2014

Selected Reportable Communicable Disease Summary

Oregon Health Authority

PUBLIC HEALTH DIVISION

Acute and Communicable Disease Prevention

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Introduction

About surveillance data

Oregon law specifies diseases of public health importance that must be reported to local public health authorities by diagnostic laboratories and health care professionals. This report reflects reporting laws in effect for 2014. 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 forwarded to the Oregon Public Health Division. 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. Data from 2014 and trends from recent years are summarized in this report.

But caveat lector! 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 may 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.

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

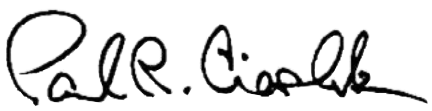
can greatly increase testing and reporting rates. Despite their limitations reportable disease data remain valuable in a variety of ways. They help identify demographic groups at higher risk of illness. They allow analysis of disease trends and identify outbreaks of disease.

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 onset date unless otherwise indicated. 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 were obtained from the Population Research Center at Portland State University (www.pdx.edu/prc). Using rates instead of case counts allows for comparisons between populations of different sizes — e.g., U.S. 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 2014 Oregon reportable communicable disease summary. We present 27 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 15 years, 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 reported during 2014, 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.

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, M.D.

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Campylobacteriosis

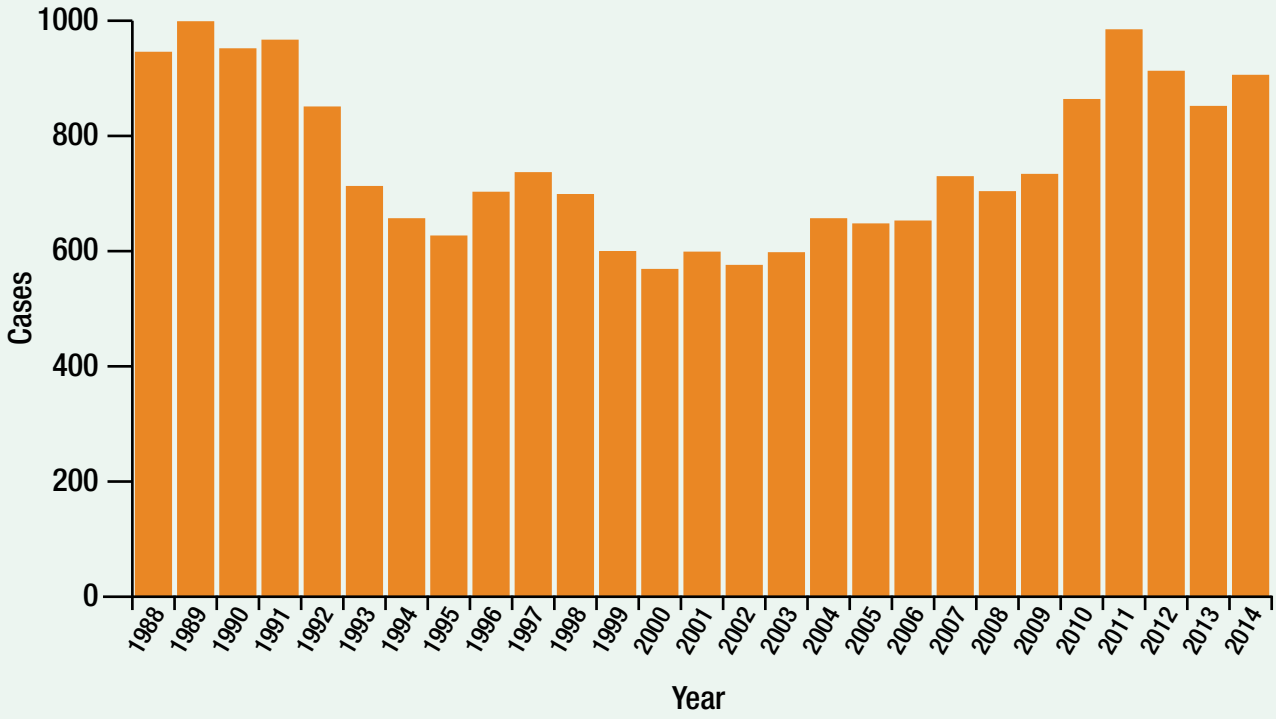
Campylobacteriosis is caused by the Gram-negative bacterium *Campylobacter.* It is characterized by acute onset of diarrhea, vomiting, abdominal pain, fever and malaise. Symptoms generally occur within 2–5 days of infection. Campylobacteriosis is the most common bacterial enteric infection reported in Oregon. It is of worldwide epidemiologic importance due to the fecal-oral route of infection and the extensive reservoir of the organism in both wild and domestic animals. 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.

In 2014, Oregon's rate of 22.8 cases per 100,000 was 2.7 times the 2020 national health objective of 8.5 per 100,000. The cause of this increased incidence in Oregon is unknown. Children aged 0–4 years have the highest rates of illness (37 per 100,000). Infections occur year-round in Oregon, with peak incidence in the summer months.

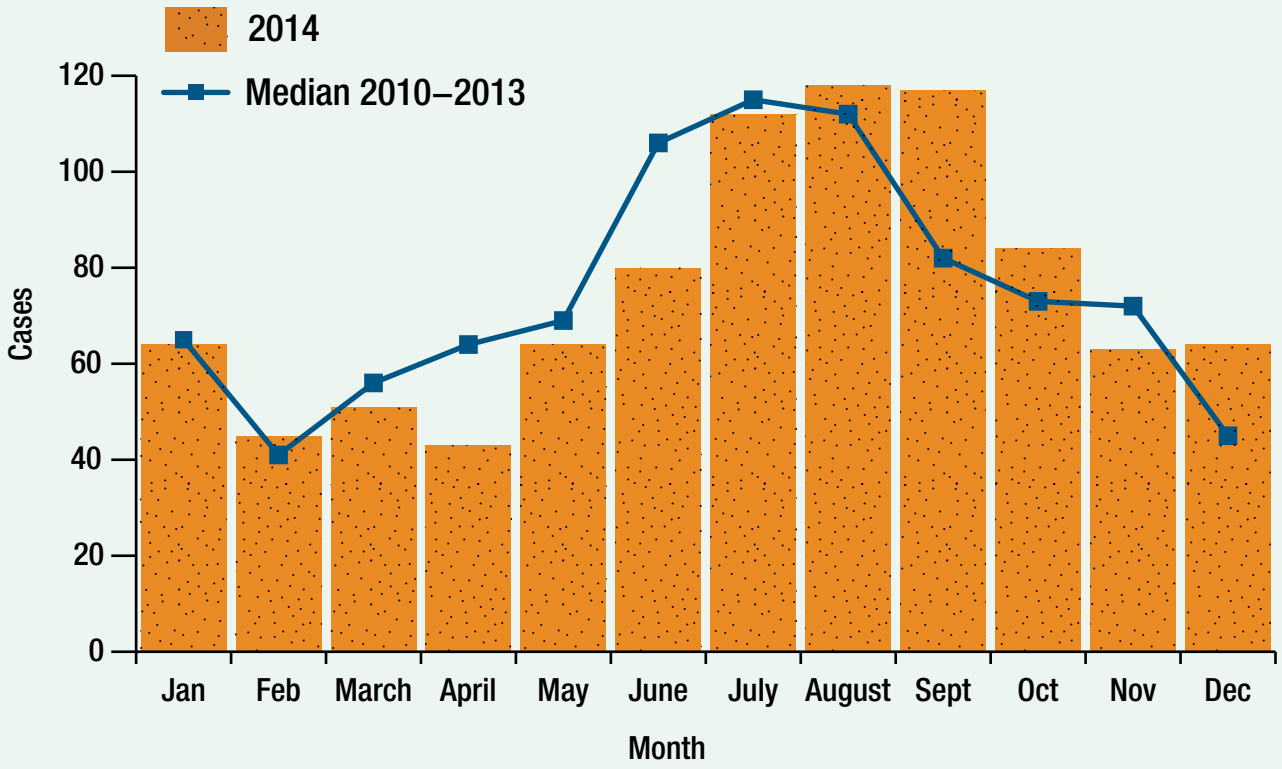
Campylobacteriosis is not a nationally notifiable condition, but U.S. estimates from the FoodNet program (of which Oregon is a member) indicate that in 2014 campylobacteriosis incidence is about 13.5 cases per 100,000 people, an increase of 13% compared to 2006–2008.

Most illnesses are sporadic, but outbreaks may be associated with undercooked meat (often chicken), unpasteurized milk, direct contact with animals or non-chlorinated water. There were 6 reported outbreaks in Oregon during 2014. From 2000–2014, 16 outbreaks of campylobacteriosis have been investigated: eight foodborne, two waterborne, three from animal contact, one person-to-person and two of unknown etiology. Proper food handling and water treatment, along with good hygienic practices are the keys to prevention.

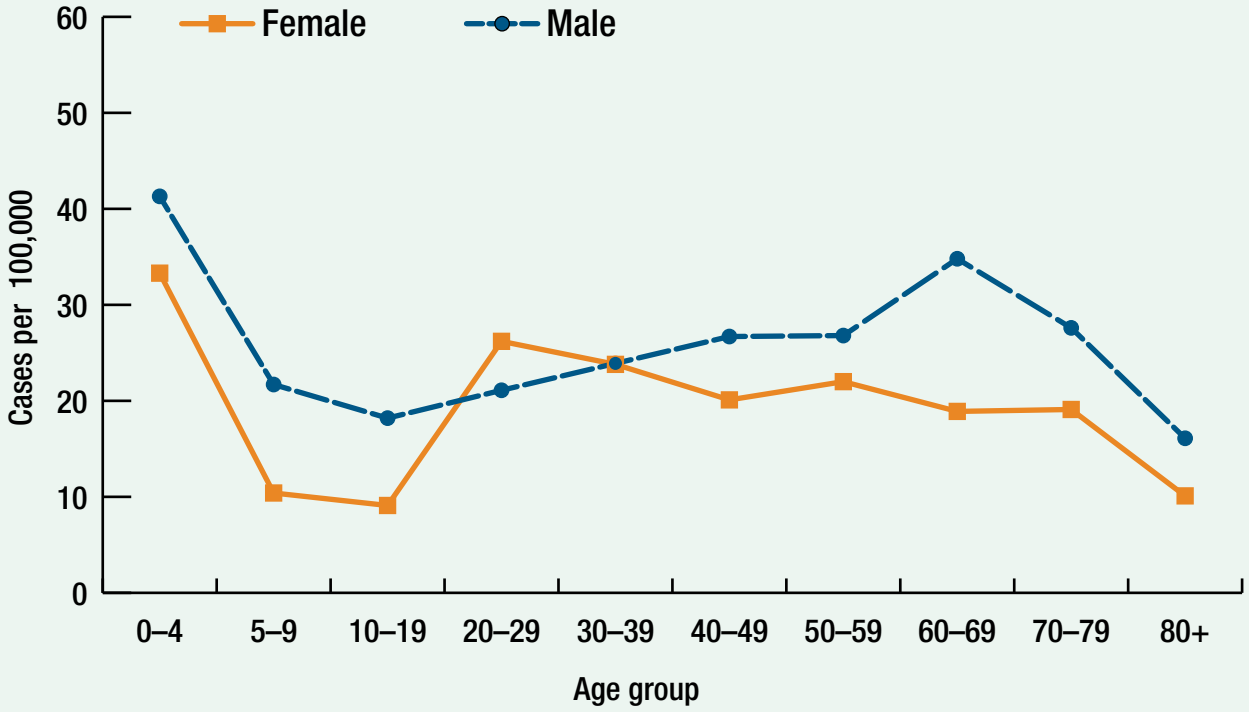
Campylobacteriosis by year: Oregon, 1988–2014



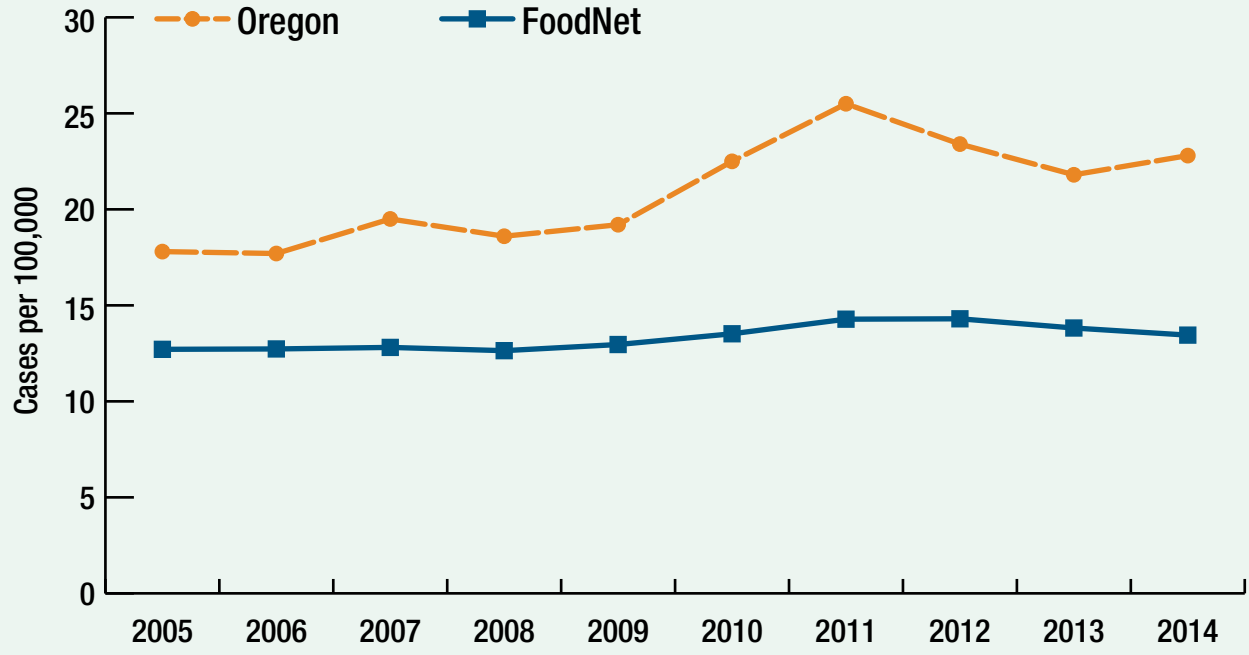
Campylobacteriosis by report month: Oregon, 2014



Incidence of campylobacteriosis by age and sex, 2014

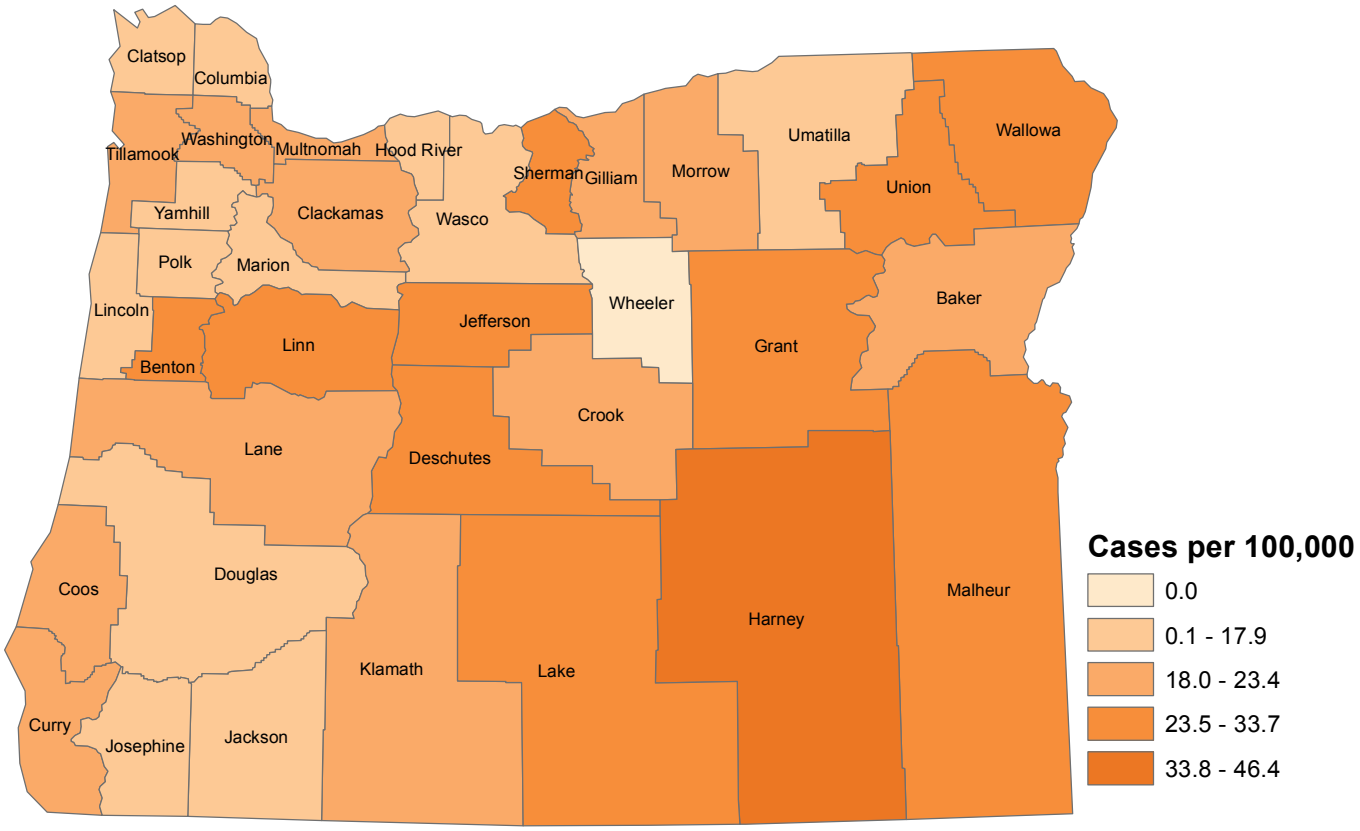


Incidence of campylobacteriosis: Oregon and U.S. (FoodNet sites), 2005–2014



FoodNet	12.7	12.7	12.8	12.6	13.0	13.5	14.3	14.3	13.8	13.5
Oregon	17.8	17.7	19.5	18.6	19.2	22.5	25.5	23.4	21.8	22.8

Incidence of campylobacteriosis by county of residence: Oregon, 2004–2014



Prevention

- Wash hands with soap and hot water before preparing food, after handling foods of animal origin, and after contact with pet feces.
- Thoroughly clean all cutting boards, countertops and utensils with soap and hot water after preparing foods of animal origin.
- Cook all products of animal origin, especially poultry products, thoroughly.
- Do not drink unpasteurized (raw) milk or untreated surface water.
- Make sure persons with diarrhea wash their hands diligently with soap and warm water after using the bathroom.

Carbapenem-resistant *Enterobacteriaceae* (CRE)

The *Enteroacteribaceae* are a large family of Gram-negative bacilli found in the human gastrointestinal tract. Commonly encountered species include *Escherichia coli, Klebsiella* spp., and *Enterobacter* spp. Carbapenem-resistant *Enterobacteriaceae* (CRE) are non-susceptible to carbapenem antibiotics. They are broadly categorized based on the mechanism of their resistance as carbapenemase producers (CP-CRE) and non-carbapenemase producers.

Carbapenems are broad-spectrum antibiotics typically used to treat severe health care-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.

In December 2011, CRE bacterial isolates became reportable statewide. The Oregon State Public Health Laboratory offers specialized testing to determine whether reported CRE are carbapenemase producers and the Oregon Public Health Division's HAI program performs detailed investigation of any reported cases.

Using the surveillance definition established in 2014,* 113 cases of CRE infection or colonization were reported among Oregon residents since 2010. The median case age was 71 (range 7–96) years; 72 (64%) were female; 66 (58%) were hospitalized at the time of specimen collection. Urine was the most common source (67%) and *Enterobacter* spp. accounted for 50% of all isolates. In terms of case risk factors for CRE, 55% had surgery and 71% were hospitalized in the year previous. Fifty-five percent had medical devices in place within two days

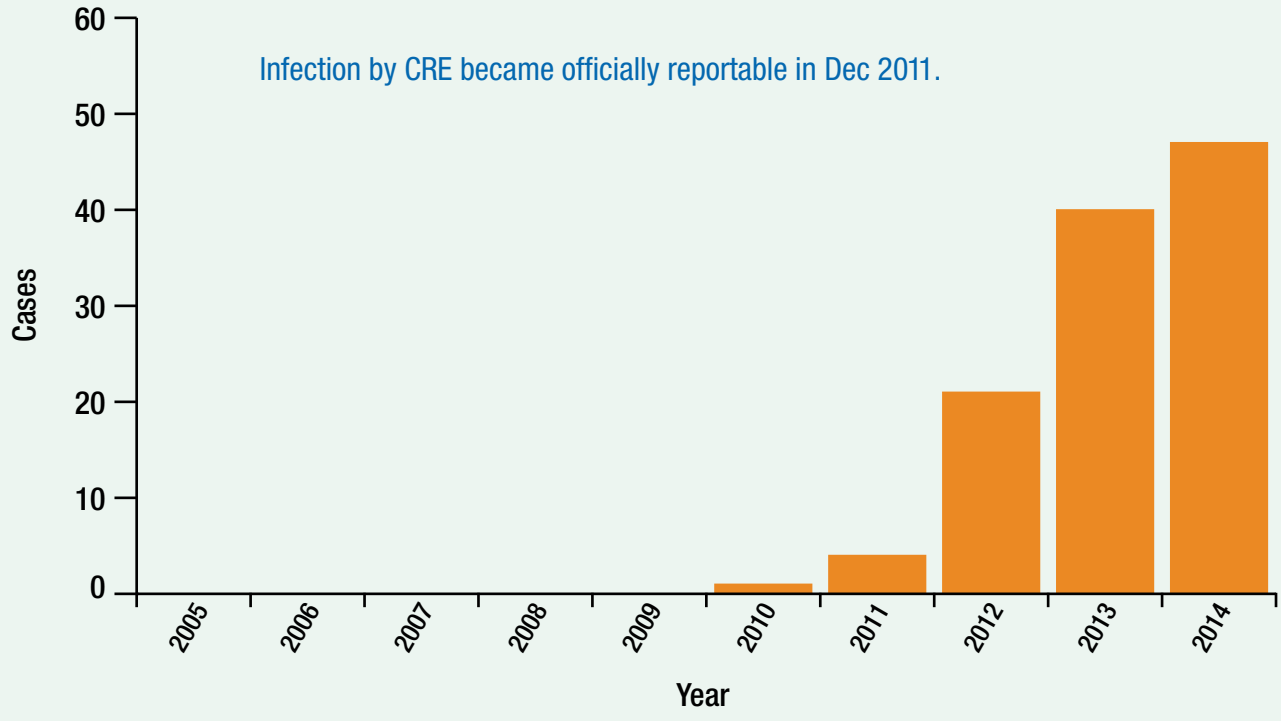
of culture collection and 75% had received antibiotics within 30 days before. By the end of 2014, Oregon had 7 CP-CRE; 5 *Klebsiella pneumoniae* carbapenemase (KPC), 1 New Delhi metallo-ß-lactamase (NDM), and 1 Oxacillinase-48 (OXA-48). Five of the CP-CRE were from patients with histories of health care exposure in other states or out of country.

Unlike much of the rest of the county, we have no indication CP-CRE are spreading in Oregon. We have instituted enhanced surveillance and prevention efforts and established the Drug-Resistant Organism Prevention and Coordinated Regional Epidemiology Network (DROP-CRE), a statewide network to rapidly detect, respond to, and prevent CRE.

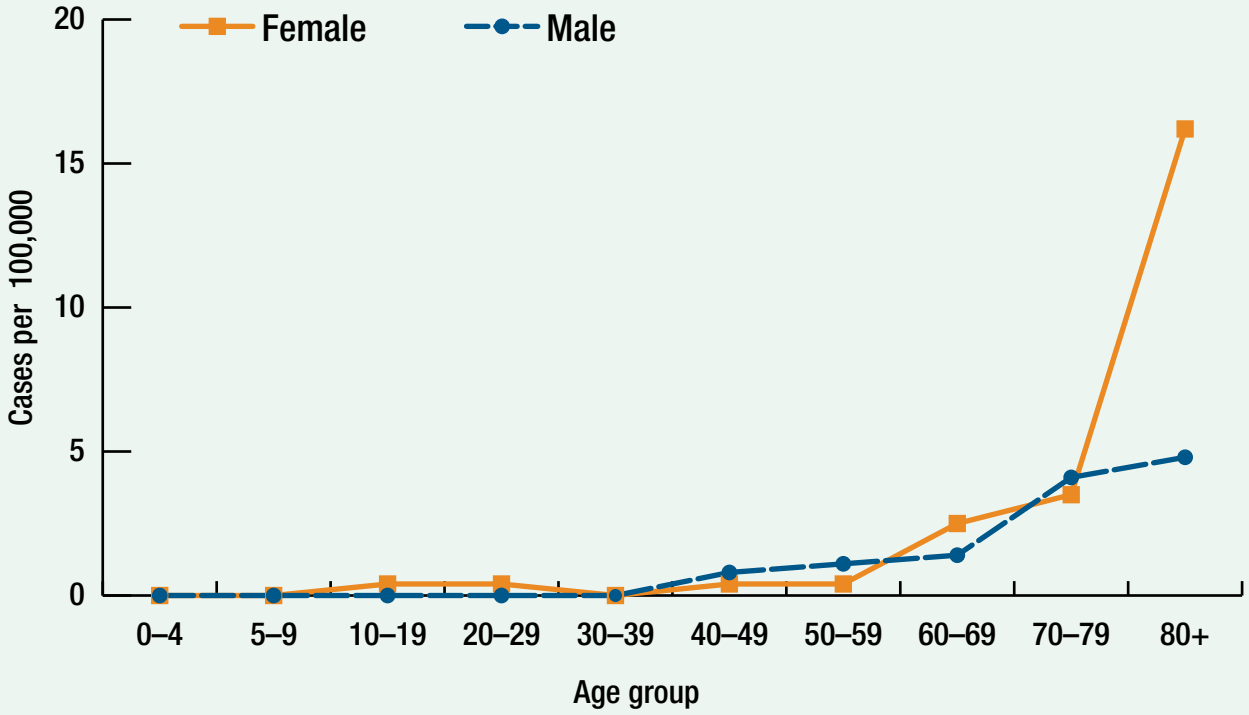
For more information, including our CRE toolkit, please see Carbapenem-resistant *Enterobacteriaceae*.

*Definition changed in 2014 to *Enterobacteriaceae* that are non-susceptible (intermediate or resistant) to one or more carbapenem: doripenem, imipenem or meropenem and resistant to all of the third generation cephalosporins tested: cefotaxime, ceftriaxone or ceftazidime.

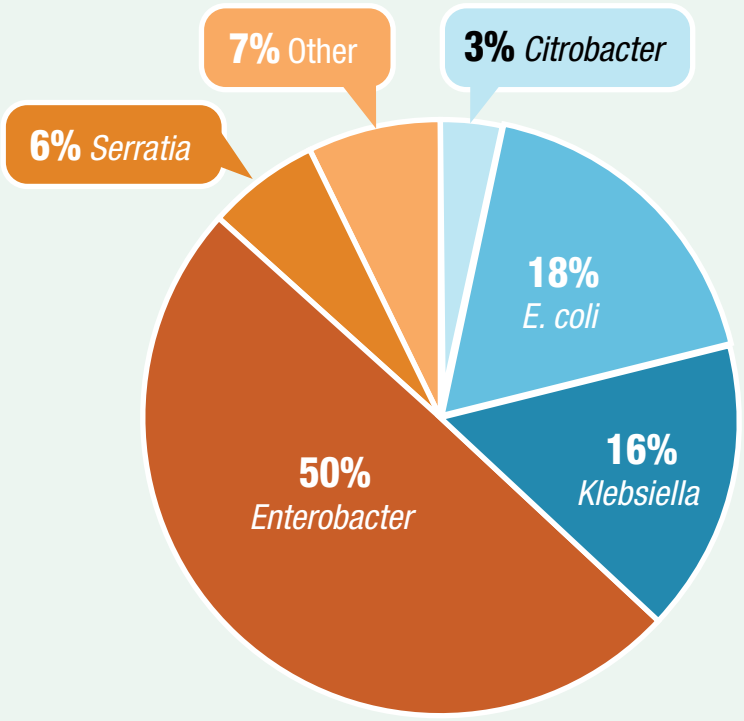
Carbapenem-resistant *Enterobacteriaceae* by year: Oregon, 2005–2014



Incidence of carbapenem-resistant *Enterobacteriaceae* by age and sex: Oregon, 2014



Carbapenem-resistant *Enterobacteriaceae* by species: Oregon, 2014



Prevention

Think "NICE" if you encounter CRE:

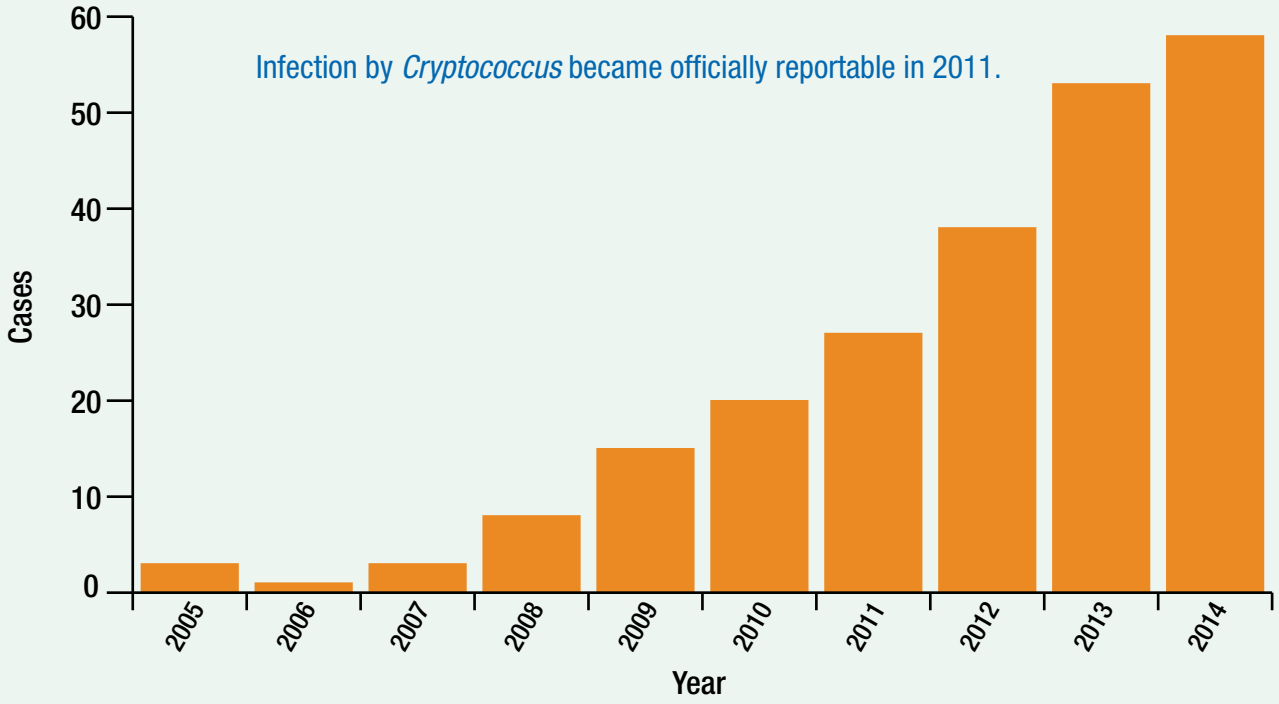
- **Notify** the county health department, pertinent clinical groups, and your antibiotic stewardship program that CRE has been spotted.
- **Intervene** in all cases with core infection control activities: hand hygiene, contact precautions, private rooms and optimized environmental cleaning. Reduce unnecessary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

Cryptococcosis

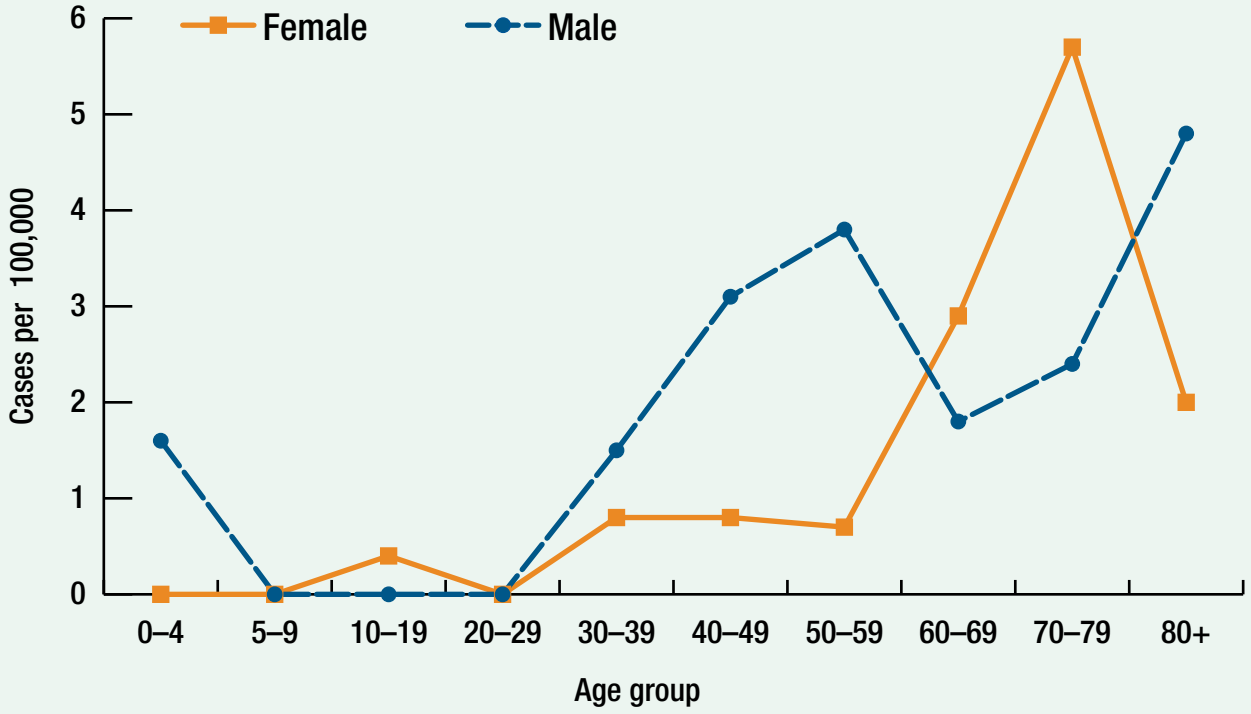
Cryptococcus neoformans has long been identified in humans with immunosuppressive conditions, especially AIDS. Before 1999, *C. gattii* infection seemed to be pretty much limited to the tropics. During 1999, *C. gattii* began appearing in animals and humans on Vancouver Island, British Columbia, Canada. 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, associated with an outbreak on Vancouver Island and in mainland British Columbia. From 2006–2010, 46 additional cases were reported. Infection by *Cryptococcus* became officially reportable in Oregon on August 19, 2011.

