2020 Selected Reportable Communicable Disease Summary

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About surveillance data

Oregon law specifies diseases of public health importance that diagnostic laboratories and health care professionals must report to local public health authorities. This report reflects reporting laws in effect for 2020 with the exception of COVID-19, the data for which can be found here. In general, local public health officials investigate reports of a communicable disease to characterize the illness and collect demographic information about the case, to identify possible sources of the infection, and to take steps to prevent further transmission. Basic information about each case is entered into a central database. In some cases (e.g., *Salmonella* infection), laboratories are required to forward bacterial isolates to the Oregon State Public Health Laboratory for subtyping. Together, these epidemiologic and laboratory data constitute our communicable disease surveillance system. This report summarizes data from 2020 and trends from recent years.

Note, however, that reportable disease data have many limitations. First, for most diseases, reported cases represent but a fraction of the true number. The most important reason for this is that many patients — especially those with mild disease — do not present themselves for medical care. Even if they do, the health care professional might not order a test to identify the causative microorganism. The reader may be scandalized to learn that not every reportable disease gets reported as the law requires. Cases are "lost" to surveillance along each step of the path from patient to physician to laboratory to public health department. In the case of salmonellosis, for example, reported cases are estimated to account for approximately 3% of the true number.

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Second, cases that do get reported are a skewed sample of the total. More severe illnesses (e.g., meningococcal disease) are more likely to be reported than milder illnesses. Infection with hepatitis A virus is more likely to cause symptoms (and those symptoms are more likely to be severe) in adults than in children. Testing is not random. Clinicians are more likely to test stool from children with bloody diarrhea for *E. coli* O157 than to test stool from adults with bloody diarrhea. Health care professionals may be more inclined to report contagious diseases such as measles — where the public health importance of doing so is obvious — than to report non-contagious diseases such as Lyme disease. Outbreaks of disease or media coverage about a particular disease can greatly increase testing and reporting rates. Despite these limitations, reportable disease data remain valuable in a variety of ways. They help identify demographic groups at higher risk of illness. They allow analysis of disease trends and identify outbreaks of disease.

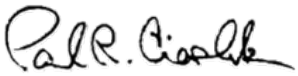
Cases are assigned to the county of residence at the time of the report — not to the county in which the case received medical care, or the county where the exposure to infection occurred. Incidence is annualized by the date of record, which is the same as the onset date unless otherwise noted. For chronic hepatitis and Lyme disease, report date to the local health authority is used for counting purposes. Case counts include both confirmed and presumptive cases. For additional information on case definitions, see the Oregon Investigative Guidelines available online.

Population estimates for crude rate calculations by county, sex and age group were obtained from the Population Research Center at Portland State University. Population estimates by race and ethnicity were obtained from the American Community Survey's one-year estimates. Estimates of the population in the United States were obtained from the Census Bureau's Annual Population Estimates. Using rates instead of case counts allows for comparisons between populations of different sizes — e.g., United States versus Oregon. Rates are usually reported as cases per 100,000 persons per year. However, if the population in which the rate is calculated is very small (e.g., in Oregon “frontier” counties), a case or two might mean the difference between a rate of zero and a very high rate. To compensate for this, some of our maps and rates by age show an average rate over multiple years of data. Even with multi-year aggregation, for some conditions the case counts remain small.

With all this in mind, we present the 2020 Oregon reportable communicable disease summary. We present 20 years of case counts whenever possible. For most diseases, you will find case counts by year, aggregate case counts by month to demonstrate any seasonal trends, incidence by age and sex, incidence in Oregon compared to national incidence over the past 20 years, incidence by race and ethnicity, and incidence by county. When appropriate, additional data on subtypes or risk factors for infection are included. At the end of this report is a tally of disease outbreaks investigated during 2020, a summary of enhanced data on gastroenteritis outbreaks, a summary table of statewide case counts over the past 20 years, counts of lower-incidence conditions, and disease totals by county.

In this year's report the reader will note declines, in some instances dramatic, in case counts for many diseases during 2020. To a significant degree, these declines may be explained by milder cases of illness having a lower likelihood of seeking health care and associated testing. However, it is also likely that the precautions taken to reduce the spread of COVID-19 in our communities, including masking, avoidance of gathering and closure of businesses, reduced the transmission of many other pathogens as well.

We hope that you will find these data useful. If you have additional questions, please call our epidemiology staff at 971-673-1111 or email ohd.acdp@state.or.us.



Paul R. Cieslak, MD
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Campylobacteriosis

Campylobacteriosis is caused by the gram-negative bacterium *Campylobacter*. It is characterized by acute onset of diarrhea, vomiting, abdominal pain, fever and malaise. Symptoms generally occur within two to five days of infection.

Campylobacteriosis is the most common bacterial enteric infection reported in Oregon. It is of worldwide epidemiologic importance due to the fecal-oral route of infection and the wide variety of wild and domestic animals that can serve as reservoir hosts. Many cases are thought to result from eating raw or undercooked meat (in particular, poultry) or through cross-contamination of uncooked or ready-to-eat foods such as salad or prepared fruit. People can also get infected through contact with dog or cat feces.

In 2020, 832 cases were reported in Oregon residents. The incidence in children <5 years of age (29.1 per 100,000) exceeds that of other age groups. The incidence in West Coast states has been higher than that in the country as a whole. Infections occur year-round in Oregon, with peak incidence in the summer months.

Most illnesses are sporadic, but outbreaks have been associated with undercooked meat (often chicken), unpasteurized milk, or direct contact with animals or untreated water.

Fourteen outbreaks of campylobacteriosis involving Oregon residents were investigated from 2010–2020: nine foodborne, one from animal contact, one person-to-person and three where mode of transmission was not determined; two of these outbreaks (both foodborne) were reported in Oregon in 2020. Proper food handling and water treatment, along with careful attention to safe food handling and handwashing, are the keys to prevention.

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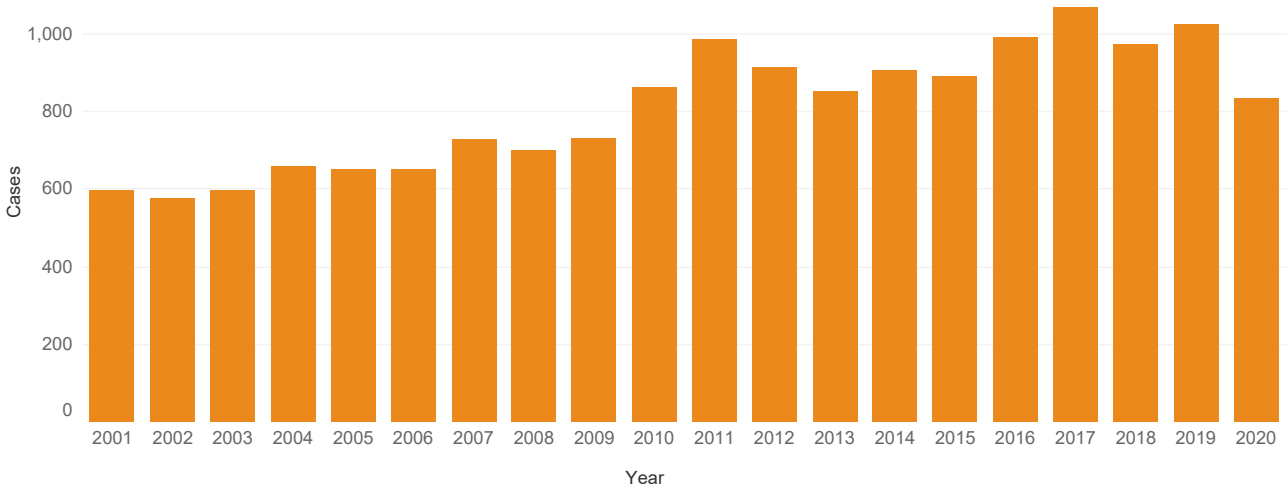
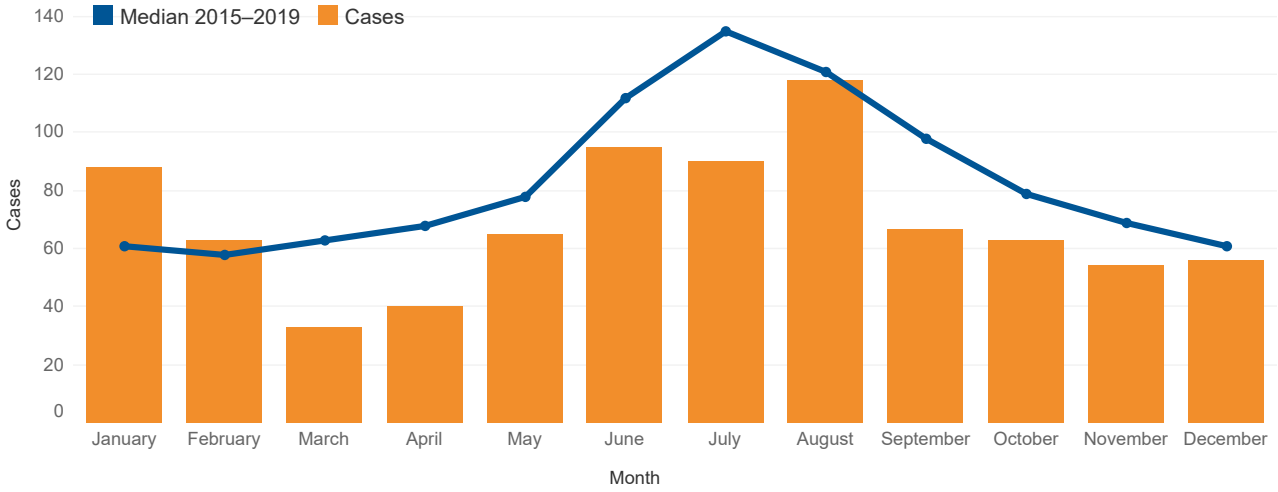
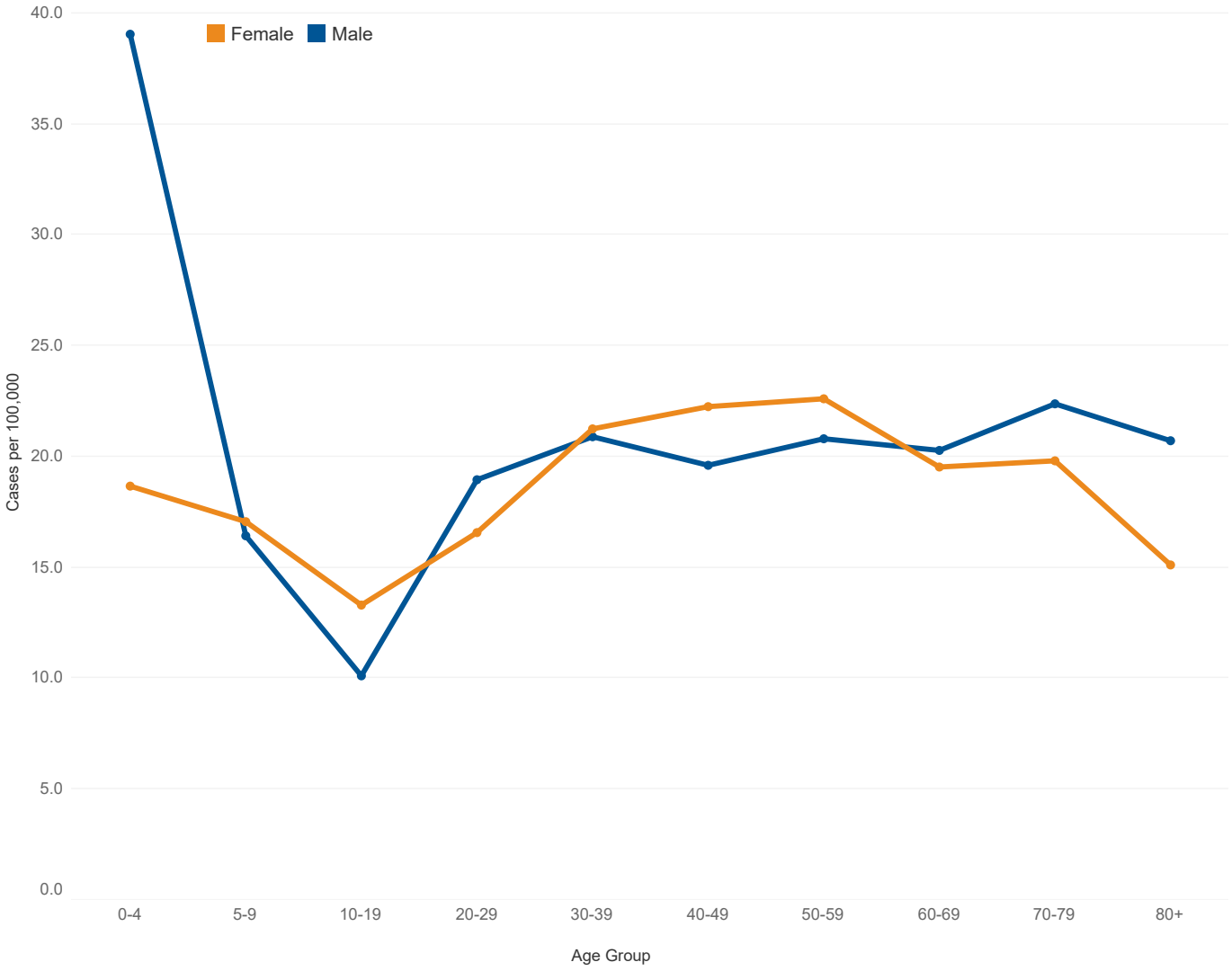
Incidence of campylobacteriosis by year: Oregon, 2001–2020



Incidence of campylobacteriosis by month: Oregon, 2020

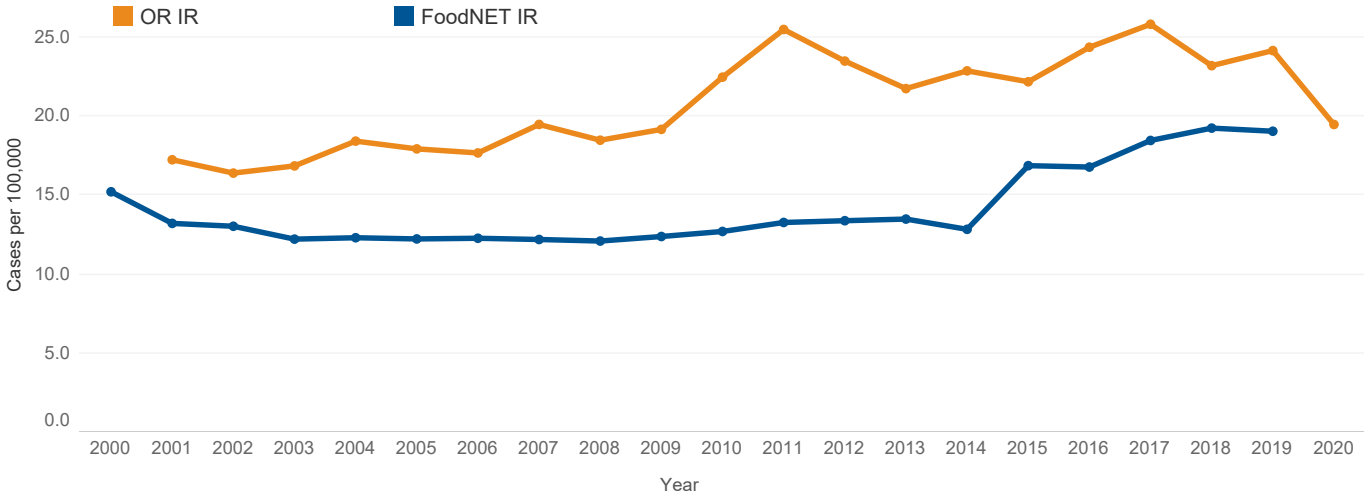


Incidence of campylobacteriosis by age and sex: Oregon, 2020



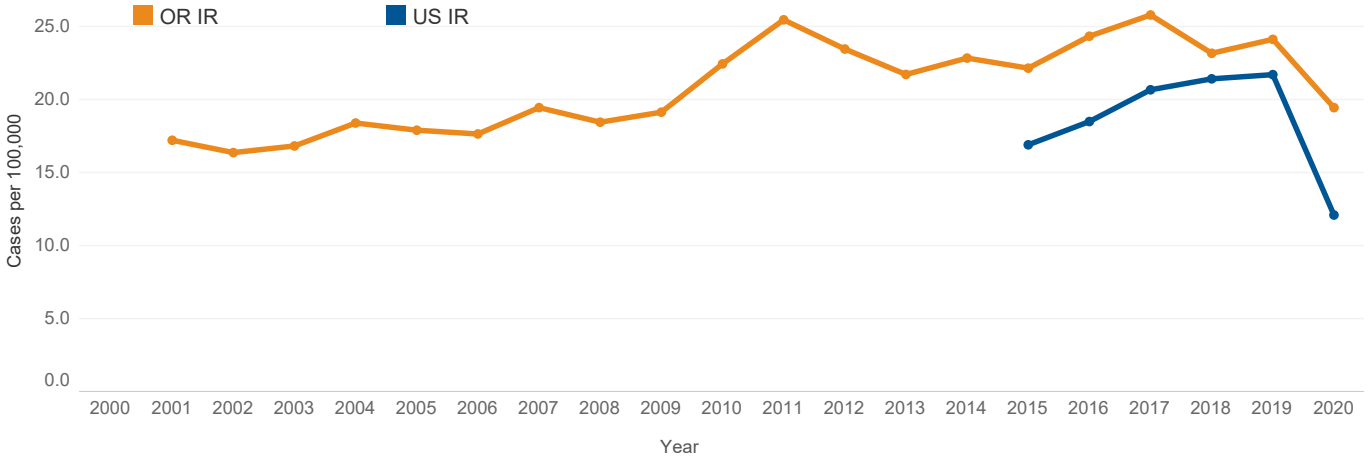
Incidence of campylobacteriosis: Oregon vs. U.S. (FoodNet sites), 2001–2020

FoodNet began including cases identified via culture-independent diagnostic testing in 2015.



Incidence of campylobacteriosis: Oregon vs. nationwide, 2001–2020

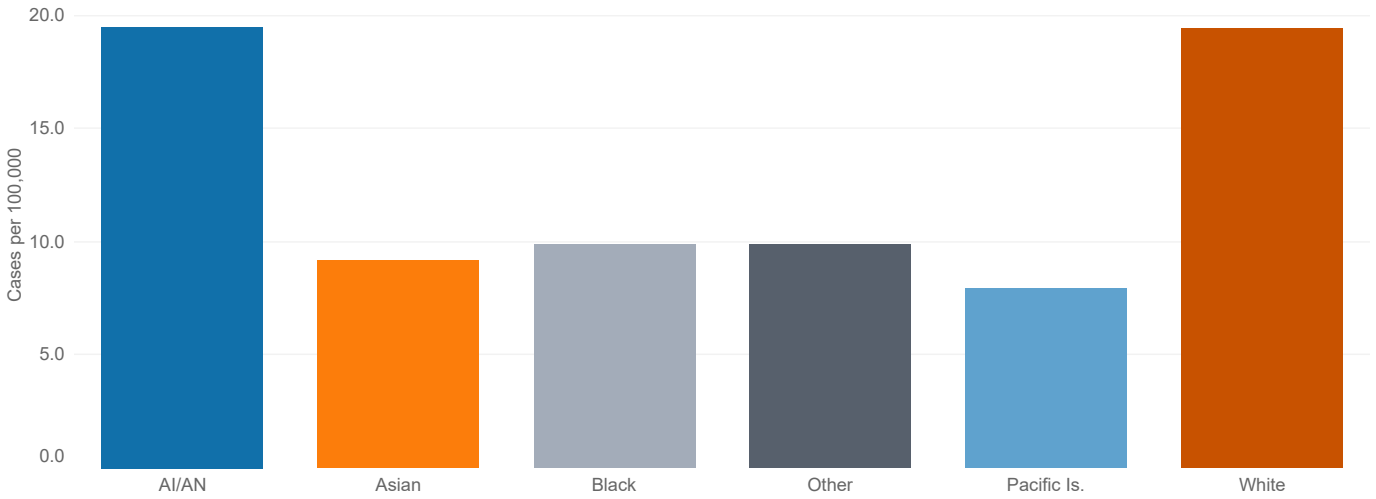
Campylobacteriosis became nationally notifiable in 2015.



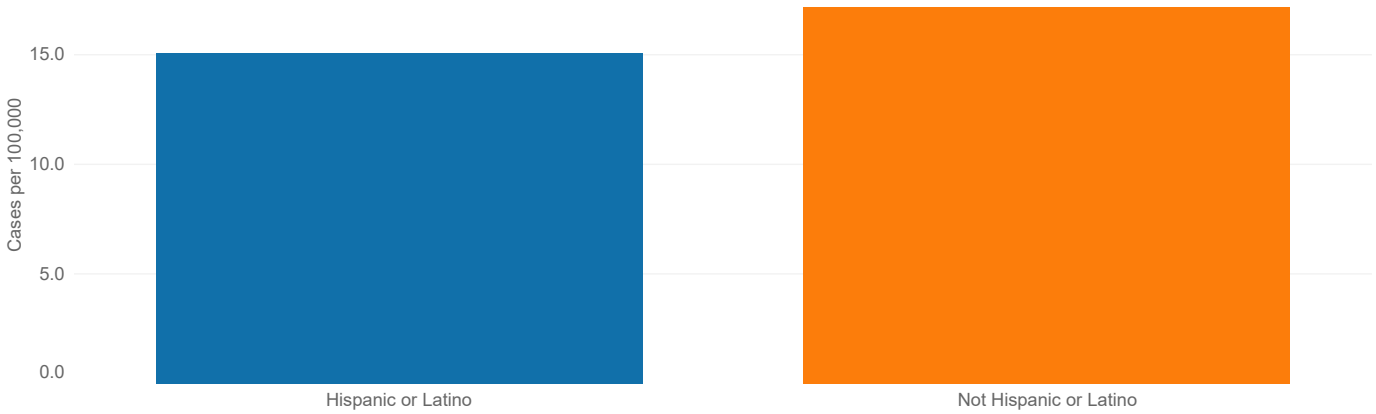
Incidence of campylobacteriosis by reported race: Oregon, 2011–2020

Select data variable to view
Incidence Rate

Note: "Other" race includes individuals reporting multiple races.

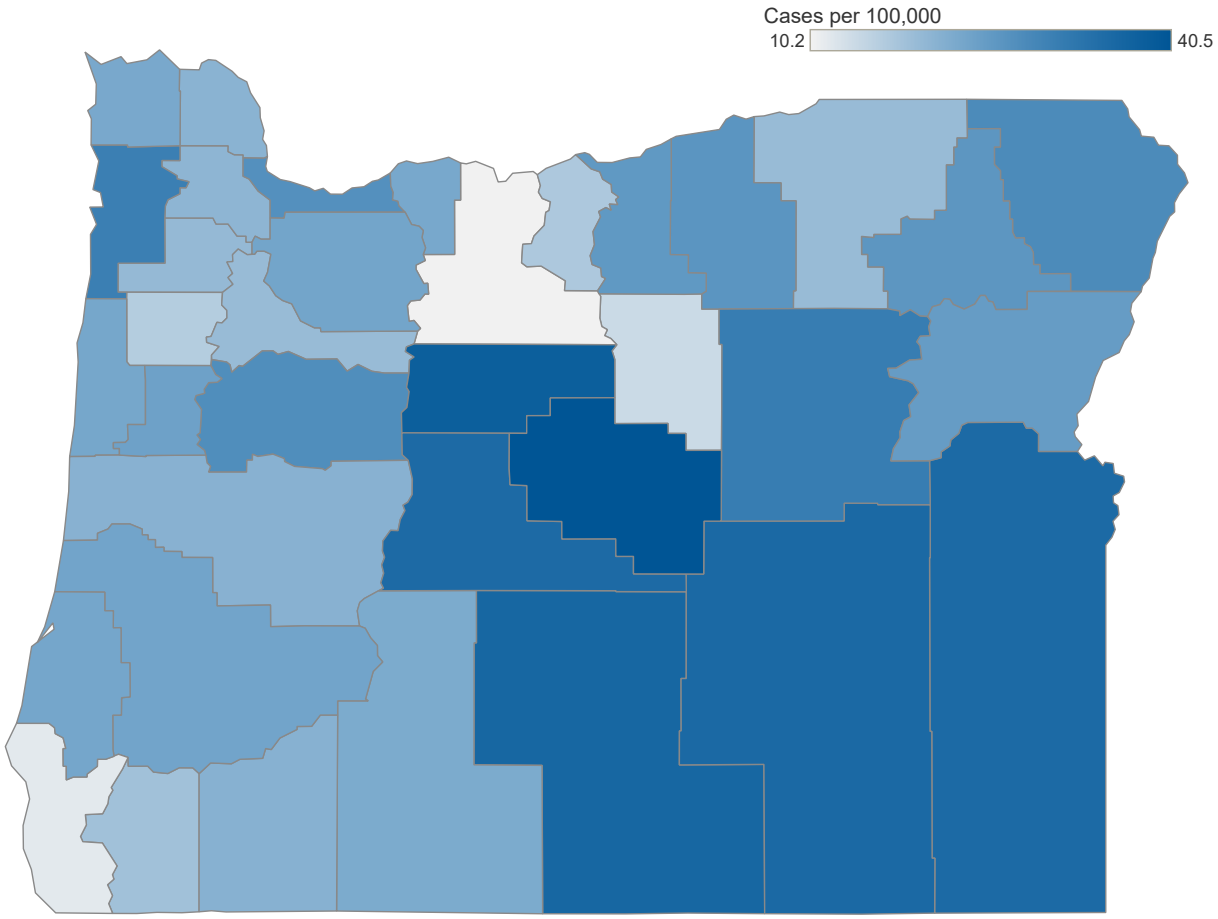


Incidence of campylobacteriosis by reported ethnicity: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Incidence of campylobacteriosis by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Use one cutting board for raw meat and a separate cutting board for fresh fruit, vegetables and other foods.
- Thoroughly clean all cutting boards, countertops and utensils with soap and hot water after preparing foods of animal origin.
- Wash hands with soap and hot water before preparing food, after handling foods of animal origin and after contact with pet feces.
- Thoroughly cook all products of animal origin, especially poultry products.
- Do not drink unpasteurized (raw) milk or untreated surface water.
- Make sure persons with diarrhea thoroughly wash their hands with soap and warm water after using the bathroom.

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Carbapenem-resistant *Enterobacterales* (CRE)

The *Enterobacterales* are a large order of gram-negative bacilli found in the human gastrointestinal tract. This group was previously referred to as the family *Enterobacteriaceae.* Taxonomic reclassification divided the family *Enterobacteriaceae* into seven distinct families under the order *Enterobacterales*. Commonly encountered species include *Escherichia coli, Klebsiella* spp. and *Enterobacter* spp. Carbapenem-resistant *Enterobacterales* (CRE), previously *Enterobacteriaceae,* are not susceptible to carbapenem antibiotics. They are broadly categorized based on the mechanism of their resistance as carbapenemase-producing (CP-CRE) and non carbapenemase-producing.

Carbapenems are broad-spectrum antibiotics typically used to treat severe healthcare-associated infections (HAIs) caused by highly drug-resistant bacteria. Currently available carbapenems include imipenem, meropenem, ertapenem and doripenem. Although related to the ß-lactam antibiotics, carbapenems retain antibacterial activity in the presence of most ß-lactamases, including extended-spectrum ß-lactamases (ESBLs) and extended-spectrum cephalosporinases (e.g., AmpC-type ß-lactamases). Loss of susceptibility to carbapenems is a serious problem because few safe treatment alternatives remain against such resistant bacteria.

Infections caused by CRE occur most commonly among people with chronic medical conditions through use of invasive medical devices such as central venous and urinary catheters, frequent or prolonged stays in health care settings or extended courses of antibiotics. CP-CRE are most concerning and have spread rapidly across the nation and around the globe, perhaps because carbapenemases can be encoded on plasmids that are easily transferred within and among bacterial species.

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In December 2011, CRE bacterial isolates became reportable in Oregon. The CRE case definition has gone through major changes over the years, which are reflected in the big changes in case numbers from year to year. In 2013, the definition was non-susceptible (intermediate or resistant) to all carbapenems tested and resistant to any third-generation cephalosporins tested. The definition was then revised in 2014 to non-susceptible to any carbapenem, excluding ertapenem, and resistant to all third-generation cephalosporins tested. A CDC study found this definition to be insufficiently sensitive in picking up carbapenemase producers. The current definition, effective July 1, 2015, is *Enterobacterales* with resistance to any carbapenem antibiotic. This definition is simpler and aligns with CDC's definition.

The Oregon State Public Health Laboratory offers specialized testing to determine whether reported CRE are carbapenemase producers, and the Oregon Public Health Division's Healthcare-Associated Infections (HAI) program investigates in detail any reported cases of CP-CRE.

One hundred sixty-eight new cases of CRE infection or colonization were reported among Oregon residents in 2020. One hundred twenty-nine (77%) were ≥60 years old, median age was 73, and 111 (66%) were female. Urine was the most common source (78%) and *Enterobacter cloacae* accounted for 46% of all isolates. A majority of cases in 2020 (54%, 91) occurred among women 60 years of age and older and urine was the source for 93% (85) of them. Annual CRE case counts have changed little since 2016.

By the end of 2020, Oregon had 34 CP-CRE in Oregon residents: 16 *Klebsiella pneumoniae* carbapenemase (KPC), 12 New Delhi metallo-ß-lactamase (NDM), 5 oxacillinase-48 (OXA-48), and one with both NDM and OXA-48. Twenty (59%) of the CP-CRE were from patients with histories of healthcare exposure in other states or outside of the United States.

Unlike much of the rest of the country, CP-CRE remain rare in Oregon. We have instituted enhanced surveillance and prevention efforts and established the Drug-Resistant Organism Prevention and Coordinated Regional Epidemiology (DROP-CRE) Network, a statewide network to rapidly detect, respond to and prevent CRE. For more information, including our CRE toolkit, please see Carbapenem-resistant *Enterobacteriales*.

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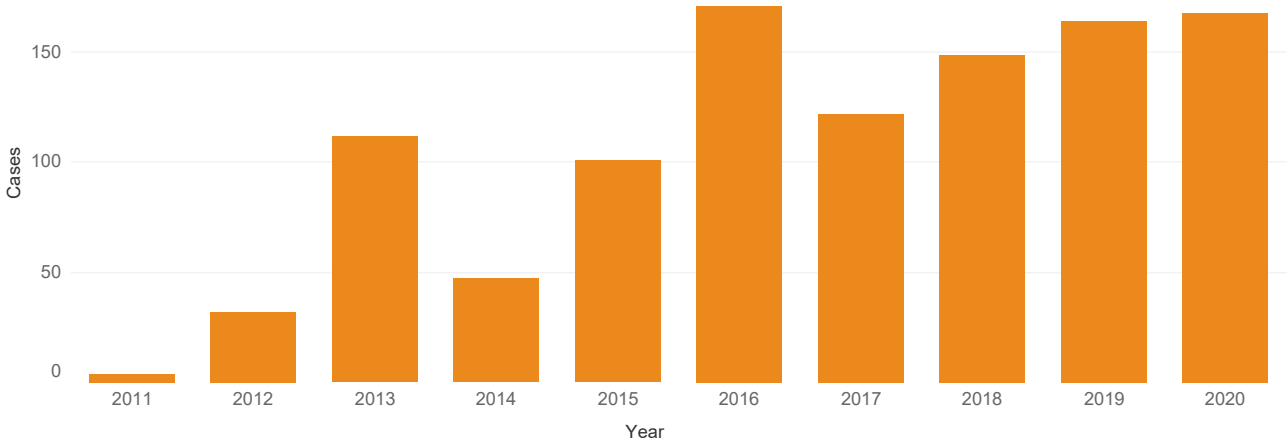
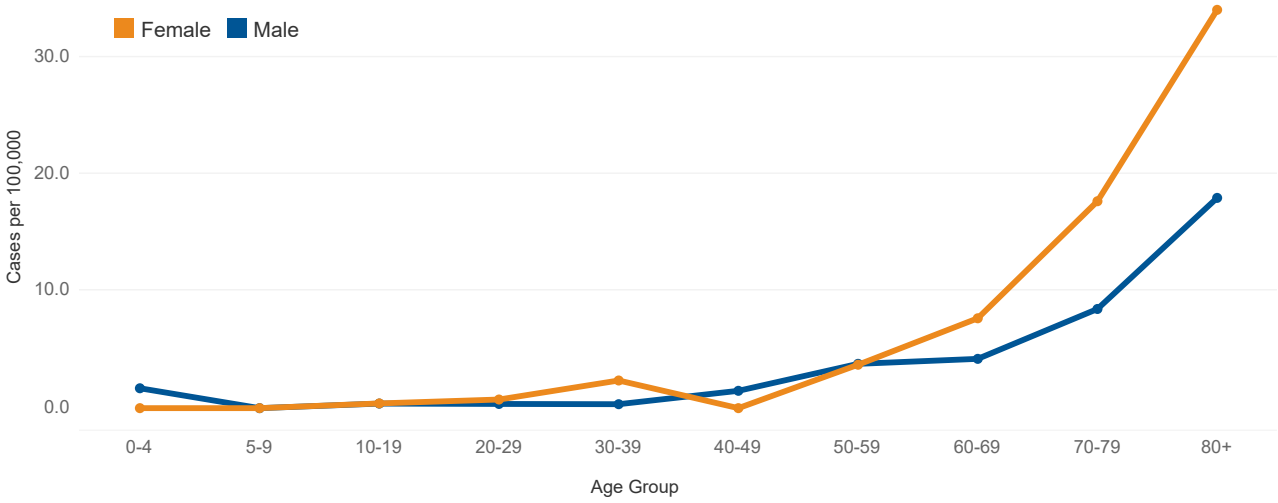
Disease overview | Disease overview (continued) | Incidence by year and by age and sex | CRE cases by genus | Incidence by county | Disease prevention

Incidence of carbapenem-resistant *Enterobacterales* infection by year: Oregon, 2011–2020

Infection by CRE became officially reportable in December 2011.



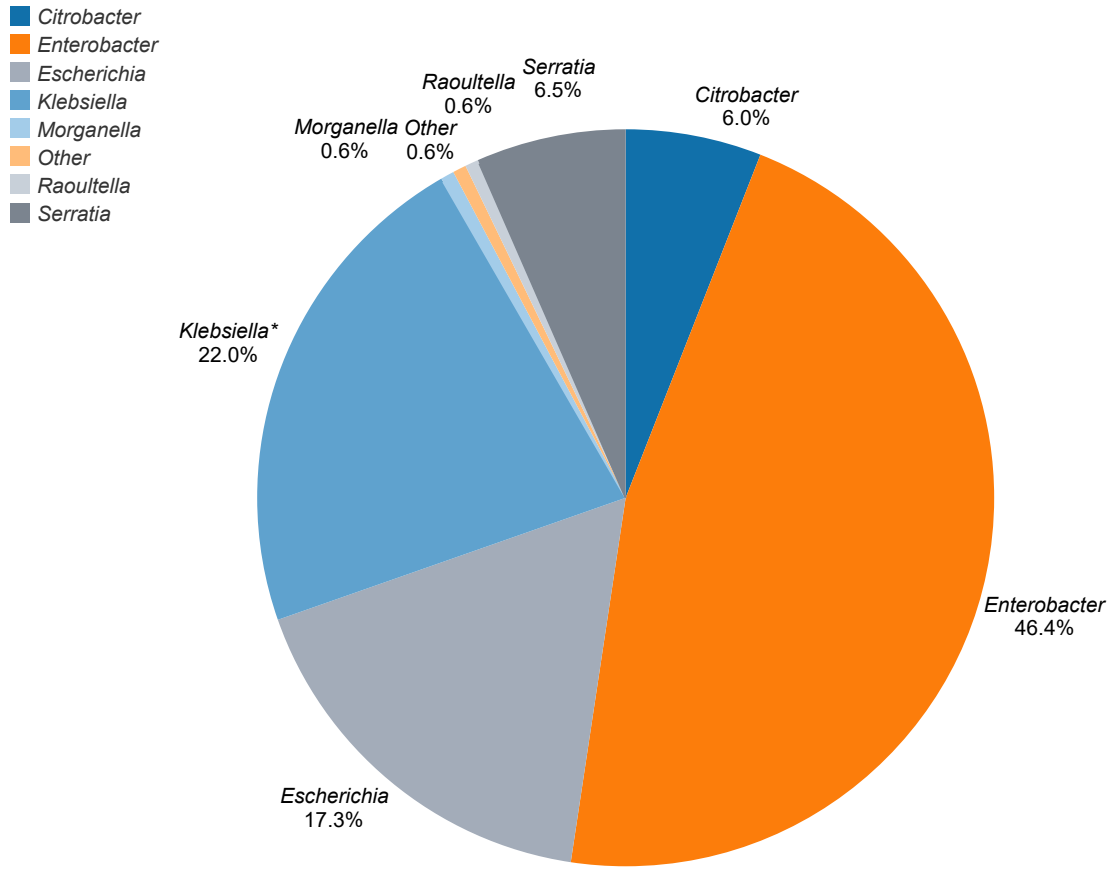
Incidence of carbapenem-resistant *Enterobacterales* infection by age and sex: Oregon, 2020



Disease overview | Disease overview (continued) | Incidence by year and by age and sex | CRE cases by genus | Incidence by county | Disease prevention

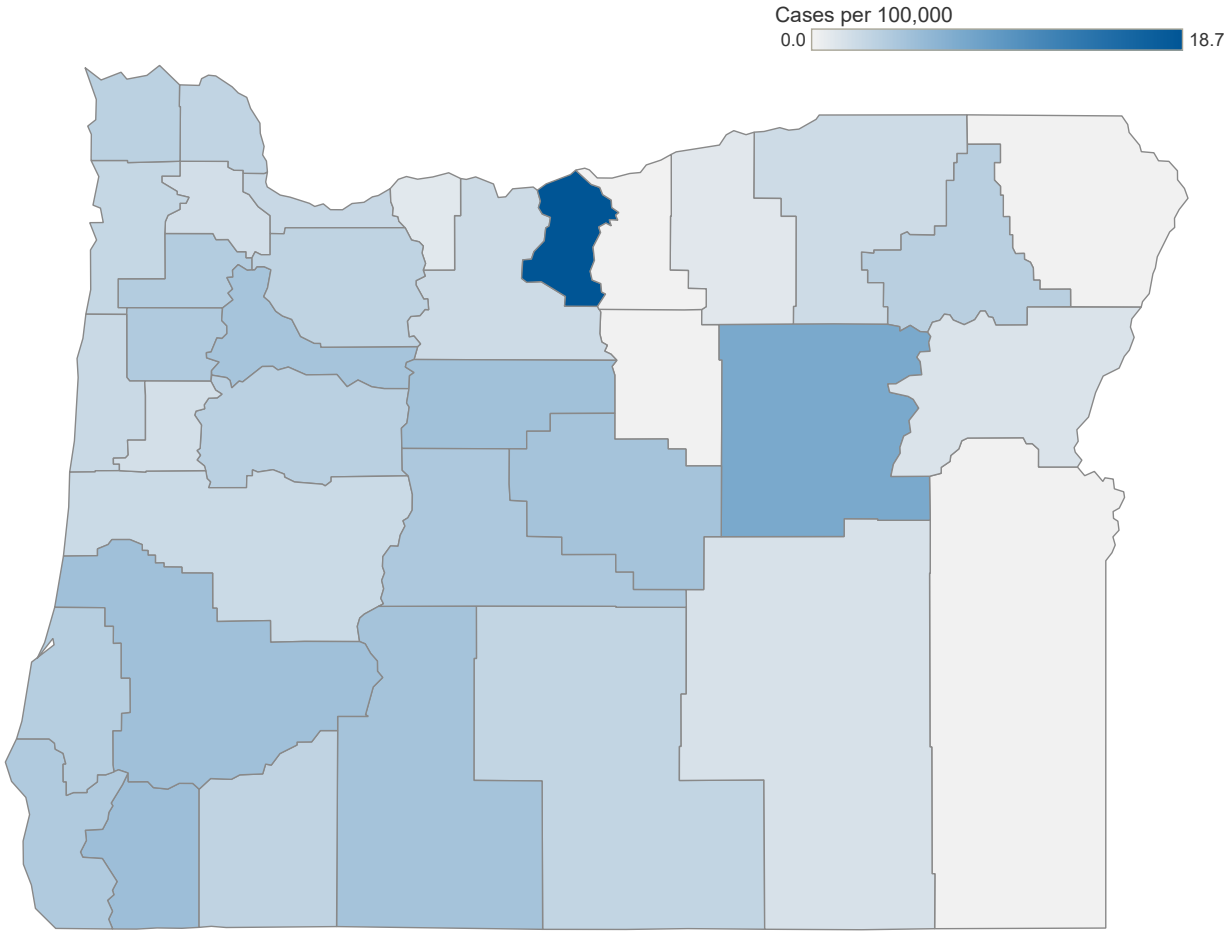
Carbapenem-resistant *Enterobacterales* cases by species: Oregon, 2020

Hover over a section of the pie chart to view historical data.



* *Klebsiella* data include cases of *Klebsiella aerogenes*, the species previously known as *Enterobacter aerogenes*.

Incidence of carbapenem-resistant *Enterobacterales* (CRE) by county of residence: Oregon, 2012–2020



Note: Rates based on small case counts might be unstable. The high incidence in Sherman County represented 3 cases.

Prevention

Think **"NICE"** if you encounter CRE:

- **Notify** the county health department, pertinent clinical groups and your antibiotic stewardship program that CRE has been spotted.
- **Intervene** in all cases with core infection control activities: hand hygiene, contact precautions, private rooms and optimized environmental cleaning. Reduce unnecessary antibiotics and use of invasive devices. Additionally, for CP-CRE, screen patient contacts as well as cohort staff and patients.
- **Communicate** CRE infection or colonization status to the receiving facility upon patient transfer.
- **Educate** patients, staff and visitors about CRE.

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Chlamydia

Chlamydia is a sexually transmitted infection caused by the bacterium *Chlamydia trachomatis*. Any person can get chlamydia through vaginal, anal, or oral sex. The majority of infections are asymptomatic and go unrecognized without routine screening. When present, symptoms can include painful urination, vaginal discharge, and pelvic pain. Untreated infections can cause pelvic inflammatory disease (PID) and infertility or tubal (ectopic) pregnancy in people assigned female at birth.

Chlamydia testing is done on urine or swabs of the genitals, rectum, or throat. Chlamydia can be cured with antibiotic treatment. Unlike gonorrhea, chlamydia is not resistant to antibiotics. Because chlamydia is a bacterial infection, anyone can be reinfected if exposed again after completing treatment.

Chlamydia is the most common reportable illness in Oregon. During 2020, 15,857 cases of chlamydia were reported in Oregon, and cases occurred in all 36 Oregon counties. Jefferson County had the highest rates, followed by Multnomah and Malheur counties. The last decade has seen a steady rise in number of Oregon cases. However, Oregon's rate remains below the national average.

Reported rates of chlamydia are twice as high in people assigned female at birth compared to people assigned male at birth. People 20–29 years of age experience the highest rates of chlamydia. Chlamydia rates are high in Black/African American and Hispanic or Latino people. The reasons for these disparities are complex and result from generations-long systemic inequities.

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Inequities in chlamydia are multifactorial and driven by social determinants of health, such as discrimination, poverty, inadequate health care access, educational inequalities, and stigma. Instead of focusing on individual-level risk factors and interventions, moving upstream to systems-level solutions is key. It is critical to understand that higher chlamydia rates are not caused by race, ethnicity, gender, or sexual orientation, but by the social, economic, and environmental contexts that are more likely to affect certain groups and that create barriers to optimal sexual health.

Research indicates that information about differences in chlamydia rates must be strategically crafted and implemented with authentic community engagement. Authentic community engagement has the capacity to develop solutions to address health inequities. So as not to further harm communities burdened by other social and health inequities, strength-based approaches are critical to public health programs designed to prevent chlamydia and maximize sexual well-being. Addressing health inequities from the underlying root is critical to reducing STD rates.

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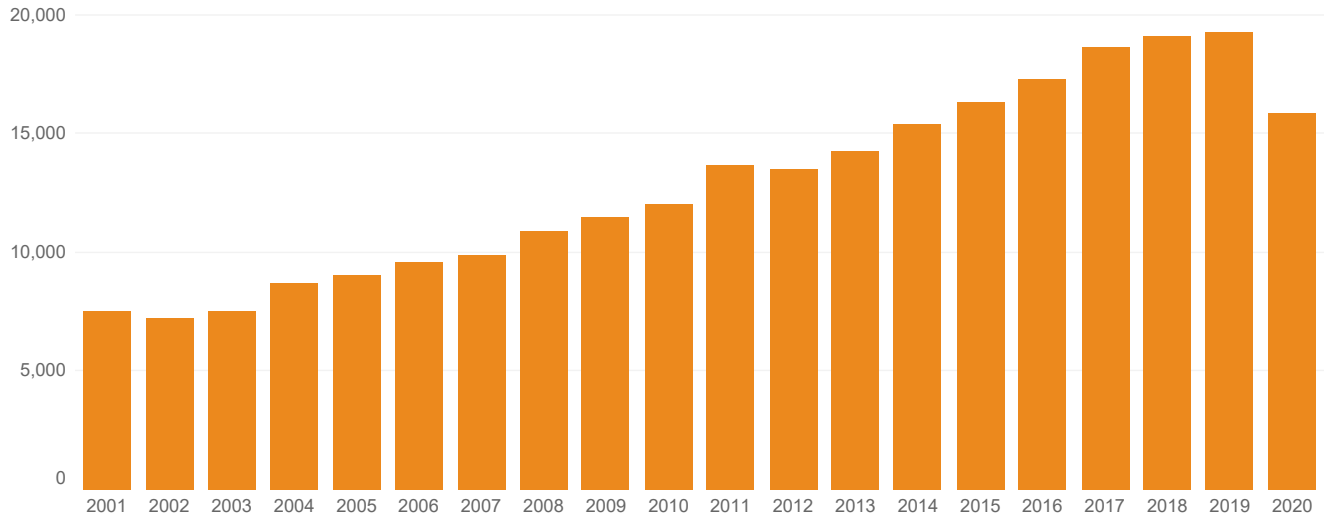
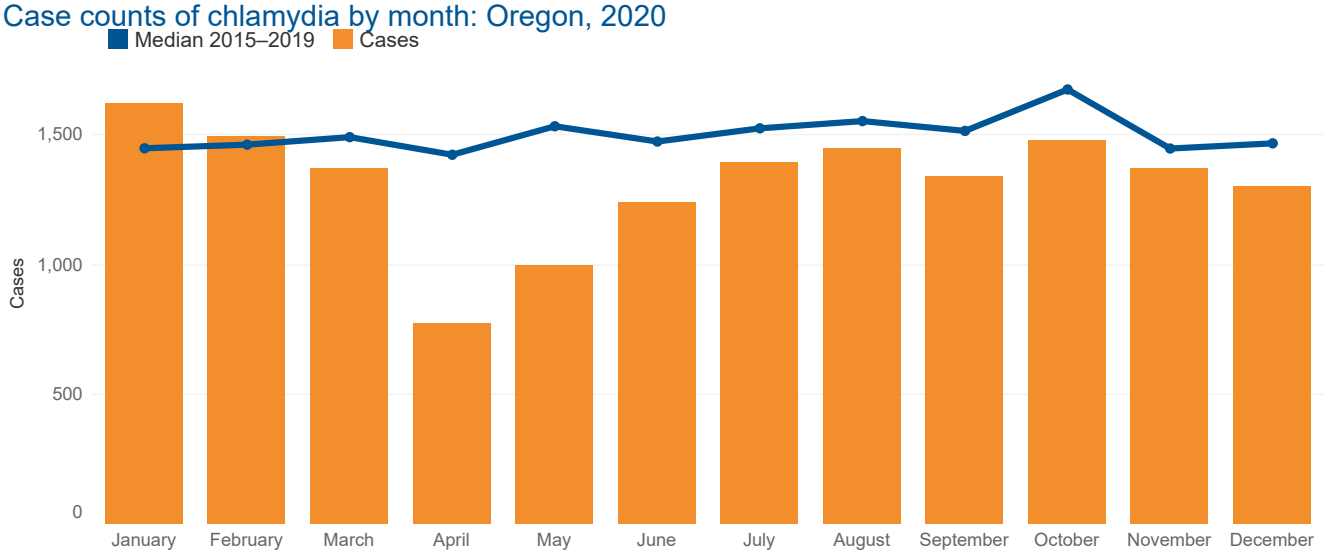
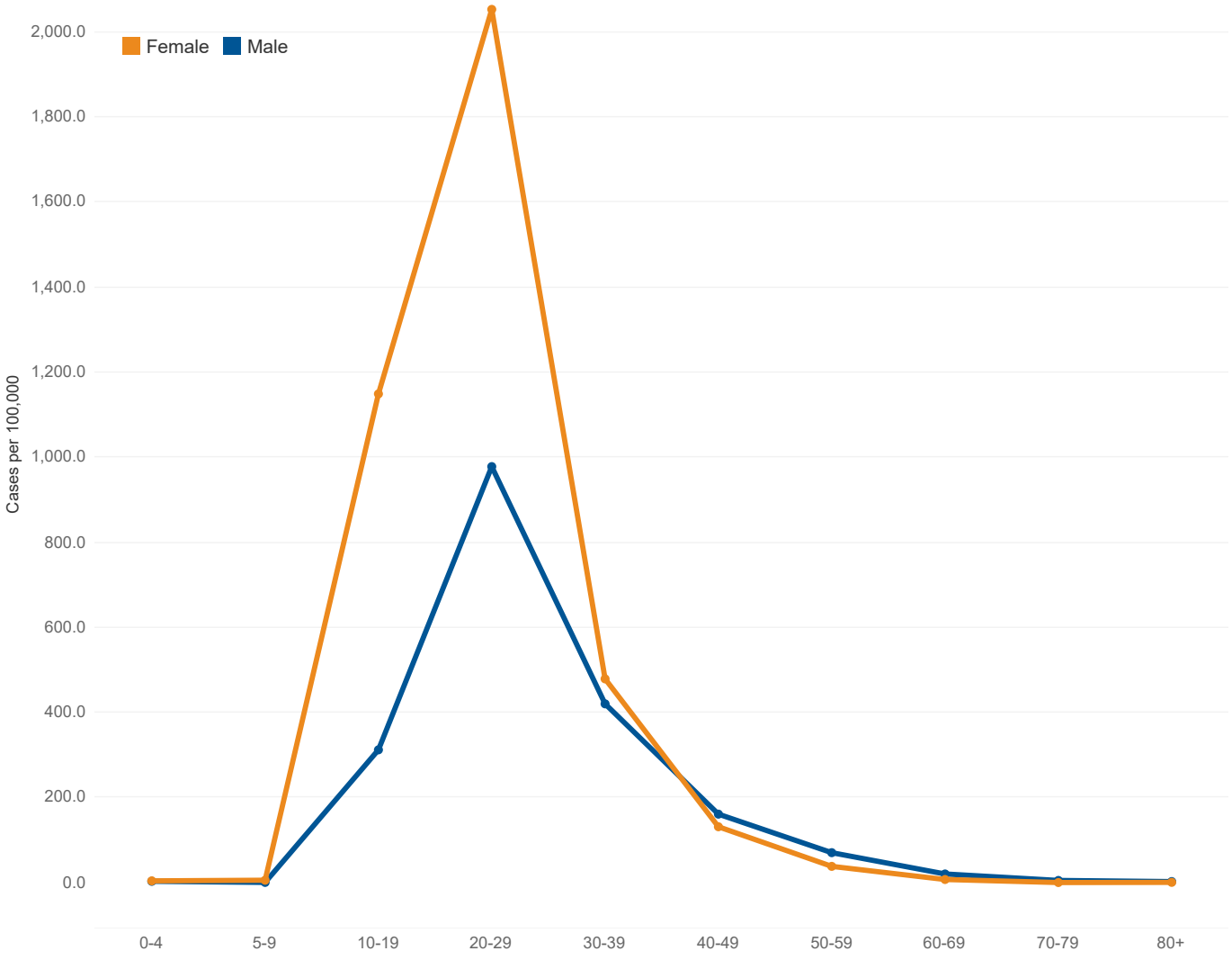
Case counts of chlamydia by year: Oregon, 2001–2020



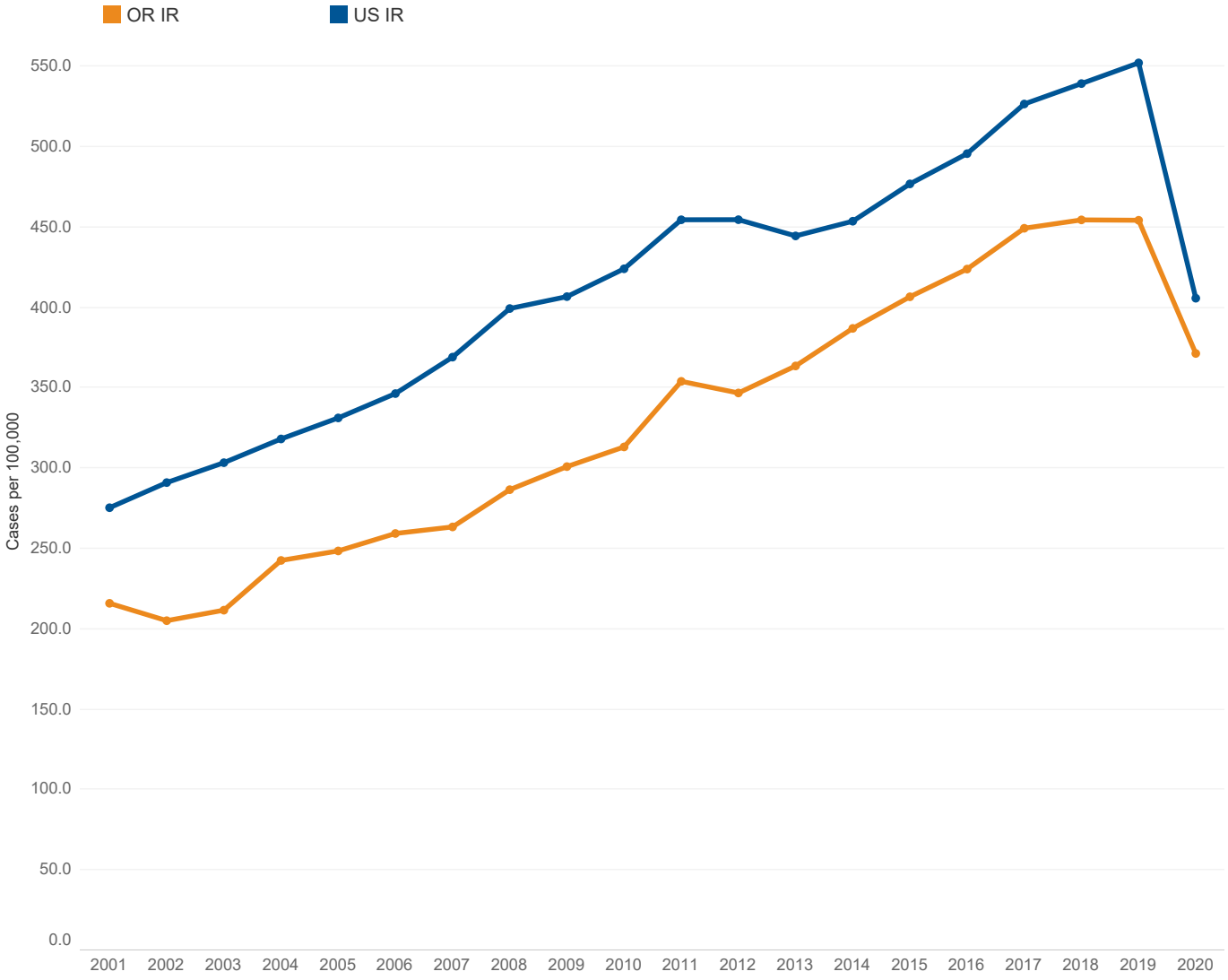
Case counts of chlamydia by month: Oregon, 2020



Incidence of chlamydia by age and sex: Oregon, 2020



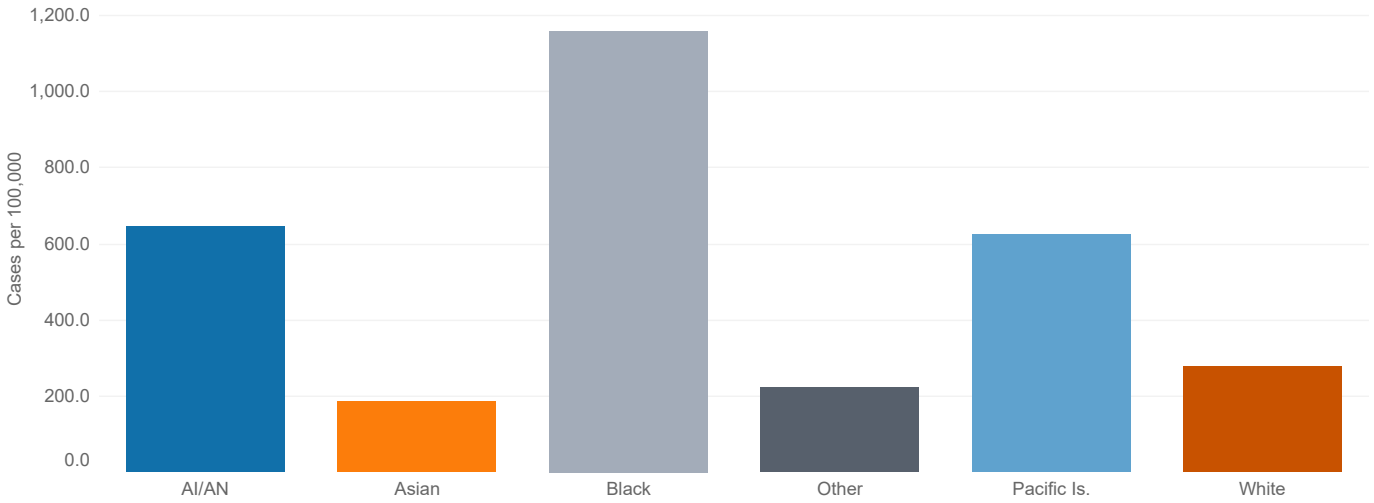
Incidence of chlamydia: Oregon vs. nationwide, 2001–2020



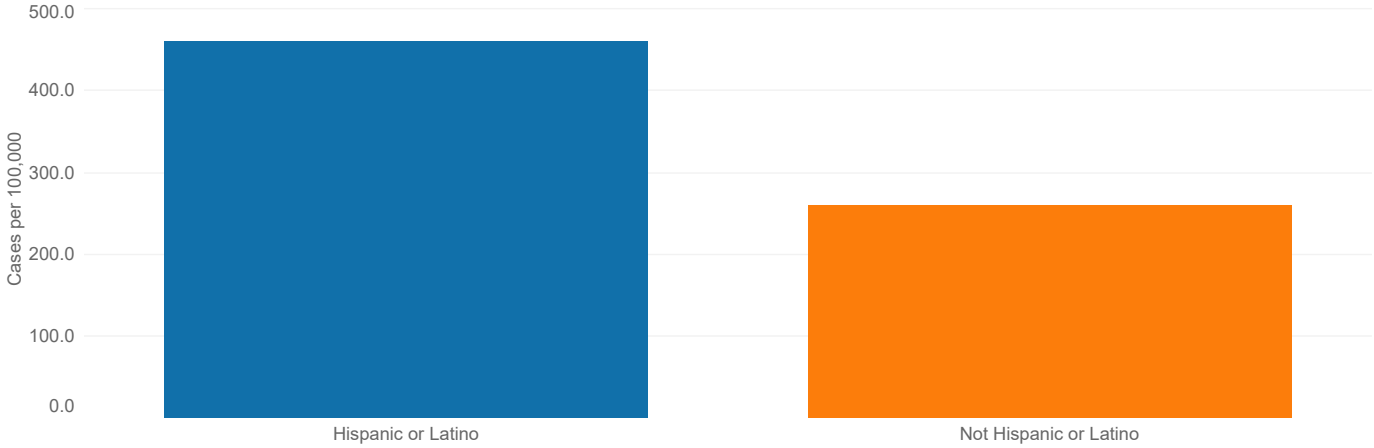
Incidence of chlamydia by reported race: Oregon, 2011–2020

Select data variable to view
Incidence Rate

Note: "Other" race includes individuals reporting multiple races.

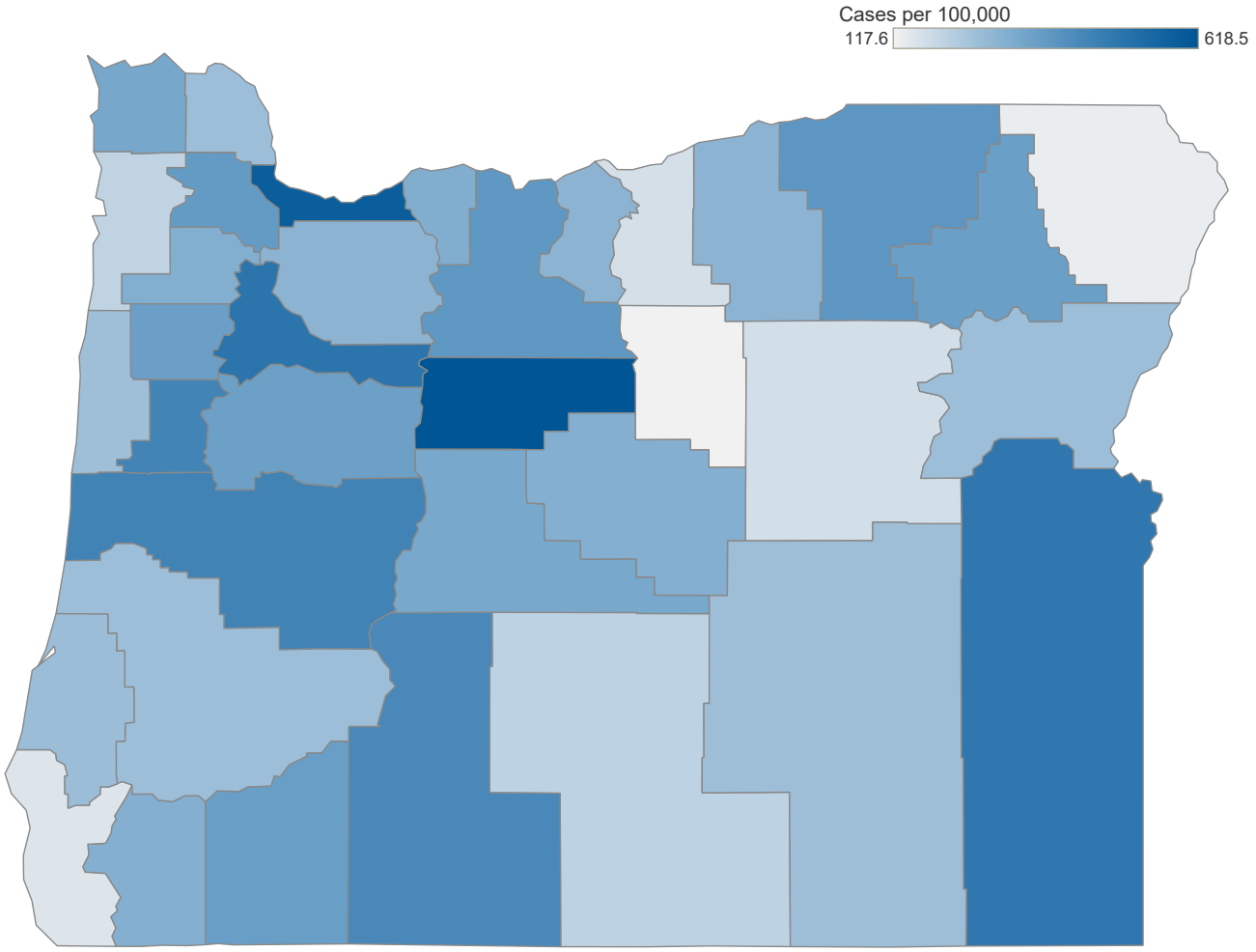


Incidence of chlamydia by reported ethnicity: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Incidence of chlamydia by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Use condoms consistently and correctly during anal and vaginal or front sex.
- Get tested for HIV, syphilis, gonorrhea, chlamydia and hepatitis C regularly.
- Talk openly with sex partners about HIV and other sexually transmitted infections and the importance of regular testing.
- If diagnosed with an STI, abstain from sex until completing treatment and symptoms have resolved.
- Use HIV pre-exposure prophylaxis, or PrEP, to prevent HIV infection.
- If you inject drugs, use a new, sterile syringe every time and visit your local syringe service program for sterile supplies, HIV/Hep C testing, naloxone, and other resources.

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Coccidioidomycosis

Valley fever, also called coccidioidomycosis, is an infection caused by a fungus, *Coccidioides,* found in soil. There are two main types of the fungus that cause valley fever: *Coccidioides immitis* and *Coccidioides posadasii*. Approximately 60% of *Coccidioides* infections are asymptomatic. Symptomatic cases typically present with a mild respiratory syndrome characterized by non-productive cough, shortness of breath, fatigue, night sweats, myalgias and, occasionally, a rash (erythema nodosum or erythema multiforme) between one and three weeks after the individual breathes in the spores. The typical pulmonary infection is self-limiting and clinically indistinguishable from other community-acquired pneumonias.

Immunocompromised patients—e.g., persons with solid organ transplants, human immunodeficiency infection (HIV) infection, or lymphoma, or those receiving immunosuppressive therapy such as high-dose corticosteroids or anti-tumor necrosis factor (TNF) medications—suffer higher morbidity and mortality with coccidioidomycosis than does the general population. Some demographic groups, including pregnant women, persons who identify as Black or Filipino, are also at elevated risk for severe illness.

Coccidioides lives in soil in areas of low rainfall, high summer temperatures and moderate winter temperatures. Unusually wet years lead to large blooms in the soil, while subsequent dry spells kick up the spores and render them airborne. *Coccidioides* is common in the Southwestern United States, including Arizona and Central California, and parts of Mexico and Central and South America. *Coccidioides immitis* has been found in soils of south-central Washington just across the Columbia River from Oregon. At this time, it is unknown if coccidioidomycosis is established in Oregon soil.

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Establishing a diagnosis of coccidioidomycosis may be challenging in humans and animals, and multiple tests including cytology, histopathology, culture and serology may be necessary. A chest X-ray can aid in the diagnosis; pulmonary lesions and hilar lymphadenopathy may be identified in humans and animals with respiratory disease. Isolates from potentially locally acquired cases (human or animal) of coccidioidomycosis should be sent to the Oregon State Public Health Laboratory.

Coccidioidomycosis became reportable in Oregon in 2015.

In 2020, there were 27 cases of coccidioidomycosis. Fifty-two percent (14) were in males and the median age was 59 years.

Most infections resolve without treatment, but patients should be monitored to document resolution. Patients with disseminated disease should be treated with antifungal therapy.

Coccidioidomycosis is not usually considered communicable from person to person; however, at least two cases of zoonotic transmission have been documented. In a recent report, a veterinary assistant developed a localized infection with osteomyelitis as the result of a bite from a cat with disseminated coccidioidomycosis. Another zoonotic case apparently acquired coccidioidomycosis by inhaling endospores during the necropsy of a horse with disseminated infection.

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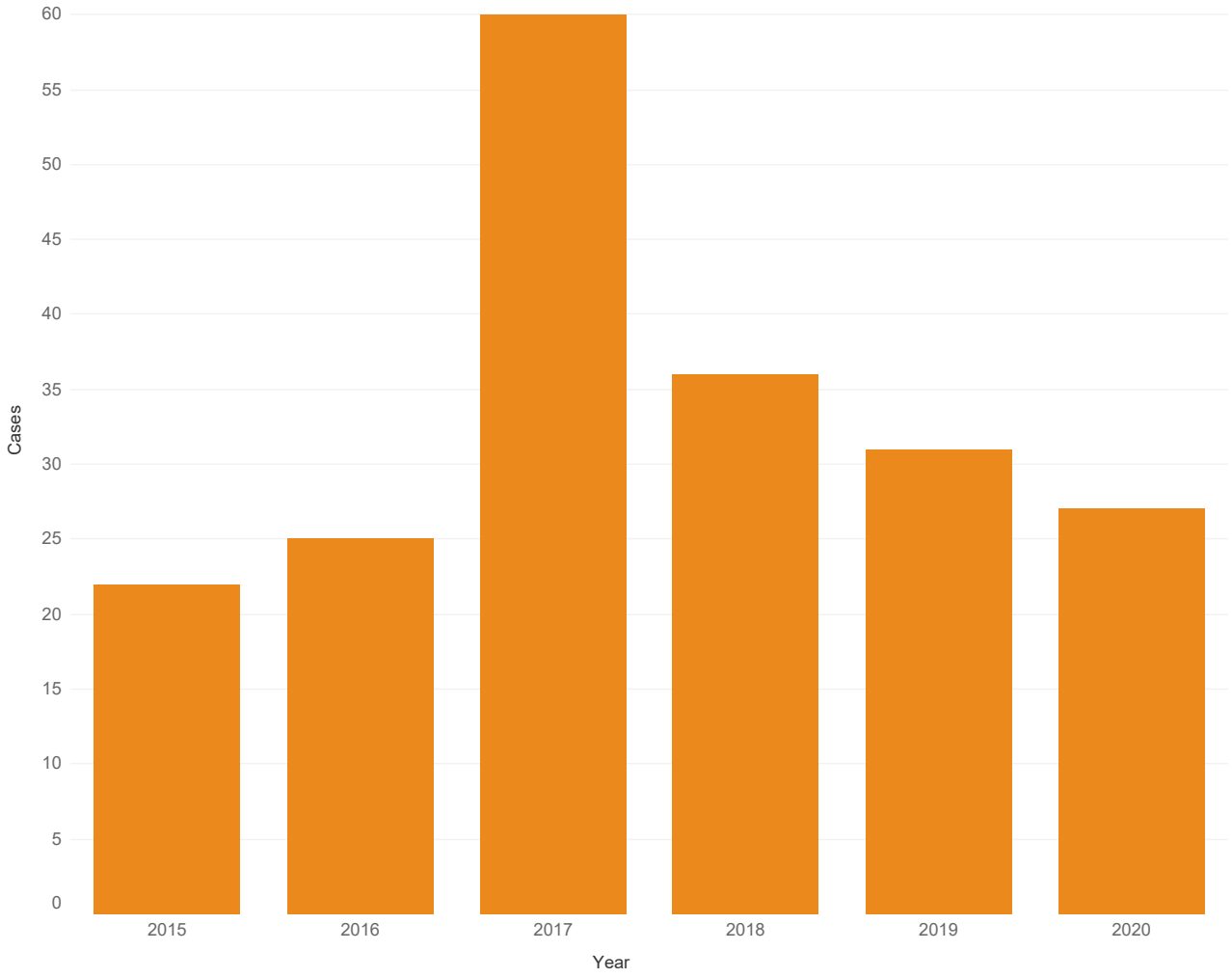
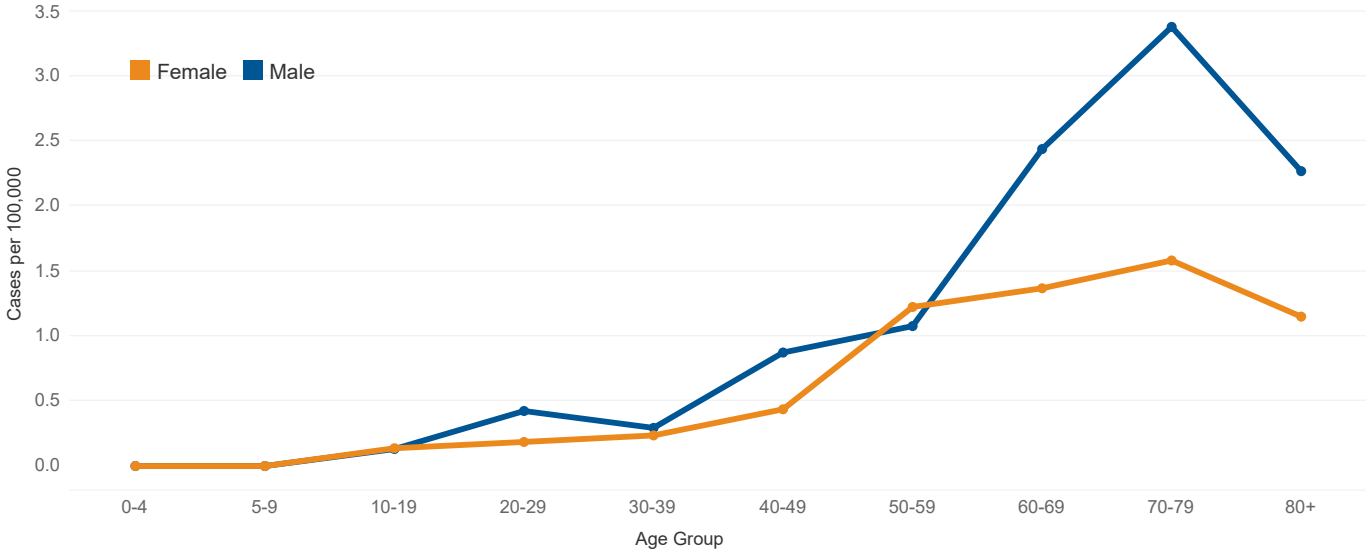
Incidence of coccidioidomycosis by year: Oregon, 2015–2020

Coccidioidomycosis became reportable in 2015.

