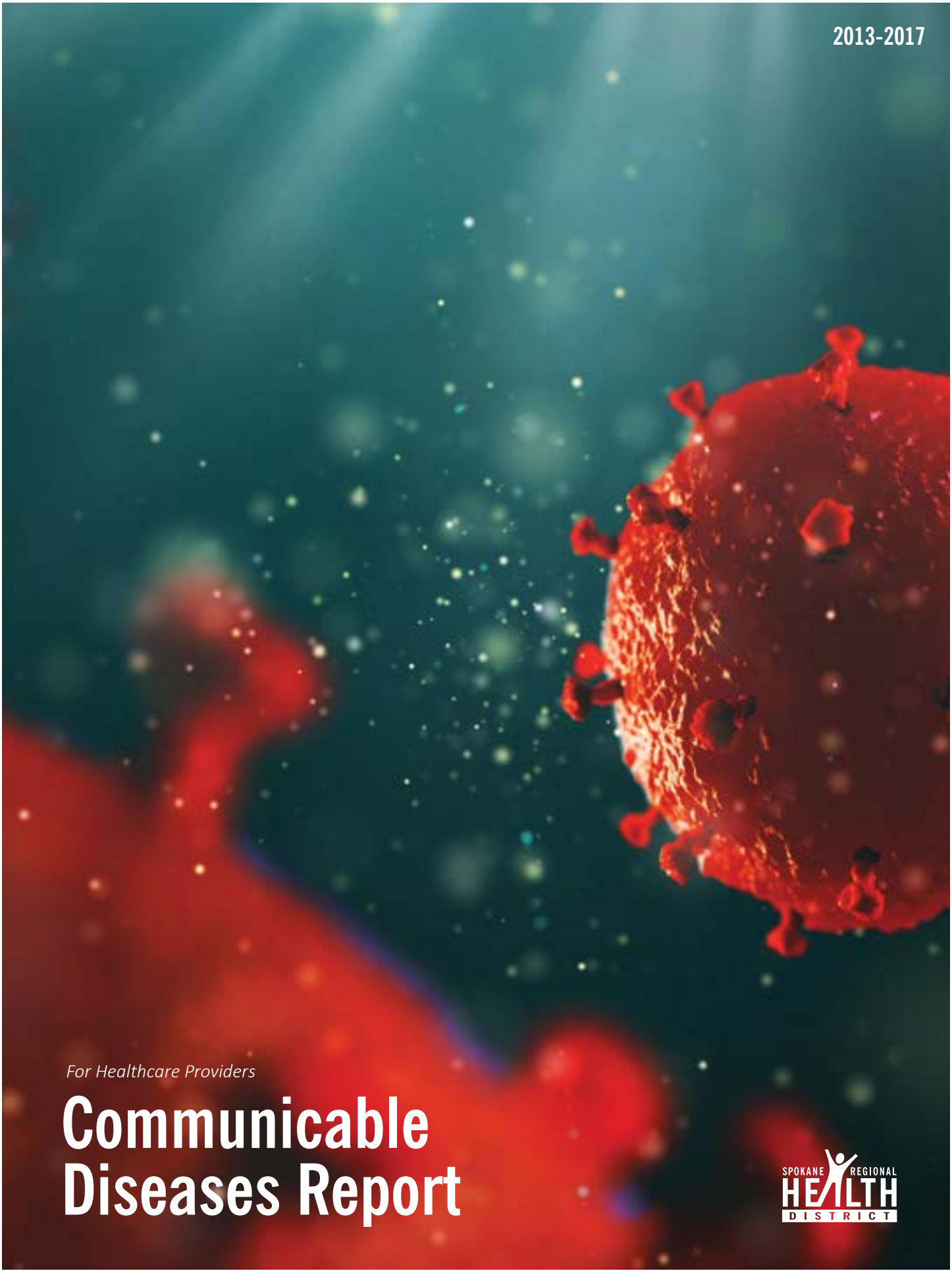
2013-2017



*For Healthcare Providers*

# Communicable Diseases Report

SPOKANE REGIONAL HEALTH DISTRICT

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This report presents summary data about notifiable conditions reported to Spokane Regional Health District in 2017, with local, state, and national data for the last five-year period (2013-2017), as available and pertinent.

Public health officials use notifiable condition reporting to help protect the public's health by tracking communicable diseases and other conditions. Based on these reports, they take protective steps, such as:

- verifying treatment of persons already ill;
- securing preventive therapies for individuals who were exposed to infectious agents;
- investigating and halting outbreaks; and
- removing harmful health exposures.

Public health also uses investigation data to assess broader patterns, such as historical trends and geographic clustering. By analyzing the broader picture, appropriate actions are taken, including outbreak investigations, program activity redirection, emergency preparedness planning, and policy development.

Data in this report are collected by Spokane Regional Health District (SRHD), other local health departments, the Washington State Department of Health (DOH), and the Centers for Disease Control & Prevention (CDC) from mandatory communicable disease reporting by healthcare providers, laboratories, healthcare facilities, and veterinarians, per Washington Administrative Code, chapters 246-100 and 246-101.

SRHD epidemiologists develop this report annually after DOH officials compile and release their communicable disease data. This document contains limitations. Incidence rates for many conditions may be higher than what is included in this report due to individuals not accessing health care and/or healthcare providers not appropriately testing, diagnosing, and reporting. Cases are counted by the county of residence of patient, not necessarily representing the county of diagnosis or exposure.

Questions or comments about this report can be directed to SRHD's Communicable Disease Epidemiology program at 509.324.1442. Reports from previous years are available at *srhd.org*.

# Enteric Disease

Enteric (gastrointestinal) disease is most frequently caused by food- or water-borne pathogens and outbreaks are not uncommon. These infections are largely preventable through good hand hygiene, proper food handling, thorough cooking, and appropriate animal handling. Reportable enteric pathogens include Shiga toxin-producing *E. coli* (STEC), campylobacter, shigella, salmonella, listeria, vibrio, *Yersinia*, cryptosporidium, and giardia.

Campylobacter infection remained the most frequently reported enteric condition during the 2013-17 period in Spokane County, Washington State, and the United States, though campylobacter only became nationally notifiable in 2015. Most cases in Spokane County and Washington were sporadic, as outbreaks involving multiple persons and person-to-person spread were uncommon. Giardiasis was the second most frequently reported condition, often associated with contact to untreated water. The incidence rate for giardia in Spokane County is frequently higher than that of the state, possibly due to an abundance of outdoor recreational opportunities involving natural water.

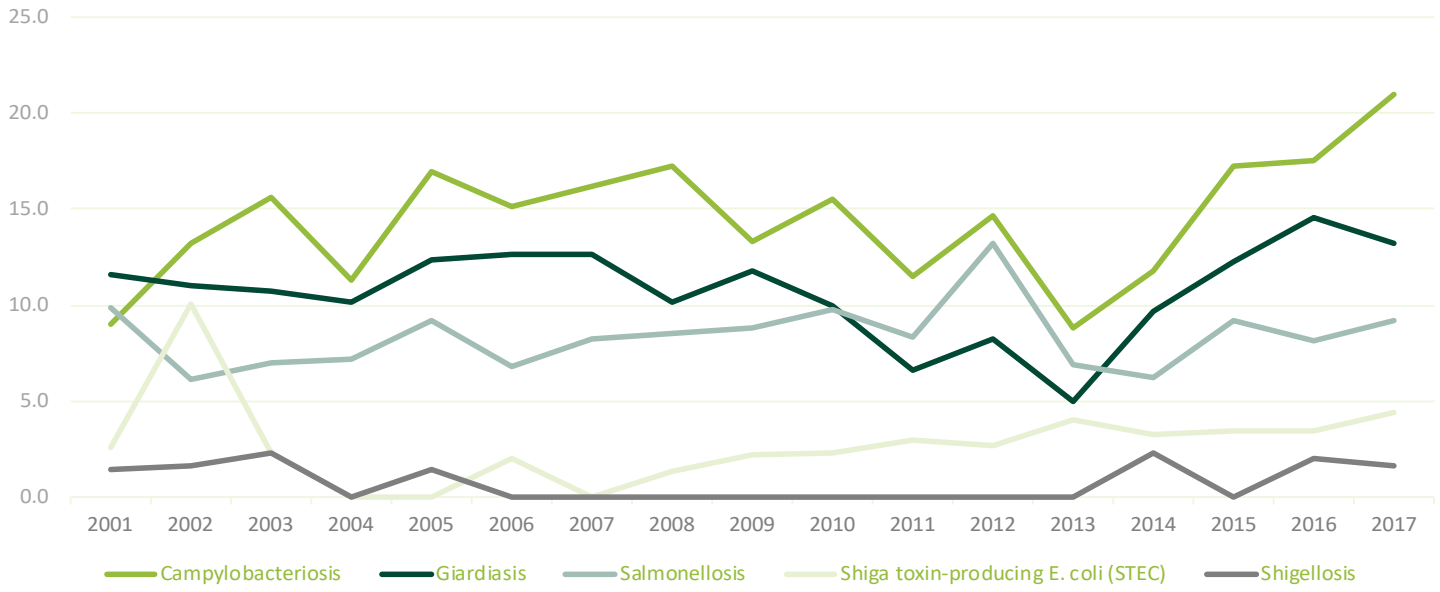
Except for giardiasis, most enteric infections are reported less often in Spokane County residents, as compared to other Washington residents. The reasons for this are unclear. While it did not increase the rate of STEC infections, Spokane County was at the epicenter of a STEC outbreak associated with an area sprout grower in 2014.

Another smaller STEC outbreak occurred in 2015 involving an unlicensed childcare facility.

Nationally, large numbers of salmonella and campylobacter infections are associated with contact with live poultry. In 2017, the largest number of illnesses linked to contact with backyard poultry was recorded, with 48 states reporting confirmed salmonella infections (1,120 cases, with 23 cases in Washington). This includes 10 different multi-state outbreaks investigated by the CDC. Another large multi-state salmonella investigation occurred from contaminated papayas with no cases in Washington.

Although single cases of gastroenteritis are not reportable, health district officials monitor and provide guidance on control of outbreaks of gastroenteritis, particularly those associated with long-term care facilities due to the fragile health of many residents. In 2017, 21 such outbreaks were reported in Spokane County, affecting at least 392 individuals. Several of these were likely caused by norovirus, a condition that while not reportable in Washington, is frequently implicated in outbreaks at long-term care centers, particularly during the winter months.