Studies from British Columbia and elsewhere showed a median incubation period of 6–7 months, with a range of 2–13 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 *Cryptococcus gattii* appears to be established in Oregon soil and serves as a source of infection. There is no potential for zoonotic transmission. Previously healthy persons appear to be at some risk, but most human cases of infection with either cryptococcal species have been immunocompromised or otherwise suffered from chronic illness. 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: www.idsociety.org/Index.aspx.

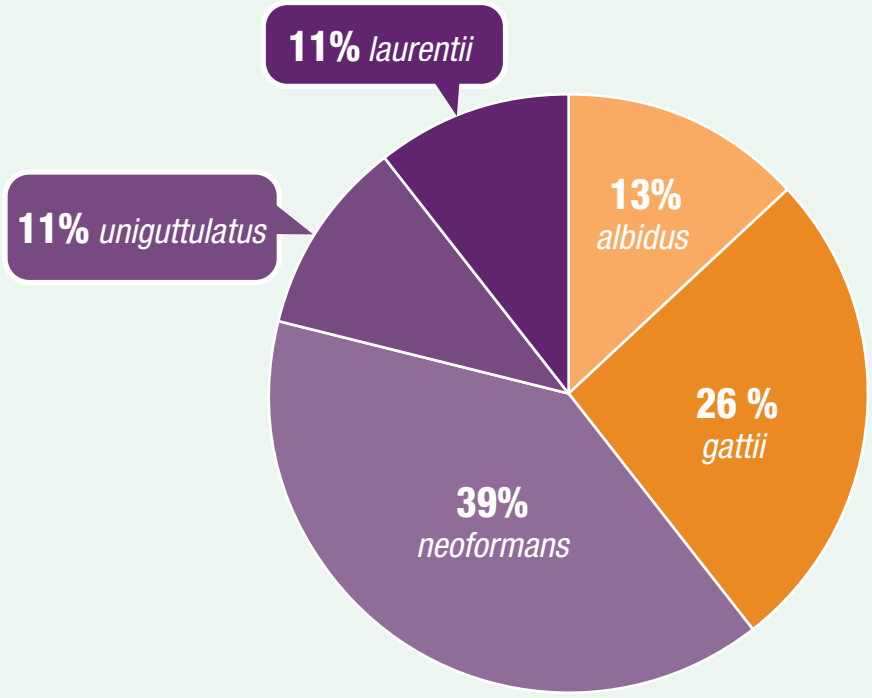
Cryptococcosis by year: Oregon, 2005–2014



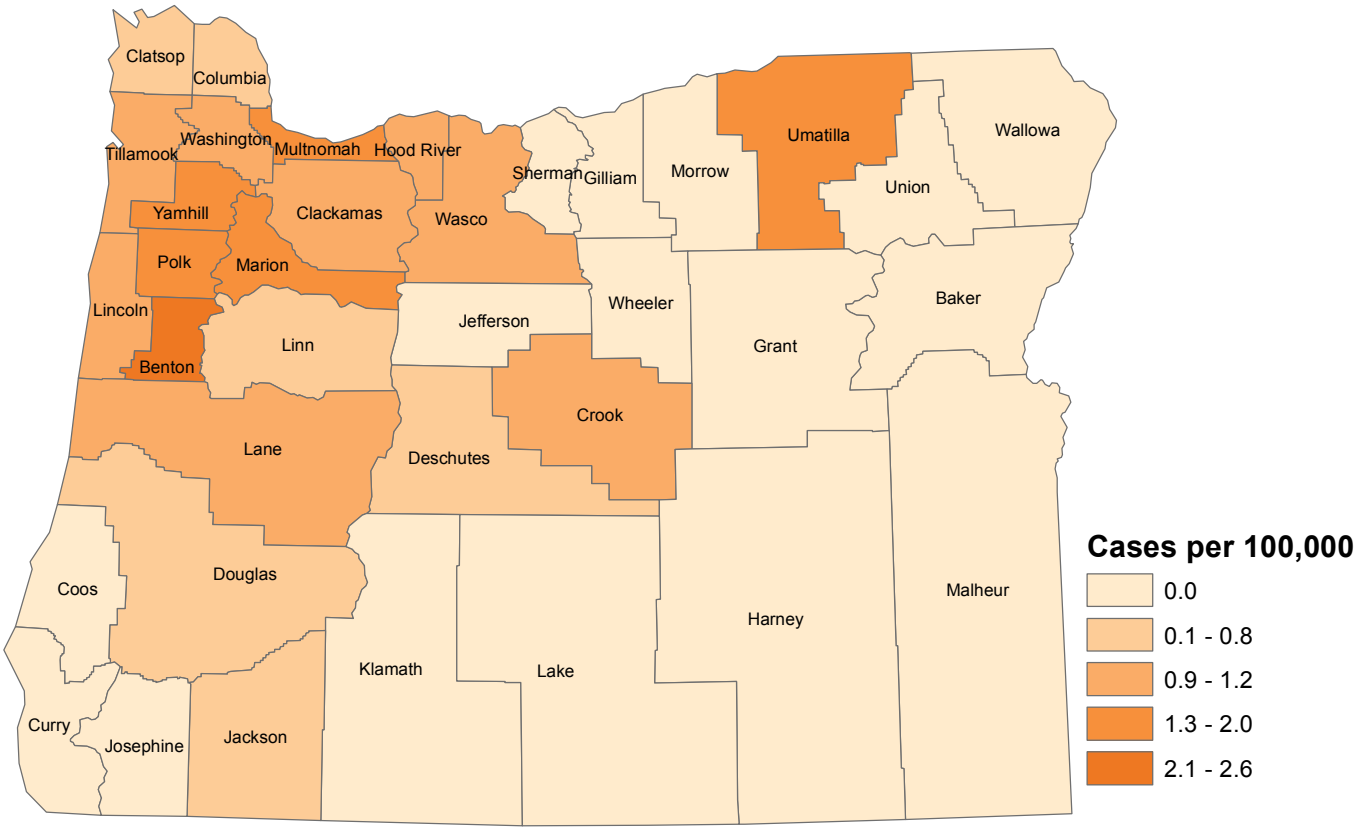
Cryptococcosis by age and sex: Oregon, 2014



Cryptococcosis by species, Oregon, 2014



Incidence of cryptococcosis by county of residence, Oregon 2011–2014



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.

Cryptosporidiosis

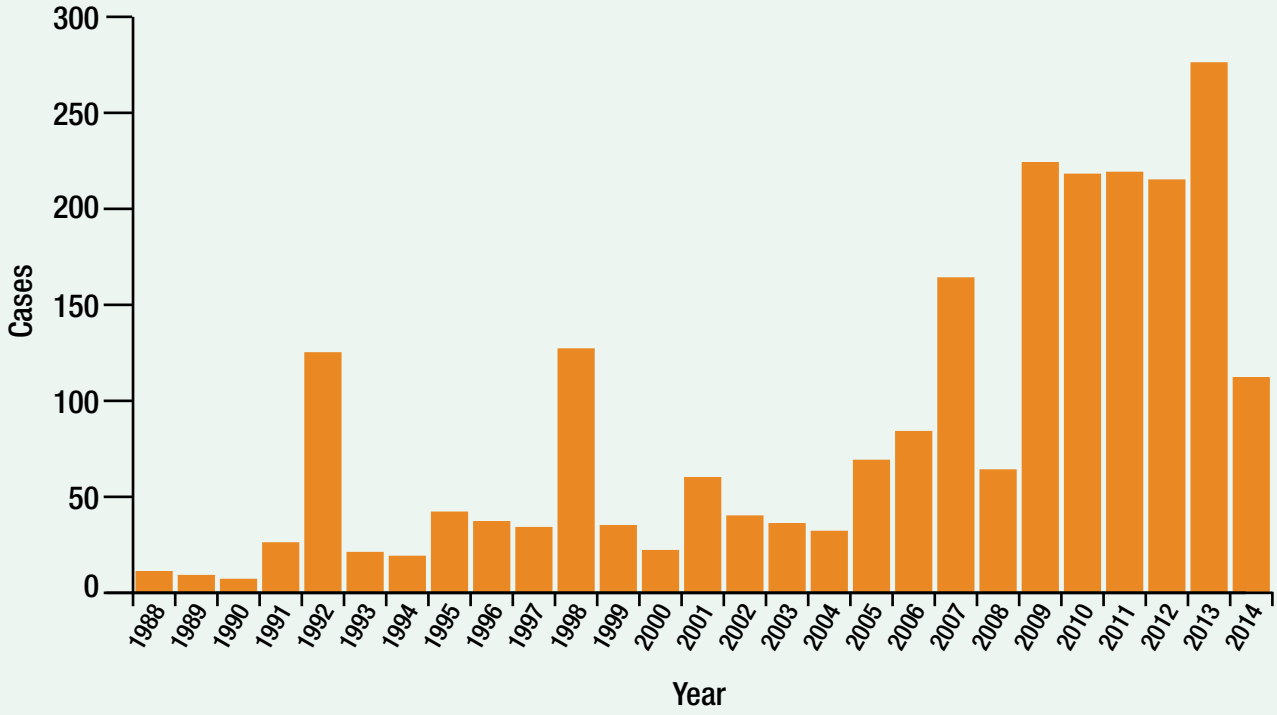
Cryptosporidiosis in humans results from infection with protozoal parasites of the genus *Cryptosporidium* — most commonly *C. hominis* or *C. parvum*. Symptomatic infections are characterized by watery diarrhea and abdominal cramps. Symptoms typically resolve in one to four weeks in immunocompetent 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 child care facilities, is surprisingly high. Many of these infections are asymptomatic.

In Oregon, the rate of infection with *Cryptosporidium* remains elevated from rates observed at the millennium, but the 2014 rate of 2.8 per 100,000 is half the rate seen in the last five years. Nationally, infections began to rise in the early millennium, but incidence has stabilized since 2009. Cases occur year-round with peaks in August, coincident with increases in exposure to recreational water.

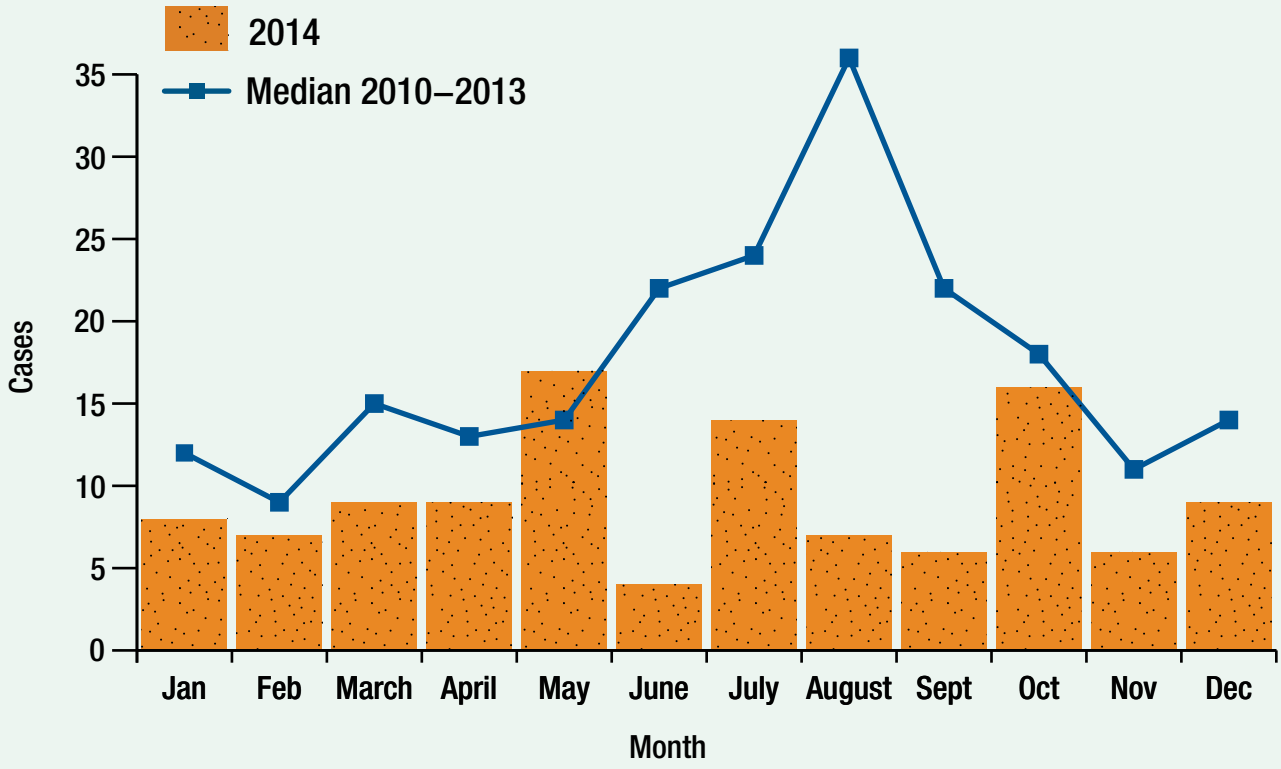
Rapid cartridge (ImmunoSTAT) tests for *Cryptosporidium* might be playing a role in the apparent increase in incidence. In 2014, 112 cases were reported, down from a high in 2013. In 2007, the Oregon investigative guidelines were changed to reflect the increasing numbers of cases; previously, investigations had been required only for abnormally high case counts. All cases are now routinely investigated to identify the source of infection.

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

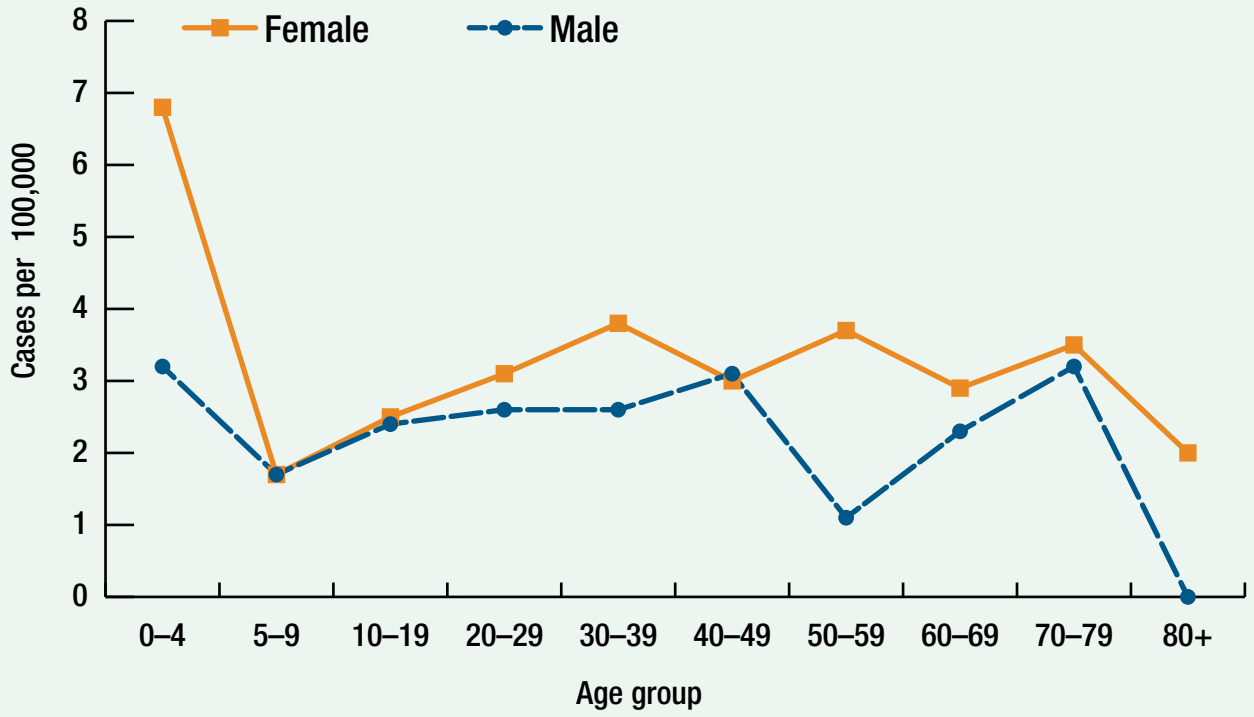
Cryptosporidiosis by year: Oregon, 1988–2014



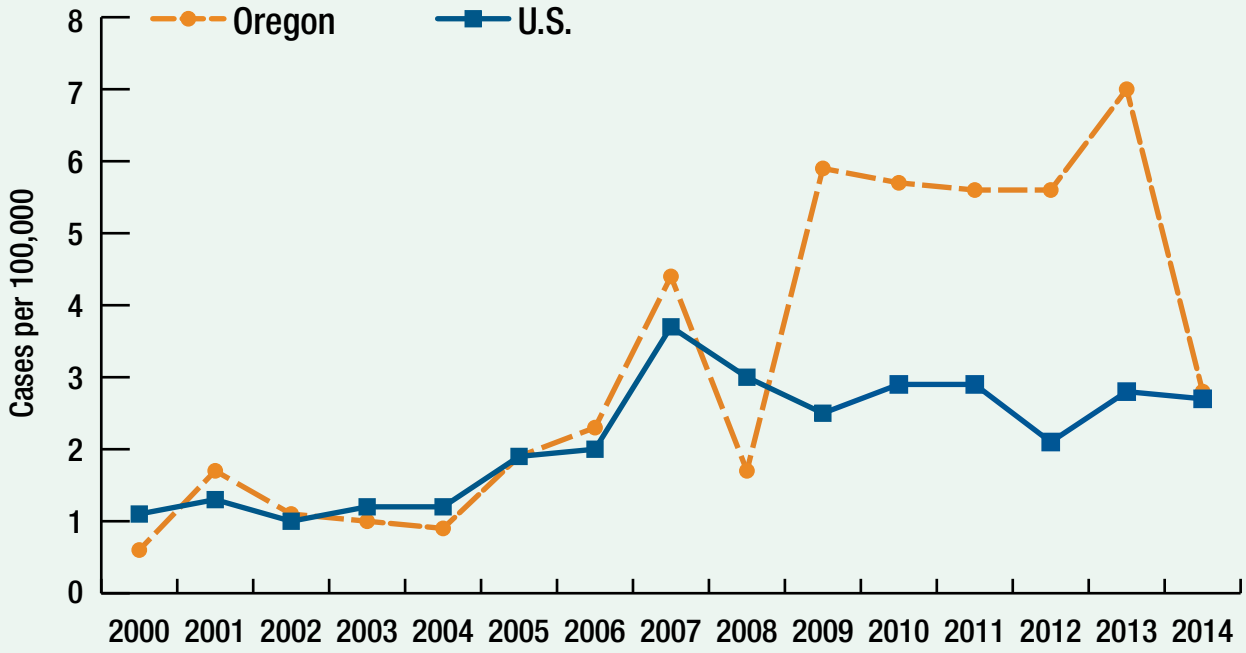
Cryptosporidiosis by onset month: Oregon, 2014



Incidence of cryptosporidiosis by age and sex: Oregon, 2014

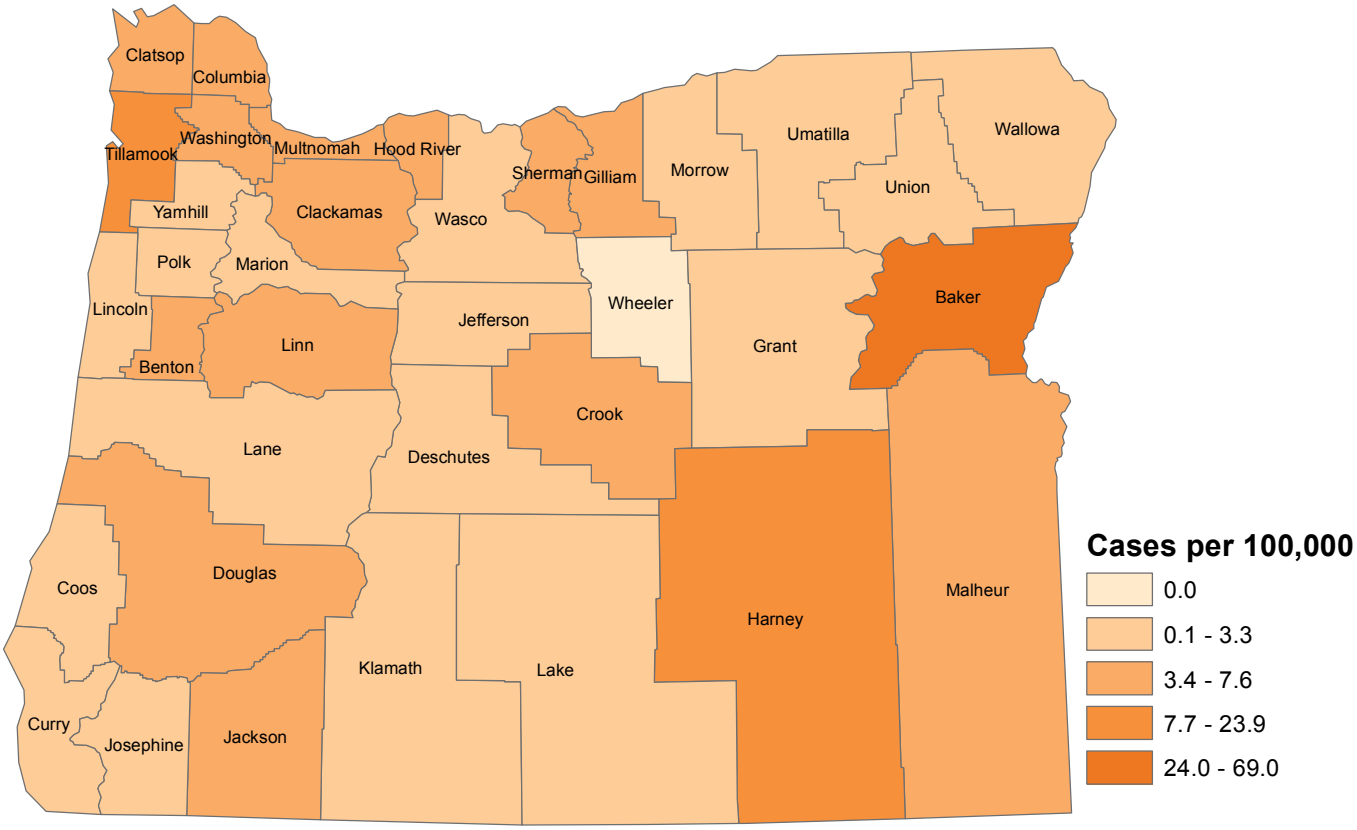


Incidence of cryptosporidiosis: Oregon vs. nationwide, 2000–2014



Oregon	0.6	1.7	1.1	1.0	0.9	1.9	2.3	4.4	1.7	5.9	5.7	5.6	5.6	7.0	2.8
U.S.	1.1	1.3	1.0	1.2	1.2	1.9	2.0	3.7	3.0	2.5	2.9	2.9	2.1	2.8	2.7

Incidence of cryptosporidiosis by county of residence: Oregon, 2005–2014



Prevention

- Wash hands with soap carefully and frequently, especially after going to the bathroom, after 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 cryptosporidiosis subside.
- Do not drink untreated surface water.

Dengue fever

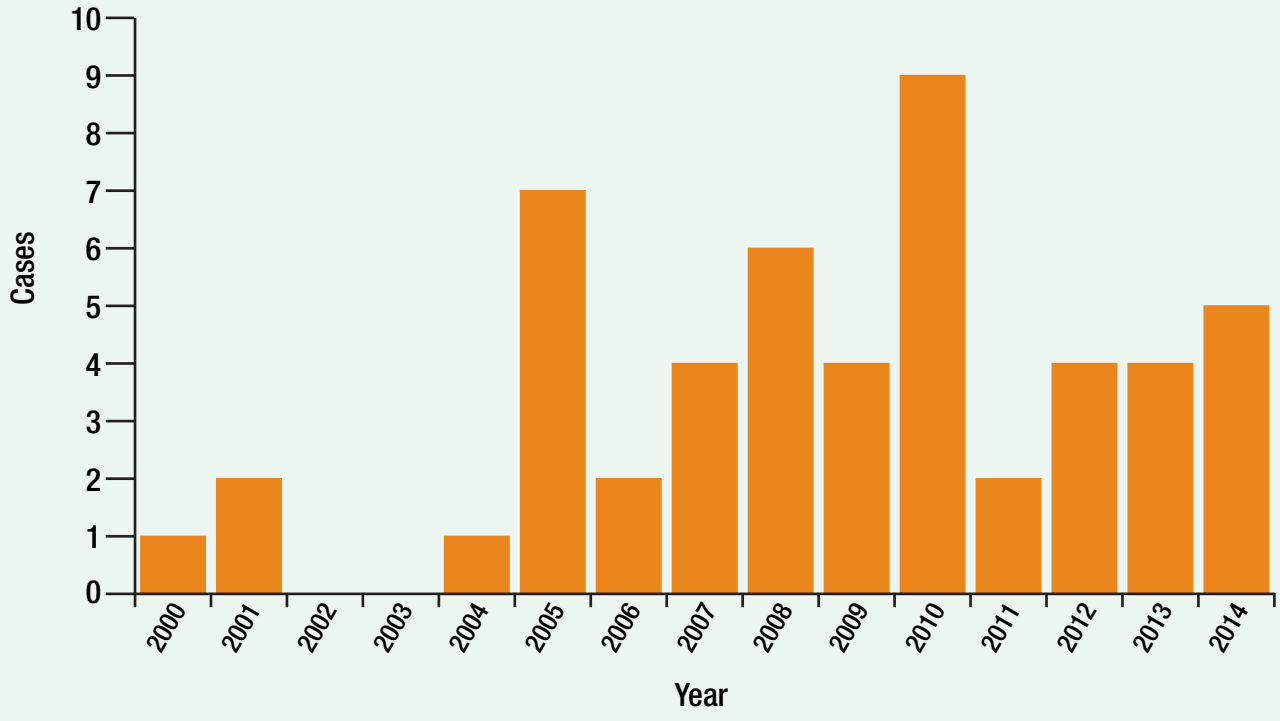
Dengue is a mosquito-borne viral infection. It is caused by a *Flavivirus* (the same genus as West Nile and yellow fever viruses); there are four serotypes, identified as DENV 1–4. The disease is limited primarily to the tropics and subtropics, although occasionally imported cases occur.

Symptom severity ranges from subclinical, asymptomatic infections (the norm) 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. There is, alas, no vaccine as yet that protects against dengue fever.

We don't have evidence of transmission here in Oregon. The typical vectors, *Aedes albopictus* and *Aedes aegypti*, are not native to Oregon, although there have been some reports of the former getting a foothold in California.

Five cases in Oregon residents were reported in 2014. All had a history of recent travel, two to Mexico, two to Asia, and one to Africa.

Dengue infection by year: Oregon, 2000–2014



Prevention

Primary prevention measures are geared to 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're staying to make sure they're 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.)

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, have contributed greatly to our understanding of this pathogen. Spread by the fecal-oral route, O157 has a number of 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 U.S. (and in Oregon), O26, O45, O103, O111, O121 and O145 are the most common "other" serogroups of the enterohemorrhagic *E. coli* making up about half of the reported cases. O157 infections are much more likely to result in HUS than is infection by STEC.

Over the past 10 years, the number of O157 cases reported statewide has ranged between 61 and 149 annually. After being relatively steady during 2008–2011, the number increased to 111 in 2012 but has regressed back to the mean with 74 cases reported in 2014.

As for the non-O157 serogroups, those case counts have increased steadily from single digits in 2007 and 2008 to 89 confirmed cases in 2014. Of the 163 confirmed STECs serotyped in 2014, 74 were O157, 89 were non-O157, including O26 (38), O103 (13), O121 (18) and 15 other serogroups.

