Spokane Regional Health District

Communicable Disease Epidemiology

2017-2021

SPOKANE REGIONAL HEALTH DISTRICT

September 2024

Communicable Disease Investigation & Prevention
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Public health officials help protect the public's health by tracking communicable diseases and other conditions using notifiable condition reporting. Based on this reporting, officials 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, officials are better equipped to take appropriate actions, 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 and Prevention (CDC) from mandatory communicable disease reporting by health care providers, laboratories, health care 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 or health care providers not appropriately testing, diagnosing, and reporting cases. Cases are counted by the county of residence of the patient and may not represent the county of diagnosis or exposure.

Enteric Disease

Enteric (gastrointestinal) disease pathogens typically enter the body through the fecal-oral route and are frequently caused by food- or water-borne pathogens. Every year, millions of cases of enteric diseases are reported across the United States and outbreaks are not uncommon. With good hand hygiene, proper food handling, thorough cooking, and appropriate animal handling, these infections are largely preventable. Reportable enteric pathogens include Shiga toxin-producing *E coli* (STEC), *Campylobacter, Shigella, Salmonella, Listeria, Vibrio, Yersinia, Cryptosporidium, and Giardia.*

For several years, *Campylobacter* infection has remained the most frequently reported enteric condition in Spokane County. This trend has continued to remain true throughout the 2017 to 2021 period. In 2021, there were 86 cases of *Campylobacter* infection reported. Most cases in Spokane County and Washington were sporadic, as outbreaks involving multiple persons and person-to-person spread were uncommon in Spokane. *Salmonella* infections were the second most reported enteric conditions with 35 cases in 2021.

Most enteric conditions are reported less often in Spokane County residents than in other Washington residents. The reasons for this are unclear. Giardiasis is one condition where this trend remains an exception. Aside from the drop in incidence experienced in 2020, incidence of giardiasis was consistently higher in Spokane County than in Washington state throughout the 2017 to 2021 period.

In 2021, typhoid fever (caused by *Salmonella* Typhi bacteria) cases in Spokane County comprised over half of the total cases reported in Washington state. There were 8 cases of typhoid fever reported in Spokane, and 15 total cases reported in Washington state.[1] All 8 of the Spokane cases were linked to an outbreak within the Marshallese community and were within the same family or related social circles. One of the cases within this outbreak was determined to be a suspected chronic carrier of *Salmonella* Typhi, with frequent travel to Hawaii. The suspected exposure setting was a private gathering in Spokane where homemade food was served. Although this was not the case for the 2021 outbreak in Spokane, typhoid fever cases across Washington state are mainly acquired through international travel.

In 2021, the CDC led investigations into 74 multistate outbreaks, consisting of 51 *Salmonella*, 12 *E coli*, and 11 *Listeria* outbreaks.[2] A source was identified in 47 of the 74 outbreaks with 28 of them linked to contaminated food and 19 outbreaks linked to animal contact. Among the outbreaks linked to contaminated food, most were associated with chicken or vegetable row crops. Backyard poultry remained the most common source of infections among the outbreaks linked to animal contact.[2] One large 2022 *Salmonella* outbreak linked to contact with backyard poultry was reported with confirmed cases across 48 states (1230 total cases and 38 cases in Washington). Washington also reported cases in multistate *Salmonella* outbreaks linked to pet bearded dragons (26 states, 56 total cases, and 4 cases in Washington) and small turtles (16 states, 28 total cases, and 2 cases in Washington).[3]

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 2021, there were 5 outbreaks of norovirus reported in Spokane County, affecting at least 95 individuals. Norovirus is a condition that, while not reportable in Washington, is frequently implicated in outbreaks at long-term care centers, particularly during the winter months. Out of the 5 total norovirus outbreaks, 3 were in long-term care facilities. The other 2 outbreaks occurred in a local homeless shelter and a school.

Figure 1. Reported Enteric Disease Rates per 100 000 Population in Spokane County From 2017 to 2021

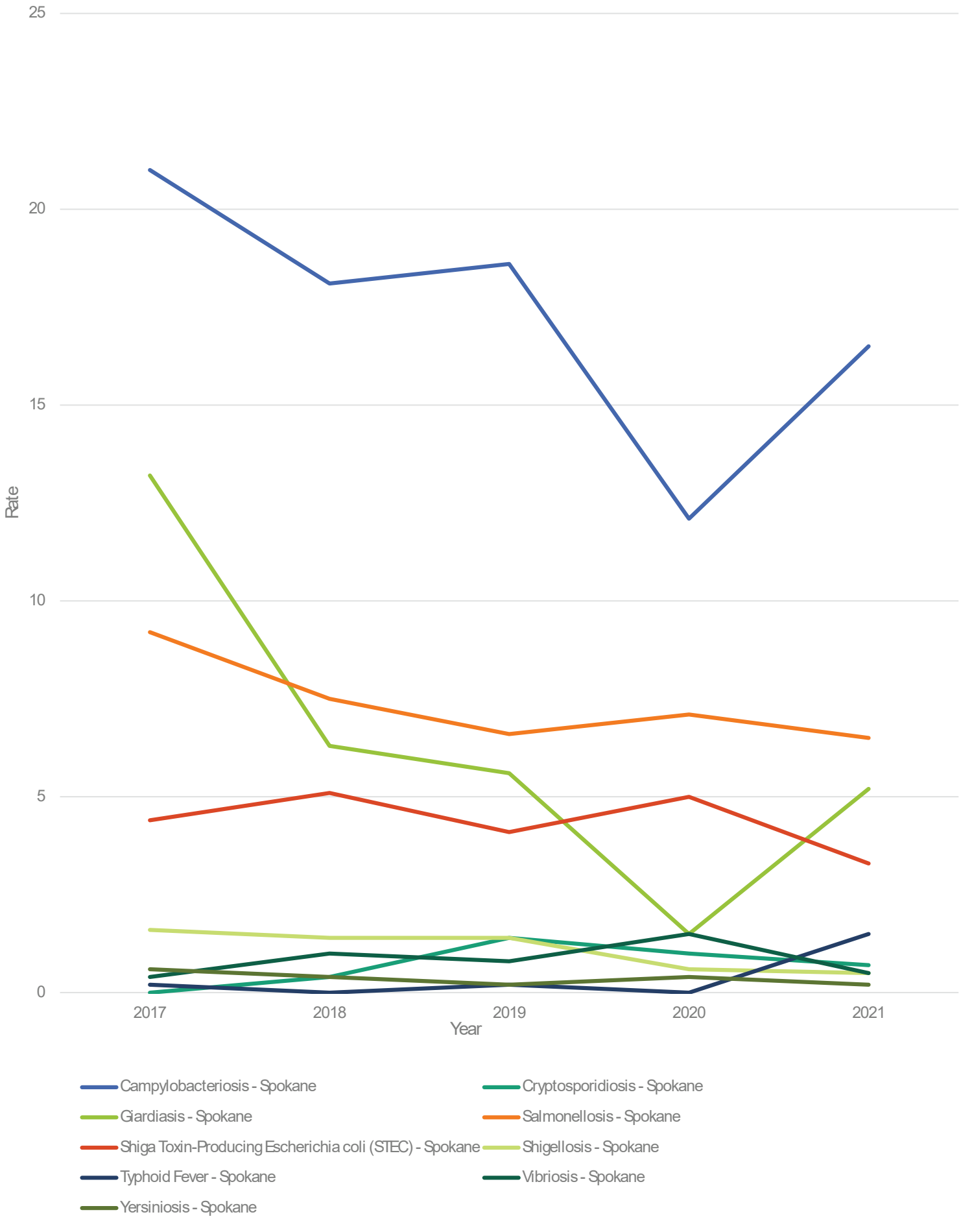


Table 1: Enteric Disease Case Counts and Rate per 100 000 by Geography and Year [a]

Region	2017		2018		2019		2020		2021	
	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k
Campylobacteriosis										
Spokane	105[†]	21	92	18.1	96	18.6	63	12.1	86	16.5
Washington	2214	30.3	2077	28	1979	26.2	1609	21	1883	24.6
United States	67 537	20.73	70 200	21.46	71 509	21.79	51 764	15.71	63 409	19.24
Cryptosporidiosis										
Spokane	0	0	2	0.4	7	1.4	5	1	4	0.7
Washington	150	2.1	198	2.7	232	3.1	172	2.2	168	2.2
United States	11 414	3.5	12 533	3.83	13 975	4.26	7648	2.32	9155	2.78
Giardiasis										
Spokane	66	13.2	32	6.3	29	5.6	8	1.5	28	5.2
Washington	668	9.1	438	5.9	288	3.8	184	2.4	237	3.1
United States	15 193	5.94	15 548	6.06	14 860	5.78	9453	3.66	11 643	4.44
Salmonellosis										
Spokane	46	9.2	38	7.5	34	6.6	37	7.1	35	6.5
Washington	810	11.1	828	11.1	725	9.6	703	9.2	640	8.4
United States	54 285	16.67	60 999	18.64	58 526	17.83	45 517	13.81	49 249	14.95
Shiga Toxin-Producing Escherichia coli (STEC)										
Spokane	22	4.4	26	5.1	21	4.1	26	5	18	3.3
Washington	404	5.5	540	7.3	465	6.2	308	4	460	6
United States	8672	2.66	15 996	4.89	16 939	5.16	9922	3.01	13 943	4.23
Shigellosis										
Spokane	8	1.6	7	1.4	7	1.4	3	0.6	3	0.5
Washington	285	3.9	419	5.6	314	4.2	225	2.9	450	5.9
United States	14 912	4.58	16 333	4.99	18 574	5.66	9108	2.76	9999	3.03
Typhoid Fever										
Spokane	1	0.2	0	0	1	0.2	0	0	8	1.5
Washington	14	0.2	12	0.2	26	0.3	10	0.1	15	0.2
United States	419	0.13	401	0.12	409	0.12	182	0.06	234	0.07
Vibriosis										
Spokane	2	0.4	5	1	4	0.8	8	1.5	3	0.5
Washington	95	1.3	217	2.9	159	2.1	90	1.2	160	2.1
United States	2085	0.65	2964	0.92	2851	0.88	1852	0.57	2853	0.88
Yersiniosis [b]										
Spokane	3	0.6	2	0.4	1	0.2	2	0.4	1	0.2
Washington	81	1.1	79	1.1	106	1.4	72	0.9	92	1.2

[a] Data from the Centers for Disease Control and Prevention National Notifiable Diseases Surveillance System, 2017-2021 Annual Tables of Infectious Disease Data[4] and the Washington State Department of Health[1] Annual Communicable Disease Reports.

[b] Data were not available at the time of publication or not reportable at the local, state, or national level.

[†] Spokane County case counts and rates highlighted in red indicate that these figures exceeded the 5-year median for the respective disease.

Vaccine-Preventable Disease

Overall reports of vaccine-preventable diseases (VPDs) decreased in 2020 and continued to remain low in 2021.[5] The COVID-19 pandemic may have contributed to this decline. Prevention measures that mitigated the transmission of COVID-19 may have also prevented transmission of other respiratory pathogens, including VPDs.

Pertussis regularly circulates within communities, with cyclical increases in cases typically every 3 to 5 years.[6] Infants under the age of 1 year are often disproportionately impacted and are more likely to suffer complications, including death, than any other age group. Spokane County saw an outbreak of pertussis in late 2019 and early 2020, primarily in school-aged children. SRHD epidemiologists worked closely with the local school districts to manage the outbreak. Although many of the cases were fully vaccinated for pertussis, waning immunity can be an issue, especially in older elementary and middle school-aged students.

Mumps is a vaccine-preventable disease with low occurrence in most areas of the US.[7] Despite a decline in 2020, possibly due to COVID-19 prevention measures, mumps continued to circulate in the US throughout 2020. Thirty-two health departments reported 142 mumps cases in the period from April 1, 2020, to December 31, 2020.