**FIGURE 1. REPORTED ENTERIC DISEASE RATES PER 100,000 POPULATION, SPOKANE COUNTY**



| ENTERIC DISEASE | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 |
| **Campylobacteriosis **** | Spokane County | 42 | 8.8 | 57 | 11.8 | 84 | 17.2 | 86 | 17.5 | 105 | 21.0 |
| | Washington | 1,631 (4 deaths) | 23.7 | 1,591 | 22.8 | 1,847 (2 deaths) | 26.2 | 1,911 (1 death) | 26.6 | 2,214 (1 death) | 30.3 |
| | United States | ** | ** | ** | ** | 54,556 | 17.7 | 60,120 | 18.6 | 67,537 | 20.7 |
| **Cryptosporidiosis** | Spokane County | 4 | * | 2 | * | 5 | 1.0 | 0 | 0.0 | 0 | 0.0 |
| | Washington | 84 | 1.2 | 75 | 1.1 | 113 | 1.6 | 131 | 1.8 | 150 | 2.1 |
| | United States | 9,056 | 2.9 | 8,682 | 2.7 | 9,735 | 3.0 | 13,453 | 4.2 | 11,414 | 3.5 |
| **Giardiasis** | Spokane County | 24 | 5.0 | 47 | 9.7 | 60 | 12.3 | 72 | 14.6 | 66 | 13.2 |
| | Washington | 548 | 8.0 | 515 | 7.4 | 604 | 8.6 | 672 | 9.4 | 668 | 9.1 |
| | United States | 15,106 | 5.8 | 14,554 | 5.8 | 14,485 | 5.7 | 16,310 | 6.4 | 15,193 | 5.9 |
| **Listeriosis** | Spokane County | 1 | * | 2 | * | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| | Washington | 21 (1 death) | 0.3 | 24 (8 deaths) | 0.3 | 21 (3 deaths) | 0.3 | 14 (2 deaths) | 0.2 | 17 (3 deaths) | 0.2 |
| | United States | 735 | 0.2 | 769 | 0.2 | 768 | 0.2 | 786 | 0.2 | 887 | 0.3 |
| **Salmonellosis** | Spokane County | 33 | 6.9 | 30 | 6.2 | 45 | 9.2 | 40 | 8.1 | 46 | 9.2 |
| | Washington | 670 (1 deaths) | 9.7 | 739 (1 death) | 10.6 | 1,034 (1 death) | 14.6 | 754 (2 deaths) | 10.5 | 810 (4 deaths) | 11.1 |
| | United States | 50,634 | 16.1 | 51,455 | 16.1 | 55,108 | 17.2 | 53,850 | 16.7 | 54,285 | 16.7 |
| **Shiga-toxin producing *E. coli* (STEC)** | Spokane County | 19 | 4.0 | 16 | 3.3 | 17 | 3.5 | 17 | 3.5 | 22 | 4.4 |
| | Washington | 330 (3 deaths) | 4.8 | 299 | 4.3 | 519 (1 death) | 5.9 | 340 | 4.7 | 404 (1 death) | 5.5 |
| | United States | 6,663 | 2.1 | 6,179 | 1.9 | 7,059 | 2.2 | 8,169 | 2.5 | 8,672 | 2.7 |
| **Shigellosis** | Spokane County | 3 | * | 11 | 2.3 | 2 | * | 10 | 2.0 | 8 | 1.6 |
| | Washington | 122 | 1.8 | 157 | 2.3 | 152 | 2.2 | 191 | 2.7 | 285 | 3.9 |
| | United States | 12,729 | 4.1 | 20,745 | 6.5 | 23,590 | 7.3 | 21,097 | 6.5 | 14,912 | 4.6 |
| **Vibriosis** | Spokane County | 2 | * | 1 | * | 1 | * | 1 | * | 2 | * |
| | Washington | 90 | 1.3 | 92 | 1.3 | 68 | 1.0 | 63 (1 death) | 0.9 | 95 | 1.3 |
| | United States | 1,299 | 0.4 | 1,261 | 0.4 | 1,323 | 0.4 | 1,273 | 0.4 | 2,085 | 0.7 |
| **Yersiniosis (non-plague *Yersinia*)** | Spokane County | 0 | 0.0 | 1 | * | 2 | * | 0 | 0.0 | 3 | * |
| | Washington | 34 | 0.5 | 36 | 0.5 | 40 | 0.6 | 56 | 0.8 | 81 | 1.1 |
| | United States | *** | *** | *** | *** | *** | *** | *** | *** | ** | ** |

* Rates not calculated for <5 cases.

** Campylobacter did not become nationally notifiable until 2015.

*** Yersiniosis is not nationally notifiable.

# Vaccine-Preventable Diseases

During 2013-17, significant changes continued in rates for some diseases prevented by standard childhood immunizations, specifically mumps, pertussis (whooping cough), and measles. There were no reported cases of tetanus, rubella, or diphtheria in Spokane County or Washington.

Pertussis regularly circulates within communities, with cyclical increases in cases typically every three to five years. Infants under the age of one are always disproportionately affected and are more likely to suffer complications, including death, than any other age group. During 2013-17, the incidence rate of pertussis hovered around baseline levels, except during 2015 when a statewide outbreak placed both Spokane County and Washington's incidence rates above the national average. Rates remained above the epidemic threshold for more than half of the year. Every year there is variation statewide between health jurisdictions in the rate of reported disease, reflecting local outbreaks.

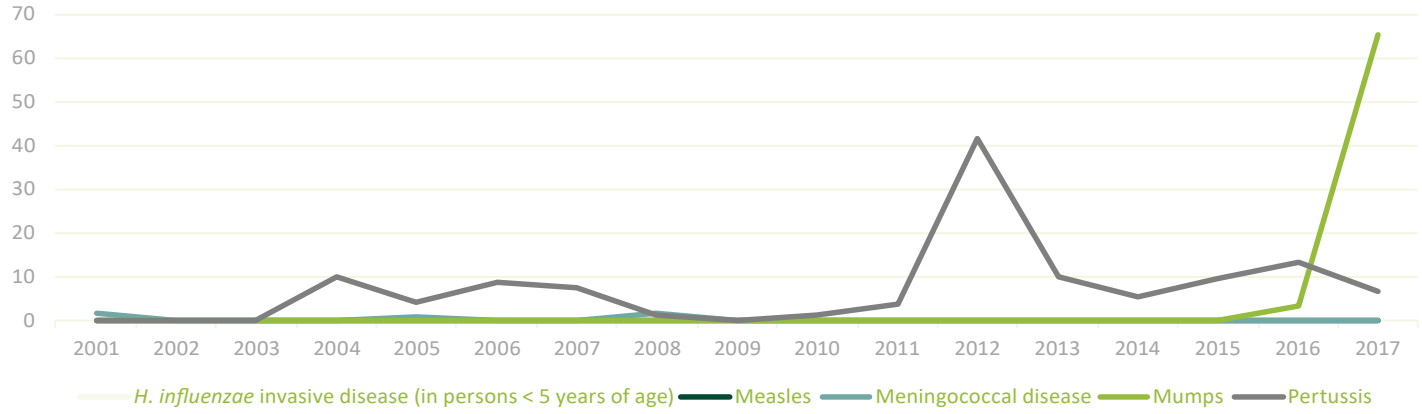
Measles, declared eliminated in the United States in 2000 due to high population immunity, has made a comeback nationally in recent years with the introduction (typically from international travel) and spread of measles in unimmunized sub-populations. Notably, a large, multi-state measles outbreak related to a California amusement park started in late 2014 and spread to Washington. Unrelated to this outbreak, in the spring of 2015, measles was confirmed in two unvaccinated adults in Spokane County, the first cases in the county in 19 years. This outbreak, requiring the management of more than 300 contacts, strained SRHD resources and local medical facilities. The initial exposure source for the first case was not identified, but epidemiologists hypothesize its cause was the case's casual contact with an international traveler.

Invasive infections due to *N. meningitidis* occur infrequently, are typically sporadic and outbreaks are rare. They have the possibility to occur more frequently when groups of people live in close contact with one another and/or behaviors are present that contribute to the spread of disease (i.e., sharing of saliva through beverages, food or cigarettes) and have a high case fatality rate. Between 2013-17, three Spokane County residents, two in 2014 and one in 2017, were diagnosed with meningococcal disease and were hospitalized; one died. Also, during 2013-17, 10 to 20 cases of meningococcal disease were identified in Washington residents. The overall trend statewide was a decreasing incidence of disease with the rate plummeting from 1.2/100,000 in 2000 to 0.1/100,000 in 2015-17.

In the United States, almost all cases of meningococcal disease are caused by serogroups B, C and Y. Until fall 2014, the vaccine licensed in the United States only protected against serogroups A, C, Y and W-135. Two new meningococcal serogroup B vaccines were licensed by the Food and Drug Administration in 2014 and 2015.

Invasive infection from *H. influenzae* is only reportable in children under the age of five. Like meningococcal disease, invasive infection with H. influenzae is rare and typically sporadic. Prior to the introduction of effective conjugate vaccines in 1988 and the recommendation for routine vaccination, *H. influenzae* serotype B (Hib) was the most common cause of bacterial meningitis and a major cause of invasive bacterial disease in young American children. Between 1989 and 2000, there was a 99% reduction in Hib disease among children younger than five. Two cases were reported in Spokane County residents during this report's period, both in 2016 and unrelated to each other – one was immunized while the other was not, both were hospitalized.

## FIGURE 2. REPORTED VACCINE PREVENTABLE DISEASE RATES PER 100,000 POPULATION - SPOKANE COUNTY




| VACCINE-PREVENTABLE DISEASE | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 |
| *H. influenzae* ** invasive disease (in persons <5 years of age) | Spokane County | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | * | 0 | 0.0 |
| | Washington | 11 | 2.4 | 9 | 2.0 | 5 | 1.1 | 9 | 2.0 | 7 | 1.5 |
| | United States | 438 | 2.2 | 472 | 2.4 | 506 | 2.8 | 572 | 2.9 | 625 | 2.1 |
| Measles | Spokane County | 0 | 0.0 | 0 | 0.0 | 2 | * | 0 | 0.0 | 0 | 0.0 |
| | Washington | 4 | * | 33 | 0.5 | 10 (1 death) | 0.1 | 0 | 0.0 | 3 | * |
| | United States | 187 | 0.1 | 667 | 0.2 | 188 | 0.1 | 86 | 0.0 | 120 | 0.0 |
| Meningococcal disease | Spokane County | 0 | 0.0 | 2 | * | 0 | 0.0 | 0 | 0.0 | 1 | * |
| | Washington | 20 (3 deaths) | 0.3 | 17 (2 deaths) | 0.2 | 10 (1 death) | 0.1 | 13 (1 death) | 0.2 | 11 | 0.2 |
| | United States | 556 | 0.2 | 433 | 0.1 | 372 | 0.1 | 375 | 0.1 | 353 | 0.1 |
| Mumps | Spokane County | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 17 | 3.5 | 327 | 65.4 |
| | Washington | 2 | * | 9 | 0.1 | 7 | 0.1 | 152 | 2.1 | 779 | 10.7 |
| | United States | 584 | 0.2 | 1,223 | 0.4 | 1,329 | 0.4 | 6,369 | 2.0 | 6,109 | 1.9 |
| Pertussis | Spokane County | 48 | 10.0 | 26 | 5.4 | 48 | 9.8 | 69 | 14.0 | 34 | 6.8 |
| | Washington | 748 | 10.9 | 601 | 8.6 | 1,383 | 19.6 | 618 | 8.6 | 740 | 10.1 |
| | United States | 28,639 | 9.1 | 32,971 | 10.3 | 20,762 | 6.5 | 17,972 | 5.6 | 18,975 | 5.8 |

* Rates not calculated for <5 cases.