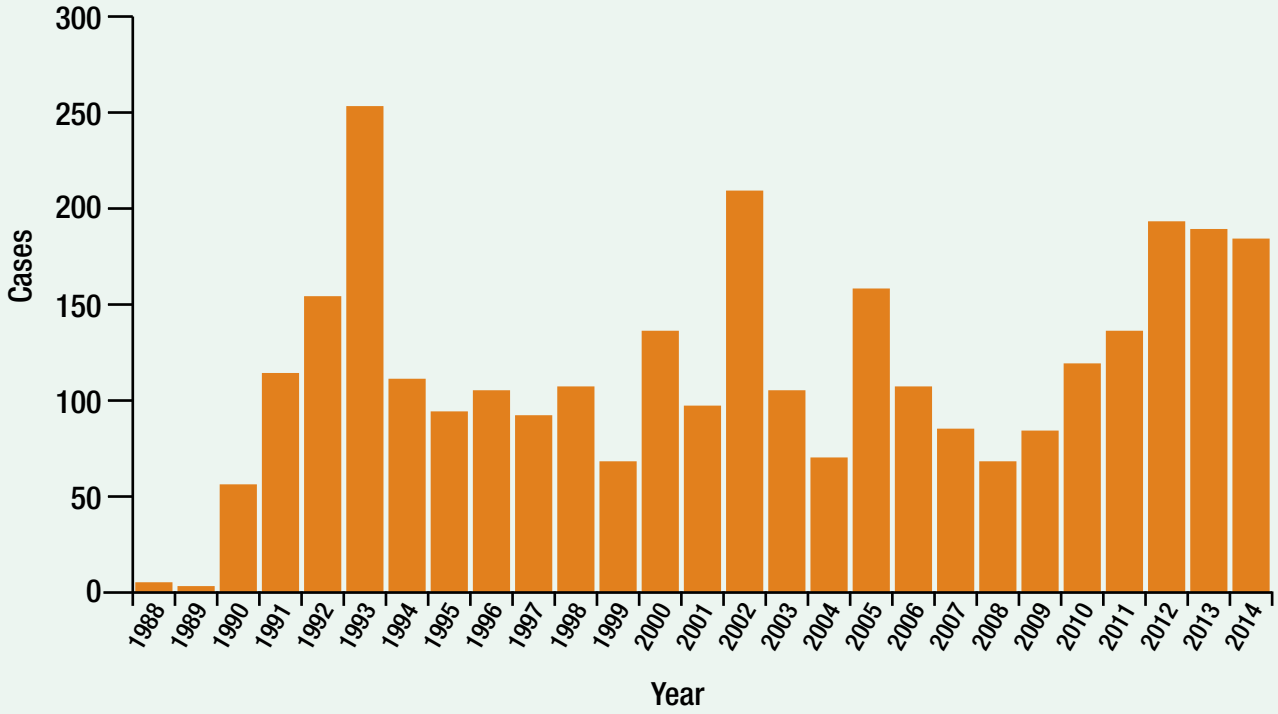
Several STEC outbreaks were investigated in 2014; single outbreaks were associated with swimming in a river, eating packaged salad greens, a petting zoo, a daycare and an indeterminate exposure. No source was confirmed for the outbreak, although environmental exposure to farm animals was likely the cause.

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

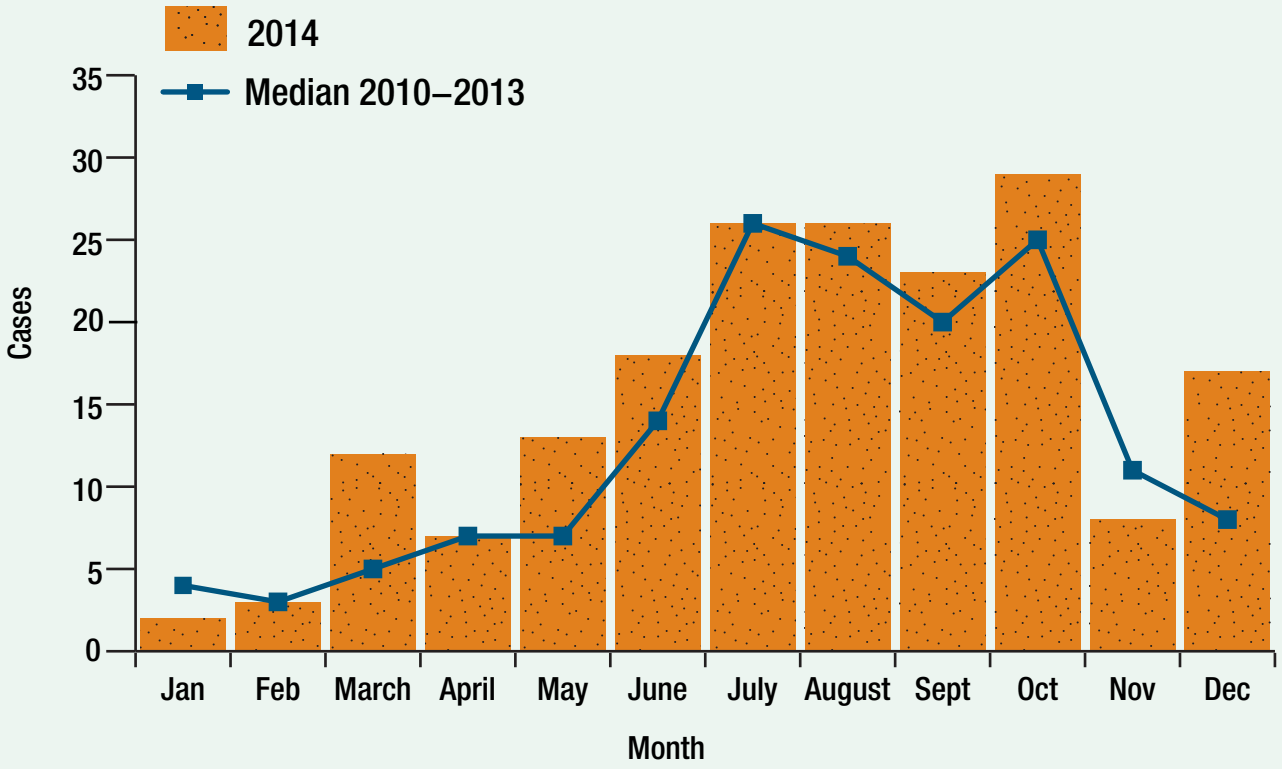
etiologic agent, and putting more of the diagnostic burden on the public health reference lab.

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 Points (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.

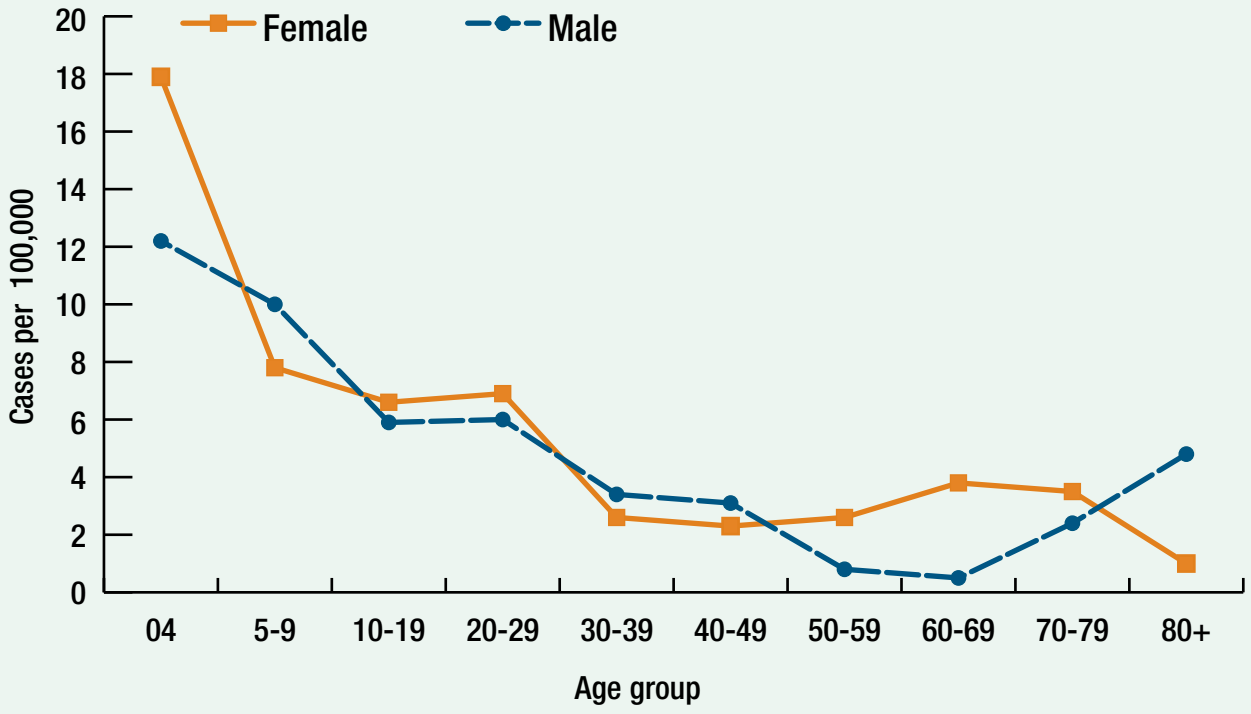
STEC infection (including *E. coli* O157) by year: Oregon, 1988–2014



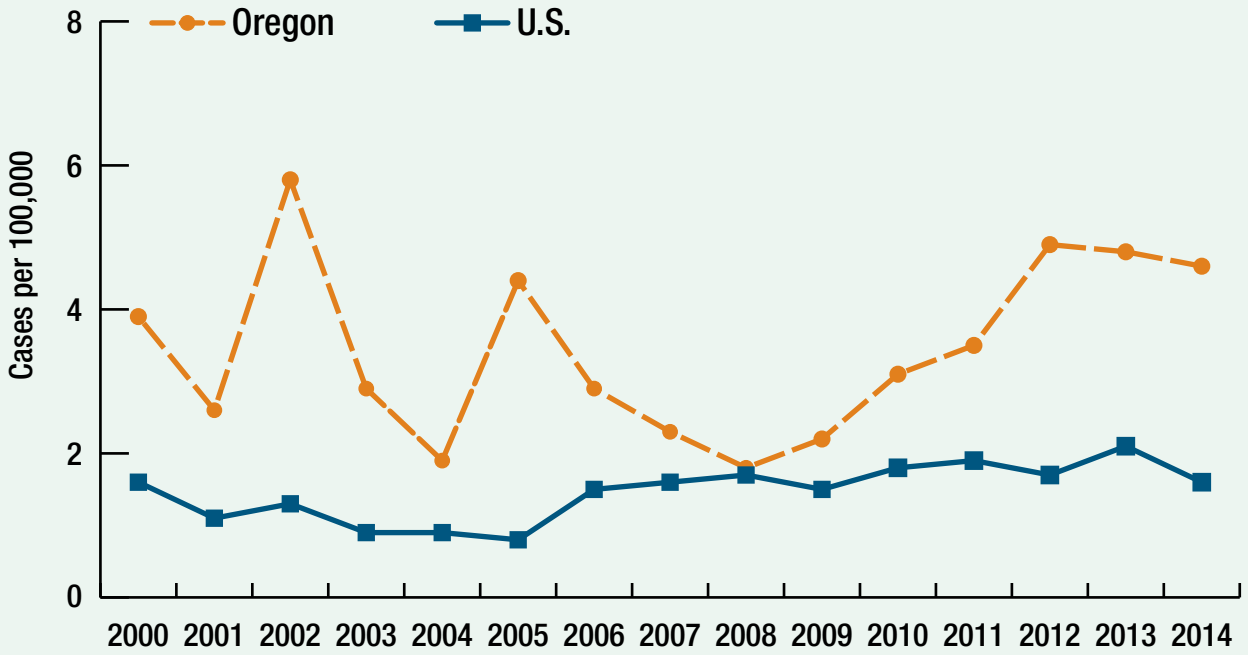
STEC infection by onset month: Oregon, 2014



Incidence of STEC infection by age and sex: Oregon, 2014

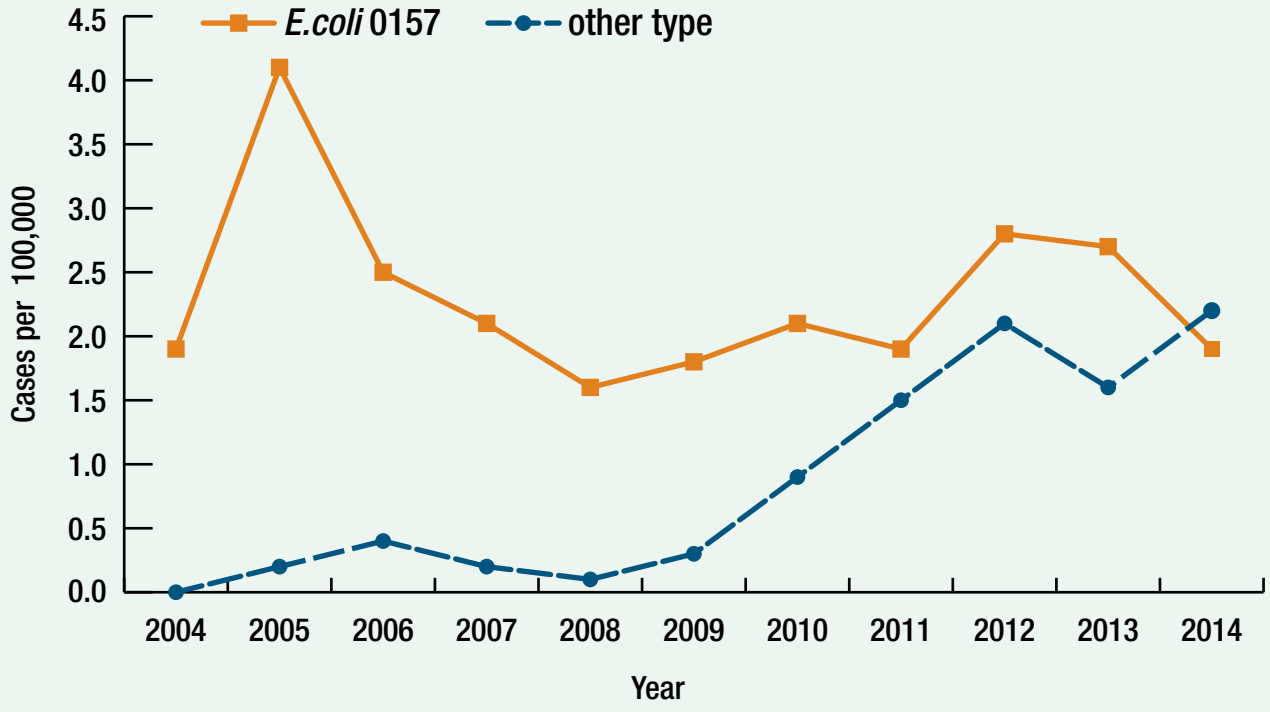


Incidence of STEC infection: Oregon vs. U.S., 2000–2014

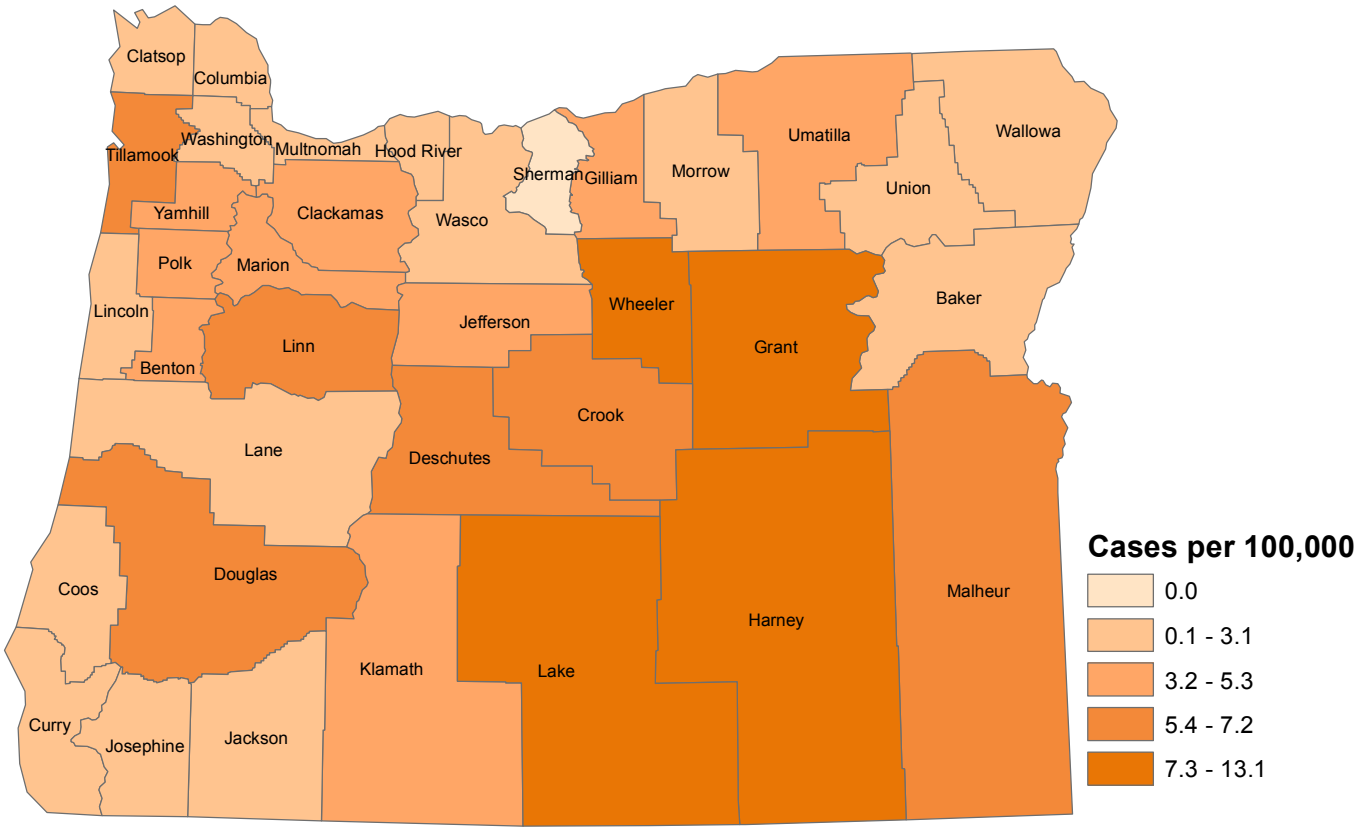


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Oregon	3.9	2.6	5.8	2.9	1.9	4.4	2.9	2.3	1.8	2.2	3.1	3.5	4.9	4.8	4.6
U.S.	1.6	1.1	1.3	0.9	0.9	0.8	1.5	1.6	1.7	1.5	1.8	1.9	1.7	2.1	1.6

Incidence of STEC infection, O157 vs non-O157 type: Oregon, 2004–2014



Incidence of STEC infection by county of residence: Oregon, 2005–2014



Prevention

- Wash hands with soap carefully and frequently, especially after going to the bathroom, after 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.
- 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.

Giardiasis

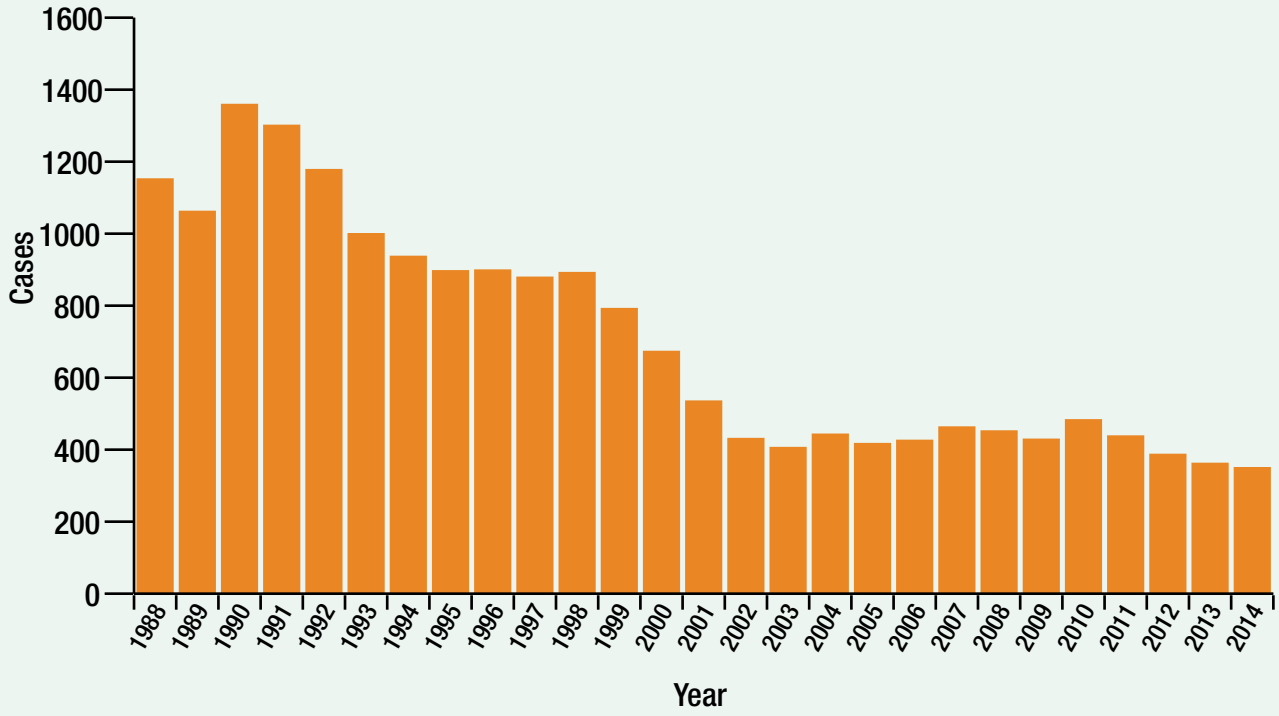
Giardia intestinalis, the flagellated protozoan originally named *G. lamblia*, is the most commonly identified parasitic pathogen in the United States. Children in daycare and their close contacts are at greatest risk, as are backpackers and campers (from drinking unfiltered, untreated water), persons 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 their 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.

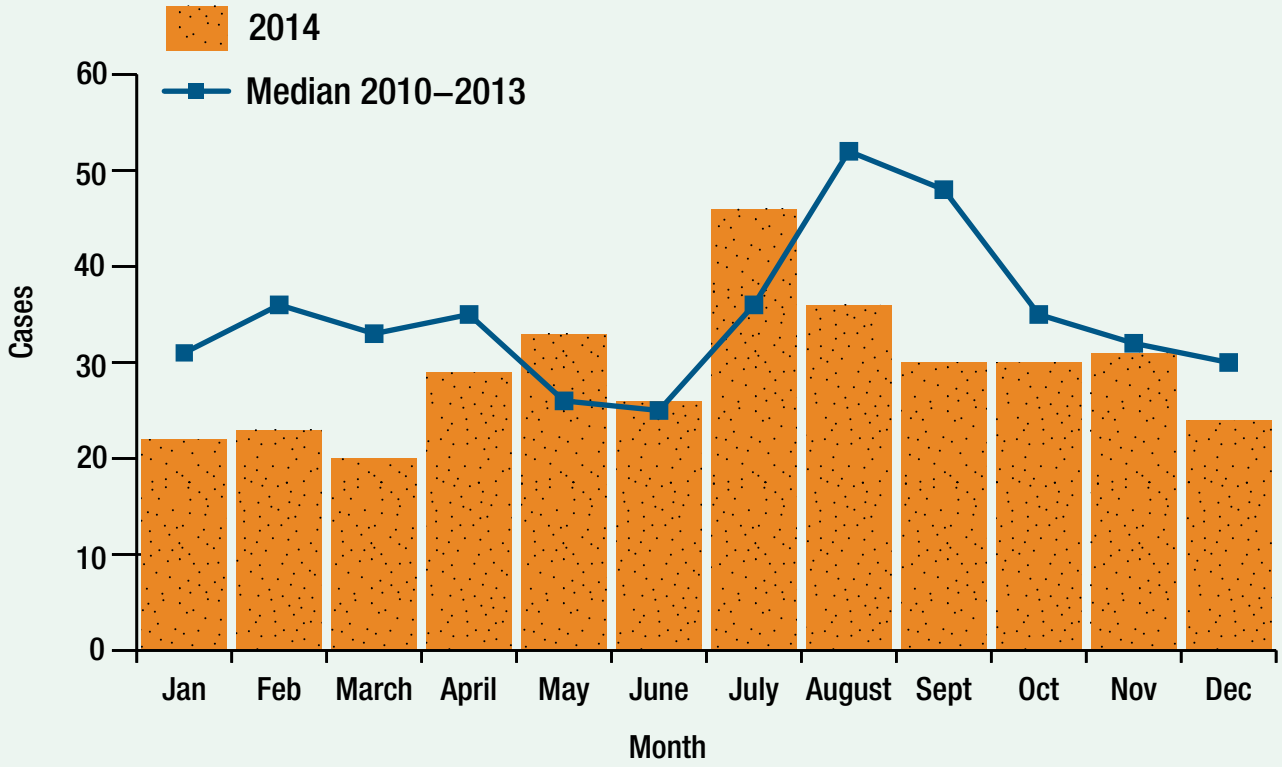
In 2014, the reported incidence of giardiasis in Oregon remained twice that of the rest of the U.S., with 8.8 cases per 100,000 persons. During 2014, 95% of the cases were reported as "sporadic" and 5% as household-associated; no outbreaks were reported. Children aged 5–9 years had the highest incidence in 2014, with 15 cases per 100,000 population. 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 a different medication may work.

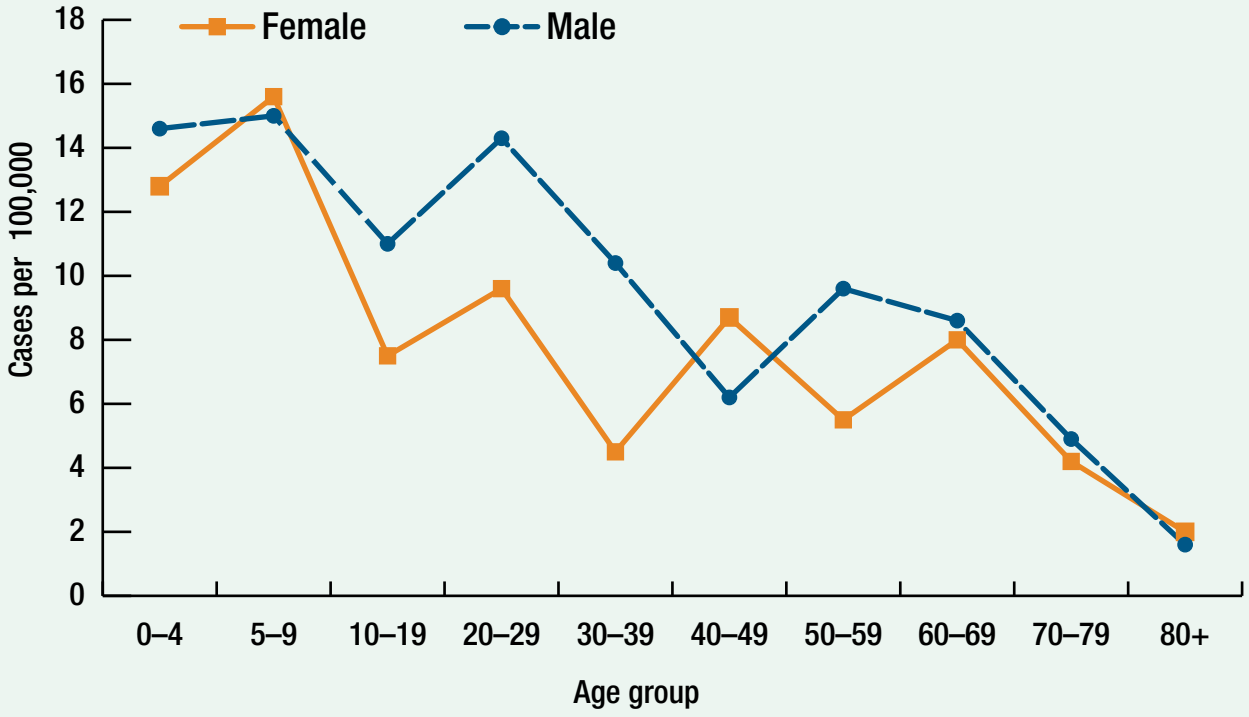
Giardiasis by year: Oregon, 1988–2014



Giardiasis by onset month: Oregon, 2014



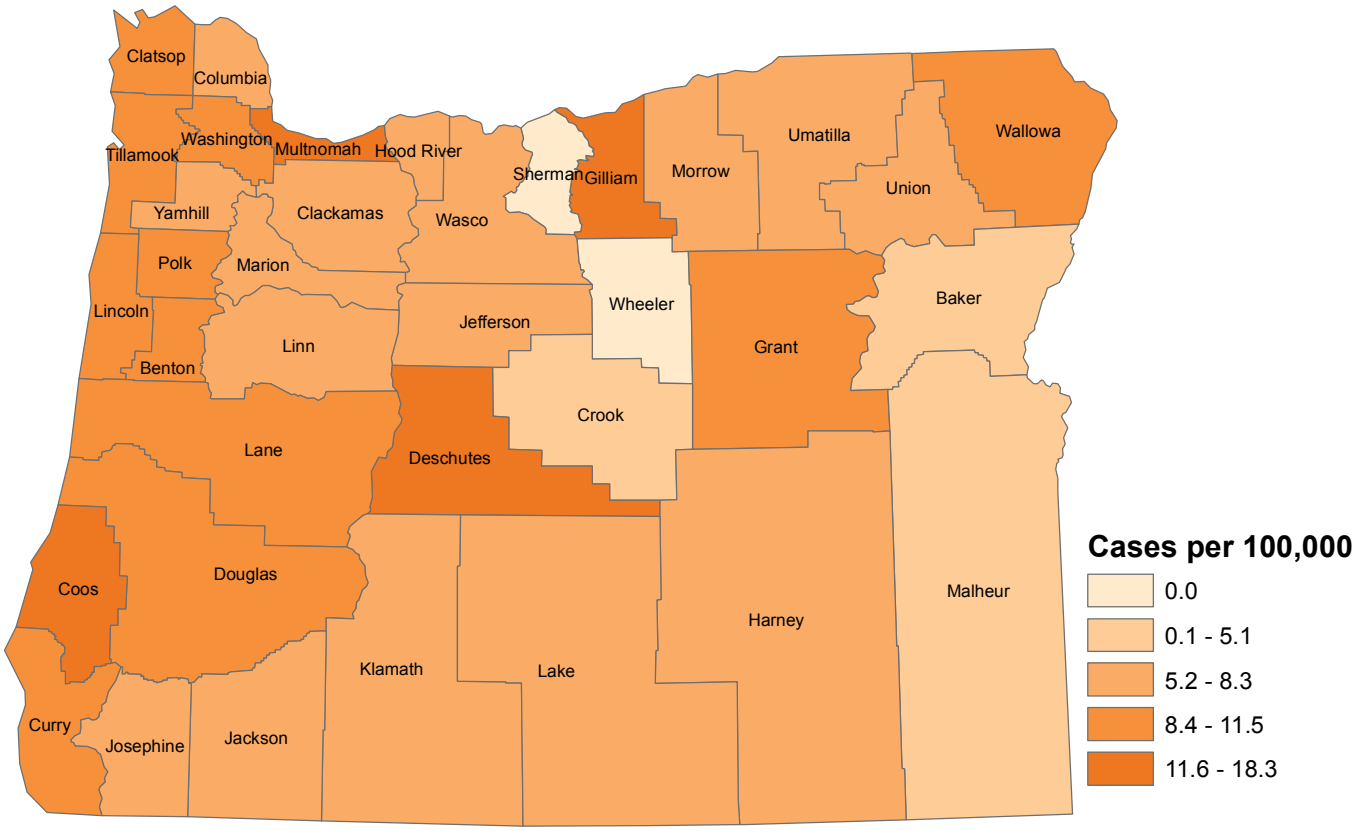
Incidence of giardiasis by age and sex: Oregon, 2014



Incidence of giardiasis: Oregon vs. nationwide, 2000–2014

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Oregon	19.6	15.4	12.3	11.5	12.4	11.5	11.5	12.4	11.9	11.2	12.6	11.4	9.9	9.3	8.8
U.S.	0.0	0.0	7.3	6.7	7.0	6.7	6.3	6.4	6.1	6.3	6.5	5.3	4.0	4.7	4.5

Incidence of giardiasis by county of residence: Oregon, 2005–2014



Prevention

- Wash hands with soap carefully and frequently, especially after going to the bathroom, after 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 subside.
- Do not drink untreated surface water.