Following a mumps outbreak in Spokane County in 2016 and 2017, Spokane has returned to a normal baseline, seeing very few cases of mumps since 2018. In 2021, Spokane County had 1 reported case of mumps, which was the only case reported in Washington state in 2021. The case was a 5-year-old child previously immunized with one dose of MMR vaccine.

Due to high population immunity, measles was declared eliminated in the US in 2000.[8] However, measles has continued to make a comeback nationally with the introduction, typically from international travel, and spread of measles in unimmunized subpopulations. Spokane County did not have any confirmed measles cases in the 2017 to 2021 time frame. Cases of measles were identified elsewhere in Washington, with an outbreak in Clark County in 2019. Clark County Public Health first received report of measles in an unvaccinated 10-year-old child arriving from Ukraine. There were 71 confirmed cases of measles included in this outbreak.[9] In 2019, the US experienced the largest number of reported measles cases since 1992, with 1275 total cases reported.[8]

Nationally, rates of meningococcal disease have continued to sharply decline since 1990.[10] About 1 in 20 cases of meningococcal disease are related to outbreaks, making outbreaks of meningococcal disease rare in the US. Rates of disease are highest among children under 1 year old, followed by adolescents ages 16 to 23 years old, and then by adults ages 65 years and older. In the US, almost all cases of meningococcal disease are caused by serogroups B, C and Y. Until fall 2014, the vaccine licensed in the US only protected against serogroups A, C, Y and W-135. However, in 2014 and 2015, 2 new meningococcal serogroup B vaccines were licensed by the Food and Drug Administration (FDA). During 2017 to 2021, cases of meningococcal disease in Spokane County stayed between 0 and 3 cases annually. In 2021, there was 1 case of meningococcal disease serogroup C reported in an unvaccinated Spokane County resident. The individual did not survive the infection.

Invasive infection from *Haemophilus influenzae* is only reportable in children under the age of 5.[11] Similar to 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 5. Nationally, disease caused by Hib continues to remain low. Non-b and nontypeable *H influenzae* cases were increasing until a decline in 2020. In 2021 however, disease caused by non-b and nontypeable bacteria began to increase again.[12] Two cases of *H influenzae* were reported in Spokane County in 2021. Both cases were 3-year-old children who were not related to each other. One child was vaccinated, and the other was not. Both children were hospitalized and admitted to the ICU.

Figure 2. Reported Vaccine-Preventable Disease Rates per 100 000 Population in Spokane County From 2017 to 2021

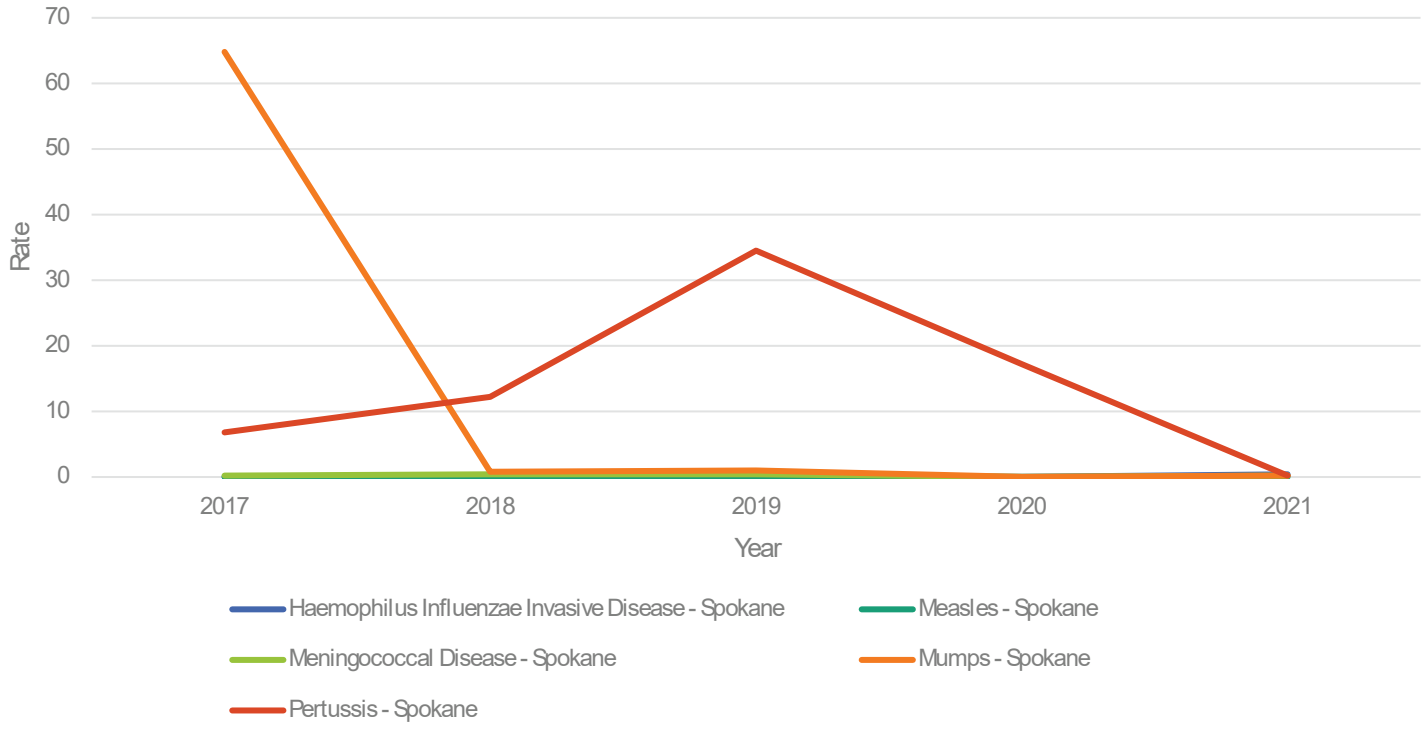


Table 2. Vaccine-Preventable Disease by Region and Year[a]

Region	2017		2018		2019		2020		2021	
	Case Count	Rate per 100k	Case Count	Rate per 100k	Case Count	Sum of Published Rate-1	Case Count	Rate per 100k	Case Count	Rate per 100k
Haemophilus Influenzae Invasive Disease										
Spokane	0	0.0	1	0.2	1[†]	0.2	0	0.0	2	0.4
Washington	7	1.5	13	2.9	16	3.5	6	1.3	7	0.1
United States	592	3.0	588	3.0	667	3.4	301	1.0	403	1.3
Measles										
Spokane	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Washington	3	0.1	8	0.1	90	1.2	1	0.0	0	0.0
United States	120	0.0	375	0.1	1275	0.4	12	0.0	48	0.0
Meningococcal Disease										
Spokane	1	0.2	2	0.4	2	0.4	0	0.0	1	0.2
Washington	11	0.2	20	0.3	14	0.2	7	0.1	4	0.1
United States	353	0.1	327	0.1	371	0.1	242	0.1	208	0.1
Mumps										
Spokane	324	64.8	4	0.8	5	1.0	0	0.0	1	0.2
Washington	779	10.7	58	0.8	55	0.7	4	0.1	1	0.0
United States	6109	1.9	2515	0.8	3780	1.2	694	0.2	189	0.1
Pertussis										
Spokane	34	6.8	62	12.2	178	34.5	90	17.2	1	0.2
Washington	740	10.1	631	8.5	598	7.9	243	3.2	15	0.2
United States	18 975	5.8	15 609	4.8	18 617	5.7	6124	1.9	2116	0.6

[a] Data from the Centers for Disease Control and Prevention National Notifiable Diseases Surveillance System, 2017-2021 Annual Tables of Infectious Disease Data[4] and the Washington State Department of Health Annual Communicable Disease Reports.[1]

[†] Spokane County case counts and rates highlighted in red indicate that these figures exceeded the 5-year median for the respective disease.

Influenza, RSV, and COVID-19 "Tripledemic"

During the 2022-2023 respiratory illness season, Spokane County, like many other counties throughout the US, experienced what was termed a "tripledemic." Following the easing of masking and other state-mandated prevention measures, many health jurisdictions saw a rise in COVID-19 cases as well as a surge in influenza and respiratory syncytial virus (RSV) cases.

COVID-19

From January 2020 through December 2022, there were over 1300 recorded outbreaks of COVID-19 across various settings within Spokane County. These settings included acute care; ambulatory and other health care settings; long-term care and senior living; community facilities, including churches and community centers; goods-producing industries; service-providing industries; and government facilities, such as fire stations, law enforcement offices, and educational settings.

During 2020 through 2022, the greatest number of outbreaks in Spokane County occurred in long-term care and senior living settings. Approximately 30% of outbreaks were recorded in long-term care and senior living settings, equaling approximately 400 outbreaks. The duration of outbreaks in long-term care and senior living facilities ranged from 10 to 172 days. This measure of outbreak duration was determined by the date of symptom onset for the first reported case, until the date of symptom onset for the last reported case.

Outbreaks in educational settings in 2020 through 2022 represented the second largest proportion of outbreaks within a given setting, and over 200 were recorded. Educational settings included child care and preschool, K-12, and colleges. Peaks in the total number of outbreaks from 2020 through 2022 closely mirrored the waves of COVID-19, including the surges caused by the Delta and Omicron variants.

Influenza

Influenza is a significant vaccine-preventable infection that impacts all communities worldwide. The SRHD Communicable Disease Investigation and Prevention (CDIP) program monitors influenza in Spokane County by analyzing hospitalizations, deaths, outbreaks in institutional settings, and influenza-like illness (ILI) emergency room visits and hospitalizations. Data for these events are collected from the CDC's Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE), a health surveillance system.

Nationally, the 2022-2023 influenza season was more severe than the previous 2 seasons, with significant increases in influenza and influenza-like-illness-related ER visits and hospitalizations, and outbreaks in long-term care facilities.[13] In Spokane, 413 hospitalizations (99% influenza type A) were reported, compared to 1 and 78 hospitalizations in 2020-2021 and 2021-2022, respectively. In 2022-2023, about half of the hospitalized cases were ages 65 or older, and long-term care facility outbreaks more than doubled; 15 events were reported that season. Twenty-two influenza-associated deaths among Spokane residents were reported during the 2022-2023 season, compared to 8 and 0 deaths reported in the previous two seasons.

Universal mask mandates and decreased social interaction during the 2020 through 2021 COVID-19 pandemic period correlated with less severe flu seasons than the US is accustomed to.[14] Mask mandates were still in effect in health care settings in 2022, but the *tripledemic* of sustained SARS-CoV-2 circulation, a severe influenza season, and a stark increase in respiratory syncytial virus (RSV) incidence in both children and adults further strained health care systems in Spokane and nationwide. In Washington state and the US, influenza type A predominated, and the influenza A(H3N2), influenza A(H1N1)pdm09, and influenza B/Victoria strains identified were included in the influenza vaccines available for that season. The past 3 influenza seasons highlight the importance of fundamental disease prevention measures: avoiding contact with others when ill, masking during periods of high community disease transmission, and continuing to encourage all eligible persons to get their flu shot, every influenza season.

Table 3. Influenza-Associated Mortality by Season and Region[a]

Influenza-Associated Deaths	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
Spokane						
Pediatric [b]	0	0	0	0	1	1
Adult [b]	36	23	19	0	7	21
Washington State						
Pediatric	1	2	6	0	1	6
Adult	295	243	108	0	25	266
United States [c]						
Pediatric	188	145	199	1	49	182

[a] Data from the Centers for Disease Control and Prevention National Notifiable Diseases Surveillance System, 2017-2021 Annual Tables of Infectious Disease Data[4] and the Washington State Department of Health Influenza Surveillance Data, 2017-2023 Season Summaries.[15]

[b] Pediatric refers to individuals ages 0-17 years; adult refers to individuals ages 18 years and older.

[c] Adult and pediatric influenza-associated deaths are reportable in Washington state, but adult influenza-associated deaths are not reportable nationally.