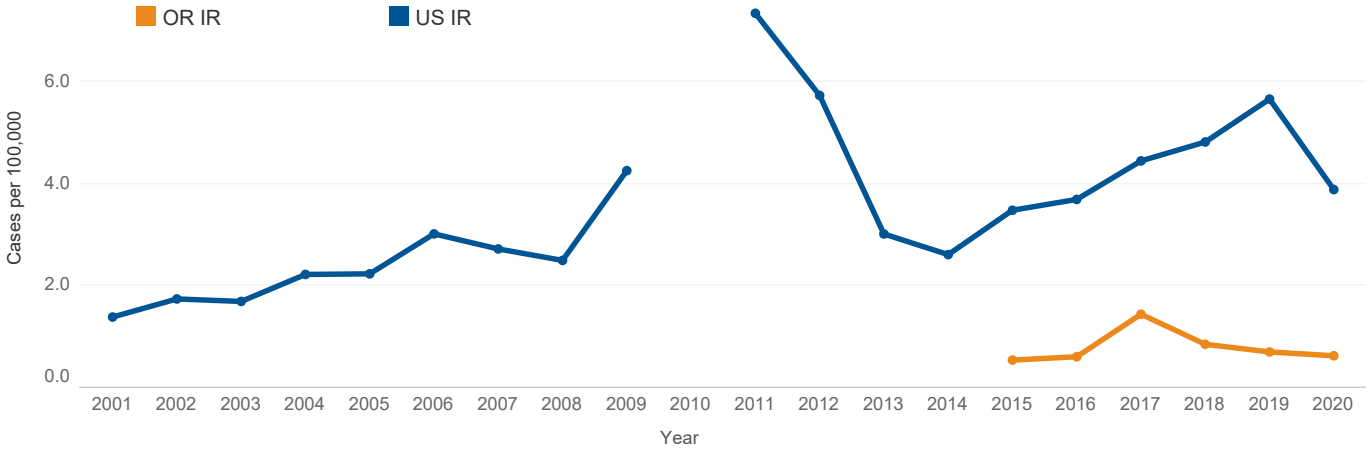


Incidence of coccidioidomycosis by age and sex: Oregon, 2015–2020

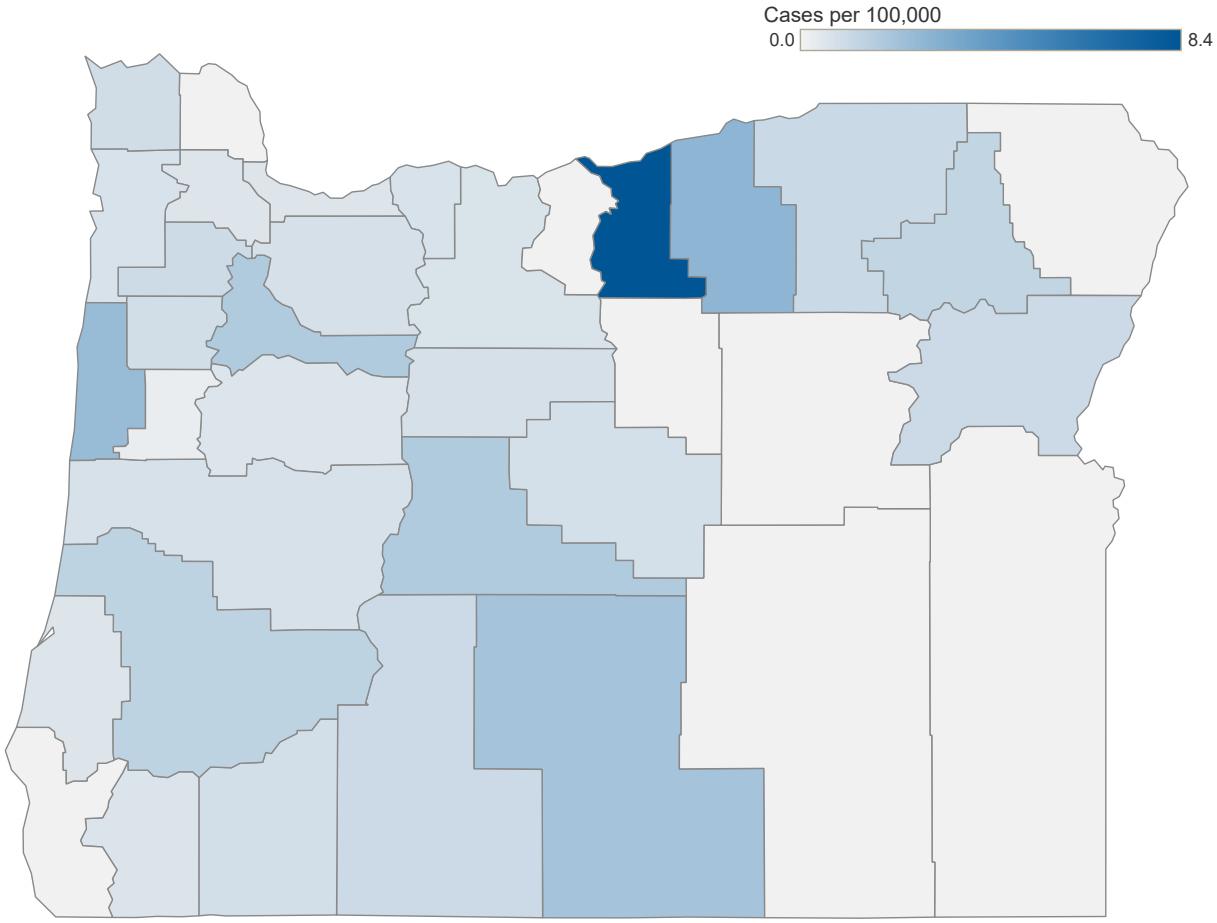


Incidence of coccidioidomycosis: Oregon vs. nationwide, 2001–2020

Coccidioidomycosis became reportable in Oregon in 2015. National case counts were not reported in 2010.



Incidence of coccidioidomycosis by county of residence: Oregon, 2015–2020



Note: Rates based on small case counts might be unstable.
The high incidence in Gilliam County represented 1 case.

Prevention

- Regrettably, there are no practical methods for preventing exposure to *Coccidioides* in areas where it is common.
- People at higher risk (immunocompromised, pregnant) should avoid breathing in large amounts of dust if they are in these areas. They should also avoid activities that involve close contact with dirt or dust, such as gardening, yard work and digging.
- Patients with coccidioidomycosis can be helped with early diagnosis and treatment with antifungal drugs.

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Cryptococcosis

Cryptococcus neoformans has long been identified in humans with immunosuppressive conditions, especially AIDS. Before 1999, *Cryptococcus gattii (C. gattii)* infection seemed to be mainly limited to the tropics. During 1999, *C. gattii* began appearing in animals and humans on Vancouver Island in British Columbia, Canada.

Beginning in 2004, it started appearing among mainland British Columbia residents who had no exposure to Vancouver Island. In December 2004, a case of human *C. gattii* infection was reported in Oregon. Infection by *Cryptococcus* became officially reportable in Oregon Aug. 19, 2011.

Thirty-nine cases of crytpococcosis were reported among Oregon residents in 2020. The most common infection was *C. neoformans* (21), followed by *C. albidus* (8), *C. gattii* (2), *C. laurentii* (2), *C. uniguttulatus* (2) and *C. terrerus* (1). Thirty-six (92%) of the 39 cases reported were diagnosed by culture. The incidence has been higher in men than in women.

Studies from British Columbia and elsewhere showed a median incubation period of six to seven months, with a range between two and 13 months. In addition to testing human specimens, we also test animals and environments where animals are infected with *C. gattii* to localize the environmental reservoirs (they travel less than humans). The bottom line is *C. gattii* appears to be established in Oregon soil and serves as a source of infection. There is no potential for zoonotic transmission.

Healthy persons appear to be at low risk. Most infections are among immunocompromised or chronically ill persons. Over the last few years, detection of cryptococcal infection has changed from culturing the organism to using the cryptococcal antigen, which does not allow for identification of different cryptococcal species. Treatment with extended use of antifungal agents (six months or longer) is recommended. For current treatment information, see guidelines published by the Infectious Disease Society of America.

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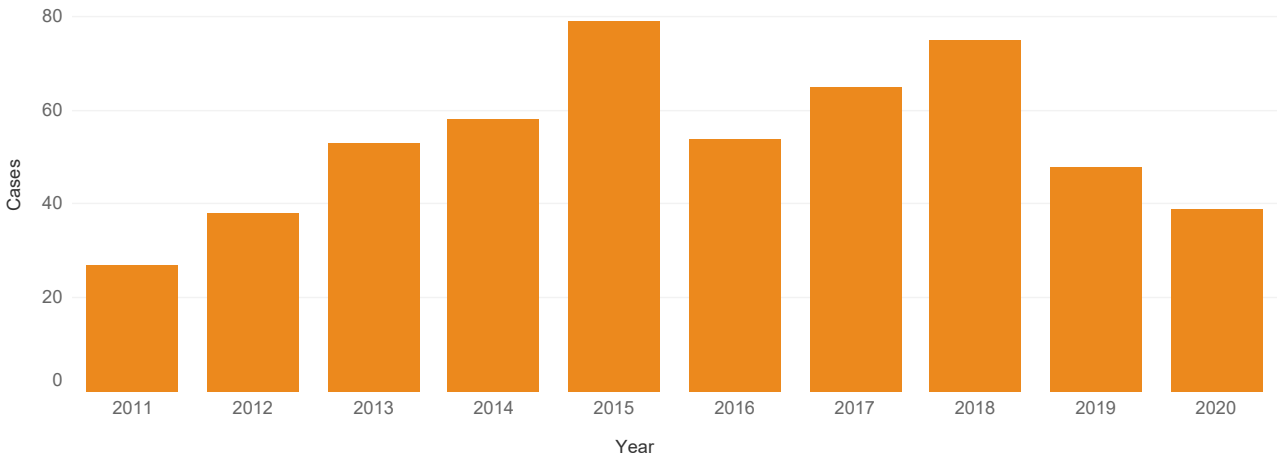
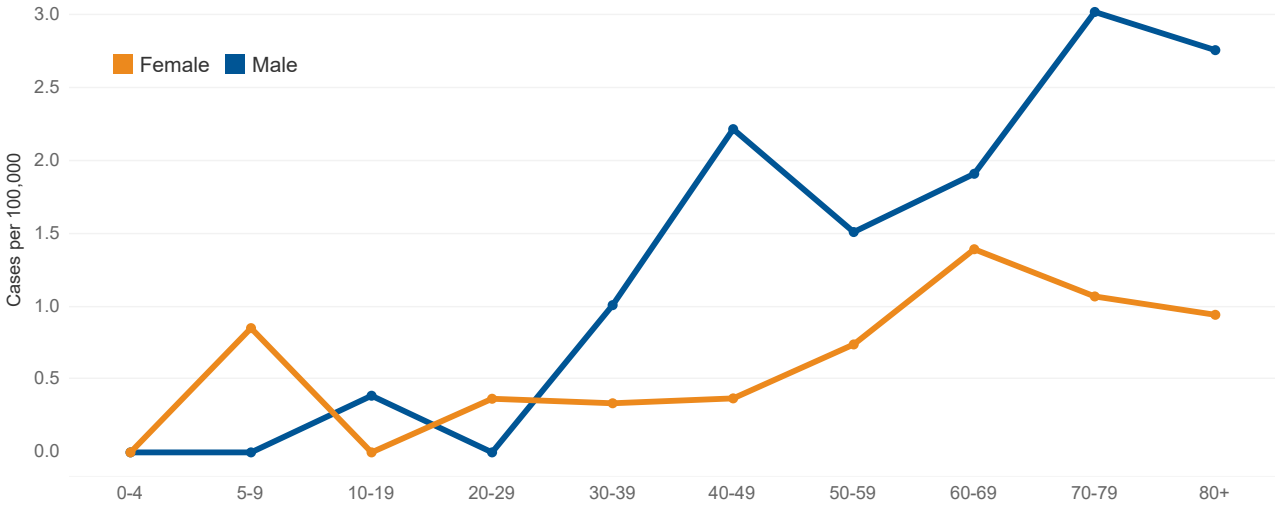
Disease overview | Incidence by year and by age and sex | Cryptococcosis cases by species | Incidence by county | Disease prevention

Incidence of cryptococcosis by year: Oregon, 2011–2020

Cryptococcosis became reportable in 2011.

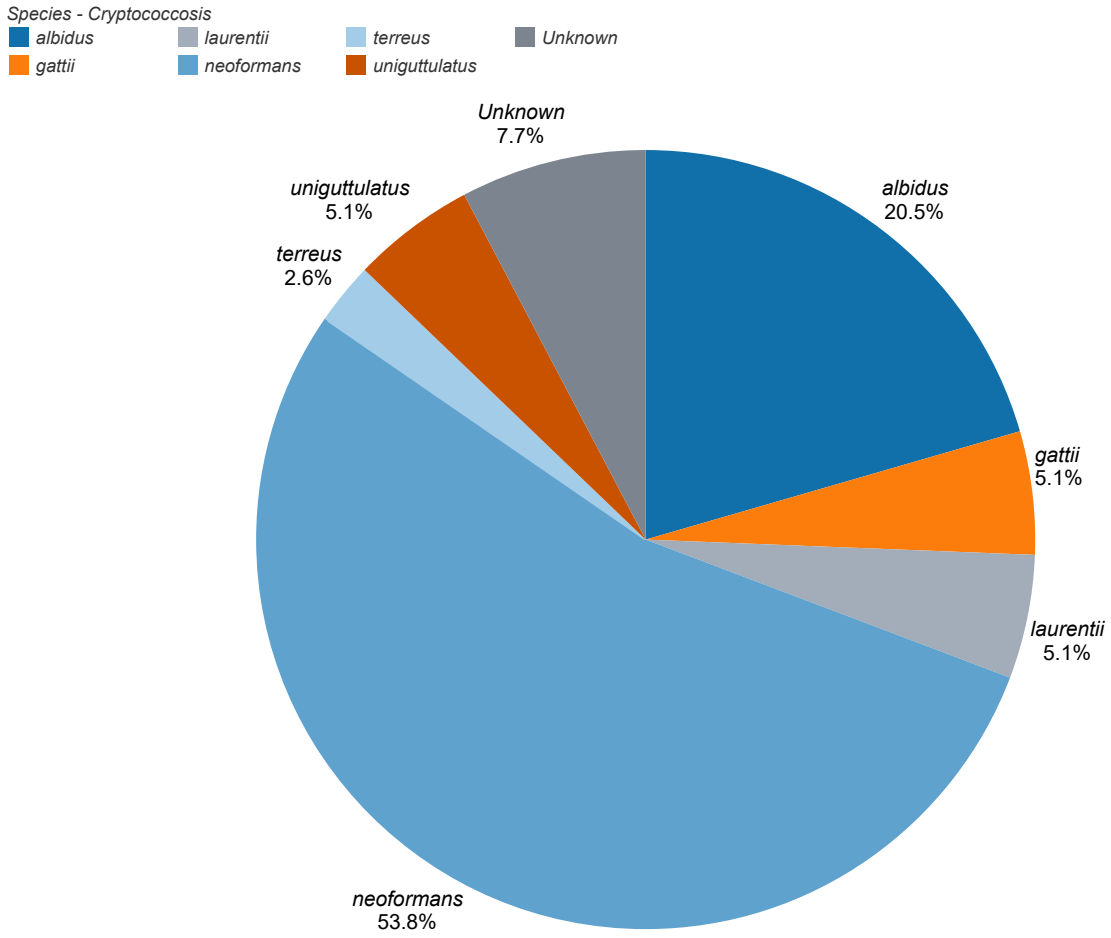


Incidence of cryptococcosis by age and sex: Oregon, 2020

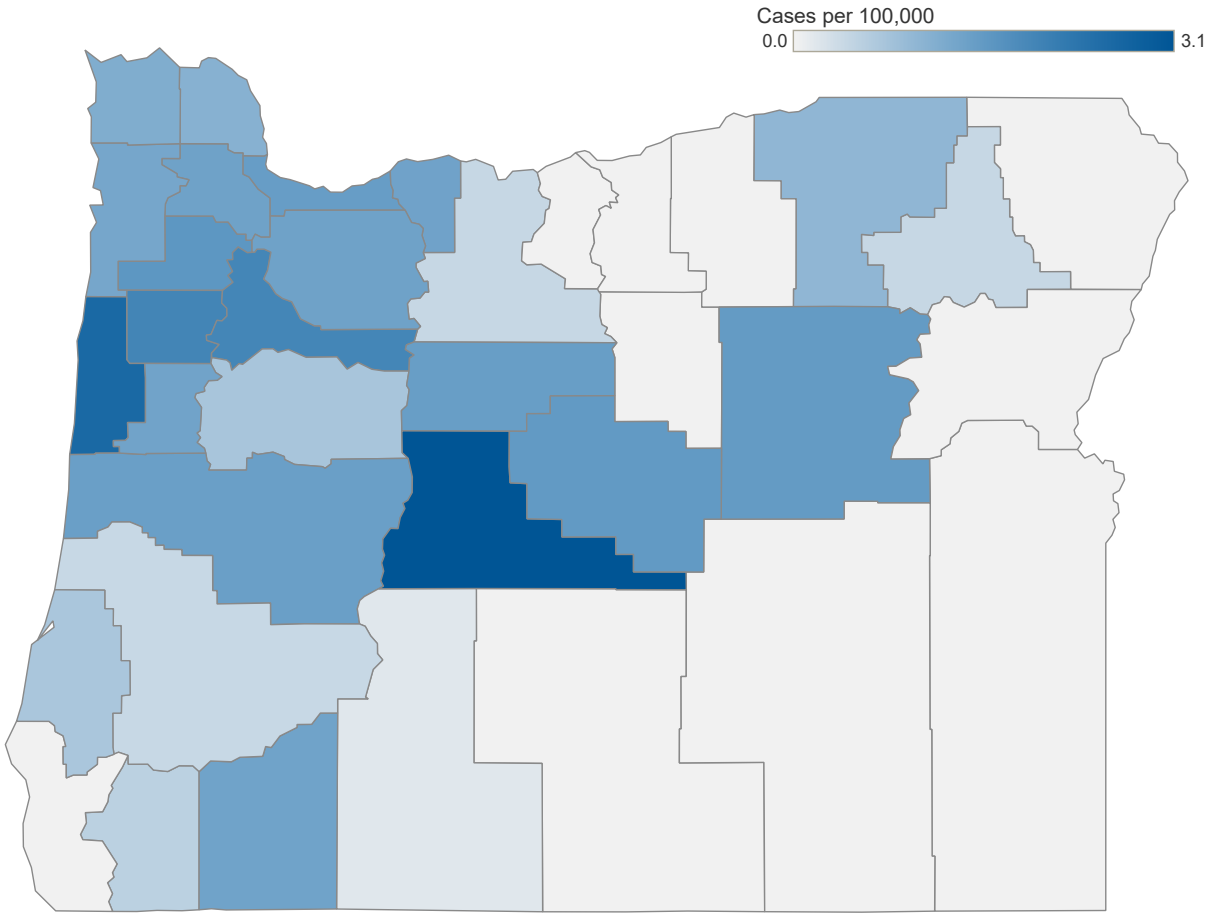


Cryptococcosis cases by species: Oregon, 2020

Hover over a section of the pie chart to view historical data.



Incidence of cryptococcosis by county of residence: Oregon, 2012–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Regrettably, practical methods for preventing cryptococcosis have not been identified.
- Patients with cryptococcosis can be helped with early diagnosis and treatment with antifungal drugs.

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Cryptosporidiosis

Cryptosporidium — most commonly *C. hominis* or *C. parvum*. Symptomatic infections are characterized by watery diarrhea and abdominal cramps. Many animals serve as reservoirs for *Cryptosporidium* and various protozoal species exist. Many of the species are not known to cause human illness. The most common source of infection is exposure to recreational water.

Symptoms typically resolve in one to four weeks in immunocompetent persons, but infections in immunocompromised persons can be difficult or impossible to cure. Studies suggest the prevalence of cryptosporidiosis among young children, particularly those in large childcare facilities, is surprisingly high. There are no symptoms for many of these infections.

Prior to 2020, the rate of infection with *Cryptosporidium* in Oregon was elevated from rates observed earlier in the millenium; however, Oregon recorded a large drop in infection rates in 2020, mirroring national trends. The 2020 rate was 2.2 per 100,000 persons, down from 6.0 in 2019. Oregon incidence of *Cryptosporidium* still remains slightly higher than the national rate (1.7 per 100,000 persons). Cases occur year-round although the incidence is still highest in summer months, coincident with increases in exposure to recreational water.

Rapid cartridge (ImmunoSTAT) tests and culture-independent diagnostic testing for *Cryptosporidium* might be playing a role in the apparent increase in incidence. Many facilities are now using polymerase chain reaction (PCR) panels, which detect *Cryptosporidium* among other pathogens. These tests are superior to the rapid cartridge tests. In 2020, 92 cases were reported. All cases are routinely investigated to identify the source of infection.

Treatment with an antiprotozoal agent has been shown effective in persons with a normal immune response; however, there are no proven effective treatments in immunocompromised hosts.

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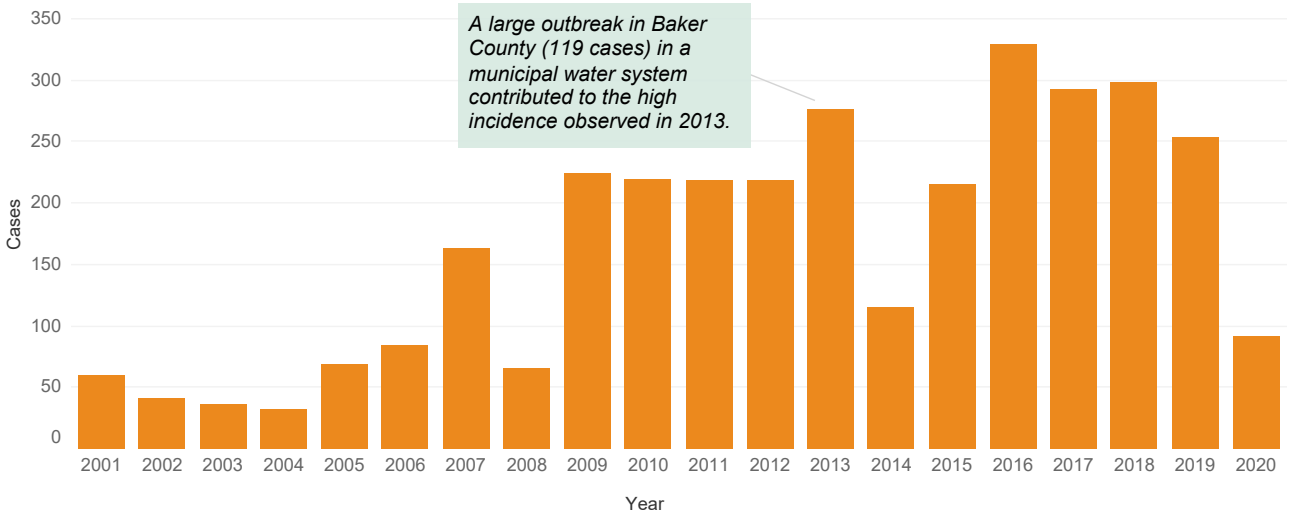
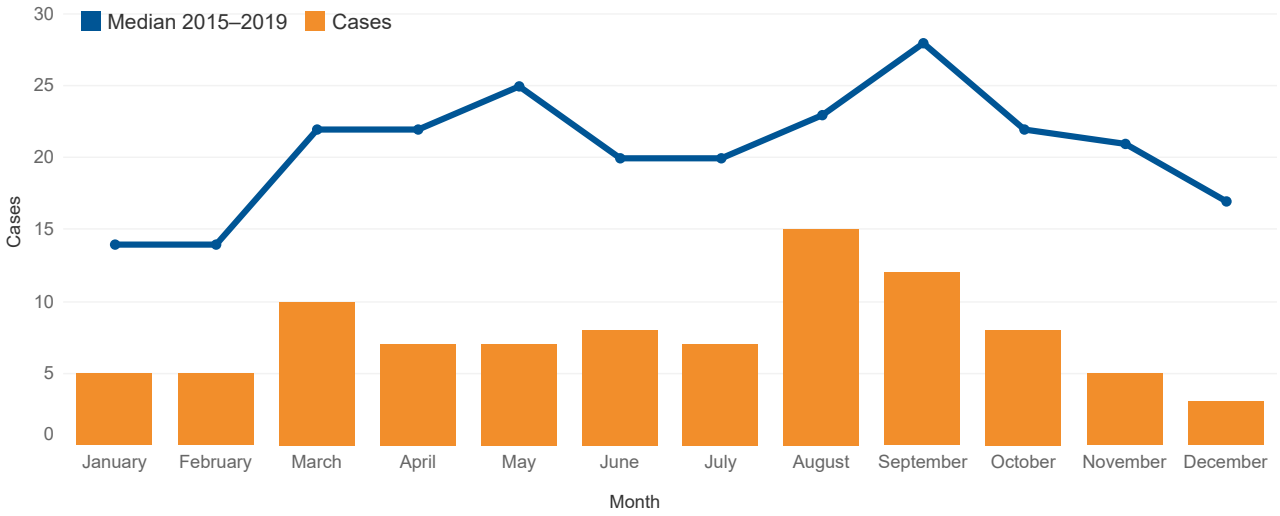
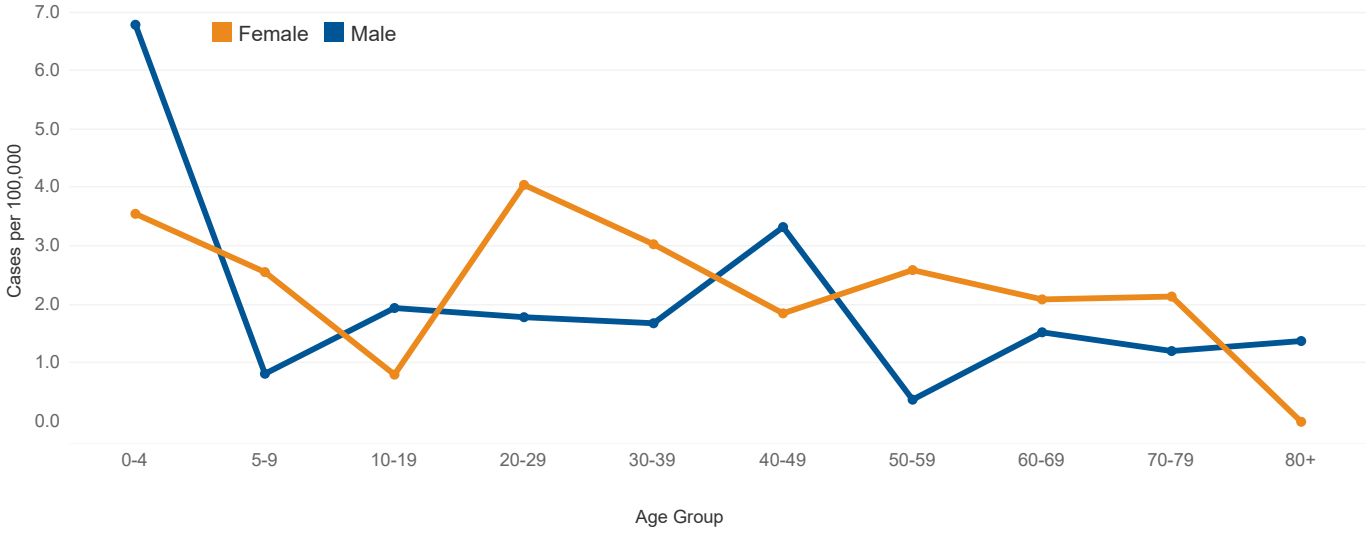
Incidence of cryptosporidiosis by year: Oregon, 2001–2020



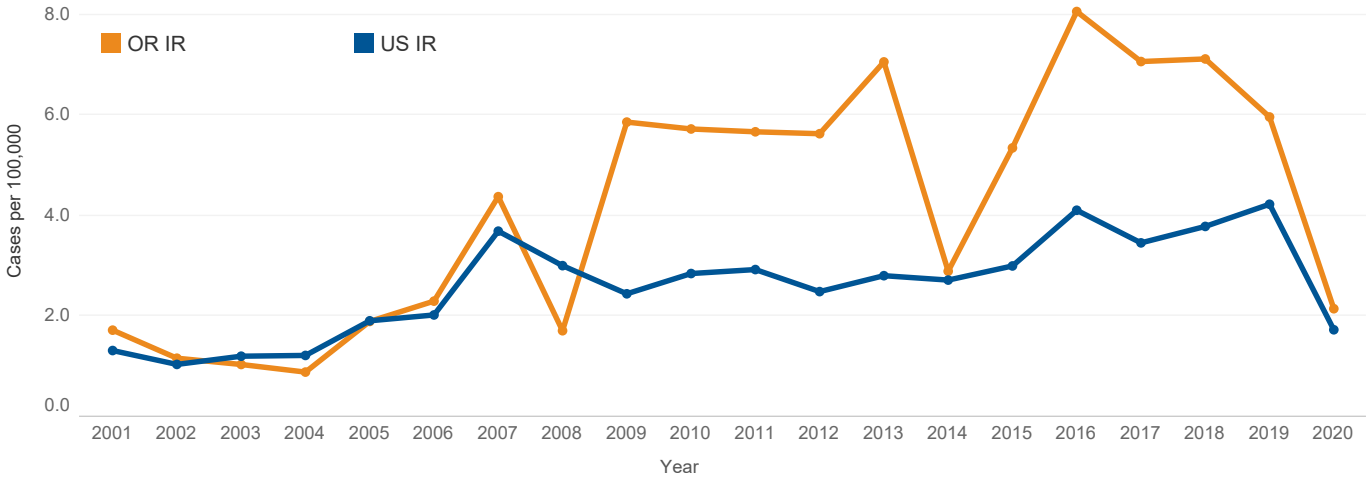
Incidence of cryptosporidiosis by month: Oregon, 2020



Incidence of cryptosporidiosis by age and sex: Oregon, 2020



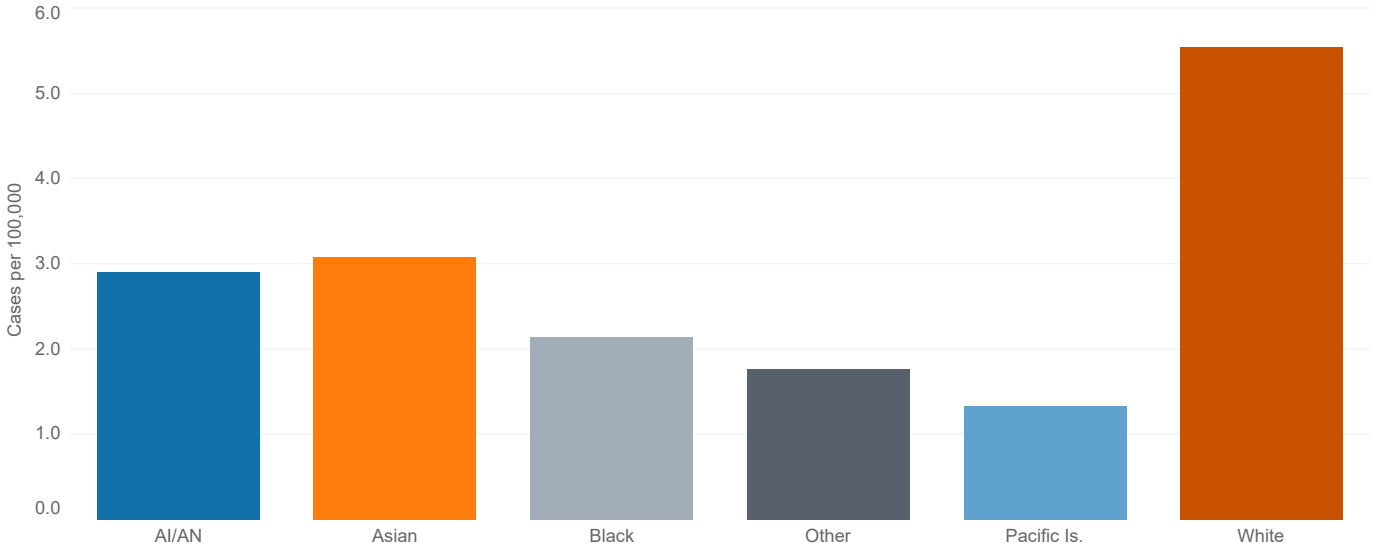
Incidence of cryptosporidiosis: Oregon vs. nationwide, 2001–2020



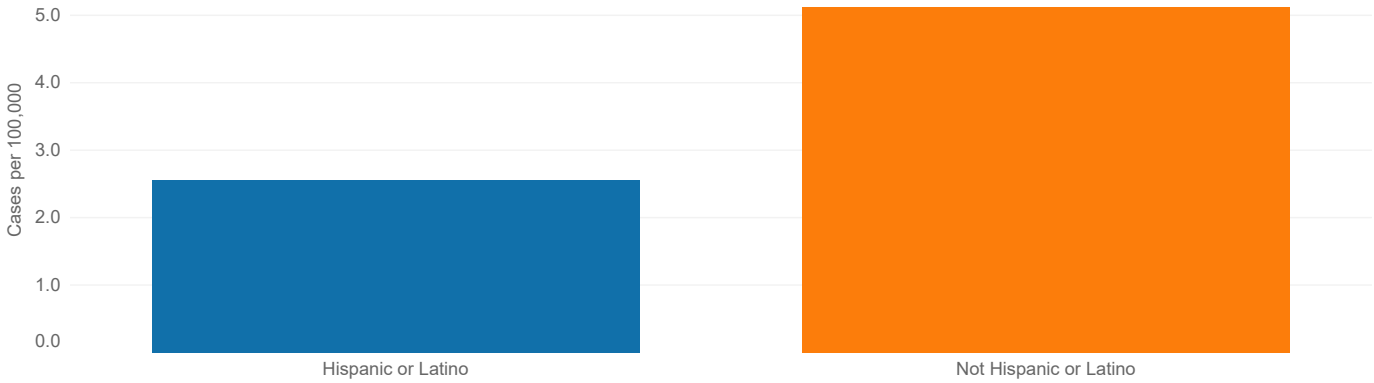
Incidence of cryptosporidiosis by reported race: Oregon, 2011–2020

Select data variable to view
Incidence Rate

Note: "Other" race includes individuals reporting multiple races.

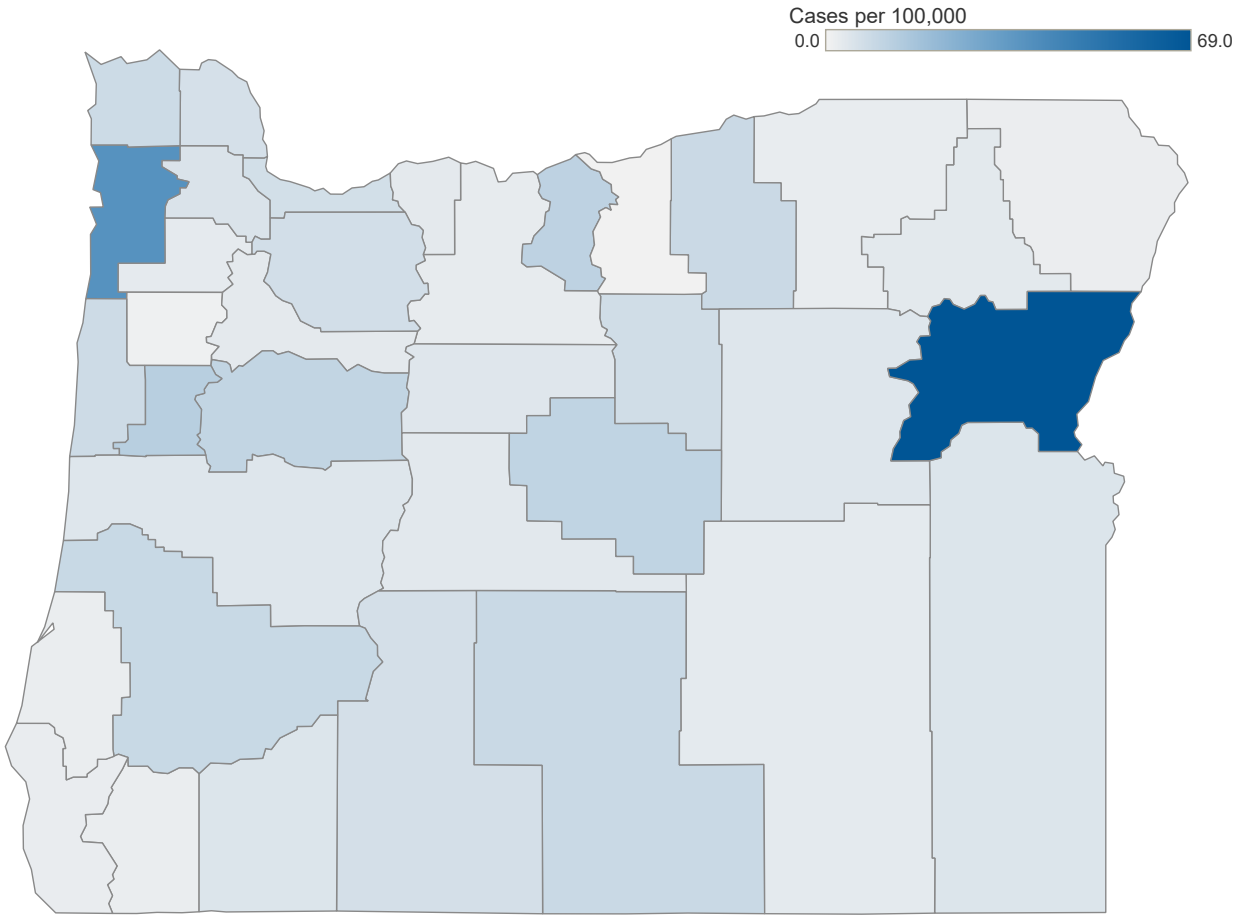


Incidence of cryptosporidiosis infection by reported ethnicity: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Incidence of cryptosporidiosis by county of residence: Oregon, 2011–2020



Notes: Rates based on small case counts might be unstable. The high incidence in Baker County is reflective of a large outbreak in a municipal water system in 2013 that included 119 cases.

Prevention

- Wash hands carefully and frequently with soap and warm water, especially after going to the bathroom, changing diapers or touching livestock. Supervise hand washing of toddlers and small children after they use the toilet.
- Do not work or attend daycare, serve or prepare food or work in health care while ill with diarrhea.
- Refrain from recreational water activities (pools, hot tubs, splash pads) for two weeks after symptoms from a bout of cryptosporidiosis susbside.
- Do not drink untreated surface water.

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Dengue fever

Dengue is a mosquito-borne viral infection. It is caused by a *Flavivirus* (the same genus as West Nile, Zika and yellow fever viruses). There are four serotypes, identified as DENV 1–4. The disease is limited primarily to the tropics and subtropics, although imported cases occasionally occur.

Symptom severity ranges from subclinical, asymptomatic infections to high fever, headache, muscle aches and rash. A subset of patients may develop hemorrhagic fever, with bleeding and shock. Treatment for dengue is supportive. In May 2019, a vaccine against dengue was approved in the United States. It is recommended in children 9–16 years of age with previous laboratory-confirmed DENV infection who live in areas where dengue is common—including American Samoa, Puerto Rico, the U.S. Virgin Islands, the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau.

There is no evidence of transmission here in Oregon. The typical vectors, *Aedes albopictus, Aedes japonicus* and *Aedes aegypti,* are not native to Oregon, although there have been reports of all three species in California.

There were eight cases in Oregon residents in 2020. All had a history of recent international travel to areas where dengue is endemic, mainly Latin America.

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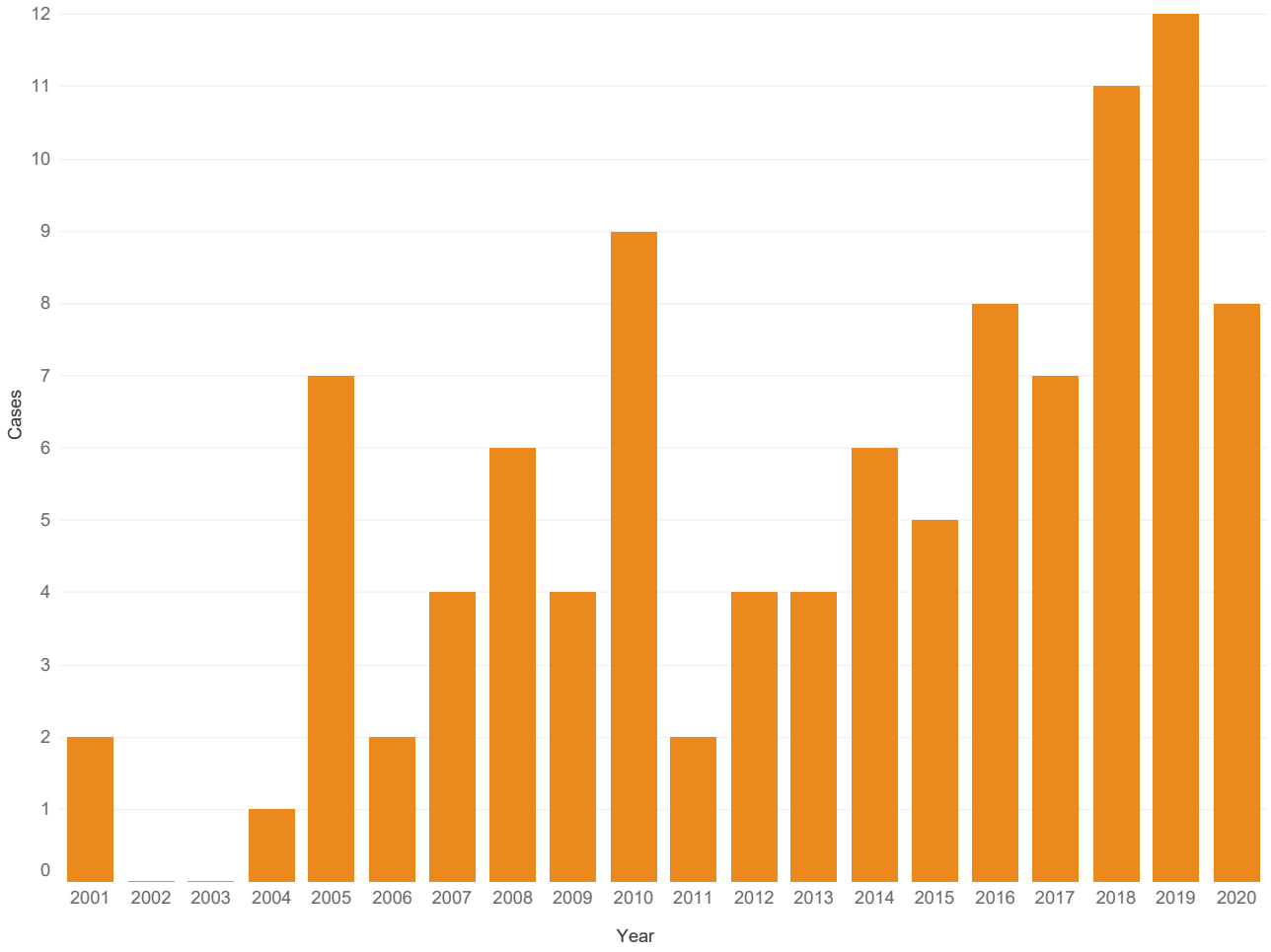
Incidence of dengue fever by year: Oregon, 2001–2020



Prevention

Primary prevention measures are geared toward avoiding mosquito bites when visiting areas where dengue is circulating:

- Use mosquito repellent.
- Wear long sleeves, long pants, shoes and socks when out and about.
- Avoid outdoor activities at dawn, dusk and early evening, when more mosquitoes are out.
- Check screens on doors and windows where you are staying to make sure they are intact.
- Sleep under a treated mosquito net when nighttime exposure to mosquitoes could occur.
- Additionally, persons acutely ill with dengue should avoid exposure to domestic mosquitoes. (We don't want to find out the hard way that local species can harbor and transmit the virus, after all.)

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Escherichia coli O157 and other Shiga toxin-producing *Escherichia coli* (STEC) infections

Escherichia coli O157 (O157) is one of the most dreaded causes of infectious gastroenteritis. Bloody diarrhea is a hallmark of this pathogen, but the real danger is post-diarrheal hemolytic uremic syndrome (HUS). Oregon has been the setting for many O157 outbreaks, and the investigations of those outbreaks, combined with the analysis of other surveillance data, has contributed greatly to our understanding of this pathogen. Spread by the fecal-oral route, O157 has several animal reservoirs, the most important of which are ruminants: cattle, goats, sheep, deer, elk, etc. Transmission often occurs from consumption of contaminated food or water, as well as direct person-to-person spread and environmental exposures. Mid-to-late summer is the peak season for O157 infections.

With increasing deployment of diagnostic kits that identify Shiga toxin-producing *E. coli* (rather than O157 per se) comes an appreciation of the significant role that other STEC play as human pathogens. In the United States (and in Oregon), O26, O45, O103, O111, O121 and O145 are the most common “other” serogroups of the enterohemorrhagic *E. coli,* making up approximately half of the reported cases. O157 infections are much more likely to result in HUS than is infection by other STEC.

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The incidence of STEC infections in Oregon has generally been higher than that of the United States as a whole. Over the past 10 years, the number of O157 cases reported statewide has ranged between 68 and 111 annually. After climbing to a peak of 2.9 cases per 100,000 persons in 2012, rates began declining. In 2020, the rate of 1.0 per 100,000 persons was down from the 2019 rate of 1.6 per 100,000.

As for the non-O157 serogroups, those case counts have increased steadily from single digits in 2007 and 2008 to a peak of 149 confirmed cases in 2019. Of the 134 confirmed STECs serotyped in 2020, 41 were O157; 93 were non-O157, including O26 (38), O103 (6), O111 (11), O121 (6), and 19 other serogroups. The remaining 70 STEC cases in 2020 were not serotyped.

Oregon residents were associated with one multi-state STEC outbreak in 2020. The outbreak was determined to be foodborne but no specific food vehicle was implicated.

More labs are testing for the presence of Shiga toxin rather than just O157. Unfortunately, at the same time, many labs are dropping culture-based methods, leaving clinicians (and epidemiologists) in the dark as to the specifics of the etiologic agent, and putting more of the diagnostic burden on the public health reference lab.

Much of the heavy lifting for prevention must be done upstream, with plans to minimize contamination of crops and processing equipment. Hazard Analysis and Critical Control Point (HACCP) practices focus on documenting and controlling risks during food processing and commercial food preparation, as well as efforts to control water and other potential environmental sources of infection.

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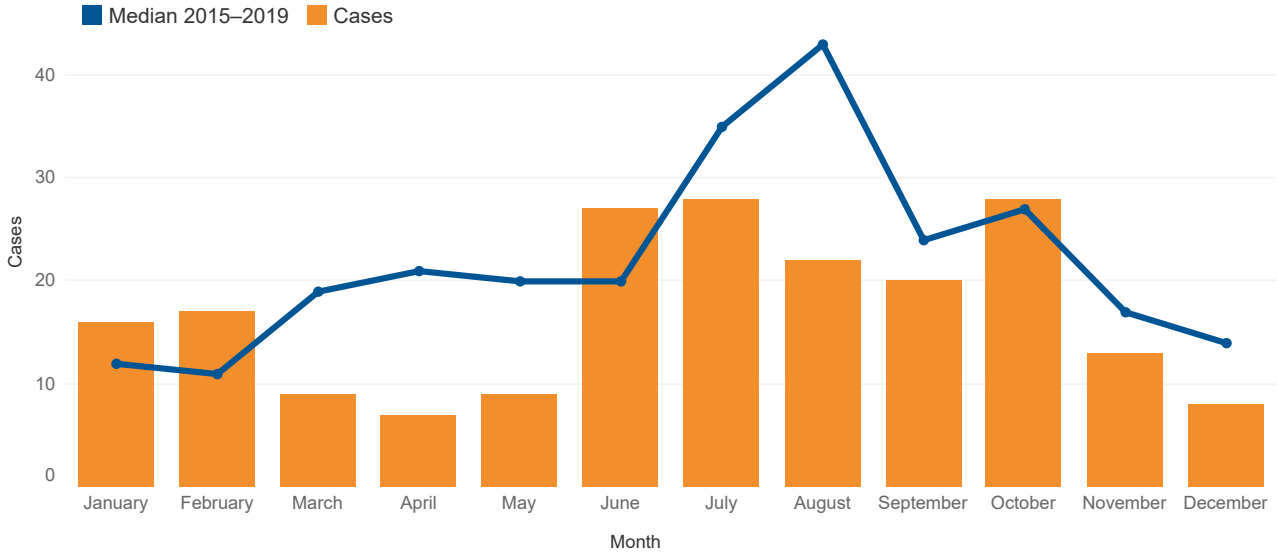
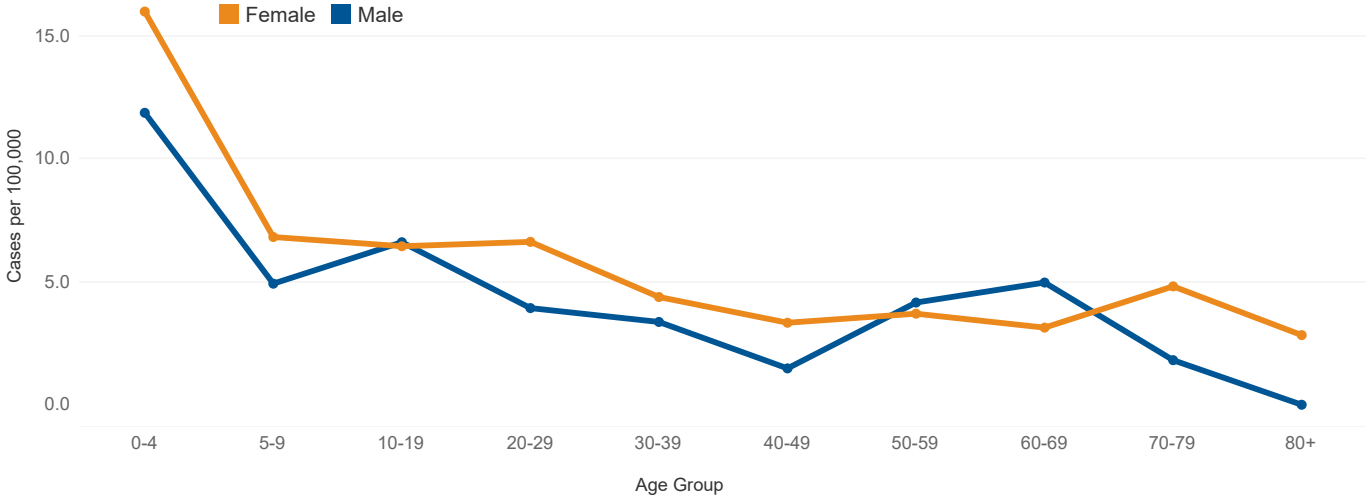
Incidence of STEC infection by year: Oregon, 2001–2020

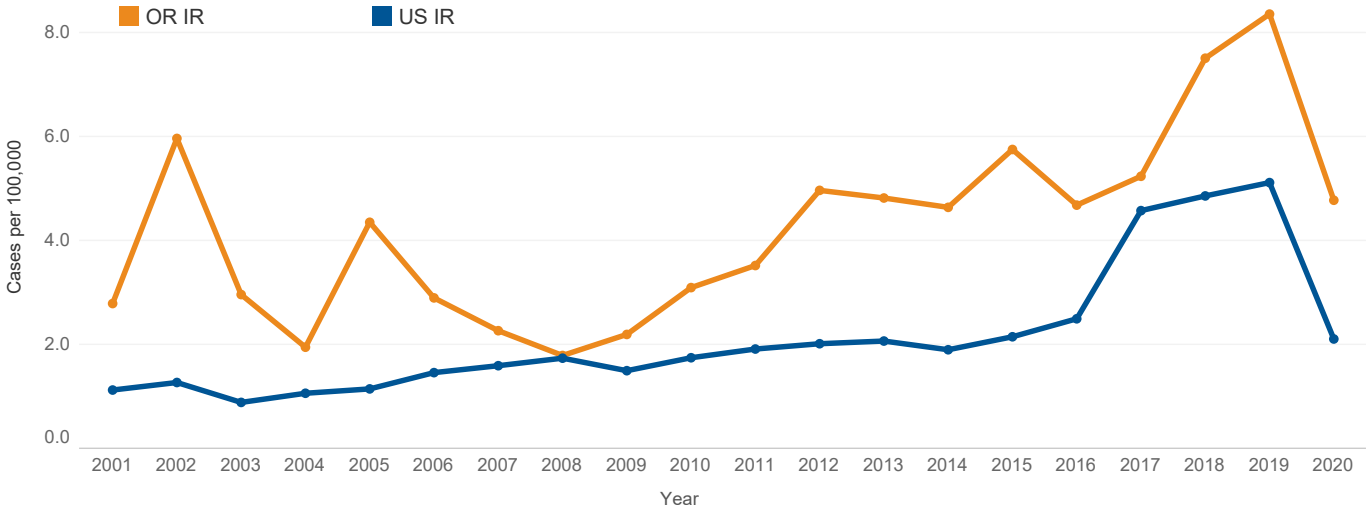
Incidence of STEC infection by month: Oregon, 2020



Incidence of STEC infection by age and sex: Oregon, 2020



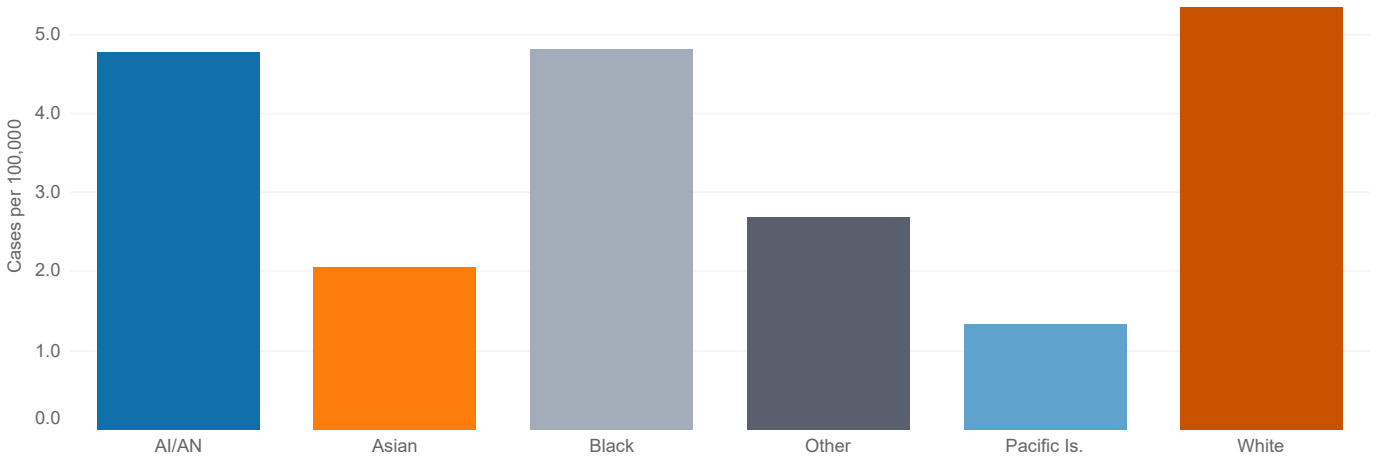
Incidence of STEC infection: Oregon vs. nationwide, 2001–2020



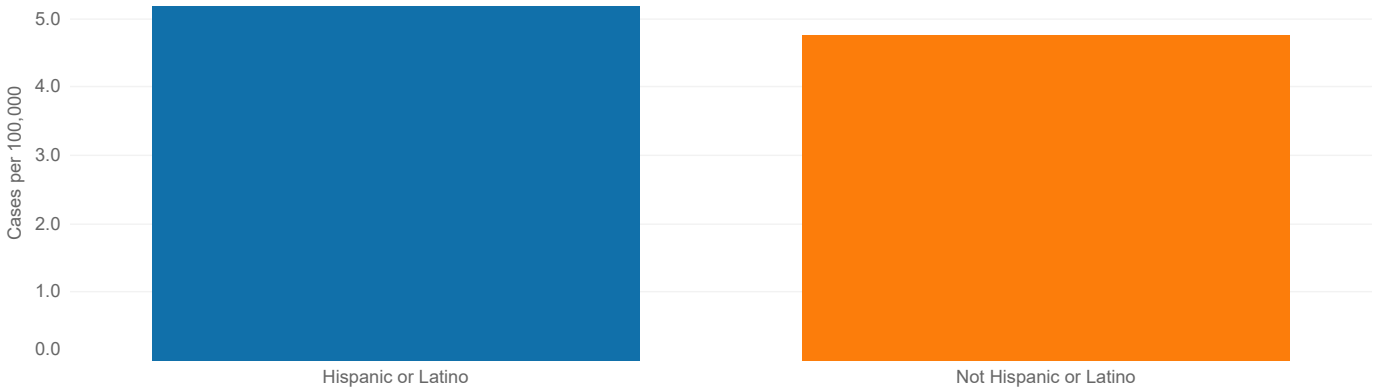
Select data variable to view
Incidence Rate

Incidence of STEC infection by reported race: Oregon, 2011–2020

Note: "Other" race includes individuals reporting multiple races.

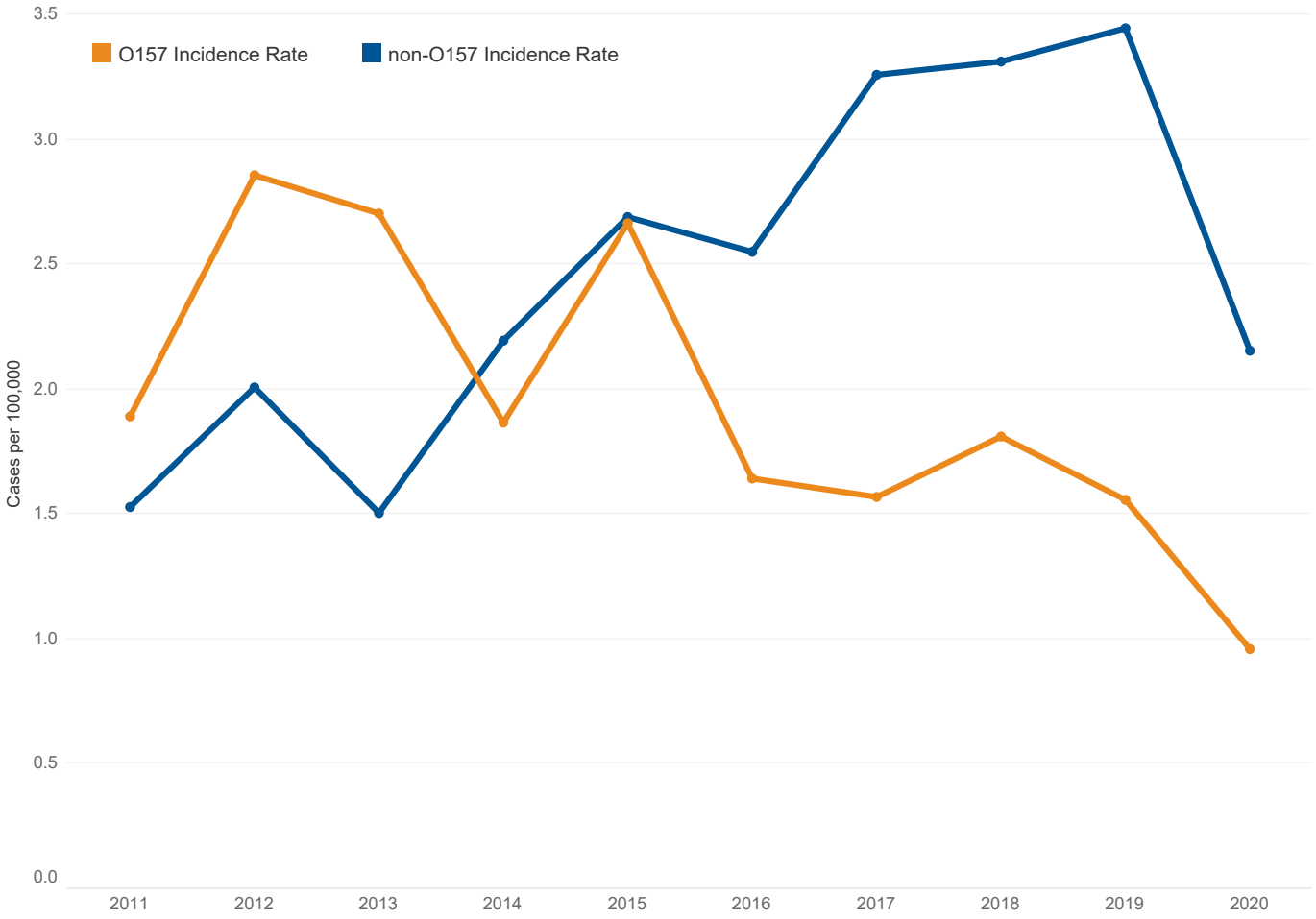


Incidence of STEC infection by reported ethnicity: Oregon, 2011–2020

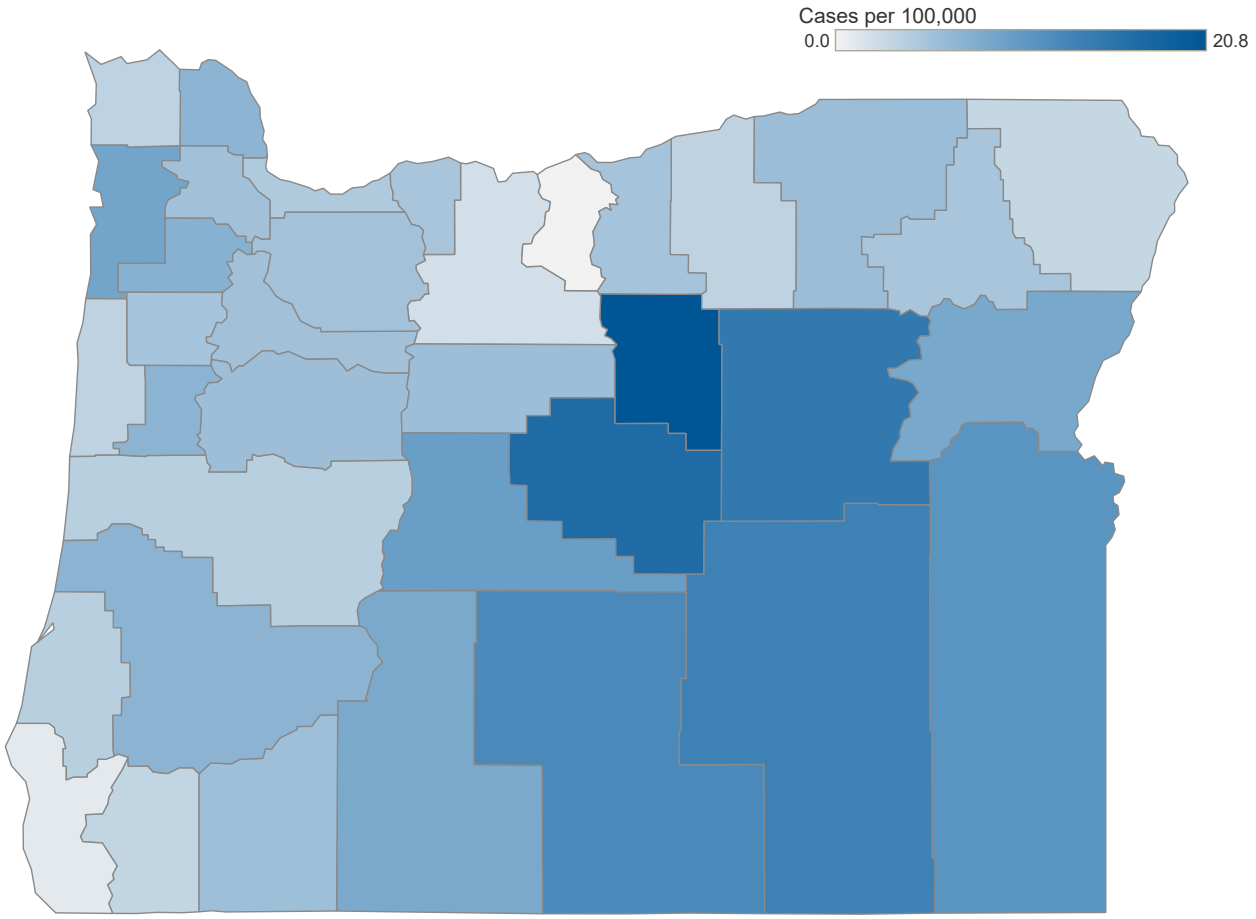


Note: Rates based on small case counts might be unstable.

Incidence of STEC infection, O157 vs. non-O157 type: Oregon, 2011–2020



Incidence of STEC infection by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Wash hands with soap carefully and frequently, especially after going to the bathroom, changing diapers or touching livestock. Supervise hand washing of toddlers and small children after they use the toilet.
- Do not work or attend daycare, serve or prepare food or work in health care while ill with diarrhea.
- Practice safe food handling. Rinse raw produce thoroughly under running tap water; separate uncooked meats from vegetables, cooked foods, and ready-to-eat foods; and cook meat to the proper temperatures.
- Do not drink raw milk and do not eat foods that have unpasteurized milk in them.

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Extrapulmonary nontuberculous mycobacterial disease (NTM)

Oregon surveillance for extrapulmonary nontuberculous mycobacterial disease (NTM) started in January 2014. Case reporting identifies outbreaks and potential sources of transmission. Other objectives of reporting are to prevent further transmission, identify epidemiologic trends and educate the exposed persons about signs and symptoms of the disease.

NTM are environmental organisms, usually associated with water and soil; there are more than 100 different species identified. Disease-causing *Mycobacterium* species frequently identified in the United States include: *M. avium* complex (MAC), *M. marinum, M. abscessus, M. chelonae, M. fortuitum, M. kansasii* and *M. xenopi* (in certain regions).

Extrapulmonary NTM disease presents as cutaneous, bone, joint, lymph node or central nervous system disease. These soft tissue infections cause purplish nodules that drain and may ulcerate or scar.

Cutaneous infections typically result from either:

- Direct inoculation during trauma
- Surgical or medical procedures
- Exposures to whirlpool baths, or
- Settings such as nail salons or tattoo procedures.

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Lymphadenitis occurs most in otherwise healthy children, usually <5 years old. Lymph node disease results in large, reddened and tender nodes, which can drain or ulcerate.

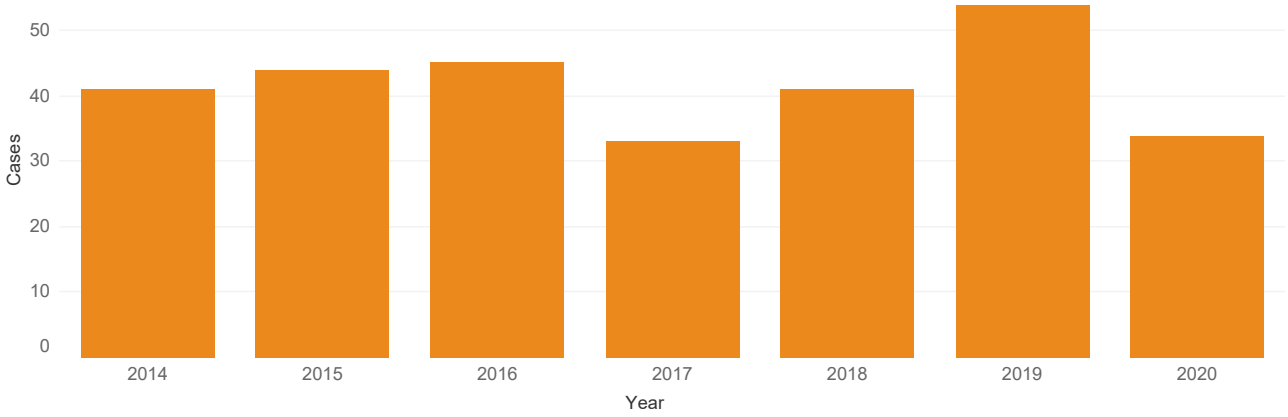
Generally, disseminated extrapulmonary disease occurs in immunocompromised patients (e.g., HIV, cancer, transplant and others). Symptoms include cough, fatigue, weight loss, fever and night sweats.

Treatment is based on the species identified and the site of infection. For the immunocompetent, infections are usually curable with a two to three drug regimen for two to six months, depending on site of infection. Susceptibility testing of the organism determines the appropriate antibiotic treatment. For those with disseminated disease, cure is difficult to achieve without restoration of the immune system.

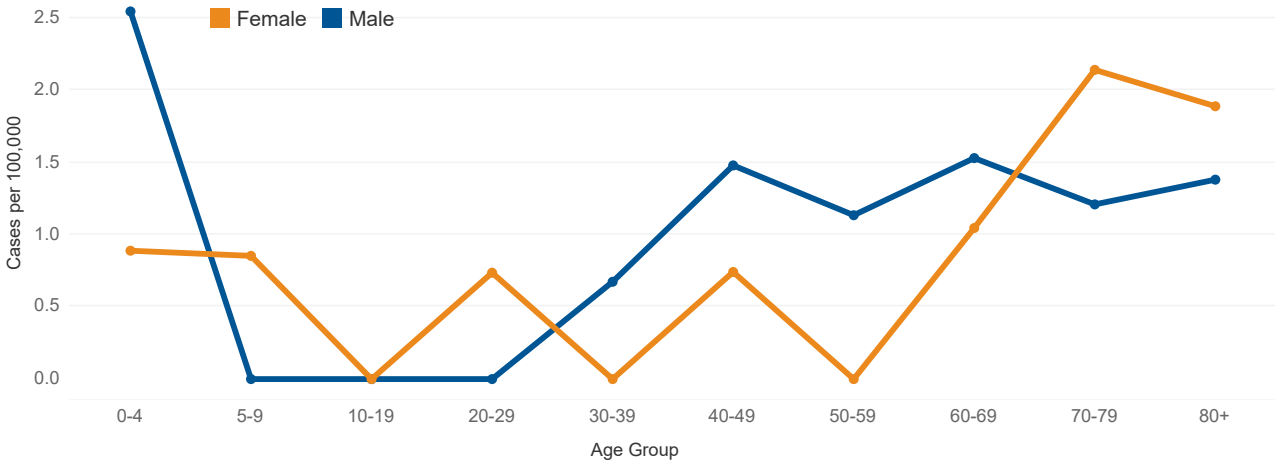
Thirty-four cases of extrapulmonary NTM with disease onset in 2020 were reported among Oregonians. The median case age was 55 (range 1–92) years; 15 (44%) were female; 11 (32%) were hospitalized at the time of specimen collection. Tissue and wound cultures accounted for 23 (68%) of the specimen sources. *M. avium* complex was the species most frequently isolated at 11 (32%) of cases. Among the 4 (12%) cases in the 0–4 age group, *M. avium* complex and *M. Chelonae* were isolated from lymph nodes or tissue samples.

Incidence of extrapulmonary nontuberculous mycobacterial disease (NTM) by year: Oregon, 2014–2020

Extrapulmonary NTM became reportable in 2014.



Incidence of extrapulmonary nontuberculous myobacterial disease (NTM) by age and sex: Oregon, 2020



Prevention

- For surgical procedures, follow infection prevention best practices, which include following sterilization guidelines and not using tap water or ice in the operating room.
- Avoid dusts from potting soil.
- Adequately clean baths in nail salons.
- Tattoo ink should be diluted with sterile water.

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Giardiasis

Giardia intestinalis, the flagellated protozoan originally named *G. lamblia,* is the most commonly identified parasitic pathogen in the United States. Children in daycare and their close contacts are at greatest risk, as are backpackers and campers (from drinking unfiltered, untreated water), persons drinking from shallow wells, travelers to disease-endemic areas and men who have sex with men.

Giardia cysts can be excreted in the stool intermittently for weeks or months, resulting in a protracted period of communicability. Transmission occurs when as few as 10 cysts are ingested through person-to-person or animal-to-person contact, or by ingesting fecally contaminated water or food. Because most human cases follow person-to-person transmission, identification and treatment of giardiasis as well as management of individuals' contacts should prevent further spread of infection.

Most *Giardia* infections occur without symptoms. When symptomatic, patients report chronic diarrhea, steatorrhea, abdominal cramps, bloating, frequent loose and pale, greasy stools, fatigue and weight loss.

In 2020, the reported incidence of giardiasis in Oregon remained elevated compared to the rest of the United States, with 5.9 cases per 100,000 persons. However, cases of giardiasis have been slowly declining in Oregon since 2010. During 2020, 98% of cases were reported as "sporadic"; 2% were transmitted among household members. Males aged 30–39 years had the highest incidence in 2020, with 9.1 cases per 100,000 population, followed by males 40–49 years and females 20–29 years, both with a rate of 8.1. The elevated incidence from 2011–2020 observed among cases who identify as Black is reflective of universal screening of refugees arriving in Oregon from Africa. Rates of infection tend to be higher in the summer months with transmission related to outdoor activities in or near untreated water.

Giardiasis is treatable, though treatment fails 10% of the time. Treatment failure, however, is not thought to indicate resistance. A repeat course of the same or another medication may work.