** Rates are calculated per 100,000 population aged 0-4 years.

*** Rates are calculated per 100,000 population aged 0-17 years.

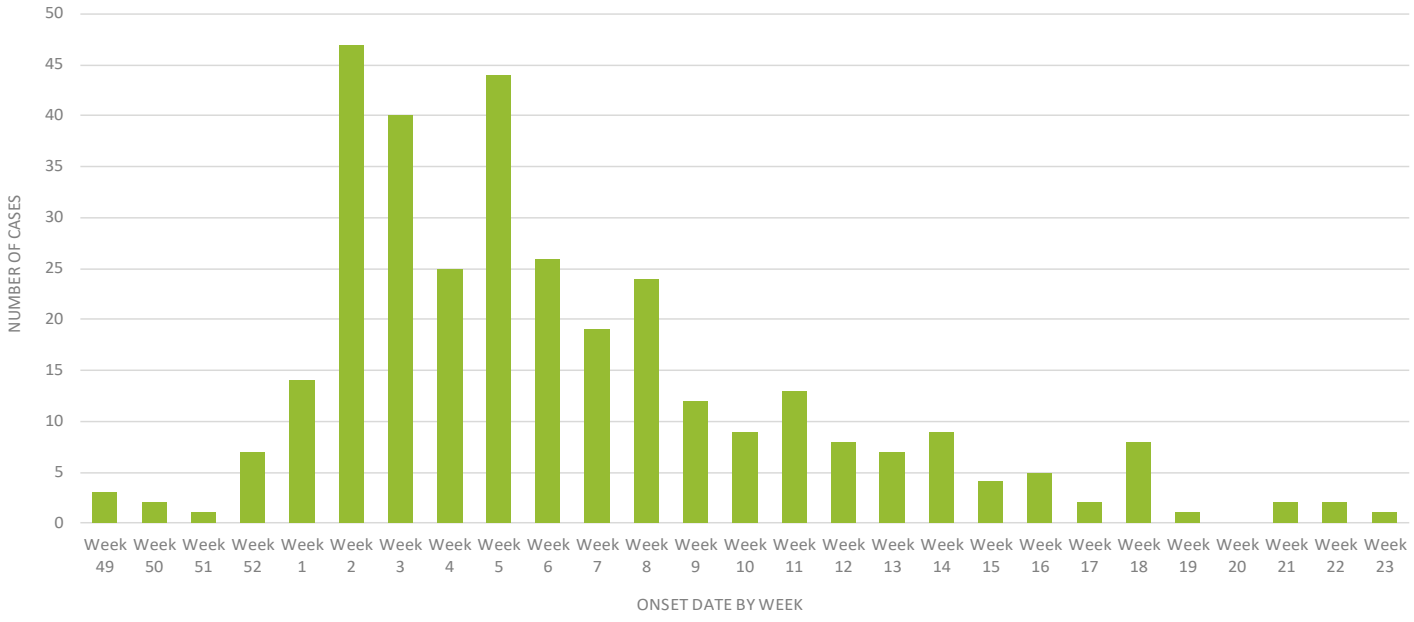
## Spotlight on Mumps

Mumps outbreaks plagued many communities across the country in 2016 and into 2017, and Spokane was no exception. After an absence for nearly a decade, two separate mumps outbreaks affected Spokane County in 2016. The first outbreak occurred at Whitworth University, where the index case had an international exposure prior to the end of summer vacation. The infection spread to three other close contacts; all cases had documentation indicating they were fully immunized. While the outbreak was contained to just four cases, the close living and social environment of the ill students resulted in the monitoring of nearly 100 close contacts.

The second mumps outbreak began in December 2016 when several Spokane residents contracted mumps just prior to and during the holidays—epidemiologists theorize holiday festivities contributed to the disease's spread. The outbreak began in a tight-knit ethnic community and was likely linked to a Seattle outbreak, which itself likely originated in travelers to/from Arkansas, a state also experiencing a large community-wide outbreak that year. School-aged children were predominantly affected by this outbreak. Ultimately, the outbreak included cases in children and adults outside of the ethnic community where it had begun.

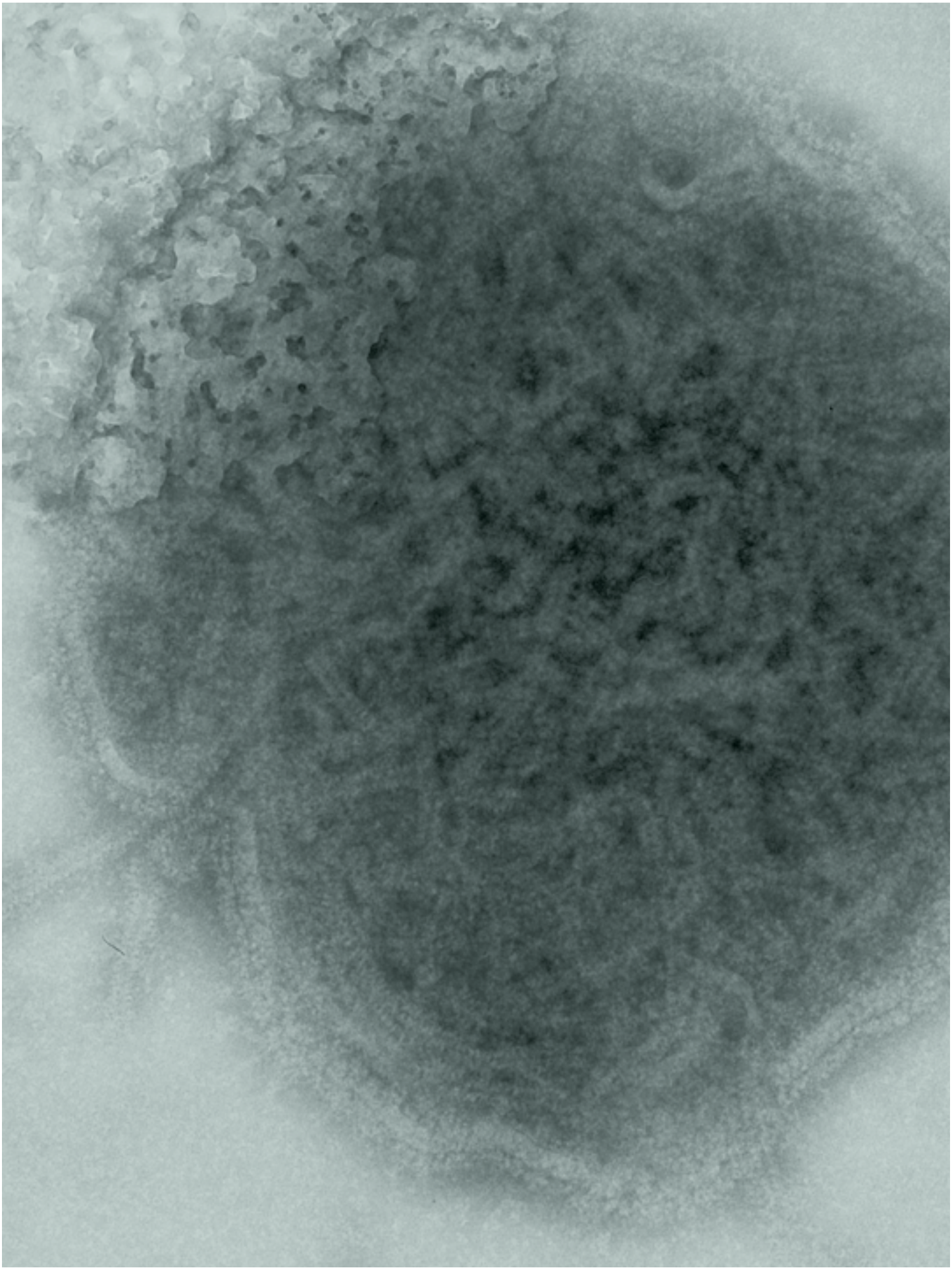
By June 2017, over 330 confirmed or probable cases were identified and an additional 300 cases of parotitis were investigated by epidemiology staff and were not confirmed as mumps. The outbreak strained resources across the community and the state, including SRHD, DOH, local medical offices, laboratories, and schools. School exclusions for unvaccinated students occurred. Almost 900 cases were identified in the state related to this outbreak, with most cases occurring in Spokane, King, Snohomish, Pierce, and Grant counties.

### FIGURE 3. EPI CURVE BY WEEK, SPOKANE COUNTY MUMPS, ALL AGES




SPOKANE COUNTY EPI CURVE, PROBABLE AND CONFIRMED MUMPS CASES BY ONSET DATE (N=333)

First case onset: December 4, 2016
Last case onset: June 5, 2017



# Influenza

Influenza is another important vaccine-preventable infection that occurs regularly in Spokane County and throughout the state and nation. Influenza is a serious annual threat to population health, yet influenza vaccination rates of both the general population and those in the healthcare industry remain low, estimated to be in the 40% range in most years. In September 2016, SRHD's Board of Health passed a resolution specific to healthcare workers on vaccination and masking recommendations. The resolution advises that, when influenza positivity rates in local emergency departments surpass a 10% threshold for two consecutive weeks, healthcare workers not vaccinated for influenza wear a mask while working in a healthcare facility.

In Spokane County, only hospitalized cases of influenza are reportable. Notably, the 2014-15 and 2017-18 seasons were particularly severe influenza seasons due in part to the vaccine not being well-matched to the most commonly circulating influenza A strain (H3N2). The 2015-16 season was unusually high for influenza B compared to previous years. Most recently, during the 2017-18 season, 616 Spokane residents were hospitalized, with almost 63% of those hospitalized age 65 or older, the group most likely to suffer complications from influenza infection. Deaths attributable to influenza are also reported annually – the 2017-18 season had 41 Spokane residents succumb to influenza. In Washington, influenza A (H3N2) and influenza A (H1N1), as well as influenza B viruses, were seen throughout the season.

Similar to Spokane County, the influenza season of 2017-18 was remarkable nationally as well. There was a high severity overall for all age groups with high levels of outpatient visits for influenza-like illness, high levels of influenza-related hospitalizations, and high proportions of deaths attributable to influenza and pneumonia. Influenza burden in 2017-18 far exceeded the influenza burden in any season since the 2009 pandemic.

| INFLUENZA | | 2013-14 | | 2014-15 | | 2015-16 | | 2016-17 | | 2017-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 |
| **Hospitalizations** | Spokane County | 183 | 38.1 | 407 | 84.0 | 225 | **46.1** | 315 | 64.0 | 616 | 123.2 |
| | Washington | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** |
| | United States | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** |
| **Influenza-associated deaths (all ages)** | Spokane County | 8 | 1.7 | 18 | 3.7 | 5 | 1.0 | 14 | 2.8 | 41 | 8.2 |
| | Washington | 80 | 1.2 | 156 | 2.2 | 67 | 0.9 | 276 | 3.8 | 296 | 4.0 |
| | United States | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** |
| **Influenza-associated pediatric deaths** *** | Spokane County | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | * | 0 | 0.0 |
| | Washington | 1 | * | 0 | 0.0 | 1 | * | 6 | 0.4 | 1 | * |
| | United States | 111 | 0.2 | 148 | 0.2 | 93 | 0.1 | 110 | 0.1 | 185 | 0.3 |
| | | No. of outbreaks | | No. of outbreaks | | No. of outbreaks | | No. of outbreaks | | No. of outbreaks | |
| **Long-term care influenza or influenza-like illness outbreaks** | Spokane | 11 | | 22 | | 6 | | 34 | | 45 | |
| | Washington | not available | | not available | | not available | | 234 | | 237 | |