Figure 3. Influenza Hospitalizations in Spokane County by Report Month

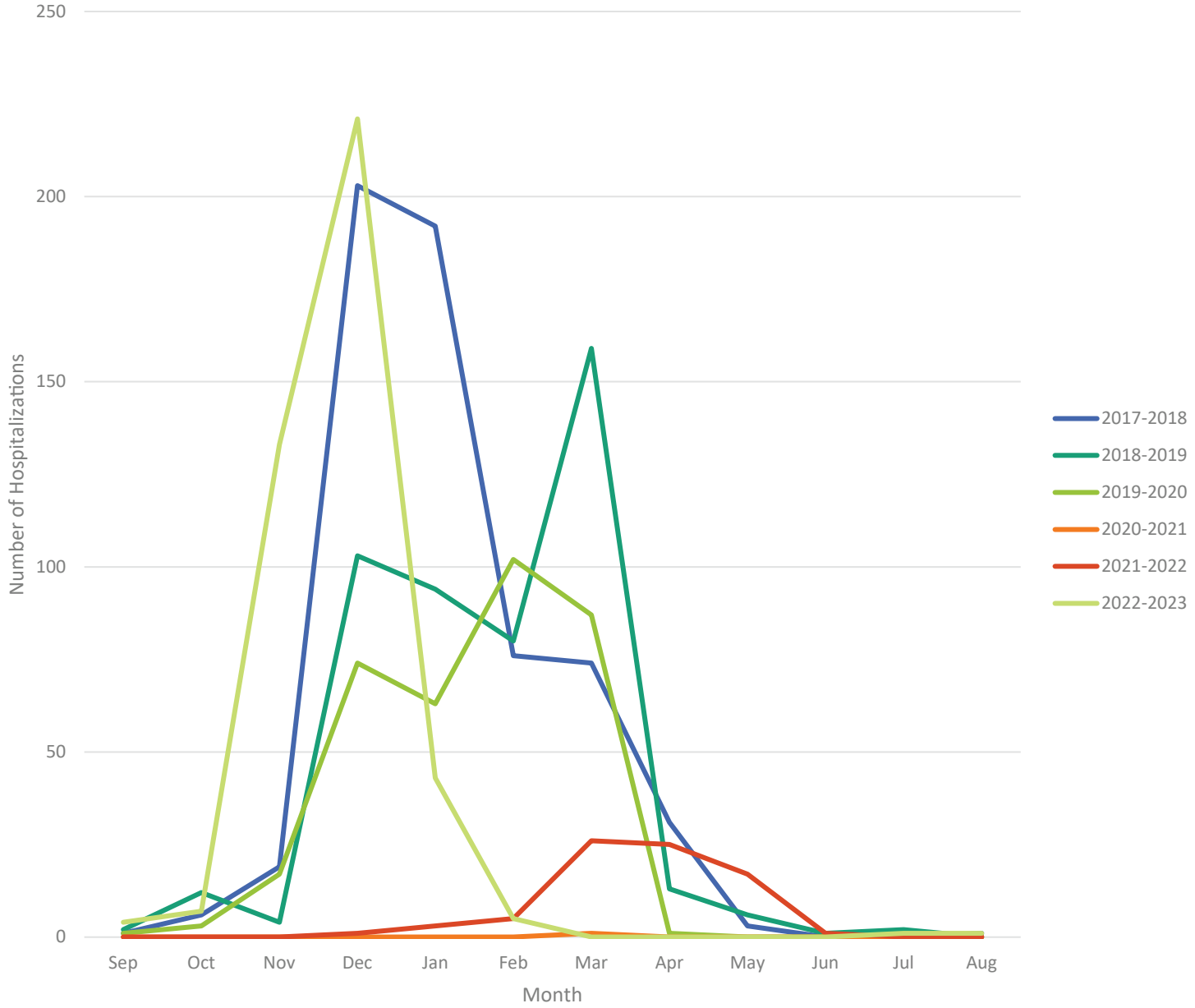


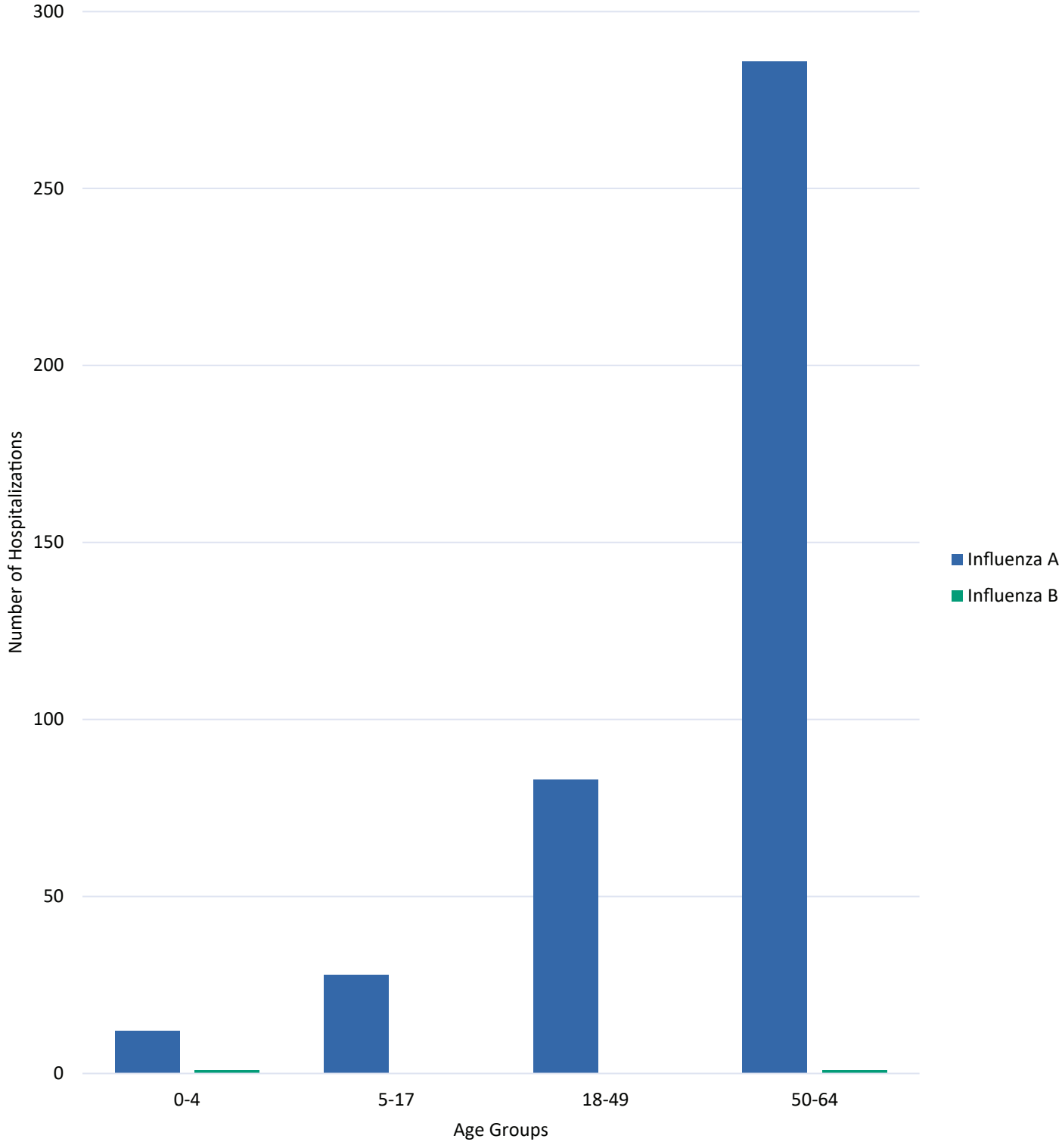
Table 4. Long-term Care Facility Influenza Outbreaks by Region and Season[a,b]

	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
Spokane	42	17	12	0	6	15
Washington	23	148	91	0	16	147

[a] *Long-term care facility influenza outbreaks are reportable in Washington state but are not nationally reportable.*

[b] *Data from the Washington State Department of Health Influenza Surveillance Data, 2017-2023 Season Summaries.*[15]

Figure 4. 2022-2023 Influenza Hospitalizations by Age and Virus Type



Wastewater

Wastewater surveillance was introduced by CDIP in Spokane County in October 2021, and data regarding the quantity of SARS-CoV-2 detected in wastewater facilities were made available to the community, partners, and stakeholders via the county's COVID-19 data dashboard, which has since been replaced by the Spokane County Respiratory Illness dashboard. Samples collected from these facilities undergo testing for the presence of the SARS-CoV-2 N gene, which remains relatively stable as variants evolve. The Washington State Public Health Laboratory processes samples from 2 facilities: the City of Spokane Riverside Park Water Reclamation Facility and the Spokane County Regional Water Reclamation Facility (SCRWRF).

By monitoring SARS-CoV-2 levels in wastewater, public health authorities gain valuable insights into the presence of viruses in the community. Wastewater surveillance is an additional tool for tracking viral spread, complementing traditional diagnostic testing. It enables early detection of outbreaks, identification of emerging variants, and assessment of the effectiveness of containment strategies.

Viral Hepatitis

Hepatitis A

Hepatitis A is a virus that is transmitted through the fecal-oral route. Outbreaks of hepatitis A linked to contaminated food have occurred throughout the US over the past decade. Beginning in 2016, hepatitis A outbreaks in the US became more commonly linked to person-to-person spread.[16] Those experiencing homelessness are one of the groups at highest risk for acquiring hepatitis A due to unhygienic and often crowded living conditions and lack of sanitation.

Spokane County had an outbreak of hepatitis A in 2019, and many cases were also experiencing homelessness. Mitigation efforts were implemented upon the earliest cases, including vaccination in shelters and at the county jail, infection prevention education around handwashing and sanitation, and collaborative work with city officials and other partners. The virus was spreading primarily from person-to-person within shelters and encampments.

SRHD staff engaged in efforts to slow transmission, including involvement in vaccination blitz events and coordinating with community partners. The 2019 outbreak extended from April 2019 to May 2020 and totaled 95 cases. Since 2020, cases of hepatitis A in Spokane County have returned to baseline levels.

Notable national hepatitis A outbreaks involving foodborne transmission have occurred. This includes a 2022 multistate outbreak linked to fresh organic strawberries that resulted in 19 cases in 4 states and a 2019 outbreak related to fresh blackberries that caused 20 cases in 7 states.[17]

Hepatitis B

Hepatitis B is a vaccine-preventable disease that infects the liver and is caused by the hepatitis B virus.[18] Hepatitis B is transmitted through bodily fluids, primarily blood and semen, or from an infected pregnant person to their infant during childbirth. In the US, sexual contact and intravenous drug use with shared needles spur most new, acute infections of hepatitis B. Most adults infected with hepatitis B will clear the infection after several weeks, and around 2% to 6% will develop lifelong, chronic infections. Conversely, children, especially those under 5 years of age, are at much higher risk of developing chronic HBV infections without immunization, with perinatal infections representing most childhood HBV infections. For infants born to hepatitis B-positive mothers, prompt adherence to the recommended hepatitis B vaccination schedule will prevent transmission in most instances.

The CDC updated recommendations for hepatitis B screening and testing in adults in 2023.[19] The CDC now recommends that adults ages 18 and older should undergo hepatitis B screening at least once in a lifetime using 3 laboratory tests: hepatitis B surface antigen, hepatitis B surface antibody, and hepatitis B total core antibody.

The CDC also expanded risk-based testing recommendations to include populations, activities, exposures, or conditions associated with increased risk for HBV infection.[19] These include "persons incarcerated or formerly incarcerated in a jail, prison, or other detention setting; persons with a history of sexually transmitted infections or multiple sex partners;

and persons with a history of hepatitis C virus infection," with the proviso that "anyone who requests HBV testing should receive it, regardless of disclosure of risk, because many persons might be reluctant to disclose stigmatizing risks."