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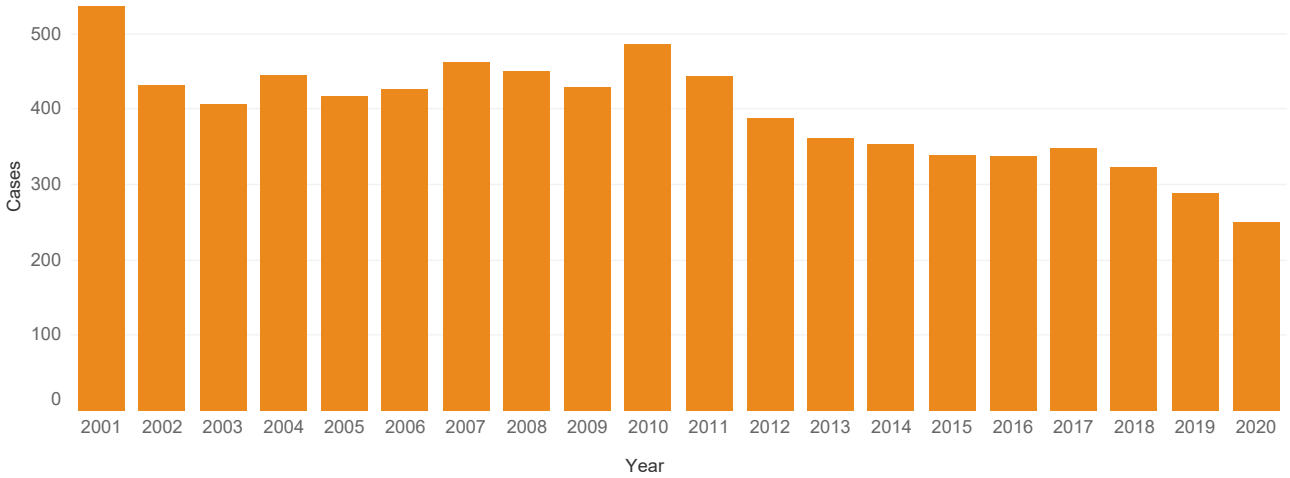
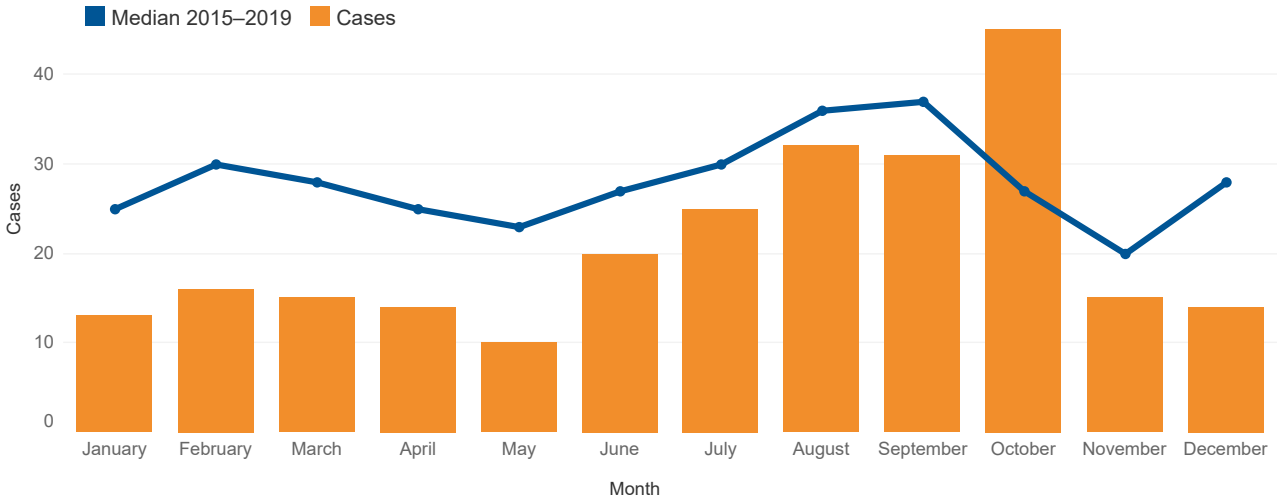
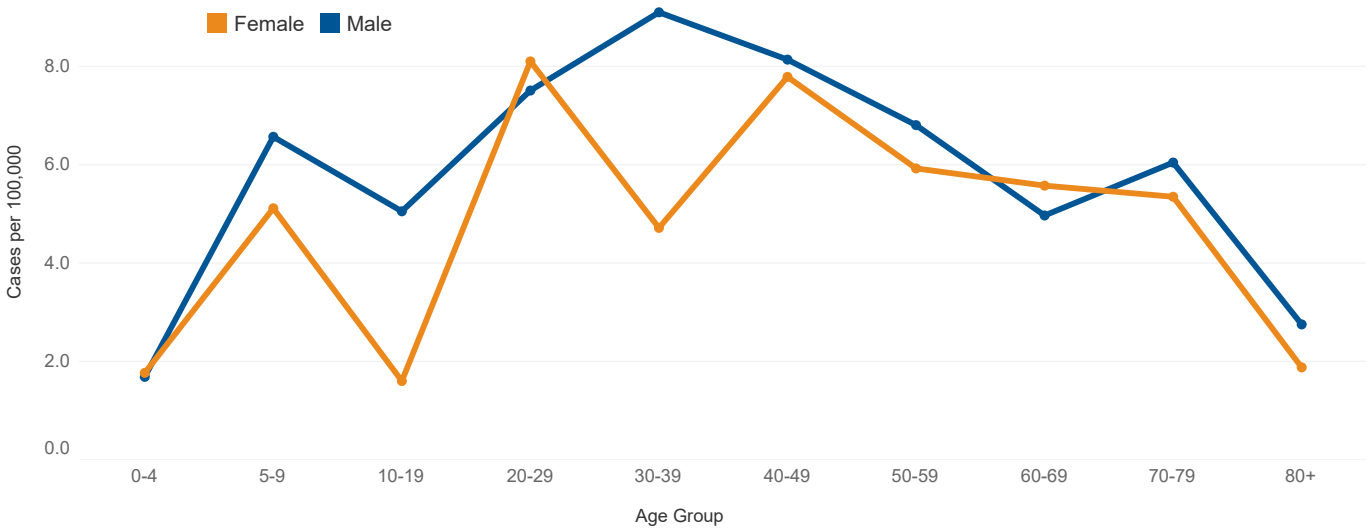
Incidence of giardiasis by year: Oregon, 2001–2020



Incidence of giardiasis by month: Oregon, 2020

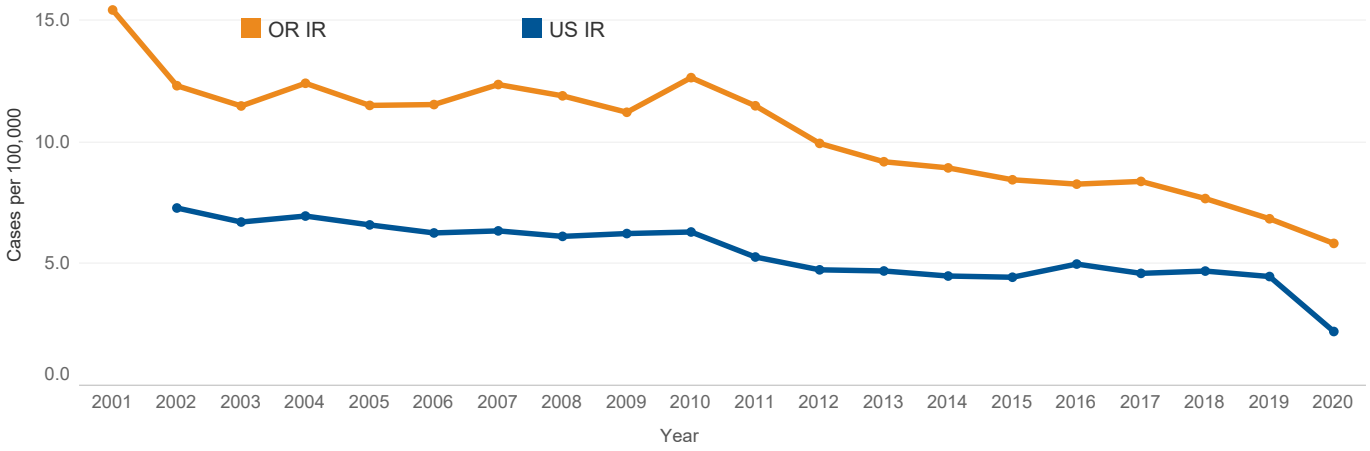


Incidence of giardiasis by age and sex: Oregon, 2020



Incidence of giardiasis: Oregon vs. nationwide, 2001–2020

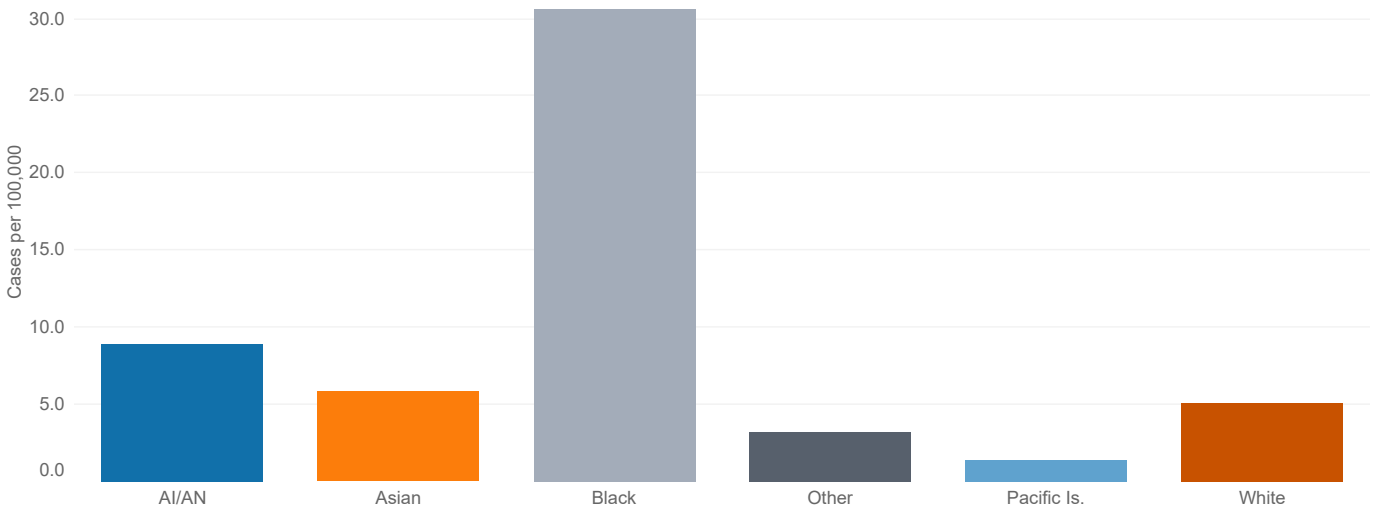
Giardiasis became nationally notifiable in 2002.



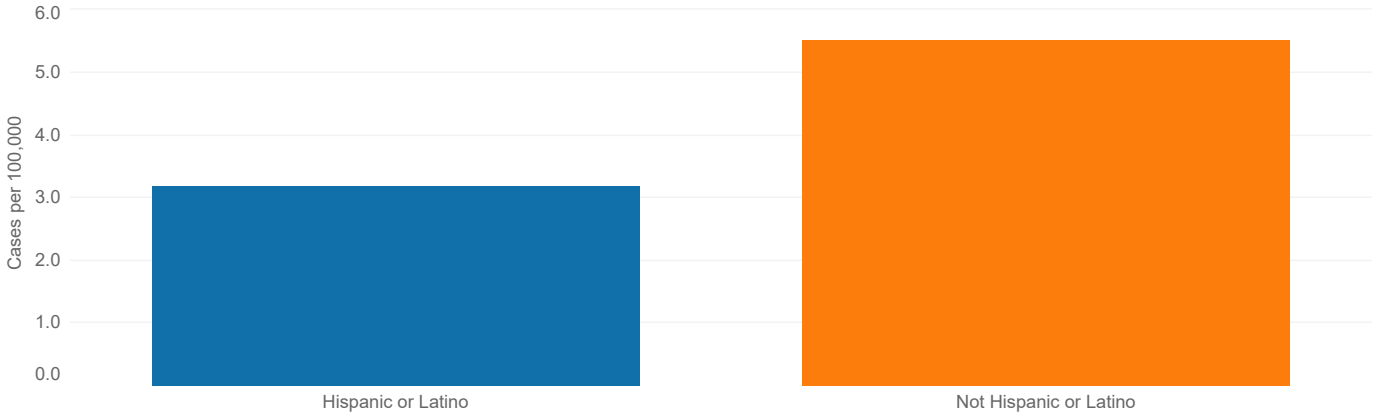
Incidence of giardiasis by reported race: Oregon, 2011–2020

Note: "Other" race includes individuals reporting multiple races.

Select data variable to view
Incidence Rate

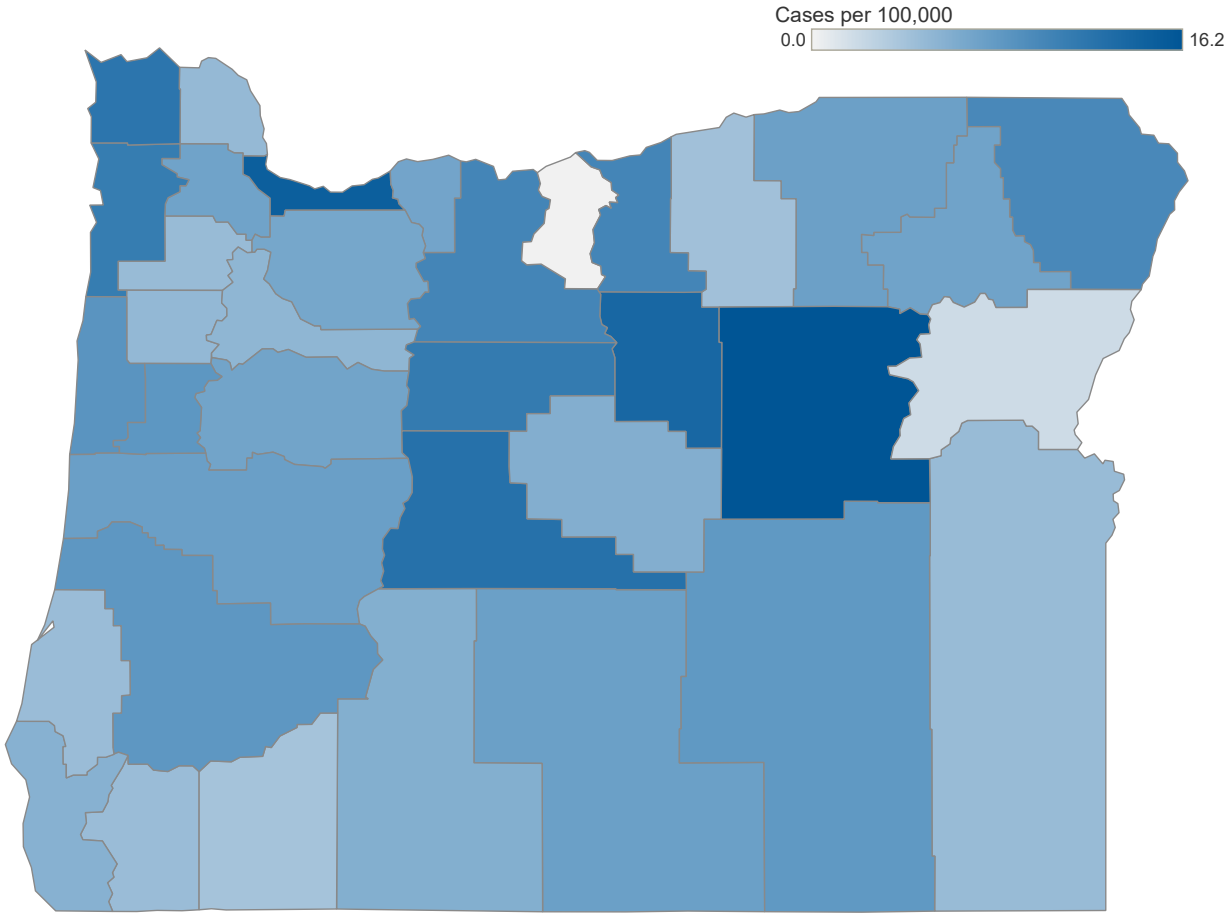


Incidence of giardiasis by reported ethnicity: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Incidence of giardiasis by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Wash hands with soap carefully and frequently, especially after going to the bathroom, changing diapers or after touching livestock. Supervise hand washing of toddlers and small children after they use the toilet.
- Do not work or attend daycare, serve or prepare food or work in health care while ill with diarrhea.
- Refrain from recreational water activities (pools, hot tubs, splash pads) for two weeks after symptoms from a bout of giardiasis susbside.
- Do not drink untreated surface water.

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Gonorrhea

Gonorrhea is a sexually transmitted infection caused by the bacterium *Neisseria gonorrhoeae*. Any person can get gonorrhea through vaginal, anal, or oral sex. People assigned male at birth are more likely than people assigned female at birth to experience gonorrhea symptoms. Symptoms can include painful urination, penile or vaginal discharge, bleeding between periods, and pelvic pain. Untreated infections can cause significant and costly complications and lead to impaired fertility. Gonorrhea can also be transmitted to an infant during childbirth.

Gonorrhea testing is done on urine or swabs of the genitals, rectum, or throat. Gonorrhea can be cured with antibiotic treatment. Since gonorrhea is a bacterial infection, anyone can be reinfected if they are exposed again after completing treatment.

The incidence of gonorrhea in Oregon increased from 107 cases per 100,000 people in 2016 to 151 cases per 100,000 people in 2020. Black/African American people in Oregon experience high rates of gonorrhea. The reasons for these high rates are complex and result from generations-long systemic inequities. The disparities in gonorrhea rates cannot be attributed to an individual's behavior alone. During 2020, people aged 30–39 years were at highest risk of acquiring gonorrhea. While increasing, the rate of gonorrhea in Oregon remains lower than the national average.

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Inequities in gonorrhea are multifactorial and driven by social determinants of health, such as discrimination, poverty, inadequate health care access, educational inequalities, and stigma. Instead of focusing on individual-level risk factors and interventions, moving upstream to systems-level solutions is key. It is critical to understand that higher gonorrhea rates are not caused by race, ethnicity, gender, or sexual orientation, but by the social, economic, and environmental contexts that are more likely to affect certain groups and that create barriers to optimal sexual health.

Research indicates that information about differences in gonorrhea rates must be strategically crafted and implemented with authentic community engagement. Authentic community engagement has the capacity to develop solutions to address health inequities. So as not to further harm communities burdened by other social and health inequities, strength-based approaches are critical to public health programs designed to prevent gonorrhea and maximize sexual well-being. Addressing health inequities from the underlying root is critical to reducing STD rates.

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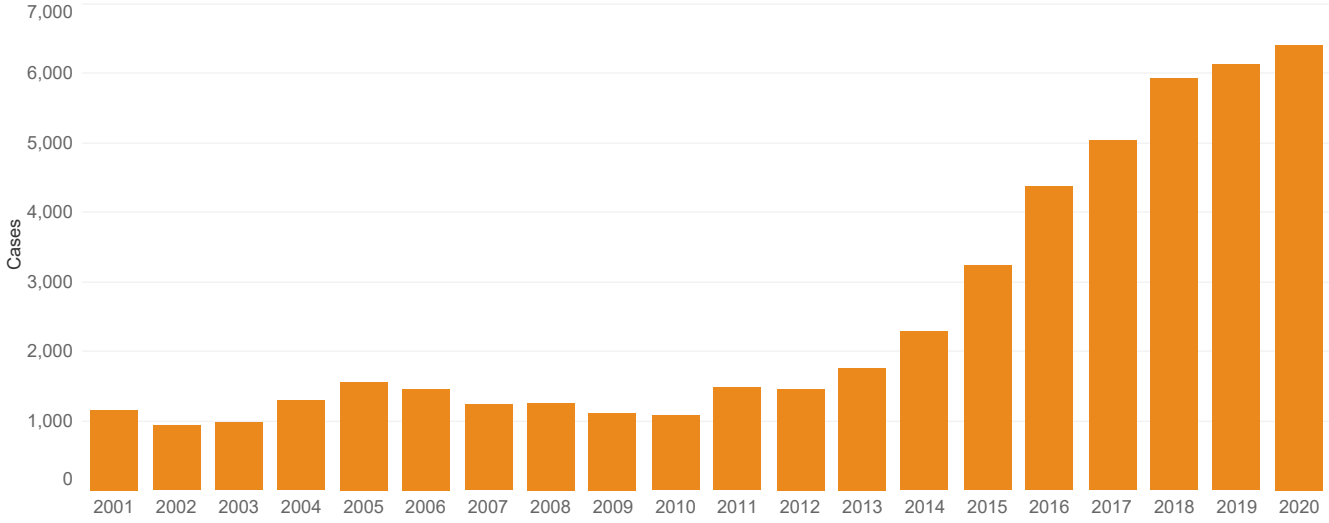
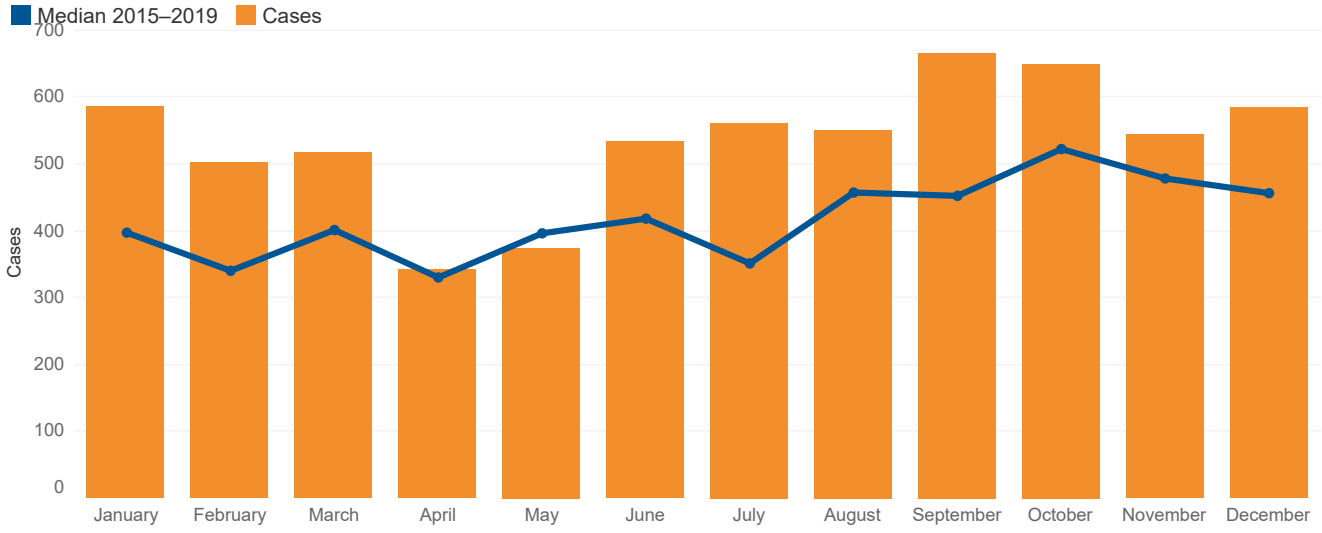
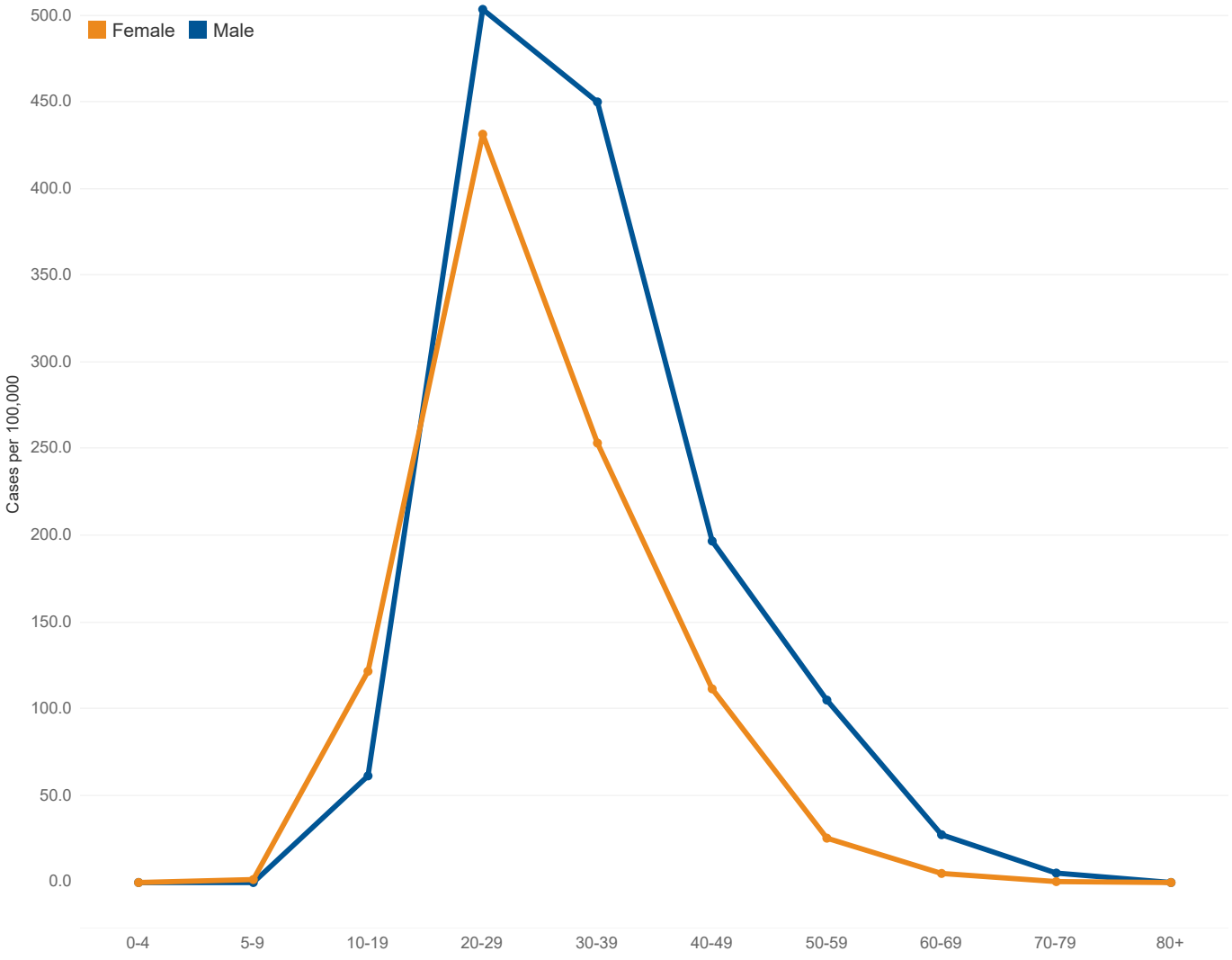
Case counts of gonorrhea by year: Oregon, 2001–2020



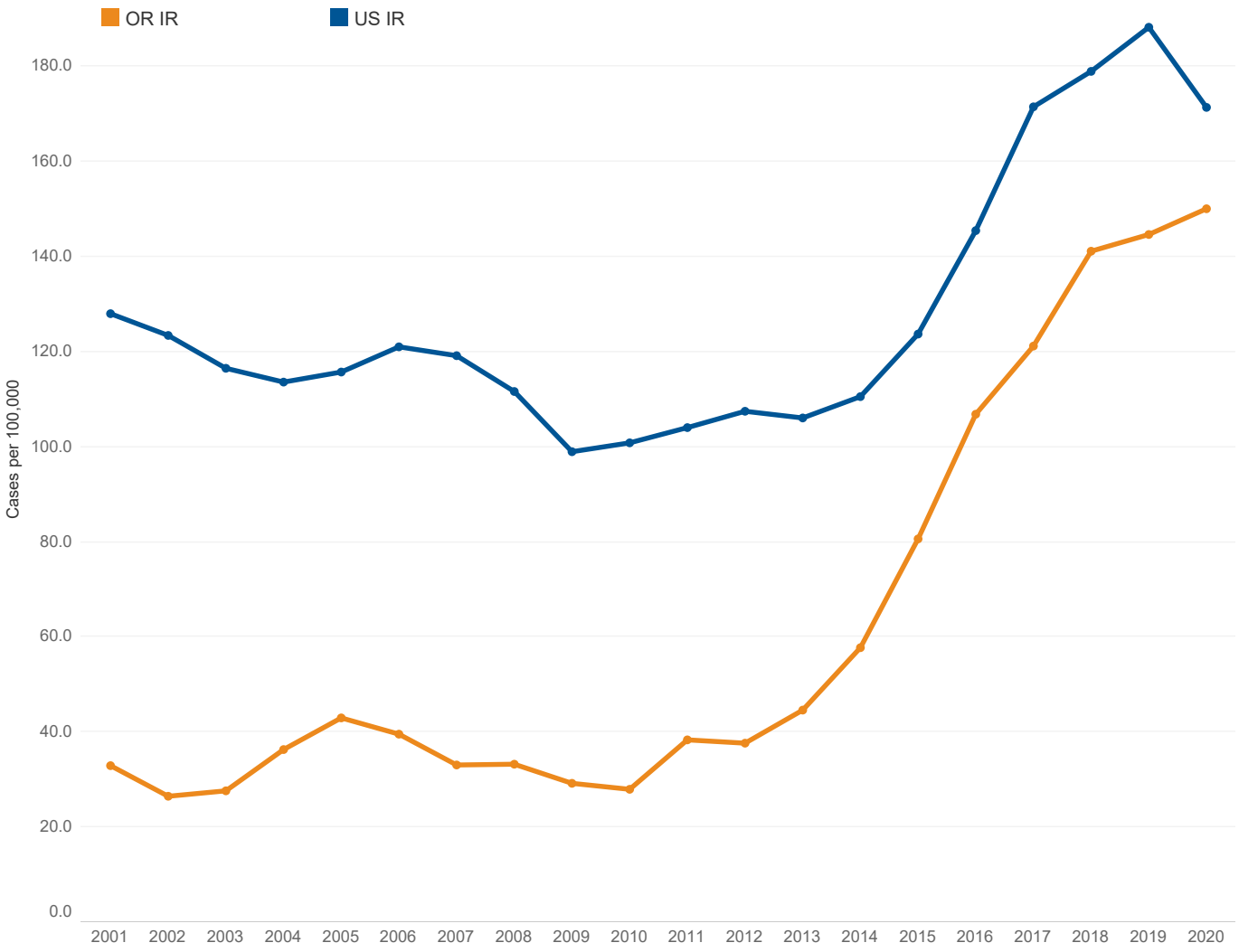
Case counts of gonorrhea by month: Oregon, 2020



Incidence of gonorrhea by age and sex: Oregon, 2020



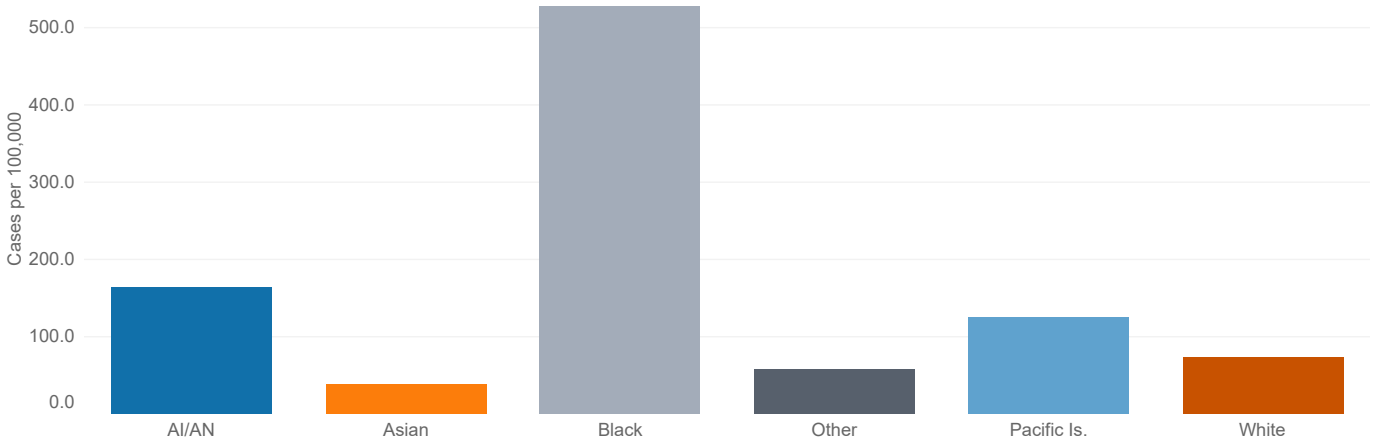
Incidence of gonorrhea: Oregon vs. nationwide, 2001–2020



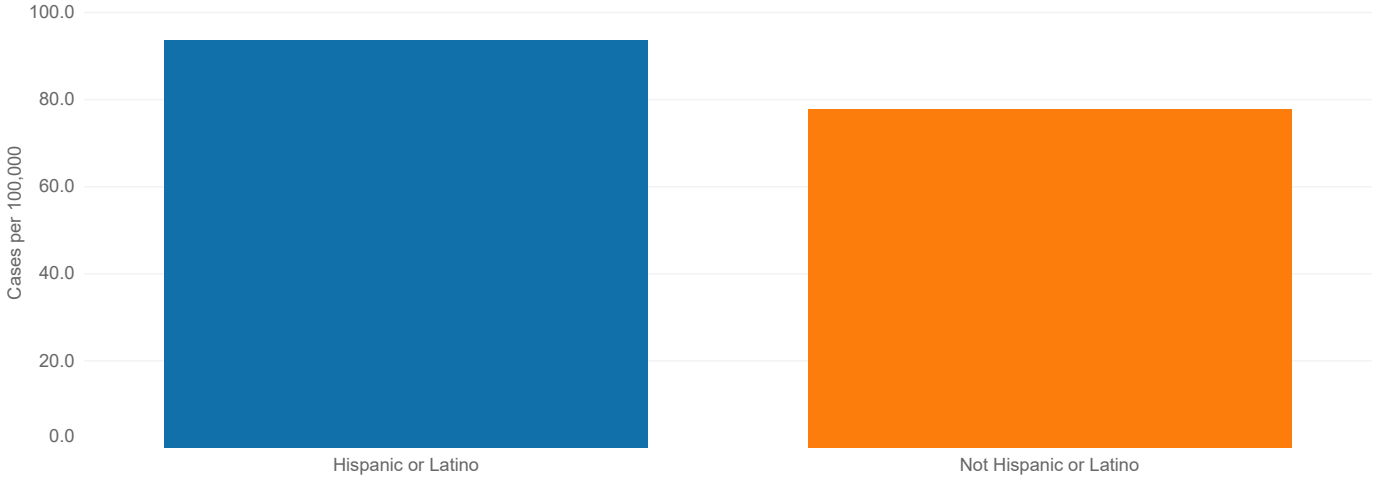
Incidence of gonorrhea by reported race: Oregon, 2011–2020

Select data variable to view
Incidence Rate

Note: "Other" race includes individuals reporting multiple races.

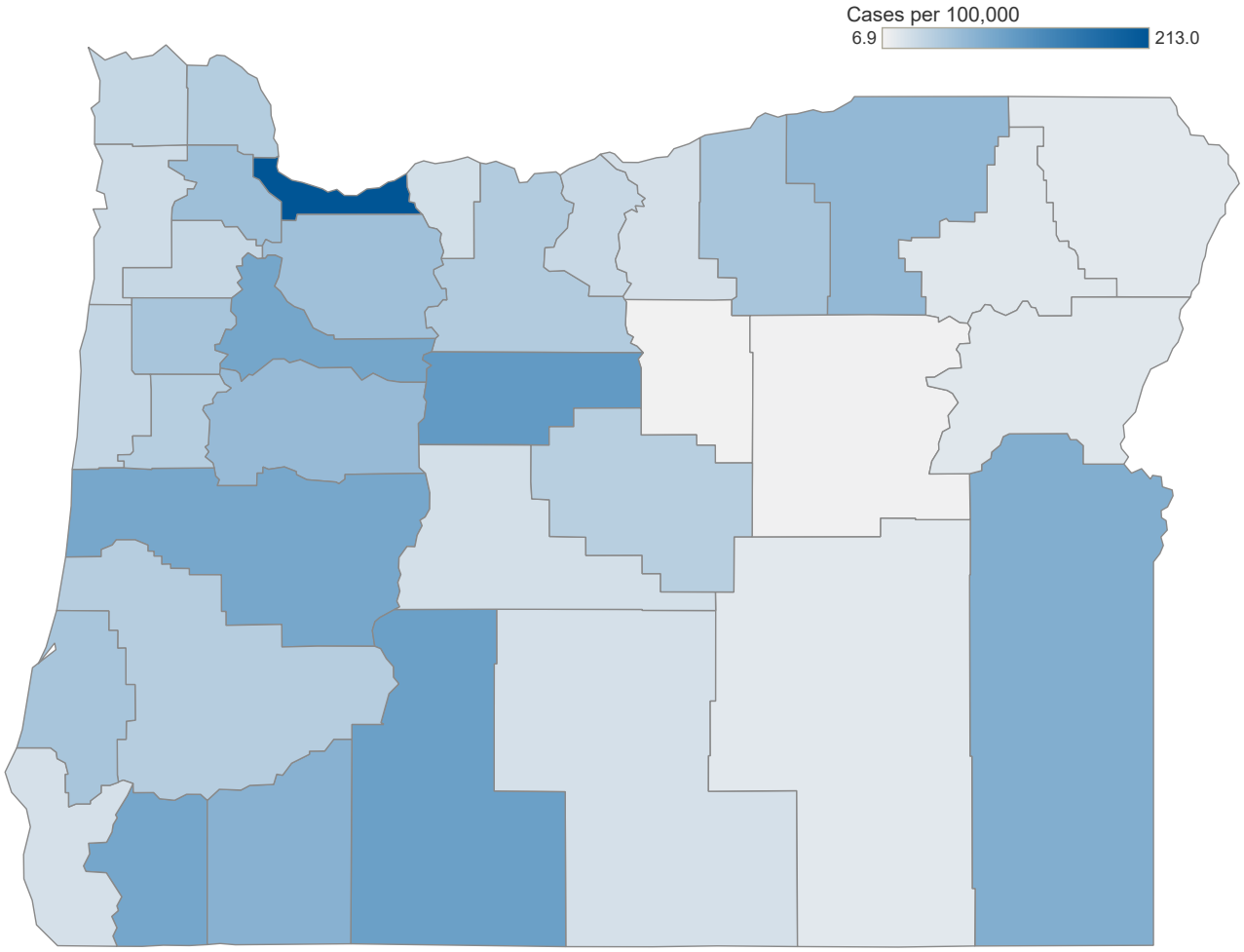


Incidence of gonorrhea by reported ethnicity: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Incidence of gonorrhea by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Use condoms consistently and correctly during anal and vaginal or front sex.
- Get tested for HIV, syphilis, gonorrhea, chlamydia and hepatitis C regularly.
- Talk openly with sex partners about HIV and other sexually transmitted infections and the importance of regular testing.
- If diagnosed with an STI, abstain from sex until completing treatment and symptoms have resolved.
- Use HIV pre-exposure prophylaxis, or PrEP, to prevent HIV infection.
- If you inject drugs, use a new, sterile syringe every time and visit your local syringe service program for sterile supplies, HIV/Hep C testing, naloxone, and other resources.

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Haemophilus influenzae infection

Haemophilus influenzae serotype b (Hib) was once the leading cause of bacterial meningitis in children <5 years of age in Oregon and elsewhere. With the advent of conjugate vaccines, it plummeted in the rankings and *Streptococcus pneumoniae* is now in the lead. In 2020, there were no cases of Hib reported; the last reported Hib case in a child <5 years of age was in 2013. Appropriate use of conjugate vaccine will help ensure Hib infection remains minimal well into the future. All sterile-site *H. influenzae* isolates must be sent to the Oregon State Public Health Laboratory for additional typing.

Forty-six cases of invasive *H. influenzae* disease (IHiD, all serotypes) occurred in 2020. With the decline in invasive Hib disease in children, there has been increased recognition of nonserotype b and nontypeable cases in persons >5 years of age, especially among those ≥65 years of age. In 2020, 83% of cases were nontypeable, 4% were identified as serotype e, 7% were identified as serotype f, 2% were serotype a, and the remaining 4% of cases were not serotyped. The burden of IHiD in 2020 was highest among those ≥65 years of age (3.1/100,000 persons), followed by those 0–4 years of age (1.6/100,000 persons) and then those 35–64 years of age (0.9/100,000 persons). *Haemophilus influenzae* is treated with antibiotics. Eighty-nine percent of cases were hospitalized. There were 6 deaths related to IHiD infection.

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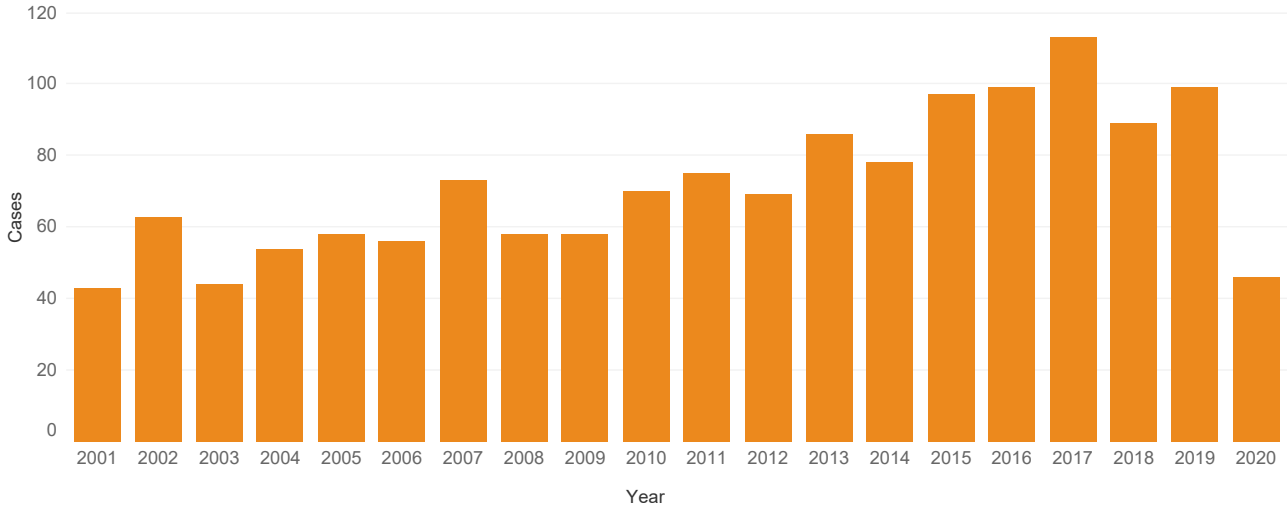
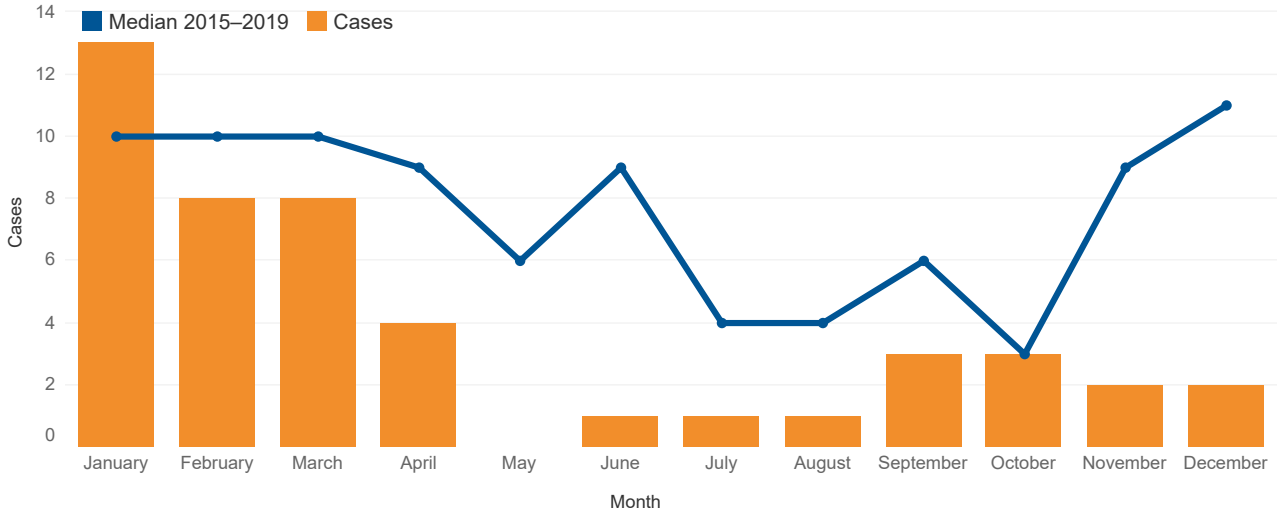
Disease overview | Incidence by year and month | Incidence by age and sex and in OR vs. U.S. | H. influenzae cases by serotype | Incidence by county | Disease prevention

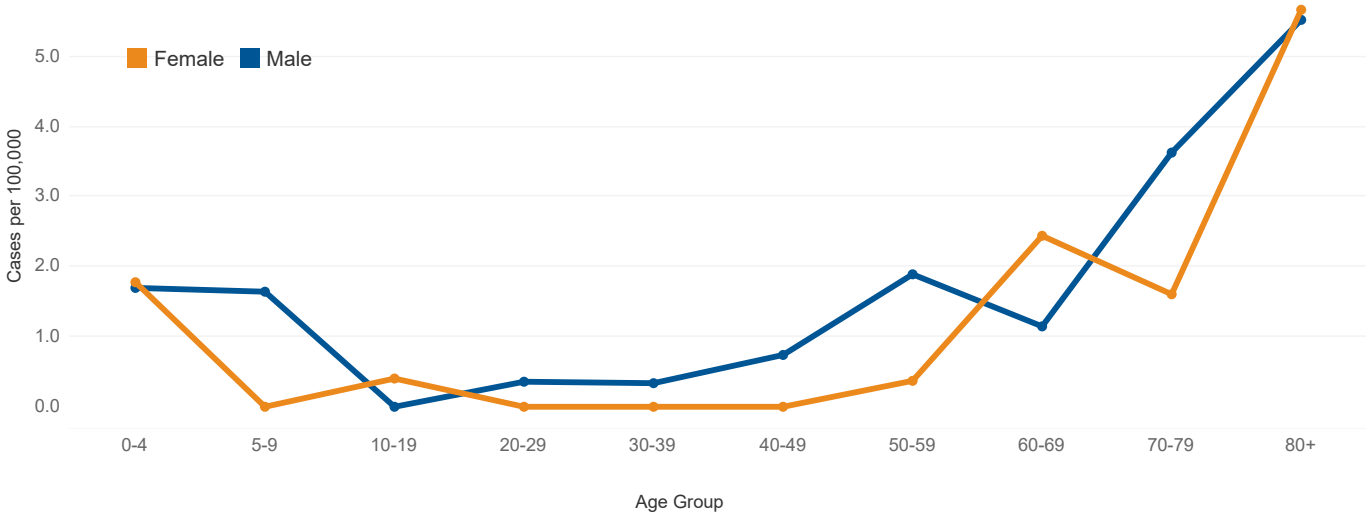
Incidence of *H. influenzae* infection by year: Oregon, 2001–2020



Incidence of *H. influenzae* infection by month: Oregon, 2020

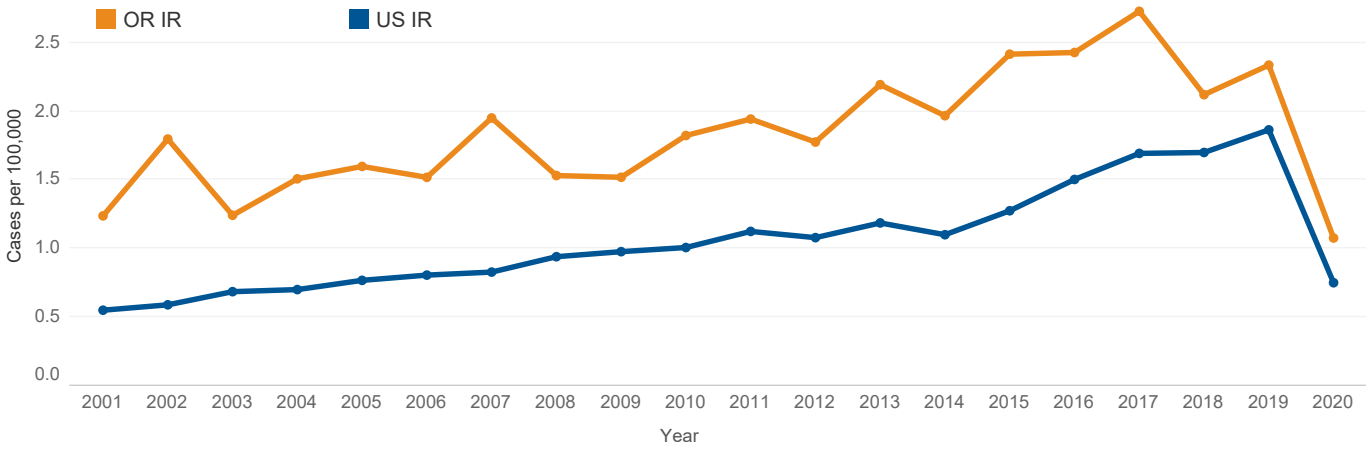


Incidence of *H. influenzae* infection by age and sex: Oregon, 2020



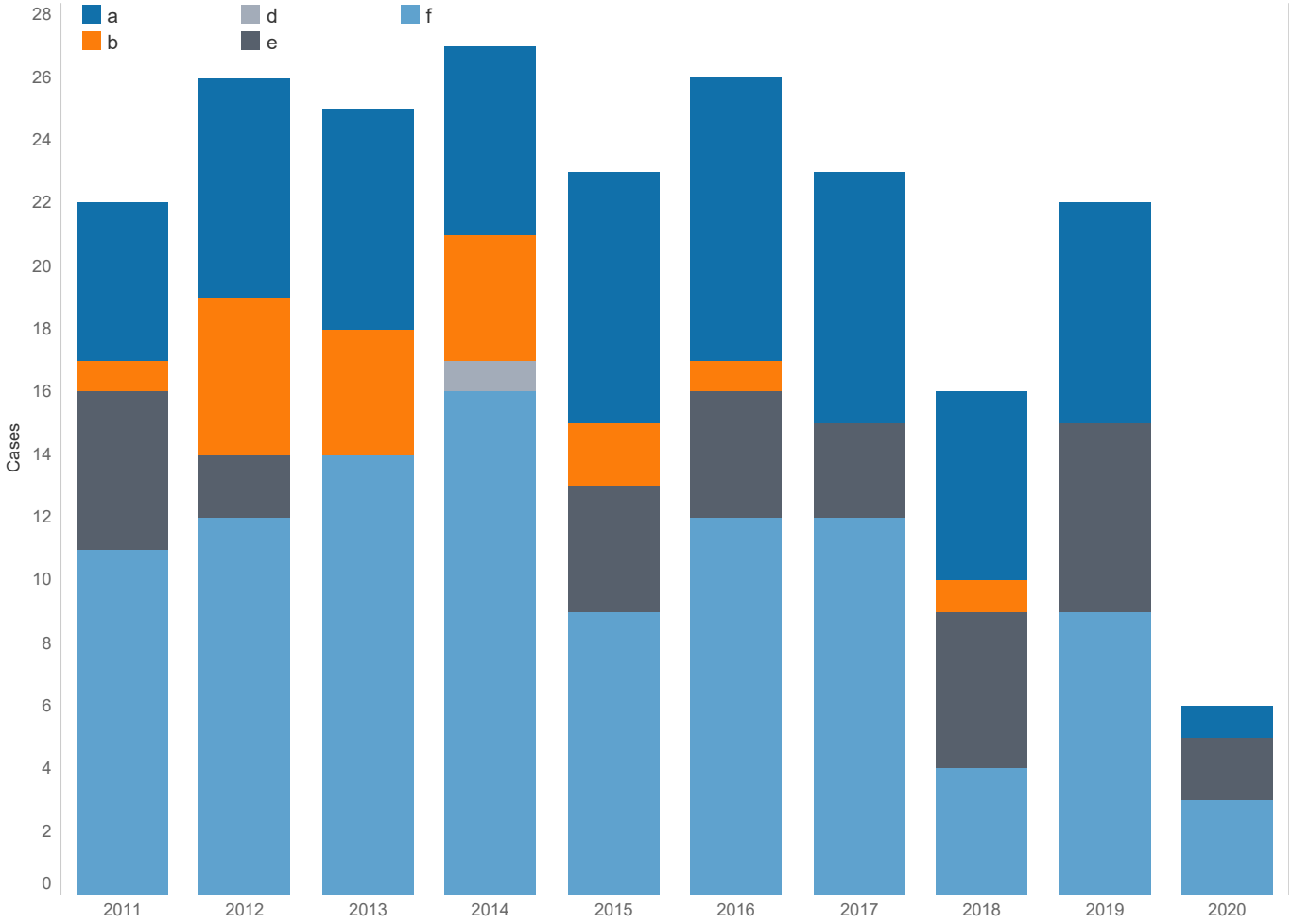
Incidence of *H. influenzae* infection: Oregon vs. nationwide, 2001–2020

Only Hib is consistently reported by states.

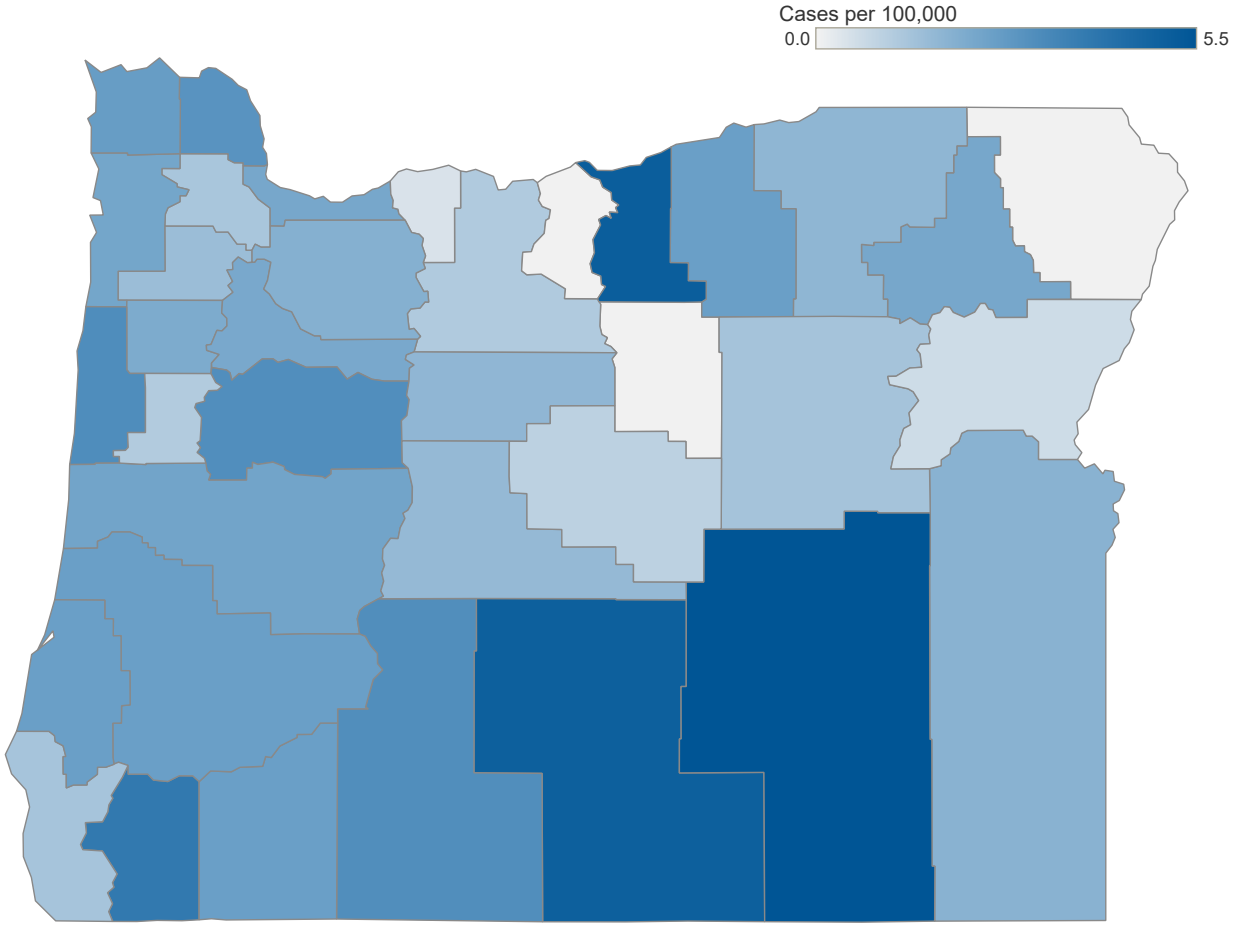


H. influenzae infection by year and serotype: Oregon, 2011–2020

Select a serotype(s) to view:
Multiple values



Incidence of *H. influenzae* infection by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Vaccinate all children against Hib at 2 months, 4 months, 6 months, and 12–15 months of age.
- Cover your cough and wash your hands.
- Close contacts of Hib cases can be treated prophylactically to prevent infection.

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Acute hepatitis A

Hepatitis A is a liver disease caused by the hepatitis A virus, which infects humans through fecal-oral transmission. Hepatitis A can occur in situations ranging from isolated cases of disease to statewide outbreaks. However, since the licensure of the hepatitis A vaccine in 1995–1996, rates of infection have declined nationally as well as in Oregon, which had been one of the higher-incidence states. Most cases in Oregon are "sporadic" and occur mainly in persons who travel outside the United States. Oregon has seen small clusters of hepatitis A infections among injection drug users and jail inmates. In 2019, Oregon saw a cluster of five hepatitis A cases in a high-risk population reporting injection drug use and unstable housing in Central Oregon. No clusters were observed in 2020.

In 2020, Oregon logged 28 cases of acute hepatitis A. Since 2018, the incidence of hepatitis A in Oregon (0.7 per 100,000 in 2020) has remained well below that of the rest of the United States (2.6 per 100,000). Large outbreaks among persons experiencing homelessness in some parts of the country elevated the national rates during 2018–2020.

Historically, many hepatitis A cases reported foreign travel during their exposure period and their infection was acquired abroad. In 2020, only two cases reported foreign travel. The decrease in reported travel is likely due to COVID-19 travel restrictions. Two cases reported injection drug use; three cases reported unstable housing; five cases were reported among men who have sex with men, two of which were contacts of a confirmed case. Thirteen cases had no identifiable risk for factor hepatitis A. Forty-six percent of cases were <40 years of age.

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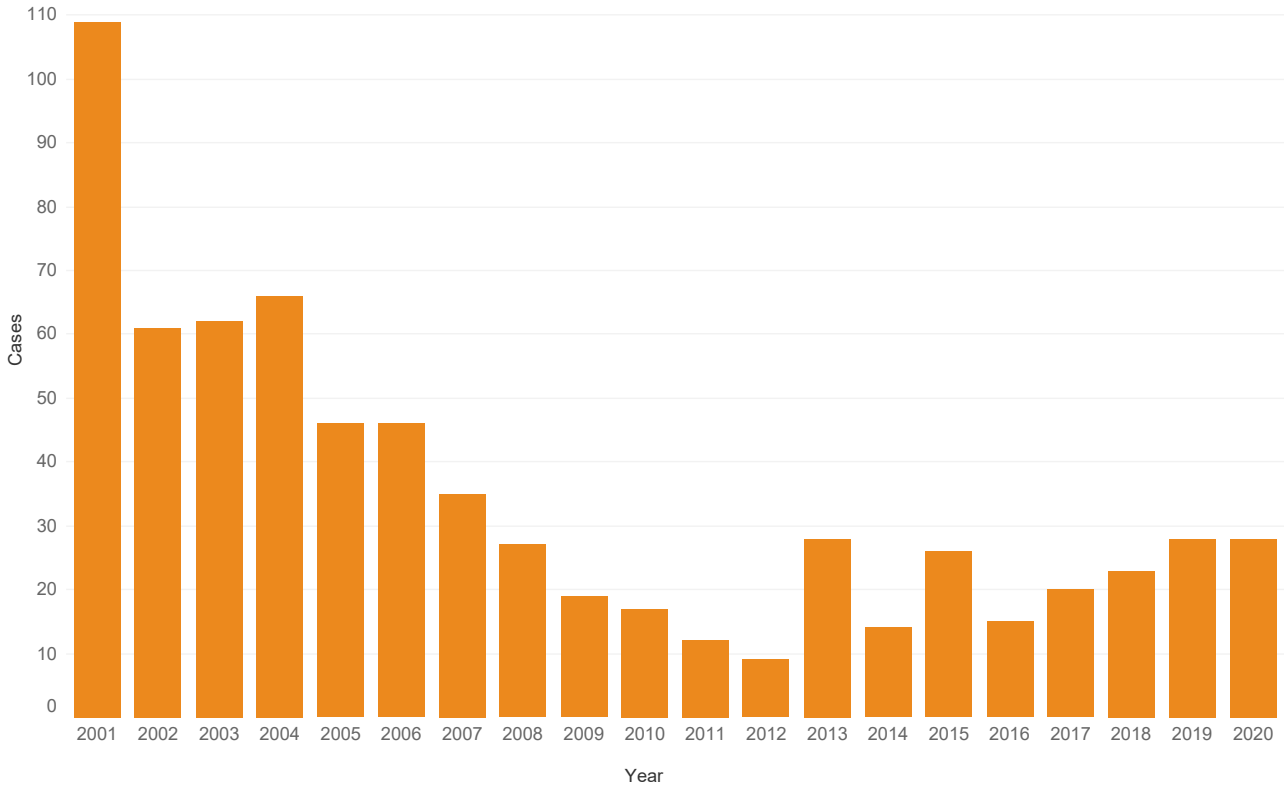
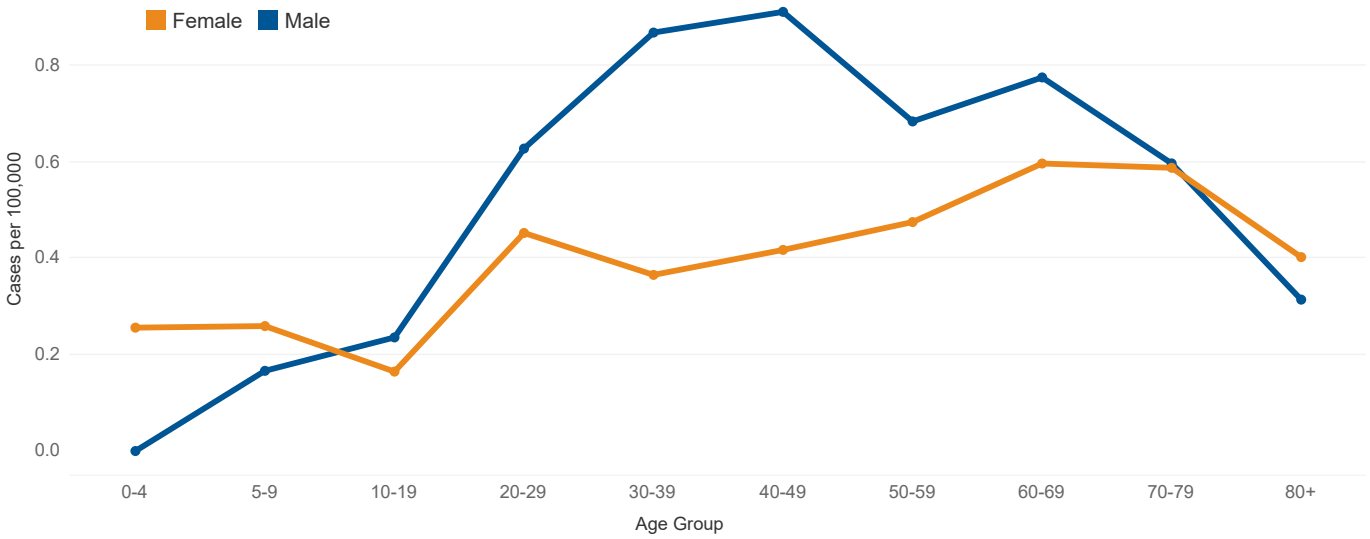
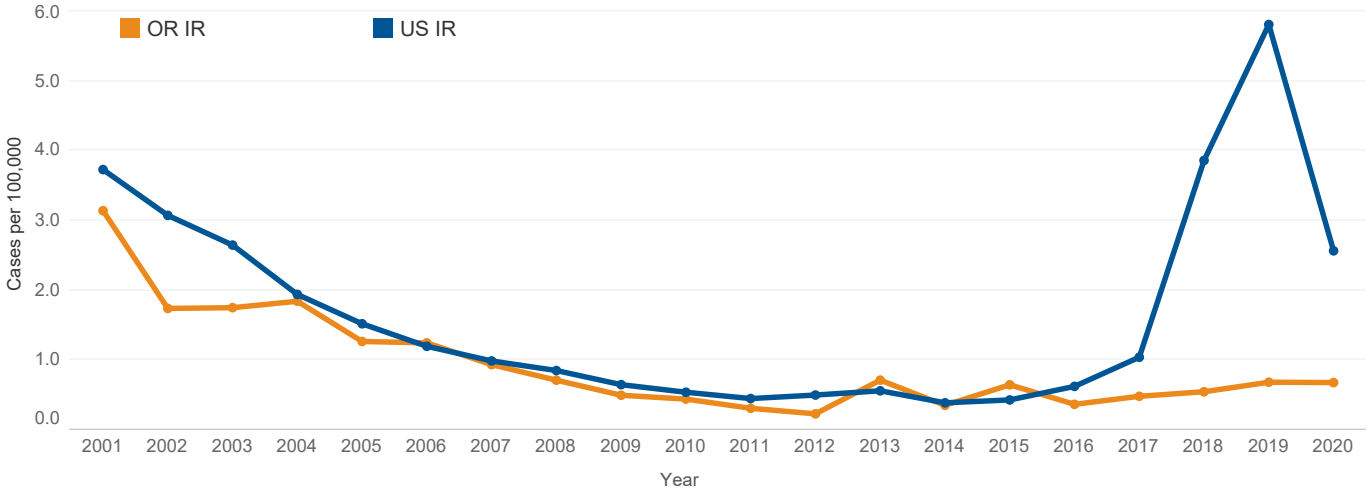
Incidence of hepatitis A by year: Oregon, 2001–2020



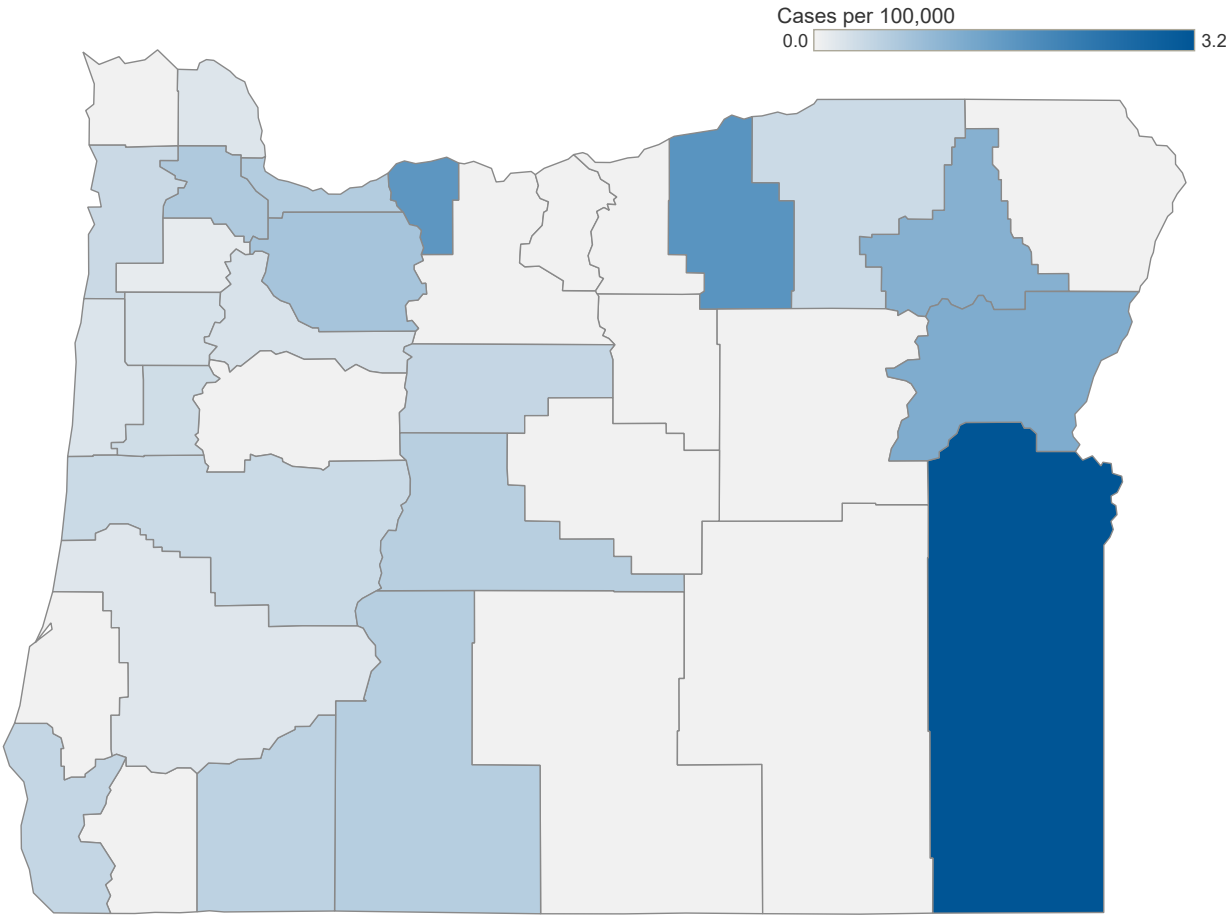
Incidence of hepatitis A by age and sex: Oregon, 2011–2020



Incidence of hepatitis A: Oregon vs. nationwide, 2001–2020



Incidence of hepatitis A by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Vaccinate children >1 year of age against hepatitis A.
- Wash hands with soap and warm water carefully and frequently, especially after going to the bathroom, after changing diapers, and before preparing food or beverages.
- Supervise hand washing of toddlers and small children after they use the toilet.
- Do not work or attend daycare, serve or prepare food, or work in health care while ill with diarrhea.
- Provide post-exposure prophylaxis to close contacts of acute hepatitis A cases.

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Acute hepatitis B

Hepatitis B is a vaccine-preventable viral disease of the liver that occurs when the virus of an infected person passes (through blood, semen or saliva) into the bloodstream of a non-immune person. Percutaneous or permucosal exposures take place:

- When hypodermic needles are shared
- When blood splashes into an eye
- During sex
- By biting
- From lapses in hygiene involving glucometer and other finger stick devices to test blood sugar levels
- From breaches in infection control in health care settings, and
- When a baby is born whose mother is a hepatitis B carrier.

HBV is not spread through food or water, sharing eating utensils, breastfeeding, hugging, kissing, hand holding, coughing or sneezing.

Acute hepatitis B virus (HBV) infection (diagnosed by the presence in serum of immunoglobulin M antibody to the hepatitis B core antigen [IgM anti-HBc] or hepatitis surface antigen [HBsAg]) usually, but not always, causes jaundice. Some infections are mild, even asymptomatic, and may go undetected. Hepatitis B has been preventable by vaccination since 1982 and in 1992 was recommended for all children in the United States, with the series starting at birth.

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Oregon acute hepatitis B rates stabilized in 2018 after decades of decline — a decline that started after the hepatitis B vaccine was licensed in 1982.

Twenty acute cases were reported in Oregon in 2020. Due to limited resources, 55% were interviewed. The most commonly reported risk factor was history of a healthcare encounter. No risk factor was identified for 55% of interviewed cases. Over the past decade, the incidence of acute hepatitis B has been higher among men than women (0.9 vs. 0.4 per 100,000) in Oregon, mirroring rates nationwide.

There were no outbreaks of acute hepatitis B in Oregon in 2020.

No cure is available for hepatitis B, so prevention is crucial. The best way to be protected from hepatitis B is to be vaccinated. Vaccines can provide protection in 90%–95% of healthy persons. The vaccine can be given safely to infants, children and adults in three doses over a period of six months.

Nationwide, the successful integration of hepatitis B vaccine into the immunization schedule has contributed to a 96% decline in the incidence of acute hepatitis B in children and adolescents. Approximately 95% of new infections occur among adults and unvaccinated adults with behavioral risk factors or who are household contacts or sex partners of HBV-infected people. For this reason, the Advisory Committee on Immunization Practices recommends health care providers implement standing orders to identify adults at risk and to administer hepatitis B vaccine as part of routine practice.

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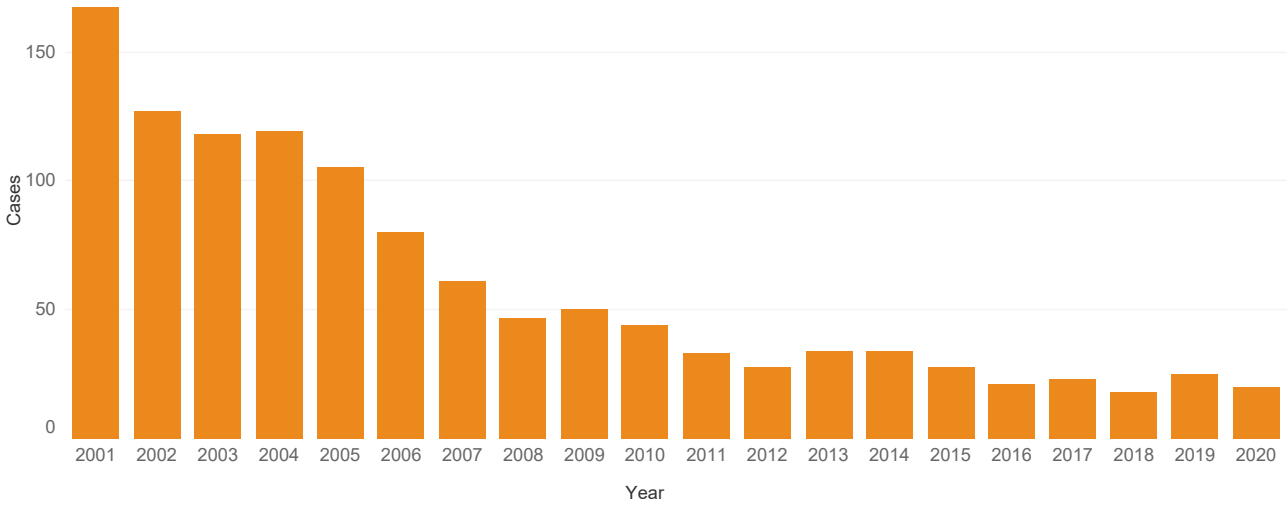
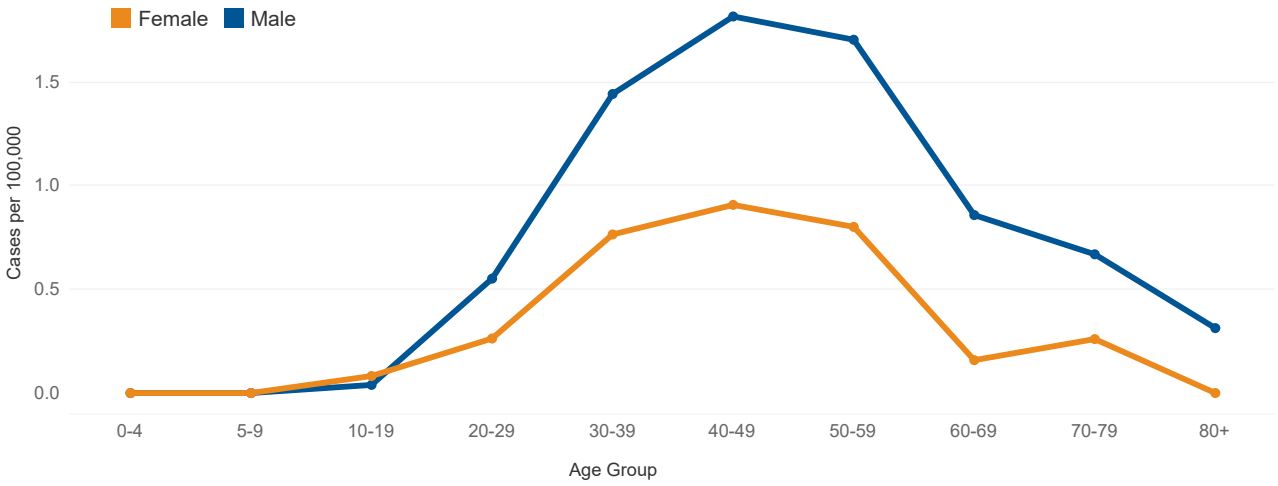
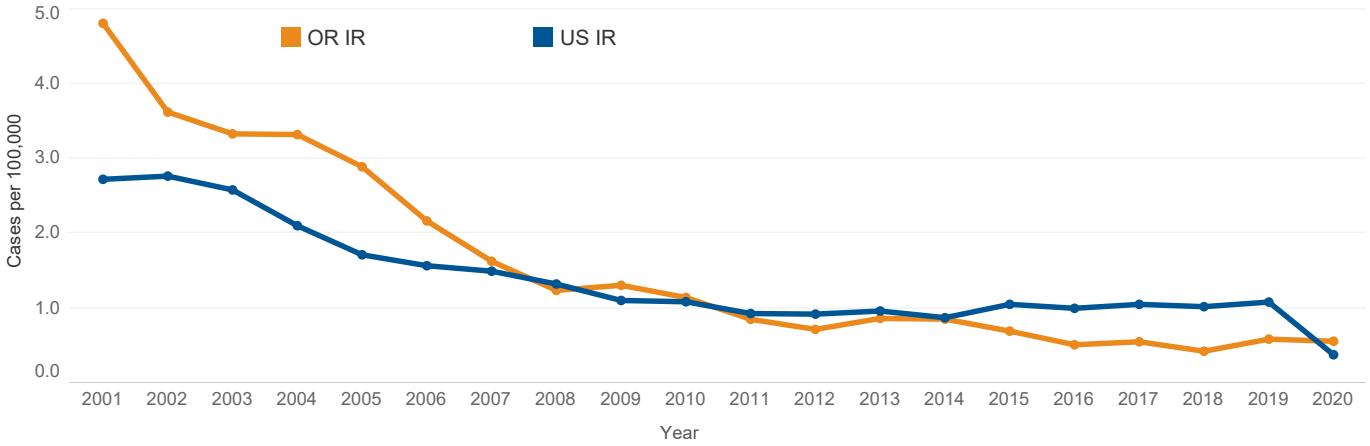
Incidence of acute hepatitis B by year: Oregon, 2001–2020



Incidence of acute hepatitis B by age and sex: Oregon, 2011–2020

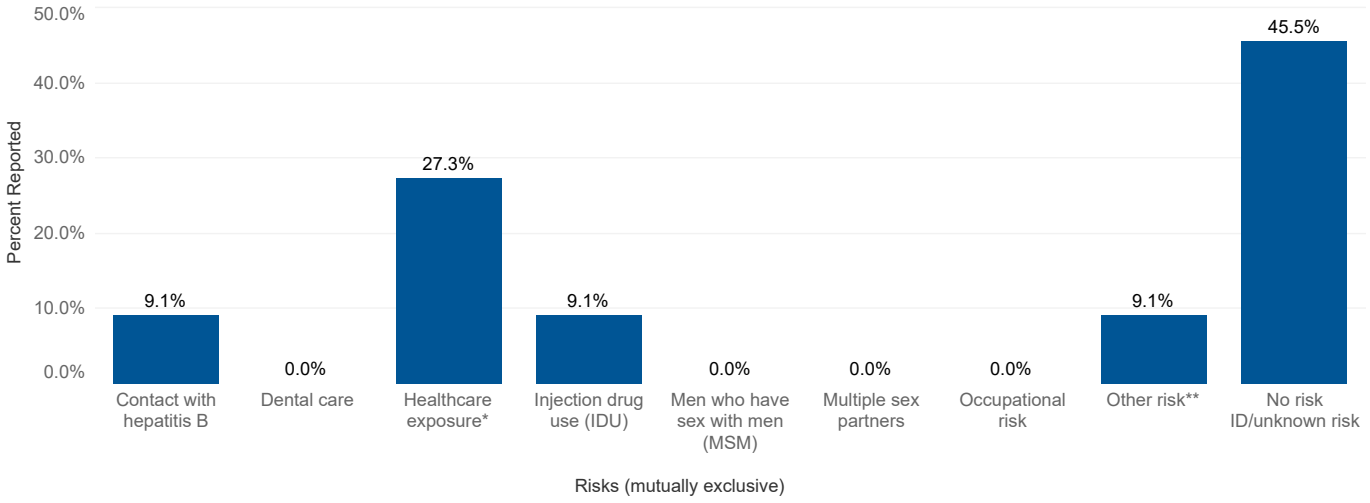


Incidence of acute hepatitis B: Oregon vs. nationwide, 2001–2020



Reported risk factors for acute hepatitis B among interviewed cases: Oregon, 2020

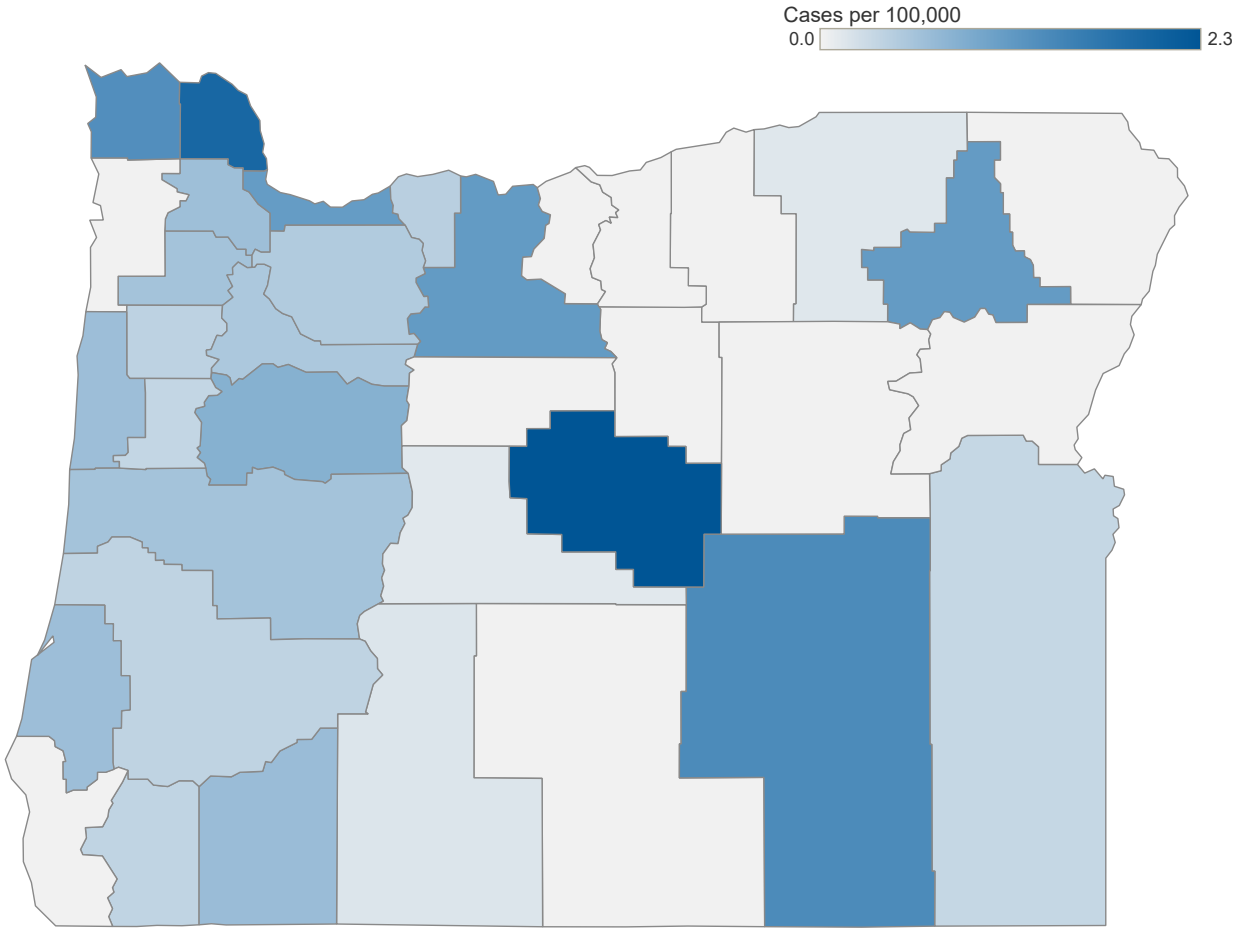
Hover over a bar to view historical data.