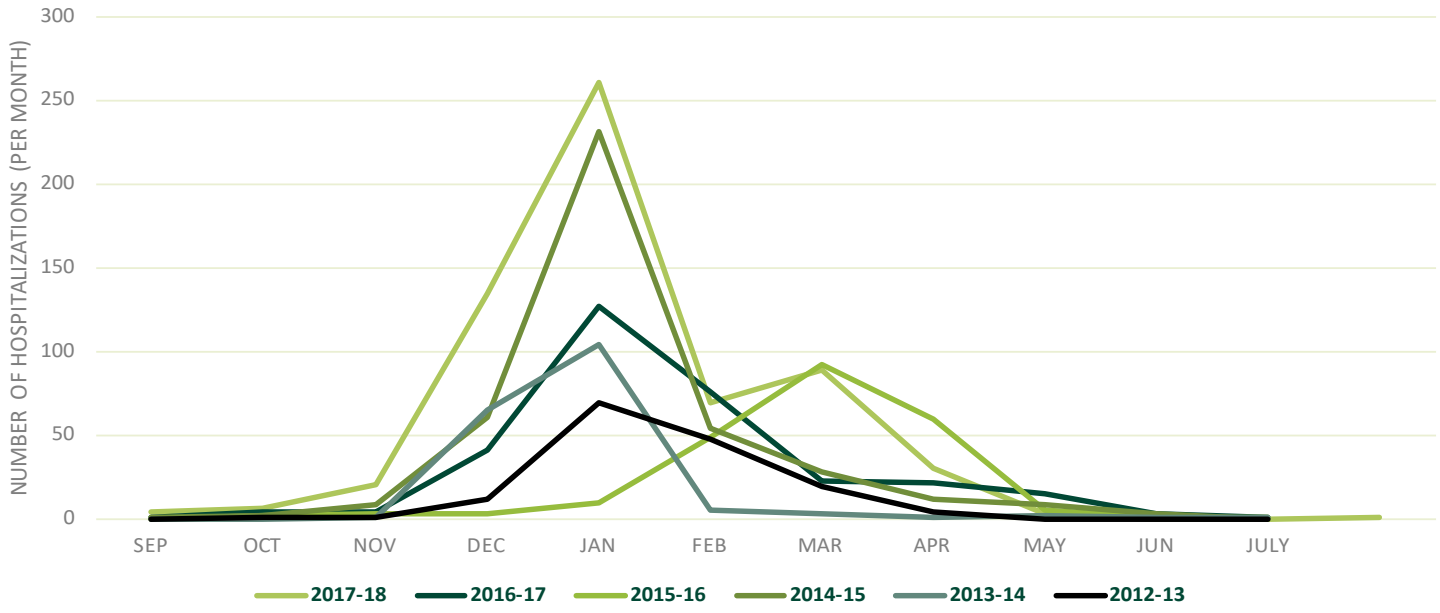
* Rates not calculated for < 5 cases.

** Deaths, hospitalizations, and long-term care outbreaks are not nationally notifiable in the United States. Hospitalizations are not notifiable in all of Washington.

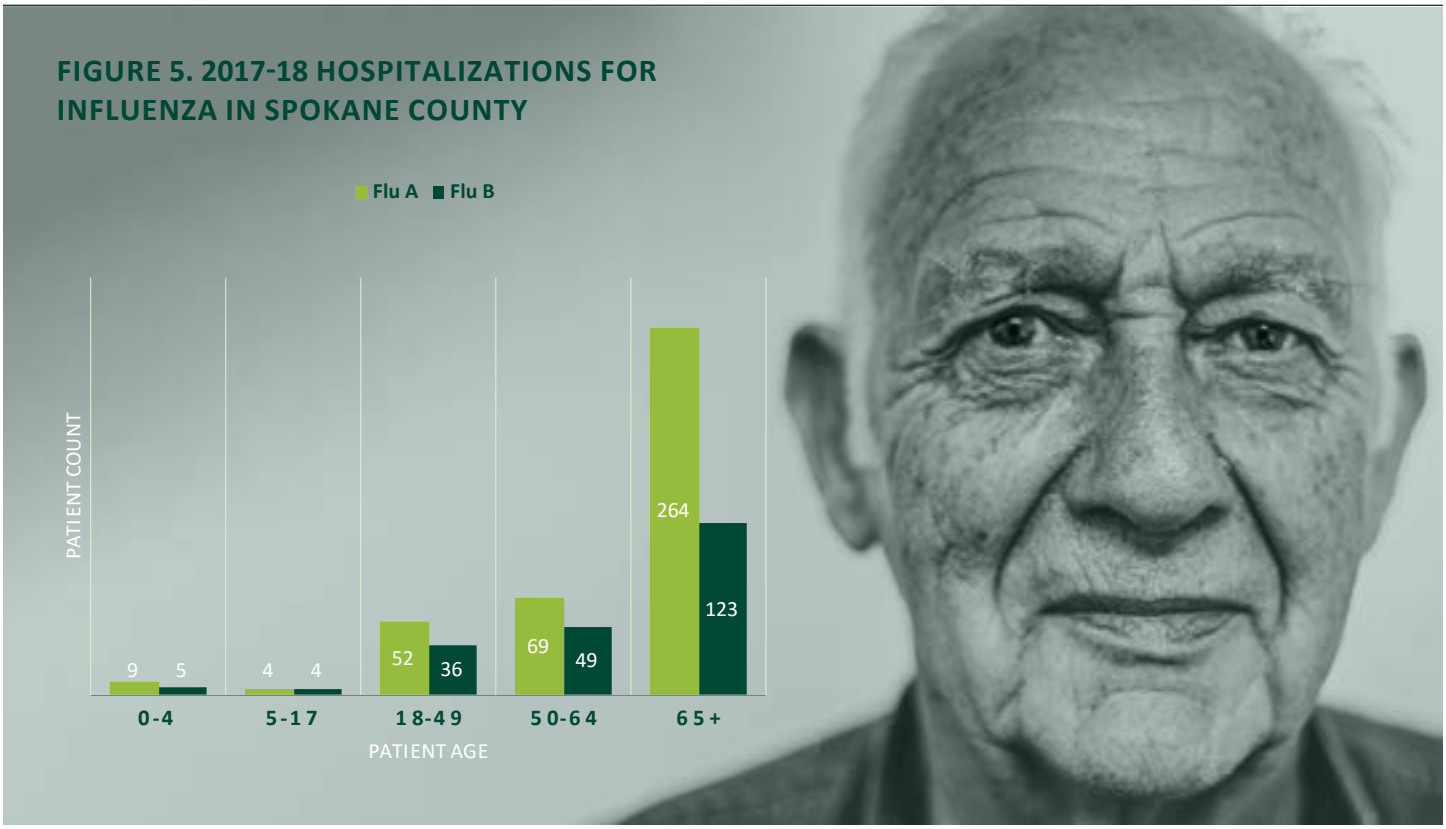
*** Rates are calculated per 100,000 population aged 0-17 years.

CDC and SRHD influenza "season" is counted from week 40 through 39 the following year. Influenza season for DOH is counted for week 30 through 29 of the following year.

## FIGURE 4. INFLUENZA HOSPITALIZATIONS FOR SPOKANE COUNTY




## FIGURE 5. 2017-18 HOSPITALIZATIONS FOR INFLUENZA IN SPOKANE COUNTY



# Viral Hepatitis

## Hepatitis A

Statewide, cases of hepatitis A were at epidemic levels in the late 1980s, peaking in 1989 with 3,273 cases (69.2/100,000). Subsequent and ongoing vaccination efforts caused cases to drop to 45 or fewer per year in the state. The number of cases was consistently five or fewer per year over the past decade in Spokane County.

Outbreaks are not uncommon, although the last large outbreak in Spokane County was in the early 1990s. Notable national outbreaks involving foodborne transmission have occurred in recent years, including a 2013 multistate outbreak linked to frozen pomegranate arils imported from Turkey (165 cases), a 2016 outbreak localized to Hawaii related to frozen scallops imported from the Philippines (292 cases), and a 2016 multistate outbreak related to frozen strawberries imported from Egypt (143 cases).

Since late 2016 and early 2017, many states across the country have been grappling with large hepatitis A outbreaks related to person-to-person transmission among people experiencing homelessness, people using injection drugs, and men having sex with men. Highly affected states through 2017 include Michigan, California, and Utah. The risk for hepatitis A infection among the homeless and injection drug using risk groups is primarily unhygienic conditions and lack of sanitation, not shared injection drug use equipment.

## Hepatitis B

The incidence of acute hepatitis B has declined since the vaccine first became commercially available in the 1980s. Outbreaks are rare. Typical risk factors include injection drug use and sexual contact. For the past several years, Spokane County's overall incidence annual rate—13 or fewer cases—was typically higher than state and national averages for reasons not well understood. Nationally, reported numbers of acute hepatitis B cases have hovered around 3,000 cases from 2013-17; however, the CDC estimates the actual number of acute cases to be 6.48 times greater than the number of reported cases in any year. Recent rates are highest in adults aged 30-39, reflecting the need for vaccination of high-risk adults.

Seventy-five percent of chronic hepatitis B infections occur in persons born outside of the United States. The incidence rate for reported cases of chronic hepatitis B infection was higher in Washington than Spokane County from 2013-17. The higher state rate was driven by higher rates in west-side communities, notably King County, where larger populations of individuals born in endemic areas reside.

Chronic hepatitis B cases are not uniformly reported in all states. The CDC estimates approximately 850,000 persons are living with this infection in the United States, although other studies have estimated this number to be as high as 2.2 million.

Nationally, hepatitis B mortality from 2011 through 2014 remained relatively stable at 0.50-0.52 deaths/100,000 population. In 2016, the most recent year for which data were available, the rate declined slightly to 0.45 deaths/100,000 population with Asians/Pacific Islanders having the highest hepatitis B-related mortality rate (2.39 deaths/100,000 population) compared with other racial/ethnic populations.

## Hepatitis C

Due to the often-unrecognized symptoms of hepatitis C infection, acute disease is infrequently diagnosed, and thus the true incidence is likely much higher. Before 2011, fewer than 30 acute hepatitis C cases were reported per year in Washington; however, the number of reported cases increased in recent years. An average of 75 acute cases were reported annually from 2013-17, providing evidence of ongoing transmission. Spokane County's rate of acute hepatitis C is always higher than the state and national average. The reason for this is multi-factorial, including increased local surveillance, greater testing frequency, more frequent reporting, and possibly higher rates of injection drug use than other areas. These same variables likely contributed to wide variation in number of acute hepatitis C cases reported in Spokane, with 24 reported in 2016 and only seven in 2017. Approximately 75% of acute hepatitis C cases in Washington report injection drug use.

Chronic infection follows acute infection in 75-85% of cases and is more likely for males, those infected after 25 years of age, or the immunosuppressed, including persons co-infected with HIV. In Spokane County, an average of 722 cases of chronic hepatitis C were reported each year during 2013-17, an increase over the previous five-year average. Like acute infection, the incidence rate for reported chronic infections was substantially higher in Spokane County residents than the overall state incidence rate, likely due to the reasons listed above. Testing has likely increased nationwide over the last several years due to improved treatment options and recommendations for universal screening of people born in 1945-65.

As of 2016, an estimated 3.5 million people in the United States population were infected with chronic hepatitis C. Hepatitis C is the leading cause of cirrhosis and liver cancer in the United States. Chronic infection is not a nationally notifiable condition; thus, data are not

available at the national level. National death certificate surveillance, however, indicates that of the three types of viral hepatitis, hepatitis C is associated with the greatest number of deaths and the highest mortality rate, at 4.45 deaths/100,000 population in 2016. Nationally in 2016, American Indians/Alaska Natives had the highest hepatitis C-related mortality rate compared with other racial/ethnic populations at 10.75 deaths/100,000 population.