Hepatitis C

Despite significant advances in hepatitis C treatment, cases in Spokane County and the US remain high. Hepatitis C is a curable disease when medication is taken daily for 8 to 12 weeks.[20] However, only about one-third of Americans with hepatitis C have been treated.[21] Treatment rates have fallen since the emergence of highly effective medication options due to high cost, insurance restrictions, and inability to access health care. Washington state has attempted to mitigate these challenges by making Mavyret, a pan-genotypic hepatitis C medication, free to all patients on Medicaid without prior authorization from a health care provider.[22]

Acute hepatitis C is defined as the first 6 months of a hepatitis C infection.[23] Chronic hepatitis C is an infection that persists beyond 6 months. Around 75% to 85% of acute hepatitis C infections become chronic. Acute hepatitis C is difficult to identify because 70% to 80% of patients are asymptomatic. Most acute hepatitis C cases in Spokane County are diagnosed accidentally when a patient seeks care for another condition. Due to these factors, acute hepatitis C rates are likely higher than reported. Nationally, hepatitis C prevalence has remained stable despite treatment of only one-third of patients, which suggests significant ongoing disease transmission.[21]

Prior to the COVID-19 pandemic, hepatitis C rates in Spokane County were higher than the state average. During the pandemic, rates dropped significantly in Spokane County and Washington state. This drop is likely partially artificial due to people accessing less health care during the pandemic and health care providers postponing screenings. In addition, many people who were previously at risk for hepatitis C due to injection drug use switched to smoking fentanyl in the last few years, possibly leading to fewer acute infections.

Table 5. Viral Hepatitis by Region and Year[a]

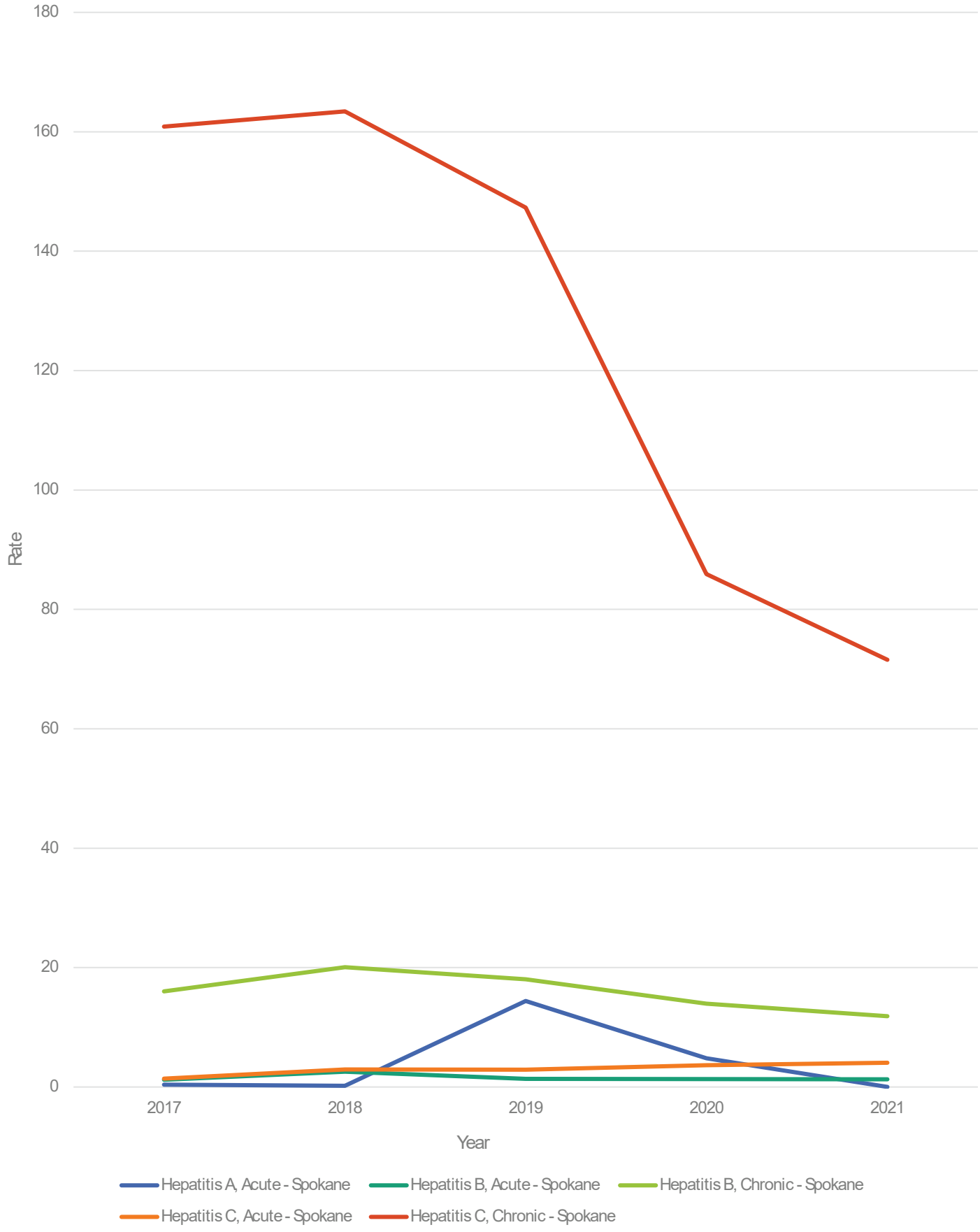
Region	2017		2018		2019		2020		2021	
	Case Count	Rate per 100k	Case Count	Rate per 100k	Case Count	Rate per 100k	Case Count	Rate per 100k	Case Count	Rate per 100k
Hepatitis A, Acute										
Spokane	2	0.4	1	0.2	74[†]	14.4	25	4.8	0	0.0
Washington	28	0.4	35	0.5	181	2.4	284	3.7	18	0.2
United States	3365	1.0	12 474	3.8	18 846	5.7	9946	3.0	5726	1.7
Hepatitis B, Acute										
Spokane	6	1.2	13	2.6	7	1.4	7	1.3	7	1.3
Washington	43	0.6	51	0.7	53	0.7	37	0.5	29	0.4
United States	3409	1.1	3322	1.0	3544	1.1	2155	0.7	2044	0.6
Hepatitis B, Chronic[b]										
Spokane	80	16.0	102	20.1	93	18.1	73	14.0	62	11.9
United States	1816	24.9	1878	25.3	1895	25.1	1370	17.9	1483	19.4
Hepatitis C, Acute										
Spokane	7	1.4	15	3.0	15	2.9	19	3.6	22	4.1
United States	75	1.0	119	1.6	97	1.3	120	1.6	122	1.6
National	4225	1.4	4768	1.5	5479	1.7	6025	1.9	6028	1.9
Hepatitis C, Chronic[b]										
Spokane	804	160.9	830	163.4	759	147.3	449	85.9	388	71.6
Washington	8865	121.3	7652	103.0	6730	89.2	4458	58.2	3998	51.5

[a] Data from the Centers for Disease Control and Prevention National Notifiable Diseases Surveillance System, 2017-2021 Annual Tables of Infectious Disease Data[4] and the Washington State Department of Health Annual Communicable Disease Reports.[1]

[b] Data were not available at the time of publication or not reportable at the local, state, or national level.

[†] Spokane County case counts and rates highlighted in red indicate that these figures exceeded the 5-year median for the respective disease.

Figure 5. Reported Viral Hepatitis Rates per 100 000 Population in Spokane County From 2017 to 2021



Vector-borne Disease

Vector-borne diseases are characterized by pathogens transmitted to humans by vectors, including mosquitoes, ticks, and fleas. Although vector-borne diseases occur less frequently across Washington when compared to other regions of the US, disease surveillance of vector-borne diseases remains important.[1,4] Changing climates, including warmer temperatures, may impact the geographic distribution of vectors and increase incidence in future years.[24] During the 2017 through 2021 period, the incidence rate of all vector-borne diseases in Washington were either equal to or below the national incidence.

Lyme Disease

Despite Lyme disease being the most reported tick-borne disease in the US, it is still considered uncommon in Washington state.[25] Lyme disease diagnosed in Spokane County is presumably acquired elsewhere, primarily in the Northeastern or Midwestern US. In Washington, ticks that spread Lyme disease are typically found in western Washington, but they have also been identified on the eastern slopes of the Cascades. Typically, there are 7 to 23 cases of Lyme disease reported annually in Washington state. Two cases of travel-related Lyme disease were reported in Spokane in 2021. Likely exposure locations for the 2 cases were determined to be rural New York and Wisconsin and were related to outdoor activities such as hiking and yard work.

Relapsing Fever

Relapsing fever is another tick-borne disease caused by several different species of *Borrelia* bacteria: *Borrelia hermsii, B turicatae,* and up to 14 other *Borrelia* species cause soft tick-borne relapsing fever, *B miyamotoi* causes hard tick-borne relapsing fever, and *B recurrentis* causes louse-borne relapsing fever.[26] In Washington, soft tick-borne relapsing fever is one of the most common tick-borne illnesses contracted in the state. Each year, there are 1 to 12 cases reported in Washington. However, case counts may be underestimated as testing for relapsing fever occurs infrequently, and cases may go undiagnosed. Exposure locations for diagnosed cases are often associated with overnight stays in rustic summer cabins. There have been no recent reports of louse-borne disease as this condition is rare, even in travelers. Locally, *O hermsii* is typically found at higher altitudes (1500-8000 feet) in eastern Washington, and the most common reservoirs appear to be wild rodents, such as deer mice, squirrels, chipmunks, and rats. The last case of relapsing fever in Spokane was in 2018.

Arboviral Diseases

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 in 2017, 2018, and 2020 were all travel related and exposures occurred outside of the US. In 2021, Washington state reported a rare case of travel-related Colorado tick fever. As of 2021, other than West Nile Virus (WNV), the last reported human arboviral infection acquired in the state of Washington was western equine encephalitis in 1988.[1]

West Nile Virus

West Nile virus (WNV) disease, transmitted via mosquito from infected birds, was first detected in the US in 1999.[27] The first evidence of WNV transmission in Washington occurred in 2002, when infected birds and horses were detected. The first human WNV infections acquired in Washington were reported in 2006.[1]

About 80% of those infected are asymptomatic, so it is believed the actual disease incidence is substantially underrepresented.[28] In 2016, Spokane County had its first in-county acquired human cases. Thirteen cases were reported in 2017: 8 with in-state exposure and 5 with out-of-state exposure. Since 2017, no cases of WNV have been reported. In 2009, Washington had the highest number of cases to date, with 38 cases and 2 presumptive viremic donors. Of these cases, 36 were endemically acquired within Washington. On average, 7 cases are reported each year in Washington, with a median of 4 cases per year.[1]

Hantavirus

Hantavirus is caused by a family of viruses spread primarily through rodents. Hantavirus pulmonary syndrome (HPS) is a severe respiratory disease caused by infection with hantaviruses. In the Western US, Sin Nombre virus is the virus that causes HPS.[29] The deer mouse is the primary reservoir for this virus. In Washington, there are 1 to 5 cases reported annually, mainly exposed in eastern counties. There was one case of HPS reported in 2017 and no cases since.