* Transfusion, infusions, dialysis, surgery
** Street drugs, needlestick, tattoo, piercings, other blood exposure

Disease overview | Disease overview (continued) | Incidence by year and by age and sex | Risk factors; Incidence in OR vs. U.S. | Incidence by county | Disease prevention

Incidence of acute hepatitis B by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Get vaccinated.
- Persons who are sexually active can:
  - › Limit the number of partners.
  - › Use condoms properly from start to finish when having sex.
- Persons who inject drugs can:
  - › Avoid sharing needles or works with others.
  - › Use only clean needles and works.
  - › Purchase new, sterile needles from pharmacies.
- Use universal precautions and best practices to prevent needlestick injuries.
- Vaccinate all newborns against hepatitis B.
- Screen all pregnant women for hepatitis B. Infants born to hepatitis B-positive mothers should receive hepatitis immunoglobulin along with vaccine at birth.
- Chronic carriers should not share personal care items such as razors or toothbrushes.

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Chronic hepatitis B

Persons with chronic hepatitis B are known as “chronic carriers” — a state of infection defined by the persistence of hepatitis B surface antigen (HBsAg) in the blood for more than six months. The likelihood of becoming a chronic carrier varies by age at infection. Fewer than 6% of acutely infected adults in the United States become carriers, compared to 25% (with HBeAg-negative moms) to 90% (with HBeAg-positive moms) of children infected in early childhood or during birth. Perinatal infection can be prevented by prompt administration of hepatitis B immune globulin (HBIG) and initiation of the three-dose hepatitis B vaccination series. This perinatal intervention is widely practiced in the United States — all states have federal funding for perinatal hepatitis B prevention programs. This is not true in other parts of the world, particularly Asia and sub-Saharan Africa, where the prevalence of chronic hepatitis B is higher to begin with. Chronic carriers are at greater risk of developing life-threatening diseases (e.g., chronic active hepatitis, cirrhosis or liver cancer) decades later. Carriers will continue to transmit hepatitis B until vaccine-induced immunity is nearly universal.

Recommendations and strategies to prevent new cases include the following: routinely vaccinating all infants at birth, screening all pregnant women for hepatitis B, administering HBIG in addition to hepatitis B vaccine to infants born to HBsAg-positive mothers, and ensuring all infants complete the hepatitis B vaccine series. Combined, the three-dose hepatitis B vaccine series and HBIG are nearly 95% effective in preventing hepatitis B disease in children born to HBV-infected mothers. In 2020, there were no cases of perinatal hepatitis B identified in Oregon.

In 2020, there were 296 newly reported carriers in Oregon, a decrease from the 376 reported in 2019. Forty-six percent of these were women, who tend to be diagnosed earlier than men, perhaps due to prenatal screening. Among women of child-bearing age, 32% were pregnant. A large majority, 74% of cases who reported their country of birth, were born outside of the United States. Those born in Asia and the Pacific Islands, including Vietnam, Philippines and Micronesia, made up 76% of those cases born internationally. Chronic carriers are not reportable in many states, so a table comparing Oregon to the rest of the United States is not provided.

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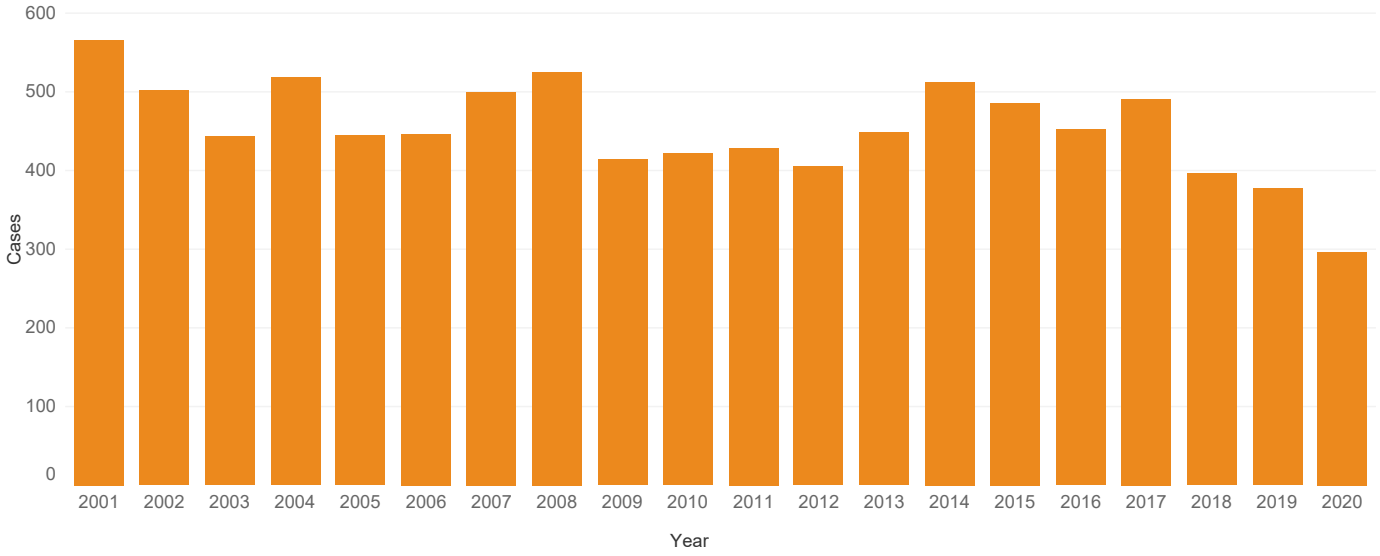
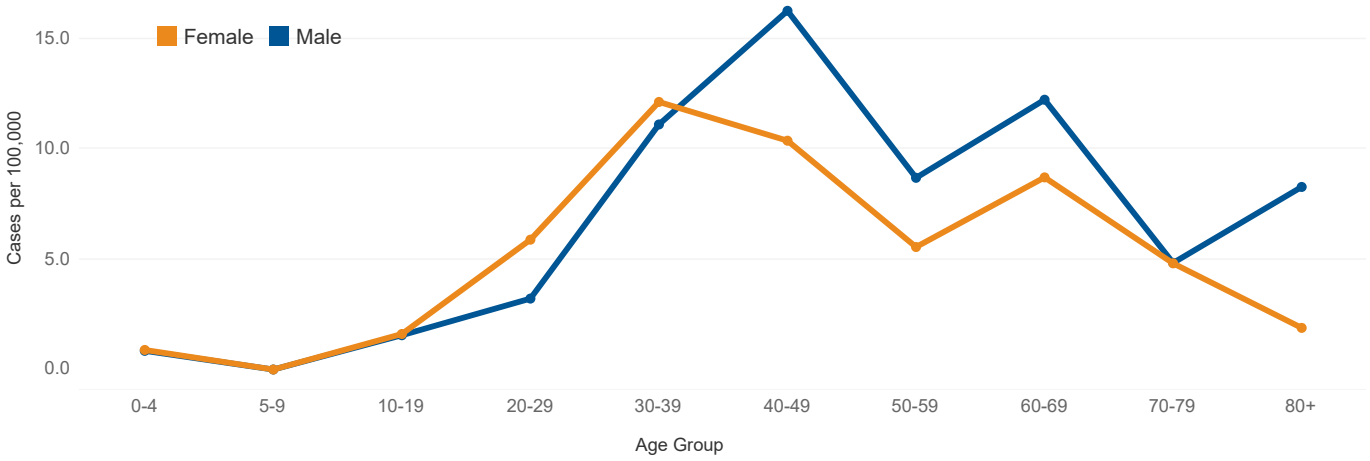
Newly reported chronic hepatitis B by year: Oregon, 2001–2020



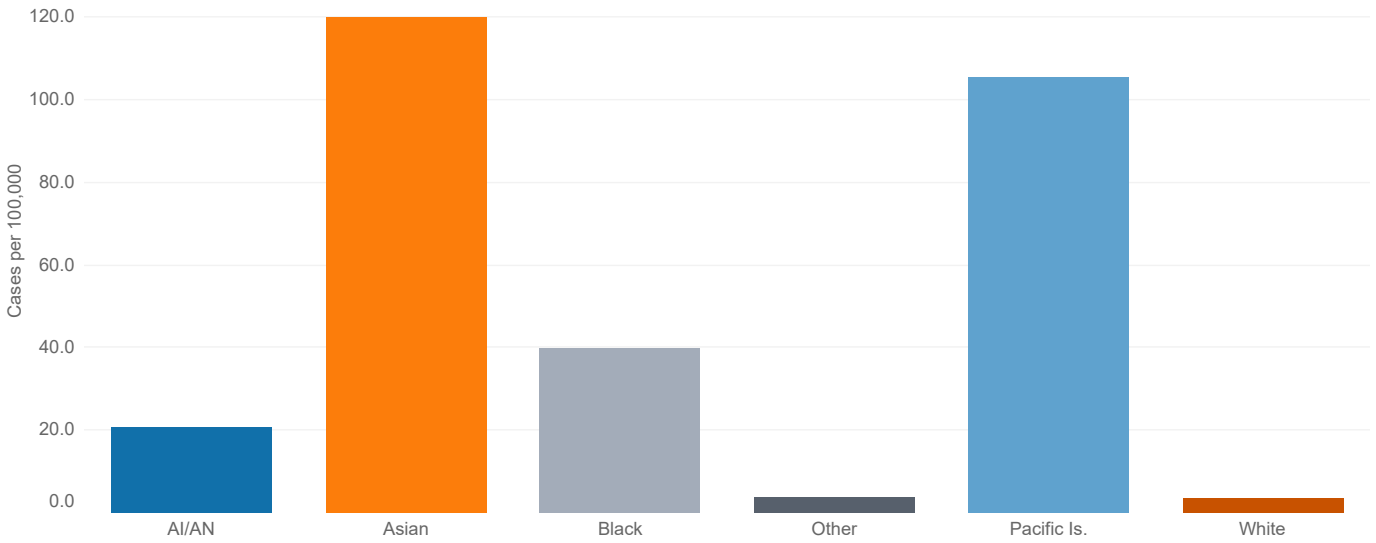
Incidence of chronic hepatitis B by age and sex: Oregon, 2020



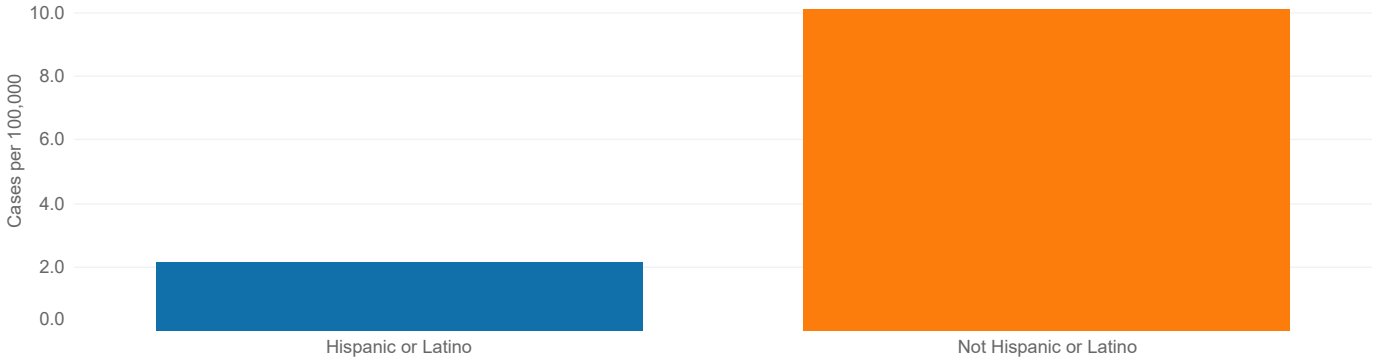
Incidence of chronic hepatitis B by reported race: Oregon, 2011–2020

Select data variable to view
Incidence Rate

Note: "Other" race includes individuals reporting multiple races.

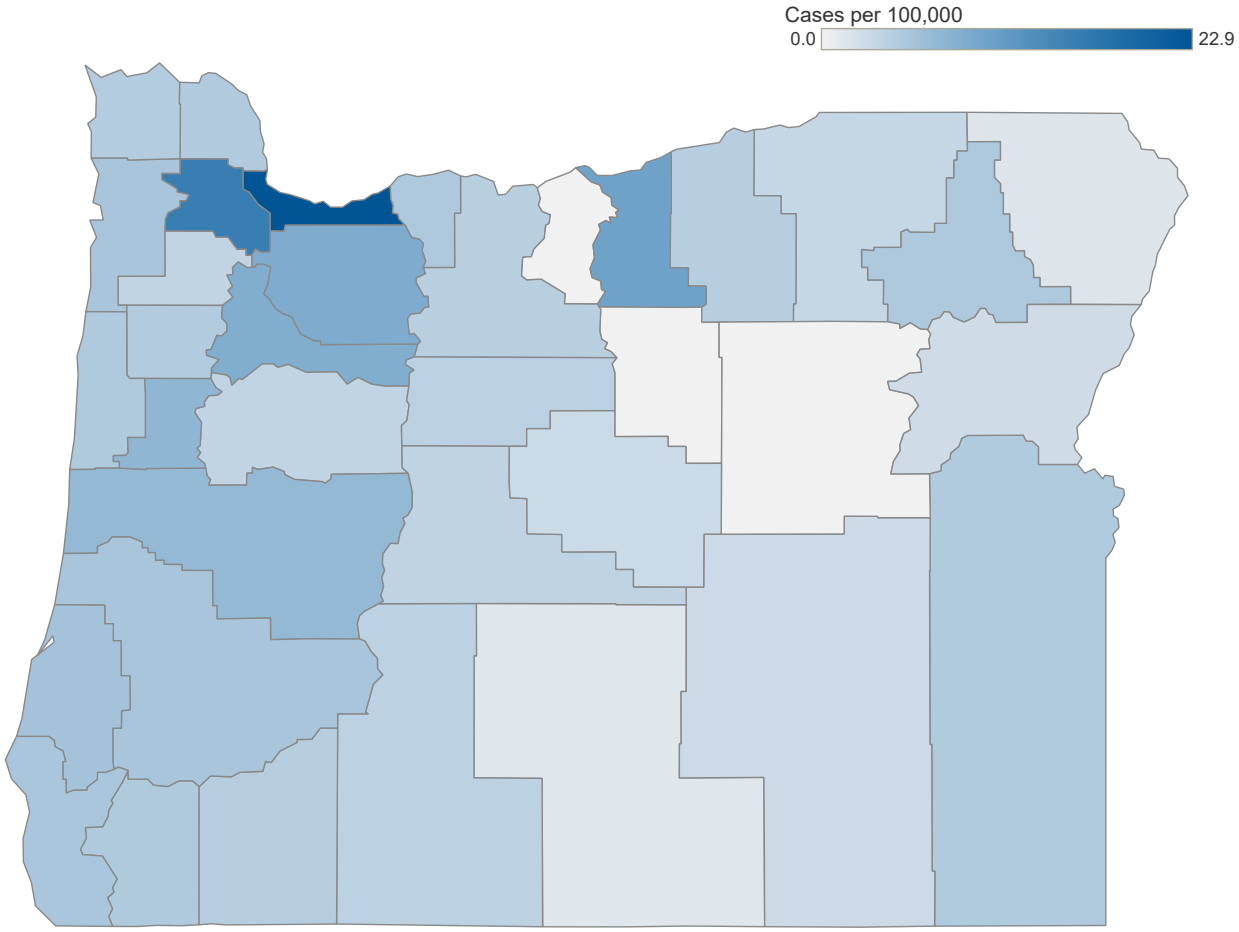


Incidence of chronic hepatitis B by reported ethnicity: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Incidence of chronic hepatitis B by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Get vaccinated.
- Vaccinate all newborns against hepatitis B.
- Screen all pregnant women for hepatitis B. Infants born to hepatitis B-positive mothers should receive hepatitis immunoglobulin along with vaccine at birth.
- Persons who are sexually active can:
  - › Limit the number of partners.
  - › Use condoms properly from start to finish when having sex.
- Persons who inject drugs can:
  - › Avoid sharing needles or works with others.
  - › Use only clean needles and works.
  - › Purchase new, sterile needles from pharmacies.
- Use universal precautions and best practices to prevent needlestick injuries.
- Chronic carriers should not share personal care items such as razors or toothbrushes.
- Investigate cases, including the identification of unvaccianted contacts to encourage vaccination.

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Hepatitis C

Hepatitis C virus (HCV) is a bloodborne infection that may cause both acute and chronic hepatitis C. The most common signs and symptoms of acute hepatitis C include jaundice, fatigue, dark urine, abdominal pain, loss of appetite and nausea. Acute hepatitis C cases are underreported because 80% are asymptomatic, and laboratories cannot distinguish between acute and chronic HCV infection. Most people do not experience acute hepatitis C infection symptoms and many people with chronic hepatitis C have few symptoms for the first 10 to 15 years after infection. Chronic hepatitis C can lead to liver damage and sometimes death due to cirrhosis and liver cancer. In the United States, an estimated 2.7–3.9 million people are infected with HCV. Chronic liver disease develops in up to 70% of chronically infected persons. Heavy alcohol use can also speed the progression of hepatitis C disease. Approximately 20% to 30% of people with untreated chronic hepatitis C will develop cirrhosis over 20–30 years. Among people with cirrhosis caused by chronic hepatitis C infection, 1% to 4% develop end-stage liver disease or liver cancer each year. Chronic hepatitis C infection is a leading indication for liver transplant in the United States and Oregon. New, highly effective hepatitis C treatments can cure more than 95% of people living with hepatitis C and successful hepatitis C treatment can slow or stop liver disease progression.

Analysis of U.S. mortality data shows a steady decrease in deaths from HCV during the last five years, reaching 15,713 deaths in 2018. Factors associated with HCV-related deaths included chronic liver disease, HBV co-infection, alcohol-related conditions, HIV co-infection and non-Hispanic Black, Hispanic and non-Hispanic American Indian or Alaskan Native descent. Mirroring national trends, deaths from HCV in Oregon have slowly decreased since reaching a peak in 2014, averaging around 500 deaths annually in Oregon from 2015–2018. In 2018, Oregon's hepatitis C mortality rate of 8.0 deaths per 100,000 population was more than twice the U.S. hepatitis C death rate of 3.7 deaths per 100,000 population. The most recent available national hepatitis C data are from 2018.

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Some of the state's highest chronic hepatitis C rates are in rural areas. In Oregon, hepatitis C disproportionately affects African Americans and American Indians compared to individuals who identify as white. There is no vaccine for hepatitis C and no post-exposure prophylaxis. Hepatitis C is spread from one person to another primarily by percutaneous exposure to human blood; most infections are due to illegal injection drug use. Uncommonly, the virus can also be transmitted through sexual contact and from infected mothers to their infants at the time of birth. The risk for perinatal HCV transmission is approximately 4%. If the mother is co-infected with HIV, the risk for perinatal infection increases to approximately 19%. Since the adoption of routine blood donor screening in 1992, HCV is transmitted less than one time for every 2 million units of blood transfused. Cases can occur in health care settings, most commonly related to improper reuse of syringes or multidose vials.

Acute hepatitis C

In 2020, 34 cases were reported. Twenty-nine (85%) of the cases were <40 years of age, and 14 (41%) were female. Among interviewed cases (n=9), injection drug use remains the predominant risk factor reported (100%). There were no health care-associated acute hepatitis C cases in 2020.

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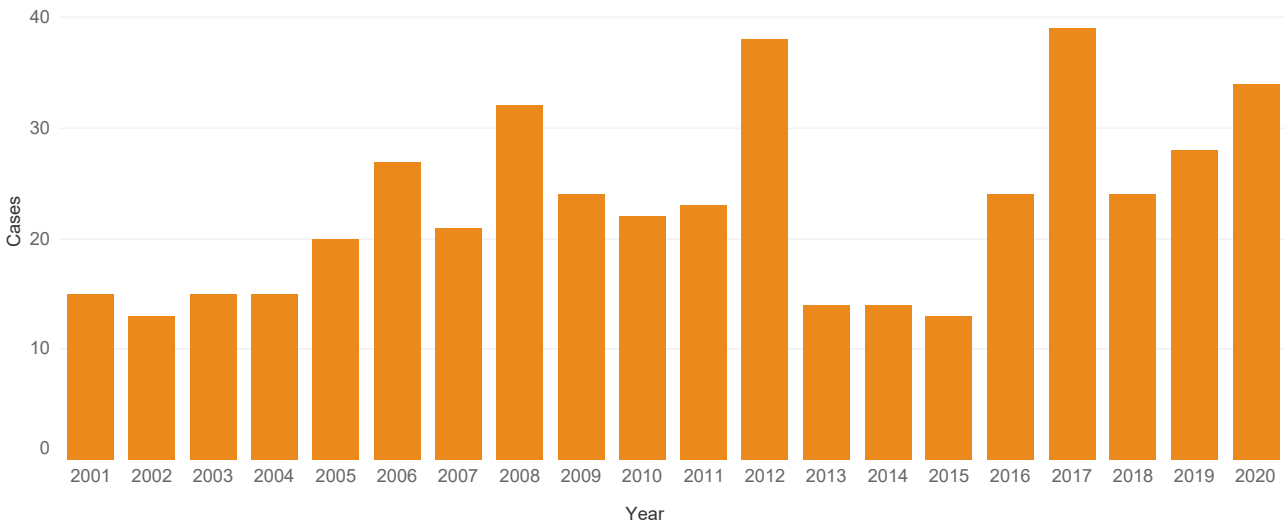
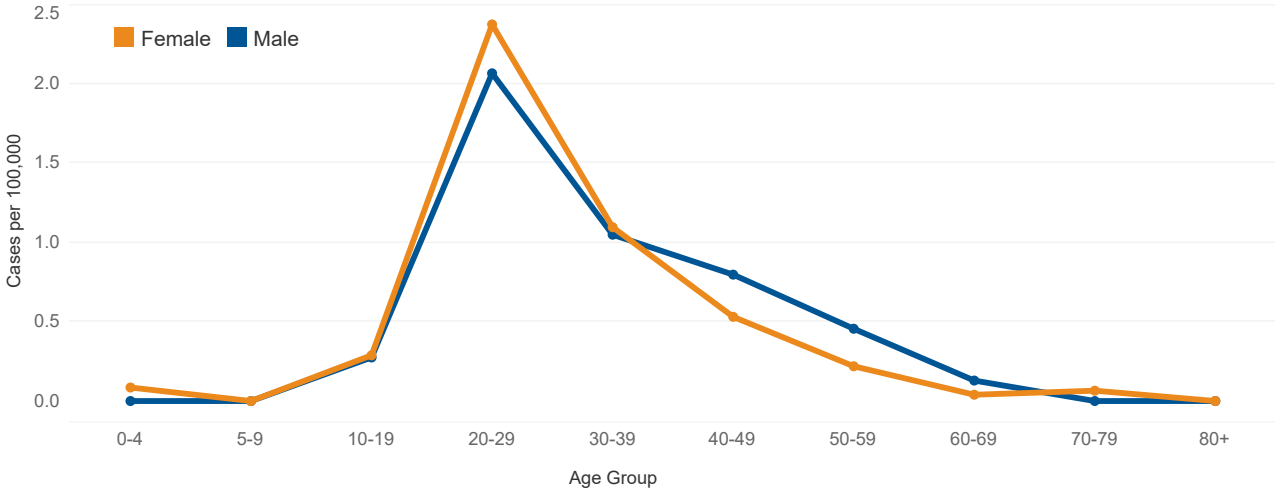
Disease overview | Disease overview (continued) | Incidence by year and by age and sex | Risk factors; Incidence in OR vs. U.S. | Incidence by county | Disease prevention

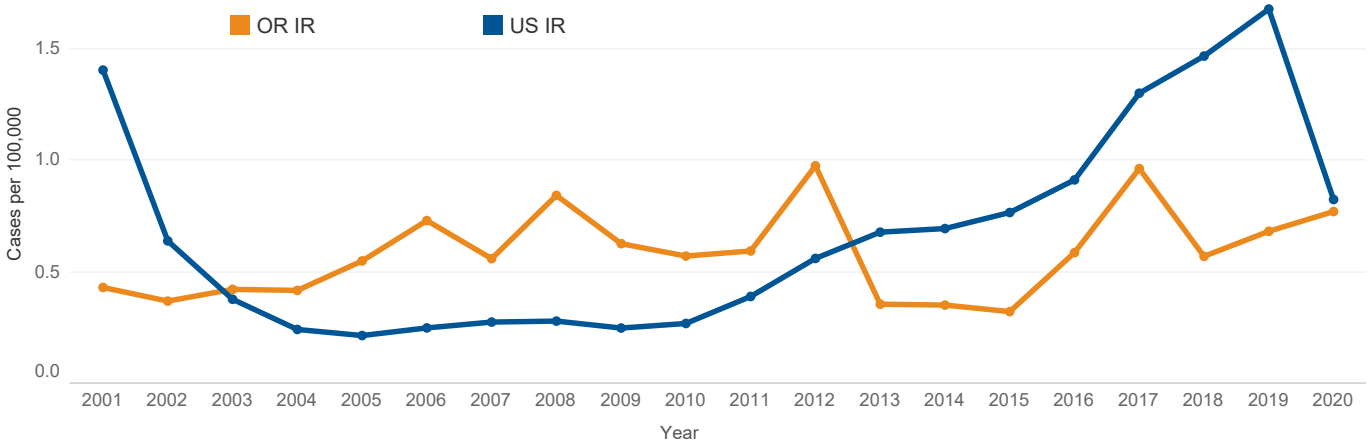
Incidence of acute hepatitis C by year: Oregon, 2001–2020



Incidence of acute hepatitis C by age and sex: Oregon, 2011–2020

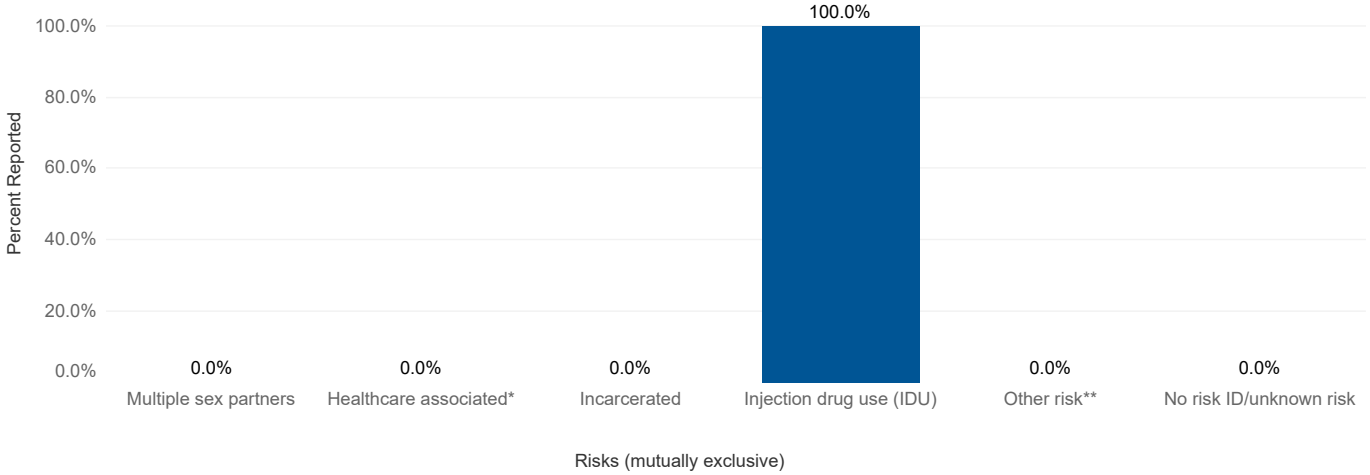


Incidence of acute hepatitis C: Oregon vs. nationwide, 2001–2020



Reported risk factors for acute hepatitis C among interviewed cases: Oregon, 2020

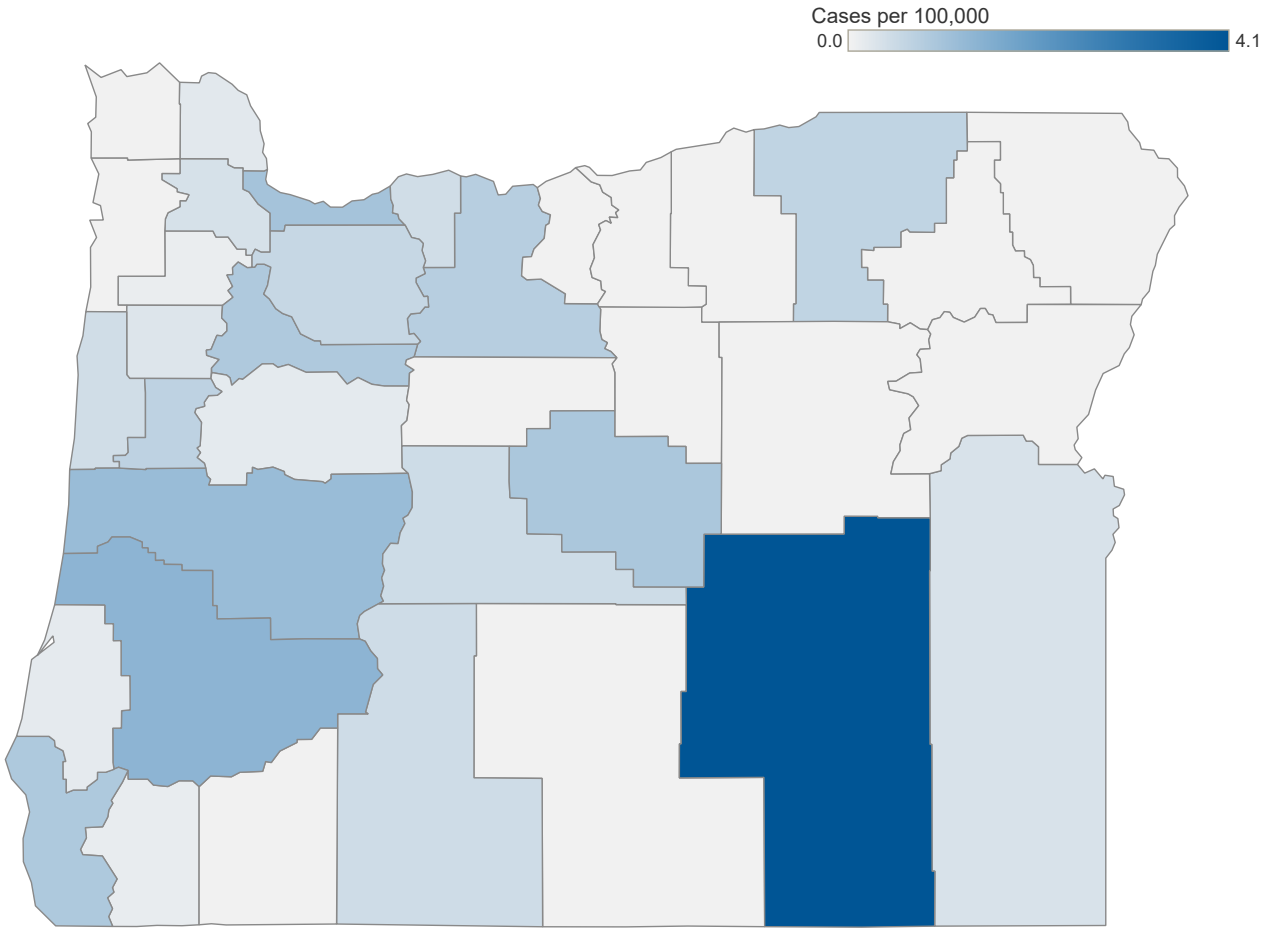
Hover over a bar to view historical data.



* Transfusion, infusions, dialysis, surgery
** Street drugs, needlestick, tattoo, piercings, other blood exposure

Disease overview | Disease overview (continued) | Incidence by year and by age and sex | Risk factors; Incidence in OR vs. U.S. | Incidence by county | Disease prevention

Incidence of acute hepatitis C by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable. The high incidence in Harney County represented 3 cases.

Prevention

- Avoid injecting illicit drugs.
- Health care workers should use universal precautions and best practices to prevent needlestick injuries.
- Persons who inject drugs can:
  - › Avoid sharing needles or works with others.
  - › Use only clean needles and works.
  - › Purchase new, sterile needles from pharmacies.

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Hepatitis C

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Chronic hepatitis C

In 2020, 3,683 chronic hepatitis C cases were reported. These numbers are likely an underestimate of the true incidence because most infections are asymptomatic and, therefore, not diagnosed or reported to public health. Infection in males (104/100,000) is more common than in females (68/100,000). The highest prevalence of HCV infection is among persons born between 1945 and 1965. The CDC estimates this age group accounts for 75% of chronic hepatitis C cases in the United States; among cases reported in Oregon during 2020, 41% belong to this age group. However, the rates of chronic infection in people under the age of 30 (35/100,000) are rising, primarily due to injection drug use.

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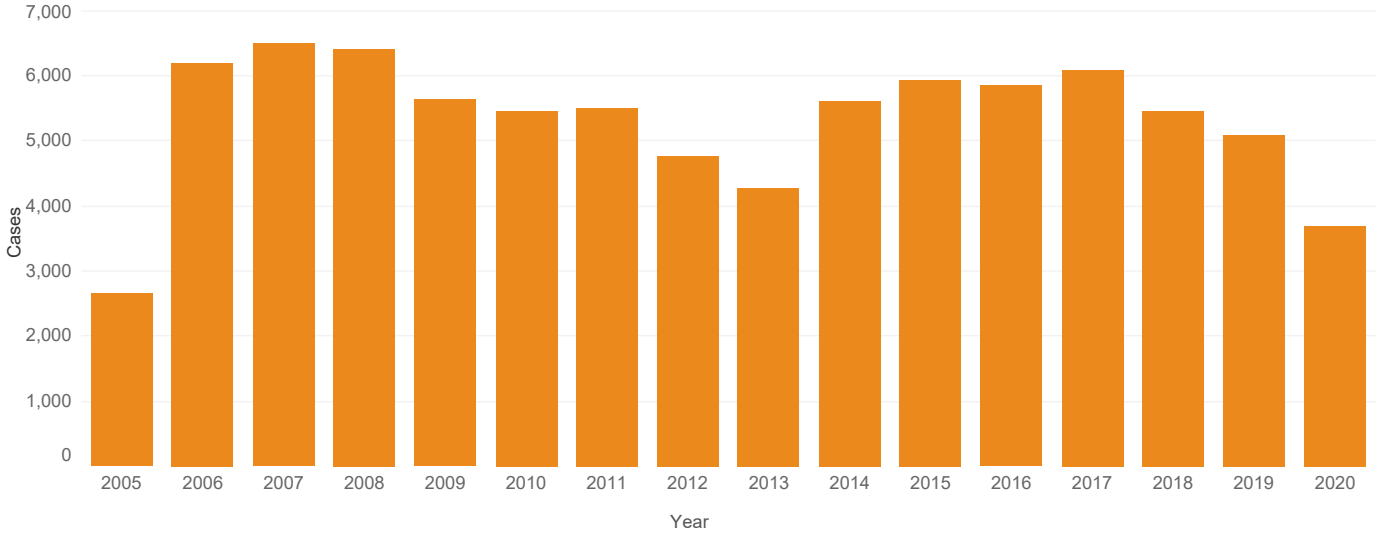
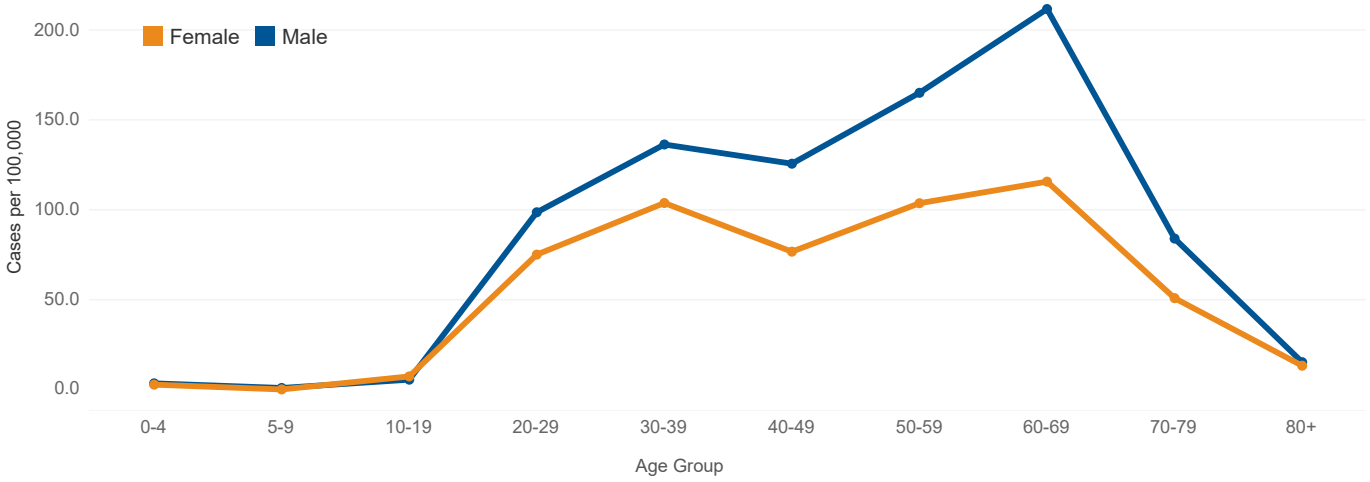
Newly reported chronic hepatitis C by year: Oregon, 2005–2020

Chronic hepatitis C became reportable in July 2005.



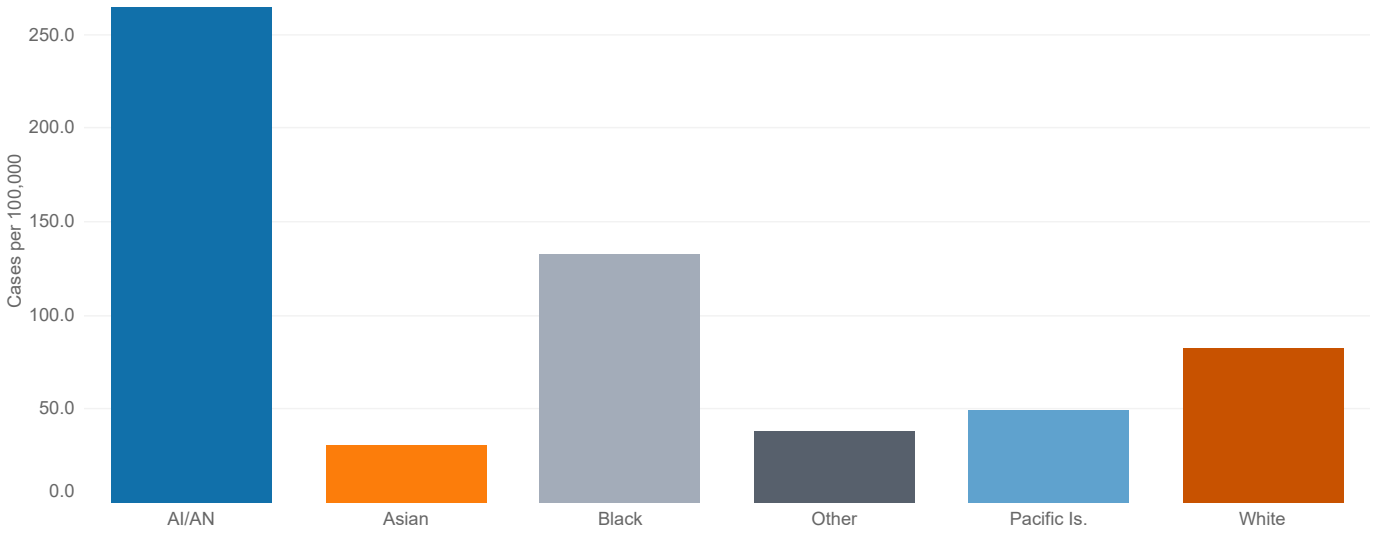
Incidence of chronic hepatitis C by age and sex: Oregon, 2020



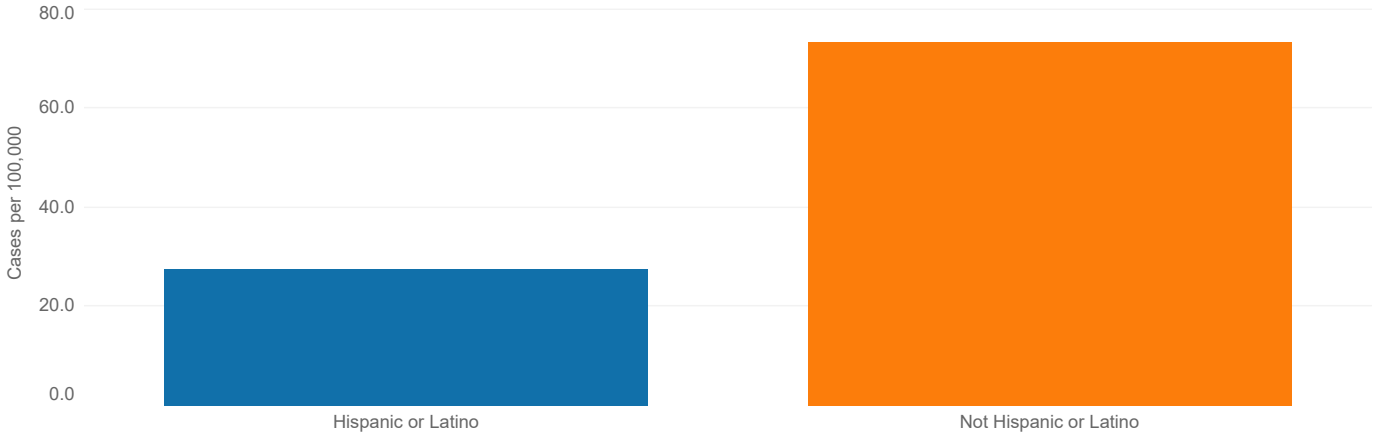
Incidence of chronic hepatitis C by reported race: Oregon, 2011–2020

Select data variable to view
Incidence Rate

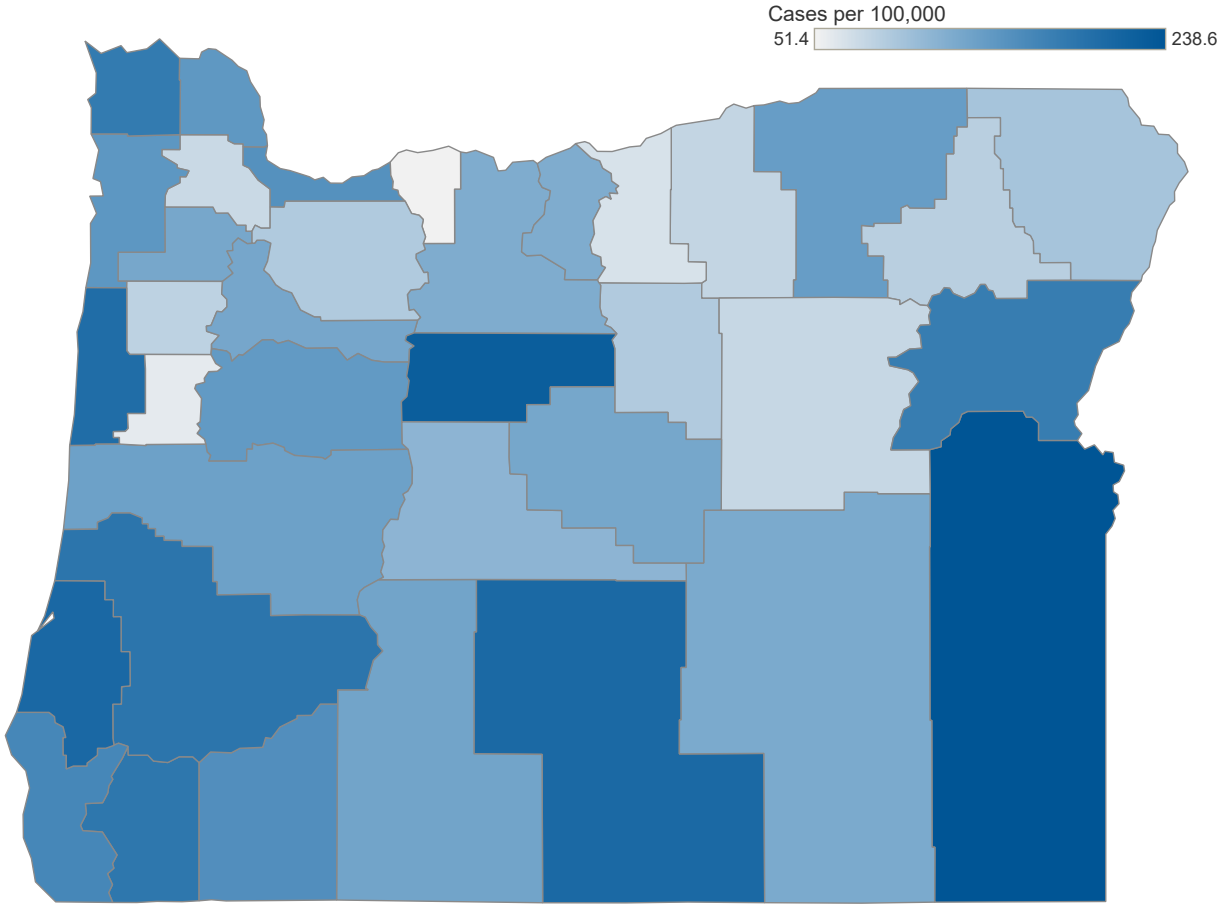
Note: "Other" race includes individuals reporting multiple races.



Incidence of chronic hepatitis C by reported ethnicity: Oregon, 2011–2020



Incidence of chronic hepatitis C by county of residence: Oregon, 2011–2020



Prevention

- Avoid injecting illicit drugs.
- Persons who inject drugs can:
  - › Avoid sharing needles or works with others.
  - › Use only clean needles and works.
  - › Purchase new, sterile needles from pharmacies.
- Health care workers: Use universal precautions and best practices to prevent needlestick injuries.
- Newer direct-acting antiviral agents are highly effective and can be prescribed by primary care providers to Medicaid

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HIV

HIV (*human immunodeficiency virus*) is a virus that attacks cells that help the body fight infection, making a person more vulnerable to other infections and diseases. It is spread by contact with certain bodily fluids of a person with HIV, most commonly during unprotected sex (sex without a condom or HIV medicine to prevent or treat HIV), or through sharing injection drug equipment.
The data collected by the HIV Program and presented in this summary describe inequities in HIV infection, prevention, and care in Oregon. The root cause of these inequities is the systematic denial of rights and opportunities for optimal health for tribal and Black, Indigenous, and non-Black people of color (BIPOC) and LGBTQIA+ communities. This denial of rights and opportunities for optimal health are reflected in the social, economic, and environmental contexts that put tribal, BIPOC, and LGBTQIA+ communities at risk for HIV and poorer HIV-related outcomes.

HIV data for 2020 should be interpreted with caution due to the impact of the Coronavirus Disease 2019 (COVID-19) pandemic on access to HIV testing and care-related services. Incidence (new HIV diagnoses) estimates may be lower due to a significant decline and potential delays in HIV testing during the COVID-19 pandemic and HIV prevalence (the number of people living with HIV) estimates may be lower due to a decrease in HIV diagnoses (as above) and an increase in deaths due to COVID-19 among people living with HIV.

Unless otherwise specified, references in this summary to males (or men) or females (or women), refer to the assigned sex at birth. Centers for Disease Control and Prevention (CDC) uses assigned sex at birth with the transmission category to describe the most likely way a person was infected. People assigned male at birth who have sex other people assigned male at birth (MSM) is a category which includes transgender women and gay, bisexual, and other men who have sex with men.

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HIV

From 1981 to 2020, 10,912 Oregon residents were diagnosed with HIV, 44% (4,591) of whom have since died. At the end of 2020, 7,962 people were living with diagnosed HIV in Oregon and we estimate that another 1,296 persons are living with HIV in Oregon but have not yet been diagnosed. In 2020, 180 new cases of HIV were diagnosed, down from a 5-year average of 209 newly diagnosed cases per year.

Overall, the rate of new HIV diagnoses has decreased over the last ten years. However, beginning in 2018, the rate of new HIV diagnoses among people who inject drugs has increased. In addition, the rate of new HIV diagnoses remains high among male Black/African Americans.

Late-stage HIV infection (AIDS) occurs when the body's immune system is badly damaged because of the virus. Late HIV diagnoses, or HIV diagnoses that are concurrent with or followed by an AIDS diagnosis within 90-days, were most common among people 40 years of age and older (47% of new HIV diagnoses are late), males who inject drugs (37%), those with heterosexual (41%) or unknown risk for HIV (43%), and people residing in rural counties (28%).

HIV medicine reduces the amount of HIV in the body (viral load) to a very low level, which keeps the immune system working and prevents illness. This is called viral suppression. Barriers to reaching viral suppression were highest among younger people (fewer than 70% of people younger than 40 years of age were virally suppressed), Black/African American people (70%), males who used injection drugs (70%), people residing in rural (73%) and frontier (65%) counties, and those experiencing houselessness or unstable housing (54%). Males, people who resided in rural areas, and people who had a CD4 count less than 200 cells/mm3 at diagnosis experienced the highest 10-year mortality rates.

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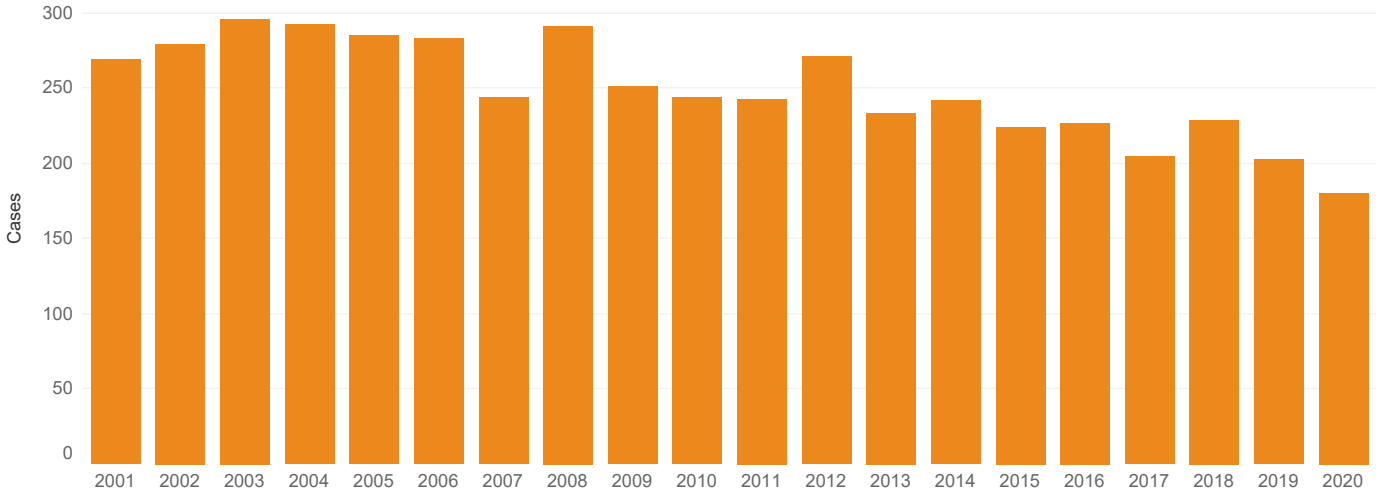
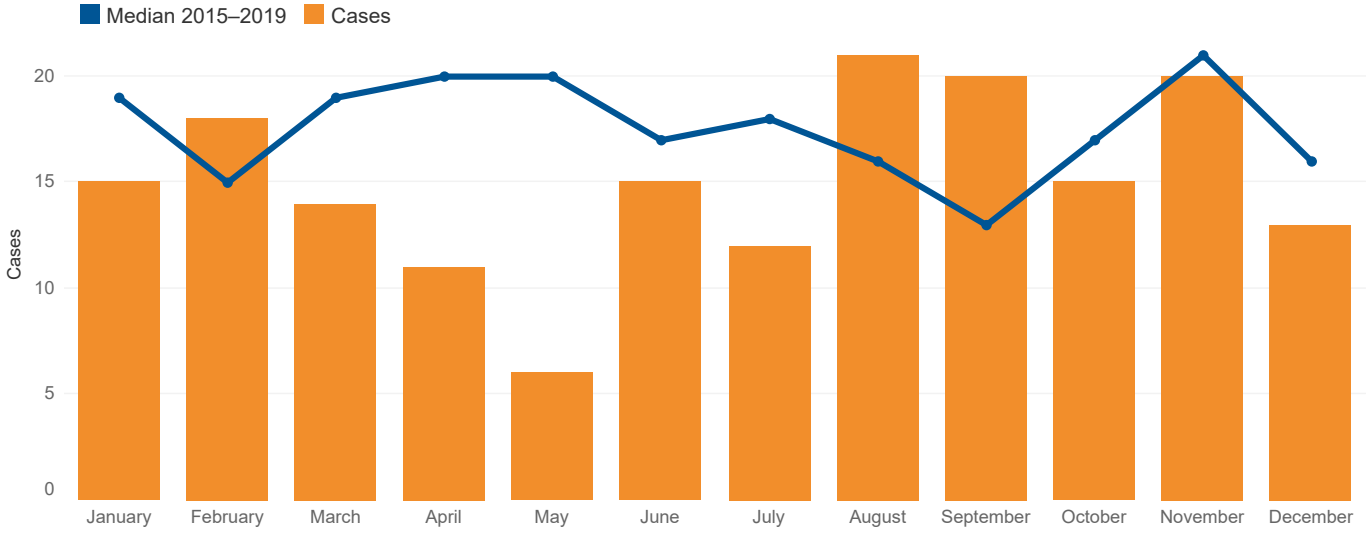
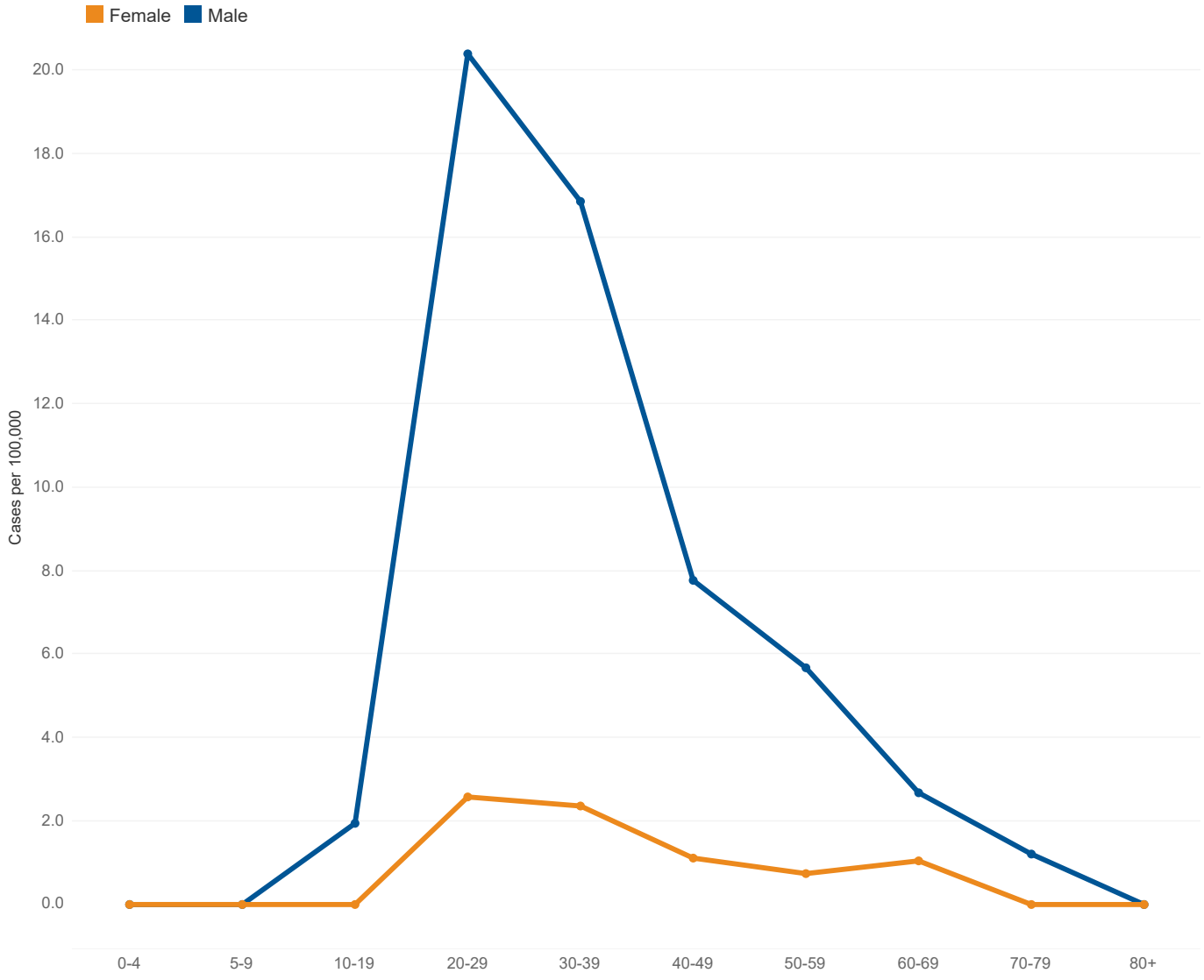
Case counts of HIV by year: Oregon, 2001–2020



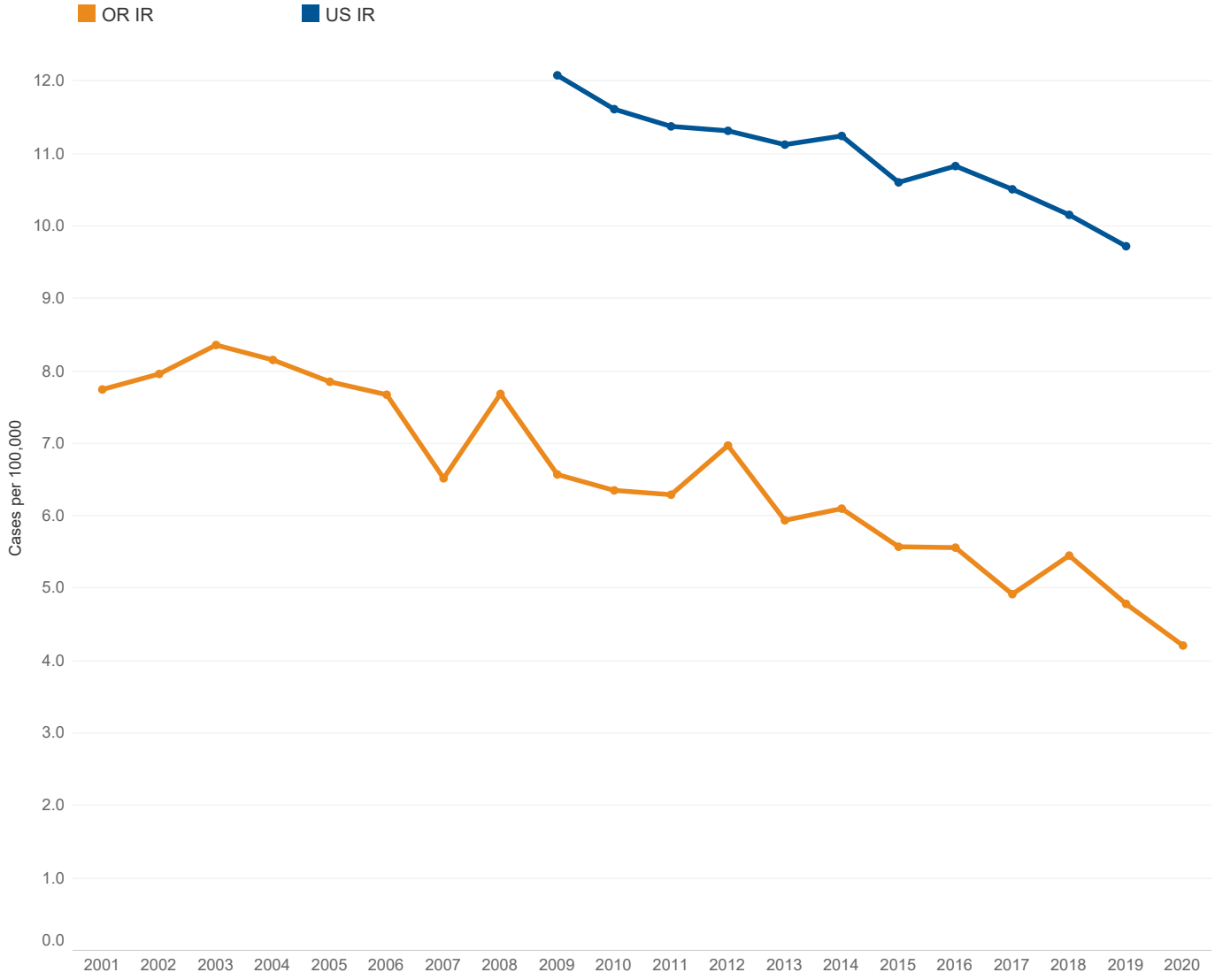
Case counts of HIV by month: Oregon, 2020



Incidence of HIV by age and sex: Oregon, 2020



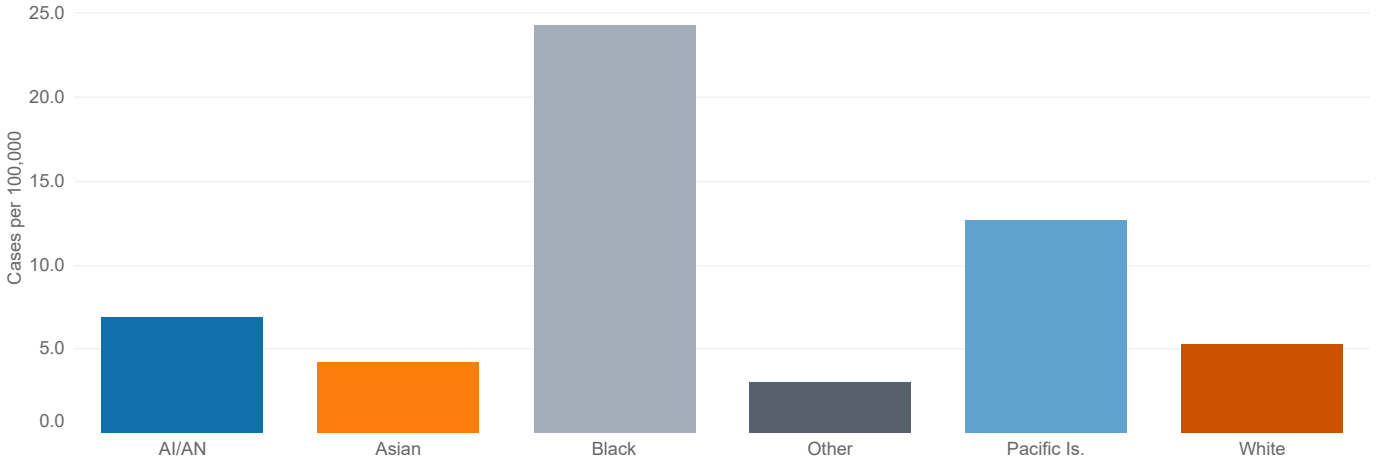
Incidence of HIV: Oregon vs. nationwide, 2001–2020



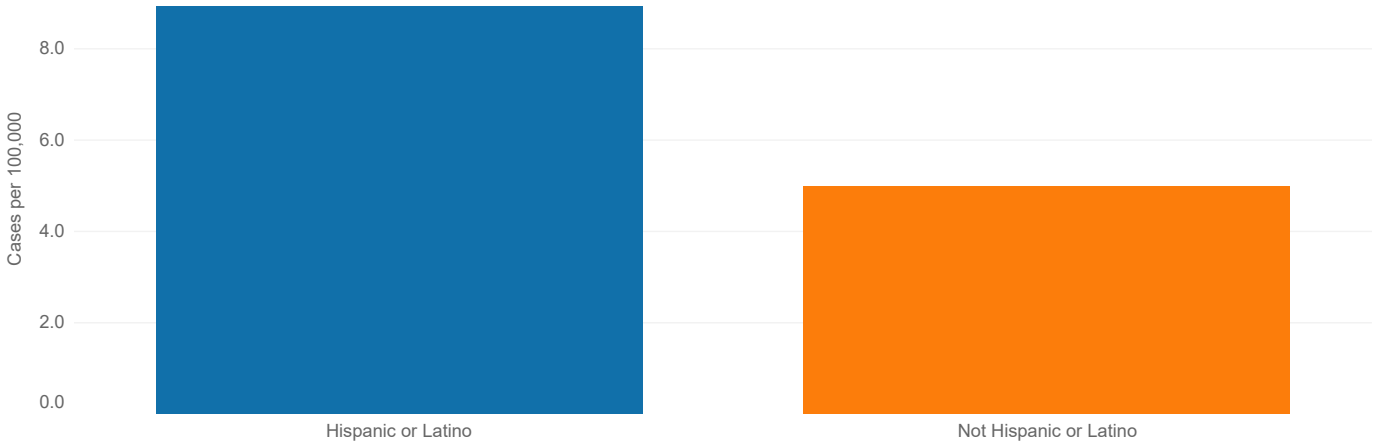
Incidence of HIV by reported race: Oregon, 2011–2020

Select data variable to view
Incidence Rate

Note: "Other" race includes individuals reporting multiple races.

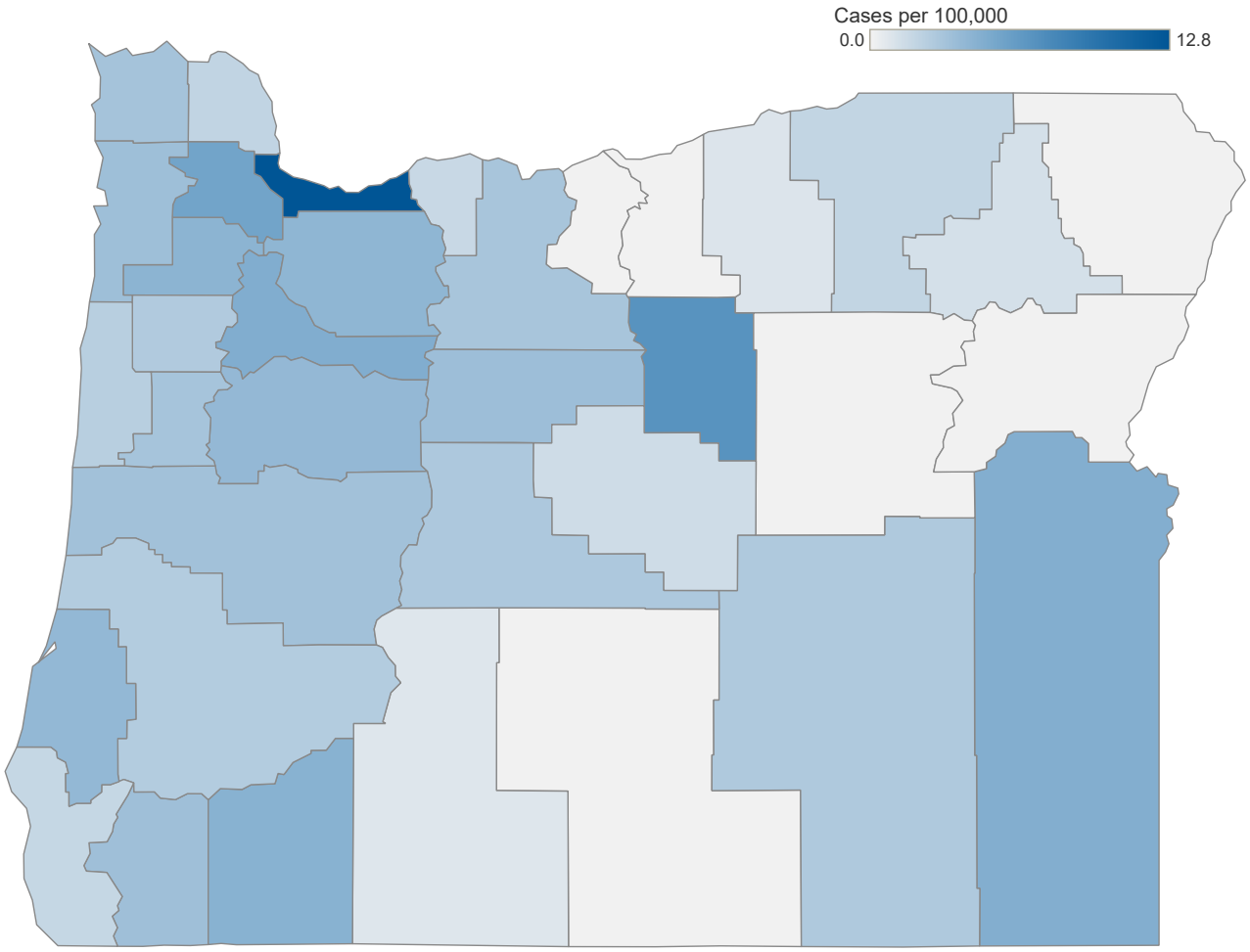


Incidence of HIV by reported ethnicity: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Incidence of HIV by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

•Use condoms consistently and correctly during anal and vaginal or front sex.

•Get tested for HIV, syphilis, gonorrhea, chlamydia and hepatitis C regularly.

•Talk openly with sex partners about HIV and other sexually transmitted infections and the importance of regular testing.

•Take HIV pre-exposure prophylaxis, or PrEP, to prevent HIV infection before exposure.

•Use HIV post-exposure prophylaxis, or PEP, to prevent HIV infection soon after a possible exposure.

•If you inject drugs, use a new, sterile syringe every time and visit your local syringe service program for sterile supplies, HIV/Hep C testing, naloxone, and other resources.

•Know that people living with HIV on effective HIV treatment with an undetectable viral load cannot transmit HIV to sexual partners.

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Legionellosis

Legionellosis is usually an acute respiratory tract infection that begins two to 14 days after exposure to *Legionella* spp. Signs of the disease can include a high fever, chills and cough, in addition to headache and muscle aches. Symptoms are similar to those seen in other forms of pneumonia, so the diagnosis is rarely obvious and can be difficult to make. Available confirmatory diagnostic tests include urine antigen detection, polymerase chain reaction (PCR), direct fluorescent antibody staining and culture.

"Pontiac fever," a milder illness associated with *Legionella* bacteria, is characterized by fever and muscle aches without pneumonia. It typically occurs a few hours to two days after exposure.

Legionella bacteria are found naturally in the environment, usually in water, and grow best in warm conditions such as hot tubs, cooling towers, hot water tanks, large plumbing systems or the air-conditioning systems of large buildings. They are transmitted by inhalation of aerosolized water or soil infected with the bacteria. Person-to-person transmission does not occur.