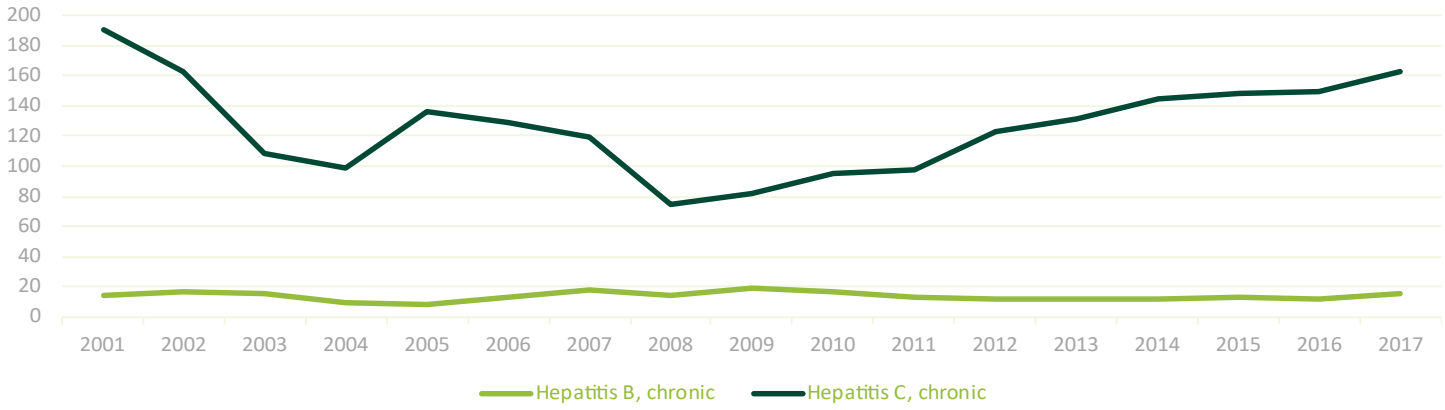
| VIRAL HEPATITIS | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 |
| Hepatitis A | Spokane County | 1 | * | 3 | * | 1 | * | 1 | * | 2 | * |
| | Washington | 45 (1 death) | 0.7 | 26 | 0.4 | 26 | 0.4 | 31 (1 death) | 0.4 | 28 | 0.4 |
| | United States | 1,781 | 0.6 | 1,239 | 0.4 | 1,390 | 0.4 | 2,007 | 0.6 | 3,365 | 1.0 |
| Hepatitis B, acute | Spokane County | 13 | 2.7 | 13 | 2.7 | 8 | 1.6 | 10 | 2.0 | 7 | 1.4 |
| | Washington | 34 (1 death) | 0.5 | 44 | 0.6 | 34 | 0.5 | 45 | 0.6 | 45 | 0.6 |
| | United States | 3,050 | 1.0 | 2,953 | 0.9 | 3,370 | 1.1 | 3,218 | 1.0 | 3,409 | 1.1 |
| Hepatitis B, chronic | Spokane County | 56 | 11.7 | 56 | 11.6 | 65 | 13.3 | 59 | 12.0 | 78 | 15.6 |
| | Washington | 901 (60 deaths) | 13.1 | 1,119 (58 deaths) | 16.1 | 1,310 (48 deaths) | 17.8 | 1,521 (49 deaths) | 21.2 | 1,787 (49 deaths) | 24.4 |
| | United States | ** | ** | ** | ** | ** | ** | ** | ** | - | - |
| Hepatitis C, acute | Spokane County | 14 | 2.9 | 16 | 3.3 | 13 | 2.7 | 24 | 4.9 | 7 | 1.4 |
| | Washington | 63 | 0.9 | 83 | 1.2 | 63 | 0.9 | 95 | 1.3 | 73 | 1.0 |
| | United States | 2,138 | 0.7 | 2,194 | 0.7 | 2,436 | 0.8 | 2,942 | 1.0 | 4,225 | 1.4 |
| Hepatitis C, chronic | Spokane County | 631 | 131.5 | 702 | 144.9 | 725 | 148.5 | 739 | 150.0 | 812 | 162.5 |
| | Washington | 4,438 (584 deaths) | 64.5 | 5,995 (645 deaths) | 86.0 | 7,085 (651 deaths) | 100.3 | 8,118 (534 deaths) | 113.00 | 8,839 (543 deaths) | 120.9 |
| | United States | ** | ** | ** | ** | ** | ** | ** | ** | - | - |

* Rates in Spokane County not calculated for <5 cases.

** Chronic hepatitis B and C cases are not uniformly reported in all states.

Changes were made to the way chronic hepatitis B and C data were compiled in 2016, and these changes affected case counts in many counties for the previous five years.

## FIGURE 6. REPORTED CHRONIC VIRAL HEPATITIS RATES PER 100,000 POPULATION, SPOKANE COUNTY



# Vector-borne Diseases

Compared to other parts of the country, vector-borne diseases, traditionally characterized as diseases transmitted by fleas, ticks and mosquitoes, occur infrequently in the Inland Northwest and across the state. Disease surveillance allows officials to examine changes in prevalence and geographic distribution. For example, since the *Ixodes* tick, the primary vector for Lyme disease, has not been detected in Spokane County environs, Lyme disease diagnosed in the county is presumably acquired out of the area, primarily in the northeastern or mid-western United States, or rarely, in western Washington. Statewide during 2013-17, 15 to 39 cases of Lyme disease were reported and most of these cases were acquired out of state.

Malaria and most types of reported arboviral diseases, such as yellow fever and dengue, are mainly transmitted by mosquitoes not native to the Pacific Northwest; thus, figures reported were all travel-related. Notably, a large outbreak of chikungunya began in late 2013 in the Caribbean and quickly spread to many countries in Central and South America, leading to a peak in reported travel-associated chikungunya cases in 2015 in many states, including Washington. To date, other than West Nile Virus (WNV), the last reported human arboviral infection acquired in the state was western equine encephalitis in 1988.

WNV disease, transmitted via mosquito from infected birds, was first detected in the United States in 1999. The first human WNV infections acquired in Washington were reported in 2006. Most infected people are asymptomatic, so it is believed the actual disease incidence is substantially underrepresented. In 2016, Spokane County saw its first in-county acquired human cases, two of whom were hospitalized with encephalitis. The following year, the number of human cases increased to eight; most cases were acquired in Spokane County, had onsets in September and October (unusually late for a mosquito-borne illness), and the majority of cases were hospitalized with encephalitis. In 2009, Washington had its highest number of cases reported to date with 38 cases and two viremic blood donors. Of these, 36 were known to be endemically acquired in Washington. Thirteen total cases were reported in 2017; eight with in-state exposure and five with out-of-state exposure.

A *2018 CDC Vital Signs report* on national trends in vector-borne diseases found reports tripled from 2004 through 2016, with more than 640,000 reports (the true number is likely much higher due to underreporting and under-diagnosis). During this period, tick-borne diseases more than doubled and accounted for more than 60% of vector-borne infections. While the report does not provide explanations for the increases, the reasons were likely multi-factorial, including climate change, increased air travel to endemic areas, suburban reforestation and blurring of the urban forest interface, lack of vaccines, and better awareness and testing in the medical community.

While not transmitted by the vectors listed previously, Hantavirus Pulmonary Syndrome (HPS) is another condition of public health significance. A rare and serious disease caused by a virus that can be inhaled from rodent droppings, HPS was diagnosed for the first time in a Spokane County resident in 2017, though the infection was acquired in another county. The individual unfortunately died. Sporadic cases (zero to five per year) are diagnosed in Washington residents, though most disease occurs in the southwest United States.

| VECTOR-BORNE DISEASE | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 |
| Arboviral disease ** | Spokane County | 0 | 0.0 | 1 | * | 1 | * | 0 | * | 2 | * |
| | Washington | 14 | 0.2 | 24 | 0.3 | 60 | 0.8 | 36 | 0.5 | 26 | 0.4 |
| Hantavirus Pulmonary Syndrome | Spokane County | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | * |
| | Washington | 0 | 0.0 | 1 | * | 1 | * | 1 | * | 5 | 0.1 |
| | United States | 21 | 0.0 | 35 | 0.0 | 18 | 0.0 | 31 | 0.0 | 33 | 0.0 |
| Lyme disease | Spokane County | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 5 | * | 0 | 0.0 |
| | Washington | 19 | 0.3 | 15 | 0.2 | 24 | 0.3 | 33 | 0.4 | 39 | 0.5 |
| | United States | 36,307 | 8.6 | 33,461 | 7.9 | 38,069 | 8.9 | 36,429 | 8.1 | 42,743 | 13.2 |
| Malaria | Spokane County | 3 | * | 2 | * | 0 | 0.0 | 4 | * | 2 | * |
| | Washington | 30 | 0.4 | 41 | 0.6 | 23 | 0.3 | 46 | 0.6 | 34 | 0.5 |
| | United States | 1,594 | 0.5 | 1,653 | 0.5 | 1,390 | 0.4 | 1,955 | 0.6 | 2,056 | 0.6 |
| Tick-borne relapsing fever | Spokane County | 2 | * | 2 | * | 1 | * | 0 | 0.0 | 1 | * |
| | Washington | 4 | 0.1 | 7 | 0.1 | 3 | * | 1 | * | 3 | * |
| West Nile Virus disease | Spokane County | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | * | 8 | 1.6 |
| | Washington | 1 | * | 12 | 0.2 | 24 | 0.3 | 9 | 0.1 | 13 | 0.2 |
| | United States | 2,469 | 0.8 | 2,205 | 0.7 | 2,175 | 0.7 | 2,149 | 0.6 | 2,097 | 0.7 |
| Zika virus disease, congenital † | Spokane County | *** | *** | *** | *** | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| | Washington | *** | *** | *** | *** | 0 | 0.0 | 0 | 0.0 | 1 | * |
| | United States | *** | *** | *** | *** | *** | *** | 30 | 0.8 | 22 | 0.6 |
| Zika virus disease, non-congenital | Spokane County | *** | *** | *** | *** | *** | *** | 0 | 0.0 | 0 | 0.0 |
| | Washington | *** | *** | *** | *** | 0 | 0.0 | 68 | 0.9 | 15 | 0.2 |
| | United States | *** | *** | *** | *** | 62 | 0.0 | 5,132 | 1.6 | 497 | 0.2 |
| Zika virus infection, congenital † | Spokane County | *** | *** | *** | *** | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| | Washington | *** | *** | *** | *** | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| | United States | *** | *** | *** | *** | *** | *** | 45 | 1.1 | 17 | 0.4 |
| Zika virus infection, non-congenital | Spokane County | *** | *** | *** | *** | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| | Washington | *** | *** | *** | *** | 0 | 0.0 | 5 | 0.1 | 5 | 0.1 |
| | United States | *** | *** | *** | *** | *** | *** | 911 | 0.3 | 641 | 0.2 |

* Rates not calculated for <5 cases.

** Includes yellow fever, dengue, chikungunya, Colorado Tick Fever, St. Louis encephalitis, Japanese encephalitis, and other/unknown flavivirus.

*** Zika virus disease became reportable in 2015. Additionally, CDC initially did not release infection numbers or cases by congenital/non-congenital status due to some states' small numbers guidelines. *https://www.cdc.gov/pregnancy/zika/data/pregwomen-uscases.html*

† Data reported to ArboNET using the national surveillance case definition for congenital Zika virus disease or infection (CSTE Position Statement 16-ID-01). Additional data reported to the US Zika Pregnancy Registry for outcomes of pregnancies with laboratory evidence of possible Zika virus infection are available at *https://www.cdc.gov/zika/reporting/pregnancy-outcomes.html.* Cases reported to the U.S. Zika Pregnancy Registry might not meet the national surveillance case definition for congenital Zika virus disease or infection.

Tick-borne relapsing fever and some arboviral conditions are not nationally notifiable, thus US data are not included here.

## Spotlight on Rabies

In Washington, bats are the only rabies reservoir — rabies rarely occurs in terrestrial animals as it does in other parts of the United States or in other countries. Rabid bats are identified in Washington every year and when people or other animals have been infected with rabies in Washington it has been with the bat variant. While it is estimated that in Washington less than 1% of the bats in the wild carry rabies, 5-10% of those tested are rabid, as those tested are more likely to be sick or injured. Rabies in mammals other than bats remains very rare in Washington. In the last 25 years, only four rabid domestic animals were identified in the state, three with bat-variant virus and one with the variant not typed.