Figure 6. Reported Vector-borne Disease Rates per 100 000 Population in Spokane County From 2017 to 2021

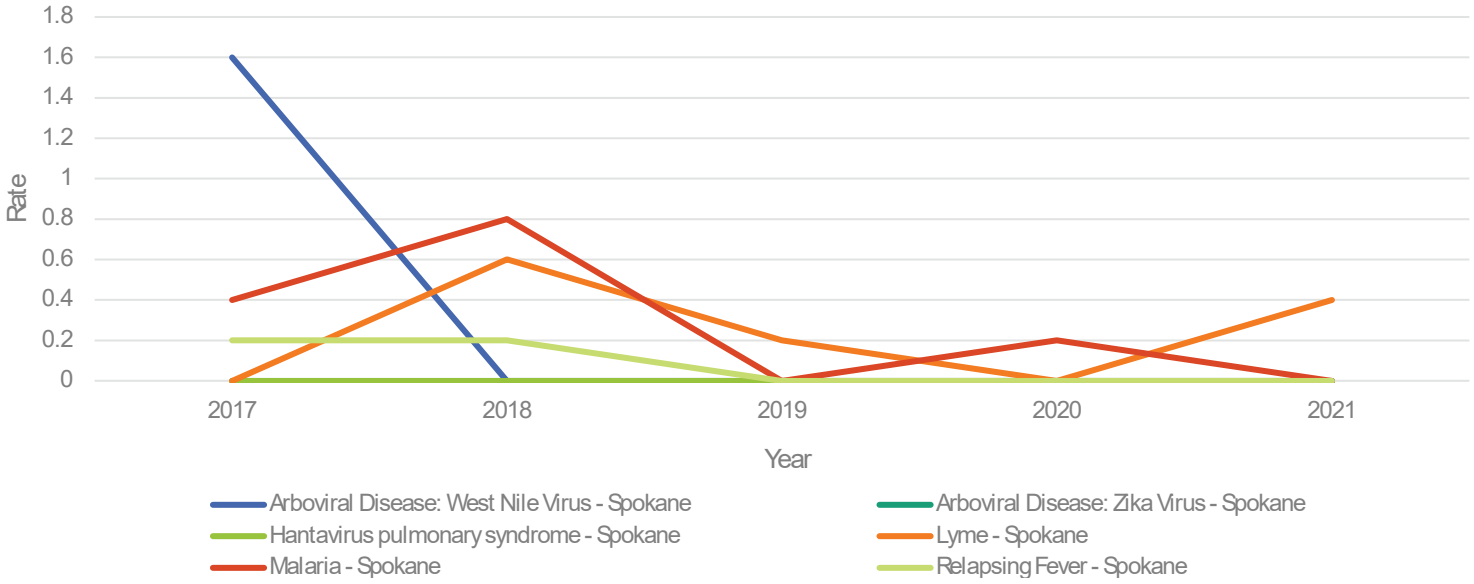


Table 6. Vector-borne Diseases by Region and Year[a]

Region	2017		2018		2019		2020		2021	
	Case Count	Rate per 100k	Case Count	Rate per 100k	Case Count	Rate per 100k	Case Count	Rate per 100k	Case Count	Rate per 100k
Hantavirus Pulmonary Syndrome										
Spokane	1†	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Washington	5	0.1	2	0.0	1	0.0	0	0.0	1	0.0
United States	35	0.0	20	0.0	21	0.0	16	0.0	14	0.0
Lyme										
Spokane	0	0.0	3	0.6	1	0.2	0	0.0	2	0.4
Washington	39	0.5	20	0.3	43	0.6	20	0.3	43	0.6
United States	42 743	13.2	33 666	10.3	34 945	10.7	18 000	5.5	24 610	7.5
Malaria										
Spokane	2	0.4	4	0.8	0	0.0	1	0.2	0	0.0
Washington	34	0.5	40	0.5	31	0.4	15	0.2	20	0.3
United States	2056	0.6	1748	0.5	1936	0.6	603	0.2	1503	0.5
Relapsing Fever[b]										
Spokane	1	0.2	1	0.2	0	0.0	0	0.0	0	0.0
Washington	3	0.0	9	0.1	4	0.1	2	0.0	2	0.0
Arboviral Disease: West Nile Virus										
Spokane	8	1.6	0	0.0	0	0.0	0	0.0	0	0.0
Washington	13	0.2	3	0.0	5	0.1	2	0.0	4	0.1
United States	2097	0.7	2646	0.8	974	0.3	730	0.2	2906	0.9
Arboviral Disease: Zika Virus										
Spokane	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Washington	16	0.2	0	0.0	0	0.0	0	0.0	0	0.0
United States	519	0.7	81	0.1	28	0.0	4	0.0	3	0.0

[a] Data from the Centers for Disease Control and Prevention National Notifiable Diseases Surveillance System, 2017-2021 Annual Tables of Infectious Disease Data[4] and the Washington State Department of Health Annual Communicable Disease Reports.[1]

[b] Data were not available at the time of publication or not reportable at the local, state, or national level.

† Spokane County case counts and rates highlighted in red indicate that these figures exceeded the 5-year median for the respective disease.

Rabies Testing

In Washington, bats represent the sole reservoir for rabies, distinguishing the state from the broader national landscape where rabies is more commonly associated with terrestrial mammals.[30] Surveillance efforts identify rabid bats within the state, underscoring the predominance of the bat variant of rabies in both human and animal infections in Washington. Despite the low estimated prevalence of rabies in the wild bat population, less than 1%, testing of bats—typically those showing signs of sickness or injury—reveals a higher incidence rate of 5% to 10% for rabies.

Over the past 25 years, instances of rabies in mammals other than bats have been exceptionally rare in Washington, and only 4 cases were detected in domestic animals.[30] Among these, 3 were attributed to the bat-variant of the virus, and one case was not attributed to any variant.

SRHD's Zoonotic Disease program plays a critical role in monitoring rabies, sending an average of 30 bats annually to the Washington State Public Health Laboratory for testing.

A notable incident occurred in July 2015 when a bat, which had bitten a child at Liberty Lake Regional Park in Spokane County, was confirmed as rabid. This was the first such case in Spokane County since 2007. The incident prompted significant public awareness efforts and a subsequent increase in bat-related inquiries to SRHD. Reflecting this heightened vigilance, recent years have seen a twofold increase in the number of bats submitted for rabies testing compared to past averages.

Human rabies cases are exceedingly rare in the US, with an annual report of 1 to 3 cases nationally.[31] Since 1980, the vast majority of domestically acquired human rabies cases have been linked to bats. Internationally, rabid dogs are the most common source of human rabies exposure.[32] Washington state last reported human rabies cases in 1995 and 1997; both were traced back to bat exposures, highlighting the ongoing need for public awareness and preventive measures against this deadly virus.[30]

Table 7. Animals Tested for Rabies by Region and Year[a]

Region	2017		2018		2019		2020		2021		2022	
	Positive cases	Total tested	Positive cases	Total tested	Positive cases	Total tested	Positive cases	Total tested	Positive cases	Total tested	Positive cases	Total tested
Bat												
Spokane	2	33	3	27	0	16	1	13	0	6	0	9
Washington	22	376	40	531	9	255	8	230	12	203	8	217
Cat												
Spokane	0	10	0	10	0	5	0	4	0	4	0	10
Washington	0	81	0	84	0	65	0	56	0	48	0	70
Dog												
Spokane	0	9	0	9	0	4	0	1	0	0	0	3
Washington	0	48	0	44	0	23	0	16	0	16	0	27
Raccoon												
Spokane	0	2	0	2	0	0	0	0	0	0	0	0
Washington	0	8	0	4	0	2	0	4	0	12	0	12
Rodent												
Spokane	0	0	0	0	0	0	0	0	0	0	0	1
Washington	0	4	0	2	0	2	0	1	0	1	0	4
Skunk												
Spokane	0	0	0	0	0	0	0	0	0	1	0	0
Washington	0	1	0	0	0	0	0	1	0	1	0	2
Other Domestic Animals												
Spokane	0	0	0	0	0	0	0	0	0	0	0	1
Washington	0	5	0	8	0	7	0	6	0	4	0	5
Other Wild Animals [b]												
Washington	0	2	0	2	0	3	0	4	0	1	0	6

[a] Data from the Washington State Department of Health Laboratory Information Management System and the Washington State Department of Health Annual Communicable Disease Reports.[33,1]

[b] Data were not available at the local level.

Sexually Transmitted Infection

Aside from cases of COVID-19 in 2020 and 2021, sexually transmitted infections (STI), also referred to as sexually transmitted diseases, or STDs, continued to be the most commonly reported communicable diseases in Washington.[1] During this period, Spokane County's incidence rate for all STIs remained higher than the incidence rate statewide, and often higher than the national rate. The decrease in cases of many STIs in 2020 likely reflected disruptions in STI-related care due to the COVID-19 pandemic. Many health care clinics provided limited in-person visits for patients with symptoms, and a decrease in annual reproductive health visits may have contributed to lower rates of STI screening during this time.[34]

In 2018, the CDC estimated that 1 in 5 people in the US had an STI, totaling nearly 68 million infections.[35] Almost half of the new STI diagnoses were among youth ages 15 to 24. Additionally, racial and ethnic health disparities remain a prevalent concern when looking at the population of individuals diagnosed with STIs. Surveillance data show higher rates of reported STIs among some racial and ethnic minority groups when compared with rates among White individuals—particularly among Black, Hispanic, American Indian/Alaska Native, and Native Hawaiian/Other Pacific Islander individuals. Inequities around economic opportunity, access to health care (including quality STI prevention and treatment services), mistrust in health care institutions, and educational attainment all continue to perpetuate these health disparities.[36]

Chlamydia

Chlamydia trachomatis remains the most reported STD in Spokane County. In 2021, there were 2562 cases reported, an approximately 3.5% increase in cases from 2020. During 2017 to 2021, rates of chlamydia infection in Spokane were consistently higher than the rate across Washington state. In 2021, the rate of chlamydia infection was 473 per 100 000 population in Spokane County and 391 per 100 000 population in Washington. Across Washington, disease rates are highest among sexually active adolescents and young adults, particularly women, due in part to better screening and detection within these groups. [1]

Nationwide, there were over 1.6 million cases of chlamydia reported with an overall incidence rate of 495.5 per 100 000 population in 2021.[34] When ranking US states by highest to lowest incidence rate (from 1 to 50), Washington ranked number 40, with a rate of 365.2 per 100 000 population in 2022.[37]

Gonorrhea

Since 2018, over 11 000 cases of gonorrhea have been reported in Washington state.[1] In 2021, there were 879 cases of gonorrhea reported in Spokane County. Spokane also had a higher incidence rate (162/100 000) than the rest of Washington (143/100 000). Although reasons for this are unclear, gonorrhea cases decreased by about 4% from 2020 to 2021. The incidence rate in Spokane dropped from 172 per 100 000 population in 2020 to 162 per 100 000 population in 2021.

Similarly, incidence rates in Washington state also decreased from 151 per 100 000 population in 2020, to 143 per 100 000 population in 2021.[1] Across Washington state, disease rates are highest among men and sexually active younger adults. Approximately half of all male cases occur among men who have sex with men (MSM). Since 2013, national rates of reported gonorrhea have also been higher among men compared to women, likely reflecting cases identified in both MSM and men who have sex with women only (MSW).[34]

Additionally, the bacterium that causes gonorrhea has progressively developed resistance to antibiotics.[34] The CDC estimates that of the 1.6 million new gonorrhea infections each year, about half involve a strain that is resistant to at least one antibiotic. Almost all circulating strains in the US remain susceptible to ceftriaxone, the primary recommended treatment for uncomplicated gonorrhea.

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. In Spokane County, rates of P&S syphilis were stable until sharp increases were observed in 2015. Since then, cases have continued to rise from 28 cases of P&S syphilis in 2015 to 129 cases in 2019. As seen with other STIs, cases of syphilis also decreased in 2020 with the start of COVID-19. Increasing telehealth visits during this time meant that testing and physical examinations for diagnosing syphilis were less likely to occur, leaving more individuals undiagnosed.[38] The following year, in 2021, cases increased by about 40%, returning to case counts close to pre-pandemic numbers (80 cases in 2020 versus 112 cases in 2021).

This continuous rise in cases since 2015 was driven by transmission of syphilis among individuals that engage in heterosexual sex.[1] Historically, syphilis largely occurred

among (MSM). In more recent years, the majority of cases were among heterosexual individuals. Spokane County has had the highest rates of syphilis in Washington for the past several years. However, in 2021, other counties across the state also began to experience increased incidence of syphilis. Previously, the Washington state incidence rate remained stable from 2018 to 2020 at around 11 per 100 000 population. In 2021, this rate increased to 19 per 100 000 population. This statewide rise in syphilis cases can also be attributed to the increasing spread of syphilis in individuals who report having opposite-sex partners.[1]

Because syphilis can be spread from pregnant women to their unborn children and cases increased in women of childbearing age, congenital syphilis remains a concern. Spokane County's first congenital syphilis case since 2010 was detected in 2016. Since then, 17 cases of congenital syphilis have been detected. In 2019, a peak of 7 congenital cases were reported. Numbers have decreased since then with 4 cases reported in 2021.