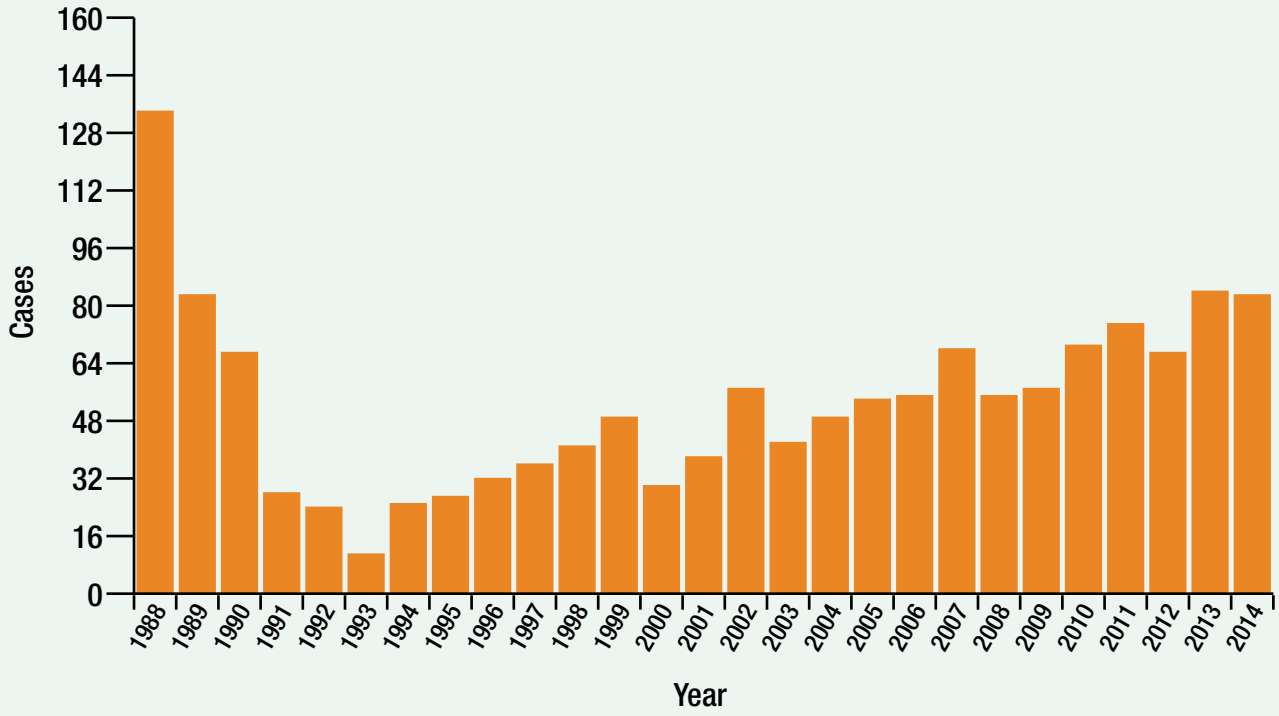
Haemophilus influenzae infection

Until the advent of an effective vaccine against *Haemophilus influenzae* serotype b (Hib) organisms, *H. influenzae* was the leading cause of bacterial meningitis in children <5 years of age in Oregon and elsewhere. It plummeted in the rankings, and *Streptococcus pneumoniae* is now in the lead. In 2014, Hib was cultured from sterile body fluids of four Oregonians. All cases were among adults (>29 years). 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.

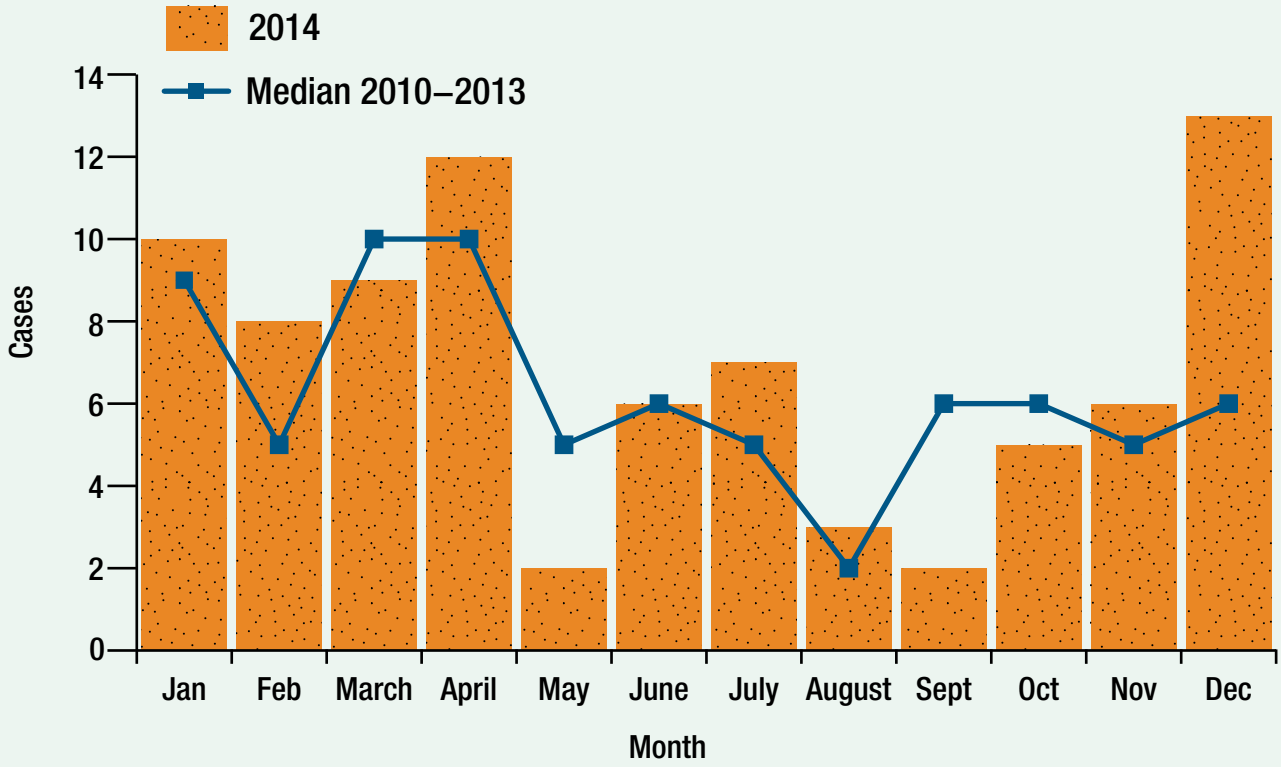
Eighty-three cases of invasive *H. influenzae* disease (IHiD, all serotypes) were reported in 2014. With the decline in invasive Hib disease in children, there has been increased recognition of nonserotype b and nontypeable cases in persons >5 years of age, especially among those >65 years of age. In 2014, 60% of cases were nontypeable, 19% were identified as serotype f, 7% serotype a, and the remaining cases were other serotypes. The burden of IHiD in 2014 was highest (8.1/100,000 persons) among those >65 years of age, followed by those <5 years of age (2.1/100,000 persons). *Haemophilus influenzae* is treated with antibiotics. In 2014, the top clinical syndrome of invasive IHiD reported in Oregon was pneumonia (64%). Eighty-seven percent of cases were hospitalized. There were nine deaths related to IHiD infection.

Peak incidence tends to occur in late winter and early spring.

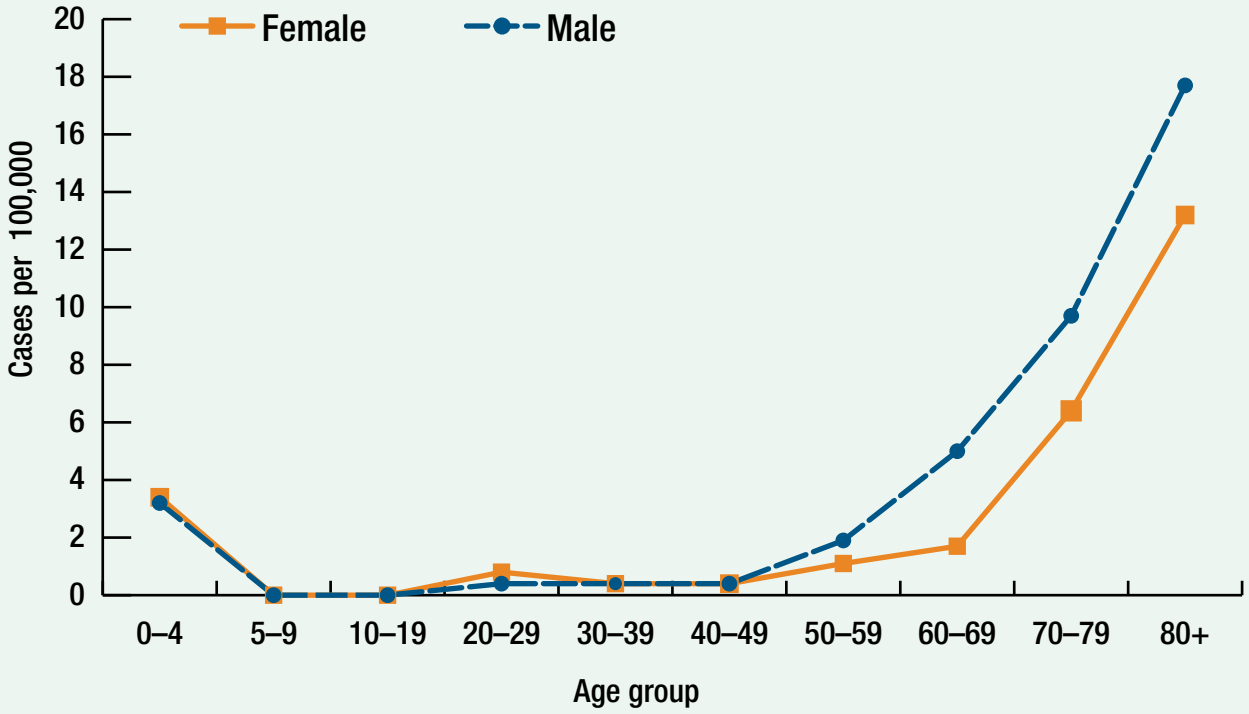
H. influenzae infection by year: Oregon, 1988–2014



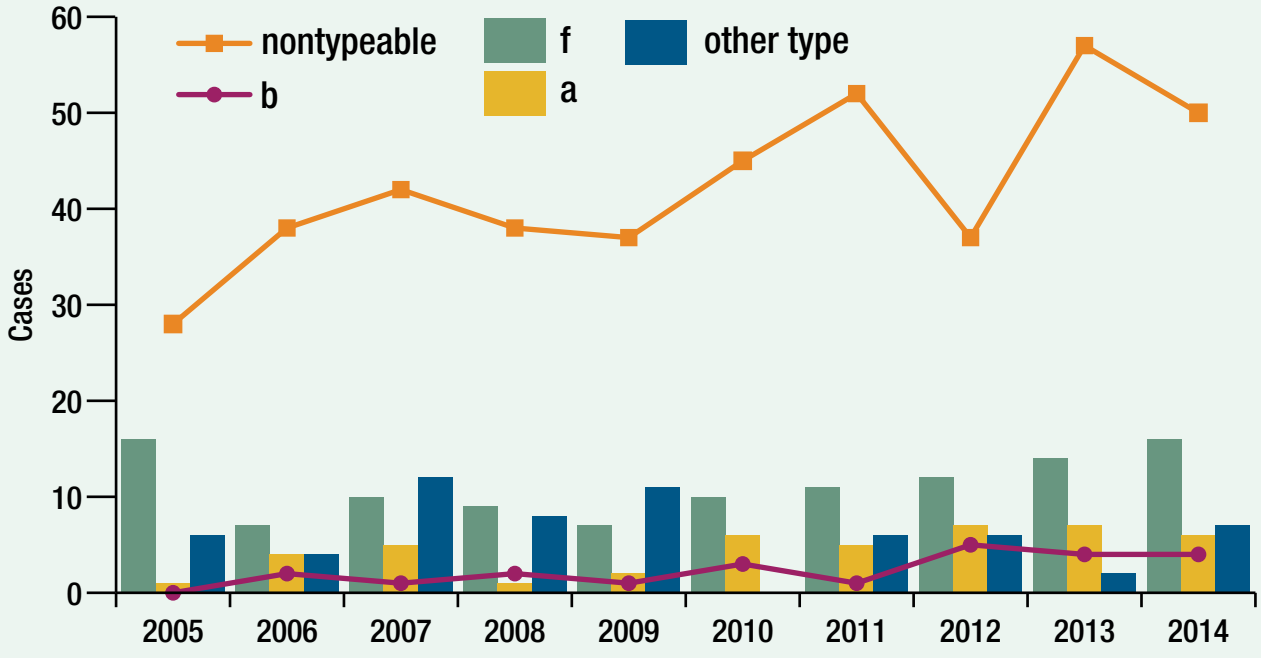
H. influenzae infection by onset month: Oregon, 2014



Incidence of *H. influenzae* infection by age and sex: Oregon, 2014

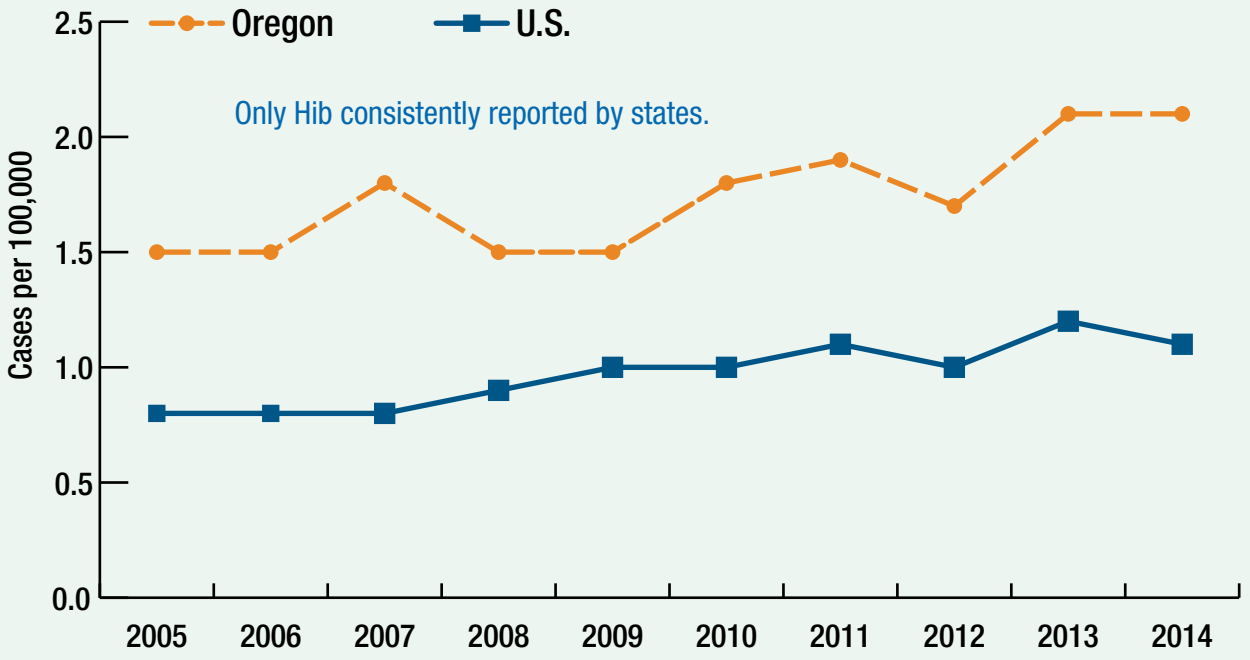


H. influenzae infection by year and serotype: Oregon, 2005–2014



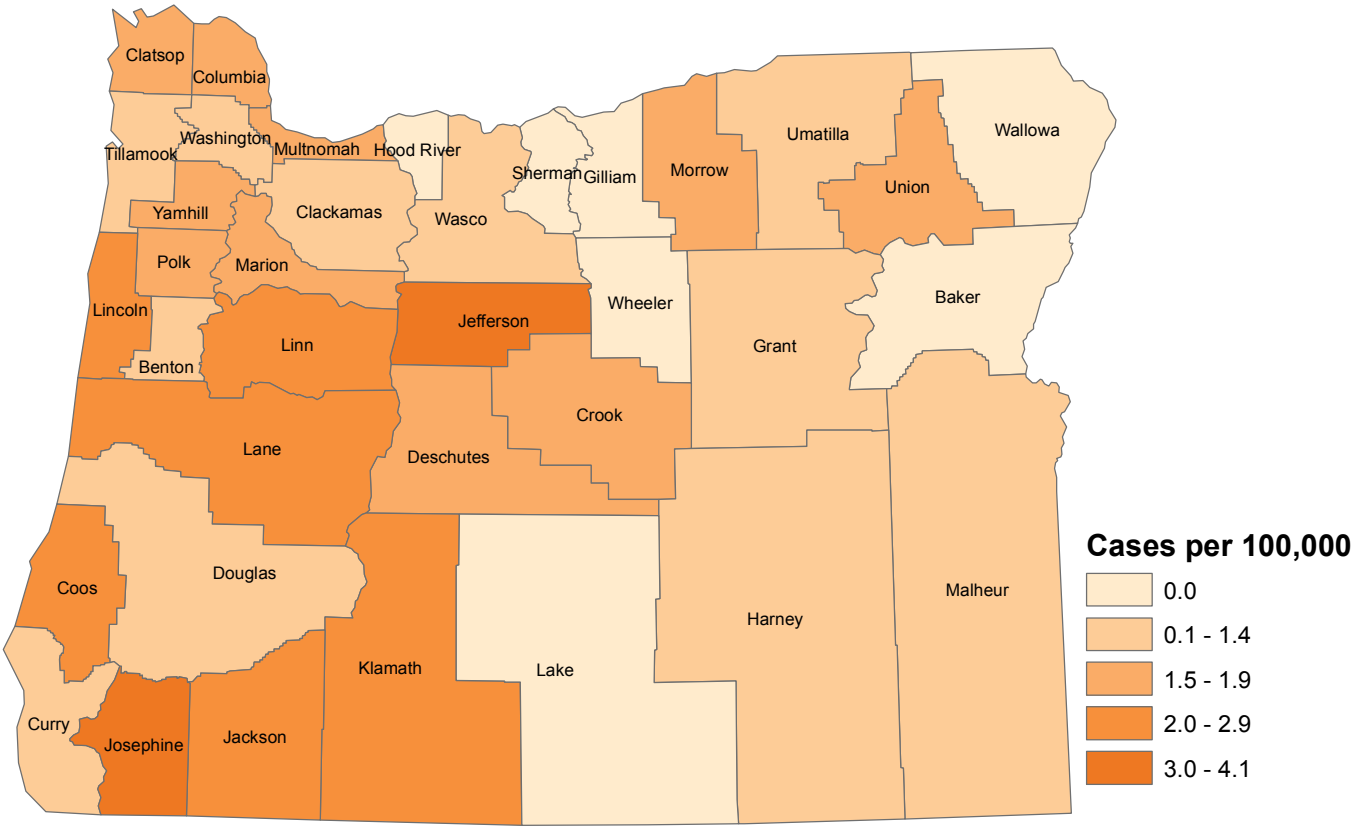
nontypeable	28	38	42	38	37	45	52	37	57	50
b	0	2	1	2	1	3	1	5	4	4
f	16	7	10	9	7	10	11	12	14	16
a	1	4	5	1	2	6	5	7	7	6
other type	6	4	12	8	11	0	6	6	2	7

Incidence of *H. influenzae* infection: Oregon vs. nationwide, 2005–2014



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Oregon	1.5	1.5	1.8	1.5	1.5	1.8	1.9	1.7	2.1	2.1
U.S.	0.8	0.8	0.8	0.9	1.0	1.0	1.1	1.0	1.2	1.1

Incidence of *H. influenzae* infection by county of residence: Oregon, 2005–2014



Prevention

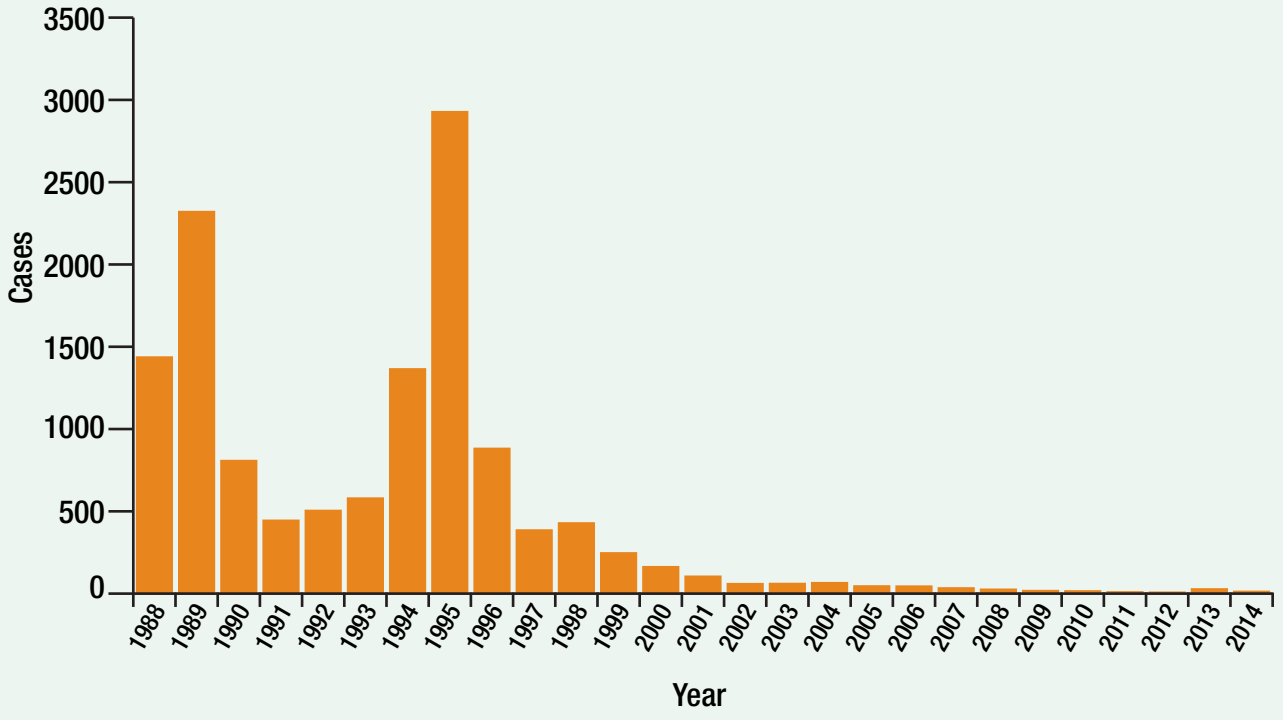
- Vaccinate all children against Hib at 2, 4, 6 and 12–15 months of age.
- Cover your cough and wash your hands.
- Close contacts of Hib cases can be treated prophylactically to prevent infection.

Acute hepatitis A

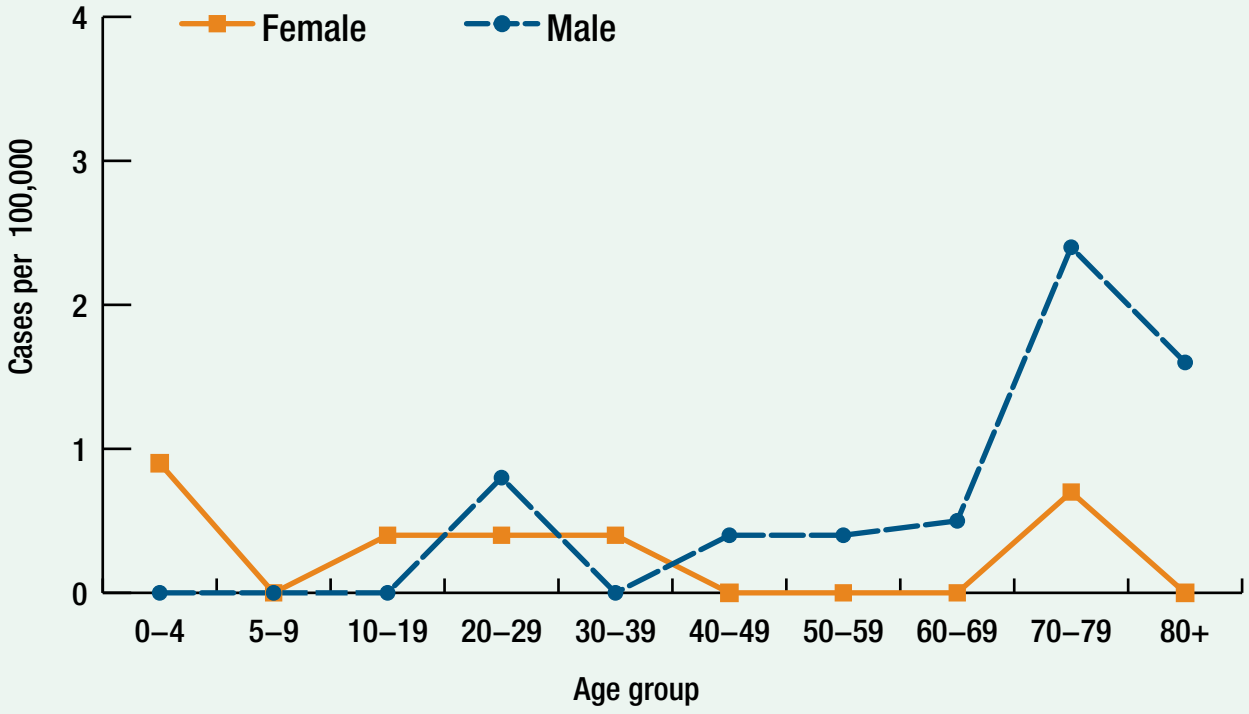
Hepatitis A is a liver disease caused by the hepatitis A virus, which infects humans through fecal-oral transmission. Hepatitis A can occur in situations ranging from isolated cases of disease to statewide outbreaks. However, since the licensure of the hepatitis A vaccine in 1995–1996, rates of infection 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. There were no outbreaks of hepatitis A in Oregon in 2014. The last outbreak of hepatitis A in Oregon occurred in 2006.

In 2014, Oregon logged 14 cases of acute hepatitis A — approximately half (48%) of the 29 cases reported in the previous year. Four of the 14 cases were acquired by venturing outside of Oregon or from household members with foreign travel, often to countries with high rates of hepatitis A, such as Mexico. Ten cases had no identifiable risk for factor hepatitis A. Fifty-seven percent of cases were >40 years of age.

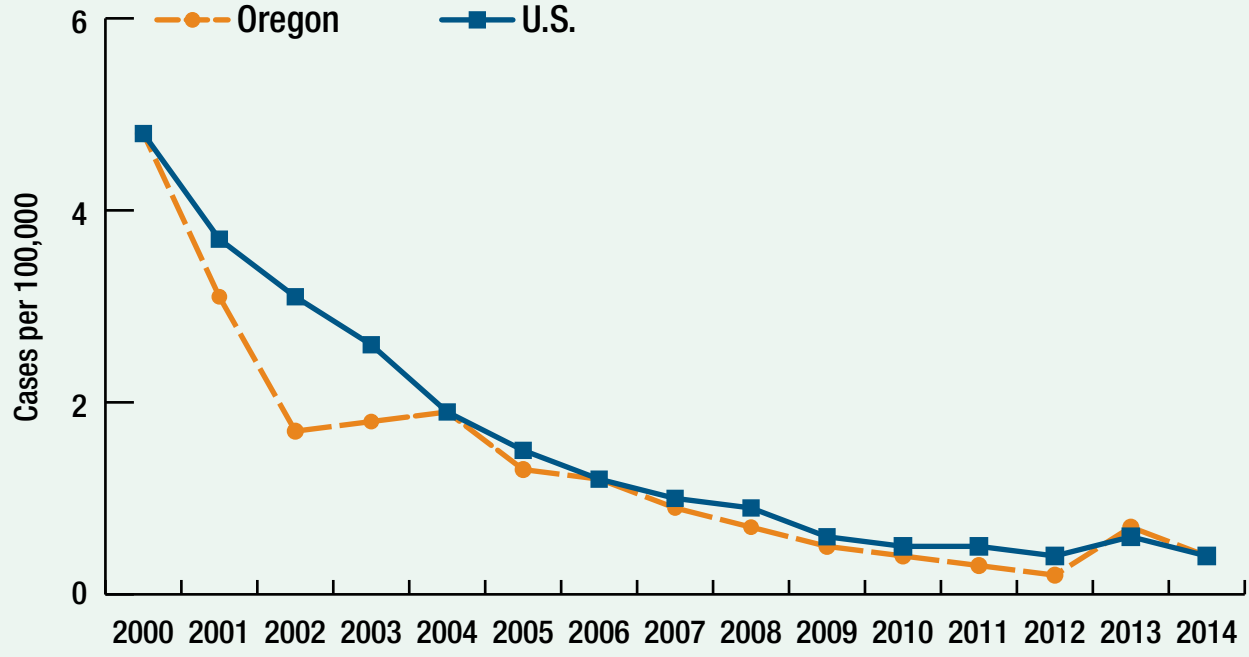
Hepatitis A by year: Oregon, 1988–2014



Incidence of hepatitis A by age and sex: Oregon, 2005–2014

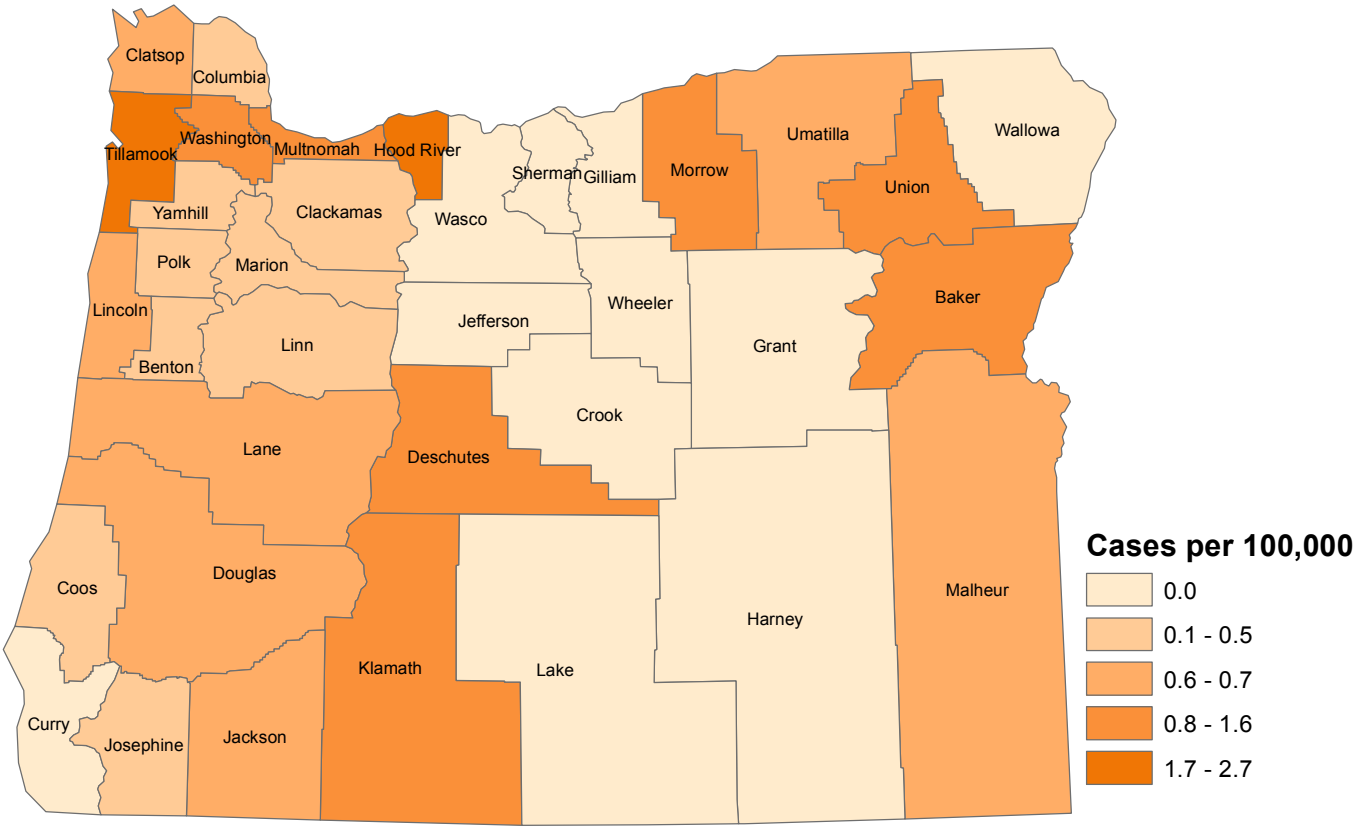


Incidence of hepatitis A: Oregon vs. nationwide, 2000–2014



Oregon	4.8	3.1	1.7	1.8	1.9	1.3	1.2	0.9	0.7	0.5	0.4	0.3	0.2	0.7	0.4
U.S.	4.8	3.7	3.1	2.6	1.9	1.5	1.2	1.0	0.9	0.6	0.5	0.5	0.4	0.6	0.4

Incidence of hepatitis A by county of residence: Oregon, 2005–2014



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 cases.