SRHD's Zoonotic Disease program has sent an average of 30 bats per year to the Washington State Public Health Lab for rabies testing. Until recently, the last rabid bat identified in Spokane County was in 2007. However, in July 2015, program staff facilitated testing on a bat that bit a child at Liberty Lake Regional Park in Spokane County and the bat was determined to be rabid. Staff partnered with media to rule out potential exposures, yet this increased awareness of the issue in the county. Subsequently, the number of bat-related calls received by SRHD increased. As a result, the most recent year-end totals for rabies testing of bats have doubled the previous annual averages.

Human rabies is extremely rare in the United States, with one to three cases reported annually nationwide during 2013-17. Almost all human cases of rabies acquired in the United States reported since 1980 were due to bat rabies virus. When exposure occurs outside of the United States, it is usually due to contact with a rabid dog. The last reported cases in humans in Washington were in 1995 and 1997, also from bat exposures.

| RABIES TESTING (BY VICTIM'S RESIDENCE) | | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| | | Tests Administered | Tests Administered | Tests Administered | Tests Administered |
| Bat | Spokane County | 12 | 31 (1) | 43 (1) | 33 (2) |
| | Washington | 276 (15) | 305 (9) | 298 (20) | 376 (22) |
| Cat | Spokane County | 10 | 16 | 23 | 9 |
| | Washington | 75 | 95 (1) | 108 | 81 |
| Dog | Spokane County | 5 | 6 | 7 | 9 |
| | Washington | 53 | 49 | 44 | 48 |
| Ferret | Spokane County | -- | -- | -- | -- |
| | Washington | -- | -- | -- | 0 |
| Raccoon | Spokane County | -- | -- | -- | 2 |
| | Washington | 12 | 8 | 5 | 8 |
| Skunk | Spokane County | -- | -- | -- | -- |
| | Washington | -- | 2 | -- | 1 |
| Rodent | Spokane County | -- | -- | -- | -- |
| | Washington | 1 | 8 | 4 | 4 |
| Lagomorph | Spokane County | 1 | -- | -- | -- |
| | Washington | 1 | -- | 1 | 0 |
| Other wild | Spokane County | 1 | 2 | 1 | -- |
| | Washington | 6 | 11 | 3 | 2 |
| Other domestic | Spokane County | 2 | -- | -- | -- |
| | Washington | 11 | 7 | 3 | 5 |
| Test totals | Spokane County | 31 | 55 | 74 | 53 |
| | Washington | 435 | 485 | 466 | 525 |

Lagomorphs include rabbit and pika

Rodents include beaver, chinchilla, chipmunk, degu, gerbil, gopher, hamster, marmot, mouse, muskrat, nutria, porcupine, prairie dog, rat, squirrel, vole, woodchuck

Other domestic include alpaca, burro, cattle, goat, horse, llama, mule, pig, sheep, zebra

Other wild include badger, bear, bison, bobcat, cougar, coyote, deer, fox, kinkajou, lynx, marten, mink, mole, monkey/non-human primate, ocelot, opossum, otter, seal, shrew, sugar glider, weasel, wolf, wolf-hybrid, zorille (striped polecat)

**Rabid animals in red.**

# Sexually Transmitted Diseases

In 2017, sexually transmitted diseases (STDs, also referred to as sexually transmitted infections, or STIs) continued to be the most commonly reported of all communicable diseases in Washington and accounted for more than three-quarters of all notifiable conditions reported to DOH. In 2017, rates of gonorrhea, primary/secondary syphilis, and congenital syphilis increased in Spokane County over the previous year. Trends were similar in Washington and the nation. The worsening epidemic is a clear indication of the need for better diagnosis, treatment, and prevention of STDs. Additionally, surveillance data show higher rates of reported STDs among some racial or ethnic minority groups when compared with rates among whites -- particularly blacks, Hispanics, American Indians/Alaska Natives, and Native Hawaiians/Other Pacific Islanders. Inequities around economic opportunity, access to health care (including quality STD prevention and treatment services), trust of healthcare institutions, and educational attainment all contribute to these and other health-related disparities.

## Chlamydia

Reports of *Chlamydia trachomatis* infection comprised the majority of all notifiable conditions reports received in Spokane County. In 2017, the incidence rate of chlamydia infection in Spokane County (467.6/100,000) declined over the previous year. The 2017 rate was higher than the Washington rate (444.0/100,000) but lower than the United States rate (528.8/100,000). In 2017, cases were most frequently reported in 20 to 24 year-old females.

In Washington, chlamydial infection also continued to be the most commonly reported STD. The incidence rate was relatively stable for several years until 2008; since then, an increase in incidence was seen in each succeeding year. The overall incidence rate in Washington was 444.0/100,000 population, a greater than 35% increase from 2008. By race and ethnicity, rates of chlamydia were lowest among white non-Hispanic persons and highest among black persons, specifically black non-Hispanic females. Women 15 to 24 years of age had the highest rates of chlamydia, partially due to better detection and screening of chlamydia among women of childbearing age.

Nationwide in 2017, over 1.7 million cases of chlamydia were reported, corresponding to a rate of 528.8/100,000 population, surpassing the previously highest record of 497.3/100,000 in 2016. Reported cases of chlamydia constituted the largest number of cases for one condition ever reported to the CDC.

## Gonorrhea

In late 2013, DOH declared a gonorrhea outbreak in Spokane County, as compared to 2012 disease incidence. The rate continued to rise until 2014, when it stabilized into 2016, indicating sustained levels of transmission and disease detection. However, rates have since increased again. Locally, the rate of reported gonorrhea cases in 2017 was more than triple the rate reported for 2012 (138.7/100,000 vs. 38.1/100,000), before the increase in local gonorrhea cases was observed. Although some of the increase was probably due to increased screening and testing, more disease was likely circulating. In 2017, more cases were detected in 25 to 29 year-olds than other age groups.

Statewide, the incidence rate increased steadily since 2011, from 40.3/100,000 to 137.1/100,000 in 2017. The 2017 incidence rate, which was elevated over the last two decades' rates, fell below the United States average. Statewide, males had a higher rate of gonorrhea than females in most age groups, partly due to high rates among men who have sex with men (MSM). About 4% of men in Washington were MSM, yet MSM represented 48% of male gonorrhea cases in 2017, driven largely by cases in King County.

In 2009, the national rate of reported gonorrhea cases reached an historic low of 98.1/100,000. However, during 2009-2012, the rate increased slightly each year to 106.7/100,000. After declining slightly in 2013, primarily in women, over 555,000 cases of gonorrhea were reported in 2017, corresponding to a rate of 171.9/100,000.

## Syphilis

Primary and secondary (P&S) syphilis are the infectious states of the disease and indicate likely acquisition of the disease in the preceding year. Rates of P&S syphilis were stable until sharp increases were observed in 2015.

Since 2007, typically less than 15 cases of P&S syphilis were reported in Spokane County residents annually, with cases largely occurring in the MSM population. However, starting in 2015, an increase in P&S cases was observed, increasing to 28 cases that year and 78 cases in 2017. The incidence rate in 2017 (15.6/100,000) was higher than both the state (9.2/100,000) and national (9.5/100,000) rates. While statewide 79% of P&S syphilis cases occurred in MSM, this was not true for Spokane residents as only about a one in six cases of P&S syphilis were in MSM. Almost half of all P&S cases were in women. Historically, more cases of P&S syphilis were in men.

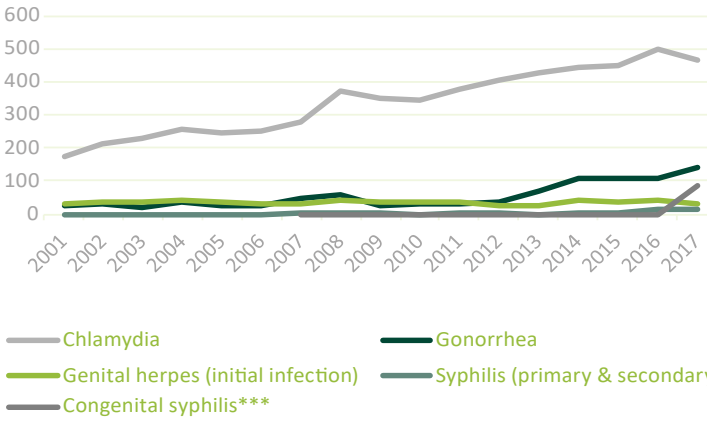
Increases in P&S syphilis were also observed statewide, with 674 cases reported in 2017, resulting in a 33% incidence rate increase over 2015. Men had higher rates of P&S syphilis than women, and MSM represented 79% of male P&S syphilis cases. By race and ethnicity, rates of syphilis were highest among black non-Hispanic persons and lowest among white non-Hispanic persons. Co-infection with HIV was also present in 23% of P&S syphilis cases in the state.

Because syphilis can be spread from pregnant women to their unborn child and cases increased in women of childbearing age, congenital syphilis cases were seen. From 2014 through 2017, there were 18 cases of congenital syphilis reported in Washington, which was more cases than in the previous 12 years combined. Spokane County's first congenital syphilis case since 2010 was detected in 2016; since then an additional five more were detected in 2017 including one fetal demise.

Nationally, P&S syphilis cases also increased after the lowest rates were reported in 2000 and 2001 (2.1/100,000). The rise was primarily attributable to increased cases among MSM; however, during 2013-17 the rate increased among both men and women.

These increases among women are of concern because congenital syphilis cases tend to increase as the rate of P&S syphilis among women increases. In 2017, there were 918 reported cases of congenital syphilis, a 153% increase from 2013. Nationally, the highest rates of P&S syphilis in 2017 were observed among men aged 20 to 34 years, men in western states, and black men.

### FIGURE 7. REPORTED SEXUALLY TRANSMITTED DISEASE RATES PER 100,000 POPULATION - SPOKANE COUNTY




| SEXUALLY TRANSMITTED DISEASES | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 |
| **Chlamydia** | Spokane County | 2,037 | 424.4 | 2,142 | 442.1 | 2,194 | 450.5 | 2,452 | 497.8 | 2,337 | 467.6 |
| | Washington | 25,013 | 363.4 | 26,246 | 376.7 | 28,721 | 410.0 | 31,193 | 434.2 | 32,454 | 444.0 |
| | United States | 1,401,906 | 443.5 | 1,441,789 | 452.2 | 1,526,658 | 478.8 | 1,598,354 | 497.3 | 1,708,569 | 528.8 |
| **Gonorrhea** | Spokane County | 329 | 68.5 | 530 | 109.4 | 527 | 108.2 | 520 | 105.6 | 693 | 138.7 |
| | Washington | 4,390 | 63.8 | 6,136 | 88.1 | 7,203 | 102.8 | 8,165 | 113.7 | 10,022 | 137.1 |
| | United States | 333,004 | 105.3 | 350,062 | 109.8 | 395,216 | 123.9 | 468,514 | 145.8 | 555,608 | 171.9 |
| **Genital Herpes (initial infection)** | Spokane County | 132 | 27.5 | 201 | 41.5 | 186 | 39.0 | 206 | 41.8 | 163 | 32.6 |
| | Washington | 2,207 | 32.1 | 2,082 | 29.9 | 2,524 | 36.0 | 2,548 | 35.5 | 674 | 9.2 |
| | United States | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** |
| **Syphilis (primary & secondary)** | Spokane County | 2 | * | 11 | 2.3 | 28 | 5.7 | 60 | 12.2 | 78 | 15.6 |
| | Washington | 285 | 4.1 | 337 | 4.8 | 452 | 6.5 | 566 | 7.9 | 674 | 9.2 |
| | United States | 17,375 | 5.5 | 19,999 | 6.3 | 23,872 | 7.5 | 27,814 | 8.7 | 30,644 | 9.5 |
| **Congenital Syphilis *** ** | Spokane County | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | * | 5 | 84.9 |
| | Washington | 0 | 0.0 | 2 | 2.3 | 5 | 5.8 | 5 | 5.5 | 6 | 6.9 |
| | United States | 361 | 9.2 | 461 | 11.6 | 492 | 12.3 | 628 | 15.7 | 918 | 23.3 |