In the US, overall rates of syphilis continue to increase as well.[34] National rates show that MSM are still disproportionately impacted by syphilis, but rates among women have grown. Rates of syphilis in women continue to rise following a sharp increase in 2020. American Indian and Alaska Native individuals, followed by Black/African American individuals have the highest rate of P&S syphilis in the US. These disparities are likely reflective of inequities present in access to quality sexual health care, rather than differences in sexual behavior.

Table 8. Sexually Transmitted Infections (STI) by Region and Year[a]

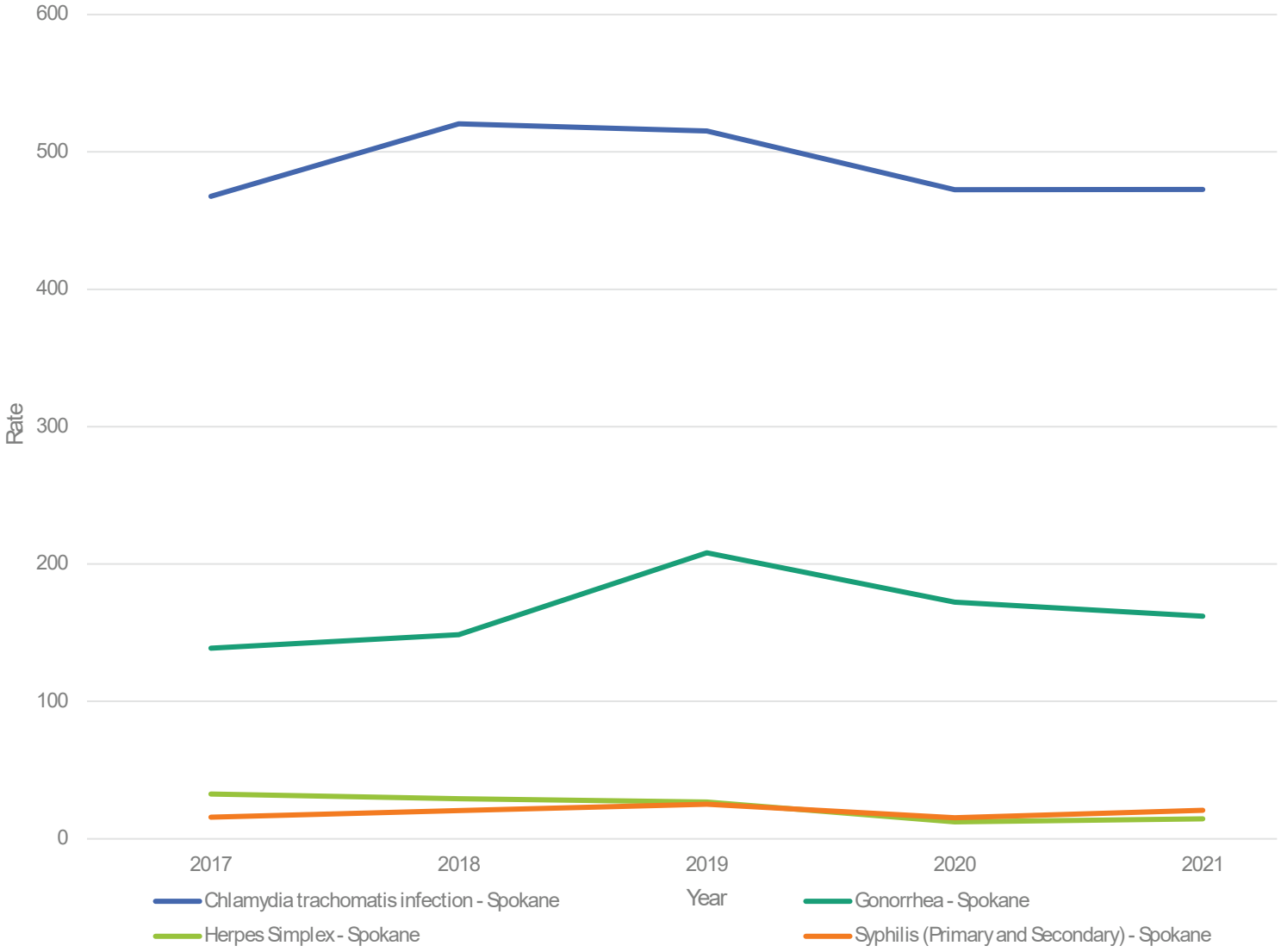
Region	2017		2018		2019		2020		2021	
	Case Count	Rate per 100k	Case Count	Rate per 100k	Case Count	Rate per 100k	Case Count	Rate per 100k	Case Count	Rate per 100k
Chlamydia trachomatis infection										
Spokane	2337	467.6	2644[†]	520.5	2655	515.3	2469	472.4	2562	472.6
Washington	32 454	444.0	34 754	467.9	37 641	498.8	31 423	410.4	30 352	390.8
United States	1 708 569	524.6	1 758 668	537.5	1 808 703	551.0	1 579 837	479.5	1 613 840	499.0
Gonorrhea										
Spokane	693	138.7	755	148.6	1073	208.2	900	172.2	879	162.1
Washington	10 022	137.1	11 215	151.0	11 848	157.0	11 580	151.2	11 098	142.9
United States	555 608	170.6	583 405	178.3	616 392	187.8	677 751	205.7	3042	0.9
Herpes Simplex [b]										
Spokane	163	32.6	148	29.1	138	26.8	64	12.3	78	14.4
Washington	2058	28.2	1612	21.7	1740	23.1	1375	18.0	1189	15.3
Syphilis (Primary and Secondary)										
Spokane	78	15.6	104	20.5	129	25.0	80	15.3	112	20.7
Washington	674	9.2	809	10.9	830	11.0	837	10.9	1488	19.2
United States	30 644	9.4	35 063	10.7	38 992	11.9	41654	12.6	53 034	16.4
Syphilis, Congenital [b]										
United States	918	23.3	1306	34.4	1870	49.9	2148	57.3	2820	75.3

[a] Data from the Centers for Disease Control and Prevention National Notifiable Diseases Surveillance System, 2017-2021 Annual Tables of Infectious Disease Data[4] and the Washington State Department of Health Annual Communicable Disease Reports.[1]

[b] Data were not available at the time of publication or not reportable at the local, state, or national level.

[†] Spokane County case counts and rates highlighted in red indicate that these figures exceeded the 5-year median for the respective disease.

Figure 7. Reported Sexually Transmitted Infection (STI) Rates per 100 000 Population in Spokane County From 2017 to 2021



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 come to be regarded as a chronic infection.

Twenty-two new cases of HIV were detected in Spokane County in 2021. The number of new HIV cases in the county is usually between 20 to 25 cases annually. Incidence of HIV consistently remained lower in Spokane County residents when compared to Washington residents during 2017 to 2021.[1] The number of newly diagnosed cases in Washington state remains fairly stable at roughly 400 cases per year. Incidence of HIV in Washington decreased in 2020 but returned to pre-pandemic levels (5.3/100 000) in 2021. About 1 in 4 cases in the state are diagnosed late in the course of their HIV illness or develop AIDS within 12 months of HIV diagnosis. HIV rates are highest among gay and bisexual men, as well as racial or ethnic minorities.[1]

There were approximately 36 136 new HIV diagnosis in the US in 2021.[39] From 2017 to 2021, the number of new HIV diagnoses in the US decreased by 12%. Among the new HIV diagnoses in 2021, 70% of cases occurred among MSM. According to the CDC, despite Black Americans comprising only 12% of the total US population, they accounted for 40% of new HIV infections in the US in 2021.[40] Hispanic/Latino Americans made up 18% of the US population in 2021 but comprised 29% of new HIV diagnoses.

Although there are many contributing factors to these racial and ethnic disparities, racism and systemic inequities are among the factors that perpetuate the disproportionate impact of HIV among Black and Hispanic/Latino people.[40] The social determinants of health refer to nonmedical factors that impact health outcomes.[41] Because these disparities in HIV infection persist, it is essential that interventions to prevent and treat HIV are culturally appropriate and address the social determinants of health.

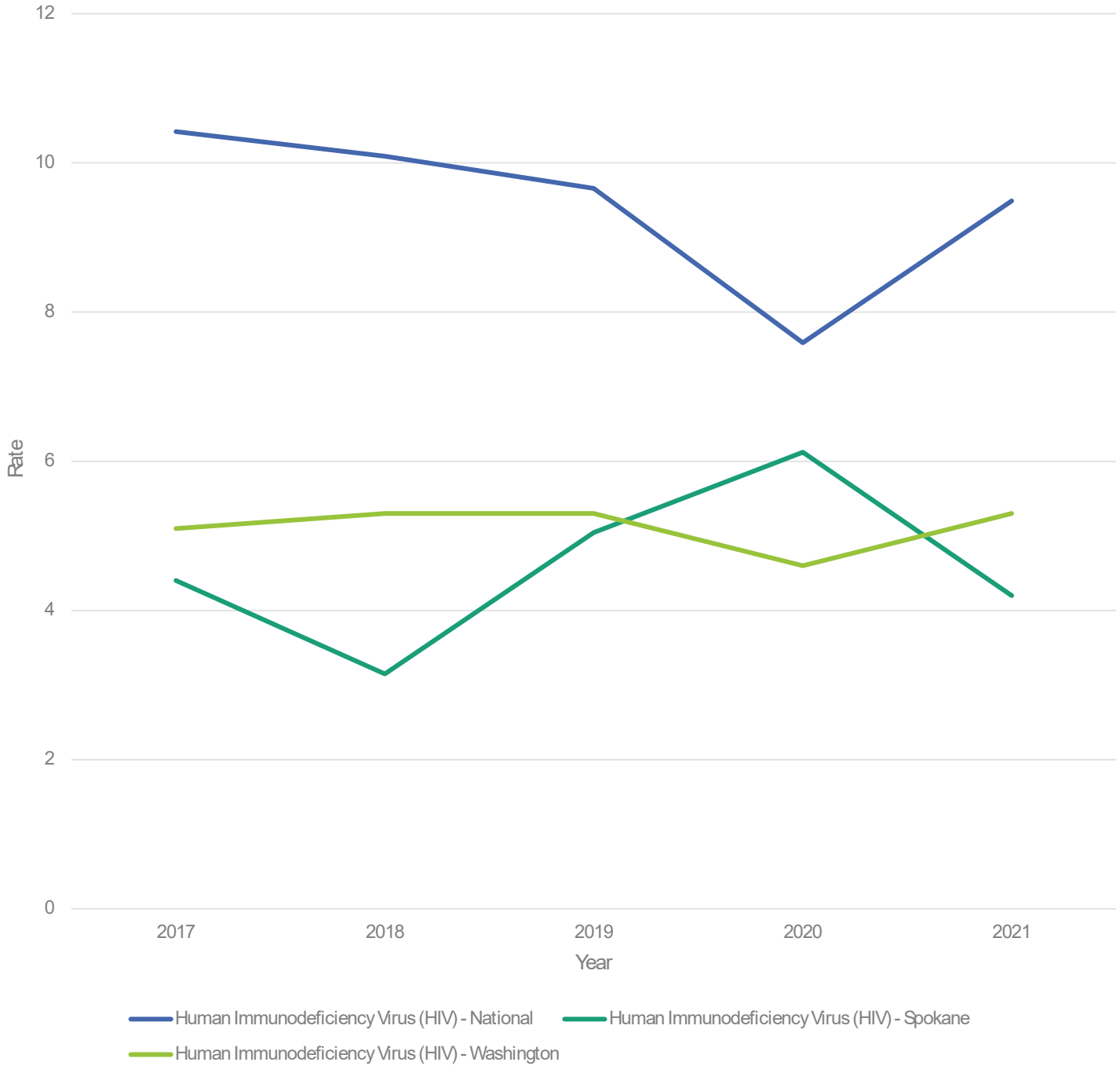
Table 9. Human Immunodeficiency Virus (HIV) Cases by Region and Year [a]

Region	2017		2018		2019		2020		2021	
	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k
Spokane	22	4.4	16	3.1	26[†]	5.0	32	6.1	23	4.2
Washington	376	5.1	398	5.3	404	5.3	358	4.6	408	5.3
United States	33 938	10.4	32 999	10.1	31 723	9.7	25 007	7.6	31 269	9.5

[a] Data from the Centers for Disease Control and Prevention National Notifiable Diseases Surveillance System, 2017-2021 Annual Tables of Infectious Disease Data[4] and the Washington State Department of Health Annual Communicable Disease Reports.[1]

[†] Spokane County case counts and rates highlighted in red indicate that these figures exceeded the 5-year median for the respective disease.

