	4.8	2.4
<b>Providence</b>	5.5	6.2	5.4	8.0	7.1
<b>Washington</b>	6.3	4.8	1.6	1.6	3.2

# Varicella Frequency, Month and Year, Rhode Island, 2014-2018



**Table 9. Frequency by Month and Year**

	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2014-2018 Total</b>
<b>Jan</b>	3	12	3	7	7	<b>32</b>
<b>Feb</b>	6	2	3	5	2	<b>18</b>
<b>Mar</b>	4	5	3	5	7	<b>24</b>
<b>Apr</b>	3	4	2	4	7	<b>20</b>
<b>May</b>	8	0	13	8	5	<b>34</b>
<b>Jun</b>	6	3	7	8	3	<b>27</b>
<b>Jul</b>	1	3	3	3	5	<b>15</b>
<b>Aug</b>	4	2	8	1	1	<b>16</b>
<b>Sep</b>	4	4	3	9	10	<b>30</b>
<b>Oct</b>	6	8	5	11	6	<b>36</b>
<b>Nov</b>	6	4	1	4	5	<b>20</b>
<b>Dec</b>	3	6	1	9	9	<b>28</b>
<b>Total</b>	<b>54</b>	<b>53</b>	<b>52</b>	<b>74</b>	<b>67</b>	<b>300</b>



# Notes on Data

- Case counts include patients classified as confirmed and probable 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/chickenpox/index.html>
- <http://www.health.ri.gov/diseases/vaccinepreventable/?parm=19>