* Rates in Spokane County not calculated for < 5 cases

** Genital herpes is not a nationally notifiable condition

*** Rate calculated as rate per 100,000 live births

# HIV/AIDS

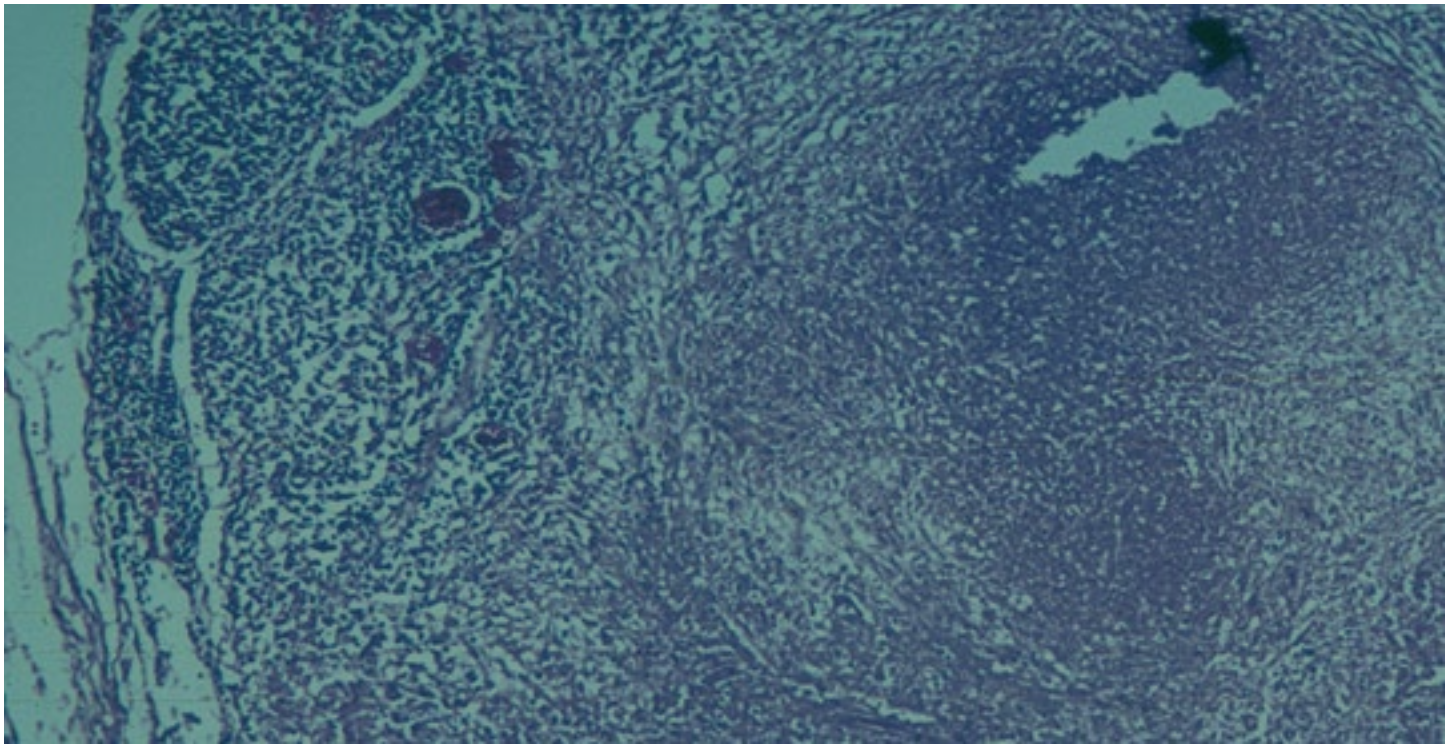
Acquired immunodeficiency syndrome (AIDS) has been a reportable disease in Washington since 1982, and for many years the number of cases reported was used to estimate the incidence of human immunodeficiency virus (HIV). Over time, as treatment and longevity after diagnosis of HIV infection improved, HIV disease has been regarded as a chronic infection.

The number of new HIV cases in Spokane County is usually between 20 to 25 cases annually; however, only a small number of new cases (nine) were detected in 2014 for reasons that were unclear, since testing numbers were stable. In 2017, 25 new cases were detected in the county with seven (28%) cases classified as late HIV diagnoses, i.e., these cases received an AIDS diagnosis within 12 months of HIV diagnosis.

The number of new HIV cases in Washington decreased in recent years, averaging 450 cases annually during 2013-2017. The number of new HIV cases in the state in 2017 was 445. Approximately 24% of new HIV cases were classified as late HIV diagnoses. In 2017, MSM sexual contact remained the predominant risk factor for new diagnoses (53%), followed by heterosexual sex (11%), MSM/IDU (6%), injection drug use (IDU) (4%), blood/pediatric (1%), and unknown risk (24%). Eighty percent of cases diagnosed during 2013-2017 were male, and the majority (32%) of cases were diagnosed at 25 to 34 years of age. Improvements in testing technologies during this time likely resulted in earlier linkages to care for acute infections, resulting in what may be improved long-term health outcomes for these patients.

The number of people living with HIV/AIDS increased in Spokane County, with the largest increase occurring from 2014 to 2015. DOH attributes this increase partially to delays in reporting and data entry rather than an actual increase in people living with HIV during this short time period. As of December 31, 2017, 601 individuals in Spokane County were living with HIV, and 88% of people living with HIV were engaged in care (defined as at least one reported CD4 or viral load result within the calendar year). Seventy-seven percent of people living with HIV had a suppressed viral load (≤ 200 copies/mL), an improvement from 72% in 2016.

In the state, 12,933 people were living with HIV as of December 31, 2016, with 89% engaged in care and 80% with a suppressed viral load. Significant strides were made statewide to not only diagnose, but to ensure newly diagnosed patients were linked to medical care within 30 days of diagnosis. Additional effort was made to assist people living with HIV to stay engaged in HIV-related care and obtain virologic suppression. From 2007 to 2017, an 81% increase in the number of diagnosed HIV cases with virologic suppression was achieved, rising from 44.2% to 80.4%.



Each year in the United States, roughly 40,000 people are diagnosed with HIV. In 2017, there were 38,739 new HIV diagnoses. MSM bore the greatest burden of any risk group, representing an estimated two-thirds of new diagnoses. By race and ethnicity, blacks were most affected by HIV, representing 43% of new diagnoses in 2017, but only comprising about 12% of the total United States population. Hispanic/Latinos were also strongly affected, making up only about 18% of the total United States population but 25% of all new HIV diagnoses in 2017.

An estimate of just over one million people in the United States were living with HIV at the end of 2016, the most recent year for which this information was available.

## FIGURE 8. REPORTED NEW HIV/AIDS RATES PER 100,000 POPULATION, SPOKANE COUNTY


| HIV/AIDS | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 |
| HIV disease | Spokane County | 21 | 4.4 | 6 | * | 24 | 4.9 | 23 | 4.7 | 25 | 5.0 |
| | Washington | 467 | 6.8 | 447 | 6.4 | 446 | 6.4 | 436 | 6.1 | 445 | 6.1 |
| | United States | 39,652 | 12.5 | 40,276 | 12.6 | 39,876 | 12.4 | 39,782 | 12.3 | 38,739 | 11.8 |
| People living with HIV disease and related deaths | Spokane County | 469 (10 deaths) | 97.7 | 478 (5 deaths) | 98.7 | 551 (3 deaths) | 112.8 | 560 (3 deaths) | 113.7 | 601 (11 deaths) | 120.2 |
| | Washington | 11,558 (168 deaths) | 167.9 | 11,691 (155 deaths) | 167.8 | 12,063 (139 deaths) | 170.8 | 12,404 (164 deaths) | 172.7 | 12,933 | 176.9 |
| | United States | 923,777 | 292.1 | 948,494 | 297.7 | 973,846 | 303.5 | 1,008,929 | 308.3 | not available | not available |

* Incidence rates for HIV are not calculated for <11 cases.

Cases are presented by year of initial HIV diagnosis, regardless of diagnostic status (HIV or AIDS), and by county of residence at time of diagnosis. Data reflects cases reported through 7.31.18.

# Tuberculosis

The crude incidence rate for tuberculosis (TB) is consistently lower in Spokane County than in Washington. During 2013-17, 18 active TB cases were identified and treated in Spokane County.

Over the last decade, the annual crude incidence rate of TB in Washington trended downward though has remained relatively stable over the past several years. In 2017, 207 active TB cases were identified. For this same period, King, Clark, Snohomish, and Pierce counties each reported 10 or more TB cases accounting for nearly 75% of the cases counted in Washington. Of the specimens tested for drug susceptibility in 2017, 18 (10.5%) were resistant to one or more of the first-line treatment drugs while not meeting the definition of multidrug-resistance (i.e., resistance to at least the key first-line drugs isoniazid and rifampin). Four (2.3%) of the specimens were multidrug-resistant.

As in past years, non-U.S. born persons, as well as racial and ethnic minorities, were at greatest risk for TB. The DOH TB program reported that from 2015 through 2017, Asians accounted for 47% of all TB cases diagnosed in Washington and men 65 years of age and older experienced a rate of TB higher than any other age or gender group. In 2017, Washington residents born somewhere other than the United States or its territories accounted for 80% of the total TB cases.

According to the *CDC's Reported Tuberculosis in the United States, 2017 report*, 9,105 TB cases were reported in 2017, representing the lowest number of annual cases on record and a 2.8% decrease from 2016. While the reversal of the increase in cases observed in 2015 was a positive sign, the pace of TB's decline in the United States remained too slow to achieve TB elimination. The majority of active TB cases are the result of reactivated latent transmission; CDC attributed only about 13% of national genotyped cases reported during 2016 and 2017 to recent transmission. Nationally, the percentage of TB cases that were multidrug-resistant remained stable for the past 20 years at 1% of total cases.

As reported in previous years, the majority of TB cases were identified in California, Texas, New York, and Florida and accounted for just over half of the national case total. Among non-United States-born persons reported with TB in 2017, the top five countries of birth were Mexico, Philippines, India, Vietnam, and China. Approximately 16% of non-United States-born persons with TB were diagnosed less than one year after first arriving in the United States, which, according to the CDC, was consistent with previous observations that the risk of developing TB disease among non-U.S. born persons was greatest in the first one to two years after arrival in the United States.

### FIGURE 9. REPORTED ACTIVE TUBERCULOSIS RATE PER 100,000 POPULATION, SPOKANE COUNTY


| TUBERCULOSIS | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 |
| Tuberculosis | Spokane County | 7 | 1.5 | 5 | 1.0 | 2 | * | 2 | * | 2 | * |
| | Washington | 210 (4 deaths) | 3.1 | 193 (4 deaths) | 2.8 | 207 (4 deaths) | 2.9 | 205 (7 deaths) | 2.9 | 207 (4 deaths) | 2.8 |
| | United States | 9,561 | 3.0 | 9,398 | 3.0 | 9,546 | 3.0 | 9,287 | 2.9 | 9,105 | 2.8 |

* Incidence rates for not calculated for <5 cases.

# Other Conditions

This category is reserved for conditions of public health significance that did not fall within the other notifiable condition categories.