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Risks for infection include older age, smoking, chronic lung disease (e.g., emphysema), renal insufficiency, diabetes and immune deficiency. Death occurs in 10%–15% of cases; a substantially higher proportion of fatal cases occur during outbreaks in hospitals or other health care facilities. Infections are treated with antibiotics.

Legionellosis became officially reportable in Oregon in 2001 and nationally in 2009. Rates of reported illness have increased each year nationally. In Oregon, rates of reported illness were increasing until a decline from 2015 to 2018. It is uncertain whether the increase in cases until 2015 represents increased awareness and testing, increased susceptibility of the population, increased *Legionella* in the environment or a combination of factors. In 2019, Oregon saw a dramatic increase in reported cases. The cause of the rise is unknown; however, increases in older persons and those with underlying disease, aging plumbing infrastructure, and increased testing, detection and reporting may have played a role. Although there was a slight decrease in reported cases in 2020, case counts remain high.

In 2020, 65 cases of legionellosis were reported among Oregonians; 88% were hospitalized, and five died. Fifty-four percent of cases were male and seventy-two percent of cases were >55 years of age. Although the rate of legionellosis among Oregonians has historically been consistently lower, the national rate (1.3 per 100,000) dipped below that of Oregon (1.5 per 100,000) in 2020. There were no outbreaks of legionellosis reported during 2020. Due to an increasing number of cases in recent years, the CDC has developed a water management toolkit for building owners and managers. Facilities receiving Medicare/Medicaid funds must now have a water management plan. Effective water and infrastructure management and better testing protocols can prevent *Legionella* outbreaks.

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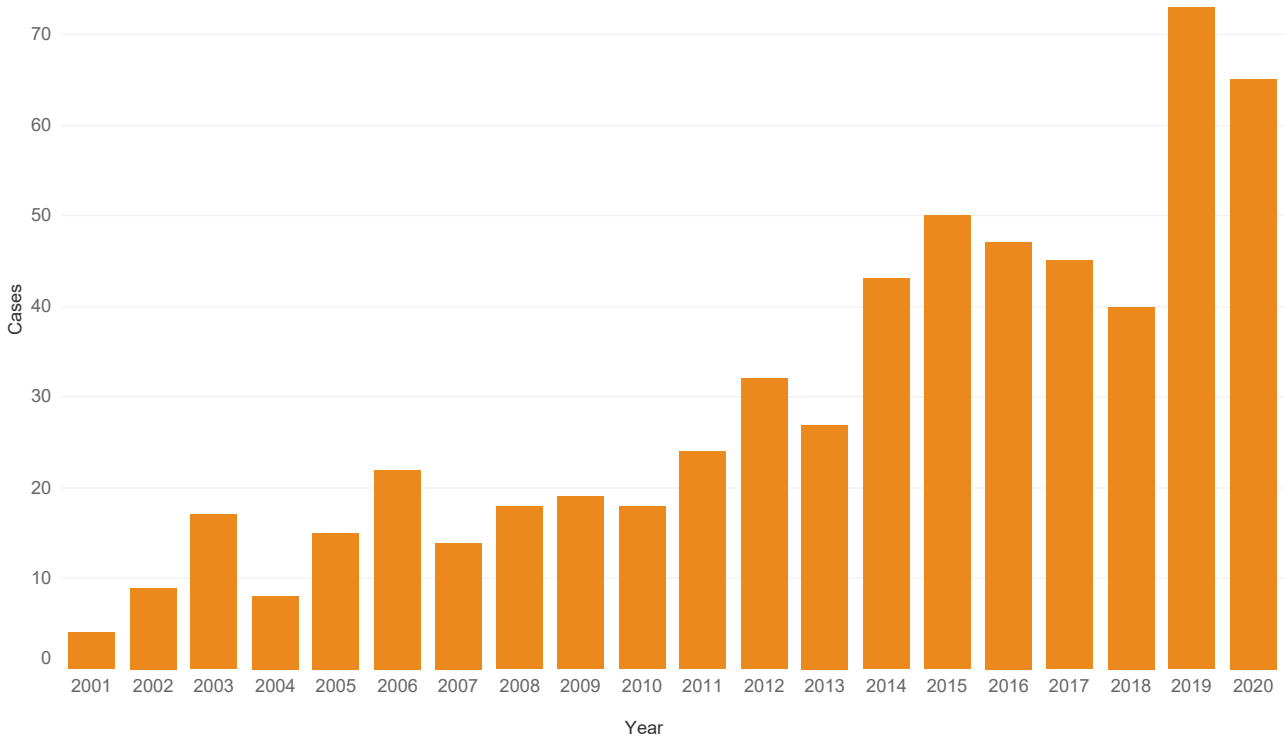
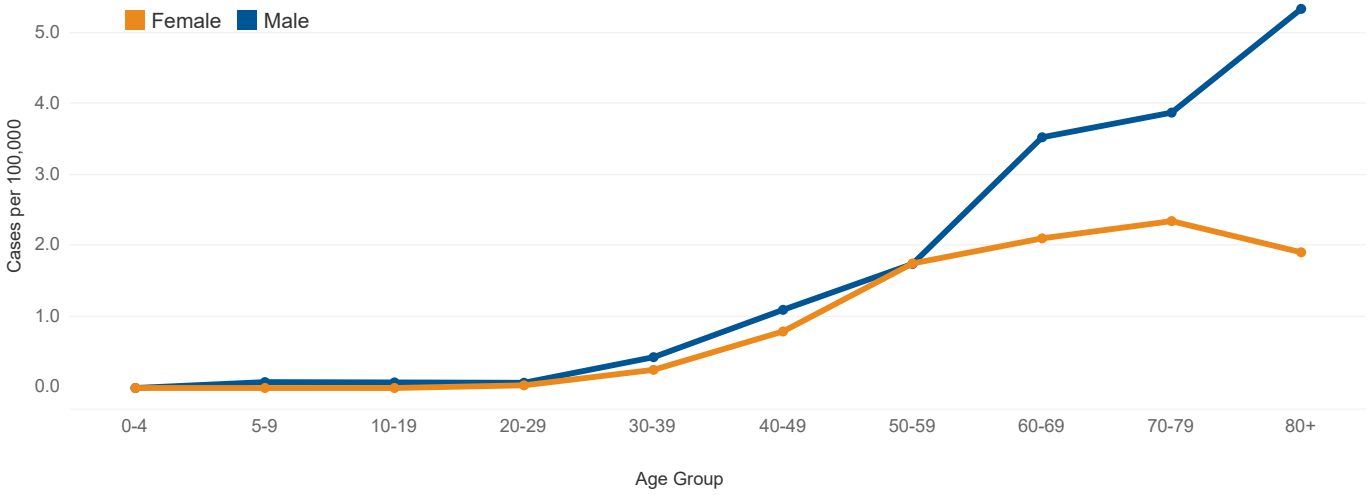
Incidence of legionellosis by year: Oregon, 2001–2020

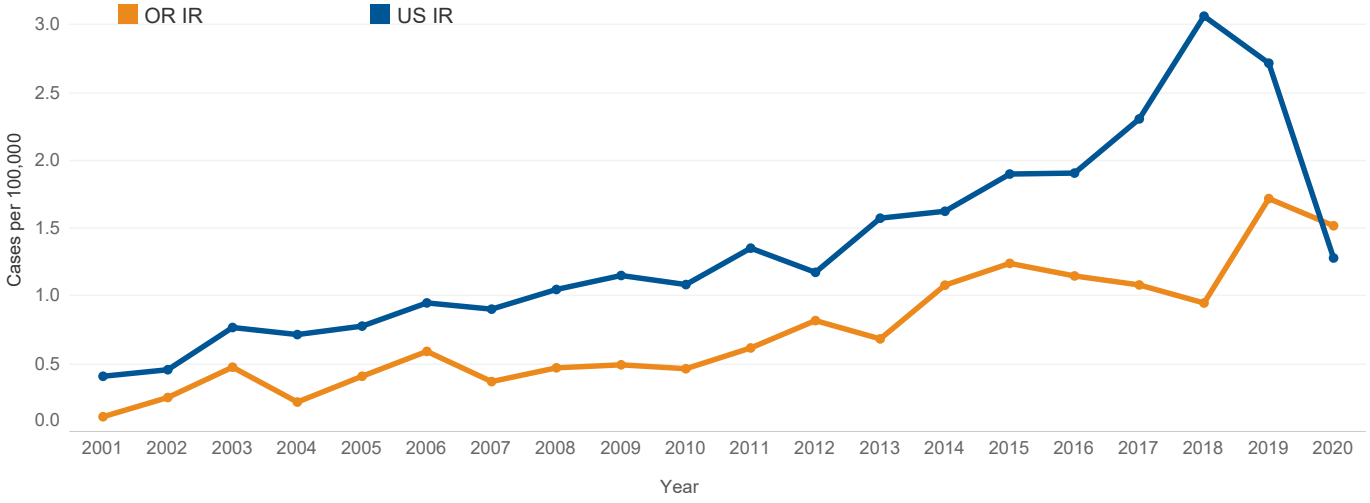
Legionellosis became reportable in Oregon in 2001.



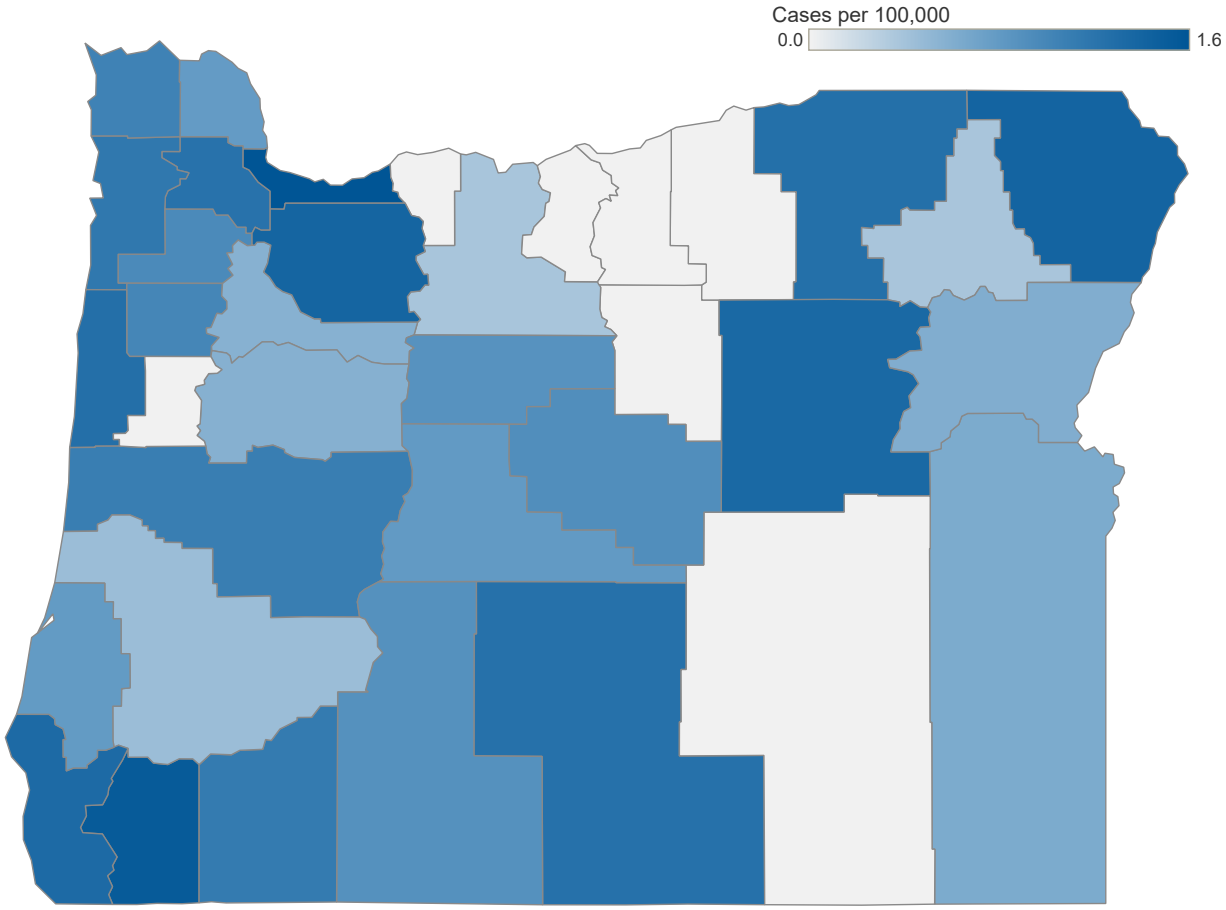
Incidence of legionellosis by age and sex: Oregon, 2011–2020



Incidence of legionellosis: Oregon vs. nationwide, 2001–2020



Incidence of legionellosis by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Not smoking can lower your chances of developing Legionnaires' disease if you are exposed to *Legionella* bacteria.
- Persons at increased risk of infection may choose to avoid high-risk exposures, such as being in or near a hot tub.
- Prevent water conditions that allow *Legionella* to grow by doing the following:
  - › Maintain and clean cooling towers and evaporative condensers twice yearly, and periodically use chlorine.
  - › Maintain domestic water heaters at 60°C (140°F) and water temperature at 50°C (122°F) or higher at the faucet.
  - › Don't allow water to stagnate. Large water-storage tanks exposed to sunlight can produce warm conditions favorable to growth of *Legionella*. Flushing infrequently used water lines will help alleviate stagnation.

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Listeriosis

Listeriosis is a bacterial infection that may present as an influenza-like illness with high fever, headache and muscle aches; as a gastrointestinal illness; or as an invasive disease with sepsis or meningitis. In pregnant women, listeriosis may cause miscarriages or stillbirths. The case fatality rate of invasive listeriosis is as high as 30% in infants infected prenatally and in non-pregnant adults.

Most cases of listeriosis are “sporadic” rather than part of outbreaks. However, several large outbreaks have been associated with consumption of contaminated foods. It is important to track the incidence of this disease to identify such outbreaks, and to identify high-risk groups. The rate is higher among pregnant women, newborns, the elderly and immunocompromised persons. Cooking food properly is the most important means of prevention. When listeriosis is diagnosed, treatment with antibiotics should be instituted promptly.

In 2020, nine cases were reported. All cases were hospitalized and three died. All but one of the cases reported were 75 years of age or older, with the mean age of cases reported in 2020 being 78.

There were no outbreaks of listeriosis reported in Oregon in 2020.

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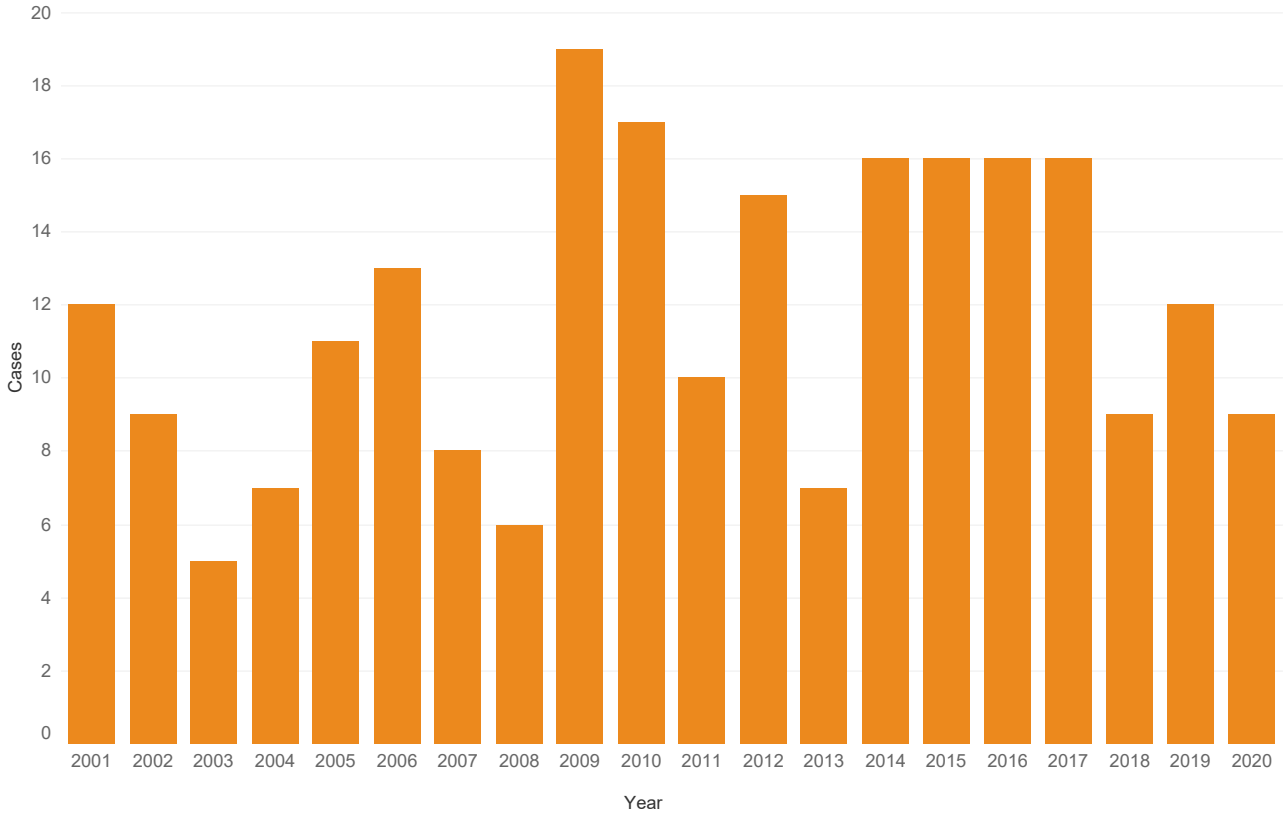
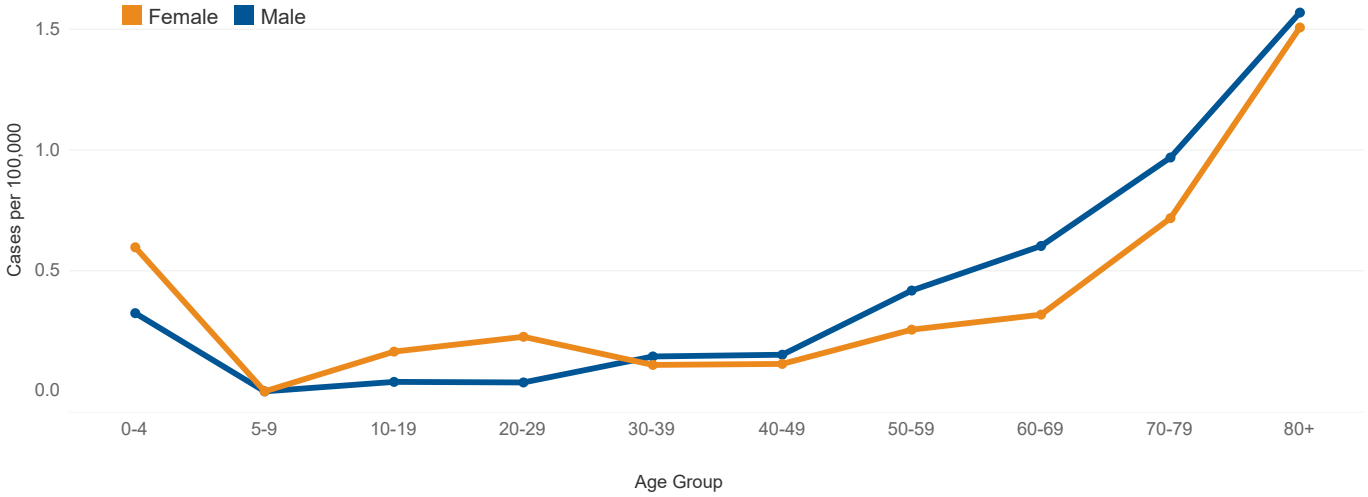
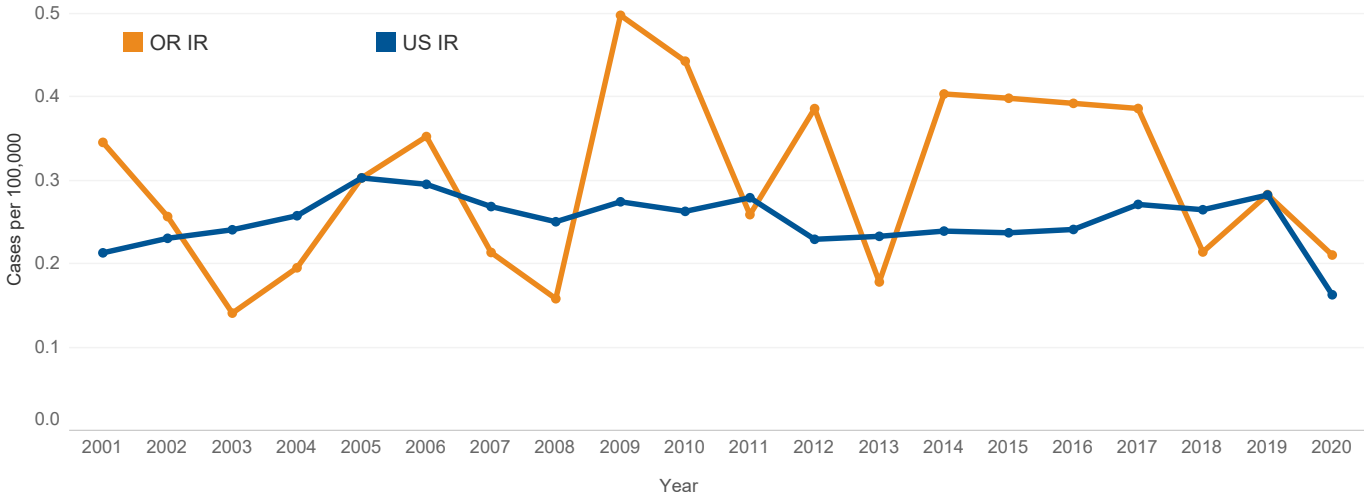
Incidence of listeriosis by year: Oregon, 2001–2020



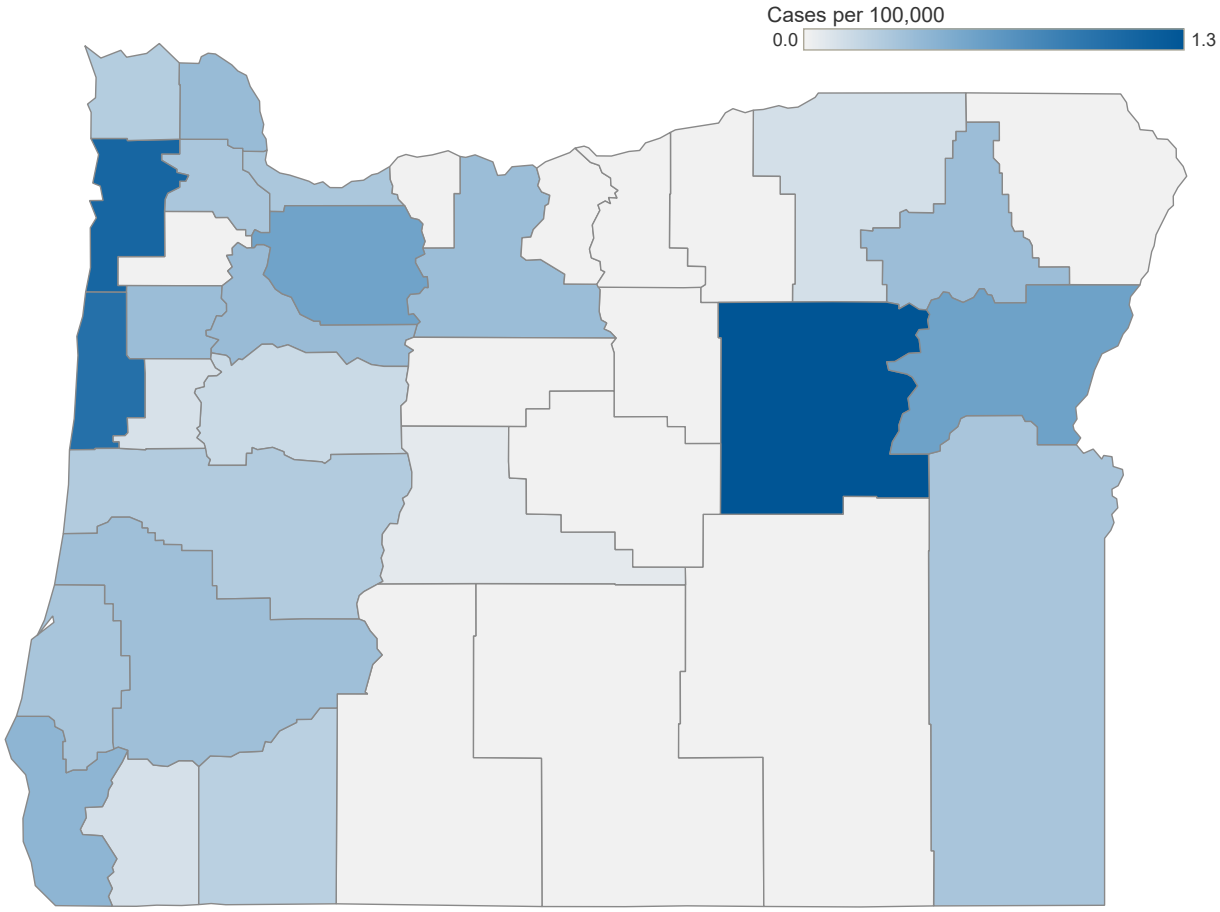
Incidence of listeriosis by age and sex: Oregon, 2011–2020



Incidence of listeriosis: Oregon vs. nationwide, 2001–2020



Incidence of listeriosis by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Practice safe food handling. Rinse raw produce thoroughly under running tap water; separate uncooked meats and poultry from vegetables, cooked foods and ready-to-eat foods; cook meat and poultry to the proper temperatures.
- Do not drink raw milk and do not eat foods that have unpasteurized milk in them.
- Higher-risk persons (pregnant women, immunocompromised and elderly):
  - › Avoid eating hot dogs, luncheon meats, cold cuts and other deli meats unless they are heated.
  - › Do not eat soft cheese such as feta, queso fresco, Brie or Camembert unless it is labeled as made with pasteurized milk.
  - › Do not eat refrigerated smoked seafood unless it is contained in a cooked dish such as a casserole.

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Lyme disease

Lyme disease is a tick-borne zoonotic disease caused by the spirochete *Borrelia burgdorferi*. The first manifestation in approximately 60% of patients appears as a red spot or bump that expands slowly with clearing in the middle, forming a ring or “target,” or a "bull’s eye" sometimes with multiple similar lesions. This distinctive skin lesion is called “erythema migrans.” In most cases, the tick must be attached for at least 36 hours before the Lyme disease bacterium can be transmitted. Most humans are infected through the bites of immature ticks called nymphs. Nymphs are tiny (less than 2 mm) and difficult to see, which is why they may be attached for many hours without being detected. Nymphs feed during the spring and summer months. The incubation period for Lyme disease ranges from three to 30 days after tick exposure; however, the early stages of the illness may be asymptomatic, and the patient may later develop systemic symptoms and joint, neurologic or cardiac problems in varying combinations during a period of months to years. Infections are treated with antibiotics.

Increasing recognition of the disease is redefining areas where ticks may carry *B. burgdorferi*; Lyme disease cases have been reported in 49 states, and in Ontario and British Columbia, Canada. Related borrelioses have been found in Europe, the former Soviet Union, China and Japan. In 1997–1998, the CDC and the Oregon Public Health Division collected and identified ticks and tested them for *Borrelia burgdorferi* in Deschutes, Josephine and Jackson counties. No ticks from Deschutes County were identified as carrying *Borrelia* in this study. The organism was isolated in 3.5% of *Ixodes pacificus* ticks tested.

During 2020, 39 cases of Lyme disease were reported in Oregon. The median age was 49 years of age. Thirty (77%) cases were female. Reported incidence has been consistently higher in women than in men. The highest numbers of reported cases by residence were in Jackson County (8) and Josephine County (5). Reported case counts increased gradually until 2017 but have declined somewhat in the three years since. This could be related to greater local interaction with ticks in the environment as well as acquiring the infections from out-of-state areas where Lyme disease is more prevalent.

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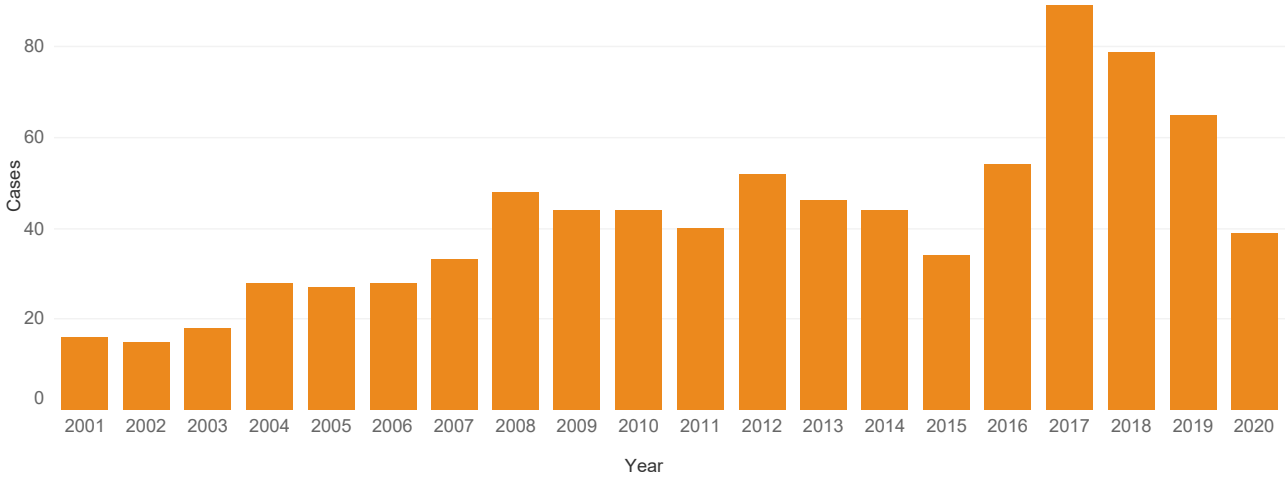
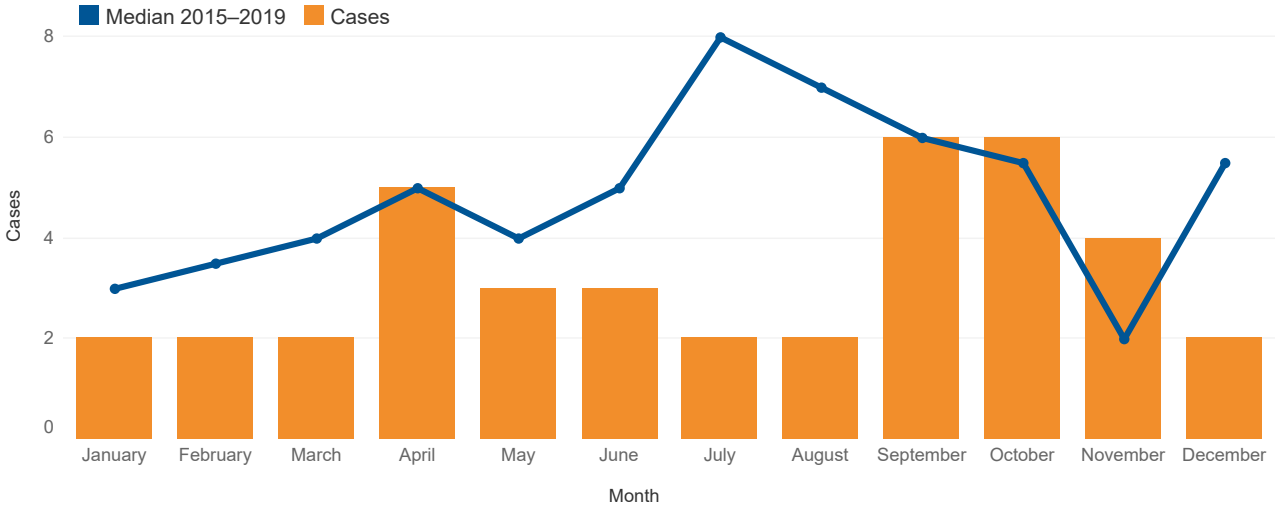
Disease overview | Incidence by year and month | Incidence by age and sex and in OR vs. U.S. | Incidence by county | Disease prevention

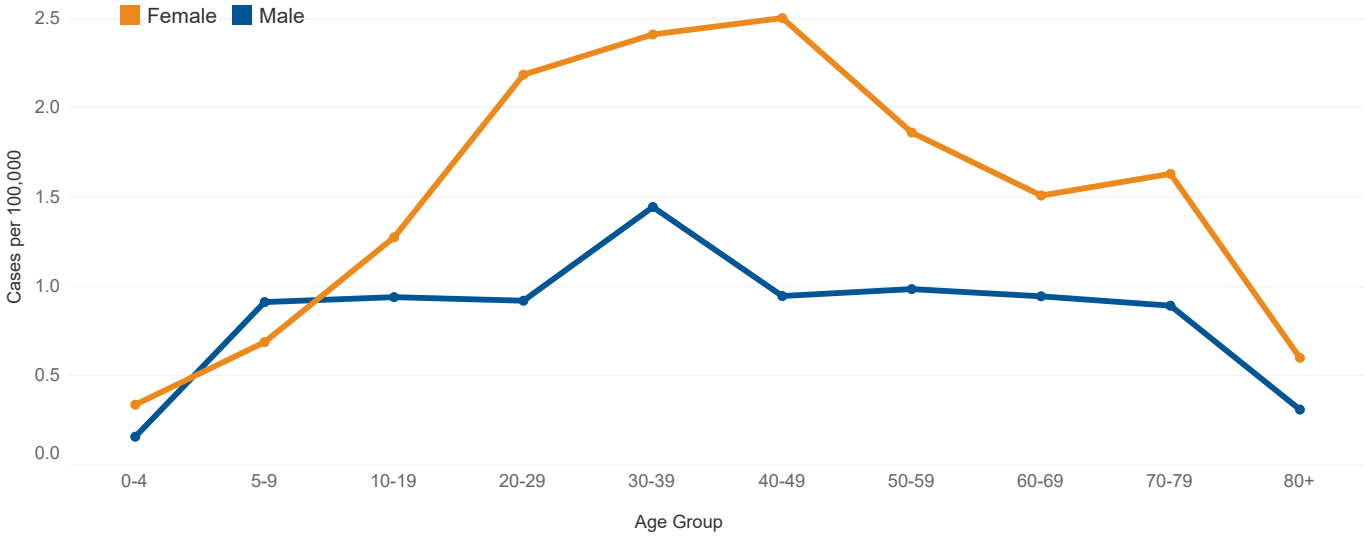
Incidence of Lyme disease by year: Oregon, 2001–2020



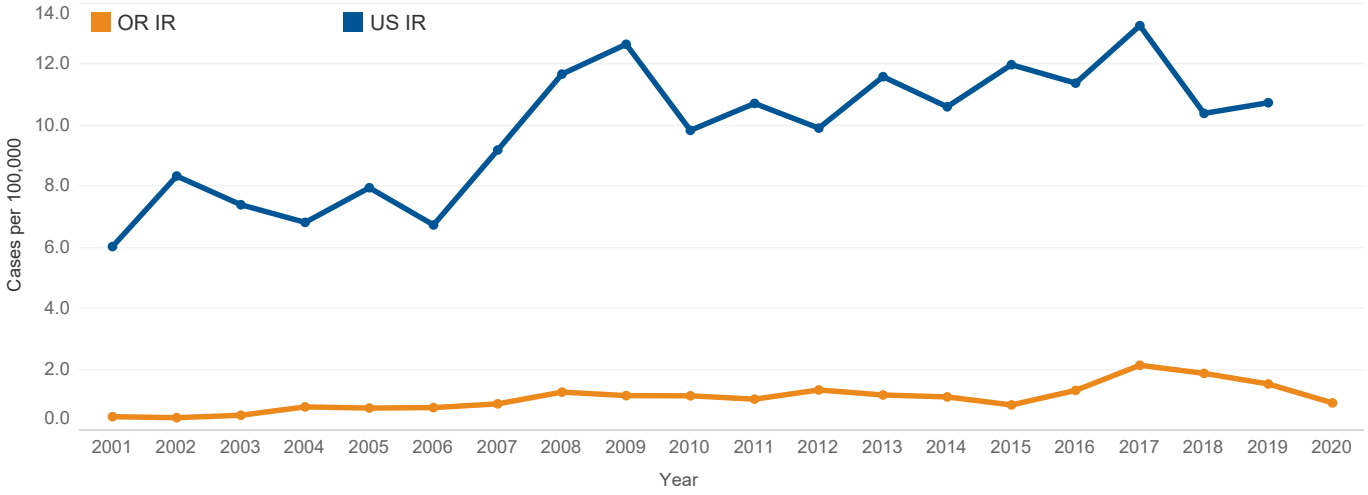
Incidence of Lyme disease by month: Oregon, 2020



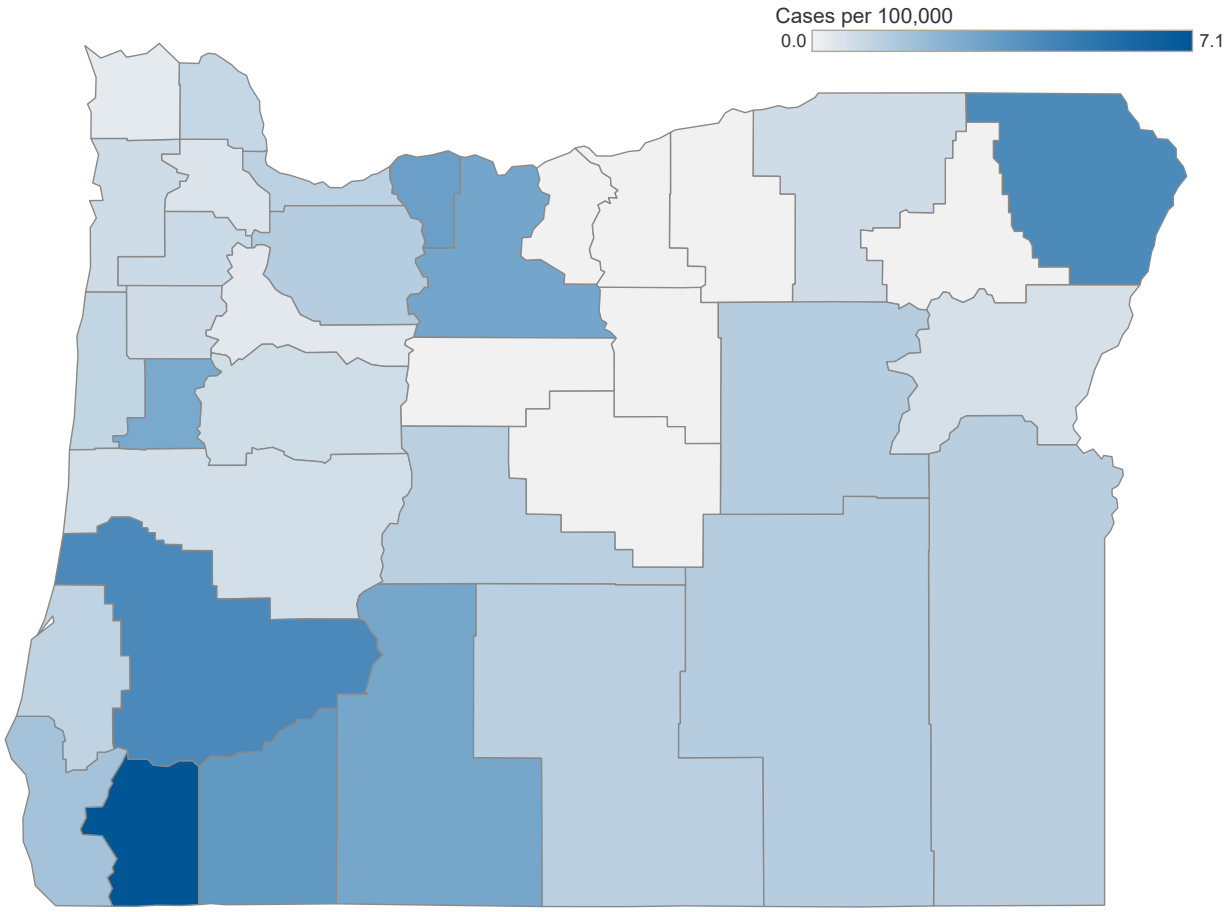
Incidence of Lyme disease by age and sex: Oregon, 2011–2020



Incidence of Lyme disease: Oregon vs. nationwide, 2001–2020



Incidence of Lyme disease by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Avoid exposure to ticks. Wear long sleeves, long pants and socks when outdoors.
- Check yourself, your children and your pets for ticks. Be especially vigilant after spending time in wooded or grassy areas. Remove a tick as soon as possible with tweezers. Gently grasp the tick near its head or mouth. Don't squeeze or crush the tick, but pull carefully and steadily.
- Use insect repellents when you go outdoors. Repellents containing DEET, picaridin, IR3535, and some oil of lemon eucalyptus and para-menthane, 2-undecanone products provide longer-lasting protection. To optimize safety and effectiveness, use repellents according to the label instructions.
- For more information about these products, please visit this EPA site.
- Do your best to tick-proof your yard. Clear brush and leaves where ticks live. Keep woodpiles in sunny areas.

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Malaria

Worldwide, malaria is one of the most devastating of the communicable diseases, causing perhaps 1–2 million deaths annually, in addition to an enormous burden of disability and medical costs. It is caused by parasites of the genus *Plasmodium* transmitted among humans by *Anopheles* mosquitoes. While transmission has not been documented in Oregon for decades, malaria is reported every year in our state; all cases have resulted from exposures outside the United States. *Anopheles* mosquitoes capable of transmitting malaria live in Oregon, so local transmission remains a theoretical possibility — albeit one we don't lose much sleep over.

Five cases of malaria were reported among Oregonians in 2020. Two cases were caused by *Plasmodium falciparum* — the most deadly species and the most common worldwide. Oregon surveillance data contribute to the national database, which informs recommendations for prevention and treatment. All five Oregon cases reported in 2020 had been exposed in Africa.

Competent advice about behavioral and chemical interventions can reduce risk to travelers, but refugees and other immigrants may carry long-harbored infections.

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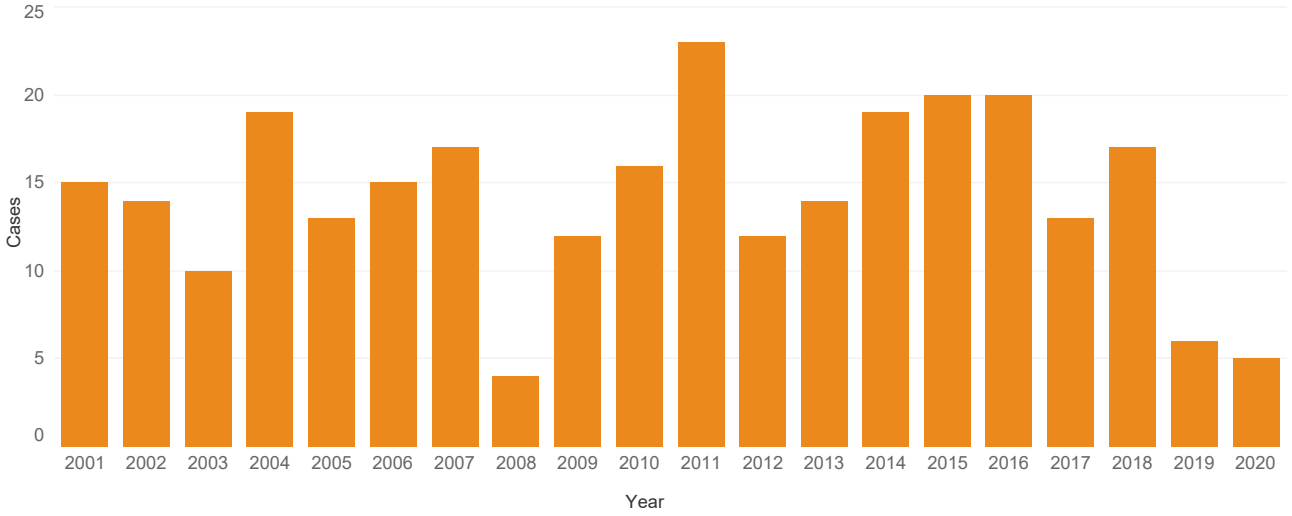
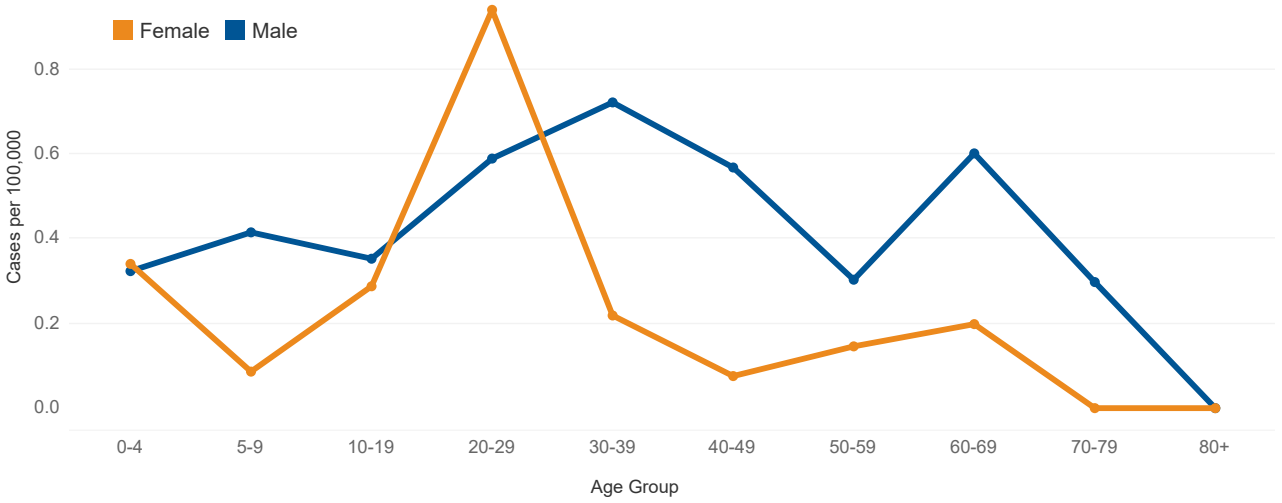
Incidence of malaria by year: Oregon, 2001–2020

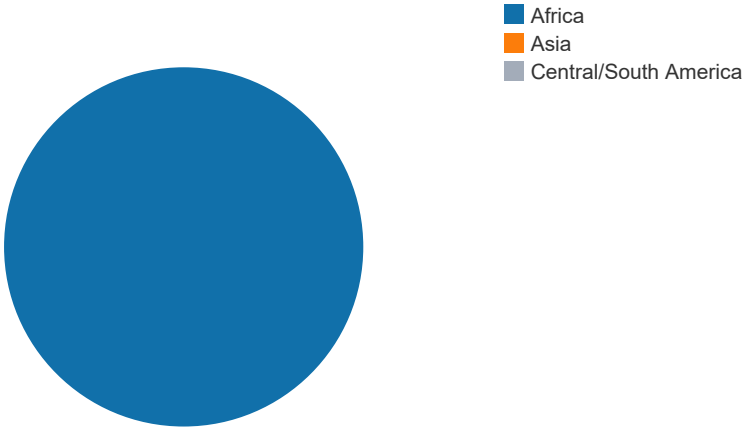


Incidence of malaria by age and sex: Oregon, 2011–2020

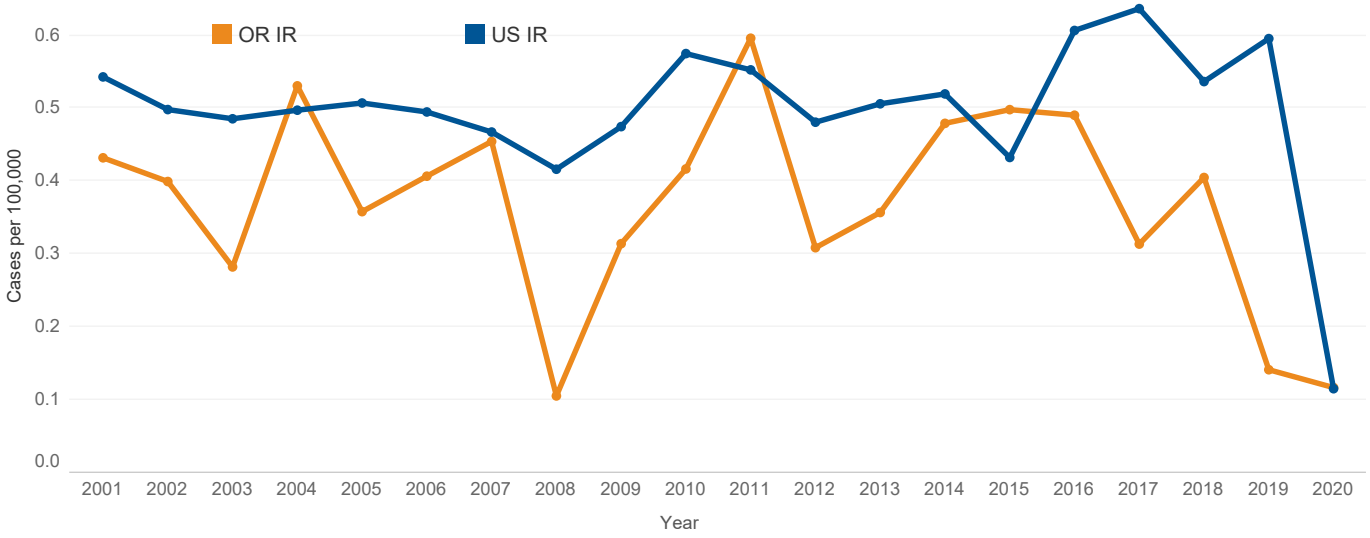


Malaria cases by continent of acquisition: Oregon, 2020

Hover over pieces of the chart to view the data.



Incidence of malaria: Oregon vs. nationwide, 2001–2020



Prevention

- Understanding the current situation with malaria in one's travel destinations is essential. Consult with a travel medicine expert or, if nothing else, read the country-by-country assessment online from the CDC.
- When traveling to an area where malaria is transmitted:
  - > Because *Anopheles* mosquitoes feed at night, minimize your risk of getting bitten by sleeping under an insecticide-impregnated mosquito net or in an air-conditioned room (or both!).
  - > If out and about at night, wear long-sleeved shirts and pants and use topical mosquito repellents.
  - > Chemoprophylaxis (antimalarial medicine) provides the backstop you need when bite prevention is imperfect - as it always is.
  - > Many effective medicines are available in the United States, and even more elsewhere. Weighing their relative merits and side effect can be complex; consult a travel expert for individualized advice. Don't wait until the last minute; most drugs should be started before and continued after the likely exposure period.

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Measles

Measles is an acute, highly communicable viral illness known for its red, blotchy rash. The rash starts on the face and then spreads widely over the body. It is preceded by a febrile prodrome that includes cough, coryza and conjunctivitis; photophobia and Koplik spots in the mouth also sometimes appear.

Detection of measles ribonucleic acid (RNA) by polymerase chain reaction (PCR) and detection of measles-specific immunoglobulin M (IgM) antibody are the most common methods for confirming measles infection (in a patient who has not recently been immunized). Treatment is supportive; there is no antiviral therapy for measles.

A focus on increasing vaccination among preschool children by following the 1989 recommendation for two doses of measles, mumps and rubella (MMR) vaccine resulted in a dramatic reduction in measles in the United States. In Oregon, two doses of measles-containing vaccine have been required for entry into kindergarten since 1998. In 2020 about 95% of K–12 kids had received two doses. Measles vaccination is also required for children attending childcare facilities and for students in post-secondary educational institutions in Oregon.

Since 2004, 56 cases have been reported in Oregon; 31 of these were imported and the remaining 25 were linked to imported cases. Most imported cases originated in Asia or Europe and included both Oregon citizens traveling abroad and persons visiting Oregon from other countries. The median age of cases has been 12.5 years (range, 6 months–49 years) since 2004. Forty-four (79%) cases were unvaccinated; seven were vaccinated; the vaccination status of three could not be documented; one was too young to be vaccinated; and one had a medical contraindication to vaccination.

No cases of measles were reported in Oregon in 2020. In 2019, Oregon had four outbreaks of measles and one case of measles that was not part of an outbreak, totaling 28 cases. This is the most cases the state has seen since 1991. All cases were unvaccinated.

Though measles is highly infectious, the risk of exposure to measles in Oregon remains low. Sustaining high levels of vaccination is important to limit the spread of measles from imported cases and to prevent it from becoming re-established as an endemic disease in the United States.

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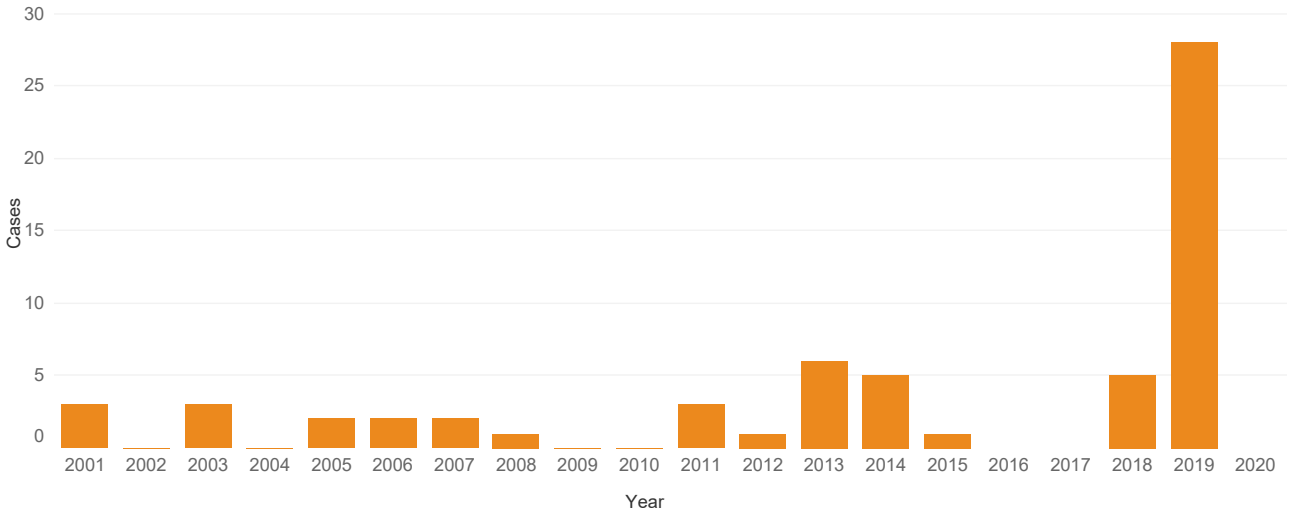
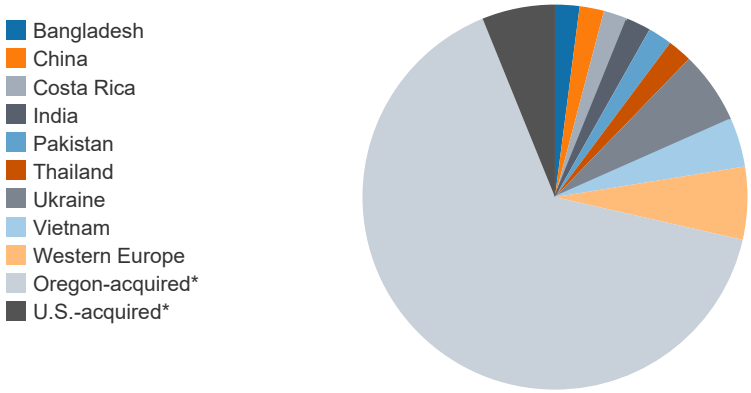
Disease overview | Disease overview (continued) | Incidence by year; Cases by country of importation | Incidence in OR vs. U.S. | Disease prevention

Incidence of measles by year: Oregon, 2001–2020



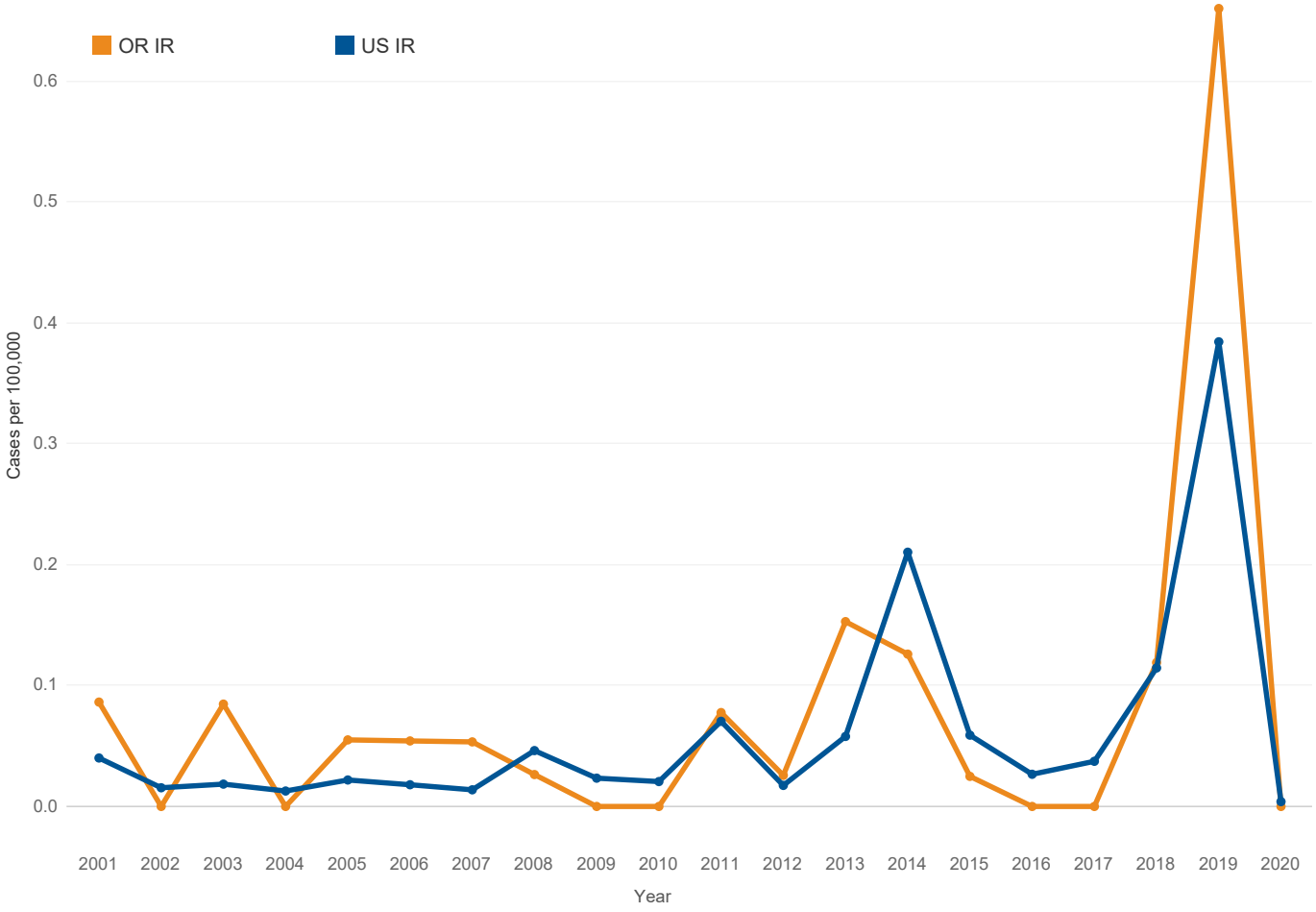
Measles by country or location of importation: 2011–2020

Click on items in the legend or pieces of the chart to view the data.



* Many cases that are acquired in Oregon or elsewhere in the United States are linked to imported measles cases from another country.

Incidence of measles: Oregon vs. nationwide, 2001–2020



Prevention

- Vaccinate:
  - › One dose for preschool-age children >12 months of age and for most adults born during or after 1957; a second dose for school-age children and for adults at high risk of measles exposure (e.g., health care personnel, international travelers and students at post-high school educational institutions).
  - › Post-exposure vaccination can prevent or lessen illness if given within 72 hours of exposure.

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Meningococcal disease

Meningococcal disease is a serious bacterial infection caused by *Neisseria meningitidis*; it is usually fatal without prompt treatment with intravenous antibiotics. Reported cases of invasive meningococcal infections, including sepsis and meningitis, have declined from the hyperendemic levels seen in 1993–1997 attributable to a clonal strain of serogroup B *Neisseria meningitidis*. Respiratory secretions and droplets continue to be shared among Oregonians and predispose us to secondary cases.

In 2020, there were no reported cases of meningococcal disease in Oregon. The dramatic decline in reported cases is likely due to the COVID-19 pandemic. Social distancing and mask adherence helped reduce the spread of COVID-19 and other respiratory pathogens.

From the early 1990s through 2011, serogroup B predominated in Oregon but, for the past several years, other serogroups have been more prominent. In 2016, 43% of cases were serogroup B; serogroup C accounted for 48% of cases; 2017, 40% of cases were serogroup B; serogroup C accounted for 52% of cases; 2018, 7% of cases were serogroup B; serogroup C accounted for 71% of cases; 2019, 9% of cases were serogroup B; serogroup C accounted for 64% of cases.

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American Committee on Immunization Practices (ACIP) recommends routine vaccination with quadrivalent (contains antigens from serogroups A, C, Y and W-135) meningococcal conjugate vaccine for all persons 11–21 years of age.

Meningococcal vaccine is also recommended for persons 2 months to 55 years of age who are at increased risk for the disease due to complement deficiency, travel to or residence in a country where meningococcal disease is hyperendemic or epidemic, or inclusion in a defined risk group during a community or institutional outbreak.

In October 2014, the Food and Drug Administration (FDA) licensed the first serogroup B meningococcal vaccine (MenB-FHbp, Trumenba®). FDA approved this vaccine for use in people 10–25 years of age as a three-dose series. On Jan. 23, 2015, FDA licensed a second serogroup B meningococcal vaccine (MenB-4C, Bexsero®). FDA approved this vaccine for use in people 10–25 years of age as a two-dose series.

MenB vaccination is now recommended for those ≥10 years of age with complement deficiencies, anatomic or functional asplenia, microbiologists who have contact with *N. meningitidis*, and others at increased risk during a serogroup B outbreak. MenB vaccine may also be administered to adolescents and young adults 16–23 years of age to provide short-term protection against most strains of serogroup B meningococcal disease.

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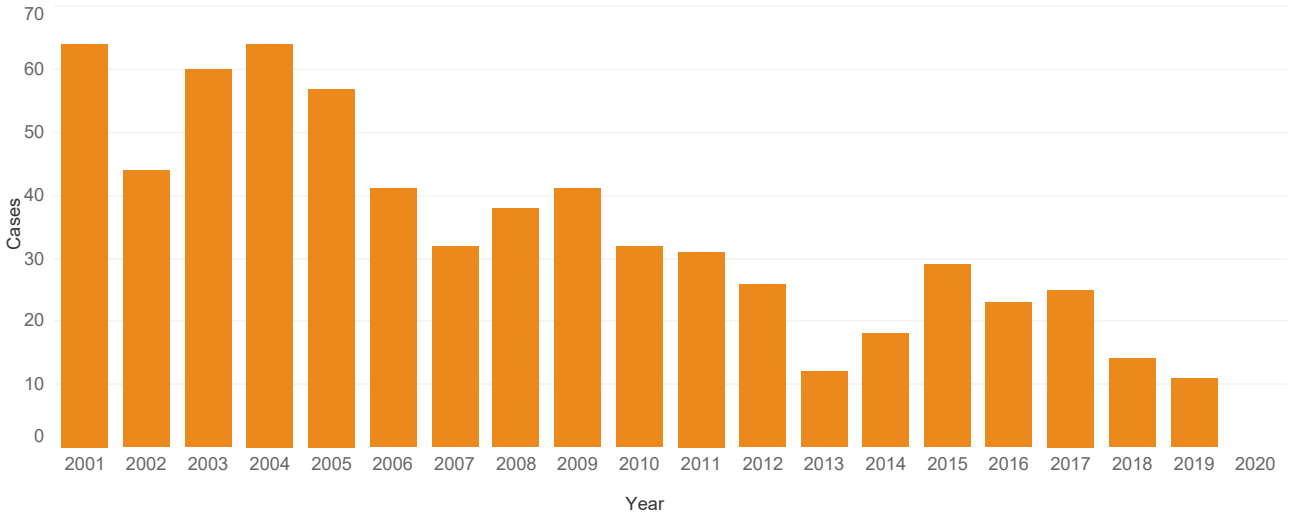
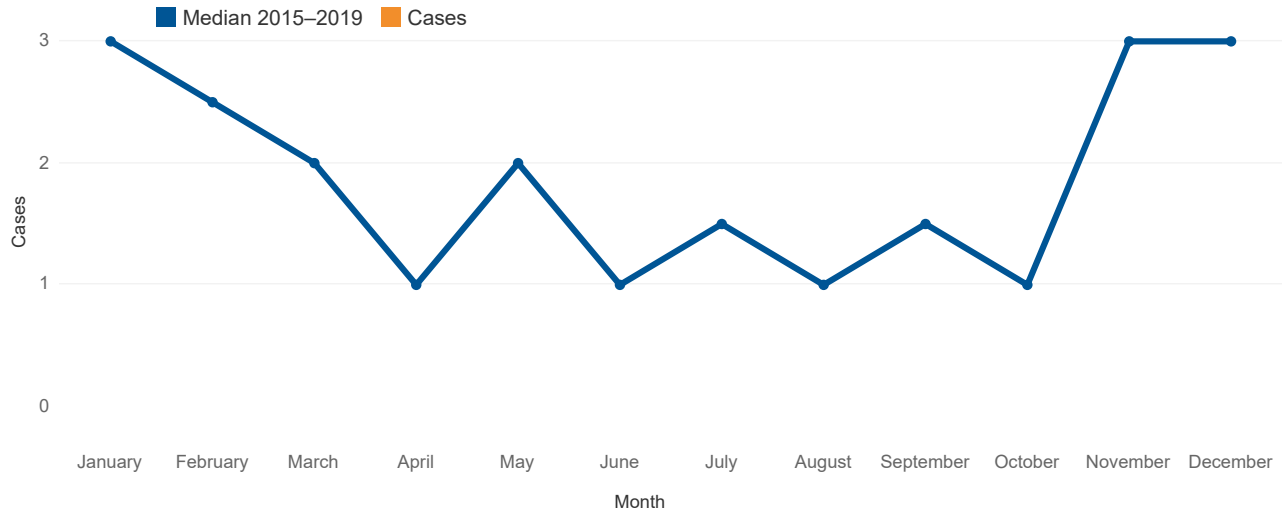
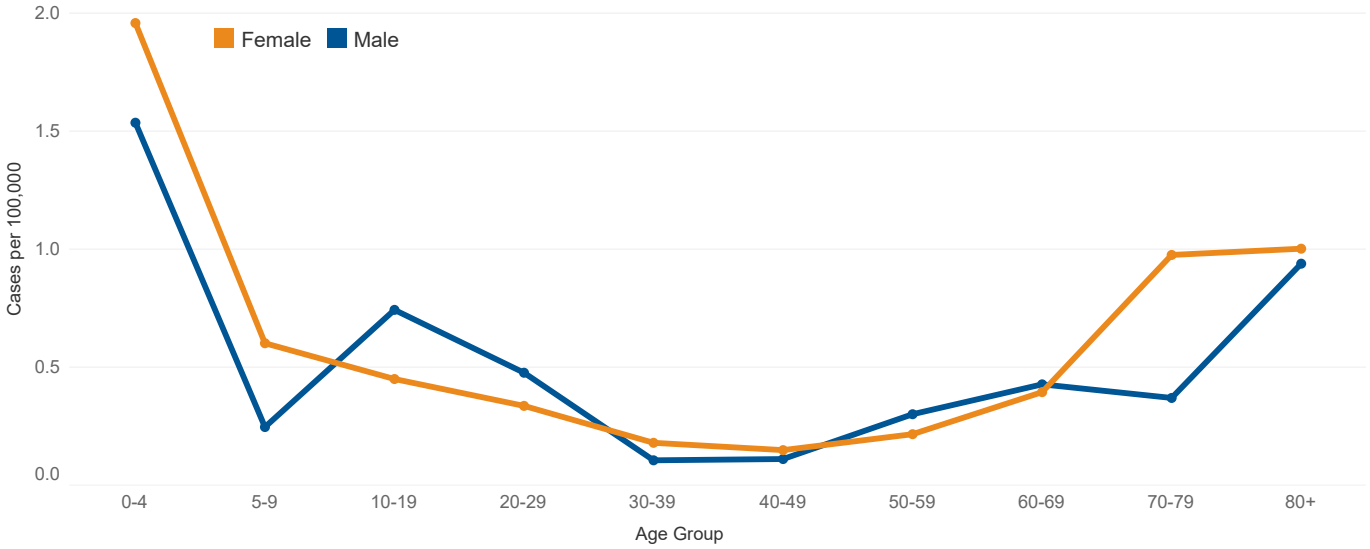
Incidence of meningococcal disease by year: Oregon, 2001–2020



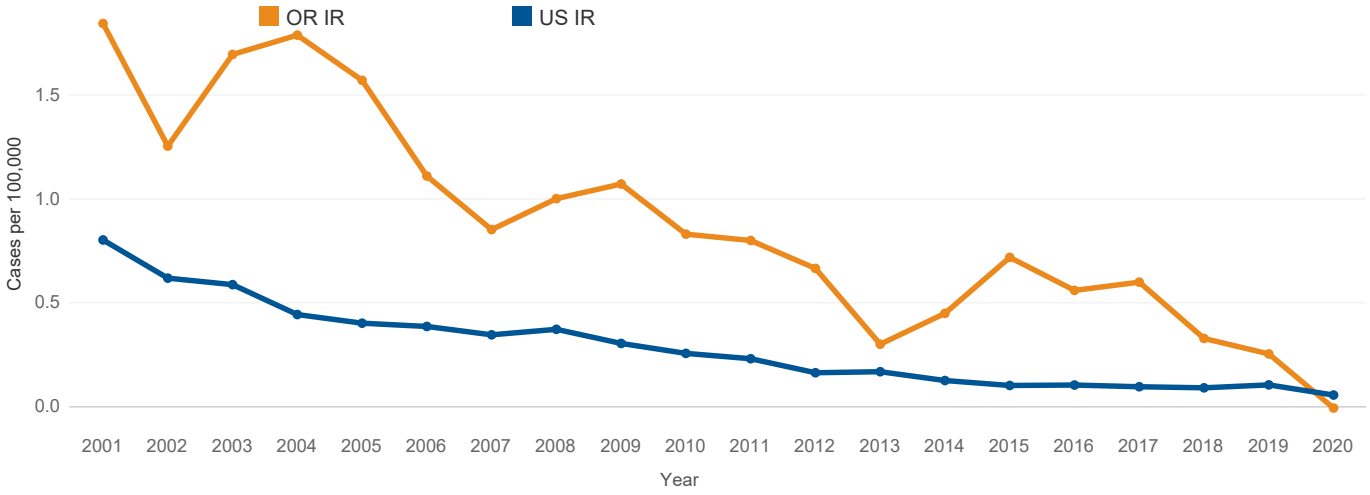
Incidence of meningococcal disease by month: Oregon, 2020



Incidence of meningococcal disease by age and sex: Oregon, 2011–2020

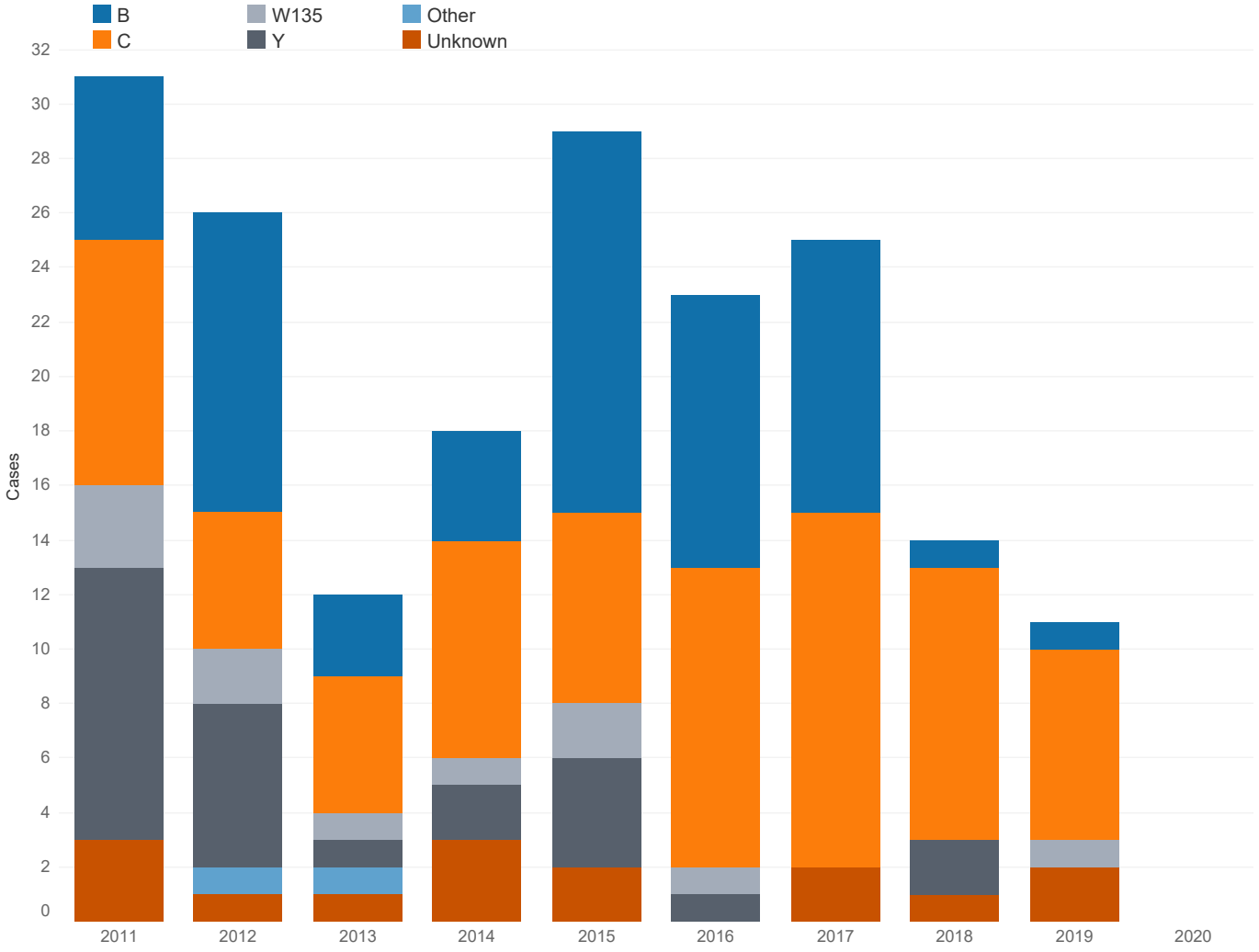


Incidence of meningococcal disease: Oregon vs. nationwide, 2001–2020

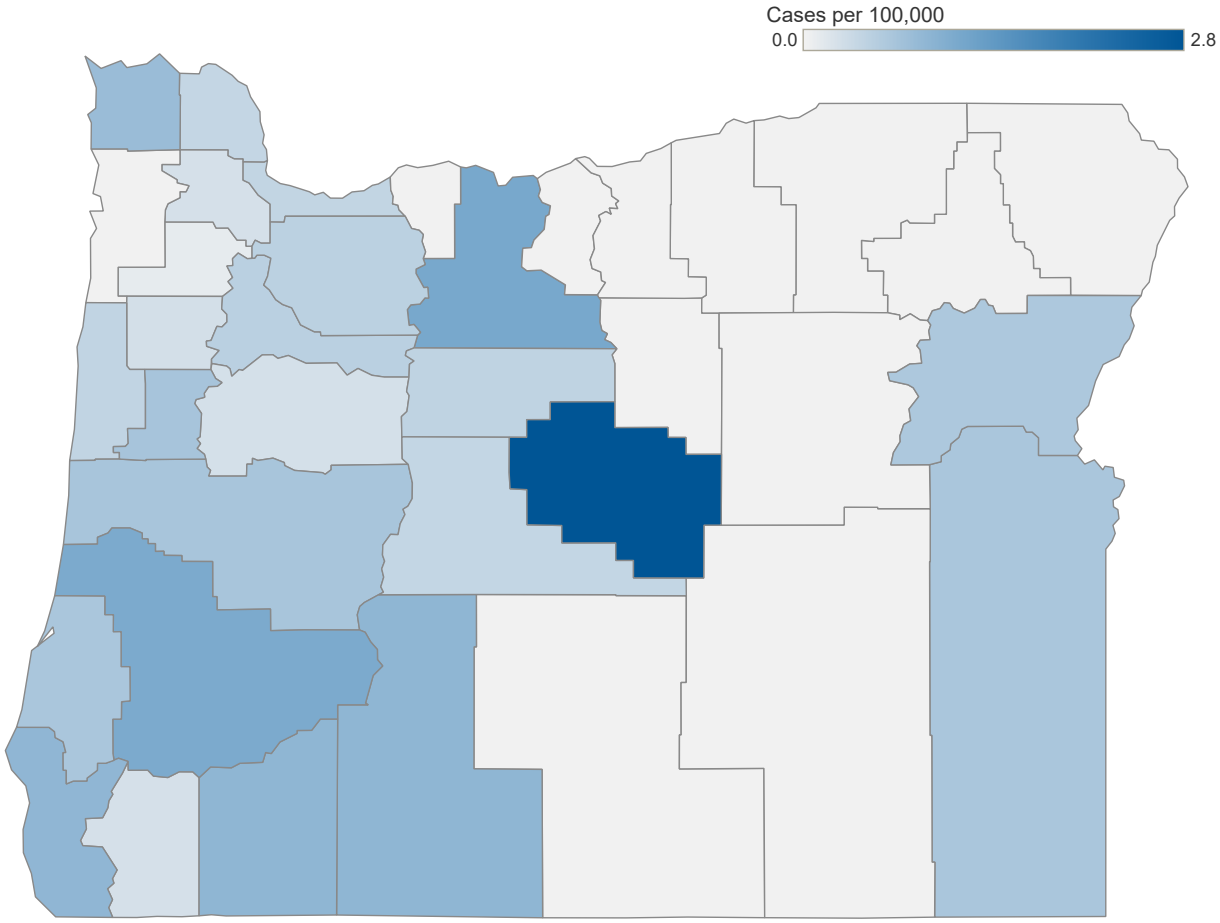


Meningococcal disease by year and serogroup: Oregon, 2011–2020

Select a serogroup(s) to view:
All



Incidence of meningococcal disease by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Vaccinate to prevent illness from serogroups A, C, Y, W-135 per ACIP guidelines.
- Vaccinate to prevent illness from serogroup B per ACIP guidelines.
- Identify and recommend prophylaxis of close contacts of confirmed and presumptive cases.
- Avoid exposing children to tobacco smoke. These behaviors have been associated with an increased risk of invasive meningococcal disease in children.