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.

Acute hepatitis B virus (HBV) infection (diagnosed by the presence in serum of IgM 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, to promote universal vaccination and hence protection, was added to the recommended childhood immunization schedule in 1992 with the series starting at birth.

Acute hepatitis B rates continue to decline in Oregon — a decline that started here after the hepatitis B vaccine was licensed in 1982.

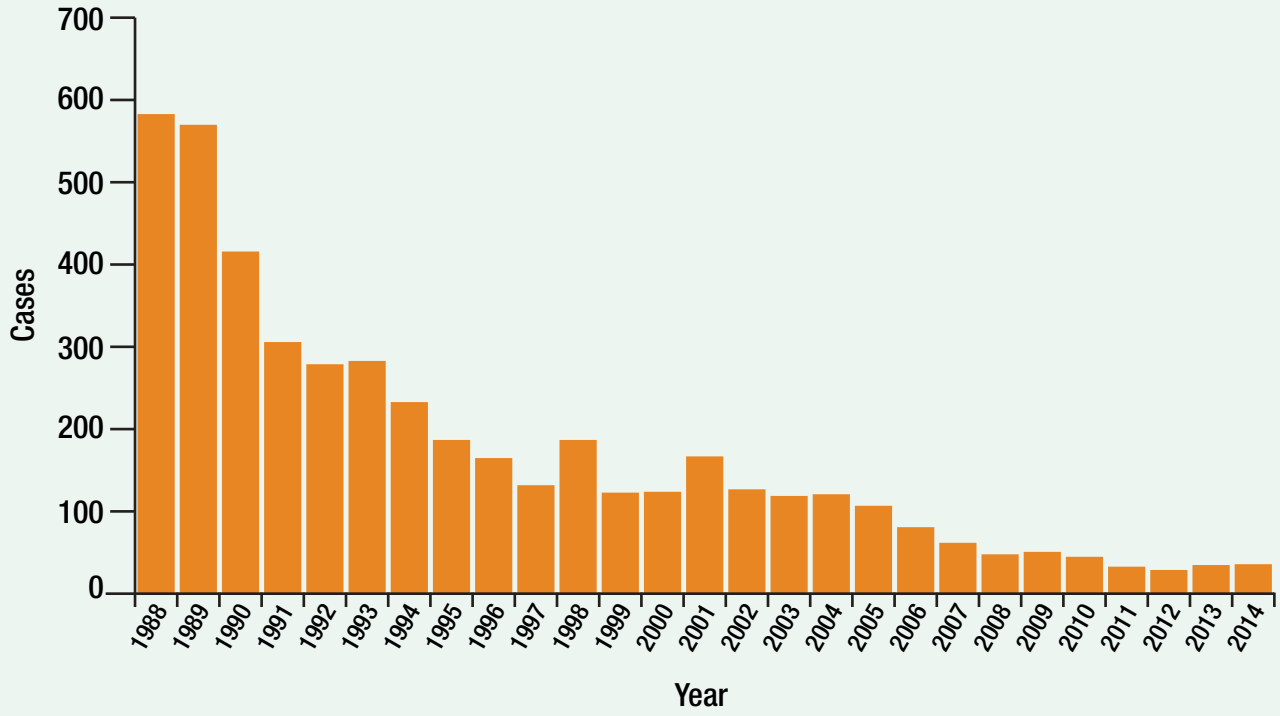
Local health departments investigated and reported 35 acute cases in 2014. Seventy-one percent of the cases were male. Seventy-seven percent were interviewed, the most commonly reported risk factors include injection drug use (IDU) and sexual risk factors (history of multiple sexual partners; men who have sex with men [MSM]). No risk factor was identified for 30% of cases. There were no outbreaks of hepatitis B in 2014.

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

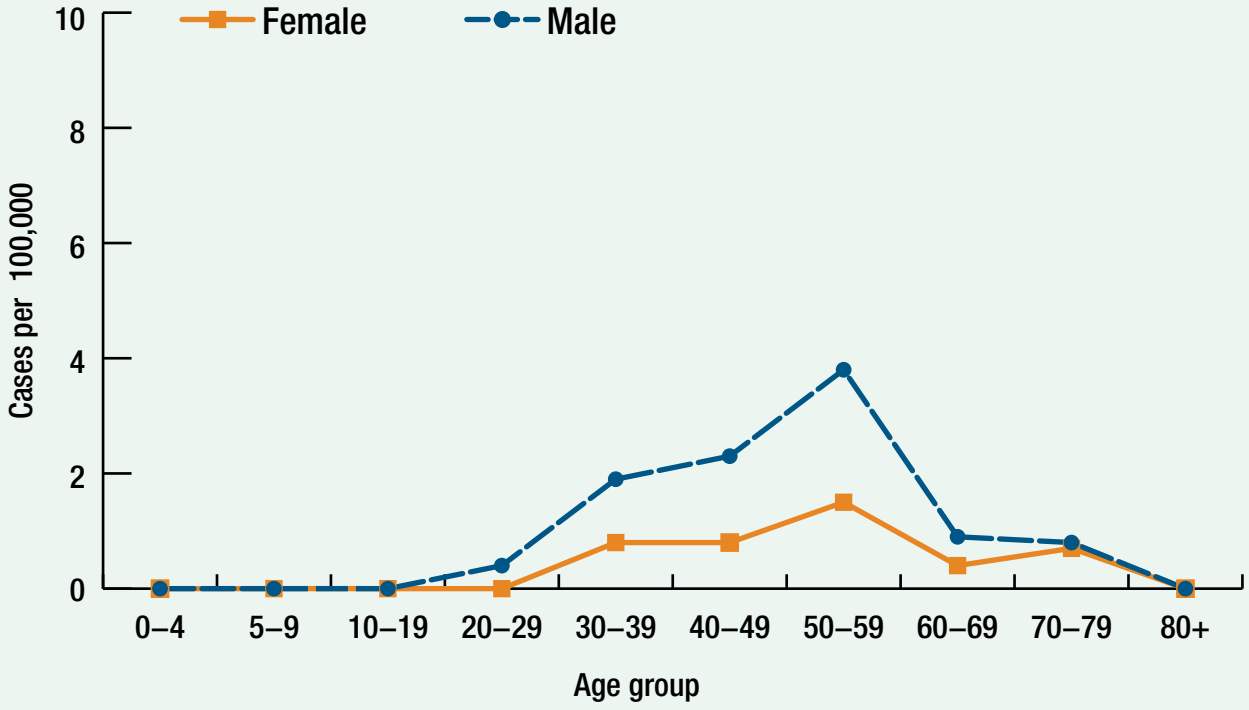
No cure is available for hepatitis B, so prevention is crucial. The best way to be protected from hepatitis B is to be vaccinated. Vaccines can provide protection in 90% to 95% of healthy persons. The vaccine can be given safely to infants, children and adults in three doses over a period of six months.

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.

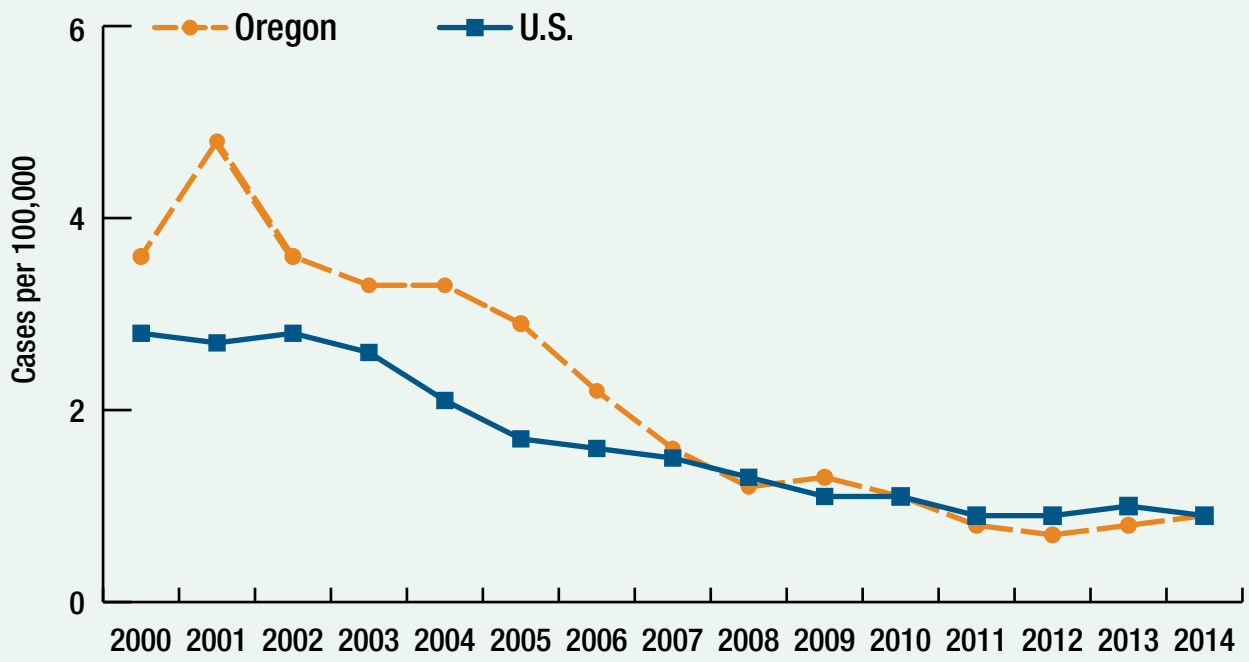
Acute hepatitis B by year: Oregon, 1988–2014



Incidence of acute hepatitis B by age and sex: Oregon, 2014

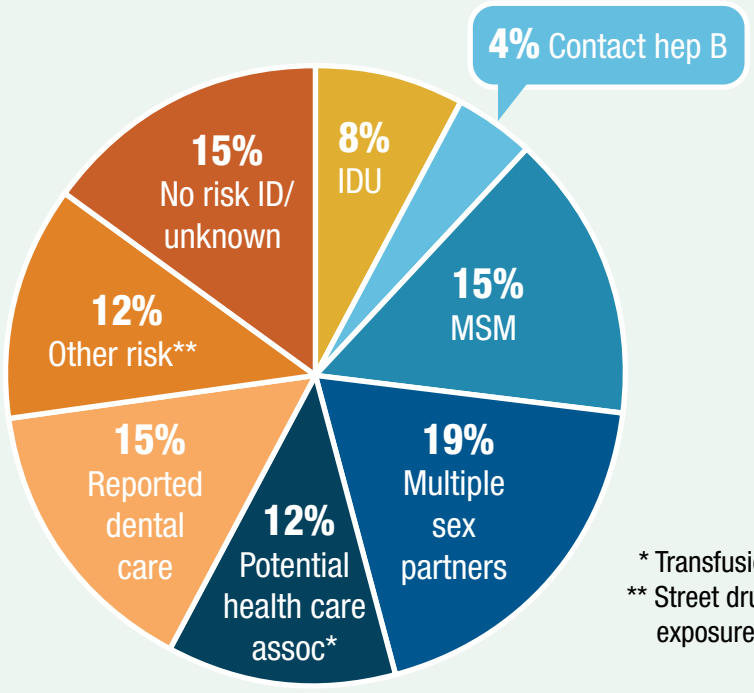


Incidence of acute hepatitis B: Oregon vs. nationwide, 2000–2014



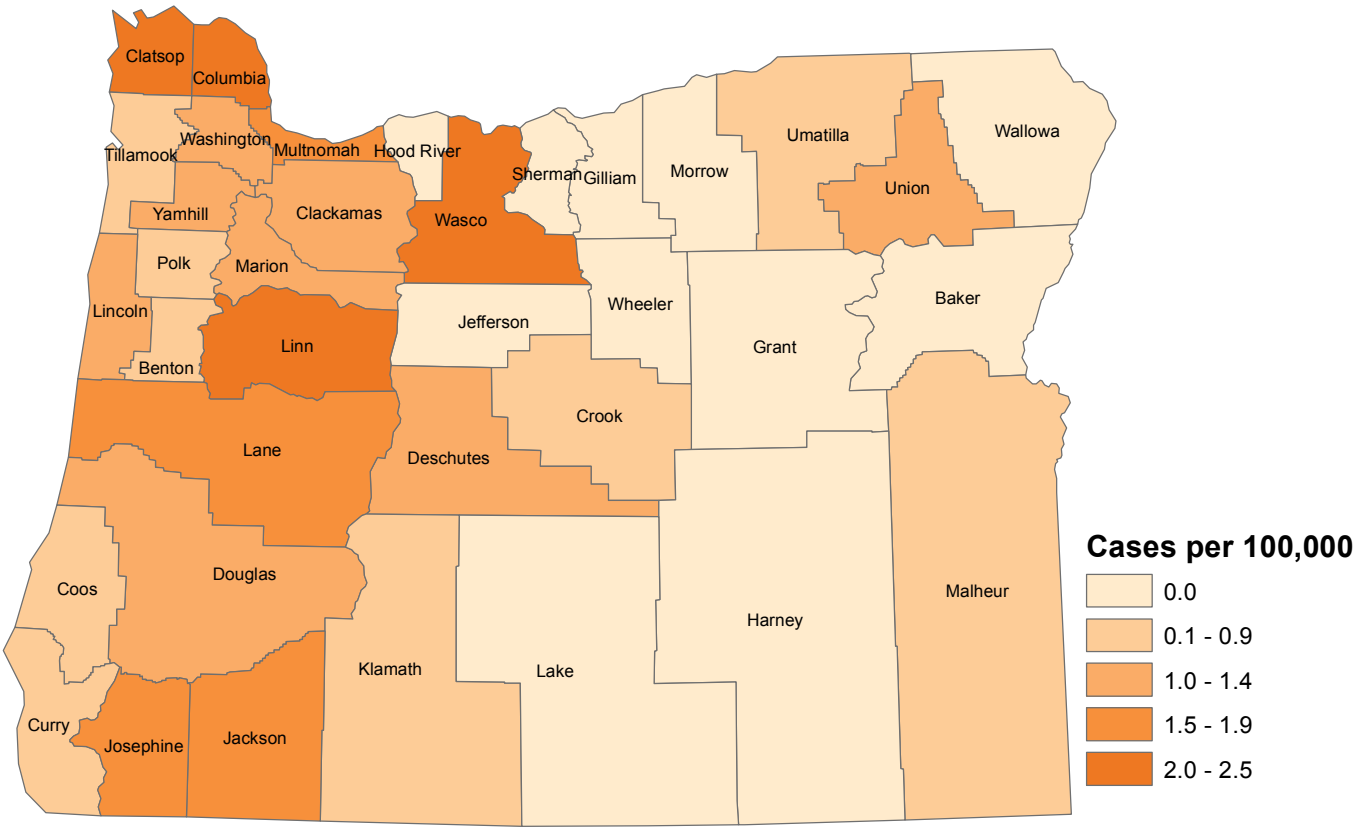
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Oregon	3.6	4.8	3.6	3.3	3.3	2.9	2.2	1.6	1.2	1.3	1.1	0.8	0.7	0.8	0.9
U.S.	2.8	2.7	2.8	2.6	2.1	1.7	1.6	1.5	1.3	1.1	1.1	0.9	0.9	1.0	0.9

Reported risk factors for acute hepatitis B among interviewed cases, Oregon, 2014



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

Incidence of acute hepatitis B by county of residence: Oregon, 2005–2014



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 needle stick 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.

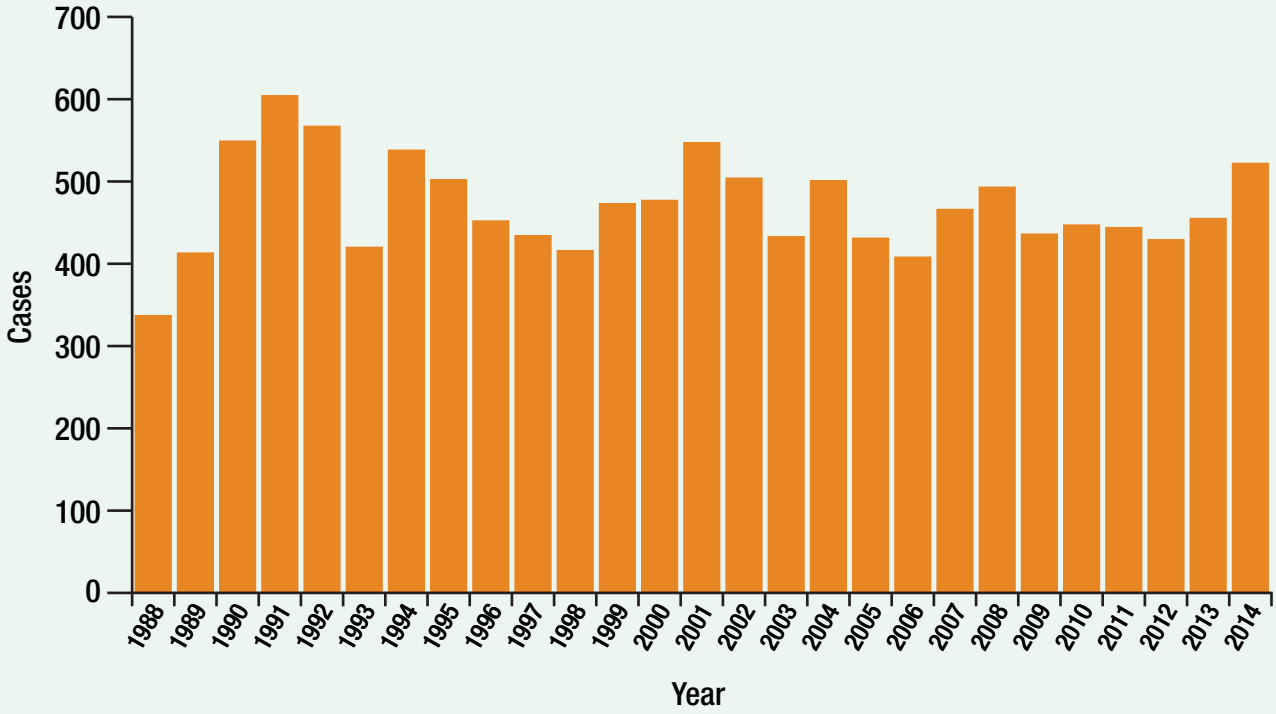
Chronic hepatitis B

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 U.S. 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 and initiation of the three-dose hepatitis B vaccination series. This perinatal intervention is widely practiced in the U.S. — all states have federal funding for perinatal hepatitis B prevention programs — but not 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.

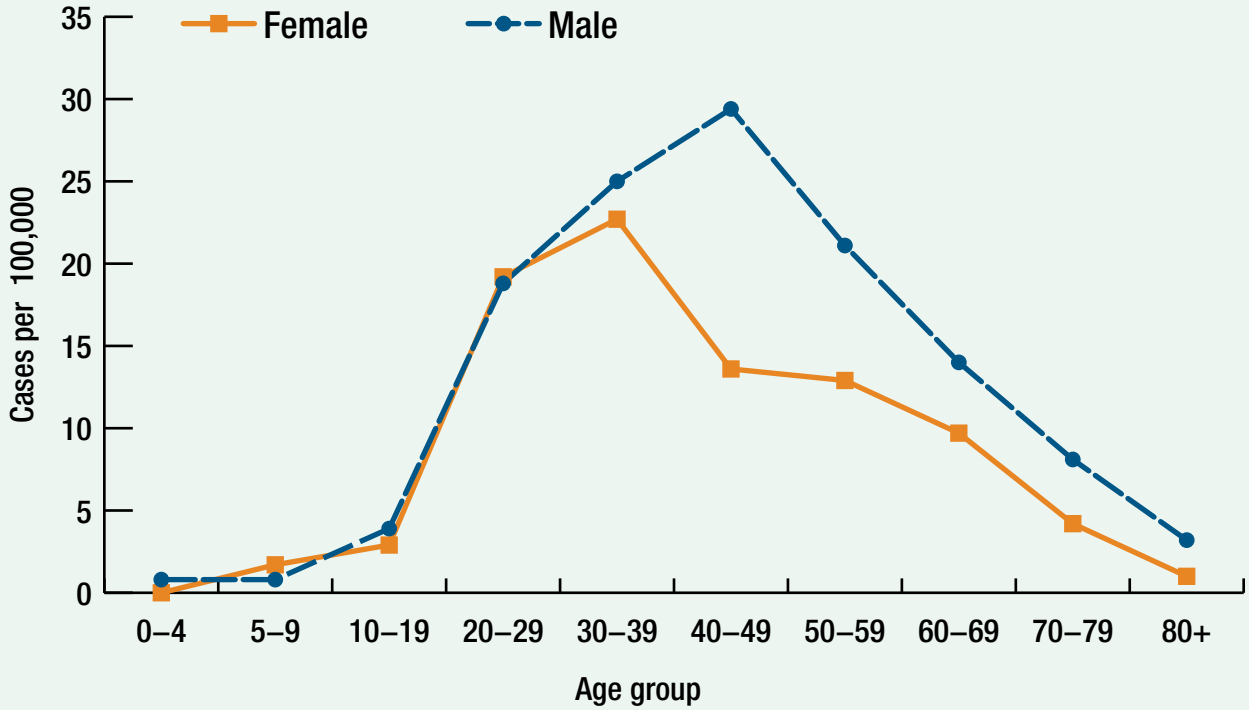
Recommendations and strategies to prevent new cases include the following: routinely vaccinating all infants at birth, screening all pregnant women for hepatitis B, administering hepatitis B immune globulin (HBIG) in addition to hepatitis B vaccine to infants born to HBsAg-positive mothers, and ensuring all infants complete the hepatitis B vaccine series. When given within 24 hours of birth, HBIG and vaccine are 85%–95% effective in preventing hepatitis B disease in children born to HBV-infected mothers.

In 2014, there were 522 newly reported carriers in Oregon; 42% of these were women. Women tend to be diagnosed earlier than men, perhaps due to prenatal screening. In 2014, two children ≤5 years of age were reported as chronic carriers. Both children were born in China, a country of high prevalence. Chronic carriers are not reportable in many states, so a table comparing Oregon to the rest of the U.S. is not provided.

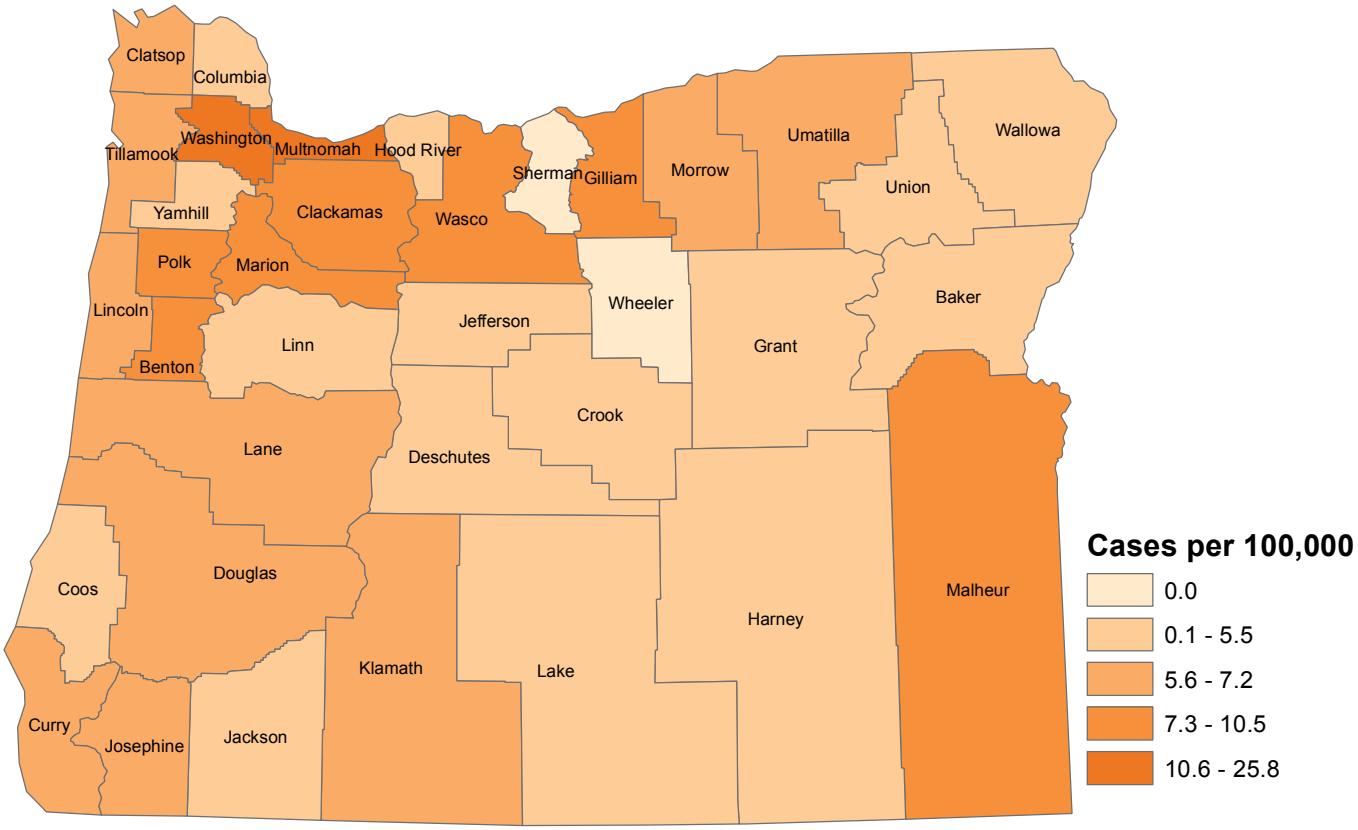
Newly reported chronic hepatitis B by year: Oregon, 1988–2014



Incidence of chronic hepatitis B by age and sex: Oregon, 2014



Incidence of newly reported chronic hepatitis B by county of residence: Oregon, 2005–2014



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 needle stick 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.
- Investigation of cases, including the identification of unvaccinated contacts to encourage vaccination.

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. Chronic hepatitis C can lead to liver damage and sometimes death due to cirrhosis and liver cancer. In the U. S., an estimated 2.7–3.9 million people are infected with HCV. Chronic liver disease develops in up to 70% of chronically infected persons, and hepatitis C is the leading indication for liver transplant. Analysis of 1999–2007 U.S. mortality data found deaths from HCV increased significantly to 15,106 in 2007. Factors associated with HCV-related deaths included chronic liver disease, HBV co-infection, alcohol related conditions, minority status and HIV co-infection. Mirroring national trends, deaths from HCV in Oregon have risen steadily over the last decade, averaging more than 400 deaths annually in Oregon during the last five years. Oregon's HCV mortality rate during 2009–2013 is more than six times higher than Oregon's HIV mortality rate. HCV mortality is also higher in Oregon than in the U.S. as a whole. In 2011, the most recent year national data are available, the age-adjusted Oregon mortality rate was 8.7 deaths per 100,000 persons, compared to the national mortality rate of 4.8 deaths per 100,000.

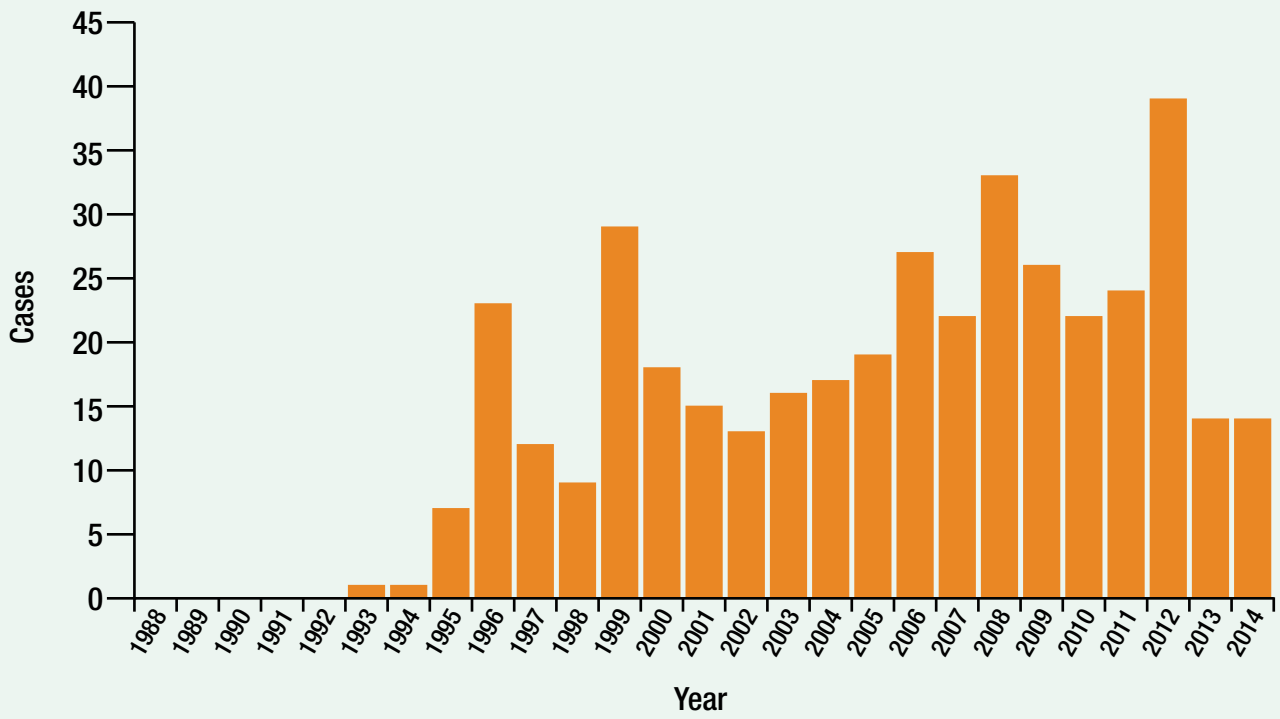
There is no vaccine for hepatitis C.