Figure 8. Reported Human Immunodeficiency Virus Rates per 100 000 Population in Spokane County, Washington State, and Nationally From 2017 to 2021



Data from the Centers for Disease Control and Prevention National Notifiable Diseases Surveillance System, 2017-2021 Annual Tables of Infectious Disease Data[4] and the Washington State Department of Health Annual Communicable Disease Reports.[1]

MPOX Spotlight

In May 2022, cases of mpox (formerly known as monkeypox) were reported in countries where the disease is not endemic, as well as in some endemic countries. Most cases reporting travel history did not have travel to disease-endemic countries.[42] The worldwide mpox outbreak of 2022 mainly affected MSM and was typically contracted through sexual activity, as mpox is primarily spread through skin-to-skin contact.

SRHD began preparing for potential cases in Spokane County. In mid-June of 2022, multiple programs within the health district launched a coordinated effort to prepare medical providers, community members likely to be most impacted, and the community at large for the possible transmission of mpox within the county.

SRHD's CDIP program communicated to the health care provider community about the population at risk, testing options and procedures, and vaccine and treatment options for cases and contacts. CDIP worked with SRHD's HIV/STI Prevention program to develop a process for performing public health surveillance and epidemiological investigation in response to mpox. SRHD's Immunization Assessment and Promotion (IAP) program was responsible for receiving, storing, and dispensing the JYNNEOS vaccine across Spokane and surrounding counties.

Medical countermeasures, including the JYNNEOS vaccine and the antiviral treatment tecovirimat, also known as TPOXX, were obtained by SRHD to utilize and distribute to health care organizations and the community.

JYNNEOS Distribution

SRHD received JYNNEOS doses on July 19, 2022, and began distributing doses to Ferry, Stevens, Pend Oreille, Lincoln, Adams, Whitman, and Okanogan counties. SRHD also held several clinics at the health district's College Avenue location, focusing on individuals who were most at risk for infection. These clinics relied on program staff and volunteers from the Medical Reserve Corps of Spokane County to provide vaccine administration.

Additionally, the IAP program coordinated with other providers in the county to increase access to mpox vaccination services. One of these was Consistent Care, a local medical services provider with a convenient location and capacity to offer more flexible appointments. In addition, two CHAS clinics (Valley and Denny Murphy) began providing JYNNEOS to patients. The IAP program continues to offer JYNNEOS vaccine at all mobile adult vaccine clinics to individuals who meet the risk criteria outlined by the CDC.

Doses of JYNNEOS were also distributed to area health care organizations and locations that could offer mobile vaccination services. The following is an overview of the number of doses of JYNNEOS vaccine administered by SRHD, the number of patients served, and the doses transferred to community partners. Data regarding the number of transferred doses administered are not available.

Doses Administered by SRHD July 2022 – Present

- Patients who received one or more doses of JYNNEOS: 499
- Doses administered: 714

Transfers to Community Partners from July 2022 – Present

- Transfers: 23
- Doses: 299
- Community partners in Spokane and surrounding counties: 9

Tecovirimat Distribution

During the 2022 mpox outbreak, under sponsorship from the CDC, the FDA authorized state and local health departments access to tecovirimat from the Strategic National Stockpile (SNS) stores for the treatment of mpox. SRHD requested tecovirimat treatments from the SNS through the Washington State Department of Health and distributed them to area medical organizations, which were allowed to prescribe tecovirimat under the FDA's expanded access investigational new drug (EA-IND) protocol. Additionally, SRHD staff provided consultation for clinicians on the use of tecovirimat under EA-IND protocols.

SRHD distributed tecovirimat to the health care organizations most likely to prescribe it. Intravenous tecovirimat was pre-deployed to hospital pharmacies for cases hospitalized for mpox. The purpose of pre-deployment was to remove barriers for patients, allowing them to access treatment at the time of their hospitalization, rather than requiring a second visit to begin therapy. A portion of the oral tecovirimat supply, consisting of 20 bottles (approximately 10 standard dose oral treatments), was maintained at SRHD to be distributed later or to a facility not included in the pre-deployment.

The following is an overview of the number of tecovirimat treatments distributed in Spokane County:

August – September 2022

Oral tecovirimat was pre-deployed to the following:

- Sacred Heart Medical Center, Deaconess Hospital, CHAS, and Planned Parenthood in Spokane County: 56 bottles, approximately 28 standard dose treatments
- Lincoln County Health Department: 2 bottles, approximately 1 standard dose treatment

Sacred Heart Medical Center and Deaconess Hospital pharmacies were responsible for making supplies of oral tecovirimat available for both hospital patients and Providence and MultiCare outpatients, respectively.

August 2022

Fourteen vials of injection tecovirimat were pre-deployed to Sacred Heart Medical Center and Deaconess Hospital pharmacies.

Outcomes

In total, there were 10 cases of mpox in Spokane County, and SRHD's STI disease investigators and CDIP's epidemiologists investigated numerous suspect cases. If not for a quick response from public health and the medical community, with partnership and advocacy from the local LGBTQIA+ community, and without vaccine resources, the number of cases could have been significantly higher.

Tuberculosis

The crude incidence rate for tuberculosis (TB) is consistently lower for Spokane County than it is for Washington. Forty TB cases were identified and treated in Spokane County from 2019 to 2023.

According to the Washington State Department of Health "Tuberculosis Cases Statewide by Year: Summary Brief 2023," incidence rates for TB in the state have progressed downward overall, with increased fluctuations in recent years.[43] The fluctuations can be partially explained by the impacts of COVID-19 and an outbreak in Washington prisons. In 2023, there were 221 reported TB cases in Washington, which represents a 12% decrease from 251 cases in 2022. For this same period, King, Snohomish, Pierce, and Spokane counties reported 10 or more TB cases, accounting for 79.2% of the total case count for the year. Over the last 5 years, there have been between 1 and 8 reported cases of multidrug-resistant TB (MDR-TB) and no reported cases of extensively drug-resistant TB (XDR-TB).

The Washington State Department of Health Tuberculosis Program reported that from 2019 to 2023, males ages 65 and older experienced the highest TB rate of all age-sex groups. Other risk factors reported for the same period in Washington were as follows:

- 73.8% of all TB cases were among persons born outside the US
- 11.8% of TB cases were known contacts of a person with infectious TB disease within 2 years prior to their diagnosis
- 22.1% of reported cases had diabetes mellitus

According to the CDC's "Reported Tuberculosis in the United States, 2022," the US reported 8331 TB cases, representing a 5.9% increase in case count compared to 2021.[44] After declining substantially in 2020, TB cases rose in 2021 and 2022, but remained lower compared to 2019. TB cases appear to be gradually returning to pre-pandemic levels but concerns about pandemic-related disruptions to public health persist. The CDC reports 4 states accounted for half of all US tuberculosis cases in 2022; these were California (22.2%), Texas (13.2%), New York (8.6%), and Florida (6.4%).

As noted by the CDC, birth outside of the US remains a key risk factor for TB.[44] In 2022, the TB incidence rate was 17.1 times higher in non-US-born persons compared with US-born persons. The most common countries of birth included Mexico, the Philippines, India, Vietnam, and China. Small but noteworthy increases have been seen in persons born in countries in Central and South America and Afghanistan.

Table 10: Tuberculosis by Region and Year [a]

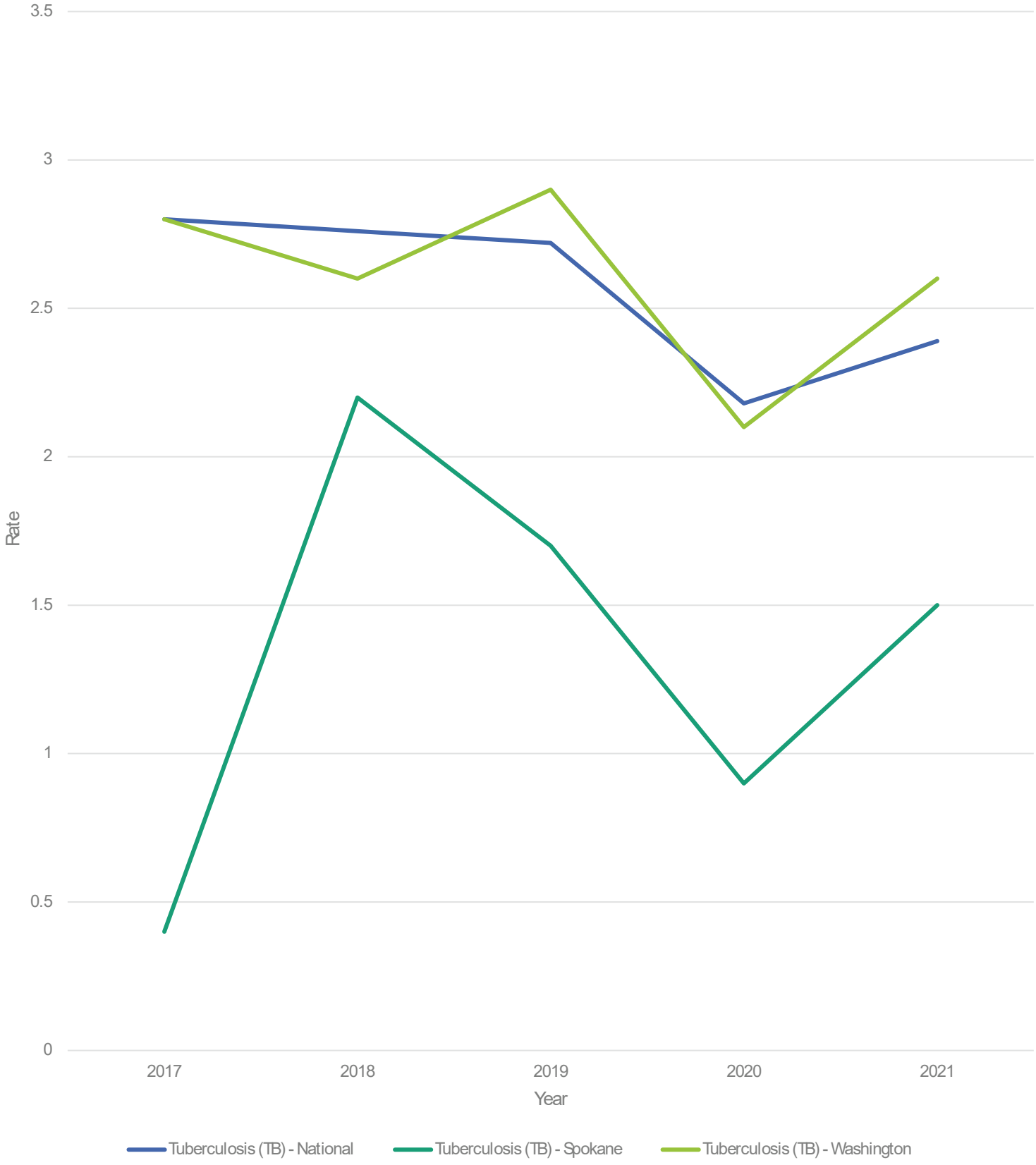
Region	2017		2018		2019		2020		2021		2022		2023	
	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k
Spokane	2	0.4	11[†]	2.2	9	1.7	5	0.9	8	1.5	7	1.7	11	2
Washington	207	2.8	190	2.6	221	2.9	163	2.1	199	2.6	251	3.2	221	2.8
United States [b]	9105	2.8	9025	2.76	8916	2.72	7174	2.18	7882	2.39	8331	2.5		

[a] Data from the Centers for Disease Control and Prevention National Notifiable Diseases Surveillance System, 2017-2021 Annual Tables of Infectious Disease Data[4] and the Washington State Department of Health Annual Communicable Disease Reports.[1]

[b] National-level data were not available at the time of this report's publication.