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Mumps

Mumps is an acute viral illness characterized by fever and swelling of the salivary glands, typically the parotids. Transmission is generally through respiratory droplets or through direct contact with nasal secretions.

Laboratory diagnosis of mumps in highly vaccinated populations is challenging. Studies have shown negative serologic tests in a person with true mumps as well as a negative RT-PCR if the buccal swab is collected more than three days after parotitis onset. To increase the likelihood of detecting mumps, collecting both serum and buccal swab is recommended from all patients with suspected mumps.

Once an almost universal childhood infection, mumps incidence decreased in the United States with routine childhood vaccination. Reporting of this vaccine-preventable viral infection was discontinued in Oregon in 1981 but, prompted by outbreaks, re-established July 1, 2006.

Two cases were reported in Oregon during 2020. Because as many as 20% of mumps virus infections are asymptomatic, and nearly 50% are associated with nonspecific or primarily respiratory symptoms (with or without parotitis), mumps infections are significantly underreported.

In 2017, 67 cases were reported in Oregon. A total of 39 cases were outbreak-related. Among 25 cases <19 years of age, 15 were up to date on vaccination. Outbreaks can still occur in highly vaccinated communities, particularly in close-contact settings. Two doses of the vaccine are 88% effective at protecting against mumps; one dose is 78% effective. The driving forces for the outbreaks might be a combination of the imperfect vaccine effectiveness, waning immunity, and the intensity of exposure. Still, high vaccination coverage helps limit the size, duration and spread of mumps cases. Also, because of vaccination, complications of mumps (e.g., meningitis, orchitis) have been substantially reduced. Mumps remains endemic, and vaccination is the best prevention.

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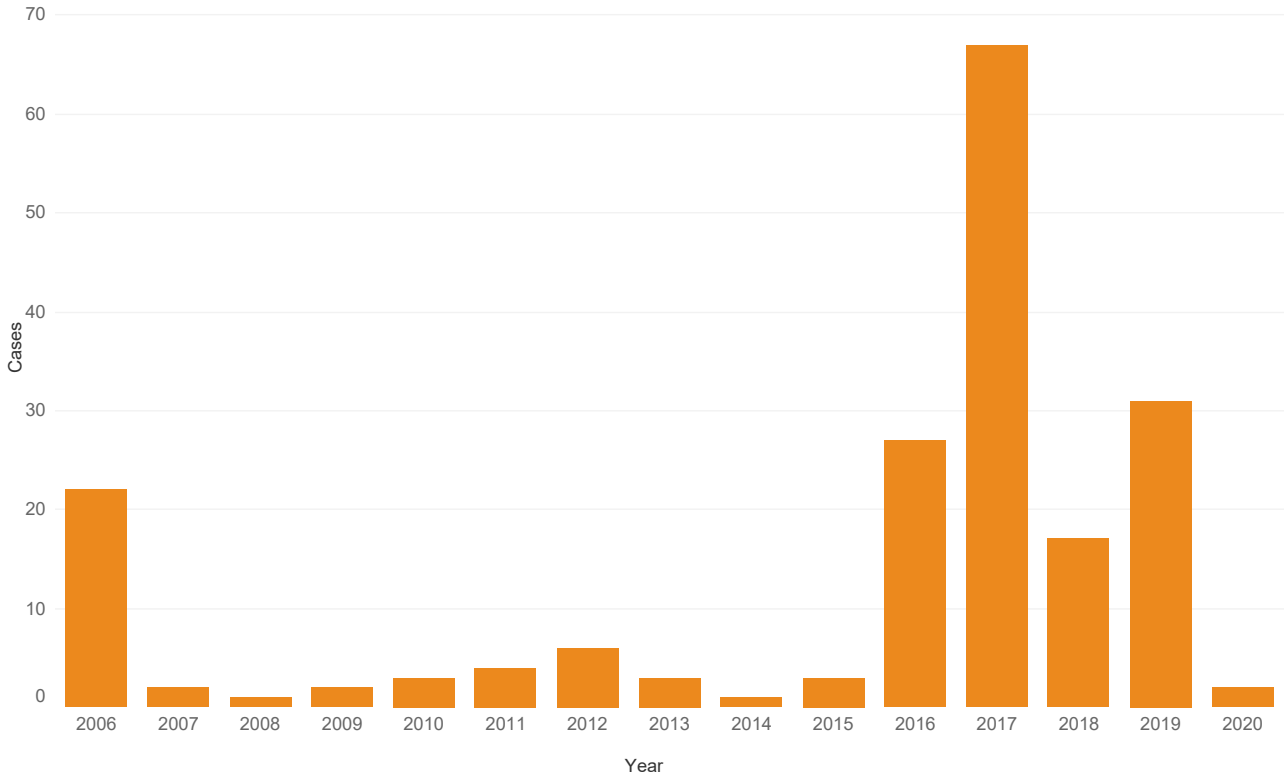
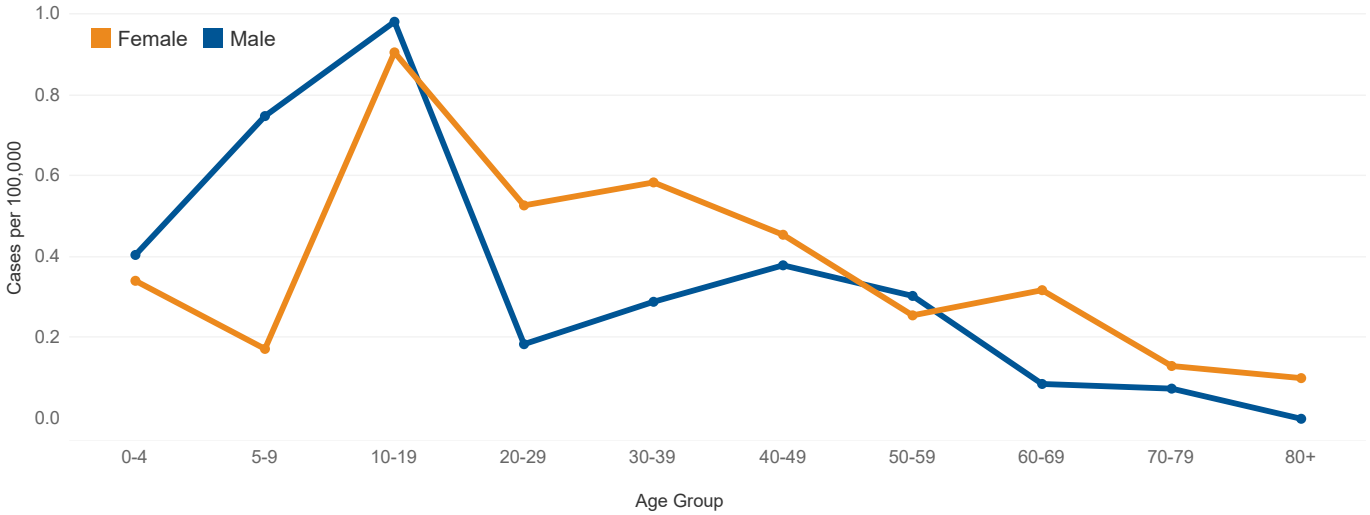
Incidence of mumps by year: Oregon, 2006–2020

Mumps was re-established as a reportable disease in Oregon in 2006.



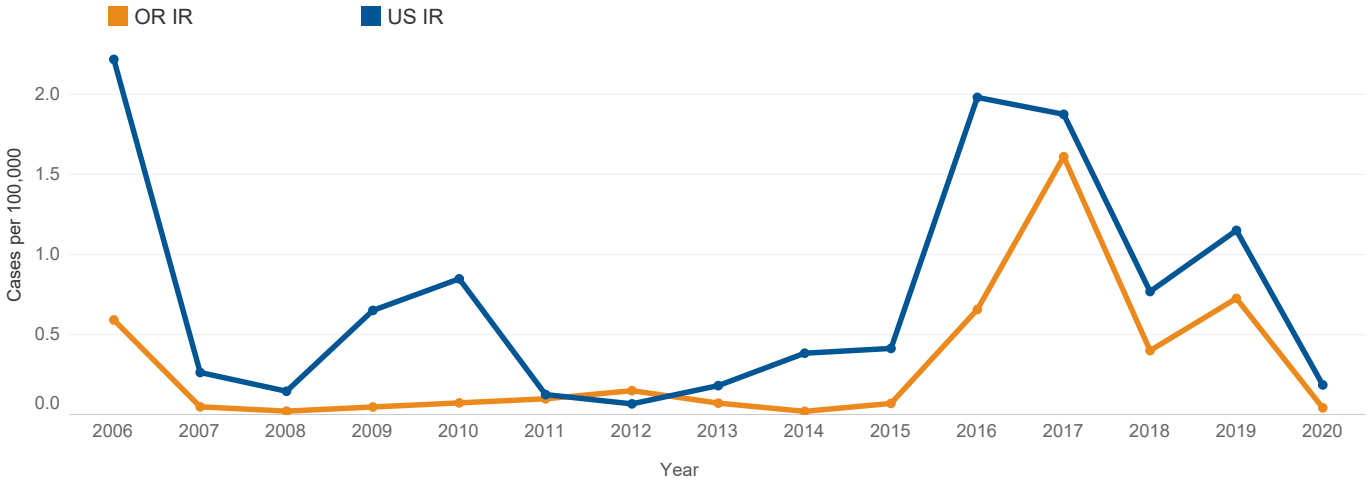
Disease overview | Incidence by year | Incidence by age and sex and in OR vs. U.S. | Disease prevention

Incidence of mumps by age and sex: Oregon, 2011–2020



Incidence of mumps: Oregon vs. nationwide, 2006–2020

Mumps was re-established as a reportable disease in Oregon in 2006.



Prevention

- One dose of vaccine (as MMR) for all children at 12–15 months of age.
- A second dose (as MMR) for school-age children and for adults at high risk of mumps exposure (e.g., health care personnel, international travelers and students at post-high school educational institutions.
- One dose of vaccine (as MMR) for all other persons born during or after 1957 who are not at high risk of mumps exposure.

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Pertussis

Pertussis is a highly contagious, acute respiratory infection caused by the bacterium *Bordetella pertussis*. It is transmitted from person to person through contact with respiratory secretions (i.e., droplet transmission). The disease is most severe in infants and young children, many of whom suffer the intense fits of coughing that may end with an inspiratory "whoop." Although the disease is generally less severe in older persons, any infected person can transmit the disease to other susceptible persons, including unimmunized or incompletely immunized infants.

Despite high childhood immunization coverage, pertussis remains endemic in the United States, with epidemics every few years. In 2012, Oregon experienced a pertussis epidemic with the most cases (910) seen in a single year since 1953.

During 2013–2020, 3,016 cases have been reported here — an average of 377 per year. In 2020, there were 165 reported cases of pertussis in Oregon. Because pertussis often goes undiagnosed in adolescents and adults, it is likely that the actual number of cases greatly exceeds the number reported.

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Pertussis incidence has been increasing in recent years among adolescents and adults. Since 2003, 57% of pertussis cases reported in Oregon have been in persons ≥10 years of age. The year 2015 was also noteworthy for a historically high proportion of reported pertussis cases among older teenagers. Immunity wanes with time, so adolescents and adults need a Tdap booster dose, both to protect themselves and to avoid spreading it to vulnerable infants. All persons ≥10 years of age who have not already received Tdap are advised to get a single dose.

Infants with pertussis are also the most likely to suffer complications and death. Since 2003, 260 (33%) of the 793 infants diagnosed with pertussis in Oregon have been hospitalized and five have died.

Vaccination of pregnant women so they can develop antibodies to pertussis and pass them to their babies before birth, has proved highly effective in preventing pertussis in infants — particularly those too young to be vaccinated. For these reasons, women should receive Tdap during each pregnancy, preferably at 27–36 weeks gestation, to protect their newborns. Vaccination of health care workers is also strongly encouraged. Children need a series of five DTaP vaccinations before kindergarten, starting at two months of age. Although vaccine-induced immunity wanes over time, previously published Oregon data have demonstrated that at any age, the risk of pertussis is higher among the unvaccinated.

Since 2010, with funding from the Centers for Disease Control and Prevention, Oregon launched the Metropolitan Area Pertussis Surveillance (MAPS) project, with enhanced surveillance for pertussis in Clackamas, Multnomah and Washington counties. Each reported case is investigated extensively and standardized data are collected. These data help guide regional and national public health policy.

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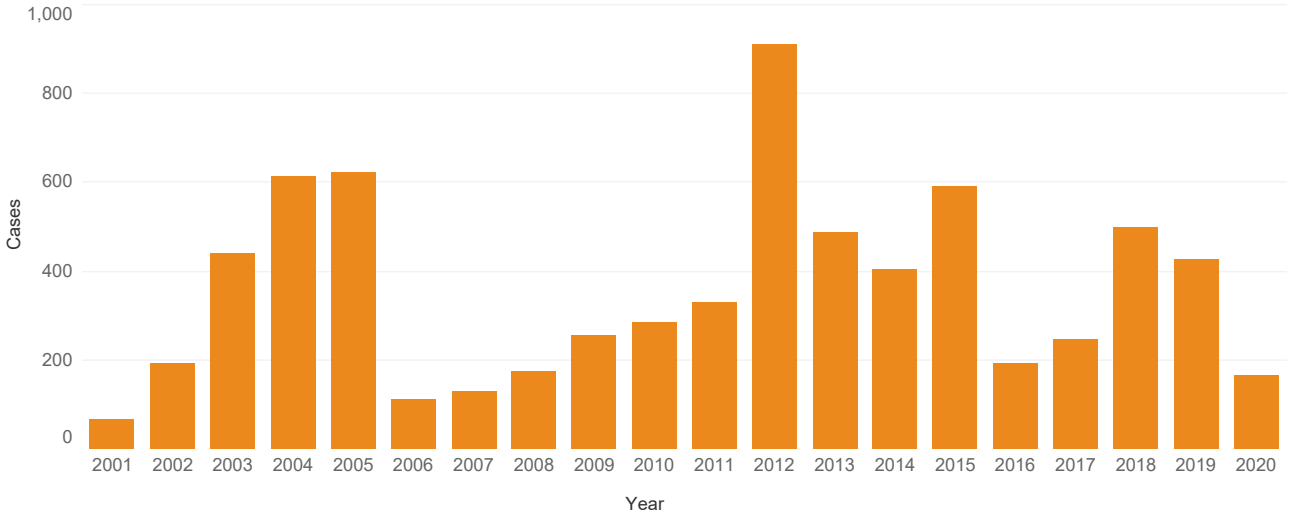
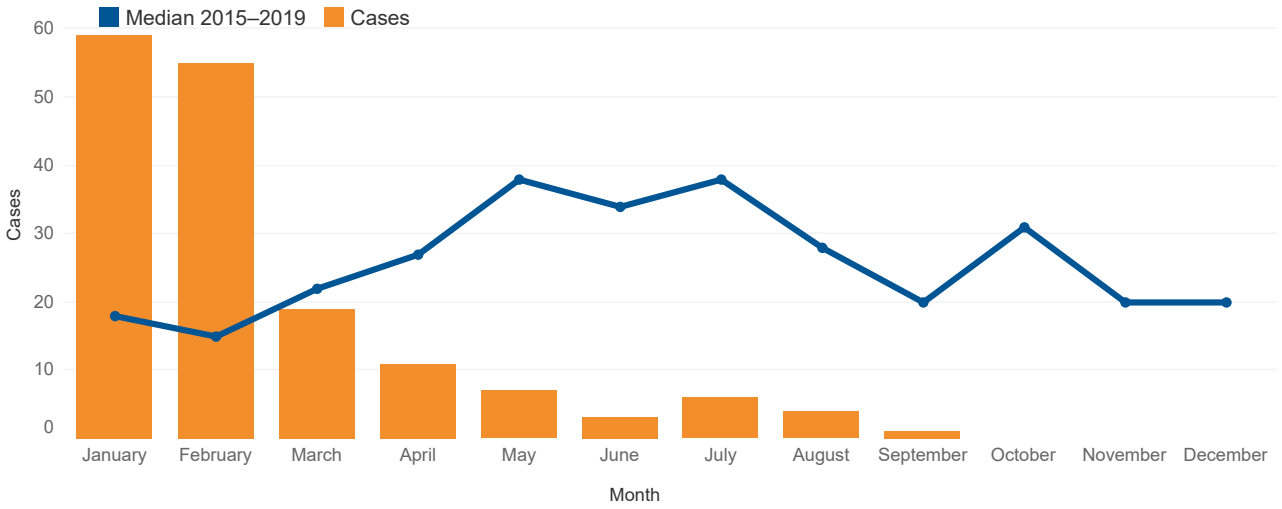
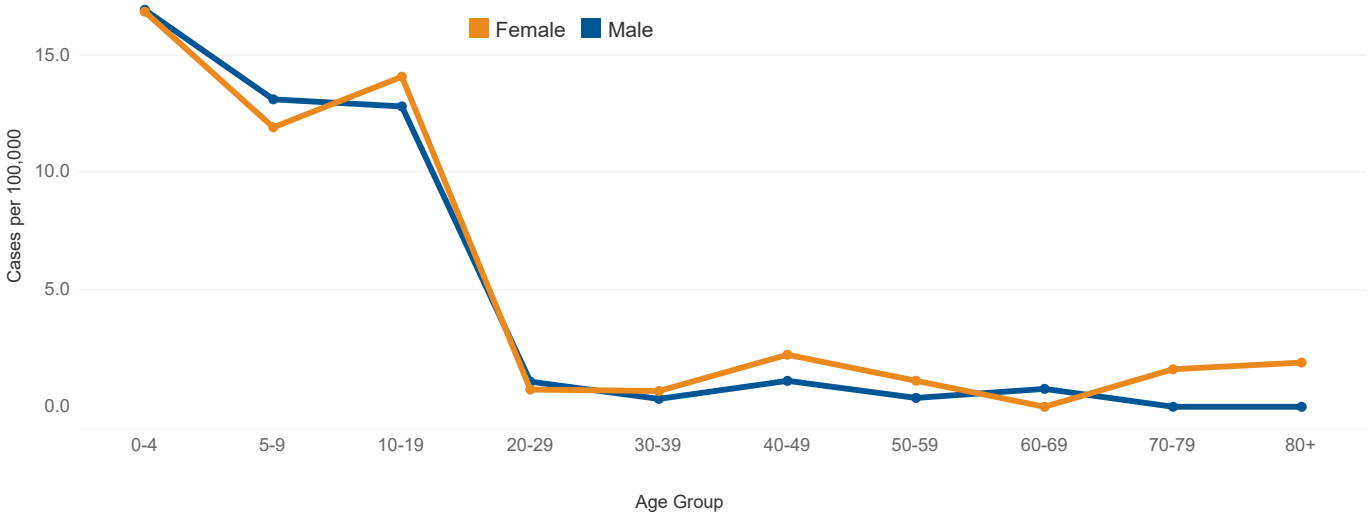
Incidence of pertussis by year: Oregon, 2001–2020



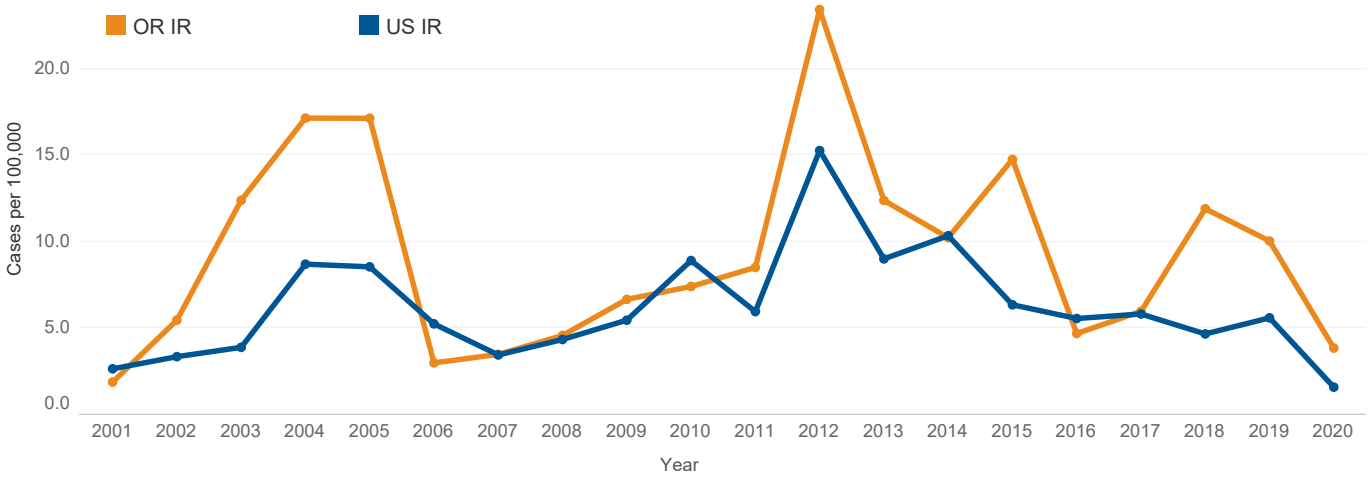
Incidence of pertussis by month: Oregon, 2020



Incidence of pertussis by age and sex: Oregon, 2020



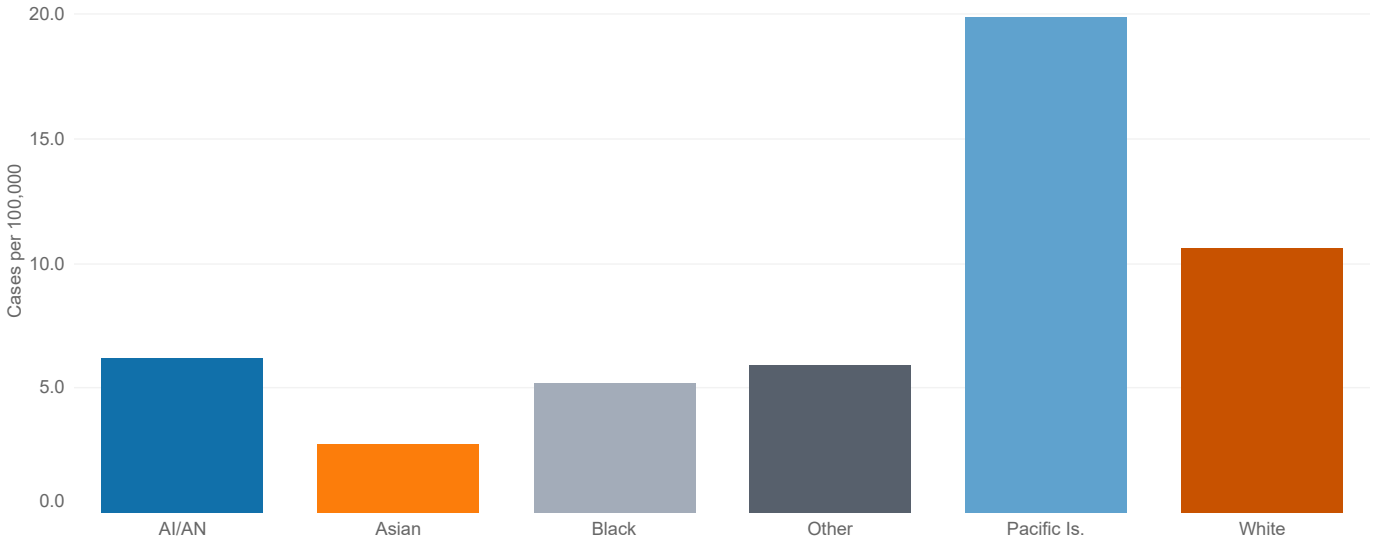
Incidence of pertussis: Oregon vs. nationwide, 2001–2020



Incidence of pertussis by reported race: Oregon, 2011–2020

Select data variable to view
Incidence Rate

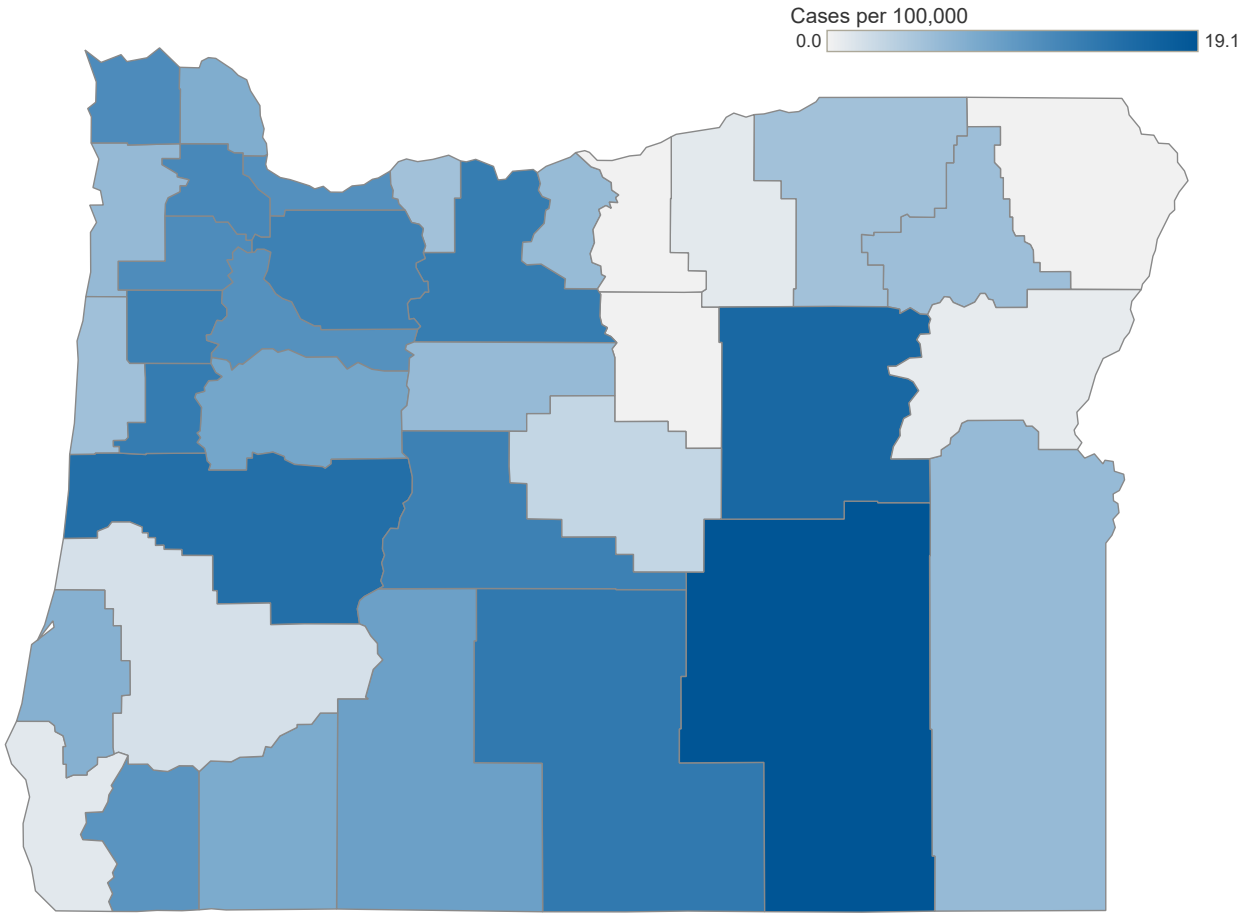
Note: "Other" race includes individuals reporting multiple races.



Incidence of pertussis by reported ethnicity: Oregon, 2011–2020

Note: Rates based on small case counts might be unstable.

Incidence of pertussis by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Immunization is the best way to prevent pertussis.
- All women should receive a Tdap vaccine during the 27th through 36th week of *each* pregnancy, preferably during the earlier part of this time period.
- Cover your cough and wash your hands.
- Keep babies away from anyone who is coughing.
- Refer to the immunization schedules from the Advisory Committee on Immunization Practices (ACIP) for more information.

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Q fever

Q fever is a bacterial infection caused by *Coxiella burnetii*. It can result in acute or chronic illness in humans. It is usually acquired through inhalation of barnyard dust or aerosols contaminated with bacteria from the placentas, body fluids or excreta from infected animals. The bacteria can become airborne and travel for miles. The primary reservoirs are cattle, sheep and goats. Infection may also result from consumption of unpasteurized milk. Veterinarians and sheep, goat and dairy farmers are most at risk.

A host of symptoms can accompany acute Q fever; they include high fever, severe headache, malaise, myalgia, chills, sweats, nausea, vomiting, dry cough, diarrhea, abdominal pain and chest pain. Most people recover from acute Q fever, but some (<5%) develop chronic illness, which often manifests as endocarditis. People with valvular heart disease, pregnant women and people with compromised immune systems are at risk for chronic Q fever after an acute infection. Chronic infection can be treated with long courses of antibiotics.

Q fever reports are rare in Oregon. There were no cases of Q fever reported in Oregon in 2020. Nationally, the number of cases in 2020 was down to 51, following two consecutive years with record high case counts documented in the United States.

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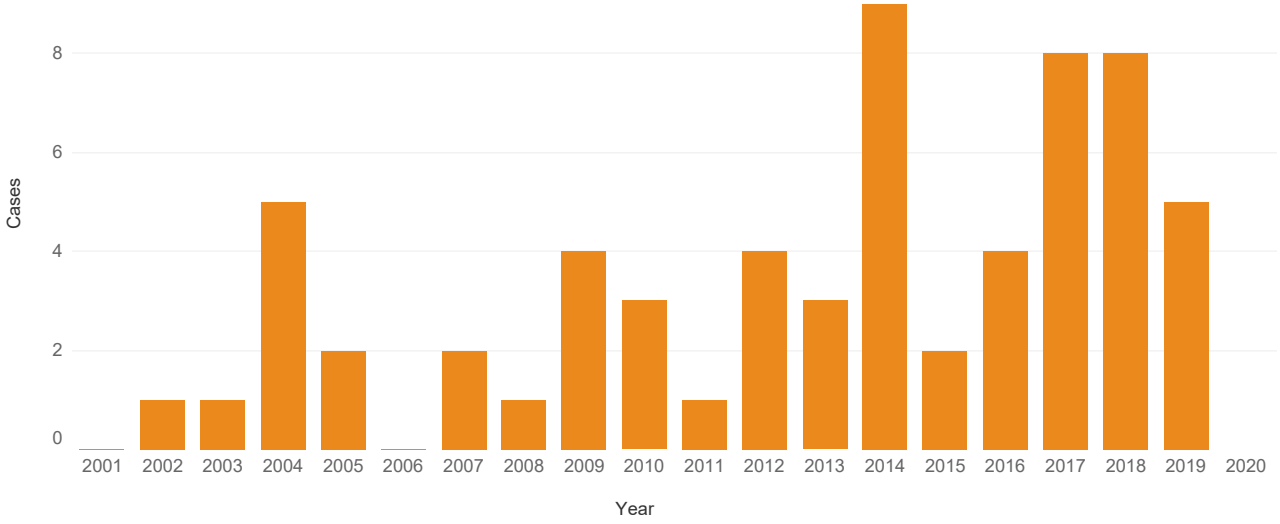
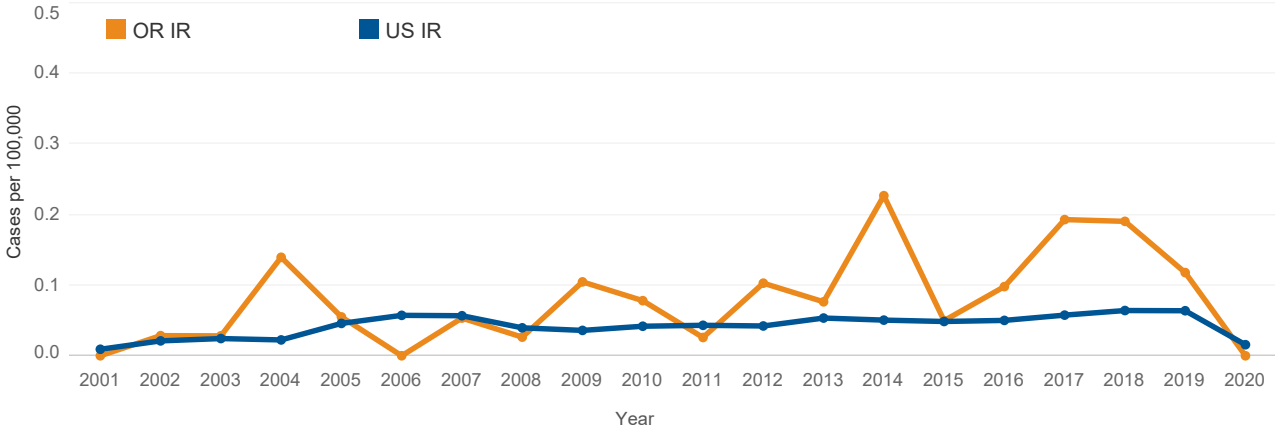
Incidence of Q fever by year: Oregon, 2001–2020



Incidence of Q fever: Oregon vs. nationwide, 2001–2020

Q fever became nationally notifiable in 2000.



Prevention

- Barns and laboratories housing potentially infected animals should have restricted access, and holding facilities for sheep should be located away from populated areas.
- Appropriately dispose of placenta, birth products, fetal membranes, and aborted fetuses at facilities housing sheep and goats.
- Use only pasteurized milk and milk products.

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Rabies

Rabies is an acute infection of the central nervous system caused by a neurotropic rhabdovirus of the genus *Lyssavirus*. All mammals, including humans, are susceptible to rabies. In humans, rabies causes a rapidly progressive and fatal encephalomyelitis. The incubation period in humans is usually 2–12 weeks, but there have been documented incubation periods as long as seven years. Bites from infected animals constitute the primary route of transmission. Transplanted organs, including corneas from patients with undiagnosed rabies, have also caused infection in recipients.

The Pacific Northwest is considered to be free of terrestrial rabies. In Oregon, the main reservoir of rabies is bats. Mammals like foxes and cats may encounter rabid bats, acquire the infection and can transmit it to humans. Since 2000, 8% of the bats tested in Oregon have been positive for rabies. This, of course, is not a random sample of Oregon's bats; rather it represents bats that were neurologically impaired enough to have bitten humans or their pets, and then to have been captured. Any contact between a bat and a human should be evaluated carefully and immediately. All potential human exposures should result in a call to a local public health department office. Testing of an exposing mammal involves killing the animal, removing the head, and sending it to a laboratory for special staining and microscopic examination of brain tissue. Oregon State University's Veterinary Diagnostic Laboratory will test mammals involved in encounters in which there is potential for rabies exposure of either humans or of other mammals. The Oregon State Public Health Laboratory no longer tests animals for rabies.

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In 2020, 15 bats tested positive for rabies. Lane and Marion counties each reported 3 bats positive for rabies. Since the year 2000, Oregon has identified two rabies-positive cats; one in 2015 and one in 2017. Bat rabies variant continues to be responsible for all rabies-positive wildlife cases in Oregon. This implies that there may have been a greater interaction between rabid bats and other wildlife in the state. Despite the low rate, it is important to remember we can only protect pets' health and, in turn, human health through vaccination.

Rabies in humans is 100% preventable through prompt appropriate medical care, beginning with thorough cleaning of the wound. Persons not previously immunized for rabies who are exposed to a rabid animal should be given human rabies immune globulin (HRIG), with as much as possible infiltrated into and around the bite wound(s), and the rest administered intramuscularly. They should also receive four doses of rabies vaccine, one each on days 0, 3, 7 and 14.

Though bats are the reservoir for rabies in Oregon, canine rabies still accounts for most human rabies cases worldwide. Travelers to rabies-enzootic countries should be warned to seek immediate medical care if they are bitten by any mammal.

Additional information and an algorithm for assessment of rabies risk are available on the Communicable Disease website.

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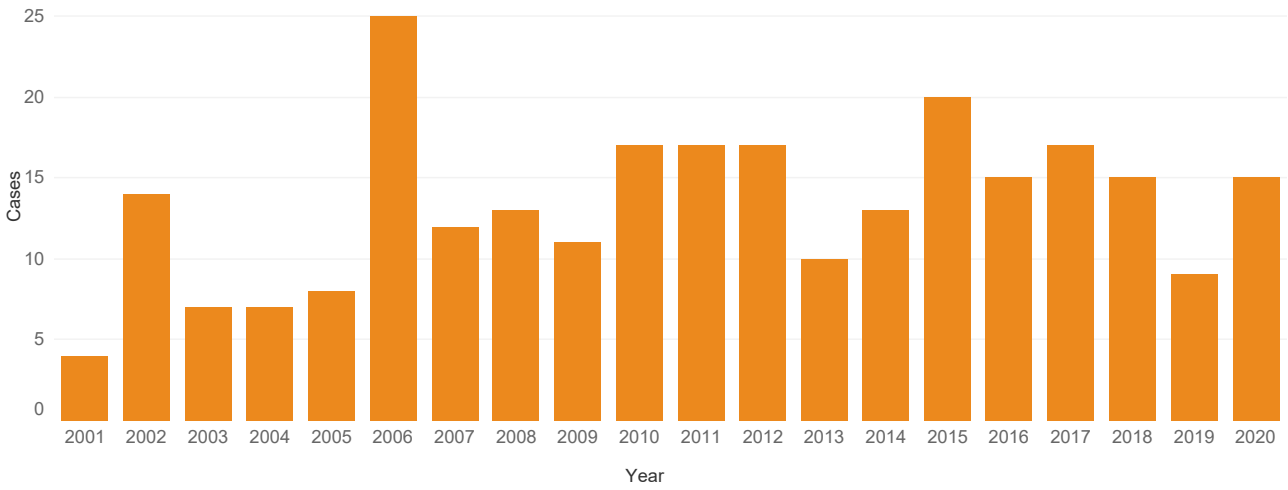
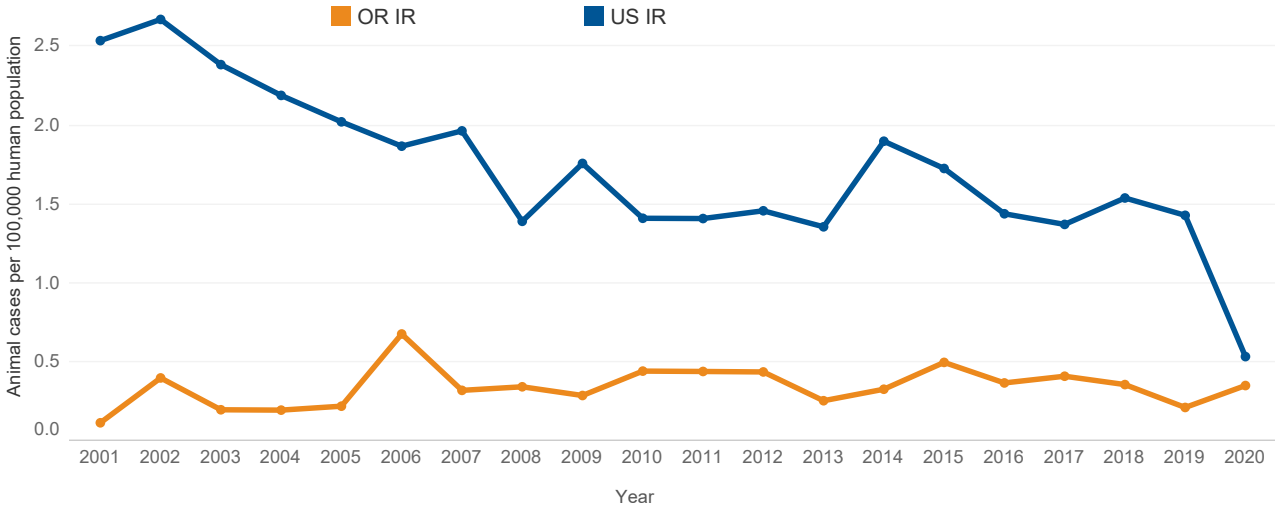
Disease overview | Disease overview (continued) | Incidence by year and in OR vs. U.S. | Rabies testing in animals | Incidence by county | Disease prevention

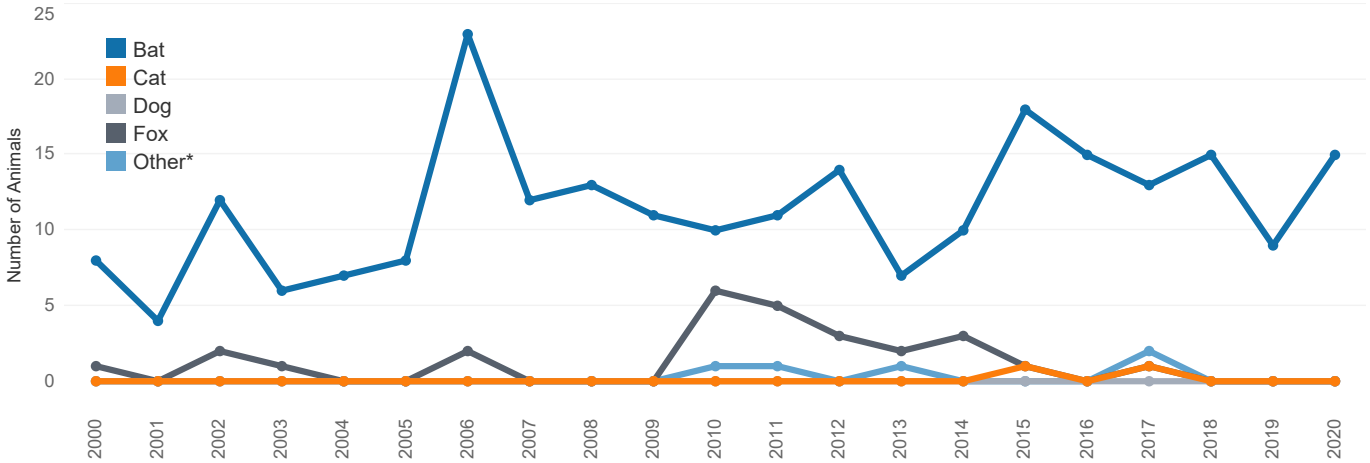
Incidence of animal rabies by year: Oregon, 2001–2020



Incidence of animal rabies: Oregon vs. nationwide, 2001–2020



Animals testing positive for rabies by species and year: Oregon, 2000–2020



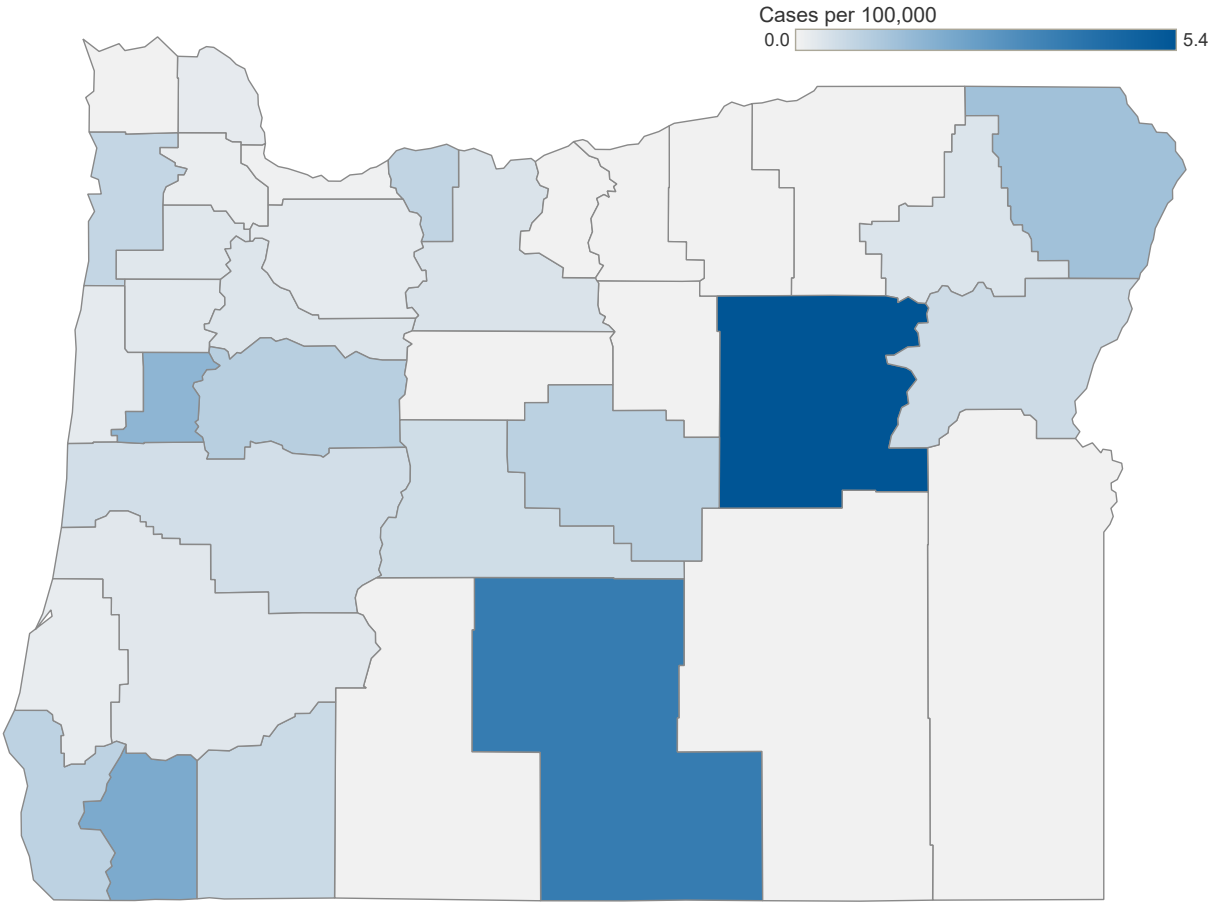
Animal rabies testing in Oregon, 2000–2020 (number of positive/total tested)

	Bat	Cat	Dog	Fox	Other*
Total	241 / 3,027	2 / 1,737	0 / 747	27 / 166	5 / 768
2020	15 / 203	0 / 72	0 / 35	0 / 2	0 / 25
2019	9 / 188	0 / 90	0 / 29	0 / 1	0 / 44
2018	15 / 205	0 / 87	0 / 27	0 / 1	0 / 32
2017	13 / 188	1 / 110	0 / 35	1 / 4	2 / 36
2016	15 / 211	0 / 77	0 / 33	0 / 0	0 / 31
2015	18 / 219	1 / 89	0 / 39	1 / 4	0 / 37
2014	10 / 148	0 / 79	0 / 39	3 / 7	0 / 31
2013	7 / 193	0 / 90	0 / 36	2 / 34	1 / 53

* Other includes 1 positive goat in 2010, 1 positive coyote in 2011 and 2013, and 1 each positive coyote and skunk in 2017.

Note: Due to positive goats and foxes from 2010–2014 there was enhanced surveillance among fox populations from 2010 to 2012 and among other animal populations in 2011.

Incidence of animal rabies by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Keep rabies vaccinations up to date for all pet cats, ferrets and dogs.
- Maintain control of pets by keeping cats and ferrets indoors and keeping dogs under direct supervision.
- Spay or neuter pets to help reduce the number of unwanted pets that may not be properly cared for or vaccinated regularly.
- Call animal control to remove stray animals from your neighborhood because these animals may be unvaccinated or ill.
- Do not handle wildlife, especially bats and foxes.
- Seek medical attention immediately if you are bitten by a bat, fox, or stray cat in Oregon.

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Salmonellosis

Salmonellosis is a bacterial illness characterized by acute abdominal pain, diarrhea and often fever that usually begins one to five days after exposure. Excretion of *Salmonella* may persist for several days or even months beyond the acute phase of illness. Antibiotics are not needed by most patients (the exceptions being those at high risk of invasive infection), and they may increase the duration of excretion.

A wide range of domestic and wild animals can serve as reservoirs of *Salmonella*, including poultry, swine, cattle, rodents, iguanas, tortoises, turtles, snakes, young poultry (e.g., baby chicks), dogs and cats. Most human infections are thought to come from consumption of fecally contaminated food or water, but other environmental exposures may be hard to document and, therefore, underappreciated. Raw or undercooked produce and products of animal origin — such as eggs, milk, meat and poultry — have been implicated as common sources of animal and human salmonellosis. Person-to-person transmission of salmonellosis is well documented, although it occurs less commonly than with other infections, such as *Escherichia coli* O157. The incidence of reported infection is highest among children <5 years of age. In 2020, Oregon's incidence among children <5 years of age was 18 per 100,000.

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In 2020, there were 462 nontyphoidal salmonellosis cases in Oregon; 370 (80%) had lab-confirmed isolates, from which 57 different *Salmonella* serotypes were identified. The number of nontyphoidal cases in 2019 was simliar (460), but a larger portion of these (88%) had lab-confirmed isolates, which is attributable to the high number of presumptive epi-linked cases in 2020 that were associated with a large multistate outbreak of *Salmonella* Newport. If not for that outbreak, the number of nontyphoidal salmonellosis cases in 2020 would have been considerably lower.

Of approximately 2,500 known serotypes, only about 200 are detected in the United States in any given year. In Oregon, *S.* Enteritidis and *S.* Typhimurium have historically been the most common serotypes, comprising 14% and 10% of all lab-confirmed nontyphoidal *Salmonella* isolates in 2020, respectively. Due to a large outbreak of *Salmonella* Newport, this serotype accounted for the largest proportion of lab-confirmed nontyphoidal *Salmonella* isolates (33%) in 2020. Forty-nine percent of cases were sporadic, 46% were associated with an outbreak, and 4% had documented transmission within a household.

Four outbreaks of salmonellosis were investigated in 2020, which accounted for 213 Oregon cases. Two outbreaks were classified as foodborne, one as associated with animal contact and one had an unknown mode of transmission. The largest of these outbreaks, with 174 Oregon cases, was part of the multistate *Salmonella* Newport outbreak associated with consumption of onions. Another multistate outbreak, which included a total of 31 Oregon cases, involved multiple serotypes (e.g, Agona, Enteritidis, Hadar, Infantis, and Typhimurium) and was associated with contact with nationally distributed live poultry.

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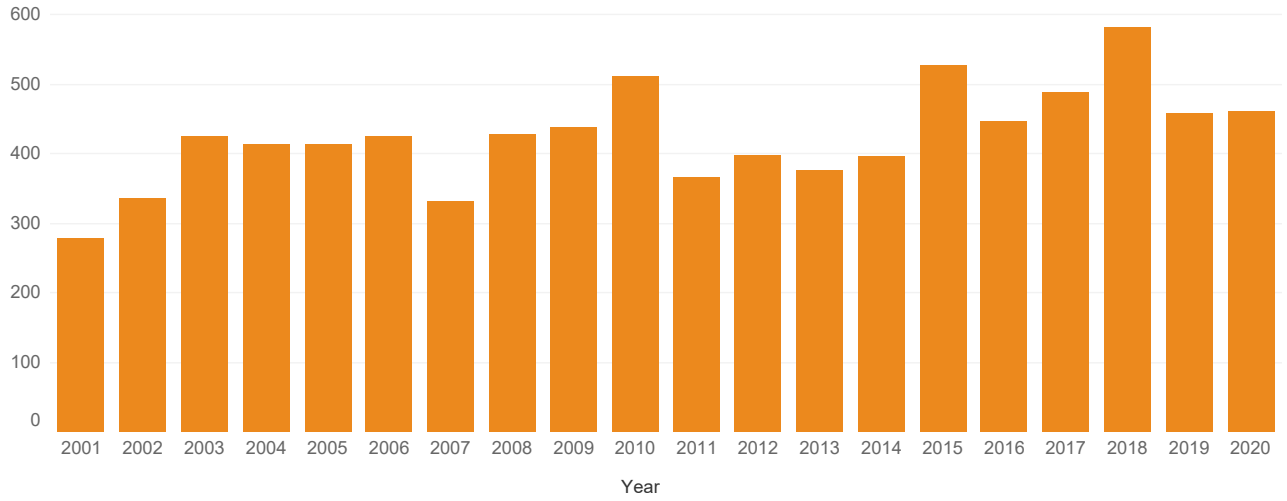
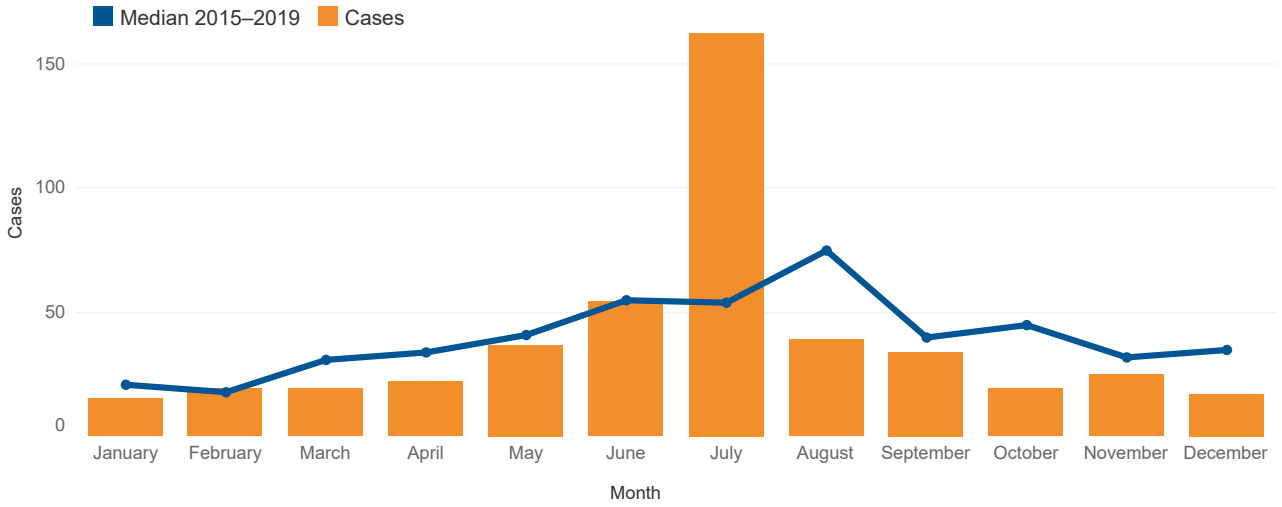
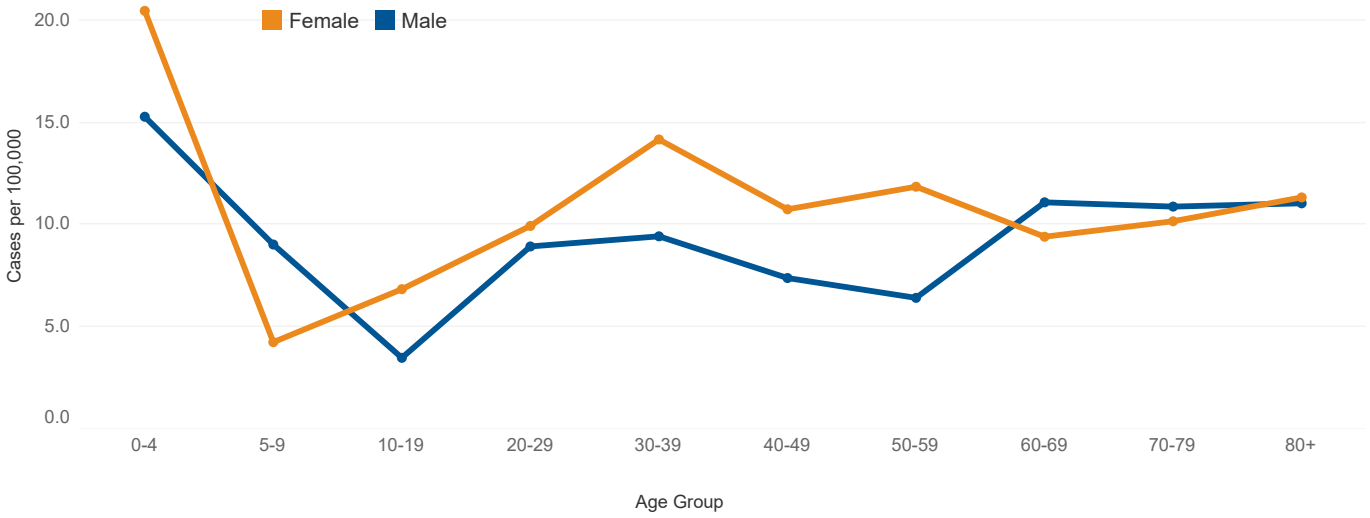
Incidence of salmonellosis by year: Oregon, 2001–2020



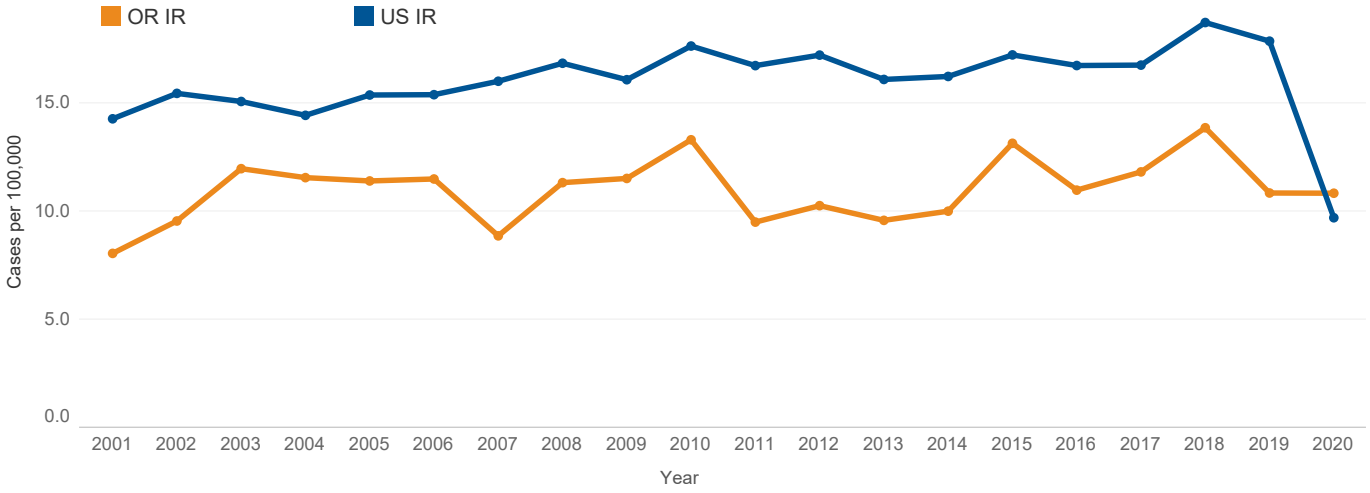
Incidence of salmonellosis by month: Oregon, 2020



Incidence of salmonellosis by age and sex: Oregon, 2020



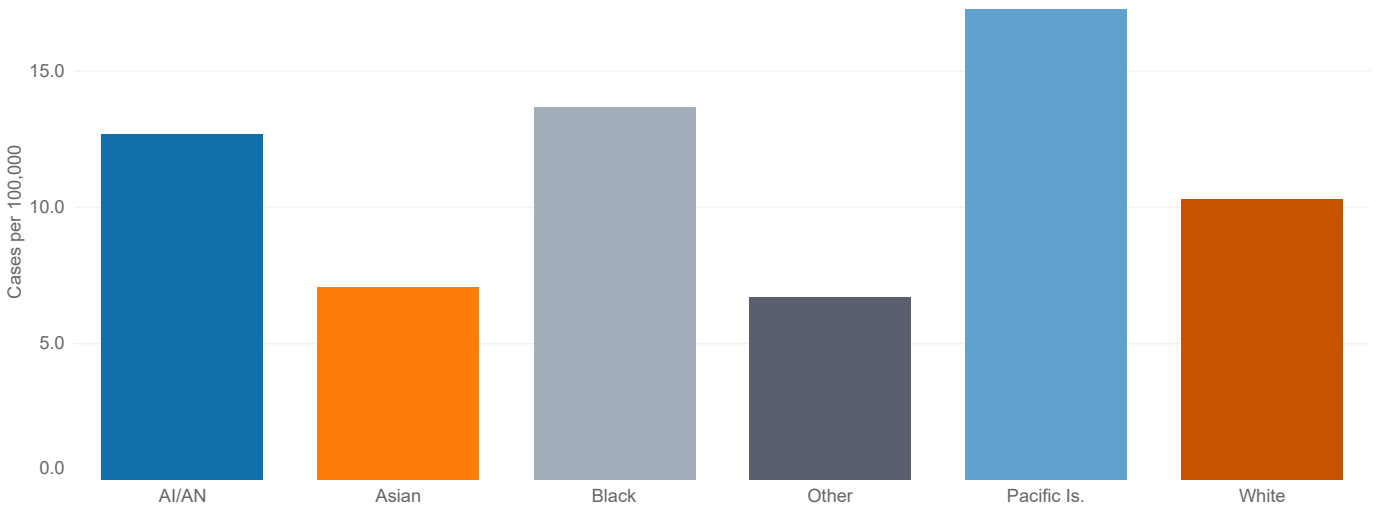
Incidence of salmonellosis: Oregon vs. nationwide, 2001–2020



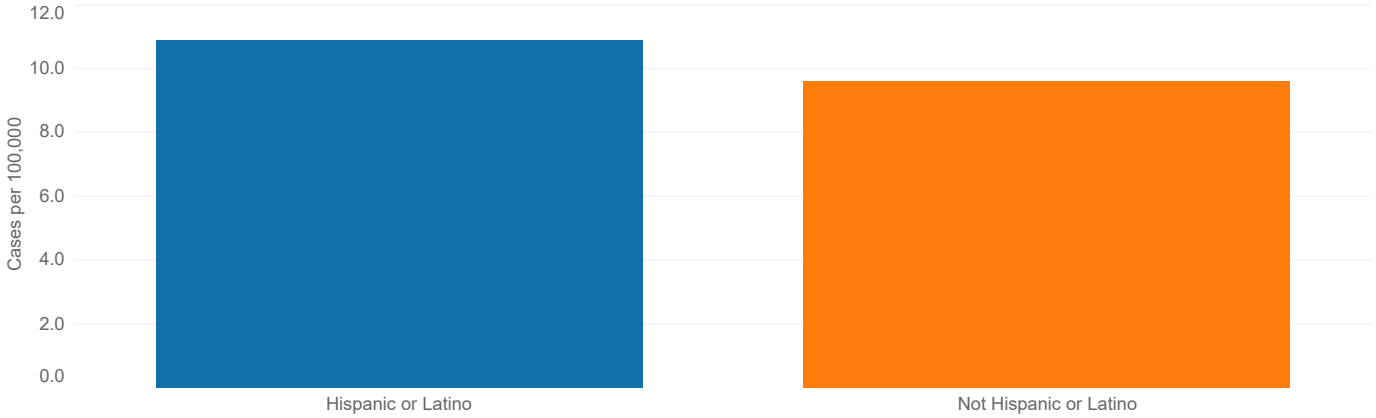
Incidence of salmonellosis by reported race: Oregon, 2011–2020

Select data variable to view
Incidence Rate

Note: "Other" race includes individuals reporting multiple races.

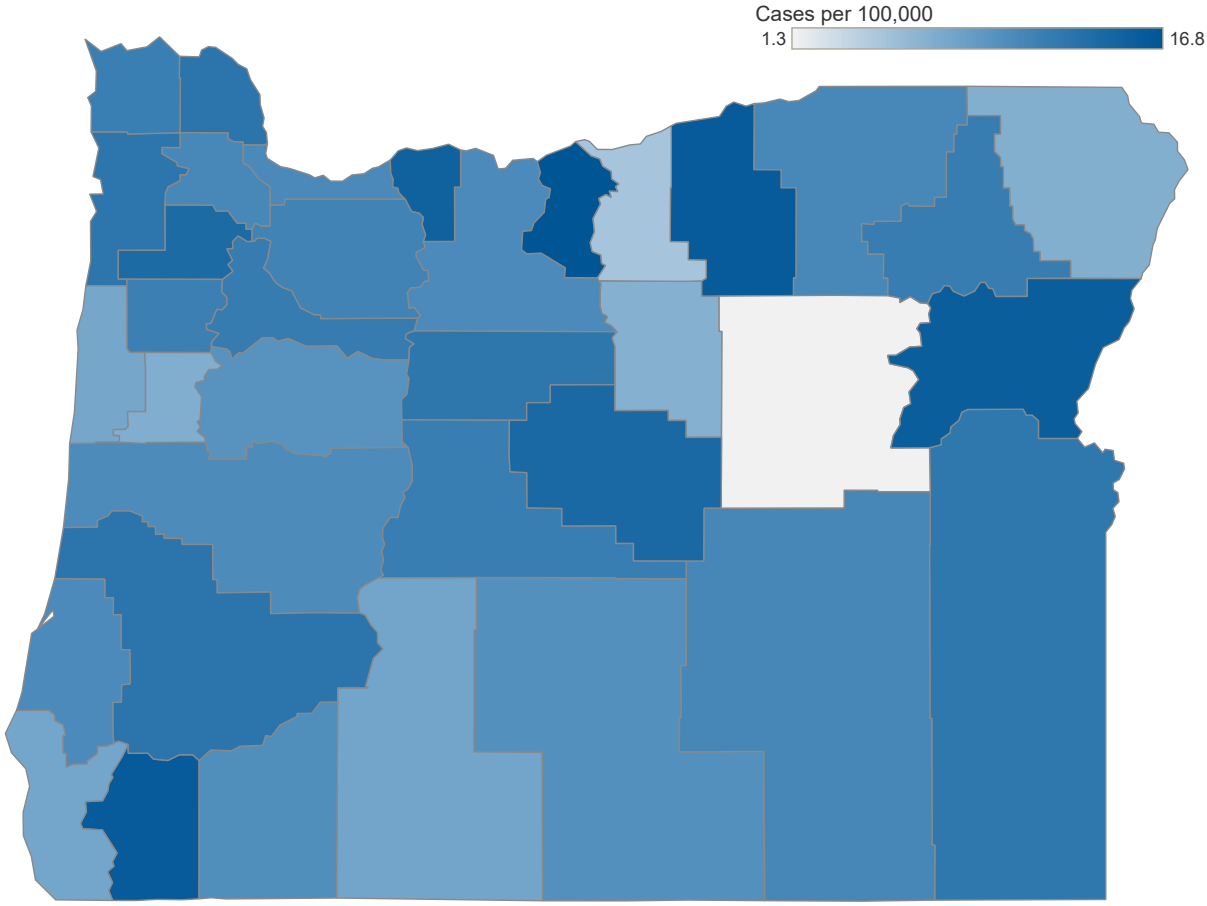


Incidence of salmonellosis by reported ethnicity: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

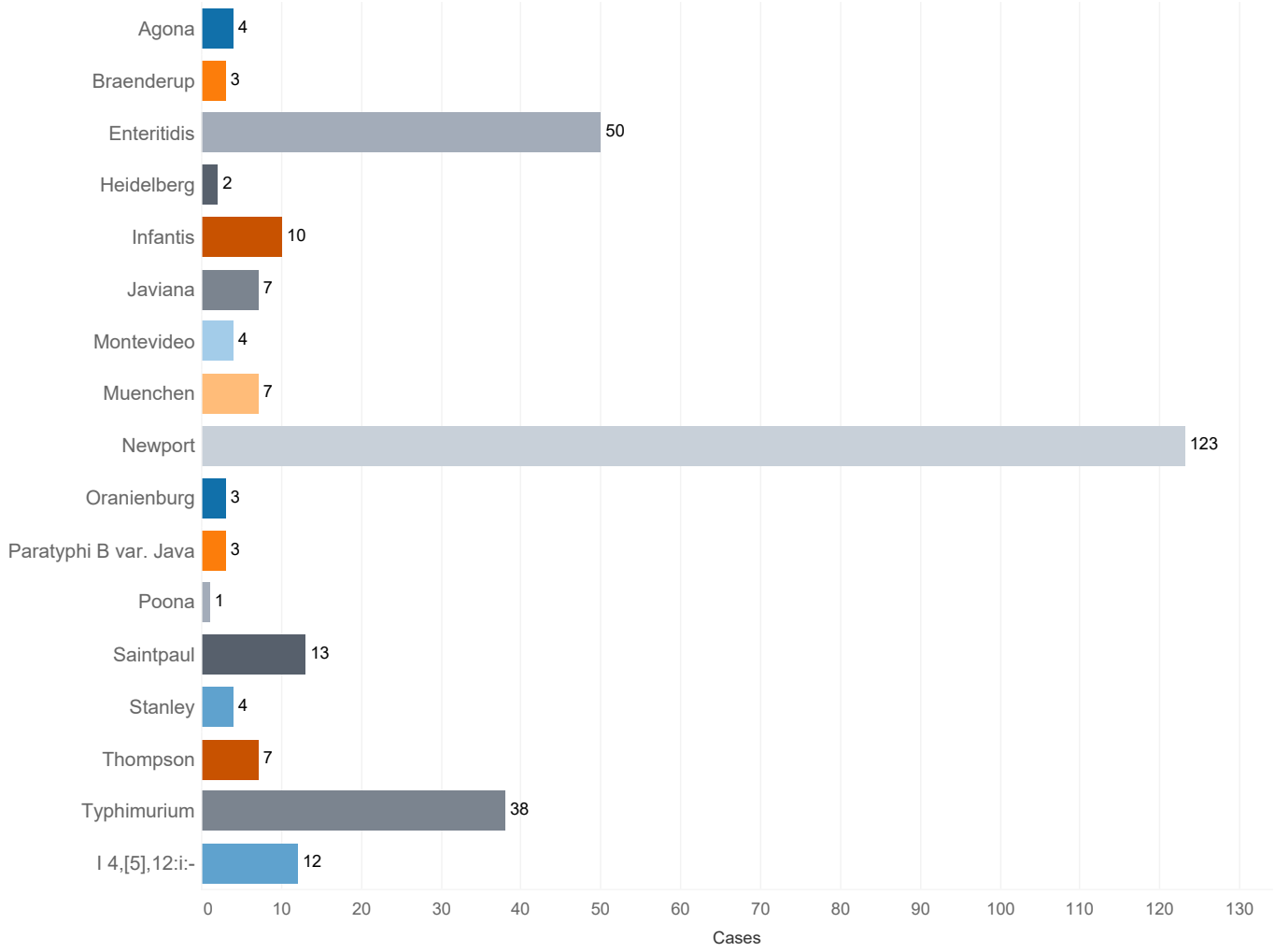
Incidence of salmonellosis by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Selected* salmonellosis cases by serotype, Oregon, 2020

Hover over a bar in the chart to view historical data for that serotype.



*Selected because at least one case was reported in 2019 and it is a more common serotype.

Prevention

- Cook poultry, ground beef and eggs thoroughly.
- Do not eat or drink food containing raw eggs or raw (unpasteurized) milk.
- If you are served undercooked meat, poultry or eggs in a restaurant, send it back to the kitchen for further cooking.
- Wash hands, kitchen work surfaces and utensils with soap and warm water immediately after they have been in contact with raw meat or poultry.
- Be particularly careful with foods prepared for infants, the elderly and the immunocompromised.
- Wash hands with soap and warm water after handling reptiles, birds or baby chicks, and after contact with pet feces.
- Avoid direct or even indirect contact between reptiles (turtles, iguanas, other lizards, snakes) and infants or immunocompromised persons.
- Don't work with raw poultry or meat and an infant (e.g., feeding or changing diaper) at the same time.

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Shigellosis

Shigellosis is an acute bacterial infection characterized by (sometimes bloody) diarrhea, vomiting, abdominal cramps and, often, fever. In Oregon, shigellosis is typically caused by *S. sonnei* or *S. flexneri*. The other species — *S. boydii* and *S. dysenteriae* — are more common in developing countries. Humans are the only known reservoir. Shigellosis is transmitted from person to person, and just a few organisms can cause illness. The incidence of shigellosis typically peaks in late summer and fall. Treatment reduces duration of illness and, importantly, the period of communicability. However, the organism has become resistant to many antibiotics used for empiric therapy; for example, high levels of resistance to ampicillin and trimethoprim/sulfamethoxazole have been found in Oregon. Testing for antibiotic susceptibility is important for treatment.