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.

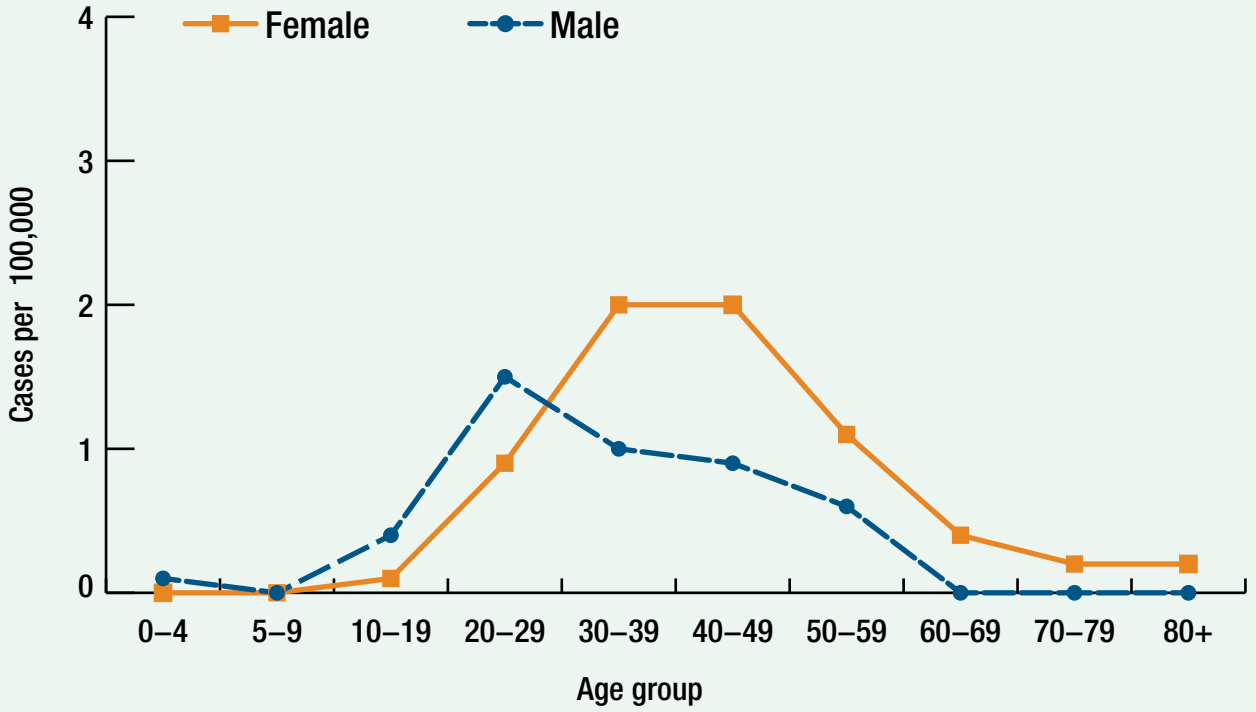
Acute hepatitis C

On average during 2005–2014, there were 24 acute hepatitis C cases reported annually in Oregon. In 2014, 18 cases were reported; a sharp decline from the 38 cases reported in 2012. Twelve (67%) of the cases were <40 years of age, and 15 (83%) were female. Injection drug use remains the predominant risk factor reported by cases (80%). There were no healthcare-associated acute hepatitis C cases in 2014. Currently there is no vaccine for hepatitis C.

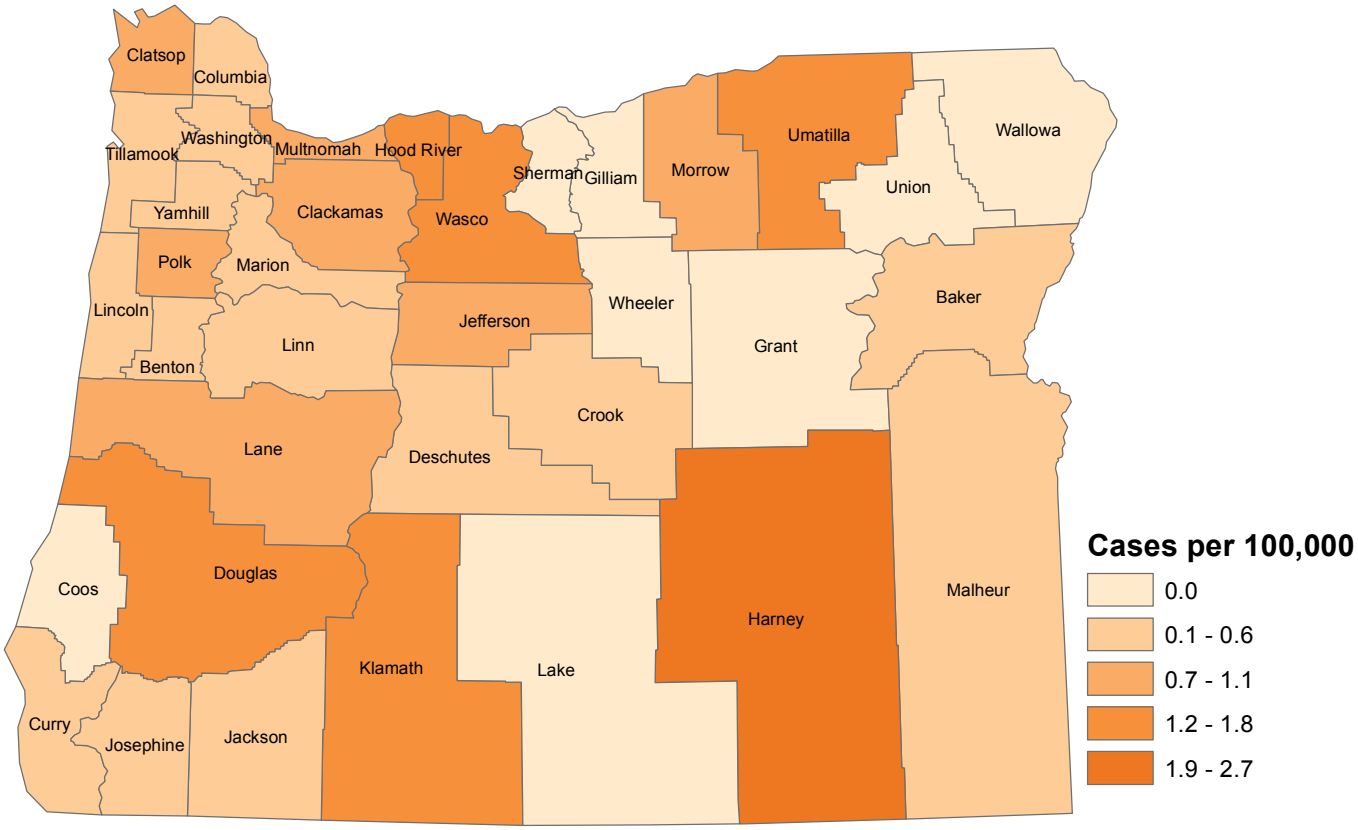
Acute hepatitis C by year: Oregon, 1988–2014



Acute hepatitis C by age and sex: Oregon, 2005–2014



Incidence of acute hepatitis C by county of residence: Oregon, 2005–2014



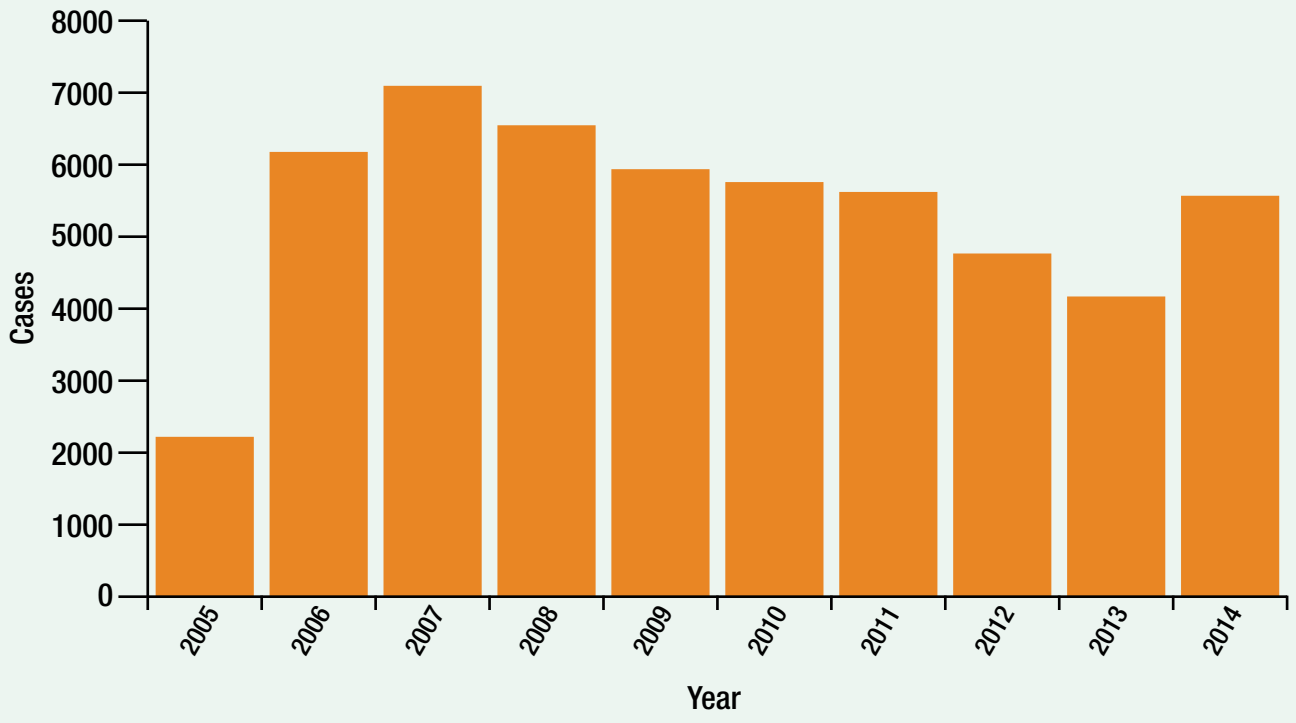
Prevention

- Health care workers: use universal precautions and best practices to prevent needle stick 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.

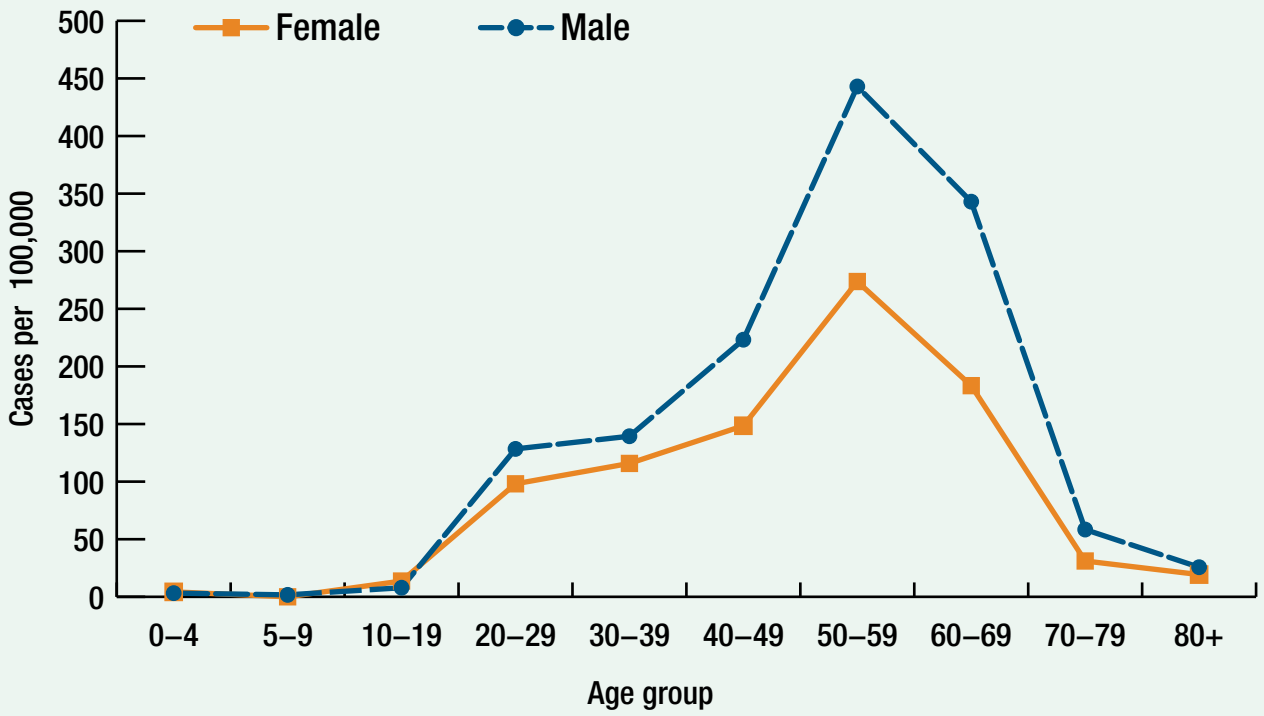
Chronic hepatitis C

Chronic hepatitis C became reportable in Oregon as of July 1, 2005. In 2014, 5,559 new chronic hepatitis C cases were reported, up slightly from 4,160 reported in 2013. 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 (169/100,000) is more common than in females (112/100,000). The highest prevalence of HCV infection is among persons born between 1945 and 1965. CDC estimates this age group comprises 75% of chronic hepatitis C cases in the U.S.; among 2014 Oregon cases, 59% belong to this age group.

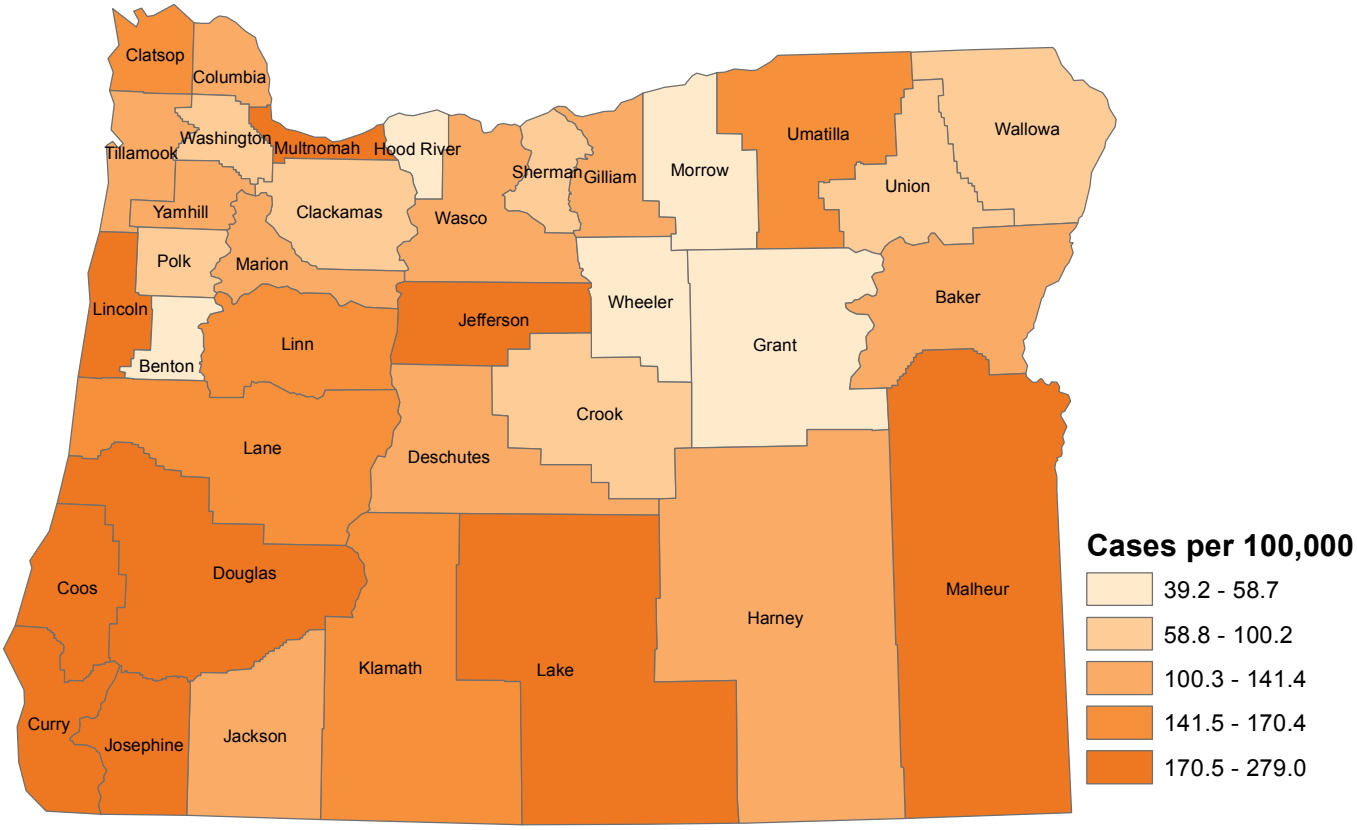
Newly reported chronic hepatitis C by year: Oregon, 2005–2014



Chronic hepatitis C by age and sex: Oregon, 2014



Incidence of chronic hepatitis C by county of residence: Oregon, 2010–2014



Prevention

- Health care workers: use universal precautions and best practices to prevent needle stick 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.

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, direct fluorescent antibody staining and culture.

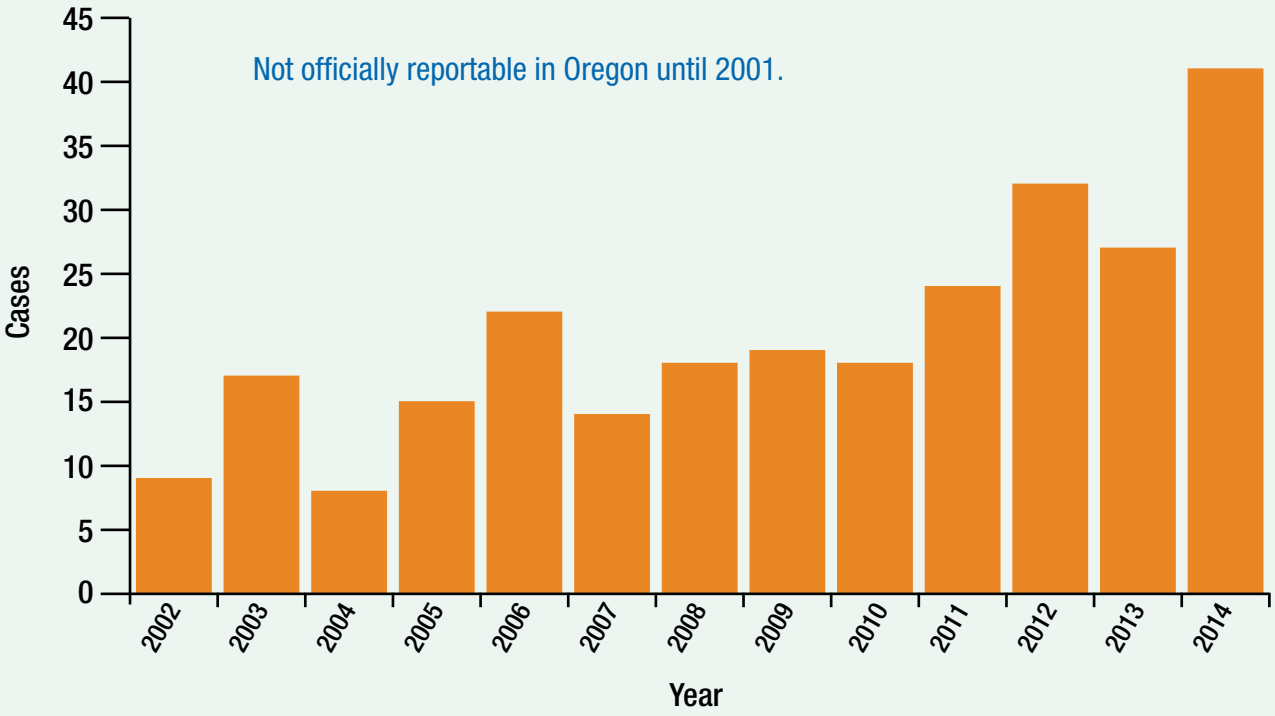
"Pontiac fever," a milder illness associated with *Legionella* bacteria, is characterized by fever and muscle aches without pneumonia. It typically occurs a few hours to two days after exposure.

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.

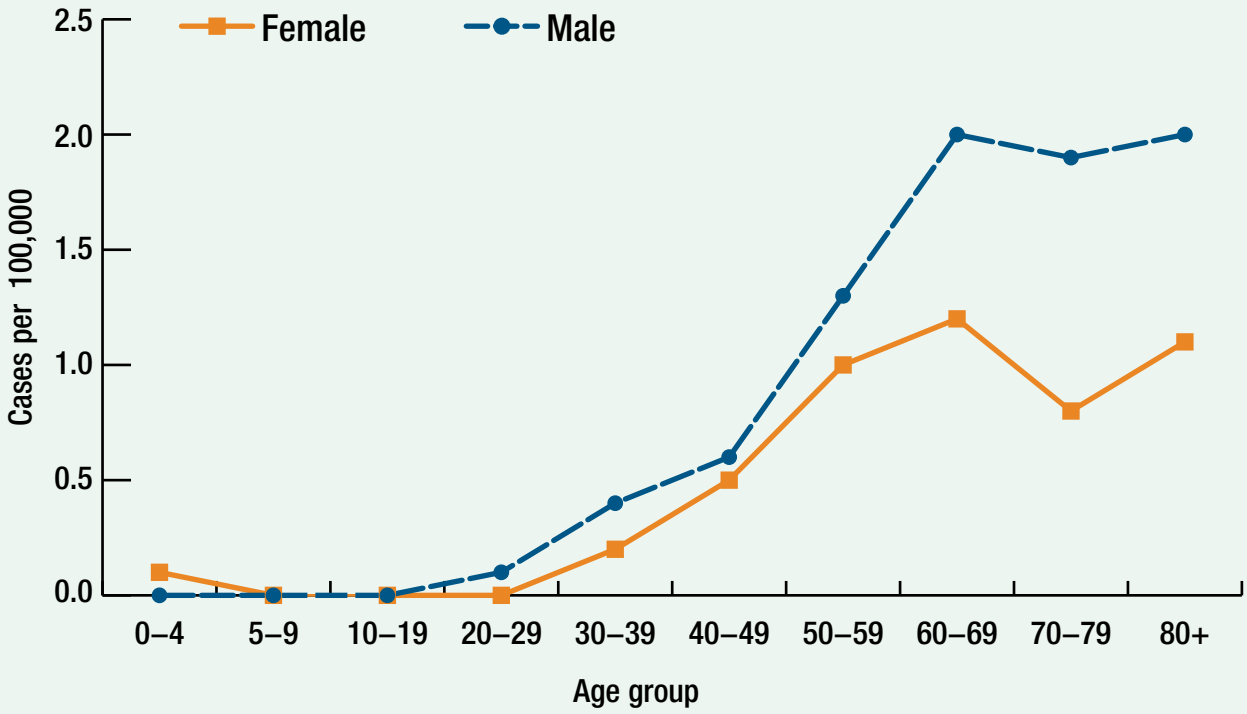
Risks for infection include older age, smoking, chronic lung disease (e.g., emphysema), renal insufficiency, diabetes and immune deficiency. Death occurs in 10–15% of cases; a substantially higher proportion of fatal cases occur during outbreaks in hospitals or other health care facilities. Infections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

Legionellosis became officially reportable in Oregon in 2001. In 2014, 41 cases of legionellosis were reported among Oregonians; all cases were hospitalized. There were six deaths. The incidence of reported cases has more than tripled during 2002–2014, from 0.3 per 100,000 persons to 1.0. While reasons for this increase are unknown, increases in older persons, persons at high risk for infection, and increased case detection and reporting may have played a role.

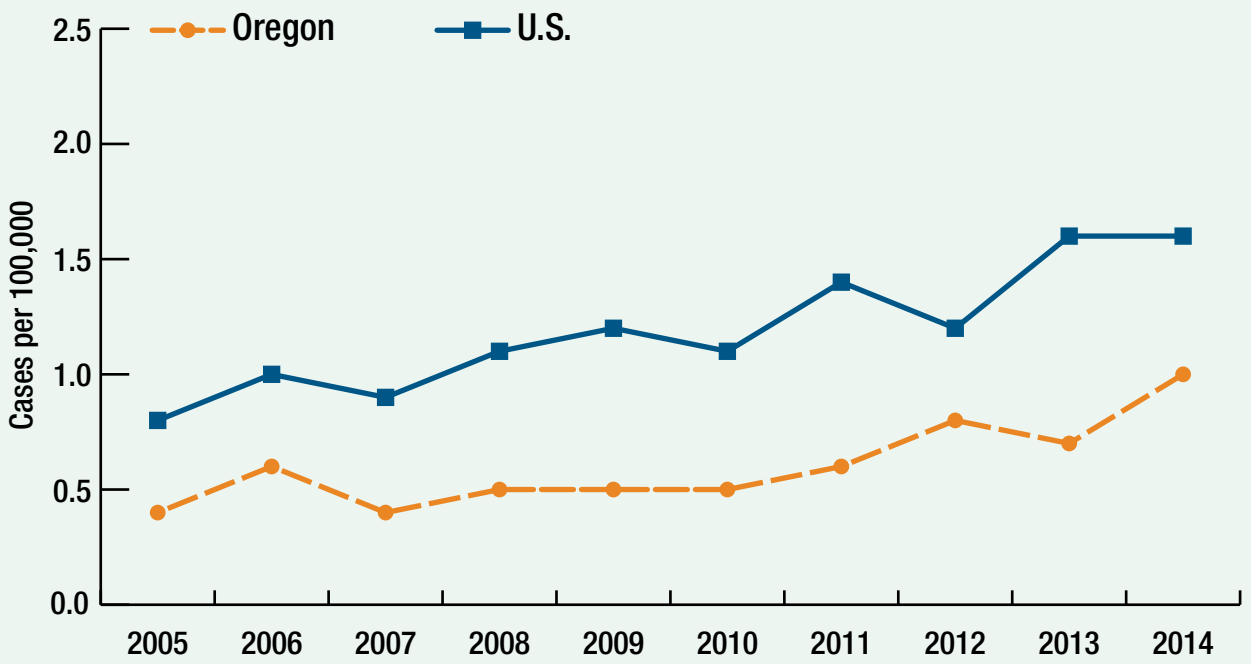
Legionellosis by year: Oregon, 2002–2014



Incidence of legionellosis by age and sex: Oregon, 2005–2014

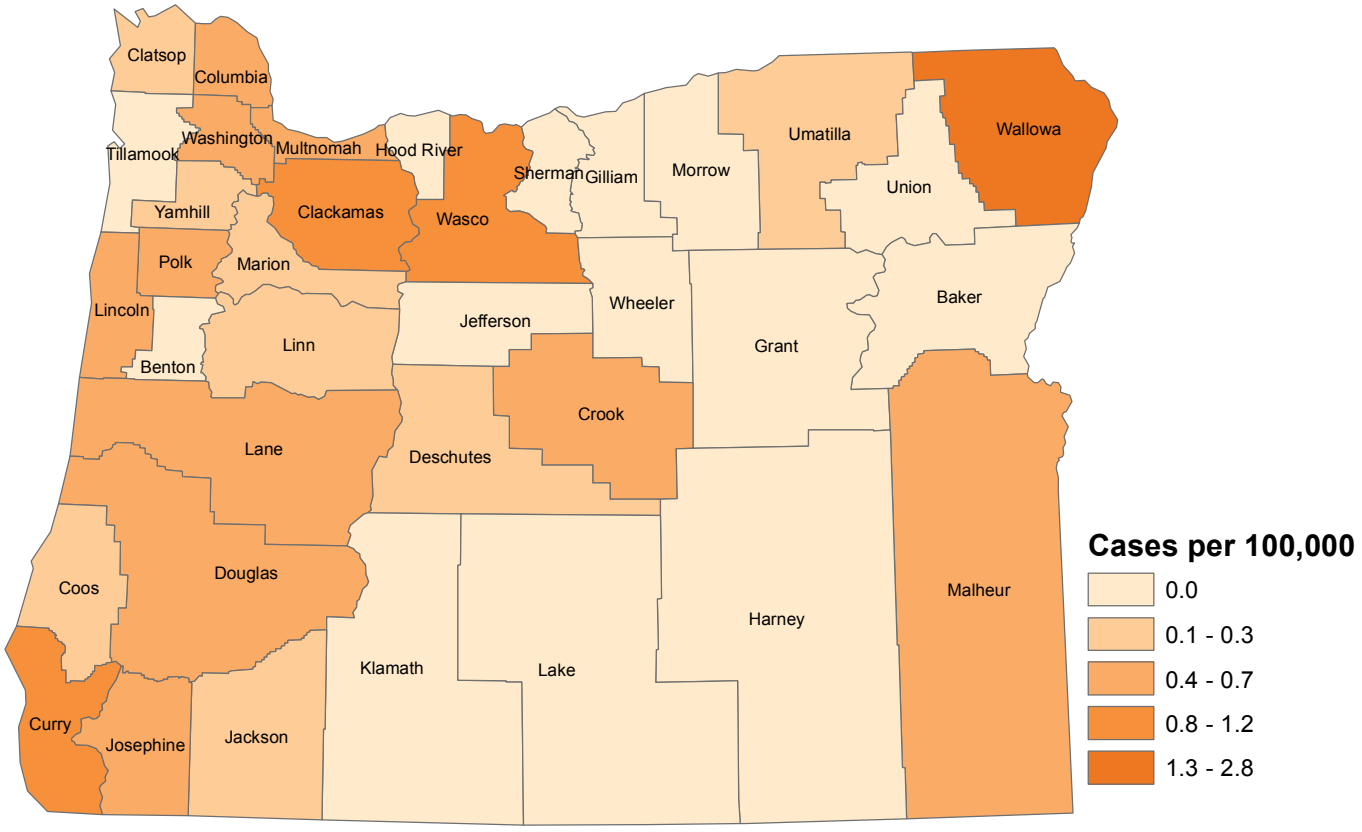


Incidence of legionellosis: Oregon vs. nationwide, 2005–2014



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Oregon	0.4	0.6	0.4	0.5	0.5	0.5	0.6	0.8	0.7	1.0
U.S.	0.8	1.0	0.9	1.1	1.2	1.1	1.4	1.2	1.6	1.6

Incidence of legionellosis by county of residence: Oregon, 2005–2014



Prevention

- Not smoking can lower your chances of developing Legionnaire's 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:
  - › 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 the *Legionella*. Flushing of infrequently used water lines will help alleviate stagnation.