[†] Spokane County case counts and rates highlighted in red indicate that these figures exceeded the 5-year median for the respective disease.

Figure 9. Reported Tuberculosis Rates per 100 000 Population in Spokane County, Washington State, and Nationally From 2017 to 2021



Data from the Centers for Disease Control and Prevention National Notifiable Diseases Surveillance System, 2017-2021 Annual Tables of Infectious Disease Data[4] and the Washington State Department of Health Tuberculosis Data and Reports.[45]

Other Conditions

A number of reportable conditions of public health significance that did not fall within the other notifiable condition categories are discussed in the following sections.

Botulism

Botulism is a rare illness that is caused by a bacterial toxin from *Clostridium botulinum* or rarely, *Clostridium butyricum* and *Clostridium baratii*.[46] Forms of botulism include foodborne botulism, ingested toxin; wound botulism, toxin production in an infected wound; infant botulism, toxin produced in the intestine of a child under 1 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.[1] No consistent exposure risk is known for infants. Most foodborne 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.

The most recent botulism case in Spokane County occurred in 2021 with a non-fatal case of infant botulism. There was also one case of non-fatal infant botulism reported in 2020. Although exact exposure sources for both cases could not be identified, exposure to dust from nearby construction sites was noted as a possible exposure.

Each year in Washington, there are 0 to 4 reports of foodborne botulism, 0 to 9 reports of infant botulism, and 0 to 7 reports of wound botulism.[46] Most recently in 2021, there were 3 cases of infant botulism and 1 case of wound botulism.[1]

While large outbreaks are rare, some national outbreaks of foodborne botulism are notable. In September 2019, commercially prepared pre-packaged roasted potatoes were implicated as a source of illness in 4 people, one of whom died.[47] All 4 cases shared an individual package of potatoes without refrigeration instructions that was left unrefrigerated for 15 days. Botulism toxin type A was detected in the serum of all patients.

Coccidioidomycosis

Coccidioidomycosis, also known as Valley Fever, is an infection caused by fungi *Coccidioides immitis* and *C posadasii*.[48] Historically, the fungi are found in soil and semi-arid climates in the Southwestern US and parts of Central and South America. People become infected with coccidioidomycosis when fungal spores are inhaled, typically from dust or disrupted soil. Although most people that breathe in the spores will not get sick, rates are typically higher in people over the age of 60 years. Coccidioidomycosis is not reportable in all states.[49] It is endemic and reportable in states including Arizona, California, Nevada, New Mexico, and Utah, and a majority 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 coccidioidomycosis causes an estimated 15% to nearly 30% of community-acquired pneumonias. Low testing rates suggest the disease may be under-recognized. Although outbreaks of coccidioidomycosis are not common, outbreaks, particularly after events that disrupt large amounts of soil, such as earthquakes, have been recorded.

C immitis was also found in soil from south-central Washington, including in Benton, Yakima, and Kittitas counties, making it reportable in Washington state since 2014.[1] Since 2014, 60 to 120 cases are reported each year, most with exposure occurring during travel to the Southwestern US. During 2010 to 2021, 18 cases with exposure in south-central Washington state were reported. In 2021, Spokane reported 6 cases of coccidioidomycosis. Five cases reported travel to Arizona, and 1 had unknown exposure.

Overall, there are wide variations in the number of cases reported nationally each year, and the reasons for this are not well understood.[49] 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 detected and reported.

Legionellosis

Legionellosis is an infection caused by *Legionella* bacteria. *Legionella* bacteria are naturally found in freshwater environments but become a health concern when they grow and spread in human-made building water systems.[50] 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.[51] Legionellosis is not communicable between people. Individuals at increased risk for acquiring legionellosis include those over 65 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 2 clinically and epidemiologically distinct diseases caused by *legionella*: Legionnaires' disease presenting with pneumonia, and Pontiac fever, a milder disease without pneumonia.[51]

Over the past several years, the number of reported cases in

Spokane County fluctuated from 0 to 7 cases. There were 7 cases reported in Spokane County in 2021. In 2011, Spokane County had a small outbreak of legionellosis related to the water system in a health care facility, but no such outbreaks have occurred since that time.

No outbreaks of legionellosis have been reported in Washington state since 2017. However, the number of cases has been trending upward with more than 60 cases reported each year since 2019.[1]

Nationally, there were 26 waterborne disease outbreaks linked to *Legionella* bacteria. This made up 50% of the total number of waterborne disease outbreaks reported in the US. Recreational water, drinking water, and ornamental fountains were among the various water exposures associated with the outbreaks.[52] Although illness can occur year-round, illness is most common in the summer and early fall.

Human Prion Disease

Prion diseases, also known as transmissible spongiform encephalopathies (TSEs), refer to a family of rare, fatal neurodegenerative disorders that affect both humans and animals.[1] Creutzfeldt-Jakob disease (CJD) is the most common human prion disease.[53] This disease has long incubation periods and infection with this disease usually leads to death within 1 year of illness onset. In about 85% of patients, CJD occurs as a Sporadic Creutzfeldt-Jakob disease (sCJD), with no recognizable pattern of transmission. A smaller proportion of patients (5%-15%) develop CJD because of inherited mutations of the prion protein gene. Prion disease can also be iatrogenic, or acquired through contaminated surgical instruments, dura mater, corneal transplants, or human growth hormone supplements. Variant CJD (vCJD) is associated with ingestion of beef products contaminated with the prion that causes bovine spongiform encephalopathy, also known as mad cow disease.[1]

In 2020, Spokane had 3 cases of sCJD. In Washington state, 9 to 19 cases of human prion disease were reported from 2011 to 2020. The incidence of human prion disease in Washington is consistent with reported rates worldwide, with an average incidence of 1.7 cases per million population in the last decade.[1]

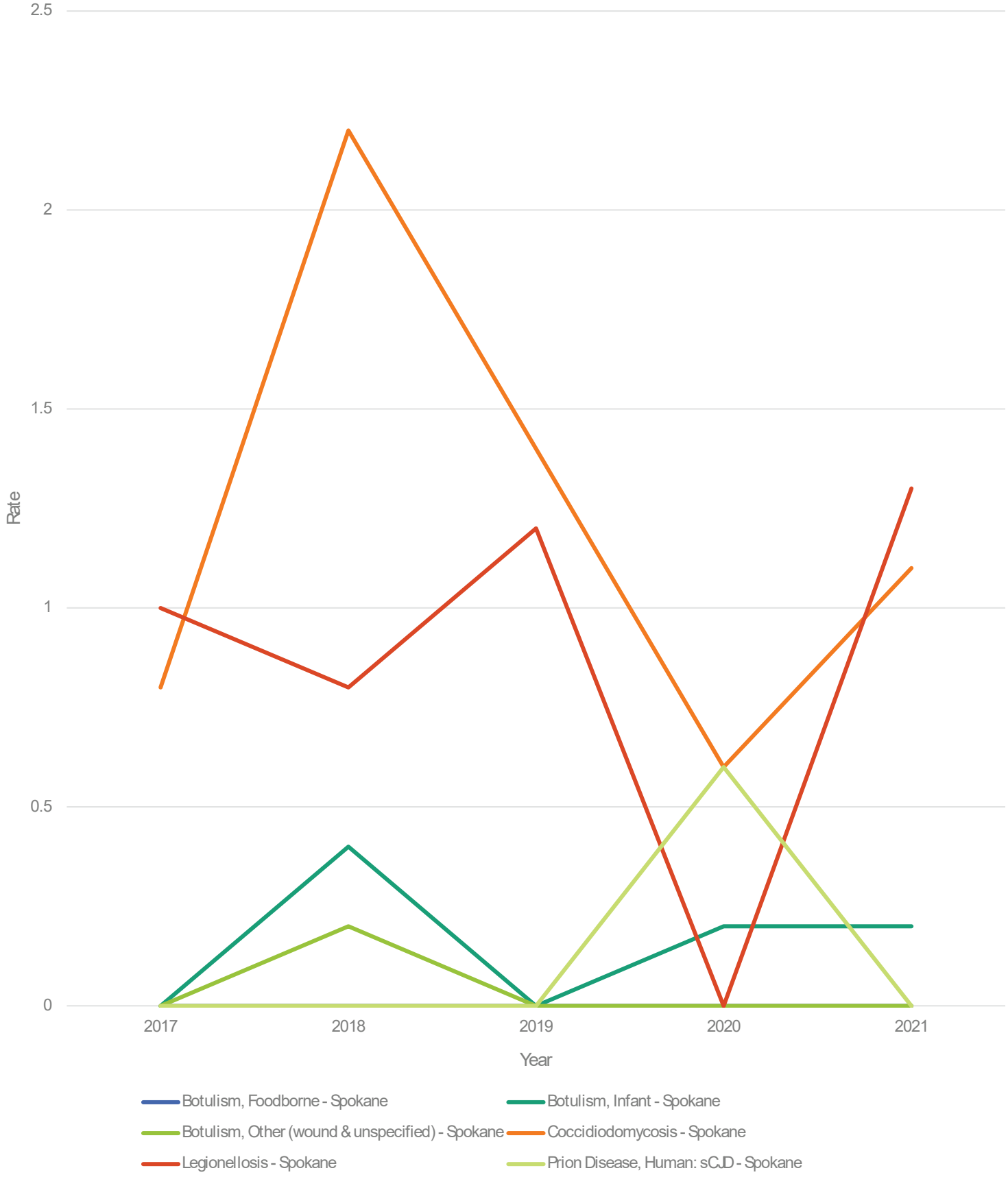
Table 11. Other Reportable Diseases by Region and Year[a]

Region	2017		2018		2019		2020		2021	
	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k	Cases	Rate per 100k
Botulism, Foodborne										
Spokane	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Washington	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0
United States	19	0.0	17	0.0	20	0.0	8	0.0	20	0.0
Botulism, Infant										
Spokane	0	0.0	2	0.4	0	0.0	1	0.2	1	0.2
Washington[b]	6		7		4		5		3	
United States	137	3.5	157	4.1	148	3.9	146	3.9	171	4.6
Botulism, Other (Wound and Unspecified)										
Spokane	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0
Washington	4	0.1	0	0.0	1	0.0	0	0.0	1	0.0
United States	21	0.0	51	0.0	28	0.0	35	0.0	45	0.0
Coccidioidomycosis[b]										
Spokane	4	0.8	11	2.2	7	1.4	3	0.6	6	1.1
Washington	69	0.9	63	0.8	62	0.8	64	0.8	120	1.5
Coccidioidomycosis[b]										
United States	14 364	10.9	15 611	11.6	18 407	13.4	19 220	13.7	20 201	14.4
Legionellosis										
Spokane	5	1.0	4	0.8	6	1.2	0	0.0	7	1.3
Washington	56	0.8	54	0.7	76	1.0	68	0.9	85	1.1
United States	7458	2.3	9933	3.0	8890	2.7	6310	1.9	8442	2.6
Prion Disease, Human: sCJD[b]										
Spokane	1	0.0	0	0.0	0	0.0	3	0.6	0	0.0
Washington	10	0.1	15	0.2	10	0.1	19	0.2	16	0.2

[a] Data from the Centers for Disease Control and Prevention National Notifiable Diseases Surveillance System, 2017-2021 Annual Tables of Infectious Disease Data[4] and the Washington State Department of Health Annual Communicable Disease Reports.[1]

[b] Data were not available at the time of publication or not reportable at the local, state, or national level.

Figure 10. Reported Rates of Other Diseases per 100 000 in Spokane County From 2017 to 2021



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