Outbreaks in daycare centers are common, mainly due to the poor hygienic practices of small children. Houseless populations in Oregon also experience outbreaks of shigellosis more frequently. Hand washing is the most important means of prevention.

After a historic low of 50 cases in 2014, the number of cases jumped to 113 in 2015 and has remained high since with 192 cases reported in Oregon in 2020. Of these 192 cases, 101 were *S. sonnei*, 35 were *S. flexneri* and 1 was *S. boydii.* The species of *Shigella* is not known for many cases due to the use of culture-independent diagnostic testing.

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The rate of shigellosis has historically been highest among children 1–4 years of age. Incidence rates shifted away from this trend in 2020, when the rate of shigellosis in Oregon was relatively high among adult males. This shift was largely driven by outbreak-associated cases. The highest incidence occurred among men 50–59 years of age (10.6 per 100,000) followed by those 30–39 years of age (9.8 per 100,000). Compared to adult females, adult males were more likely to report a history of homelessness in the week before illness (21.2%) as well as participating in oral-anal sexual contact (20.4%).

There are clear racial disparities in the incidence of shigellosis in Oregon during the past decade, with individuals identifying as Native Hawaiian or Other Pacific Islander (11.3 per 100,000), as Hispanic or Latino (4.9 per 100,000) and as Black or African American (4.8 per 100,000) experiencing a relatively higher burden of disease.

Four outbreaks of *Shigella* were investigated in 2020: one was foodborne, two were the result of person-to-person transmission, and the mode of transmission could not be determined in one investigation. The largest outbreak included 84 Oregonians with lab-confirmed cases of *Shigella sonnei.* A majority of the cases in the outbreak reported experiencing houselessness, unstable housing, acessing houseless services, or working with houseless populations. Outbreaks of *Shigella* among populations experiencing houselessness can be exacerbated by a lack of access to basic hygiene, sanitation resources, and medical care. No specific geographical area or common source of exposure was identified in the course of the investigation.

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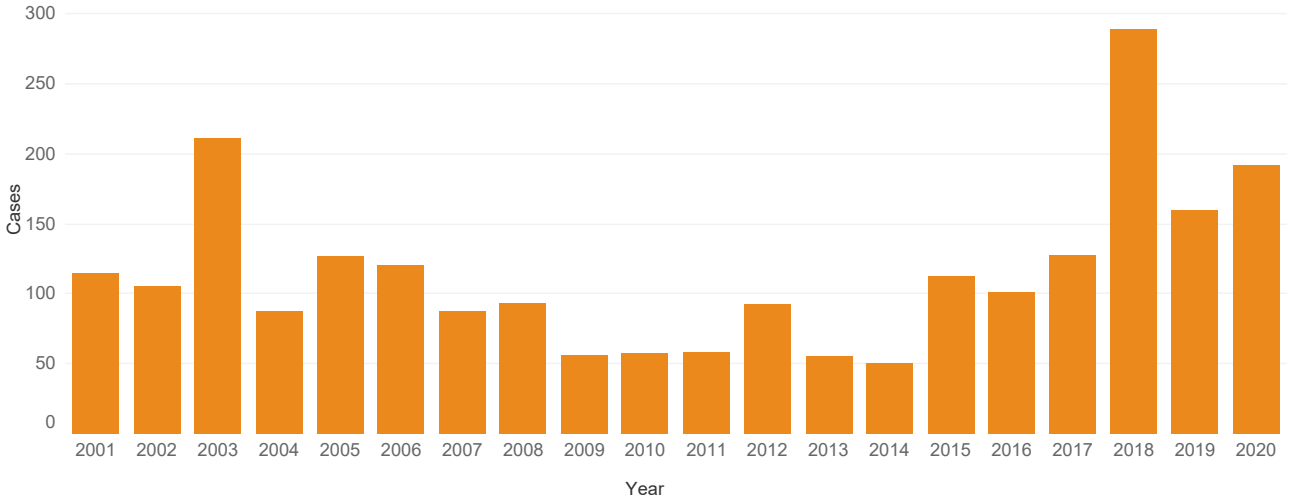
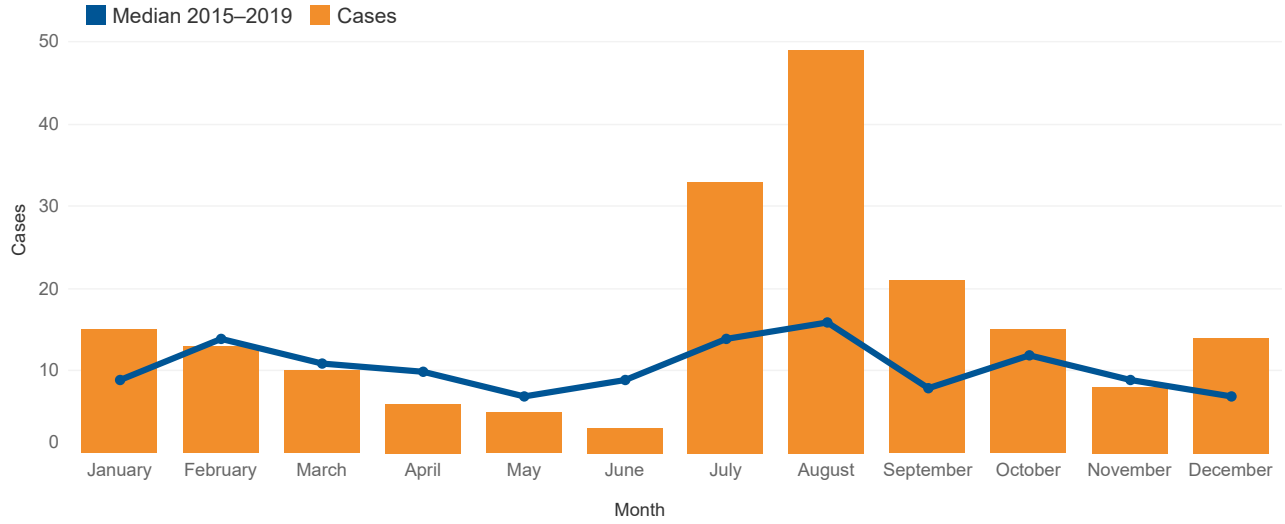
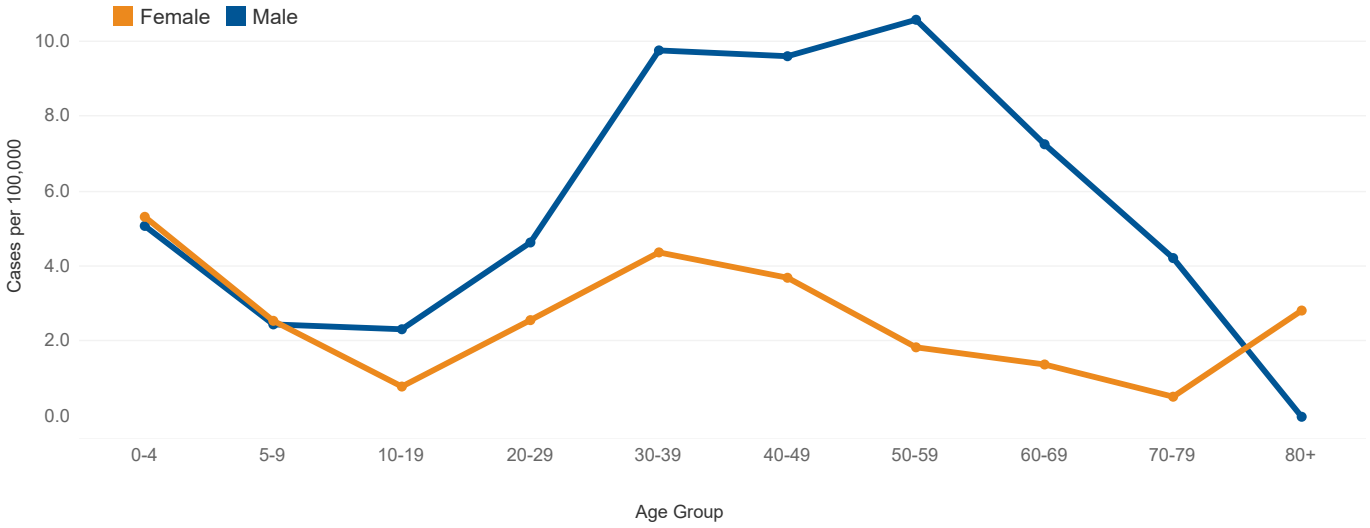
Incidence of shigellosis by year: Oregon, 2001–2020



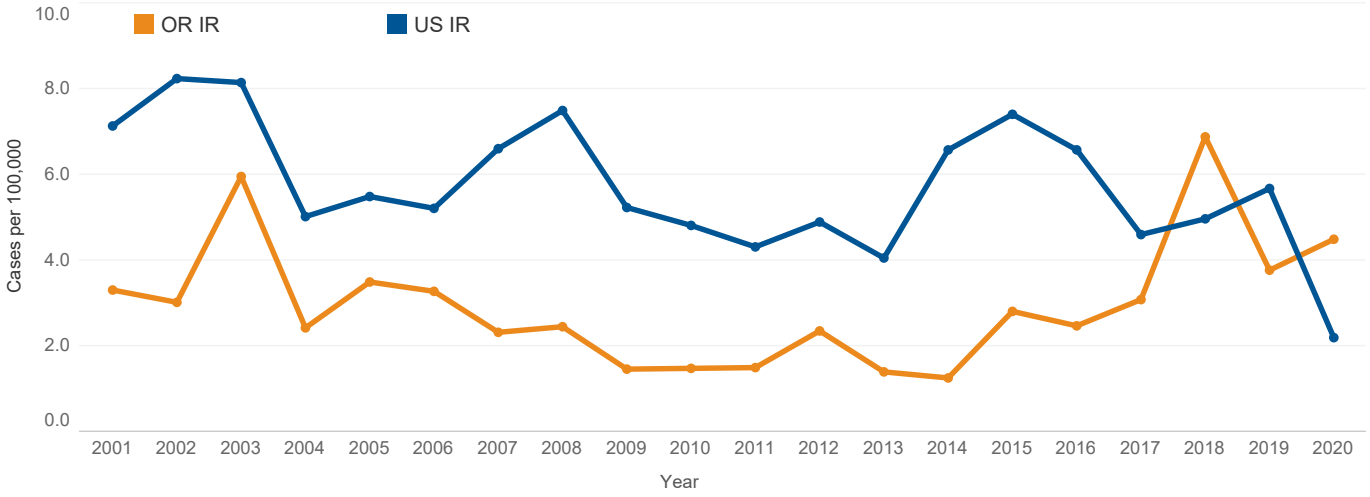
Incidence of shigellosis by month: Oregon, 2020



Incidence of shigellosis by age and sex: Oregon, 2020



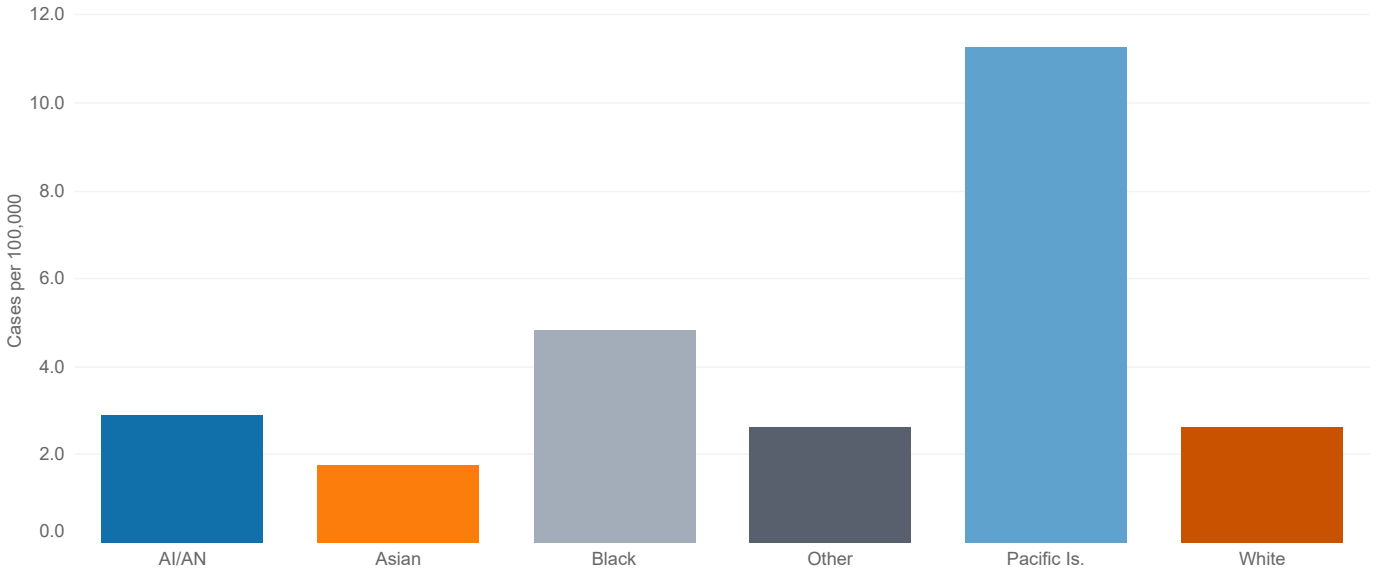
Incidence of shigellosis: Oregon vs. nationwide, 2001–2020



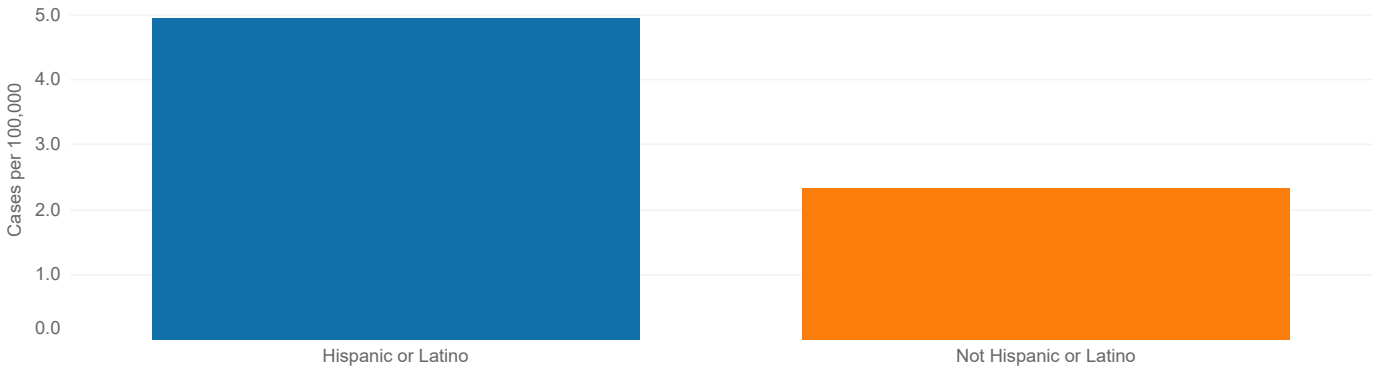
Incidence of shigellosis by reported race: Oregon, 2011–2020

Select data variable to view
Incidence Rate

Note: "Other" race includes individuals reporting multiple races.

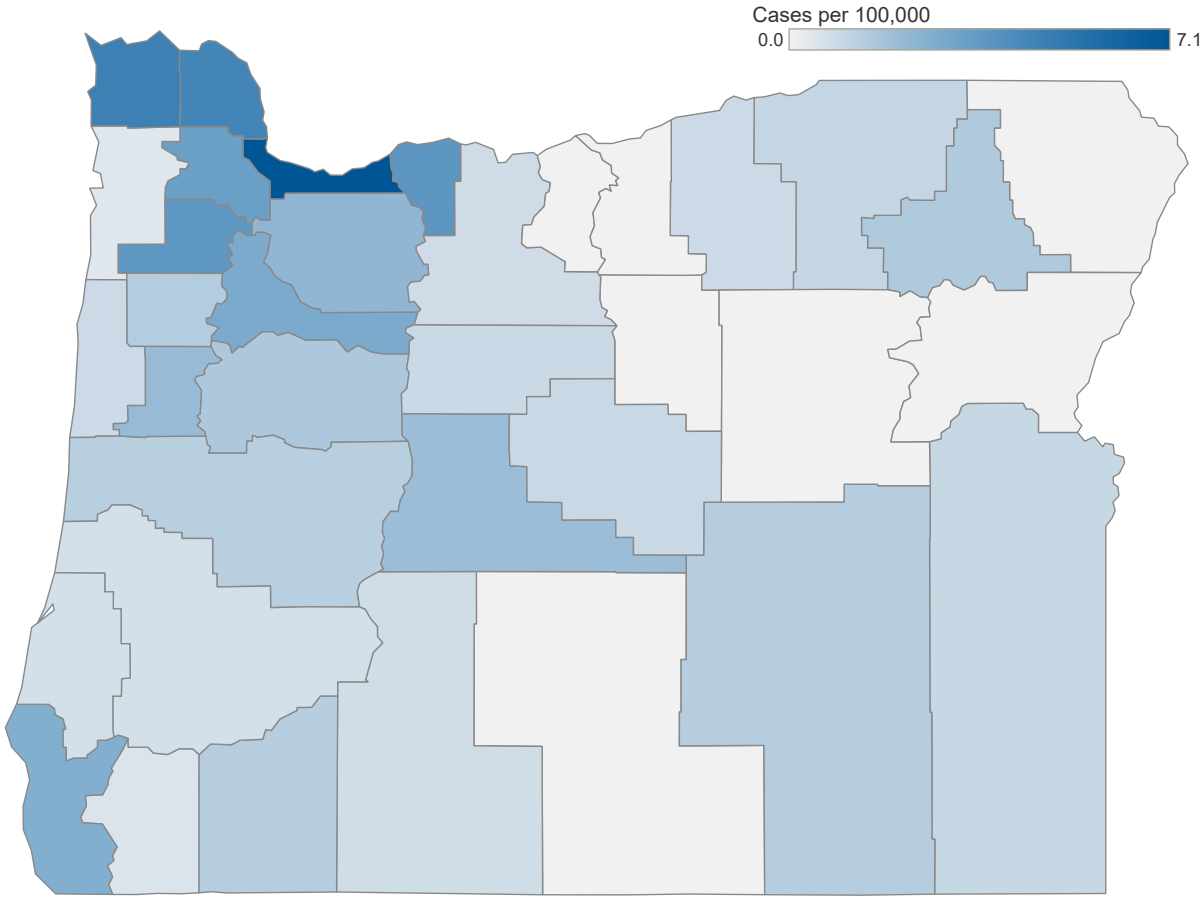


Incidence of shigellosis by reported ethnicity: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

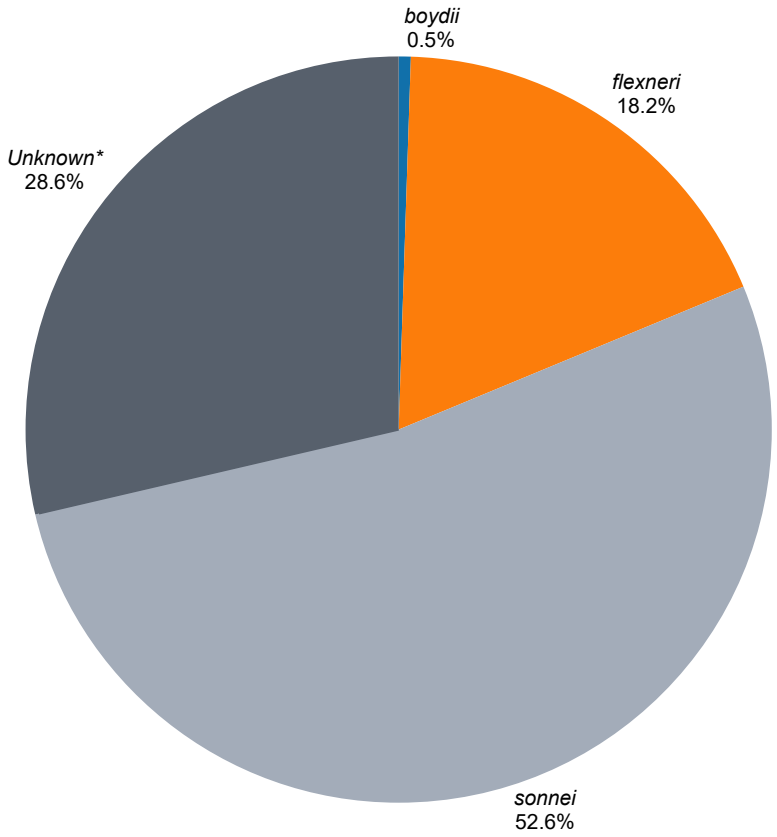
Incidence of shigellosis by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Shigellosis cases by species: Oregon, 2020

Hover over the pie chart to view historical data.



* Some cases of shigellosis have an unknown species because they were diagnosed with culture-independent diagnostic testing (CIDT).

Prevention

- Wash hands with soap and warm water carefully and frequently, especially after going to the bathroom or after changing diapers and before preparing food or beverages.
- Properly dispose of soiled diapers.
- Disinfect diaper changing areas after using them.
- Keep children with diarrhea out of child care settings.
- Supervise hand washing of toddlers and small children after they use the toilet.
- Do not prepare food for others while ill with diarrhea.
- Avoid swallowing water from ponds, lakes or untreated pools.

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Syphilis

Syphilis is a sexually transmitted infection caused by the bacterium *Treponema pallidum*. Any person can get syphilis through vaginal, anal, or oral sex. Individuals may have symptoms including skin lesions, a rash, and flu-like symptoms in the primary and secondary stages of syphilis. Syphilis can also affect the nervous system and cause changes in vision and hearing at any stage of infection. If untreated, syphilis can lead to serious problems affecting many parts of the body after many years. Individuals with syphilis are also at increased risk of acquiring HIV.

Syphilis is detected through blood tests. Syphilis can be cured with antibiotic treatment. Because syphilis is a bacterial infection, anyone can be reinfected if exposed again after completing treatment.

Most cases of syphilis in the United States are among men who have sex with men (MSM). Oregon's primary and secondary syphilis cases predominately occurred among people assigned male at birth, with many occurring among men who have sex with other men. While still relatively low, rates of primary and secondary syphilis among people assigned female at birth have increased rapidly from 0.6 cases per 100,000 in 2013 to 16.8 cases per 100,000 in 2020. The rate of persons who inject drugs diagnosed with primary and secondary syphilis has increased from 0.1 cases per 100,000 in 2010 to 2.4 cases per 100,000 in 2020. Before 2020, Oregon's rates of syphilis were almost as high as rates of syphilis at the national level. People living in Oregon counties along the I-5 corridor experience the highest rates of syphilis. Black/African American, American Indian/Alaska Native and Hispanic or Latino people experience high rates of syphilis. The reasons for different rates are driven by social determinants of health and inequalities.

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Inequities in syphilis are multifactorial and driven by social determinants of health, such as discrimination, poverty, inadequate health care access, educational inequalities, and stigma. Instead of focusing on individual-level risk factors and interventions, moving upstream to systems-level solutions is key. It is critical to understand that higher syphilis rates are not caused by race, ethnicity, gender, or sexual orientation, but by the social, economic, and environmental contexts that are more likely to affect certain groups and that create barriers to optimal sexual health.

Research indicates that information about differences in syphilis rates must be strategically crafted and implemented with authentic community engagement. Authentic community engagement has the capacity to develop solutions to address health inequities. So as not to further harm communities burdened by other social and health inequities, strength-based approaches are critical to public health programs designed to prevent syphilis and maximize sexual well-being. Addressing health inequities from the underlying root is critical to reducing STD rates

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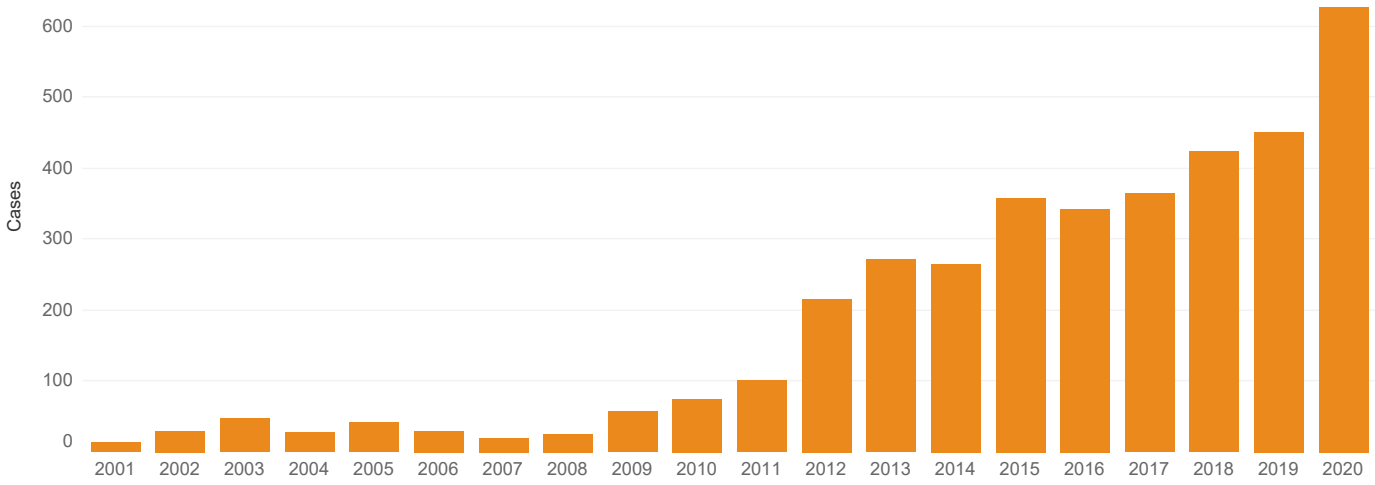
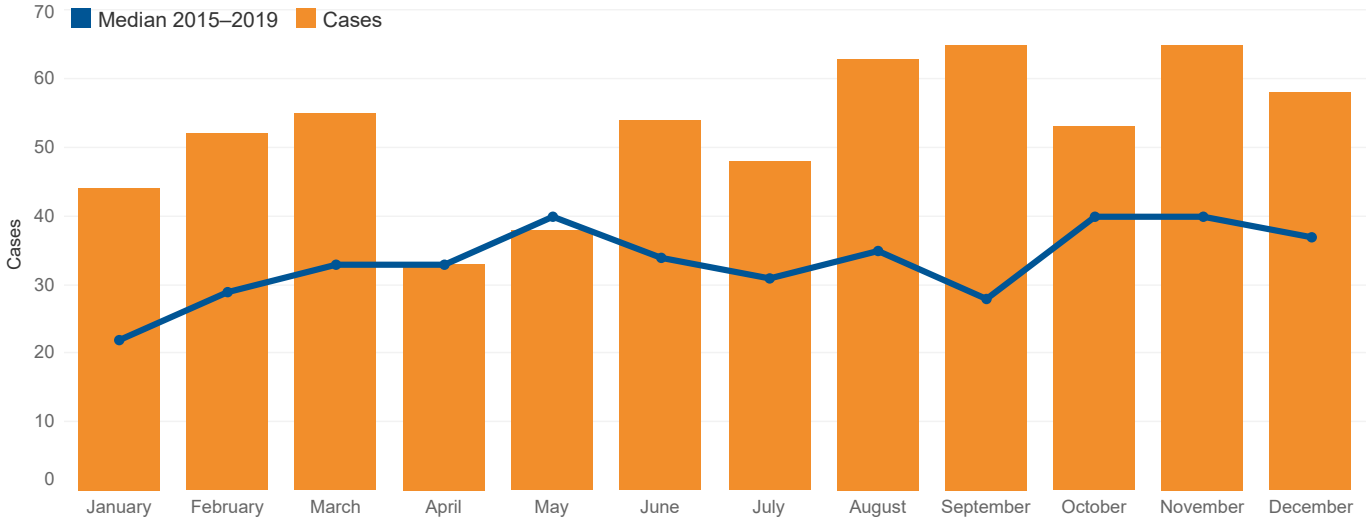
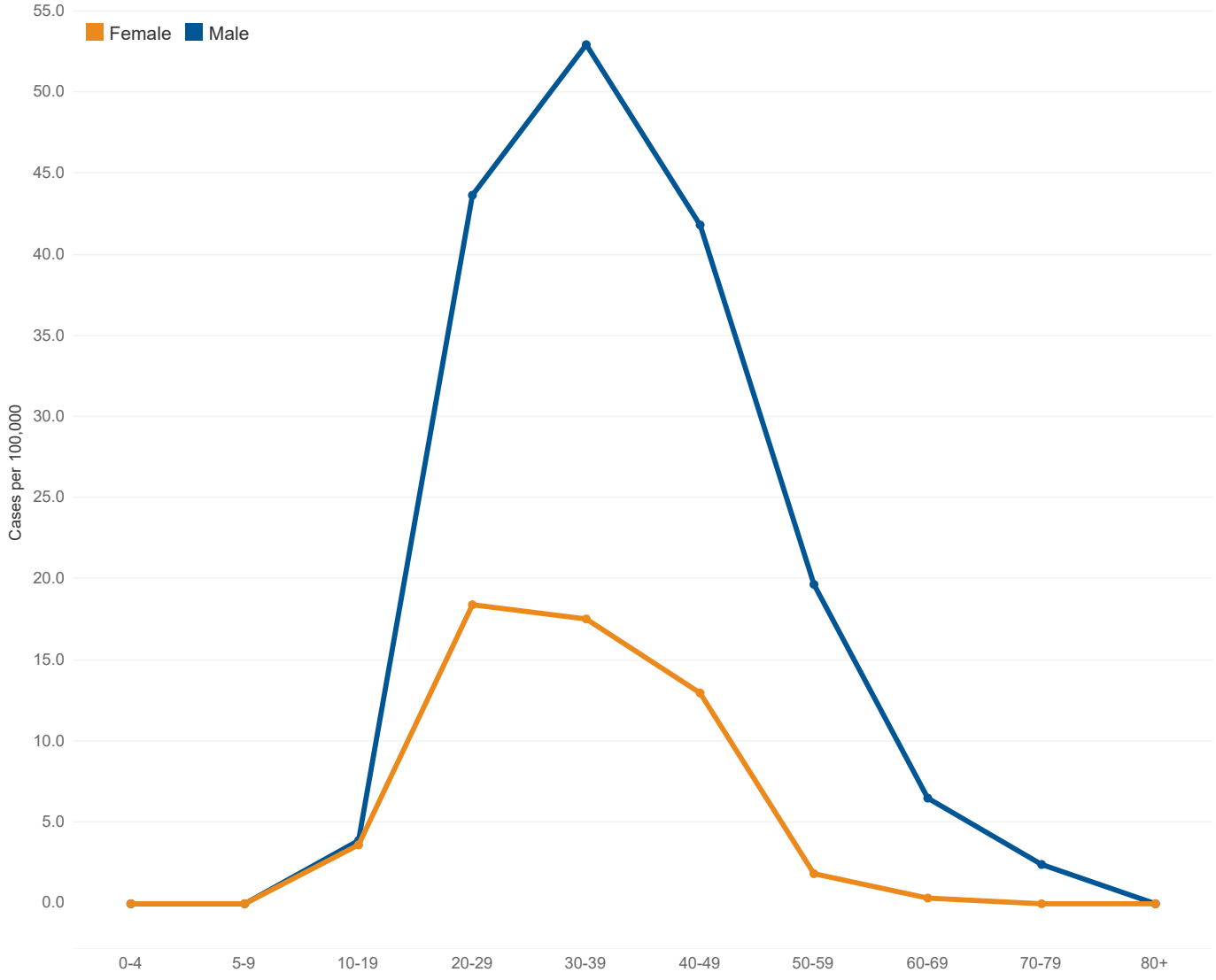
Case counts of syphilis (primary and secondary) by year: Oregon, 2001–2020



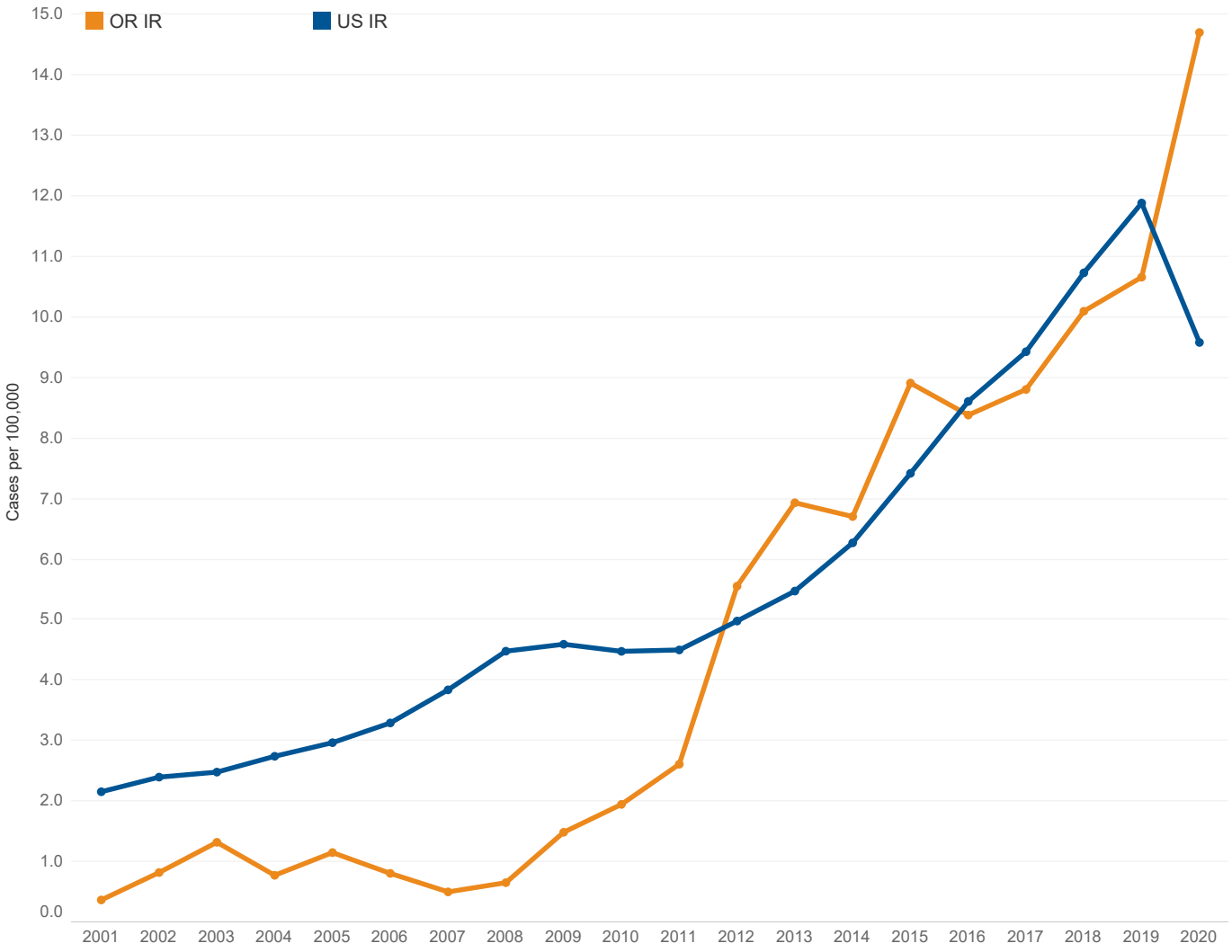
Case counts of syphilis (primary and secondary) by month: Oregon, 2020



Incidence of syphilis (primary and secondary) by age and sex: Oregon, 2020



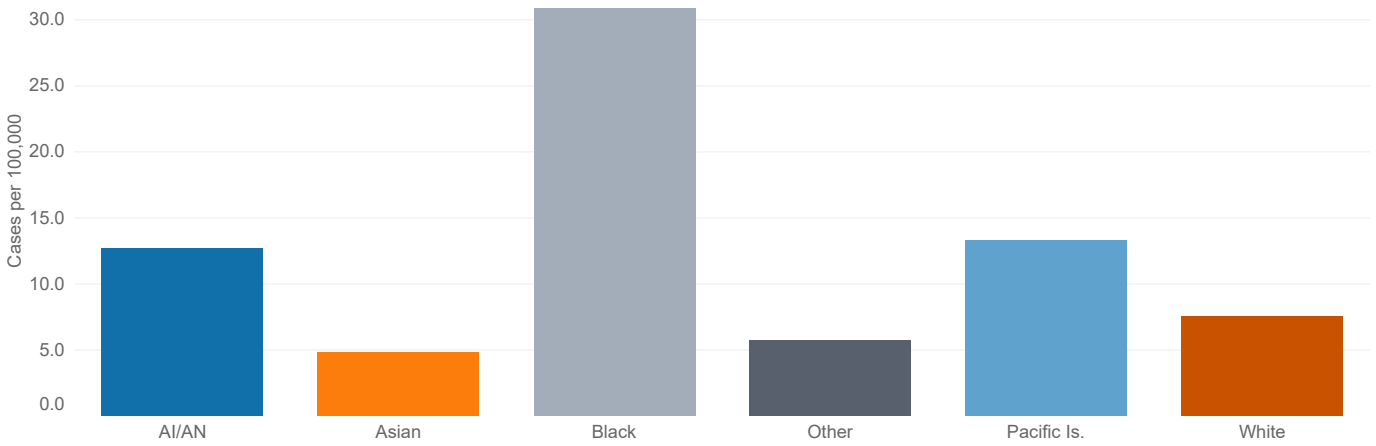
Incidence of syphilis (primary and secondary): Oregon vs. nationwide, 2001–2020



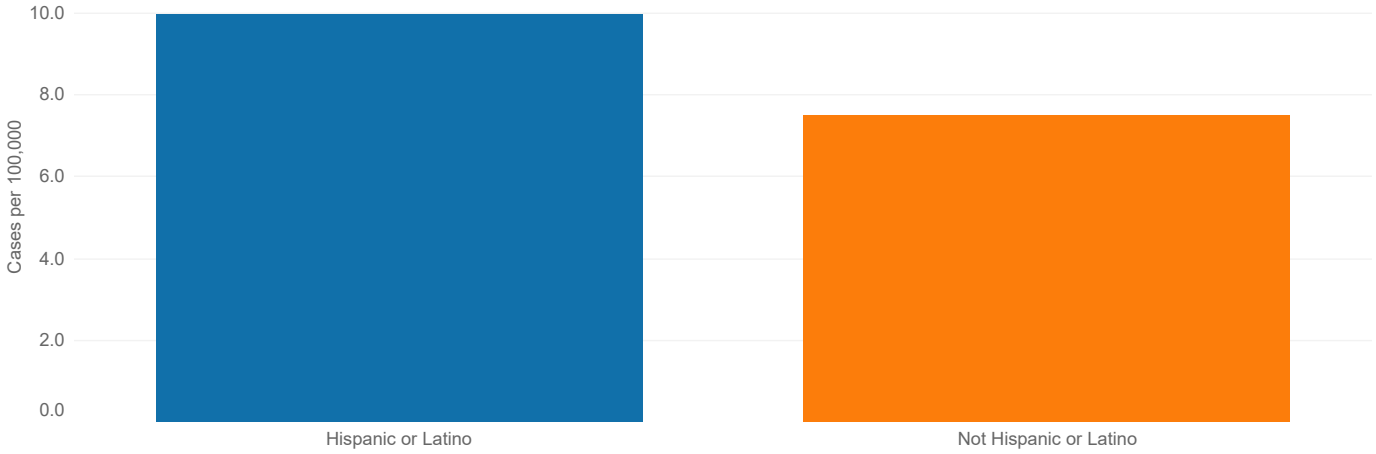
Incidence of syphilis (primary and secondary) by reported race: Oregon, 2011–2020

Select data variable to view
Incidence Rate

Note: "Other" race includes individuals reporting multiple races.

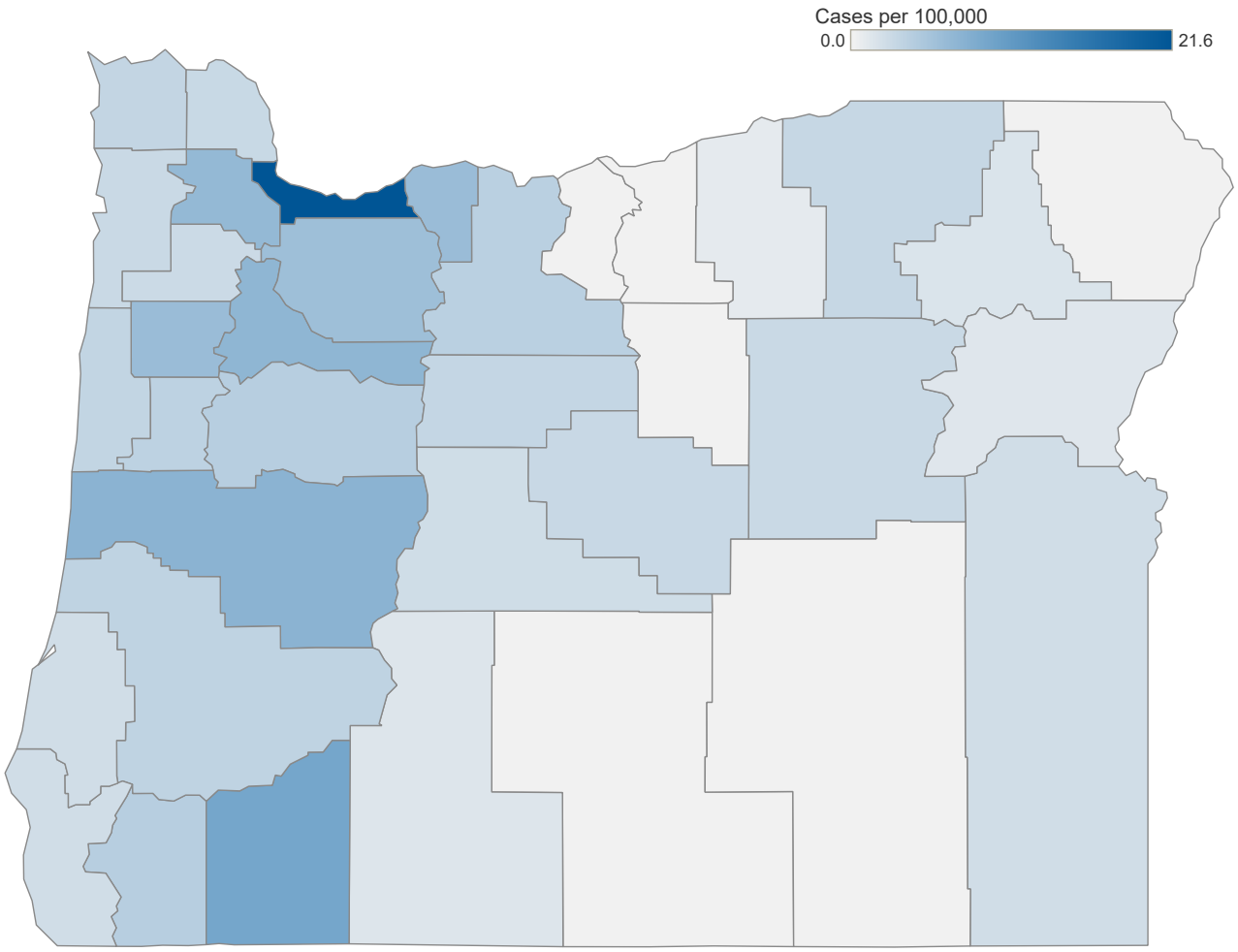


Incidence of syphilis (primary and secondary) by reported ethnicity: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Incidence of syphilis (primary and secondary) by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Use condoms consistently and correctly during anal and vaginal or front sex.
- Get tested for HIV, syphilis, gonorrhea, chlamydia and hepatitis C regularly.
- Talk openly with sex partners about HIV and other sexually transmitted infections and the importance of regular testing.
- If diagnosed with an STI, abstain from sex until completing treatment and symptoms have resolved.
- Use HIV pre-exposure prophylaxis, or PrEP, to prevent HIV infection.
- If you inject drugs, use a new, sterile syringe every time and visit your local syringe service program for sterile supplies, HIV/Hep C testing, naloxone, and other resources.

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Congenital Syphilis

Congenital syphilis (CS) is fetal infection caused by untreated syphilis during pregnancy. Congenital syphilis can lead to stillbirth, infant death, and serious birth defects including problems affecting the nervous system. A baby born with CS doesn't always have symptoms at birth but may develop serious problems without treatment. Babies who do not get treatment for CS and develop symptoms later can die from syphilis.

Syphilis is detected through blood tests. Pregnant people should be tested for syphilis at the first prenatal visit, early in the third trimester, and at delivery. Syphilis in pregnancy can be cured with antibiotic treatment. Because syphilis is a bacterial infection, anyone can be reinfected if exposed again after completing treatment.

Oregon has experienced a steep increase in syphilis among people assigned female at birth. Consequently, CS cases have also increased. In 2013, there were no cases of CS reported to the Oregon Health Authority (OHA). In 2020, there were 20 reported CS cases. In 2019, Oregon had the 11th highest CS rate in the nation, with 43 cases per 100,000 live births. Black/African American, American Indian/Alaska Native, Native Hawaiian and Pacific Islander, and Hispanic/Latina/o/x pregnant people were disproportionately more likely to deliver an infant diagnosed with CS. These disparities are a reflection of differential access to quality sexual health care and result from generations-long systemic inequities. Almost 40% of pregnant people who delivered an infant diagnosed with CS did not receive prenatal care more than 30 days prior to delivery. Housing and substance use are two factors that increase the risk for syphilis and can impede prenatal care. About half of the pregnant people who delivered an infant with CS were houseless or unstably housed. About one third had a history of injection drug use, with most of them using methamphetamine or heroin.

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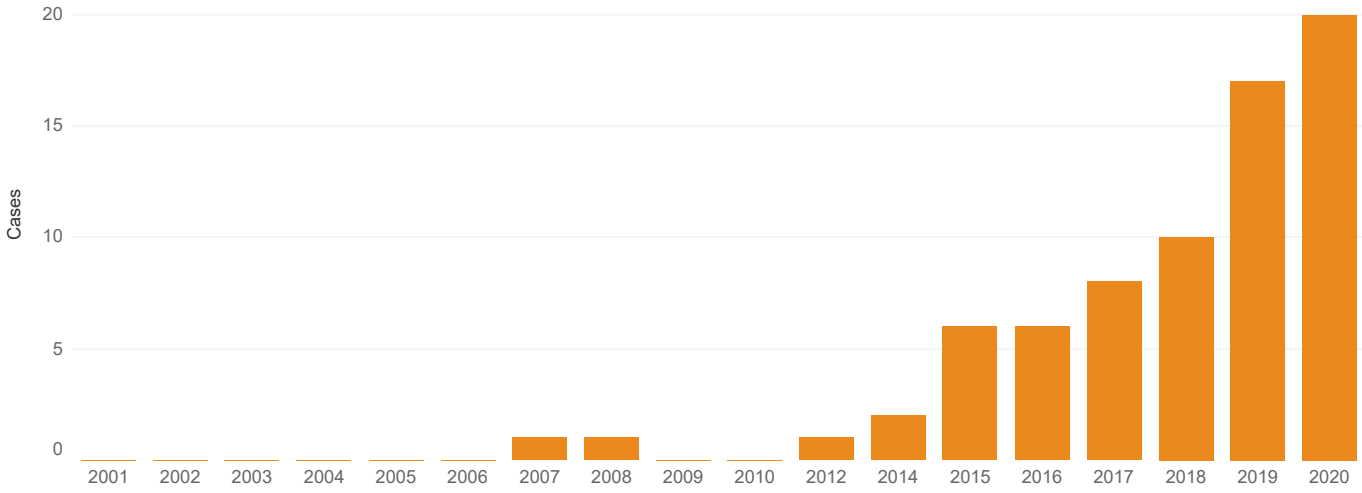
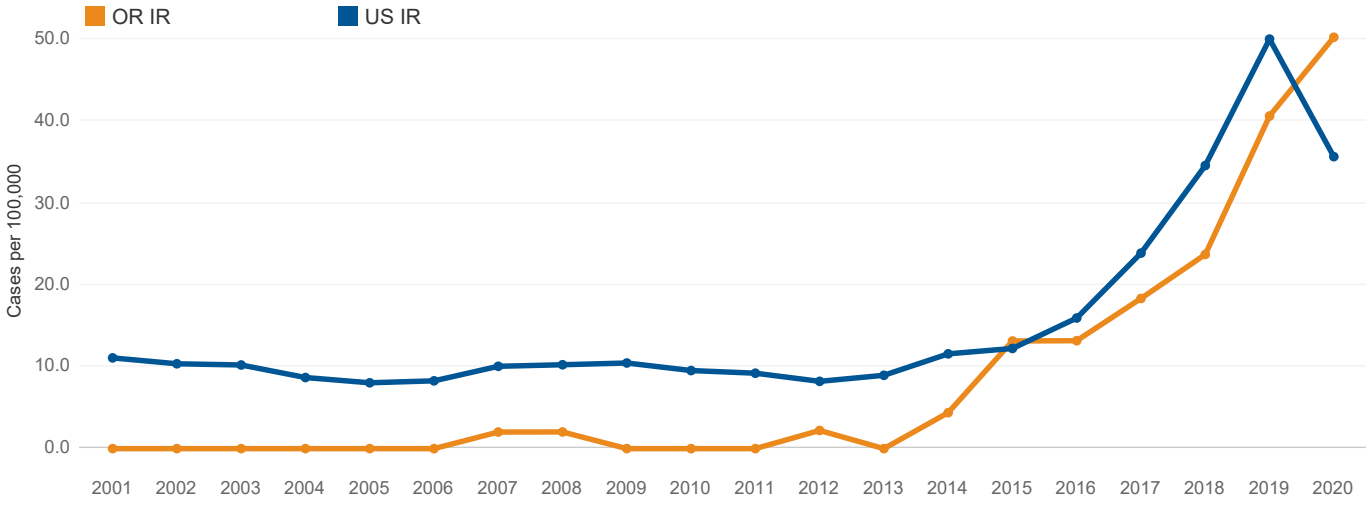
Inequities in congenital syphilis are multifactorial and driven by social determinants of health, such as discrimination, poverty, inadequate health care access, educational inequalities, and stigma. Instead of focusing on individual-level risk factors and interventions, moving upstream to systems-level solutions is key. It is critical to understand that higher congenital syphilis rates are not caused by race, ethnicity, gender, or sexual orientation, but by the social, economic, and environmental contexts that are more likely to affect certain groups and that create barriers to optimal sexual health.

Research indicates that information about differences in congenital syphilis rates must be strategically crafted and implemented with authentic community engagement. Authentic community engagement has the capacity to develop solutions to address health inequities. So as not to further harm communities burdened by other social and health inequities, strength-based approaches are critical to public health programs designed to prevent congenital syphilis and maximize sexual well-being. Addressing health inequities from the underlying root is critical to reducing STD rates.

Case counts of congenital syphilis by year: Oregon, 2001–2020



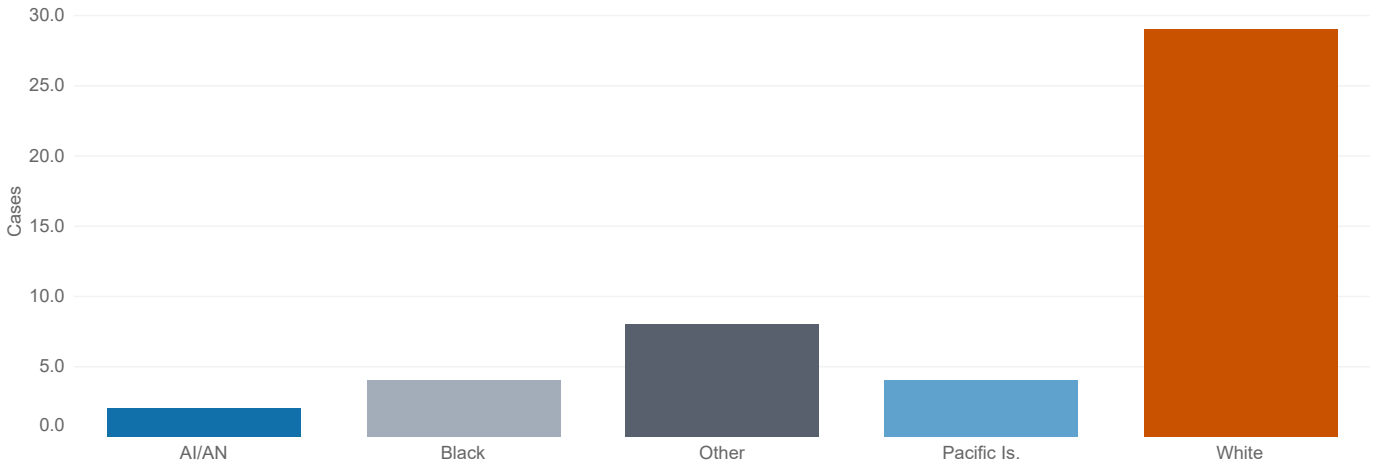
Incidence of congenital syphilis: Oregon vs. nationwide, 2001–2020



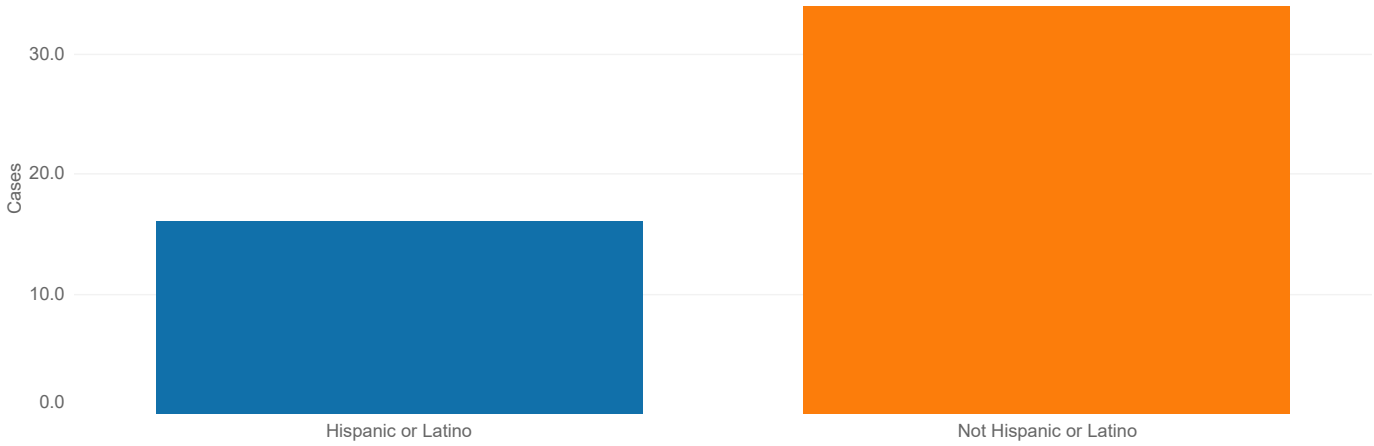
Incidence of congenital syphilis by reported race: Oregon, 2011–2020

Select data variable to view
Number of Cases

Note: "Other" race includes individuals reporting multiple races.

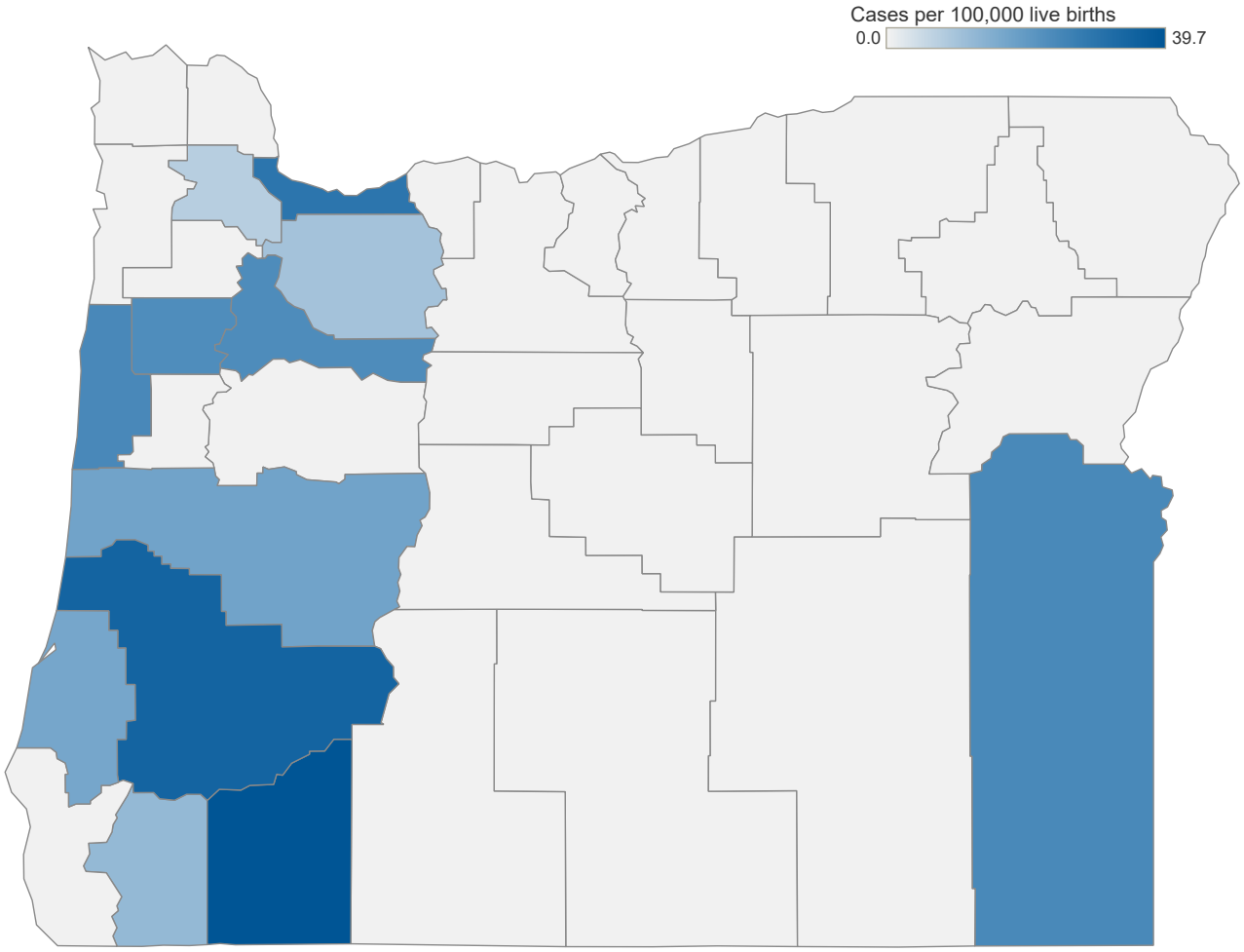


Incidence of congenital syphilis by reported ethnicity: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Incidence of congenital syphilis by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Get tested for syphilis at the first prenatal visit, early in the third trimester, and at delivery.
- Get tested for HIV, syphilis, gonorrhea, chlamydia and hepatitis C regularly.
- Talk openly with sex partners about HIV and other sexually transmitted infections and the importance of regular testing.
- If diagnosed with an STI, abstain from sex until completing treatment and symptoms have resolved.
- Use HIV pre-exposure prophylaxis, or PrEP, to prevent HIV infection.
- If you inject drugs, use a new, sterile syringe every time and visit your local syringe service program for sterile supplies, HIV/Hep C testing, naloxone, and other resources.

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Tuberculosis

Tuberculosis (TB) is an ancient disease that was once a leading cause of death in the United States. Although TB disease is highly curable, without proper treatment it can be fatal. TB is still a major cause of disease and death in many parts of the world; until 2020 when the COVID-19 pandemic set in, TB caused more deaths worldwide than any other infectious disease.

TB is caused by the bacterium *Mycobacterium tuberculosis* and is transmitted through airborne exposure. TB bacteria are spread by respiratory droplets when a person with infectious TB disease in the lungs coughs, sneezes, or talks. People nearby may inhale the airborne droplets and become infected. Although TB is infectious, it is not easy to catch. Most TB infections happen in the home or workplace where people spend many hours together in close proximity. TB is not spread on contaminated surfaces, in food or drink, or by sharing toothbrushes or kissing. Not everyone infected with TB becomes sick and as a result, two TB-related conditions exist: latent TB infection (LTBI) and TB disease.

Most people who are infected with TB bacteria do not immediately become sick. This is called latent TB infection (LTBI). Even though TB bacteria are living in the lungs, the body's immune system prevents the bacteria from multiplying or spreading. People with LTBI have no symptoms, don't feel sick, and can't spread TB to others. People with LTBI may go on to develop TB disease unless treated with medication to prevent disease. LTBI can be diagnosed using a skin test or a blood test.

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Some people who are infected with TB bacteria develop TB disease soon after becoming infected while others may get sick months or years later. Some will never get sick. TB disease develops when the immune system can't keep the TB bacteria under control. People with weakened immune systems have a much higher risk of developing TB disease than other people.

TB disease most often affects the respiratory system and causes symptoms like a prolonged cough, fever, night sweats, weight loss, and hemoptysis (coughing up blood). TB can also affect nearly any other part of the body; lymph nodes (where it is sometimes known as scrofula), brain (where it can cause meningitis), eyes, bones, skin or joints (known as Pott's disease when in the spine) are just some examples.

People at risk for TB disease fall into two categories: People who have recently been infected and people who have weakened immune systems. People who have recently been infected are often close contacts of a person with infectious TB disease, people who have recently moved from areas of the world with high rates of TB, children under the age of 5 who have a positive TB test, and people living or working in congregate settings like prisons, homeless shelters, or nursing homes. People who may have weakened immune systems include babies and young children, people living with HIV, people who inject drugs, or people who take immunosuppressing medications.

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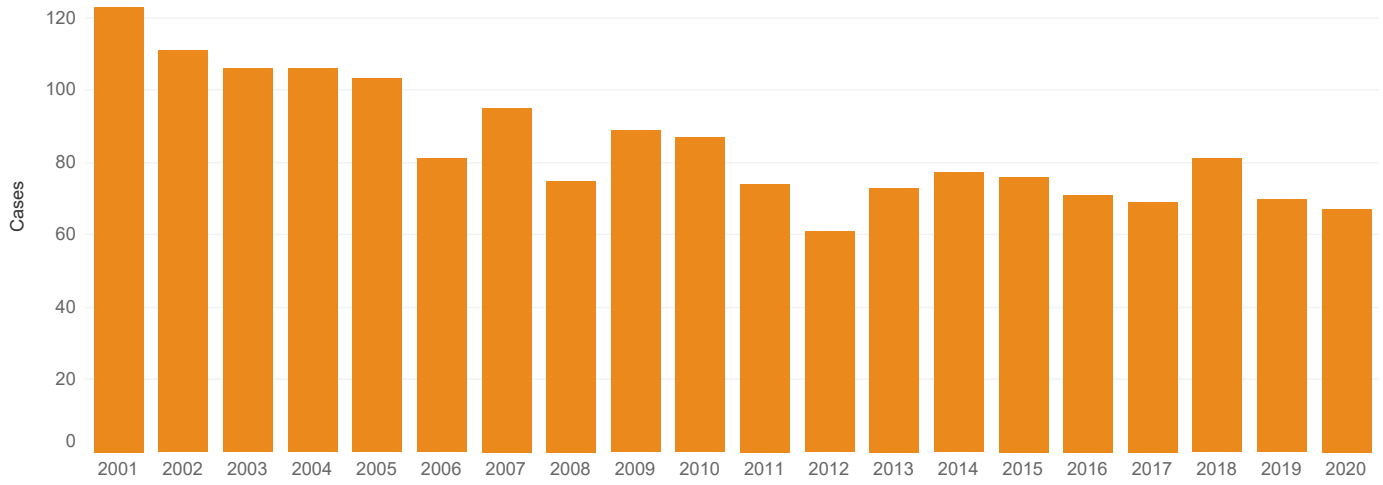
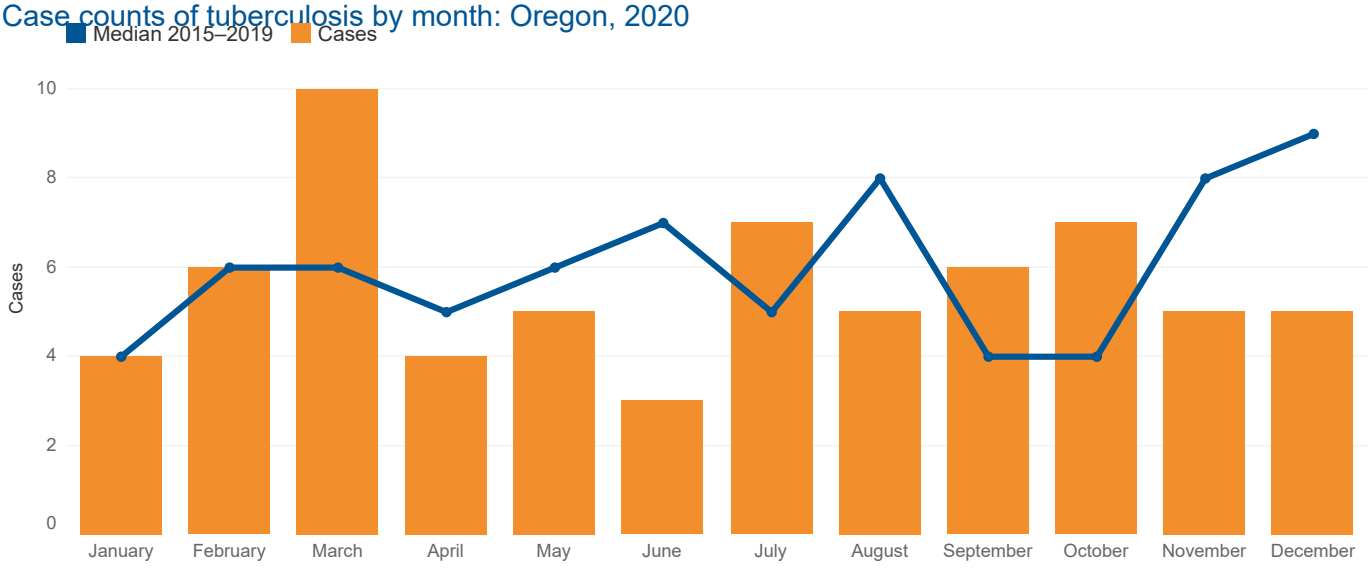
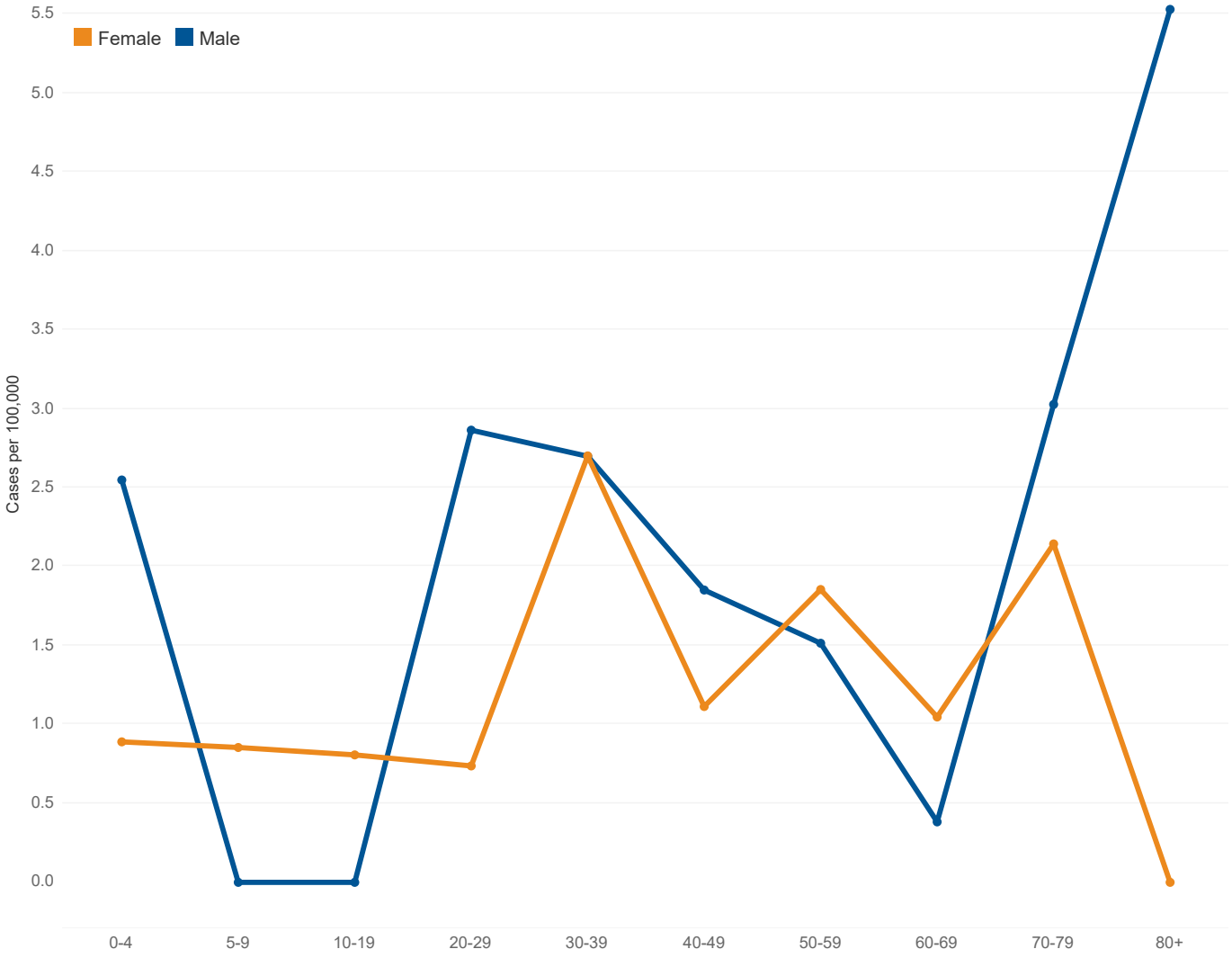
Case counts of tuberculosis by year: Oregon, 2001–2020



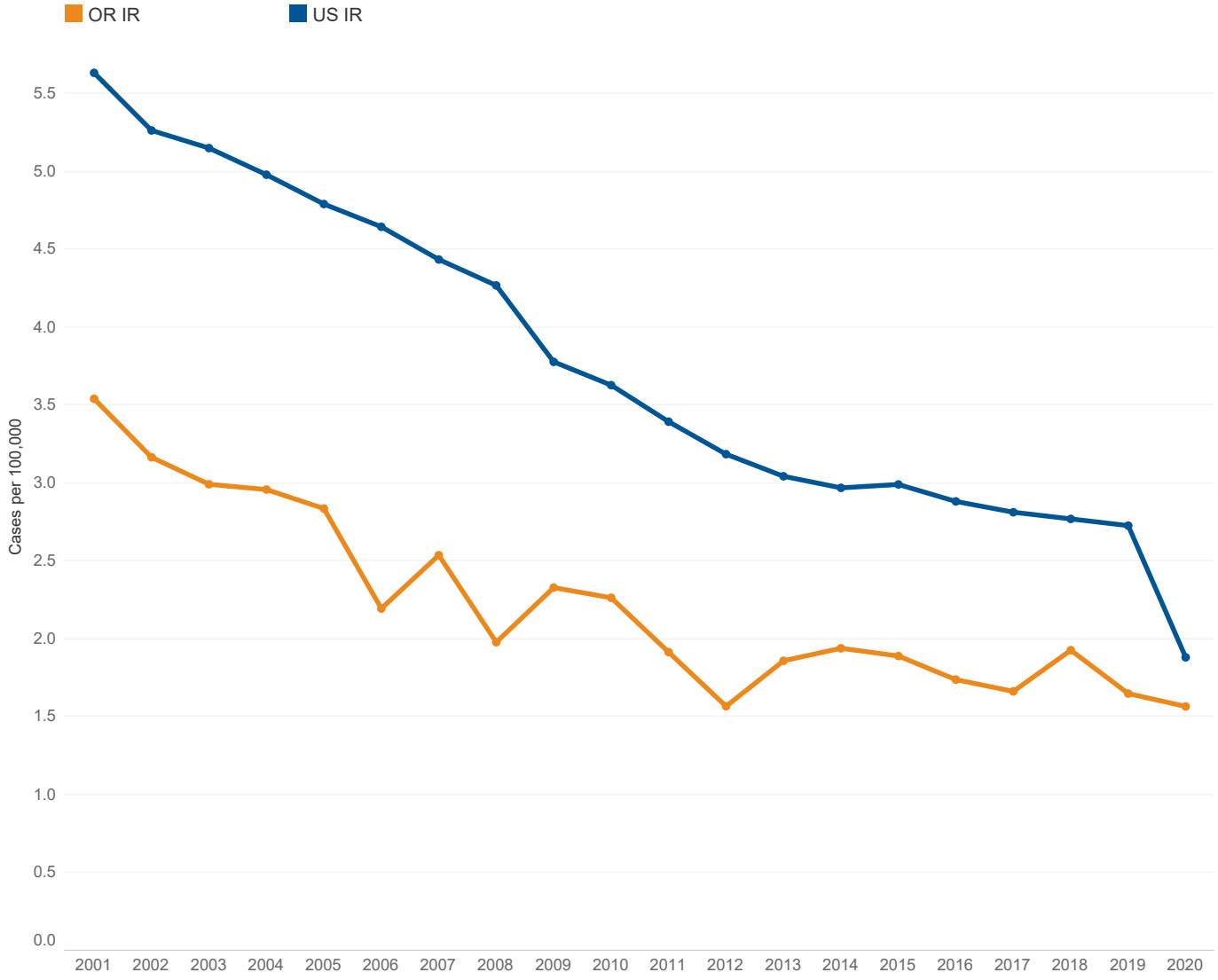
Case counts of tuberculosis by month: Oregon, 2020



Incidence of tuberculosis by age and sex: Oregon, 2020



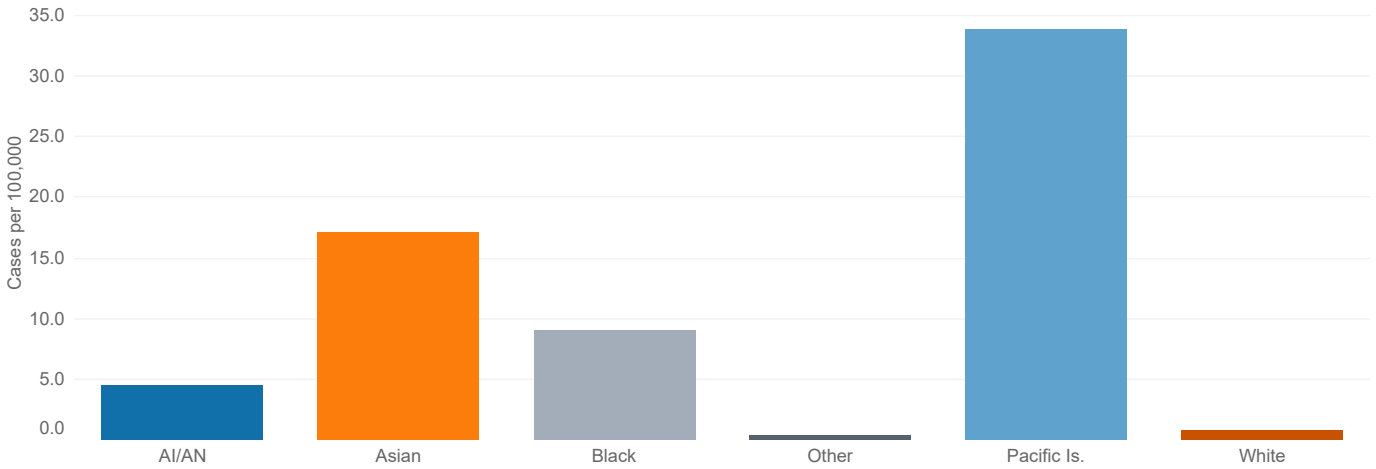
Incidence of tuberculosis: Oregon vs. nationwide, 2001–2020



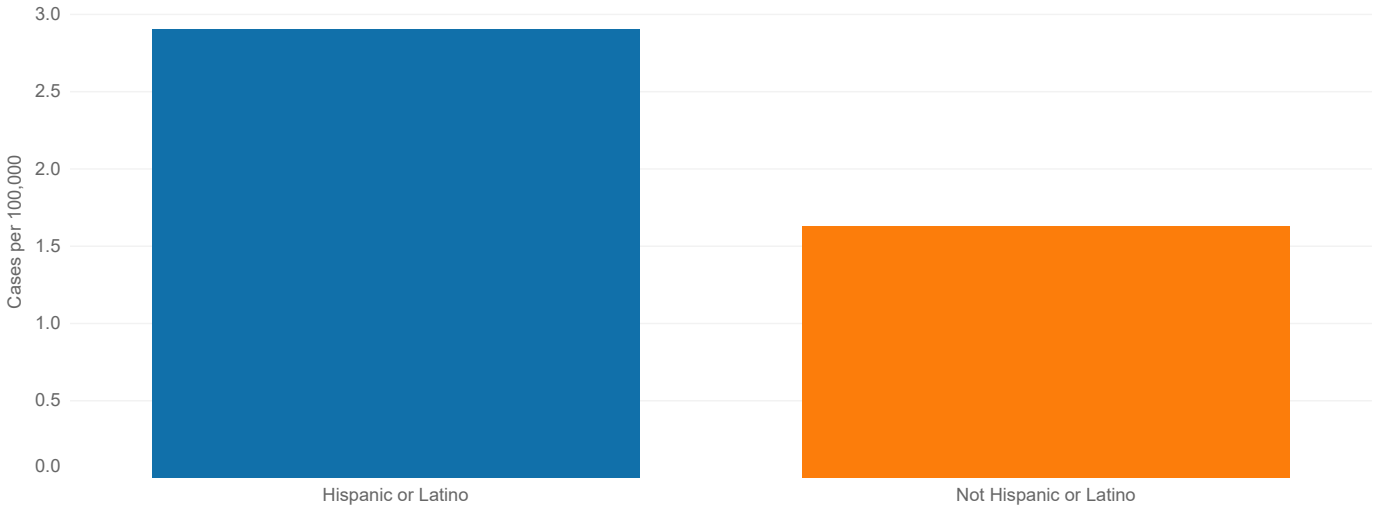
Incidence of tuberculosis by reported race: Oregon, 2011–2020

Select data variable to view
Incidence Rate

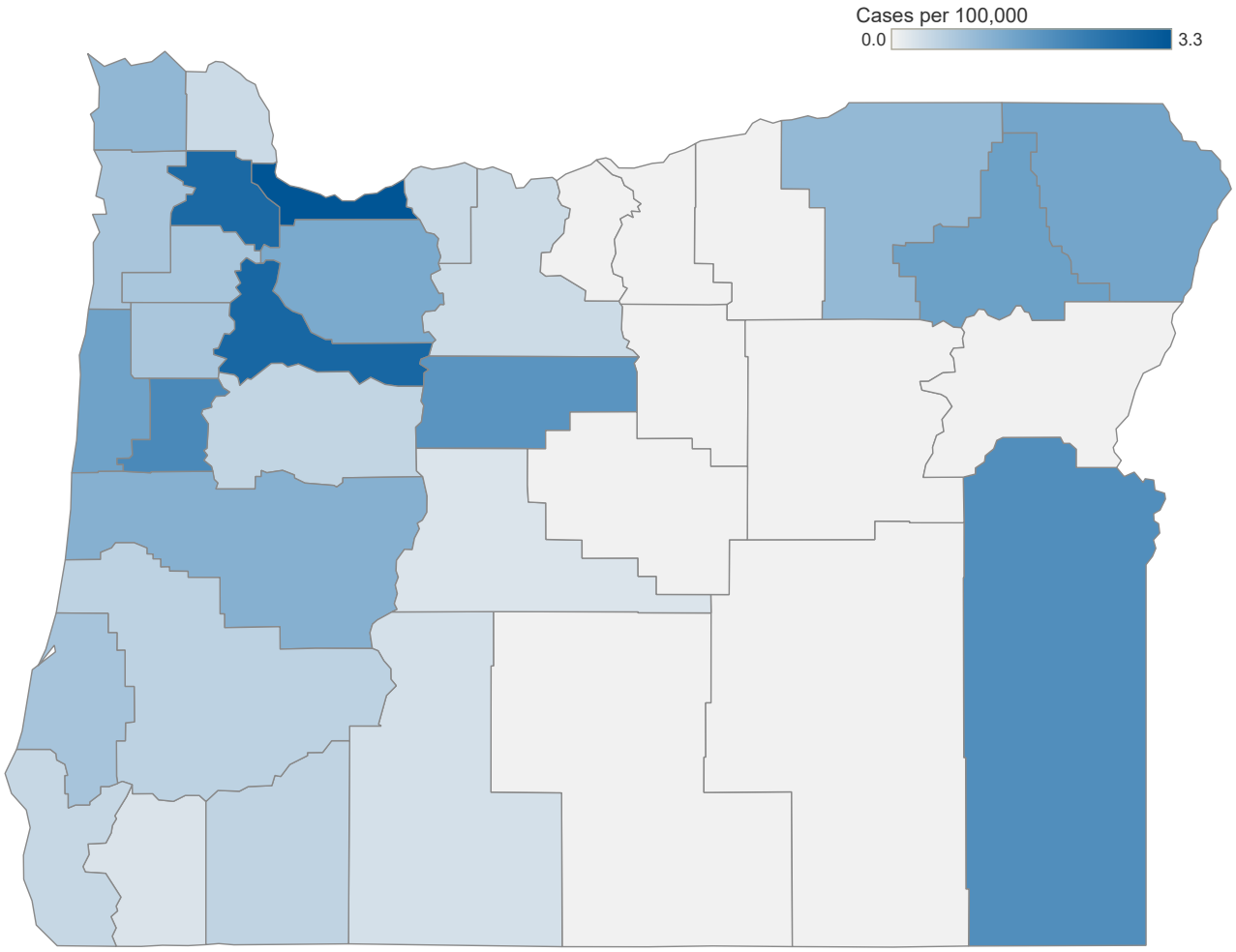
Note: "Other" race includes individuals reporting multiple races.