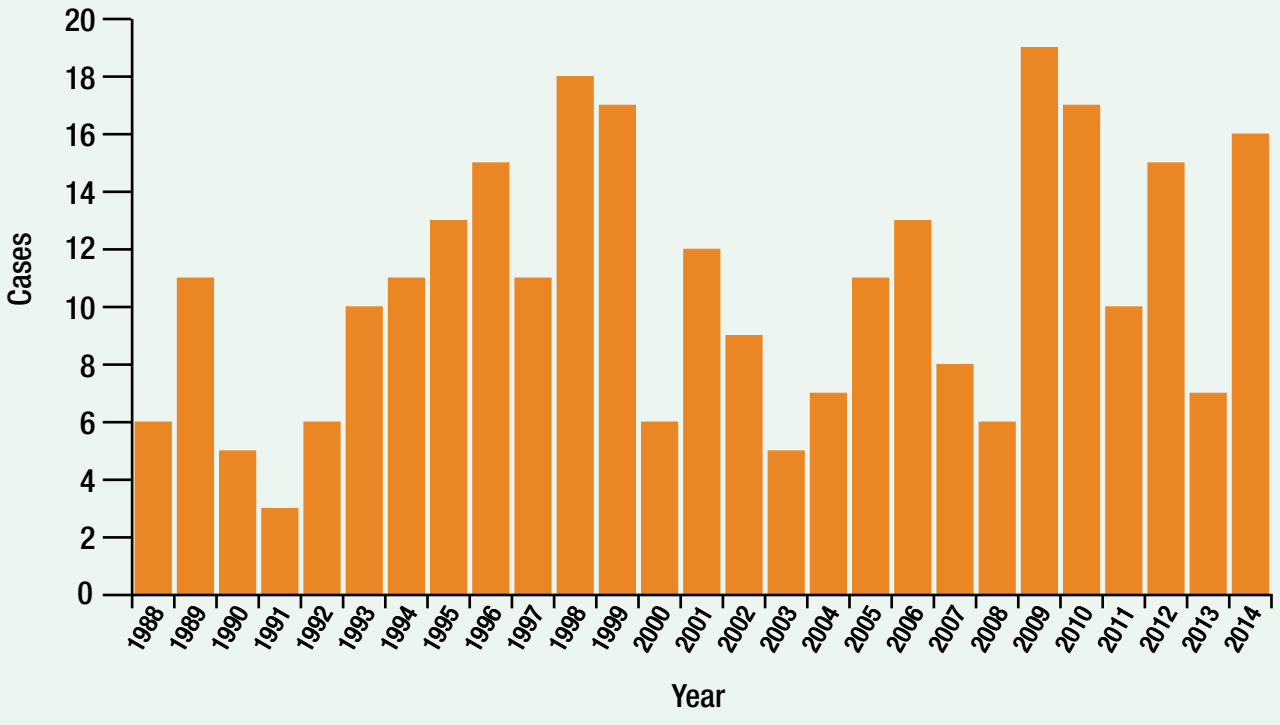
Listeriosis

Listeriosis is a bacterial infection that may present as 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.

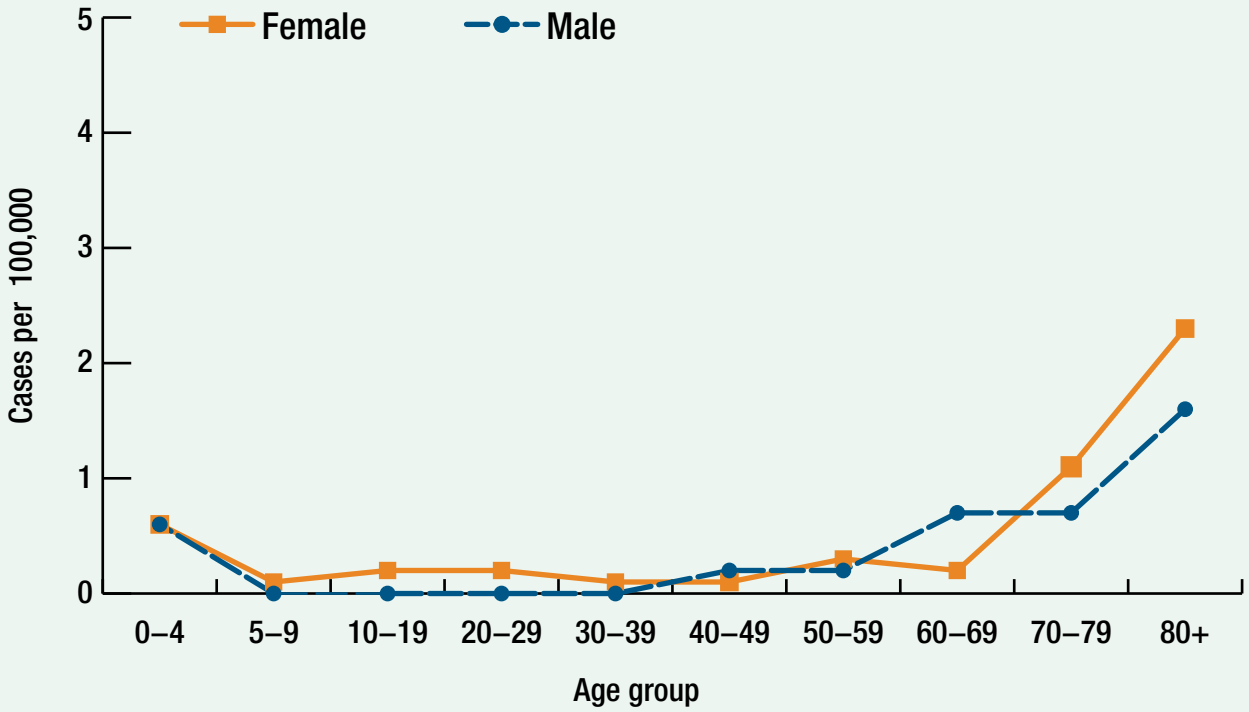
Most cases of listeriosis are "sporadic" rather than part of outbreaks. However, several large outbreaks have been associated with consumption of contaminated foods. It is important to track the incidence of this disease to identify such outbreaks, and to identify high-risk groups. The rate is higher 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 2014, 16 cases were reported, a 56% increase from 2013; there were three deaths (19%). There were no pregnancy-associated cases. All cases were sporadic.

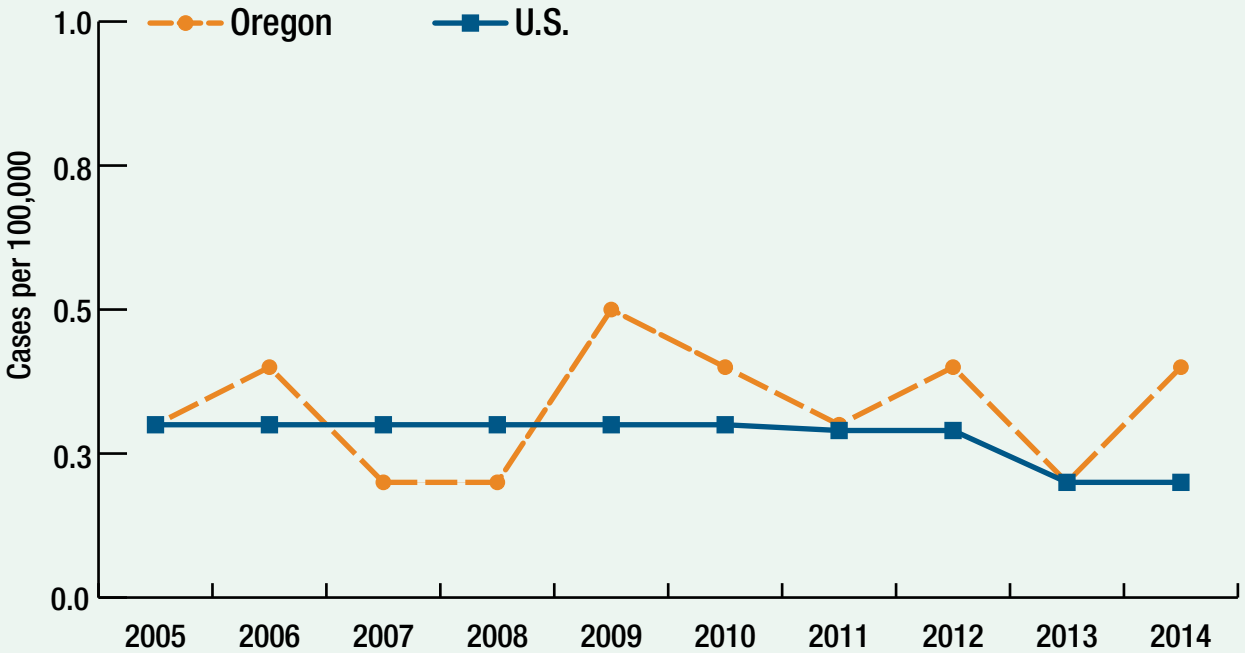
Listeriosis by year: Oregon, 1988–2014



Incidence of listeriosis by age and sex: Oregon, 2005–2014

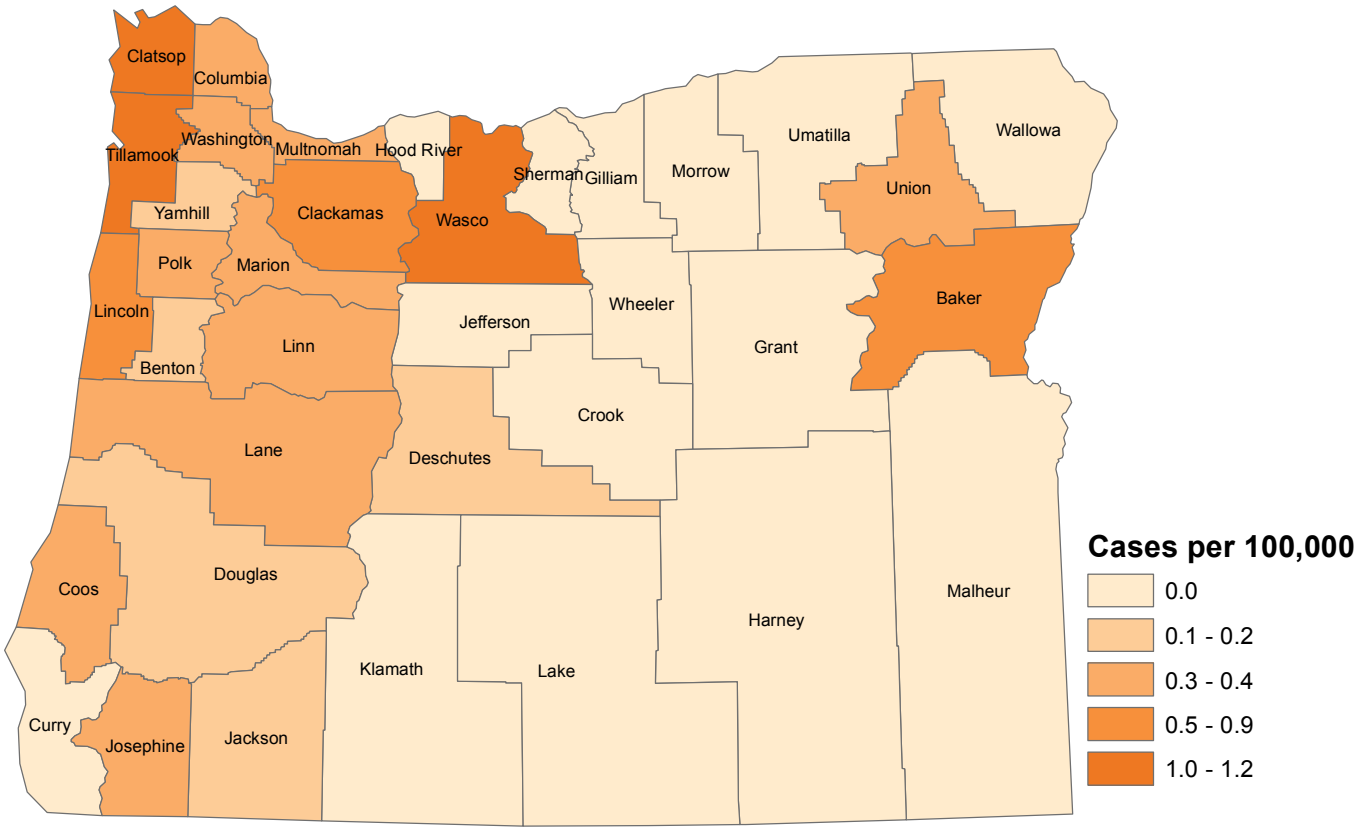


Incidence of listeriosis: Oregon vs. nationwide, 2005–2014



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Oregon	0.3	0.4	0.2	0.2	0.5	0.4	0.3	0.4	0.2	0.4
U.S.	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2

Incidence of listeriosis by county of residence: Oregon, 2005–2014



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):

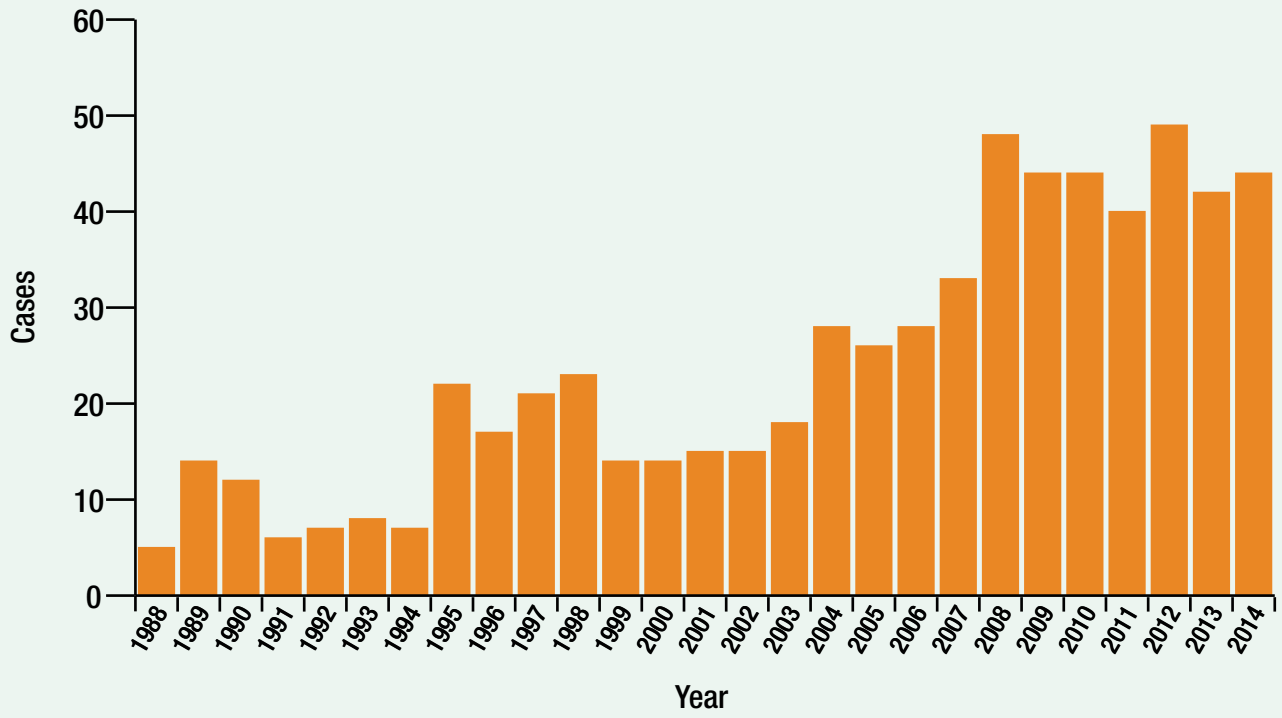
- Avoid eating hot dogs, luncheon meats, cold cuts and other deli meats unless they are heated.
- Do not eat soft cheese such as feta, queso fresco, brie, Camembert unless it is labeled as made with pasteurized milk.
- Do not eat refrigerated smoked seafood, unless it is contained in a cooked dish such as casserole.

Lyme disease

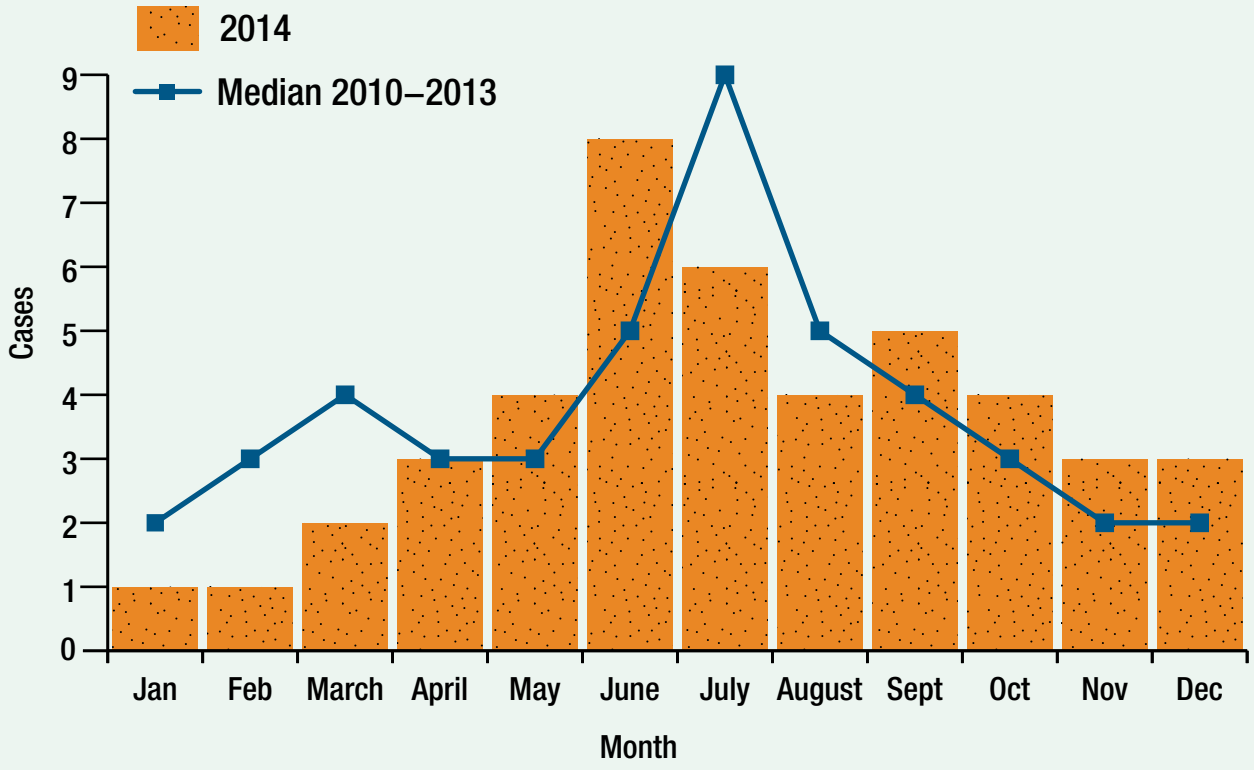
Lyme disease is a tick-borne zoonotic disease caused by the spirochete *Borrelia burgdorferi*. The first manifestation in approximately 60% of patients appears as a red spot or bump that expands slowly with clearing in the middle, forming a ring or "target," sometimes with multiple similar lesions. This distinctive skin lesion is called "erythema migrans." In most cases, the tick must be attached for 36–48 hours or more 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 so 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 over a period of months to years. Infections are treated with antibiotics.

Currently, increasing recognition of the disease is redefining areas where ticks may carry *B. burgdorferi*; Lyme disease cases have been reported in 47 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, 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 2014, 44 cases of Lyme disease were reported in Oregon. The median age was 30 years. Twenty-nine (65%) cases were female. Rates were highest in Josephine and Hood River counties.

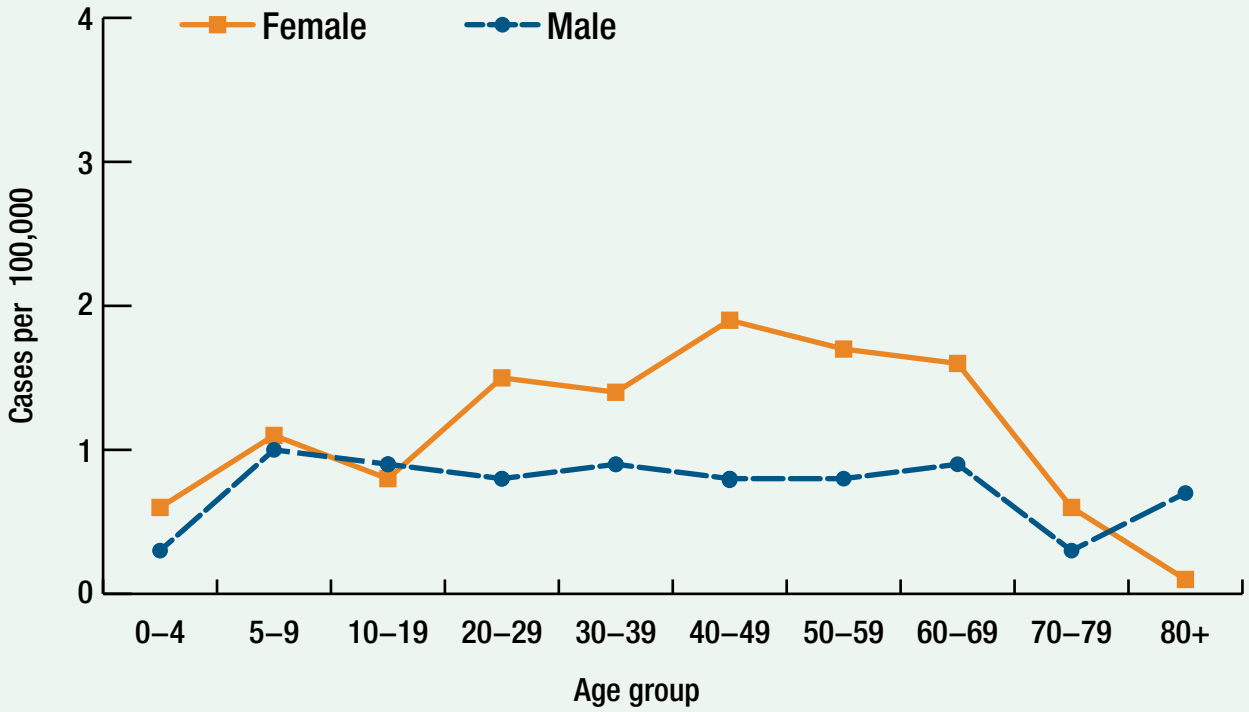
Lyme disease by year: Oregon, 1988–2014



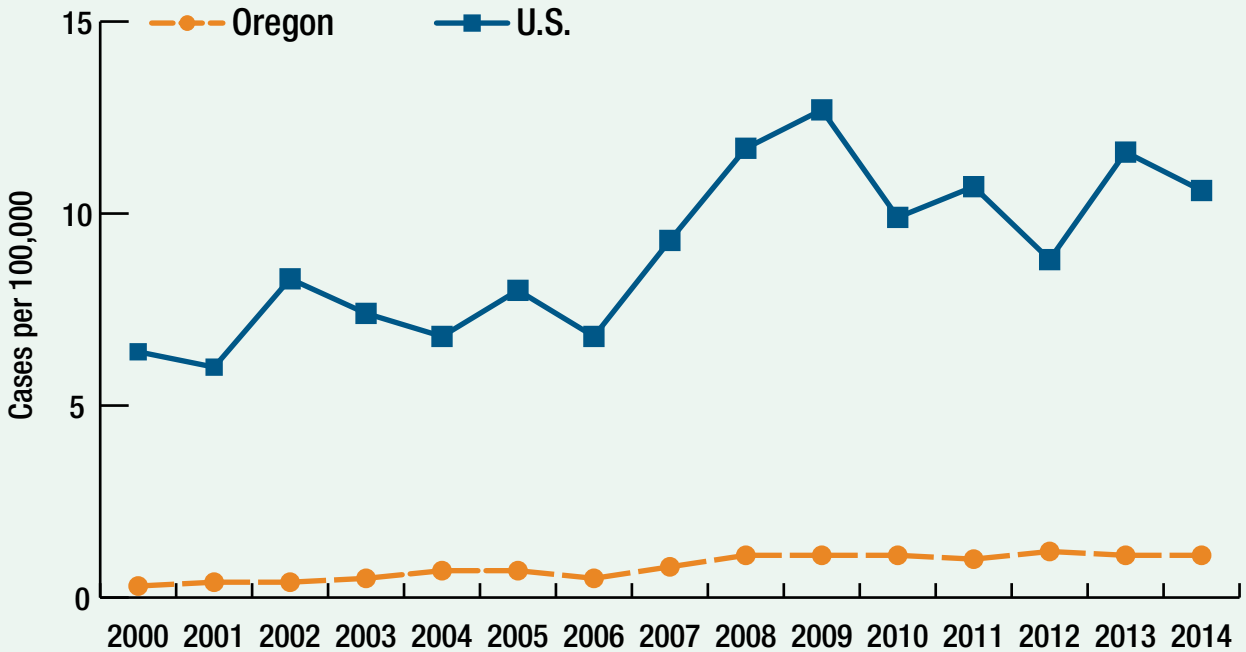
Lyme disease by onset month: Oregon, 2014



Incidence of Lyme disease by age and sex: Oregon, 2005–2014

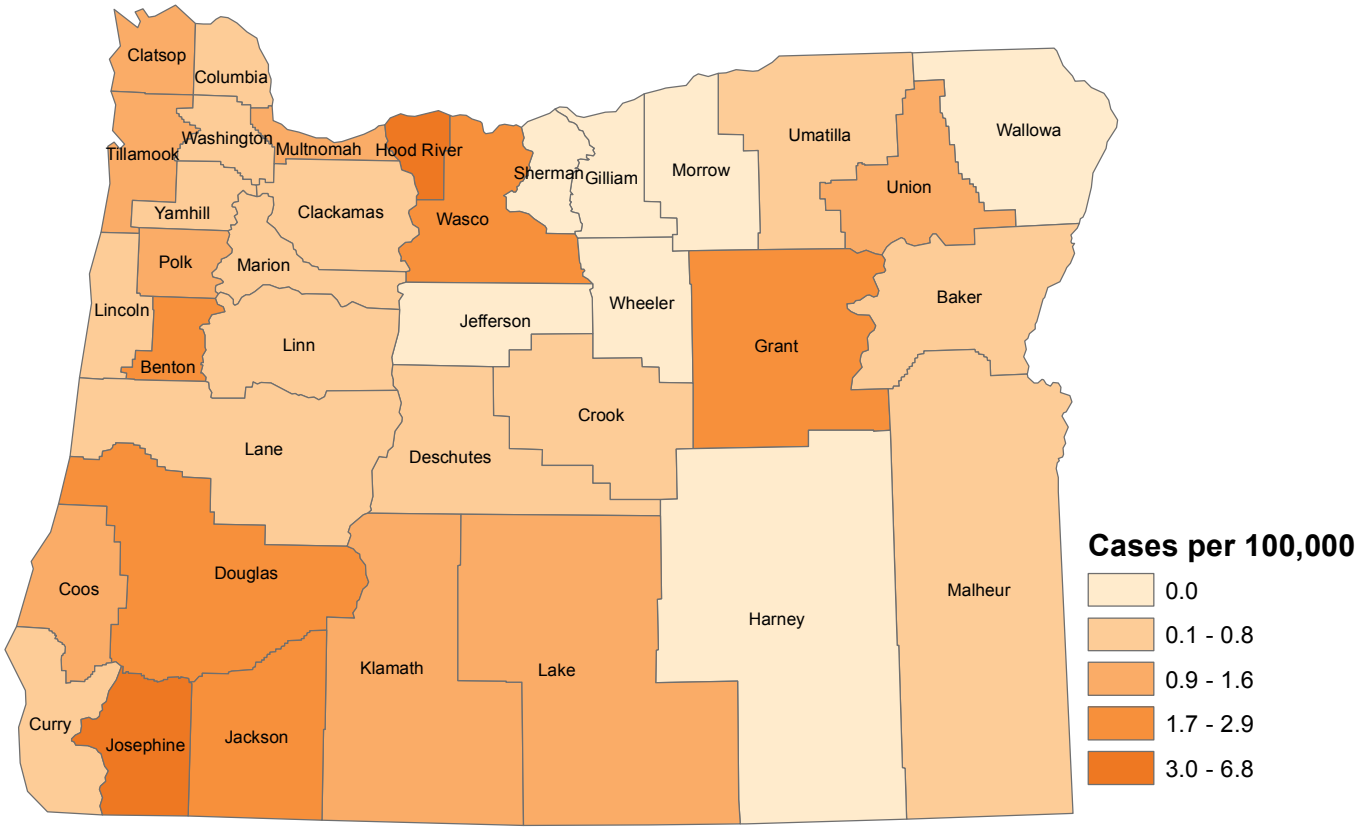


Incidence of Lyme disease: Oregon vs. nationwide, 2000–2014



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Oregon	0.3	0.4	0.4	0.5	0.7	0.7	0.5	0.8	1.1	1.1	1.1	1.0	1.2	1.1	1.1
U.S.	6.4	6.0	8.3	7.4	6.8	8.0	6.8	9.3	11.7	12.7	9.9	10.7	8.8	11.6	10.6

Incidence of Lyme disease by county of residence:* Oregon, 2005–2014
*Not necessarily county of acquisition



Prevention

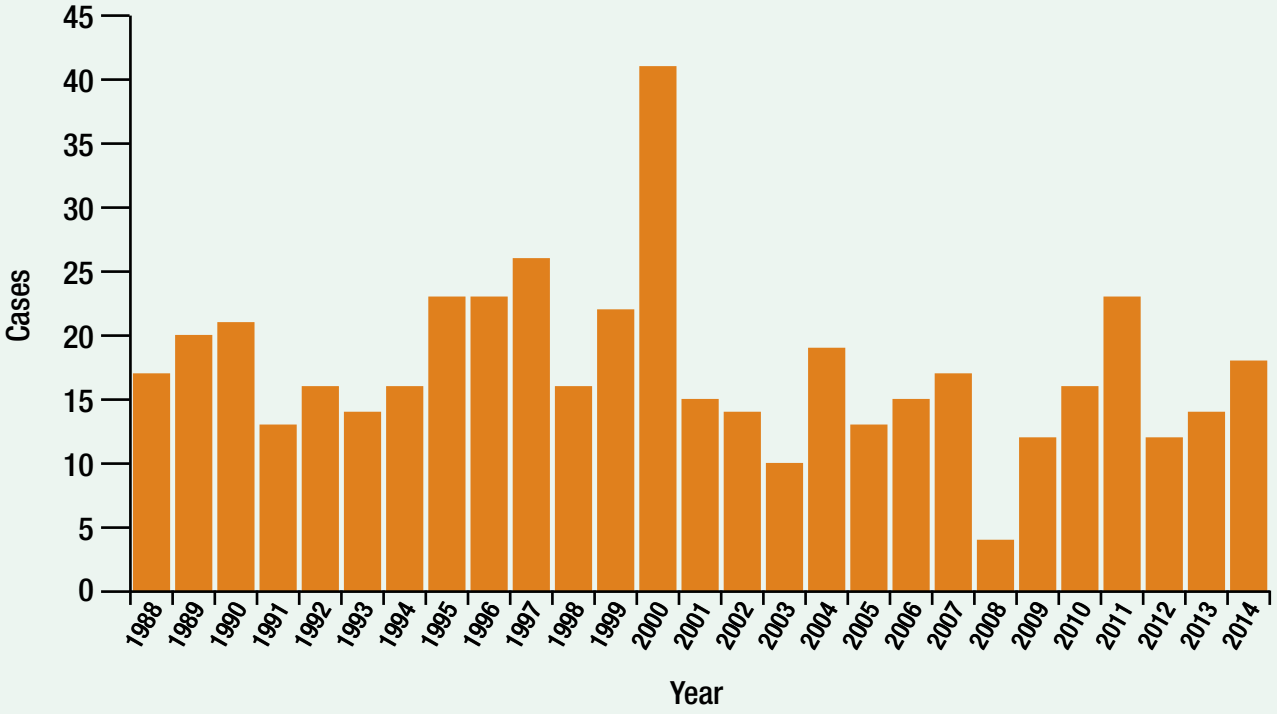
- Avoid exposure to ticks: wear long sleeves, long pants and socks when outdoors.
- Check yourself, your children and your pets for ticks. Be especially vigilant after spending time in wooded or grassy areas. Remove a tick as soon as possible with tweezers. Gently grasp the tick near its head or mouth. 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-3,8-diol products provide longer-lasting protection. To optimize safety and effectiveness, repellents should be used according to the label instructions.
- Do your best to tick-proof your yard. Clear brush and leaves where ticks live. Keep woodpiles in sunny areas.