## Acute Flaccid Myelitis (AFM)

Acute Flaccid Myelitis (AFM) is a rare disease that affects a person's nervous system, specifically the spinal cord. While AFM can result from a variety of causes, the full scope of causes remains unknown and likewise its prevention remains unidentified. In Washington, three residents were reported as confirmed AFM cases in 2017. In 2016, 10 cases were reported, one of whom resided in Spokane County. No cases were reported in the year prior, and only two were reported in the state in 2014. Since 2014, when an increased number of cases of AFM were identified, CDC intensified efforts to understand the causes and risk factors.

Most patients are children. The symptoms are most similar to complications of infection with certain viruses, including poliovirus, non-polio enteroviruses, adenoviruses, and WNV. CDC tested many different specimens from the patients for a wide range of pathogens that could cause AFM; however, at the time of this report, CDC has not consistently detected a pathogen in spinal fluid or other potential sources. The increase in AFM cases in 2014 coincided with a national outbreak of severe respiratory disease among people caused by enterovirus D68 (EV-D68); however, among the people with AFM, CDC did not consistently detect EV-D68 in the specimens collected from them.

It is difficult to interpret trends of the AFM data since collection of information on cases only began in 2014 and is voluntary in most states (national rates are not provided for this reason). Also, since the collection of information on AFM cases is relatively new, there may initially be more variability in the data from year to year, making it difficult to interpret or compare counts between years. Most cases of AFM were reported in 2014 and 2016, possibly attributable to increased awareness by clinicians and better reporting over actual increase in disease.

## Botulism

Forms of botulism include food-borne botulism (ingested toxin); wound botulism (toxin production in an infected wound); infant botulism (toxin produced in the intestine of a child under one year of age); adult colonization botulism (toxin produced in the intestine of an adult); and inhalational botulism (inhaling toxin, which does not happen naturally). *C. botulinum* spores are common in soil. No consistent exposure is known for infants. Most

| OTHER | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 | Cases | Rate per 100,000 |
| Acute Flaccid Myelitis (AFM) ** | Spokane County | -- | -- | 0 | 0.0 | 0 | 0.0 | 1 | * | 0 | 0.0 |
| | Washington | -- | -- | 2 | * | 0 | 0.0 | 10 | 0.1 | 3 | * |
| | United States | -- | -- | 120 | ** | 21 | ** | 149 | ** | 33 | ** |
| Botulism (food, infant and wound) | Spokane County | 1 | * | 0 | 0.0 | 1 | * | 0 | 0.0 | 1 | * |
| | Washington | 10 | 0.1 | 3 | * | 8 | 0.1 | 4 (2 deaths) | * | 10 | 0.1 |
| | United States | 152 | 0.1 | 161 | 0.1 | 195 | 0.1 | 201 | 0.1 | 177 | 0.1 |
| Coccidiomycosis *** | Spokane County | 2 | * | 3 | * | 2 | * | 7 | 1.4 | 5 | 1.0 |
| | Washington | 10 | 0.1 | 21 | 0.3 | 25 | 0.4 | 40 (2 deaths) | 0.6 | 69 (1 death) | 0.9 |
| | United States | 9,438 | 7.8 | 8,232 | 6.6 | 11,072 | 8.8 | 11,829 | 9.0 | 14,364 | 10.9 |
| Legionellosis | Spokane County | 3 | * | 7 | 1.4 | 6 | 1.2 | 5 | * | 5 | 1.0 |
| | Washington | 52 (5 deaths) | 0.8 | 63 (8 deaths) | 0.9 | 58 (2 deaths) | 0.8 | 72 (10 deaths) | 1.0 | 56 (6 deaths) | 0.8 |
| | United States | 4,954 | 1.5 | 5,166 | 1.6 | 6,079 | 1.8 | 6,141 | 1.9 | 7,458 | 2.3 |

* Rates not calculated for < 5 cases.

** Collection of AFM data began in 2014. Reporting of AFM is voluntary in most states; therefore, cases included here are unlikely to be representative of actual national disease incidence.

*** Coccodiomycosis is not reportable in all states.

food-borne cases are due to inadequately processed home-canned foods. Wound botulism is usually associated with injecting black-tar heroin into the skin or muscle, or sometimes with deep, contaminated injuries.

In Spokane County, the most recent botulism case occurred in 2017 with a non-fatal case of infant botulism. Prior to that, a non-fatal case of wound botulism was reported in 2015 and a case of infant botulism reported in 2013 with likely exposure of nearby soil eruption.

Each year in Washington, there are zero to four reports of food-borne botulism, zero to nine reports of infant botulism, and zero to seven reports of wound botulism. Most recently in 2017, there were six cases of infant botulism and four cases of wound botulism.

While large outbreaks are rare, some national outbreaks of foodborne botulism are notable. Recently in 2017, nacho cheese from a gas station in California was the implicated source of illness for 10 people, with one death. Another large outbreak occurred in a federal prison in Mississippi in 2016 related to illicitly-made alcohol. Thirty-one inmates became sick, making this the largest botulism outbreak in the United States in nearly 40 years. There were no deaths.

## Coccidiomycosis

Coccidiomycosis, or Valley Fever, is a fungal infection caused by the soil-dwelling fungi *Coccidioides immitis* and *C. posadasii* and typically results from exposure to airborne spores. The fungi are found in soil and semi-arid climates in the southwestern United States and parts of Central and South America. Coccidiomycosis is not reportable in all states. It is endemic (and reportable) in Arizona, California, Nevada, New Mexico, and Utah and most of the reported cases come from these states. In highly endemic areas, such as the Phoenix and Tucson metropolitan areas of Arizona, it is estimated coccidiomycosis causes an estimated 15% to nearly 30% of community-acquired pneumonias; low testing rates suggest the disease may be under-recognized.

There are wide variations in the number of reported cases nationally each year and the reasons for this are not well understood. Some of the variation could be due to changes in the number of susceptible people exposed to the fungus, because of travel or relocation to endemic areas; environmental factors, such as temperature and rainfall, which can affect the growth of the fungus and how it's circulating; and the different ways cases are being detected and reported.

New evidence discovered in 2014 documented the presence of *C. immitis* in south-central Washington, resulting in coccidiomycosis being made reportable as a rare disease of public health significance in Washington that same year. Prior to 2014, up to six travel-associated cases were reported each year in Washington. During 2010-16, 11 cases with exposure in south-central Washington were reported. Most recently in 2017, 69 cases were reported in the state, of which 58 were travel-related and two were exposed in south-central Washington (nine had unknown exposure location). Spokane reported five of the 40 cases; three were confirmed to be travel-related, the other had unknown exposure.

## Legionellosis

Legionellosis is caused by a ubiquitous organism and was named for those individuals (Legionnaires') affected by an outbreak in Philadelphia in 1976. Disease is more common among those over 50 years of age and individuals who smoke, have diabetes or chronic lung disease, or are immunosuppressed, particularly due to corticosteroids or organ transplant. There are two clinically and epidemiologically distinct diseases – Legionnaires' disease presenting with pneumonia, or Pontiac fever, a milder disease without pneumonia. Hot water systems (showers), air conditioning cooling towers, evaporative condensers, humidifiers, whirlpool spas, respiratory therapy devices, decorative fountains, and potting soil have been implicated epidemiologically in outbreaks. It is not communicable person to person.

Over the past several years, the number of reported cases in Spokane County fluctuated from three to seven. In 2011, Spokane County had a small outbreak of legionellosis related to the water system in a healthcare facility, but no such outbreaks have occurred since that time.

In Washington, the number of cases was on an upward trend with more than 50 cases reported each year since 2013. In 2017, 56 cases were reported with six deaths.

Nationwide, legionellosis incidence was on an upward trend, though the reasons for the increase were unclear; increased awareness and testing may be a factor.

## REFERENCES


1. "Acute Flaccid Myelitis Investigation." Centers for Disease Control and Prevention. Last modified May 6, 2019. https://www.cdc.gov/acute-flaccid-myelitis/afm-surveillance.html.
2. "Annual Communicable Disease Reports." Washington State Department of Health. https://www.doh.wa.gov/DataandStatisticalReports/DiseasesandChronicConditions/CommunicableDiseaseSurveillanceData/AnnualCDSurveillanceReports.
3. "Estimates of April 1 Population by Age, Sex, Race and Hispanic Origin." Washington State Office of Financial Management. https://www.ofm.wa.gov/washington-data-research/population-demographics/population-estimates/estimates-april-1-population-age-sex-race-and-hispanic-origin.
4. "FluView Interactive." Centers for Disease Control and Prevention. Last modified July 6, 2019. https://www.cdc.gov/flu/weekly/fluviewinteractive.htm.
5. "HIV/AIDS Statistics Overview." Centers for Disease Control and Prevention. Last modified April 12, 2019. https://www.cdc.gov/hiv/statistics/overview/index.html.
6. "HIV Surveillance Reports." Washington State Department of Health. https://www.doh.wa.gov/DataandStatisticalReports/DiseasesandChronicConditions/HIVData/SurveillanceReports.
7. "Influenza Surveillance Data." Washington State Department of Health. https://www.doh.wa.gov/DataandStatisticalReports/DiseasesandChronicConditions/CommunicableDiseaseSurveillanceData/InfluenzaSurveillanceData.
8. "Notifiable Infectious Diseases and Conditions Data Tables." Centers for Disease Control & Prevention. Last modified December 31, 2018. https://wwwn.cdc.gov/nndss/infectious-tables.html.
9. "Rabies Activity in Washington." Washington State Department of Health. https://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/Rabies/RabiesActivity.
10. "Sexually Transmitted Disease Morbidity Reports." Washington State Department of Health. https://www.doh.wa.gov/DataandStatisticalReports/DiseasesandChronicConditions/SexuallyTransmittedDisease.
11. "Sexually Transmitted Disease Data and Statistics." Centers for Disease Control and Prevention. Last modified September 17, 2018. https://www.cdc.gov/std/stats/default.htm.
12. "Trends in Tuberculosis, 2017." Centers for Disease Control and Prevention. Last modified November 15, 2017. https://www.cdc.gov/tb/publications/factsheets/statistics/tbtrends.htm.
13. "Tuberculosis Data and Reports." Washington State Department of Health. https://www.doh.wa.gov/DataandStatisticalReports/DiseasesandChronicConditions/TuberculosisDataandReports.
14. "Tuberculosis Data and Statistics." Centers for Disease Control and Prevention. Last modified December 31, 2018. https://www.cdc.gov/tb/statistics/default.htm.
15. "Viral Hepatitis Statistics and Surveillance." Centers for Disease Control and Prevention. Last modified April 18, 2018. https://www.cdc.gov/hepatitis/statistics/index.htm.

**PHOTO CREDITS**

*Page 17. Bat | Noel Reynolds*

**TECHNICAL NOTES**

*Cases of communicable notifiable conditions were included in this annual five-year report if they met the following criteria:*

- *Resident of Washington*
- *Onset dates during the 2017 CDC year (January 1, 2013 to December 31, 2017)*
- *Case report entered into the Washington Public Health Issue Management System (PHIMS) by March 1, 2018, if the condition was common (>10 cases per year)*
- *Reported to DOH through PHIMS prior to May 15, 2018, if the condition was rare (≤10 cases per year)*
- *Given a valid case classification by DOH (as described in the guidelines for each condition): https://www.doh.wa.gov/ForPublicHealthandHealthcareProviders/NotifiableConditions/ListofNotifiableConditions*

*Population estimates used in rate calculations for Washington and Spokane came from the Washington State Office of Financial Management: http://www.ofm.wa.gov/pop/asr/default.asp. Previously reported disease rates for 2000 through 2010 were updated using new population estimates based on the 2010 decennial census.*

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