Incidence of tuberculosis by reported ethnicity: Oregon, 2011–2020



Incidence of tuberculosis by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- People at risk for tuberculosis should be tested for LTBI.
- People who have been diagnosed with LTBI should discuss treatment options with their health care provider to prevent progression from latent infection to TB disease.

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Tularemia

Tularemia, also known as rabbit or deer-fly fever, is considered a "category A" agent of potential bioterrorism. It is caused by *Francisella tularensis,* a hardy organism found in rodents, rabbits and squirrels; in ticks, deer flies and mosquitoes; and in contaminated soil, water and animal carcasses. The organism is remarkably infective; as few as 10–50 organisms can cause disease.

Tularemia occurs throughout the United States, though it is most commonly reported from Arkansas, Missouri, Oklahoma, and other Great Plains states. People get infected primarily through handling contaminated animals; the bite of infective deer flies, mosquitoes or ticks; direct contact with or ingestion of contaminated food, water or soil; or inhalation of infective aerosols. *Francisella tularensis* is highly infectious when grown in culture and can be a risk to microbiology laboratory workers. For potentially exposed workers, management options include a "fever watch" or antimicrobial prophylaxis.

Disease onset is usually sudden, and includes fever, malaise, myalgia, headache, chills, rigors and sore throat. Tularemia has six clinical forms, depending on the bacterium's portal of entry. Ulceroglandular tularemia is the most common form of the disease, accounting for 75%–85% of naturally occurring cases.

Other clinical forms include pneumonic (pulmonary symptoms); typhoidal (gastrointestinal symptoms and sepsis); glandular (regional adenopathy without a skin lesion); oculoglandular (painful, purulent conjunctivitis with adenopathy); and oropharyngeal (pharyngitis with adenopathy).

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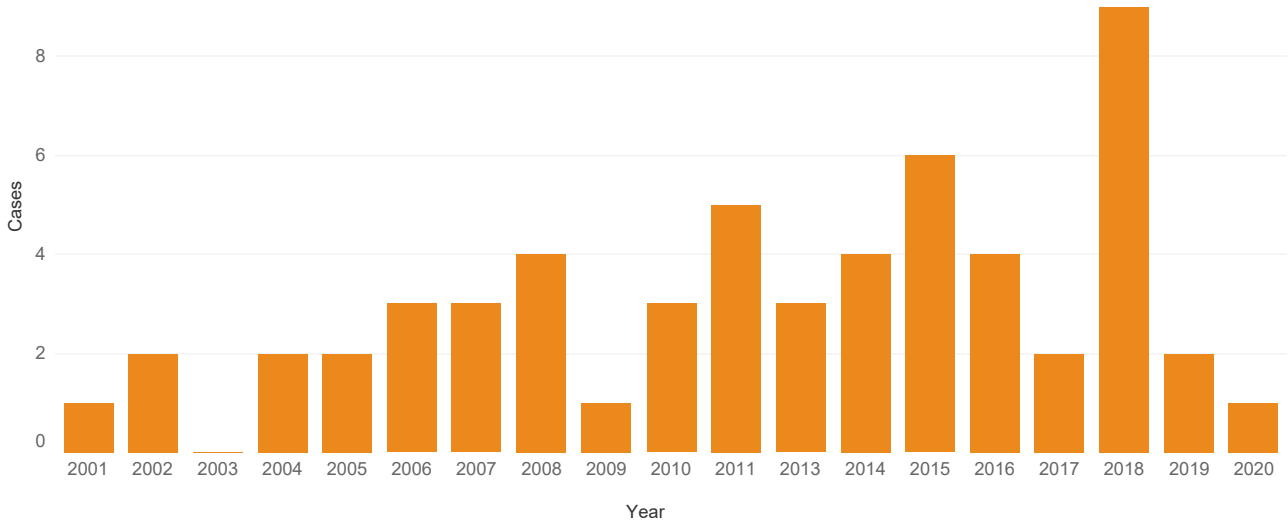
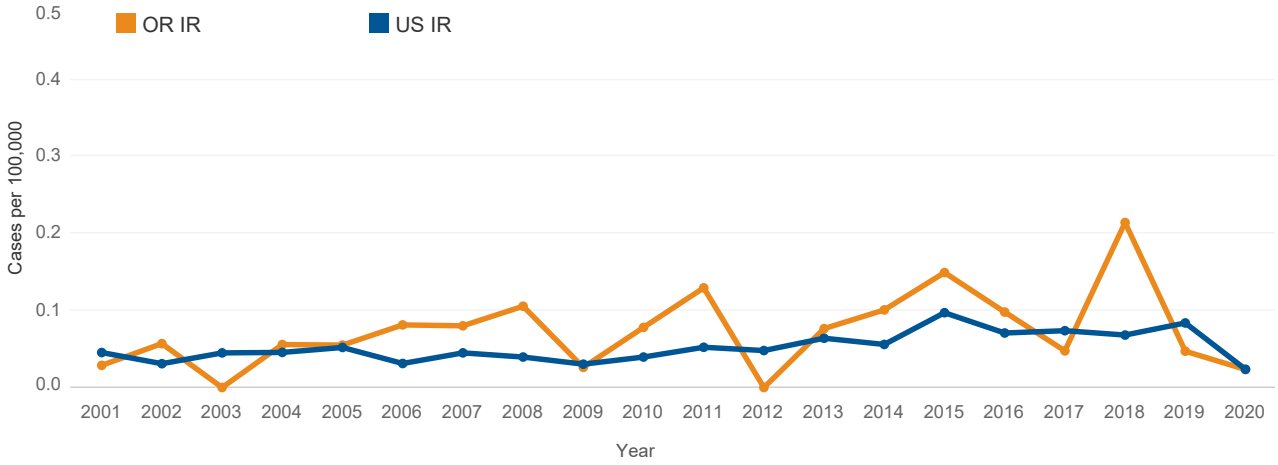
Incidence of tularemia by year: Oregon, 2001–2020



Incidence of tularemia: Oregon vs. nationwide, 2001–2020



Prevention

- Use precautions when hiking, hunting, camping or working outdoors:
  - › Use insect repellents containing 20%–30% DEET, picaridin or IR3535.
  - › Wear long pants, long sleeves and long socks to keep ticks and deer flies off your skin.
  - › Remove attached ticks promptly with fine-tipped tweezers.
  - › Don't drink untreated surface water.
  - › Don't run over sick or dead animals (or *any* animals for that matter) with a lawn mower.
- If you hunt, trap or skin animals:
  - › Use gloves when handling animals, especially rabbits, muskrats, prairie dogs and other rodents.
  - › Cook game meat thoroughly before eating.
- Laboratory workers should use precautions when working with suspect cultures:
  - › Procedures that manipulate cultures and might produce aerosols or droplets should be done under biosafety level 3 conditions.

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Vibriosis

Vibriosis is caused by infection with bacteria from the *Vibrionaceae* family. This family of bacteria includes the species that causes cholera, and public health investigators typically distinguish between either cholera (infection with toxigenic *V. cholerae*) and other "vibriosis" (infection with any other *Vibrionaceae*, including those vibrios lately rechristened as *"Grimontia"*).

Commonly, vibriosis is acquired by eating raw or undercooked molluscan shellfish and presents as watery diarrhea, abdominal cramps and fever. In Oregon, *V. parahaemolyticus* is the most frequently reported species, as this pathogen is found naturally in the coastal waters and shellfish of the Pacific Northwest, especially during summer months. Non-foodborne infections with *Vibrio* species can also occur through contact with sea or brackish water (e.g., infection with *V. alginolyticus* after swimming with an open wound, or through a laceration while shucking an oyster). These types of infections can produce bullae, cellulitis, muscle pain, fever and sepsis.

Vibriosis was not reportable until 1998 in Oregon and 2007 nationwide. Today, all *Vibrio* infections are nationally notifiable. Case reporting is essential to the identification of contaminated shellfish beds and removal of these shellfish from the raw seafood market. In 2013, the CDC FoodNet Program estimated every reported case of *Vibrio* represented 142 people not diagnosed with the infection.

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Nationally, reported rates of vibriosis have trended upwards in the past decade. Scientists now believe that *V. parahaemolyticus* is an indicator of climate change; the bug requires temperatures warmer than 59°F to grow and is proliferating in waters that had historically been too cool. With warmer water temperatures in the Pacific Northwest, we can expect more bacteria in the waters and more contamination of shellfish growing in these waters.

There were no outbreaks of vibriosis reported in Oregon in 2020. Unlike other enteric pathogens such as *Salmonella* or Shiga toxin-producing *E.coli*, molecular typing is less likely to identify outbreaks, as the *Vibrio* species found in the Pacific Northwest are genetically similar. Case interviews and exposure histories are more helpful in identifying clusters of illness.

In 2020, Oregon counted 33 cases of vibriosis. Males outnumbered females (21 to 12). One third of these cases were initially detected from a polyermase chain reaction (PCR) test. In 2018, following a substantial increase in cases, Oregon changed the case definition for *Vibrio* infections to exclude some of these PCR tests, in an attempt to mitigate the problem of false positives. Not all of the increase in cases can be attributed to changes in culture independent diagnostic testing, however, as 25 of the 33 cases in 202 were culture confirmed.

The number of non-typed cases reported in 2020 (8) was similar to recent years. The rest of the cases were *V. parahaemolyticus* (21), *V. alginolyticus* (3) and non-O1/O39 *V. cholerae* (1).

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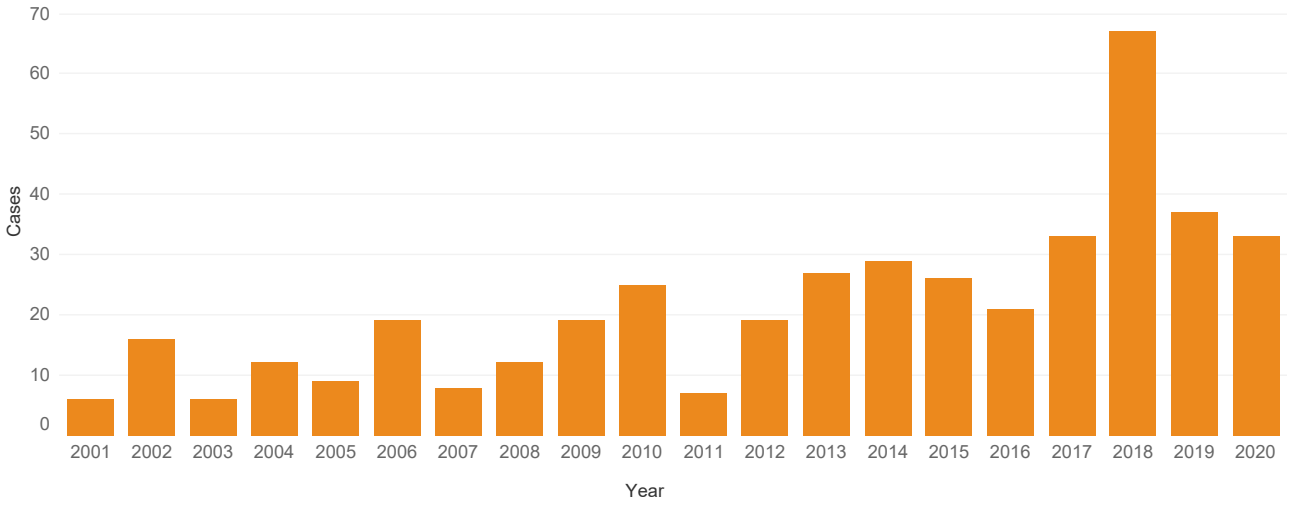
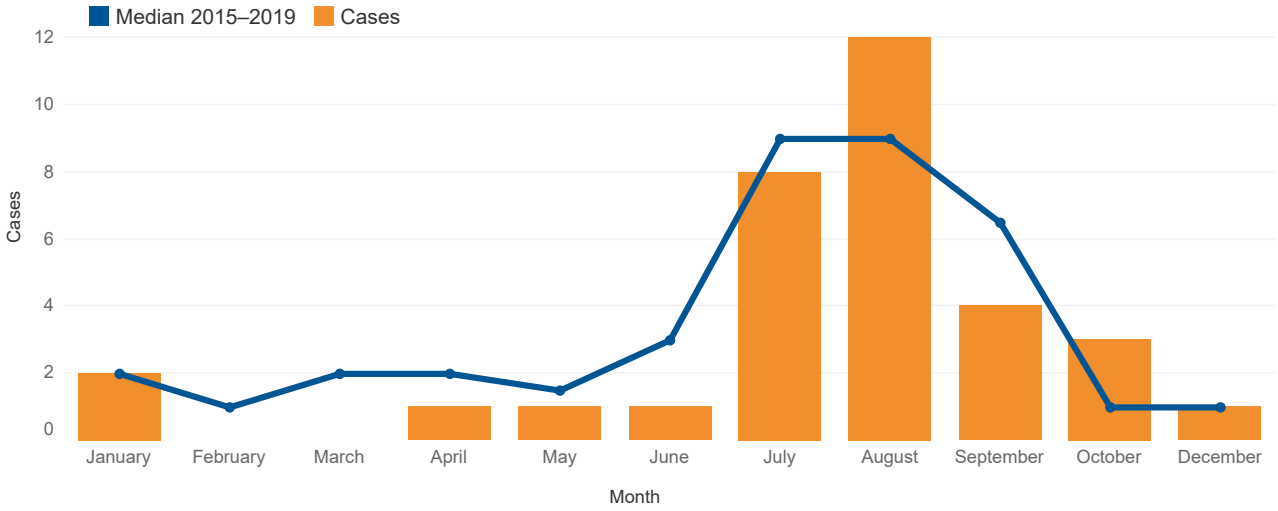
Disease overview | Disease overview (continued) | Incidence by year and month | Incidence by age and sex and in OR vs. U.S. | Vibriosis cases by species | Disease prevention

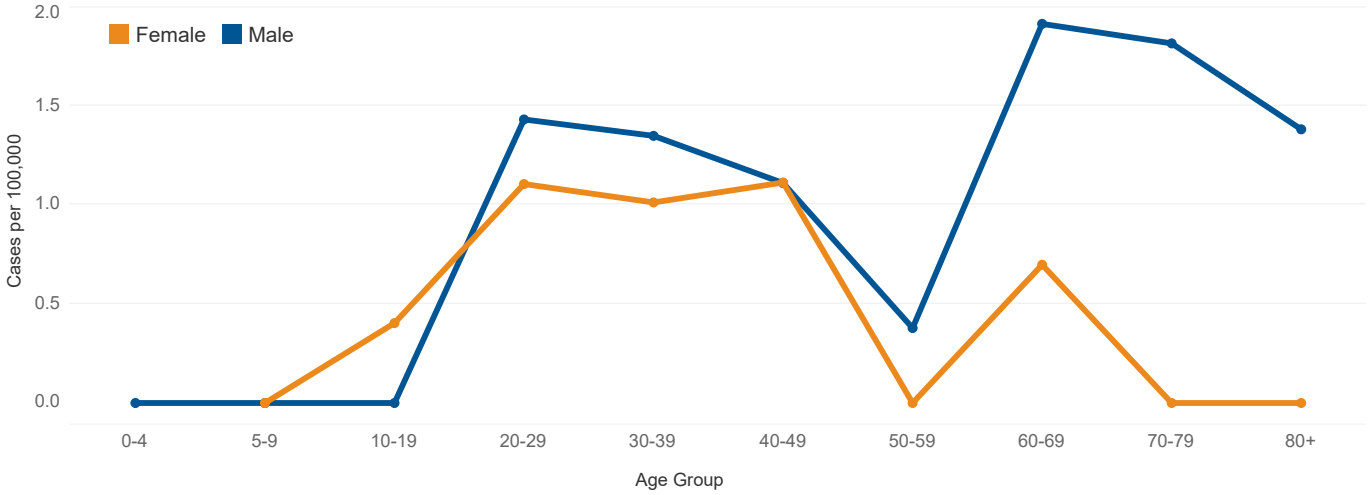
Incidence of vibriosis by year: Oregon, 2001–2020



Incidence of vibriosis by month: Oregon, 2020

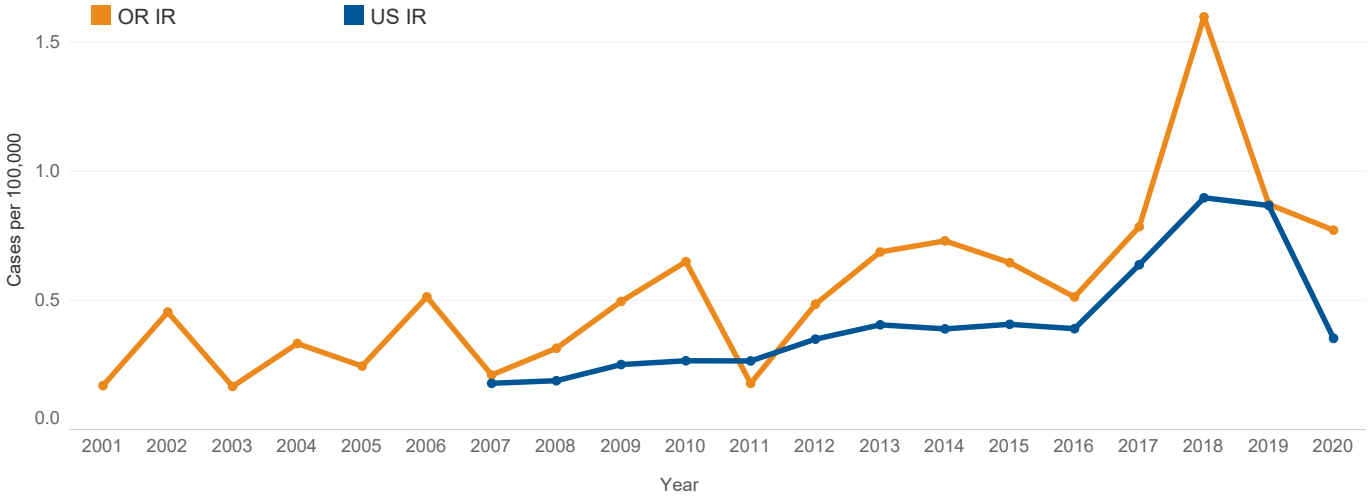


Incidence of vibriosis by age and sex: Oregon, 2020



Incidence of vibriosis: Oregon vs. nationwide, 2001–2020

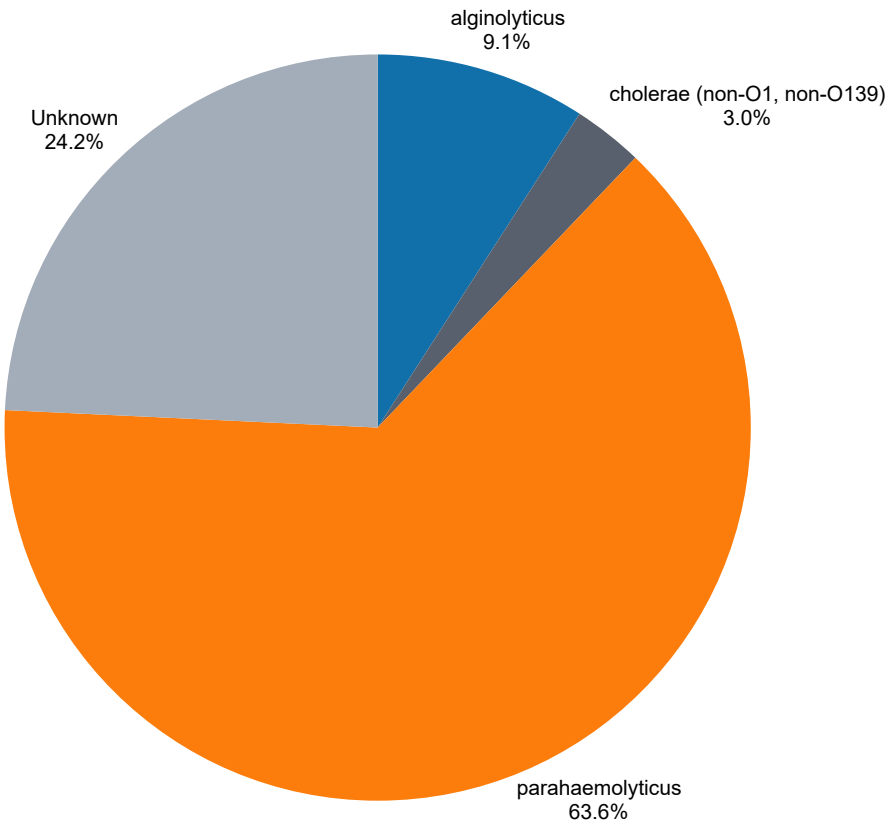
Vibriosis became nationally notifiable in 2007.



Disease overview | Disease overview (continued) | Incidence by year and month | Incidence by age and sex and in OR vs. U.S. | Vibriosis cases by species | Disease prevention

Vibriosis cases by species: Oregon, 2020

Hover over a section of the pie chart to view historical data.



Prevention

- Avoid eating raw oysters or other raw shellfish.
- Cook shellfish (oysters, clams, mussels) to an internal temperature of 145°F. If you don't have a food thermometer, shucked shellfish (clams, mussels and oysters without shells) become plump and opaque when cooked thoroughly, and the edges of the oysters start to curl. Shellfish in shells should open when cooked. Throw out shells that don't open during cooking.
- Uncooked spoiled seafood can have an ammonia odor. This odor beecomes stronger after cooking. If you smell an ammonia odor in raw or cooked seafood, do not eat it.
- Read more from the FDA on selecting and serving fresh and frozen seafood safely here and on safe food handling here.

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West Nile virus

West Nile virus (WNV) first appeared in the United States on Long Island in 1999 and then moved westward across the country. In Oregon, the first indigenous case was reported in 2004. West Nile virus is a mosquito-borne *Flavivirus* that affects both animals and humans. Corvid birds (crows, ravens, jays, magpies) are the reservoir; humans and other animals are considered "dead-end" hosts — i.e., they may be infected and develop symptoms, but they do not transmit the infection further. Of human beings infected, only approximately one in five will have any symptoms at all — typically flu-like symptoms such as fever, headache and muscle aches. However, approximately one in 150 infected persons will have symptoms of central nervous system infection that may include neck stiffness, stupor, disorientation, tremors, convulsions, muscle weakness, paralysis and coma.

The risk of getting West Nile virus in Oregon has been very low. Though most cases were in those aged 20–50 years, those >50 years of age have the highest risk of developing serious illness. Incidence is highest in the summer months. The incidence in Oregon has been highest in the state's southeastern counties; 60% of cases reported to date have been among residents of Malheur County.

In 2020, one presumptive human cases of West Nile virus occurred in Oregon. In addition, three mosquito pools and one bird tested positive for WNV infection.

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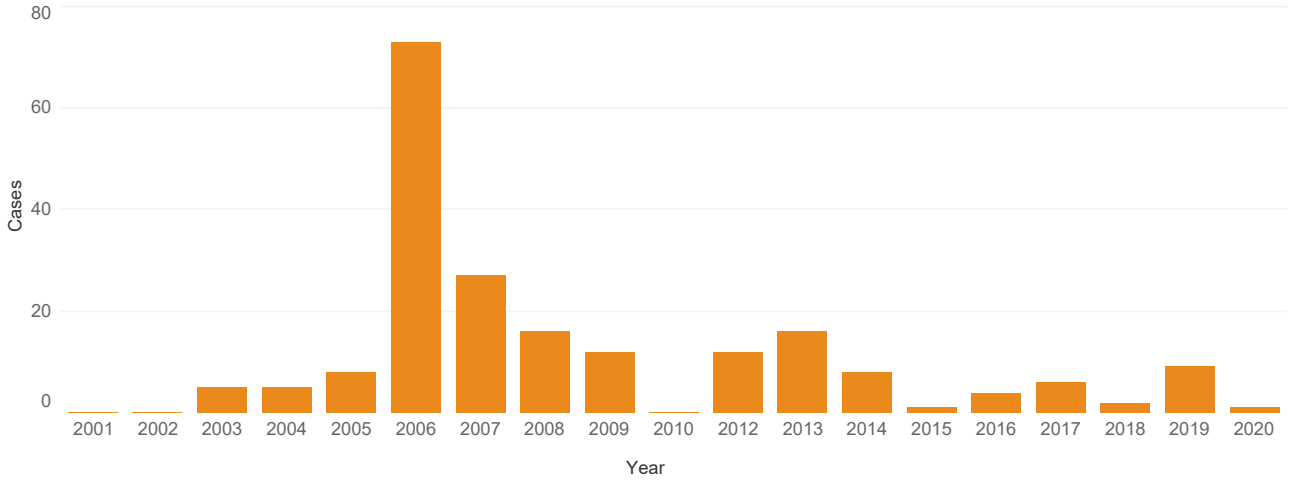
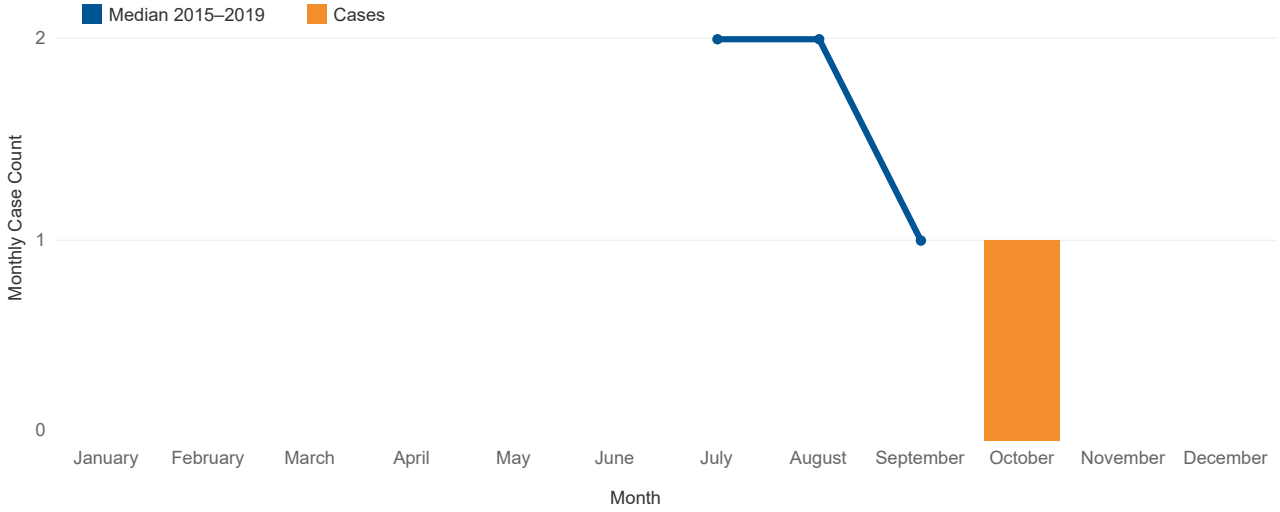
Disease overview | Incidence by year and month | Incidence by county | West Nile virus cases by species | Disease prevention

Incidence of West Nile virus infection by year: Oregon, 2001–2020

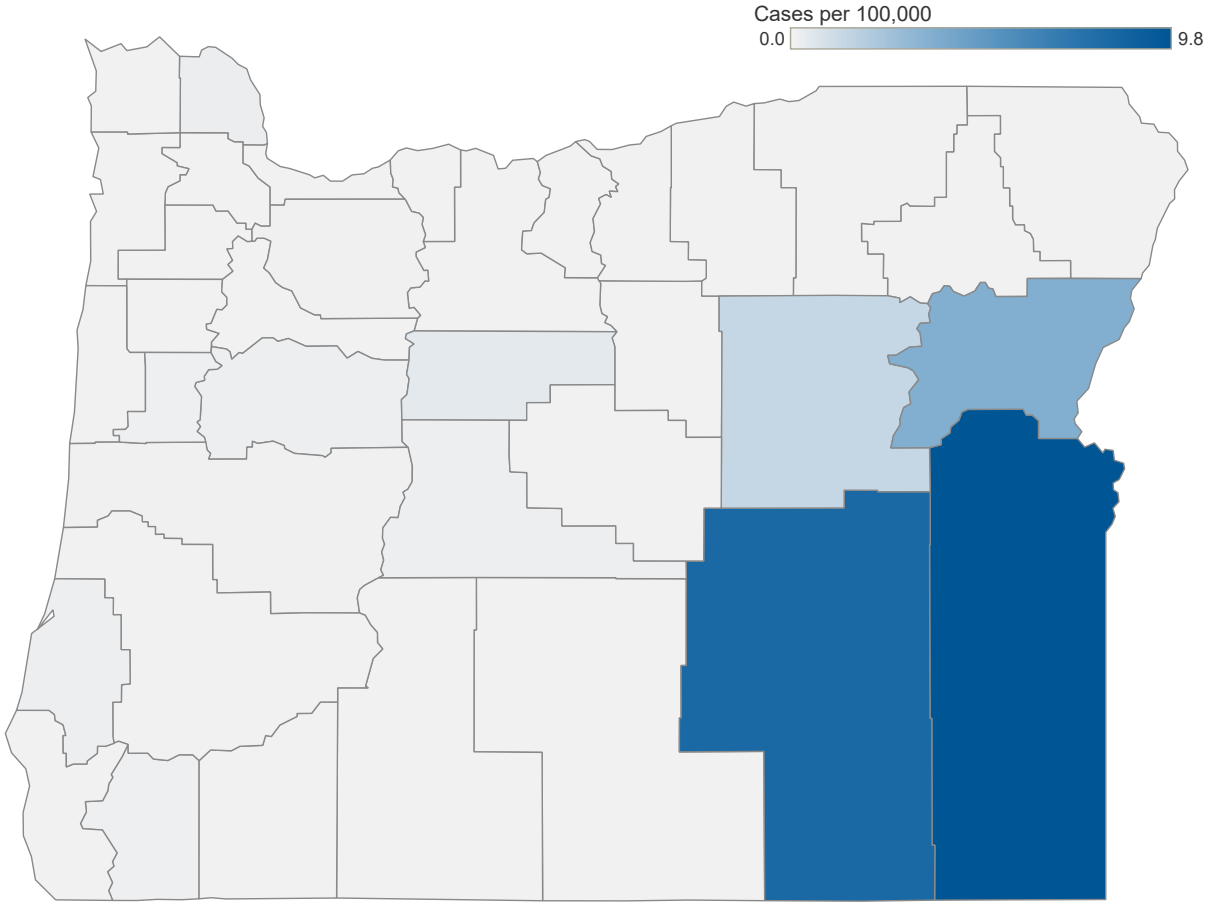
There were no Oregon cases of West Nile virus infection until 2003.



Incidence of West Nile virus infection by month: Oregon, 2020

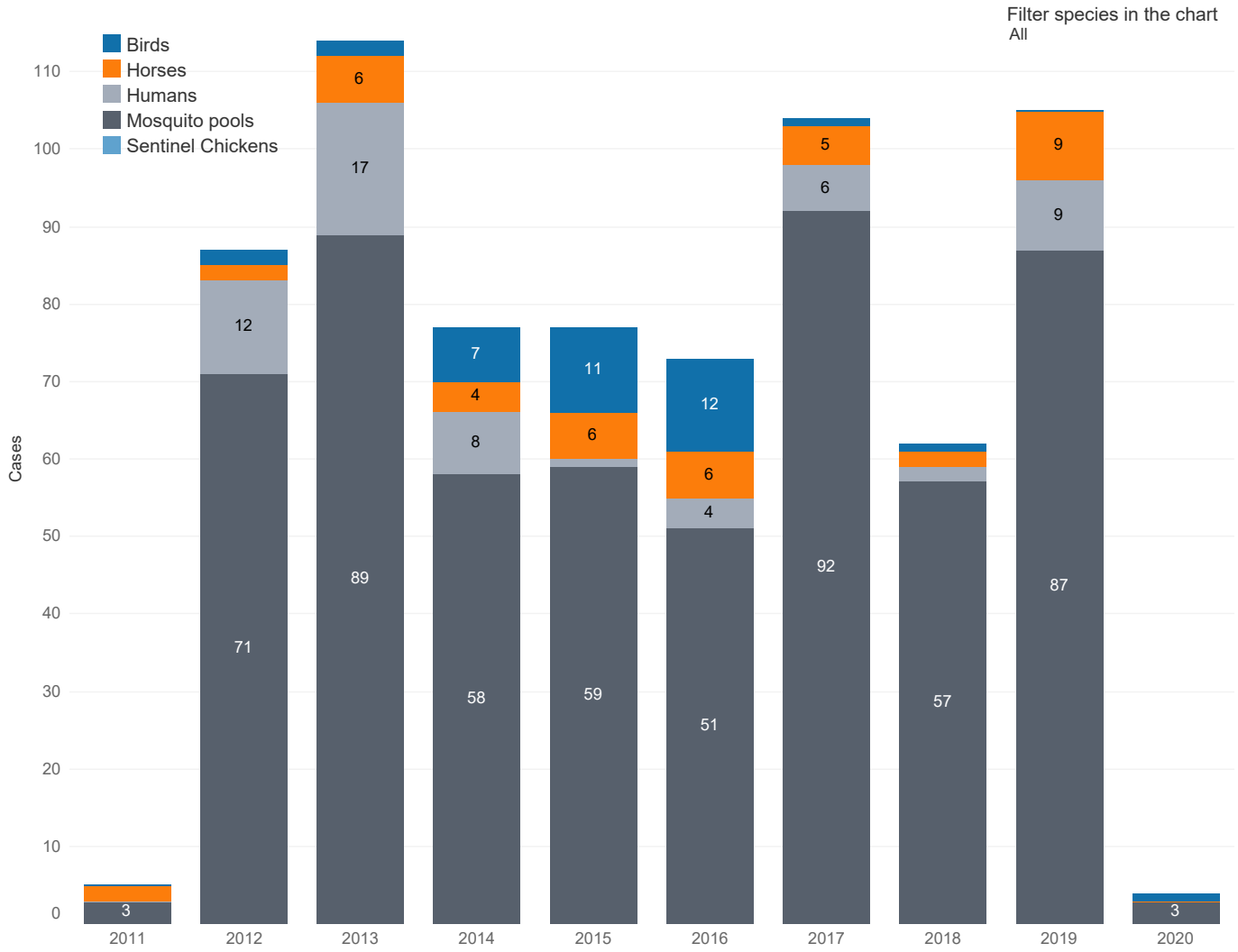


Incidence of West Nile virus by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Confirmed cases of West Nile virus infection by species and year: Oregon, 2011–2020



Source: Oregon State University Veterinary Laboratory and Oregon State Public Health Laboratory.

Prevention

- Avoid mosquito bites:
  - › Use insect repellents when you go outdoors. Repellents containing DEET, picaridin, IR3535, and some oil of lemon eucalyptus and para-menthane-3,8-diol products provide longer-lasting protection. To optimize safety and effectiveness, repellents should be used according to the label instructions.
  - › When weather permits, wear long sleeves, long pants and socks when outdoors.
  - › Take extra care during peak mosquito-biting hours.
- Mosquito-proof your home:
  - › Install or repair screens on windows and doors to keep mosquitoes outside. Use your air conditioning, if you have it.
  - › Reduce the number of mosquitoes around your home by regularly emptying standing water from flowerpots, gutters, buckets, pool covers, pet water dishes, discarded tires and birdbaths.
- Report dead birds to local authorities.

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Yersiniosis

Yersiniosis is a bacterial infection characterized by diarrhea (sometimes bloody), vomiting and abdominal pain. The main reservoir for *Yersinia* is the pig.

Transmission occurs by the fecal-oral route through contaminated food and water, or through contact with infected people or animals. Infection is most often caused by eating raw or undercooked pork contaminated with *Yersinia enterocolitica.* Preventive measures include cooking food thoroughly, avoiding cross-contamination with raw foods of animal origin and washing hands after handling food.

The annual number of yersiniosis cases in Oregon increased notably in 2013 and has remained high in recent years. The increase in cases spans all age, race and sex categories. The most common species is *Y. enterocolitica*. In 2020, there were 31 cases in Oregon residents. All cases were sporadic; no outbreaks were reported. Of the 15 cases with known species, the majority were *Yersinia enterocolitica* (9); other identified species were *Y. intermedia* (3), *Y. pseudotuberculosis* (2) and *Y. frederiksenii* (1). The species is unknown for the remaining 16 cases due to the diagnosis of patients solely through culture-independent diagnostic testing (CIDT).

Infection with *Yersinia pestis*, also known as “plague,” is counted separately from other cases of yersiniosis.

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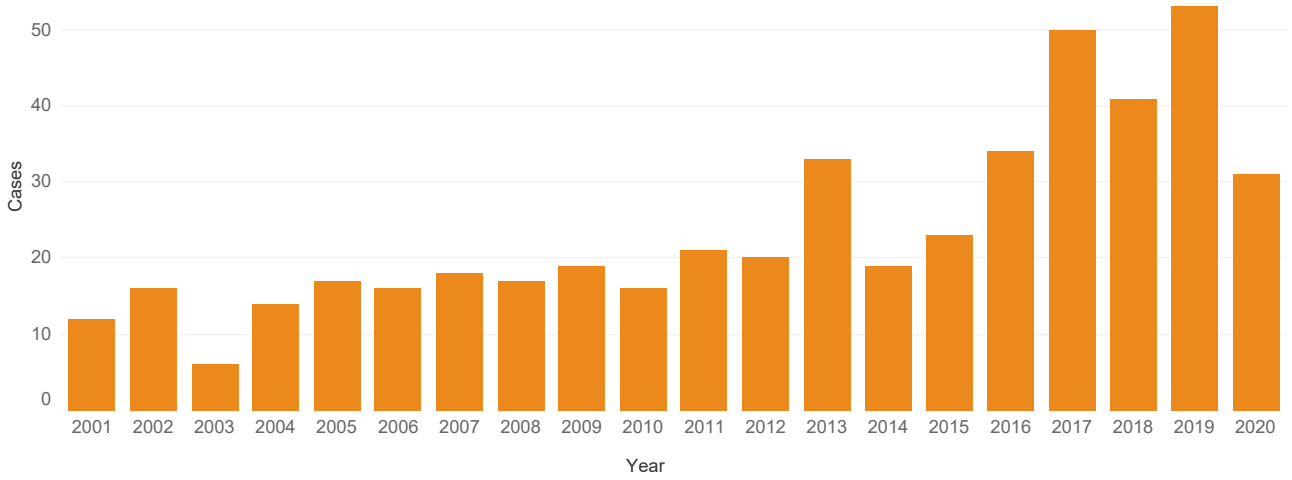
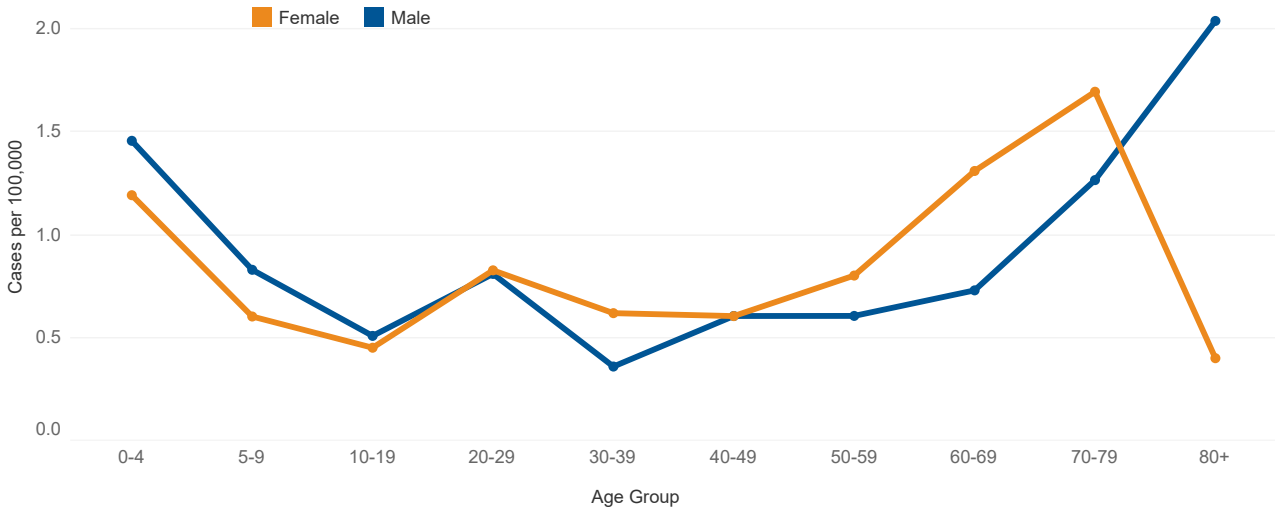
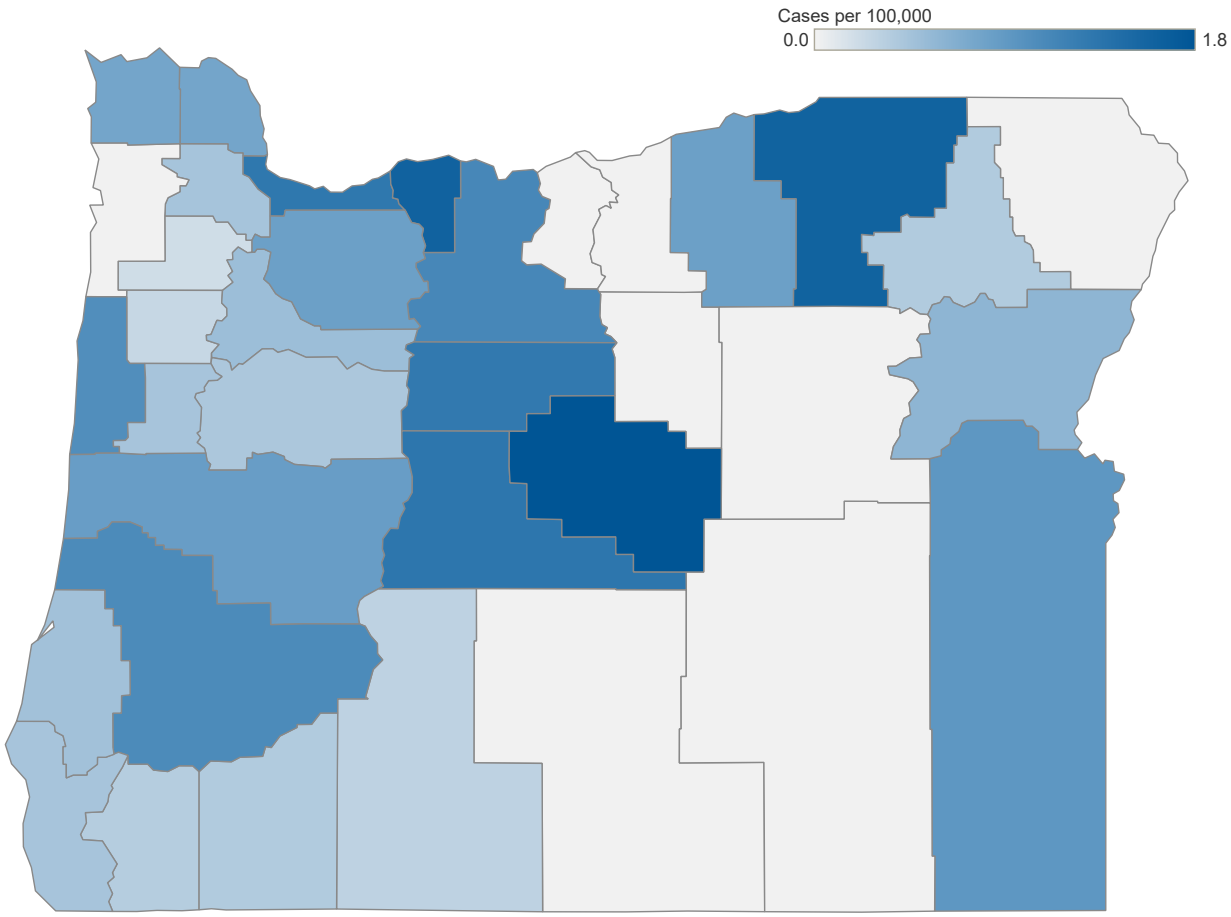
Incidence of yersiniosis by year: Oregon, 2001–2020



Incidence of yersiniosis by age and sex: Oregon, 2011–2020



Incidence of yersiniosis by county of residence: Oregon, 2011–2020



Note: Rates based on small case counts might be unstable.

Prevention

- Avoid eating raw or undercooked pork.
- Consume only pasteurized milk or milk products.
- Wash hands with soap and warm water before eating and preparing food, after contact with animals and after handling raw meat.
- After handling raw chitterlings (chitlins), clean hands and fingernails scrupulously with soap and water before touching infants or their toys, bottles or pacifiers.
- Prevent cross-contamination in the kitchen; use separate cutting boards for meat and other foods. Carefully clean all cutting boards, countertops and utensils with soap and hot water after preparing raw meat.
- Dispose of animal feces in a sanitary manner.

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Disease outbreaks

Oregon state and local health departments investigated 165 acute and communicable disease outbreaks in 2020, down 62% from 429 in 2019. This number does not include the myriad outbreaks of COVID-19 investigated across Oregon in 2020. Outbreaks in 2020 were the result of multiple modes of disease transmission: seven outbreaks were foodborne, 145 were due to person-to-person transmission, and one was due to animal contact. The mode of transmission was indeterminate or unknown in 12 outbreaks.

Respiratory outbreaks were by far the most commonly reported type of outbreak, accounting for 64% (106) of outbreaks investigated in 2020. Among the 106 respiratory outbreaks in 2020, sharing of respiratory secretions caused outbreaks of influenza (67), pertussis (7) and respiratory syncytial virus (9), among others.

Outbreaks of gastroenteritis were the second most common, accounting for 34% (56) of all reported outbreaks in 2020. Foods contaminated with a variety of *Salmonella*, *Shigella*, *Campylobacter* and shiga toxin-producing *Escherichia coli* made folks ill at a variety of venues. Almost every outbreak reinforces the tried-and-true public health mantras of “wash your hands” and “cover your cough.”

Ninety-two (56%) outbreaks investigated in 2020 were lab-confirmed. This is lower relative to recent years, likely due to limited outbreak investigation resources during the COVID-19 pandemic. Forty-three percent (24) of gastroenteritis outbreaks had disease-causing agents identified, the most common being caliciviruses (norovirus and sapovirus), and disease-causing agents were identified in 87% (92) of respiratory outbreaks. As of May 1, 2019 the Oregon State Public Health Laboratory (OSPHL) discontinued testing for norovirus in long-term care facilites experiencing outbreaks of noro-like illness. OSPHL can test for sapovirus, astrovirus and rotavirus when stool specimens are norovirus-negative.

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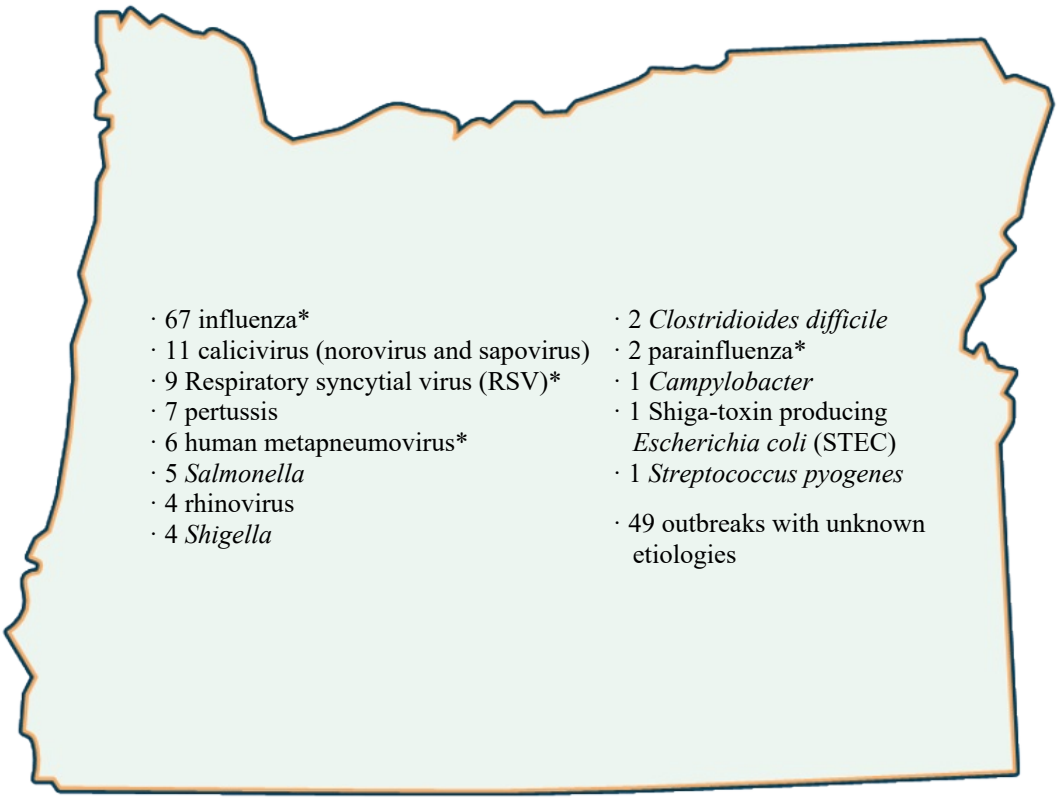

*Note:
Two outbreaks in 2020 were a combination of both influenza and RSV; one outbreak was a combination of both human metapneumovirus and RSV; and one outbreak was a combination of both influenza and parainfluenza.

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Gastrointestinal outbreaks

Of the 56 gastroenteritis outbreaks investigated in 2020, person-to-person transmission was responsible for 39 outbreaks, seven outbreaks were foodborne and one was due to animal contact. Transmission was undetermined (we couldn't figure it out) or unknown (we didn't have enough data to figure it out) in nine of the outbreaks. More than 75% of person-to-person outbreaks (30) happened in institutional cohorts, especially among those in long-term care facilities (LTCFs).

A variety of pathogens were implicated in the seven foodborne outbreaks investigated in 2020. One multi-state outbreak of *Salmonella* Stanley involving a single Oregon case was associated with Wood Ear Mushrooms. A large multi-state outbreak of *Salmonella* Newport affecting 1,102 people in 47 states was associated with onions. One hundred and seventy-four Oregon residents were reported as cases in the outbreak.

The remaining five foodborne outbreaks were unsolved, as no speicific food vehicle could be identified by investigators: one outbreak of *Campylobacter* associated with a specific restaurant facility, one multi-state outbreak of Shiga toxin-producing *Escherichia coli*, one additional multi-state outbreak of *Salmonella* Newport, one outbreak of *Shigella sonnei* associated with a specific food cart, and one outbreak of unknown etiology associated with a shared meal in a workplace.

In 2013, the case definition of a norovirus outbreak was modified to be more in line with national standards. Some outbreaks previously classified as indeterminate were reclassified as suspect norovirus. The new classification includes outbreaks where classic norovirus symptoms were observed, but a positive specimen was not documented.

Fifty-two percent of gastroenteritis outbreaks reported from 2012 to 2020 occurred in LTCFs.

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Gastrointestinal outbreaks by pathogen: Oregon, 2012–2020

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Astrovirus	0	0	0	1	3	0	1	0	0
Campylobacter	2	0	6	0	0	2	1	0	1
Clostridium difficile	0	0	0	2	0	1	0	0	2
Cryptosporidium	0	2	2	0	3	0	0	2	0
E. coli (STEC)	7	4	6	4	2	4	7	5	1
E. coli, other	0	0	0	0	0	0	0	1	0
Giardia	1	1	0	0	0	1	0	1	0
Hepatitis A	0	0	0	0	1	1	0	0	0
Listeria	0	0	0	1	0	0	0	1	0
Norovirus, confirmed	101	102	82	79	73	90	67	45	7
Norovirus, suspect	28	36	54	25	39	49	32	51	4
Rotavirus	0	0	0	4	5	7	2	2	0
Salmonella	10	16	10	13	11	14	14	9	5
Sapovirus	4	2	3	3	6	4	5	1	0
Scombroid poisoning	0	0	0	0	2	0	0	1	0
Shigella	2	3	1	2	0	1	3	4	4
Vibrio	0	4	1	0	1	0	2	0	0
Yersinisa	0	1	0	1	0	0	0	0	0

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Norovirus outbreaks in long-term care facilities

Norovirus infection causes nausea, vomiting, diarrhea, muscle aches, fever and abdominal cramps, which can result in dehydration. Symptoms typically resolve within a day but can remain for up to three days. Norovirus is highly transmissible from person to person by the fecal-oral route; most outbreaks involve this means of transmission. Norovirus can also be acquired by eating food or drinking beverages contaminated by the virus.

The Oregon State Public Health Laboratory (OSPHL) began genotyping specimens associated with gastrointestinal outbreaks in late 2012. As shown in the figure on the next page, norovirus genogroup GII genotype 4 New Orleans was predominant in 2012, accounting for 25 (40%) of 63 total confirmed norovirus outbreaks among Oregon long-term care facilities (LTCF). In late 2012, a new norovirus strain of genogroup GII, genotype 4 originating in Sydney, Australia (GII.4 Sydney 2012) became the predominant norovirus strain and caused a severe norovirus season globally and in the United States. In 2013, GII.4 Sydney was responsible for 40 (58%) of 63 confirmed norovirus outbreaks among Oregon LTCFs. GII.4 Sydney remained the dominant outbreak strain through 2015, when it accounted for 24 (53%) of 45 lab-confirmed norovirus LTCF outbreaks that year. We also saw an increase in GI genogroup outbreaks in 2015. Following this, in 2016, we saw a rise in other GII genotype outbreaks in Oregon's LTCF. At least until 2019, these other GII genotypes have since then continued to dominate in reported outbreaks in Oregon.

As of May 1, 2019, testing for norovirus in LTCF experiencing outbreaks of noro-like illness was discontinued at OSPHL. Strikingly few norovirus outbreaks—only 12—were reported from LTCFs during 2020, presumably because of the social distancing, and reduced visiting necessitated by the COVID-19 pandemic. The six lab-confirmed outbreaks in LTCFs in 2020 were of an unknown genotype.

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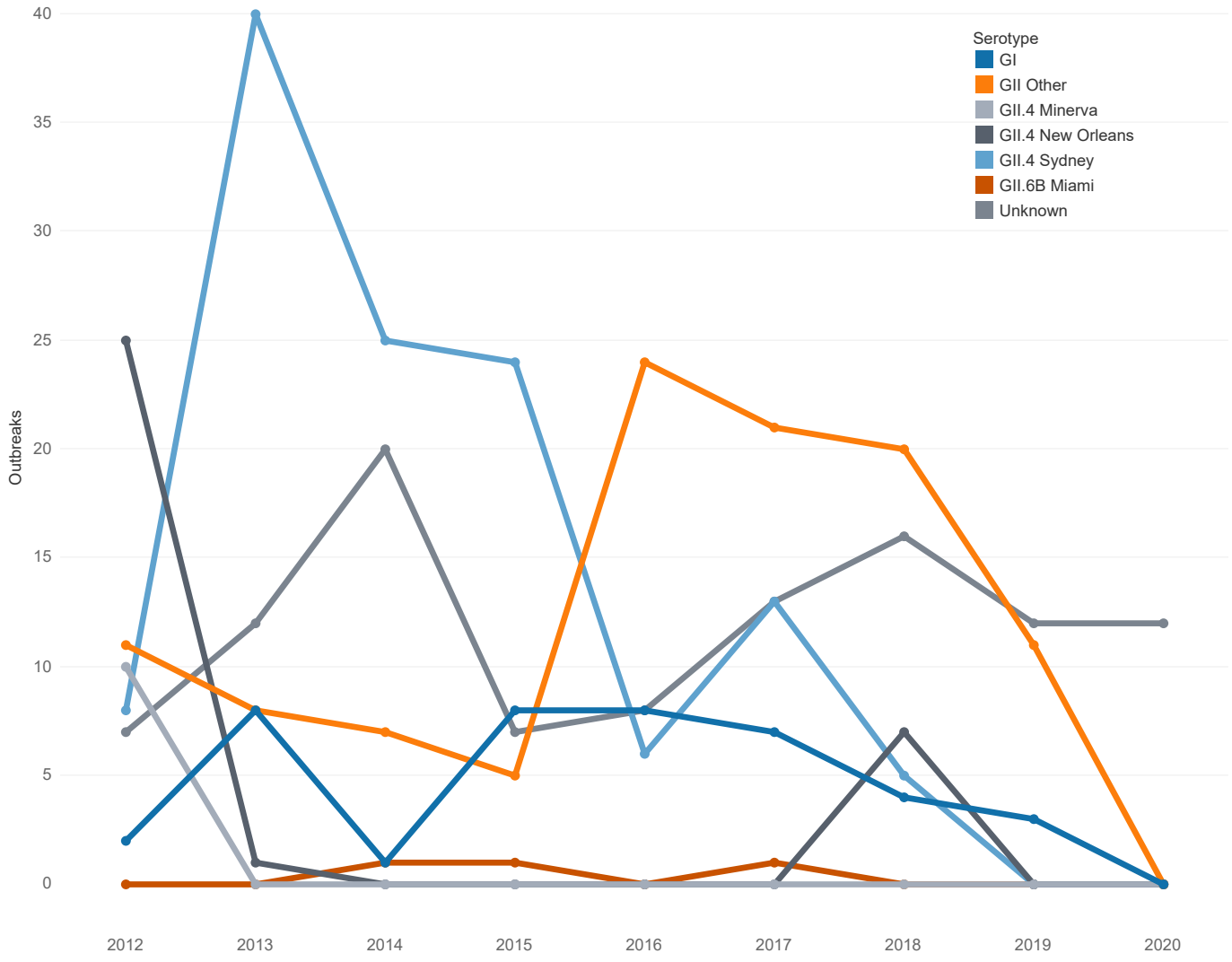
Norovirus sequences in Oregon LTCFs, 2012–2020

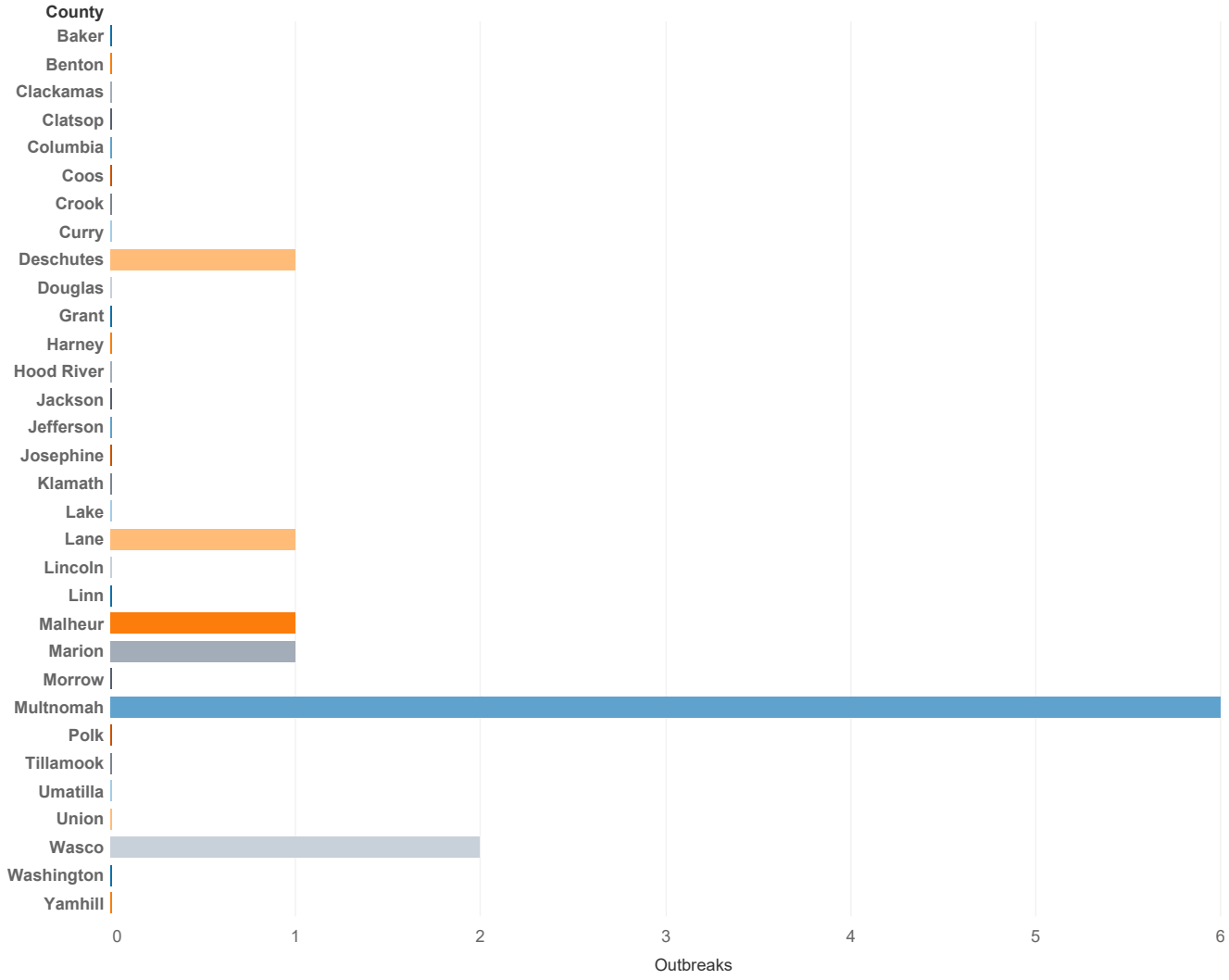


Norovirus outbreaks overview | Norovirus outbreaks by sequence | Norovirus outbreaks in long-term care fac..

Norovirus outbreaks in LTCFs by county of occurrence: Oregon, 2020

Use the filter to change the years displayed in the chart or hover over a bar to see historical data.

Select a year(s) to view in the chart:
2020



Cases by year, 2000–2020 | Cases of low-incidence disease by year | Cases by disease and county of residence

Selected cases of notifiable diseases by year: Oregon, 2001–2020

Disease	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Campylobacteriosis	599	575	597	660	651	652	729	700	732	863	984
Carbapenem-resistant Enterobacteriaceae (CRE)	0	0	0	0	0	0	0	0	0	1	4
Coccidioidomycosis	0	1	0	0	1	1	3	1	2	6	17
Cryptococcosis	0	0	0	2	3	1	3	8	15	19	27
Cryptosporidiosis	60	41	37	32	69	85	164	65	224	220	219
Dengue fever	2	0	0	1	7	2	4	6	4	9	2
E. coli (STEC)	97	209	105	70	158	107	85	68	84	119	136
Extrapulmonary nontuberculous mycobacterial..	0	0	0	0	0	0	0	1	0	0	1
Giardiasis	536	432	407	445	418	426	463	451	429	486	444
Haemophilus influenzae infection	43	63	44	54	58	56	73	58	58	70	75
Acute hepatitis A	109	61	62	66	46	46	35	27	19	17	12
Acute hepatitis B	167	127	118	119	105	80	61	47	50	44	33
Chronic hepatitis B	566	502	443	518	445	447	500	525	414	421	428
Acute hepatitis C	15	13	15	15	20	27	21	32	24	22	23
Chronic hepatitis C	59	78	149	174	2,659	6,208	6,500	6,419	5,627	5,467	5,499
Legionellosis	4	9	17	8	15	22	14	18	19	18	24
Listeriosis	12	9	5	7	11	13	8	6	19	17	10
Lyme disease	16	15	18	28	27	28	33	48	44	44	40
Malaria	15	14	10	19	13	15	17	4	12	16	23
Measles	3	0	3	0	2	2	2	1	0	0	3
Meningococcal disease	64	44	60	64	57	41	32	38	41	32	31
Mumps	0	0	0	0	0	22	2	1	2	3	4
Pertussis	66	192	439	614	622	111	131	174	255	285	329
Q fever	0	1	1	5	2	0	2	1	4	3	1
Rabies	4	14	7	7	8	25	12	13	11	17	17
Salmonellosis	280	335	424	414	414	424	332	429	440	511	367
Shigellosis	115	106	211	87	127	121	87	93	56	57	58
Tularemia	1	2	0	2	2	3	3	4	1	3	5
Vibriosis	6	16	6	12	9	19	8	12	19	25	7
West Nile virus	0	0	5	5	8	73	27	16	12	0	0
Yersiniosis	12	16	6	14	17	16	18	17	19	16	21
Chlamydia	7,500	7,191	7,496	8,689	9,020	9,565	9,858	10,853	11,491	12,026	13,663
Congenital Syphilis	0	0	0	0	0	0	1	1	0	0	0
Gonorrhea	1,145	930	980	1,302	1,561	1,460	1,239	1,260	1,117	1,075	1,482
HIV	269	279	296	292	285	283	244	291	251	244	243
Syphilis	13	29	47	28	42	30	19	25	57	75	101
TB	123	111	106	106	103	81	95	75	89	87	74

Selected low incidence disease case counts by year: Oregon

Disease	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Babesiosis	0	0	0	1	4	2	5	2	2	3
Botulism	3	6	4	1	3	3	4	5	1	2
Brucellosis	0	0	2	1	0	1	3	4	0	0
Colorado tick fever	1	1	0	1	0	1	0	5	4	1
Cyclosporiasis	0	1	0	1	0	1	2	2	5	0
Dengue	2	4	4	6	5	8	7	11	12	8
Ehrlichiosis	1	0	0	0	1	3	1	0	0	2
Hantavirus	2	2	1	1	0	1	1	1	0	2
Leishmaniasis	0	0	1	0	0	0	1	2	3	0
Leptospirosis	1	0	0	2	0	2	2	6	2	2
Malaria	23	12	14	19	20	20	13	17	6	5
Mosquito (Non WNV)	0	0	0	0	0	1	0	0	0	0
Plague	1	2	0	0	2	0	0	0	0	0
Q fever	1	4	3	9	2	4	8	8	5	0
Rickettsia	0	1	2	2	5	7	5	4	5	3
Rubella	0	0	1	0	0	0	0	0	0	1
Taeniasis	5	5	2	3	4	3	2	3	3	4
Tetanus	0	0	1	0	1	0	2	1	0	0
Tick paralysis	0	0	0	0	0	0	1	0	0	0
Tick-borne relpasing fever	0	3	1	4	3	3	0	2	4	2
Tularemia	5	0	3	4	6	4	2	9	2	1
WNV	0	12	16	8	1	4	6	2	9	1
Zika	0	0	0	3	0	54	8	2	1	0

Cases by year, 2000–2020 | Cases of low-incidence disease by year | Cases by disease and county of residence

Selected Oregon communicable disease case counts by county of residence, 2020

County	Campylobacteriosis	Carbapenem-resistant Enterobacteriaceae (CRE)	Coccidioidomycosis	Cryptococcosis	Cryptosporidiosis	E. coli (STEC)	Extrapulmonary nontuberculous mycobacterial disease (NTM)	Giardiasis	Haemophilus influenzae infection	Acute hepatitis A	Acute hepatitis B	Chronic hepatitis B	Acute hepatitis C	Chronic hepatitis C	Legionellosis
Baker	4	0	0	0	0	2	0	1	0	0	0	2	0	21	
Benton	13	1	0	0	3	5	1	5	0	0	1	3	2	42	
Clackamas	81	12	2	5	8	15	9	26	1	2	4	25	0	268	
Clatsop	14	1	0	1	1	0	0	2	0	0	0	1	0	85	
Columbia	14	0	0	0	2	5	0	3	1	0	0	2	0	49	
Coos	13	1	0	0	0	3	2	2	3	0	0	3	0	109	
Crook	13	1	0	0	1	3	0	3	0	0	0	1	0	8	
Curry	4	2	0	0	0	0	0	0	0	0	0	0	0	34	
Deschutes	63	12	5	8	5	33	1	22	0	0	0	4	0	168	
Douglas	34	9	1	1	8	10	0	8	1	0	0	3	0	193	
Gilliam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grant	3	0	0	0	0	1	0	1	0	0	0	0	0	6	
Harney	0	0	0	0	0	0	0	2	0	0	0	0	0	9	
Hood River	5	0	1	0	0	3	0	2	0	0	0	1	0	9	
Jackson	49	10	2	2	6	13	4	6	5	0	1	8	0	275	
Jefferson	8	4	0	1	1	3	0	5	0	0	0	2	0	32	
Josephine	20	7	1	2	0	4	2	1	0	0	1	9	0	126	
Klamath	19	4	0	0	6	5	0	3	1	0	1	4	0	75	
Lake	5	0	0	0	2	0	0	0	0	0	0	0	0	13	
Lane	61	14	4	1	6	13	2	13	6	1	0	22	5	342	
Lincoln	16	0	0	1	2	3	0	4	0	0	0	2	0	63	
Linn	33	4	0	1	9	4	2	3	2	0	0	2	0	164	
Malheur	4	0	0	0	0	3	0	1	0	9	0	2	0	53	
Marion	51	28	8	1	1	9	0	20	4	1	1	23	2	308	
Morrow	3	1	0	0	2	0	1	0	1	0	0	0	0	7	
Multnomah	145	26	2	9	17	26	4	55	16	10	9	116	19	650	
Polk	15	4	0	0	0	3	0	1	1	0	0	2	0	43	
Sherman	0	1	0	0	0	0	0	0	0	0	0	0	0	1	
Tillamook	10	0	0	0	2	1	0	2	0	0	0	1	0	29	