Malaria

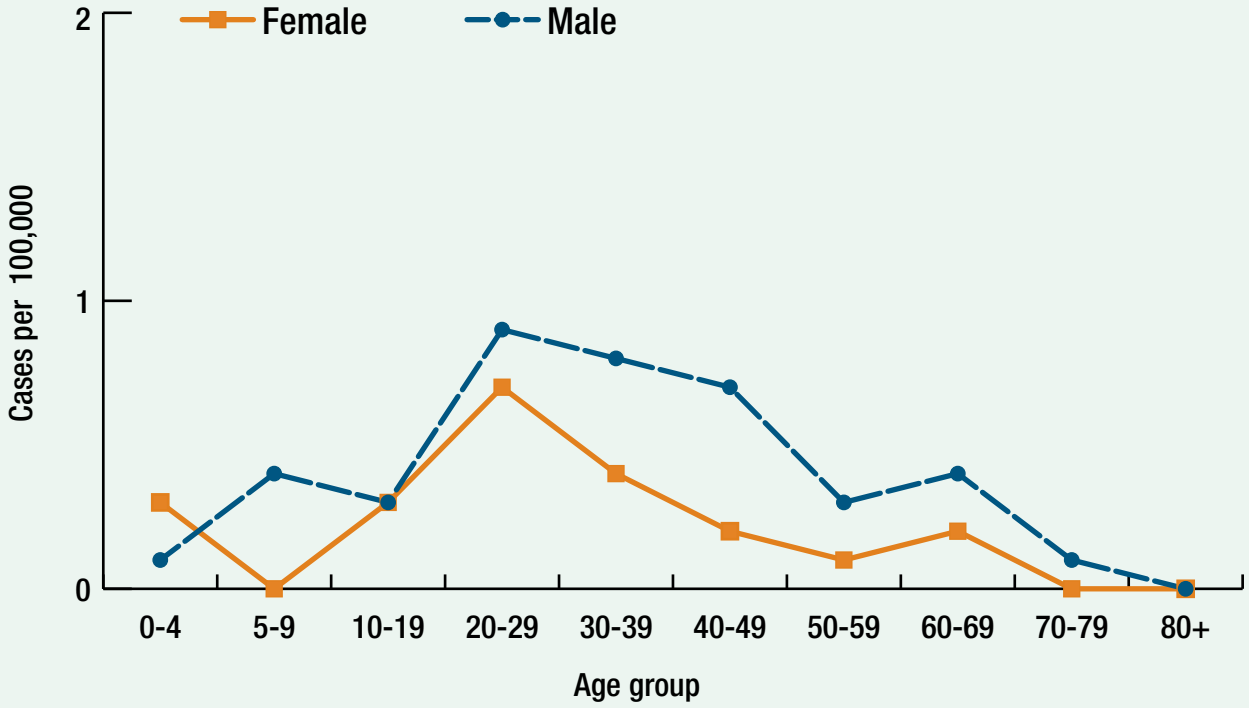
Worldwide, malaria is one of the most devastating of the communicable diseases, causing perhaps 1–2 million deaths annually, in addition to an enormous burden of disability and medical costs. It is caused by parasites of the genus *Plasmodium* that are transmitted among humans by *Anopheles* mosquitoes. 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.

Eighteen cases of laboratory confirmed malaria were reported in Oregon in 2014. Ten (53%) were *Plasmodium falciparum* — the worst kind to have and the most common worldwide. Oregon surveillance data contribute to the national database, which tailors recommendations for prevention and treatment. Of the 18 Oregon cases reported in 2014, 15 (83%) reported pre-onset travel in Africa or were immigrants from Africa. One case had been in South America and two in Asia. Competent advice about behavioral and chemical interventions can reduce risk to travelers, but refugees and other immigrants may carry long-harbored infections.

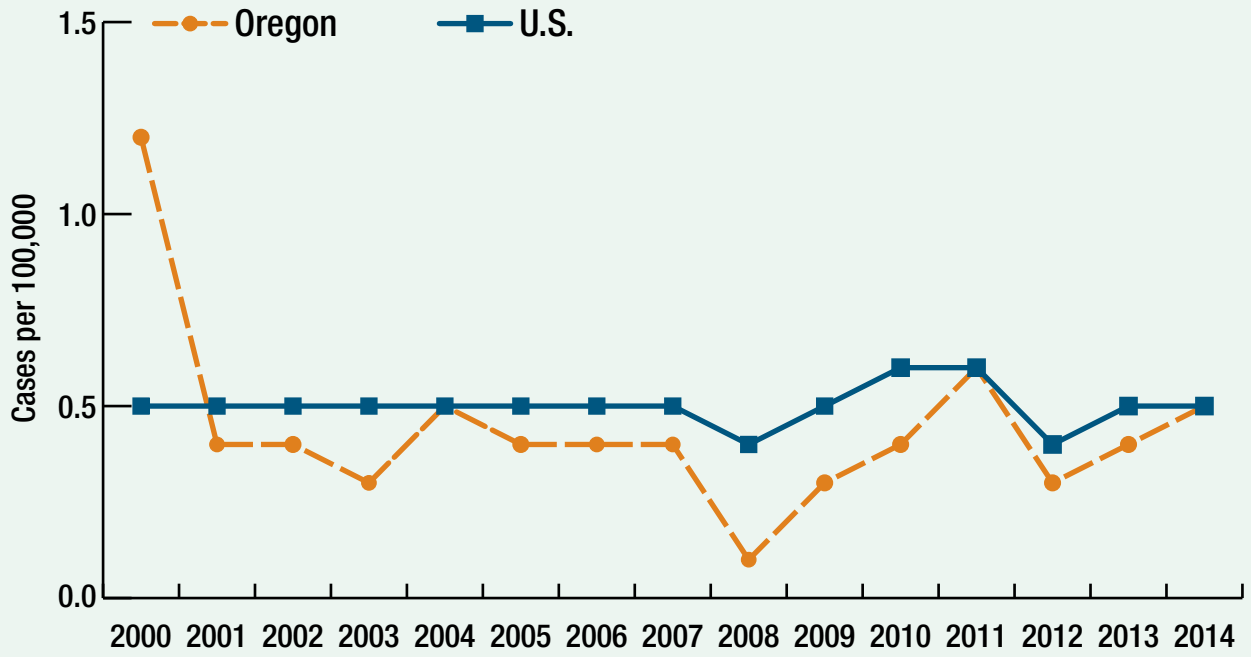
Malaria by year: Oregon, 1988–2014



Incidence of malaria by age and sex: Oregon, 2005–2014

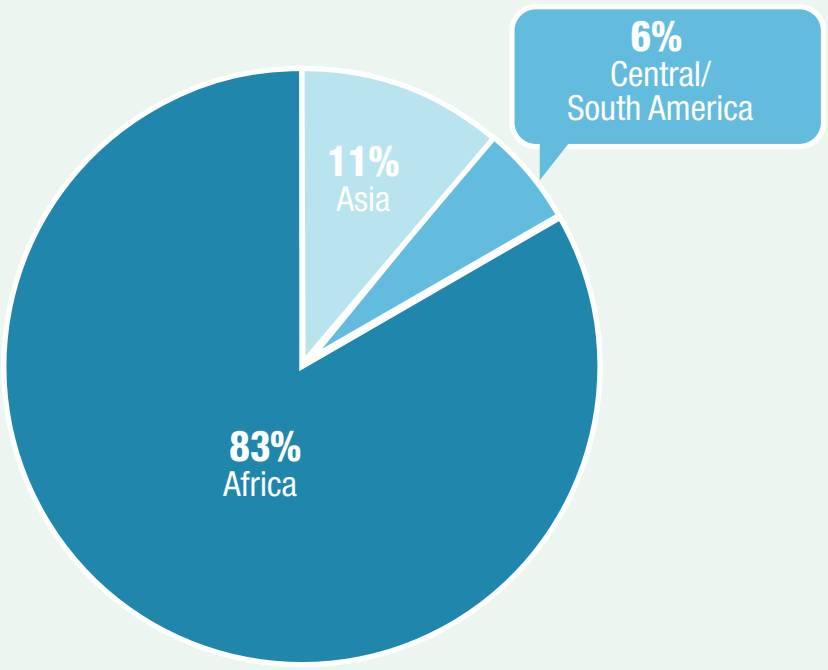


Incidence of malaria: Oregon vs. nationwide, 2000–2014



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Oregon	1.2	0.4	0.4	0.3	0.5	0.4	0.4	0.4	0.1	0.3	0.4	0.6	0.3	0.4	0.5
U.S.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.6	0.6	0.4	0.5	0.5

Malaria cases by continent of acquisition: Oregon, 2014



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 CDC (www.cdc.gov/malaria/travelers/country_table/a.html).
- 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 (antibiotic medicine) provides the backstop you need when bite prevention is imperfect — as it always is. Many effective medicines are available in the U.S. (www.cdc.gov/malaria/travelers/drugs.html), and even more elsewhere. Weighing their relative merits and side effects 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. See www.cdc.gov/malaria/travelers/drugs.html for a list.

Measles

Measles is an acute, highly communicable viral illness known for its red, blotchy rash, which starts on the face and then spreads widely over the body. The rash is preceded by a febrile prodrome that includes cough, coryza and conjunctivitis, and sometimes photophobia and "Koplik spots" in the mouth. Diagnosis is confirmed by the presence of serum IgM antibodies (in a patient who has not recently been immunized). Treatment is supportive.

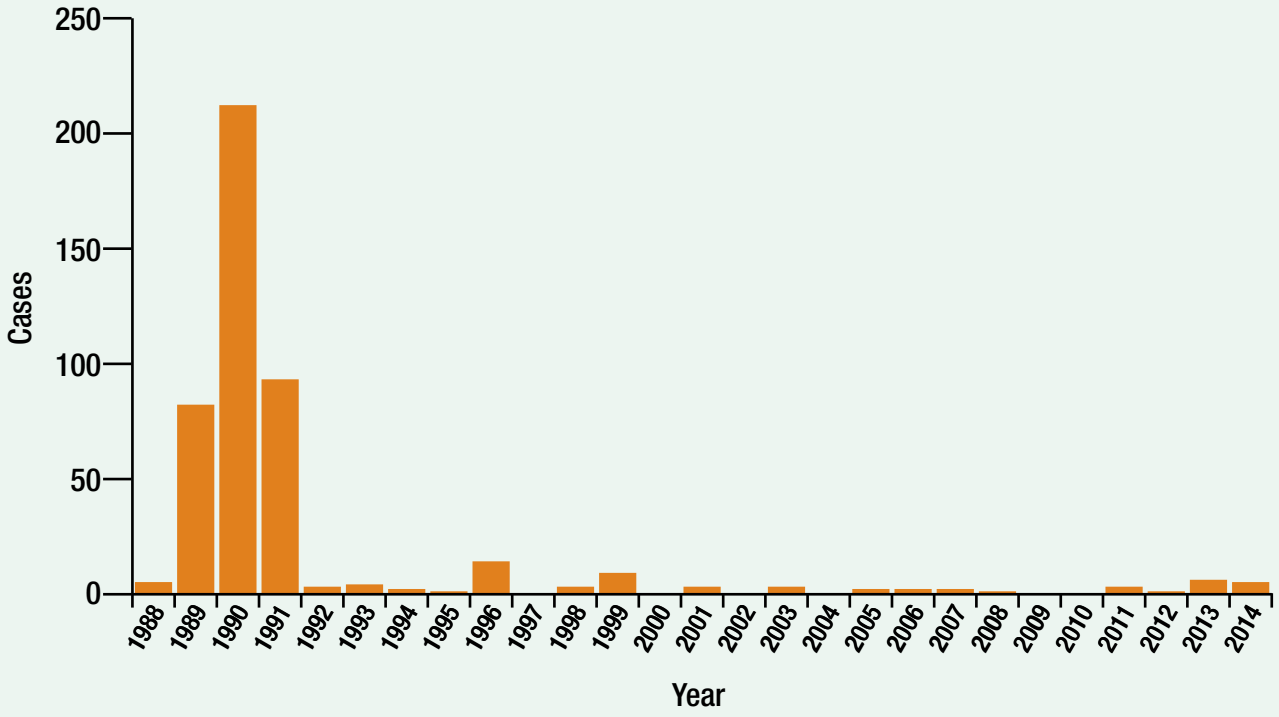
A focus on increasing vaccination among preschool children by following the 1989 recommendations for two doses of MMR vaccine resulted in a dramatic reduction in the illness. In Oregon, two doses of measles vaccination have been required for entry into kindergarten since 1998. In 2014, >93% of kindergartners had received two doses of measles-containing vaccine.

Since 2004, 22 cases were reported in Oregon; 13 of these cases were imported and nine were linked to imported cases. Most imported cases originated in Asia and Europe, and occurred both among Oregon citizens traveling abroad and in persons visiting Oregon from other countries. The median age of cases has been 6.5 years (range, 9 months–40 years). Fifteen cases were unvaccinated, five were vaccinated, the vaccination status of one could not be documented, and one was too young for vaccine.

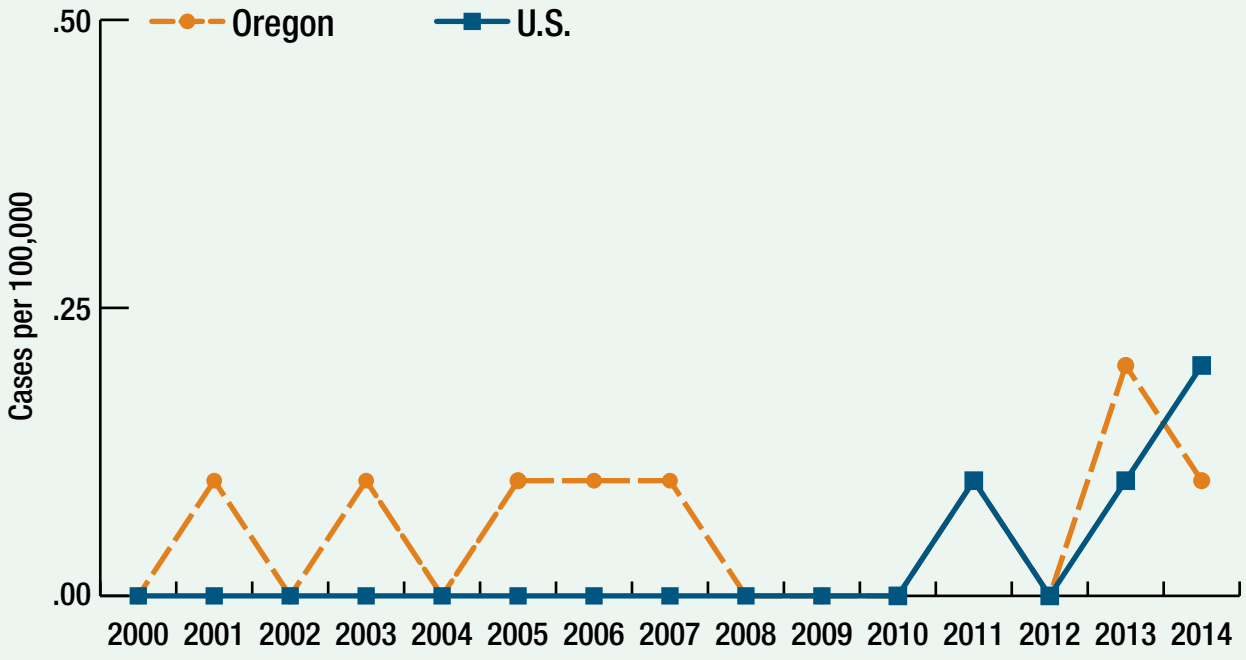
Five Oregonians caught the measles during 2014 — all were preventable. Four cases were in unvaccinated preschool or school-aged children linked to international importation. One was an internationally imported case in an unvaccinated infant. American Committee on Immunization Practices (ACIP) recommends infants 6 months through 11 months, receive one dose of measles vaccine before any international travel.

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.

Measles by year: Oregon, 1988–2014

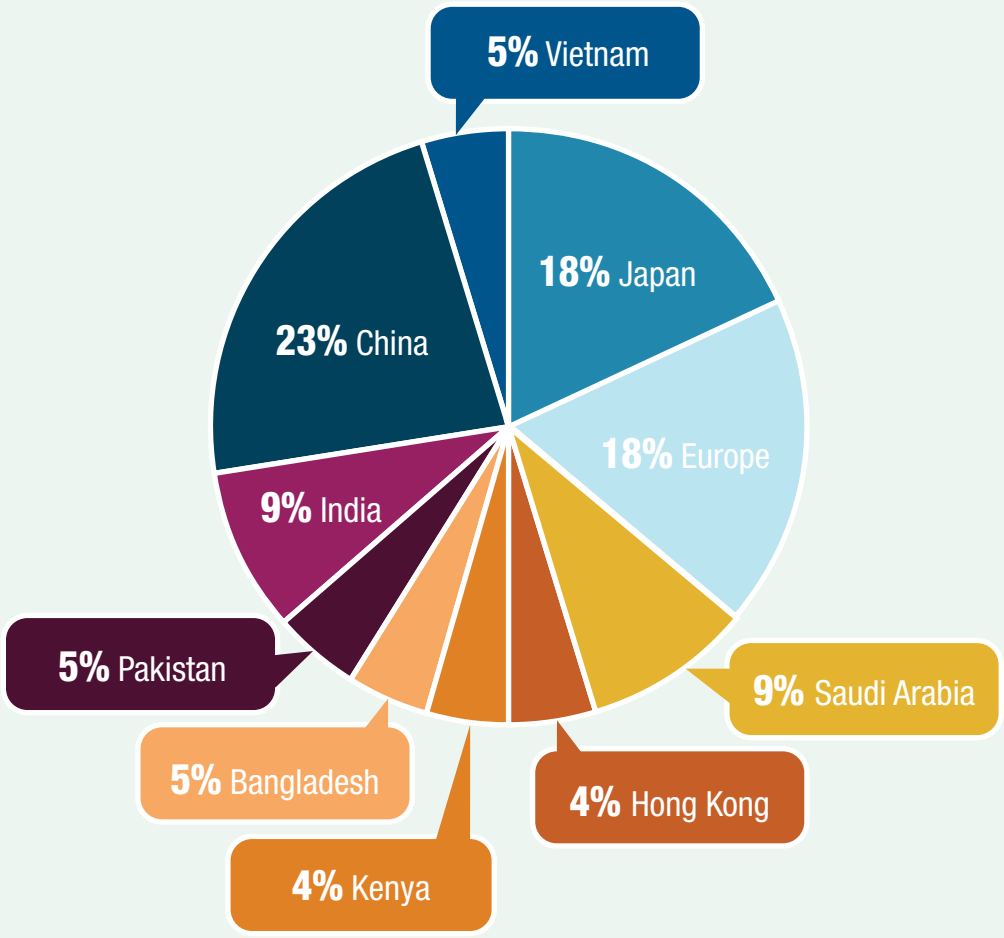


Incidence of measles: Oregon vs. nationwide, 2000–2014



Oregon	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.2	0.1
U.S.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2

Measles by country of importation: 1997–2014



Prevention

- Vaccinate:
  - › One dose for preschool-age children >12 months of age and for persons born during or after 1957; and 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.

Meningococcal disease

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 2014, there were 18 reported cases and two deaths from meningococcal disease in Oregon. From the early 1990s through 2011, serogroup B predominated in Oregon, but in 2011 and again in 2013–2014, other serogroups have been more prominent. In 2014, serogroup C accounted for 44% (8) of the serogrouped cases, whereas 22% (4) of cases were serogroup B.

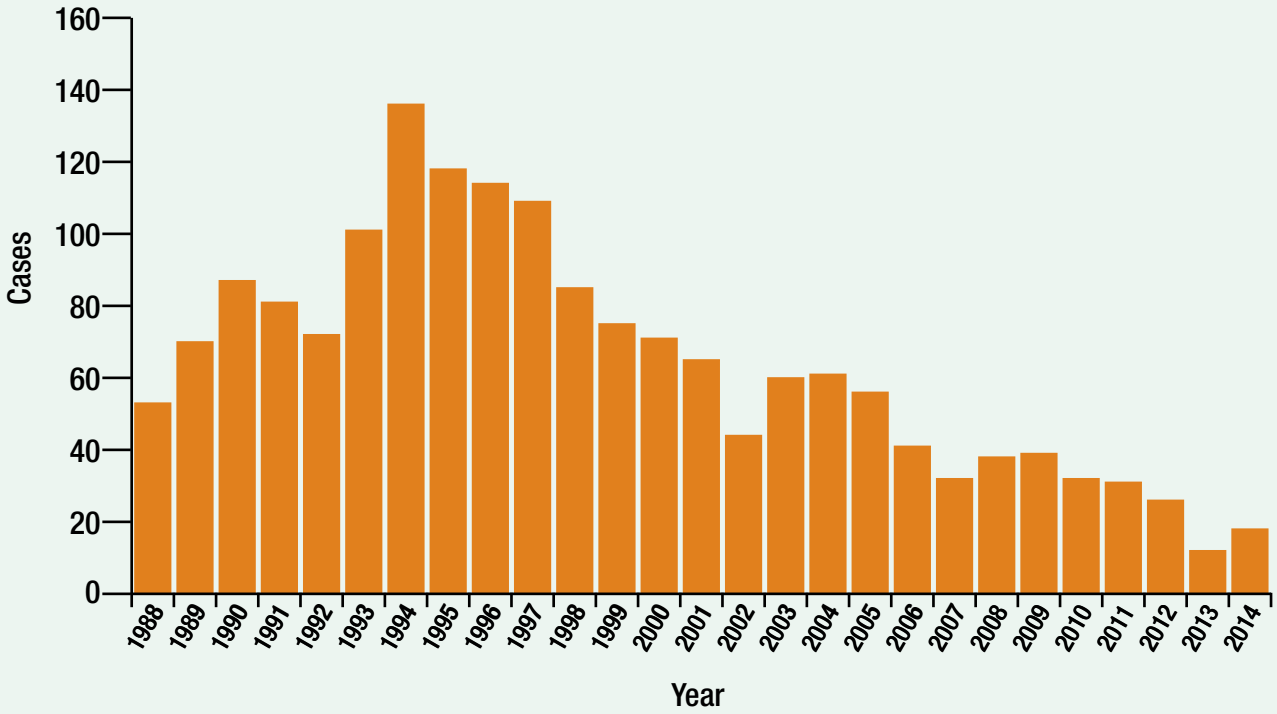
The burden of meningococcal disease was highest in those ≤5 years of age (2.5/100,000). Meningococcal disease is treated with intravenous antibiotics.

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.

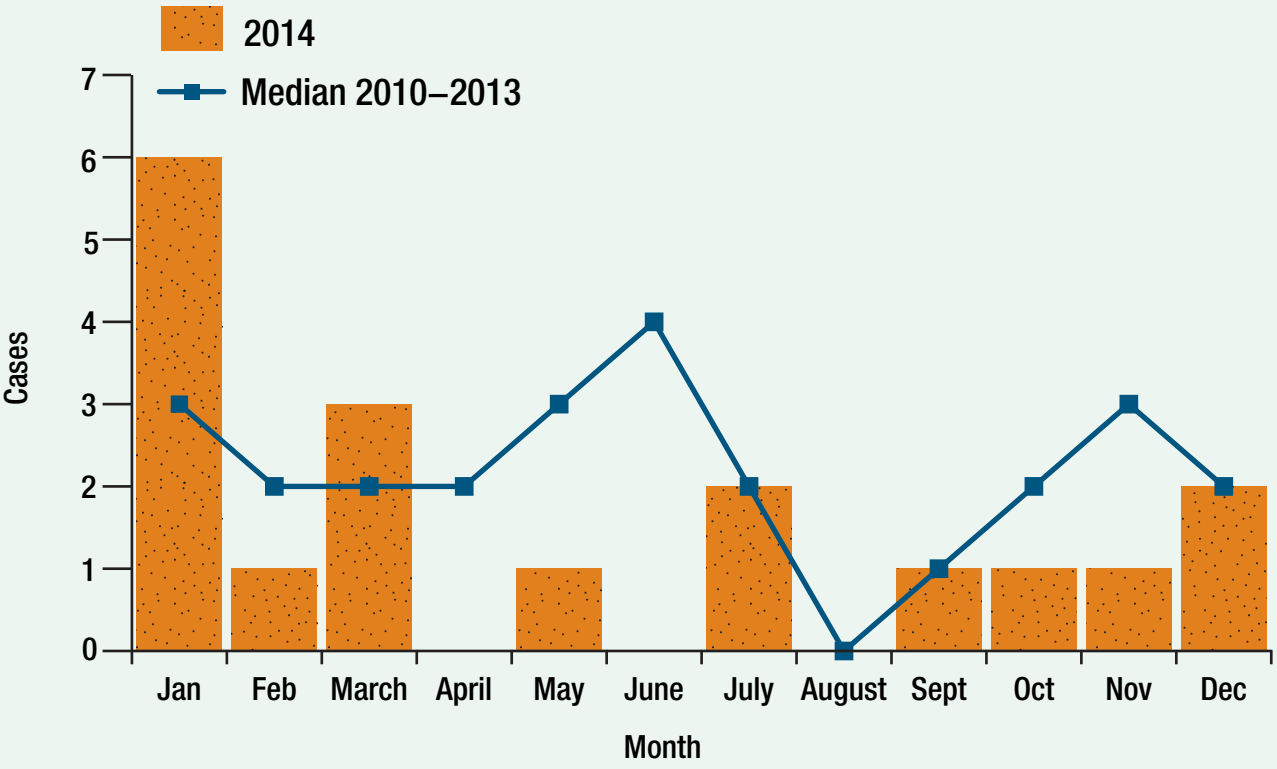
In October 2014, the Food and Drug Administration (FDA) licensed the first serogroup B meningococcal vaccine (MenB-FHbp, Trumenba®). FDA approved this vaccine for use in people 10–25 years of age as a three-dose series. On January 23, 2015, FDA licensed a second serogroup B meningococcal vaccine (MenB-4C, 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 with complement deficiencies, anatomic or functional asplenia, microbiologists who have contact with *N. meningitidis*, and others at increased risk during a serogroup B outbreak.

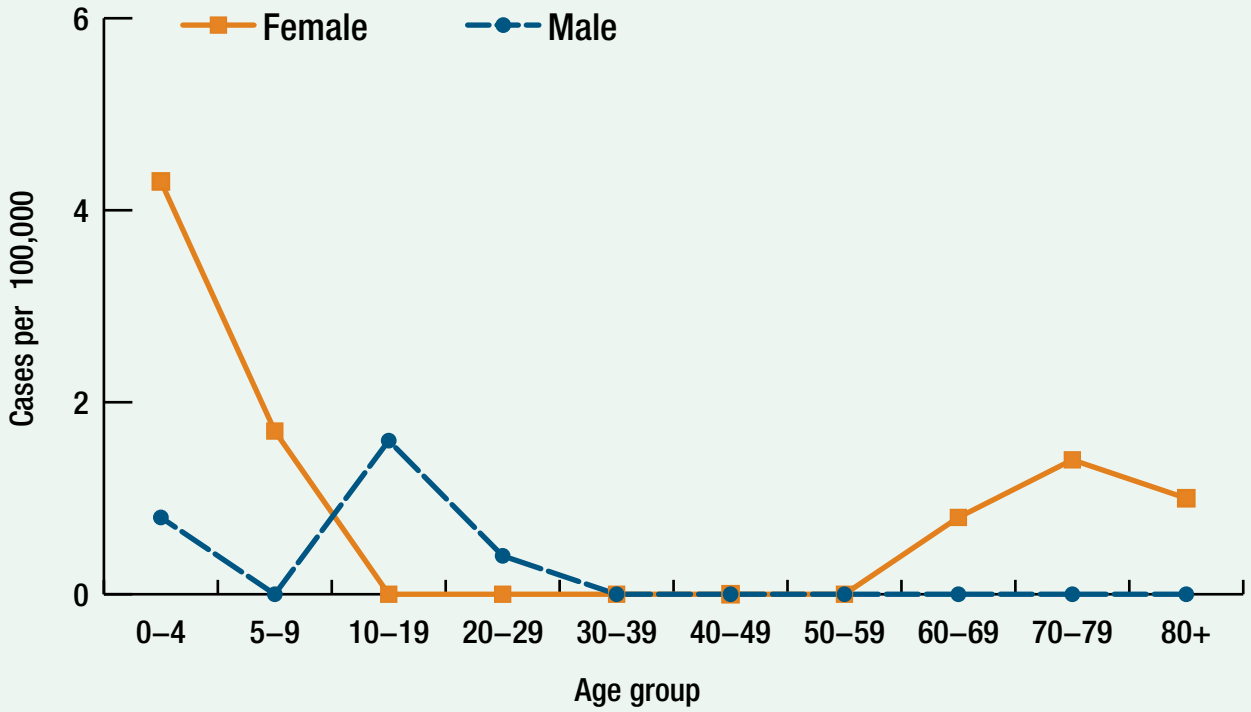
Meningococcal disease by year: Oregon, 1988–2014



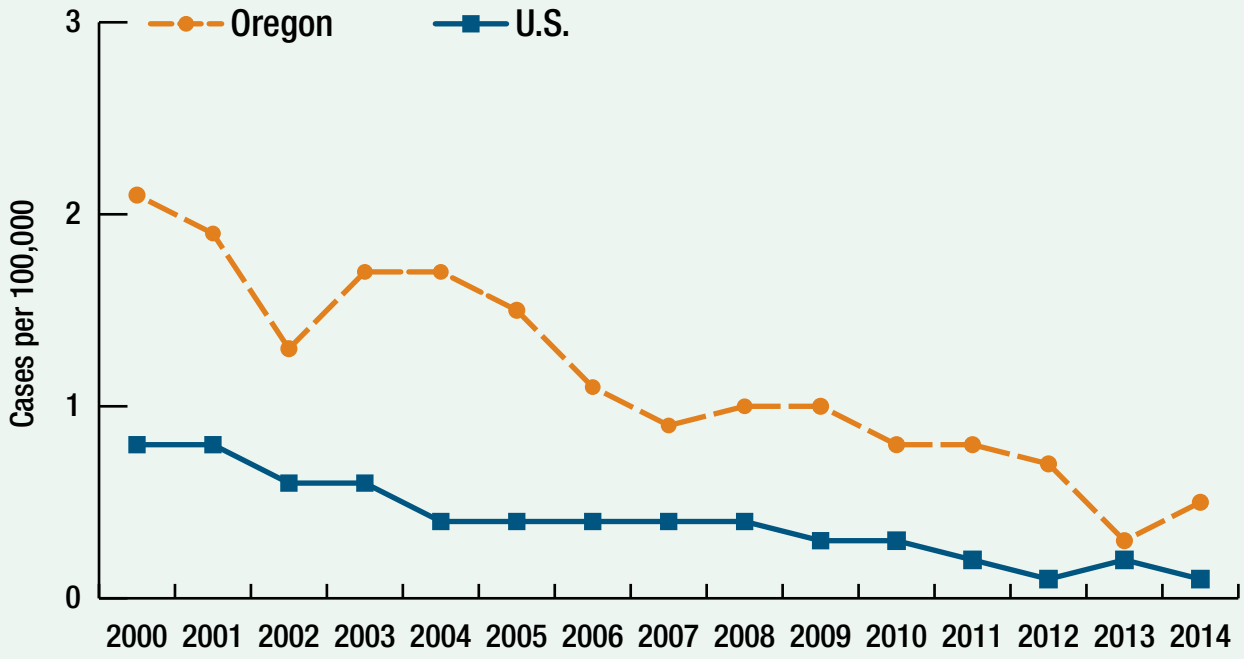
Meningococcal disease by onset month: Oregon, 2014



Incidence of meningococcal disease by age and sex: Oregon, 2005–2014

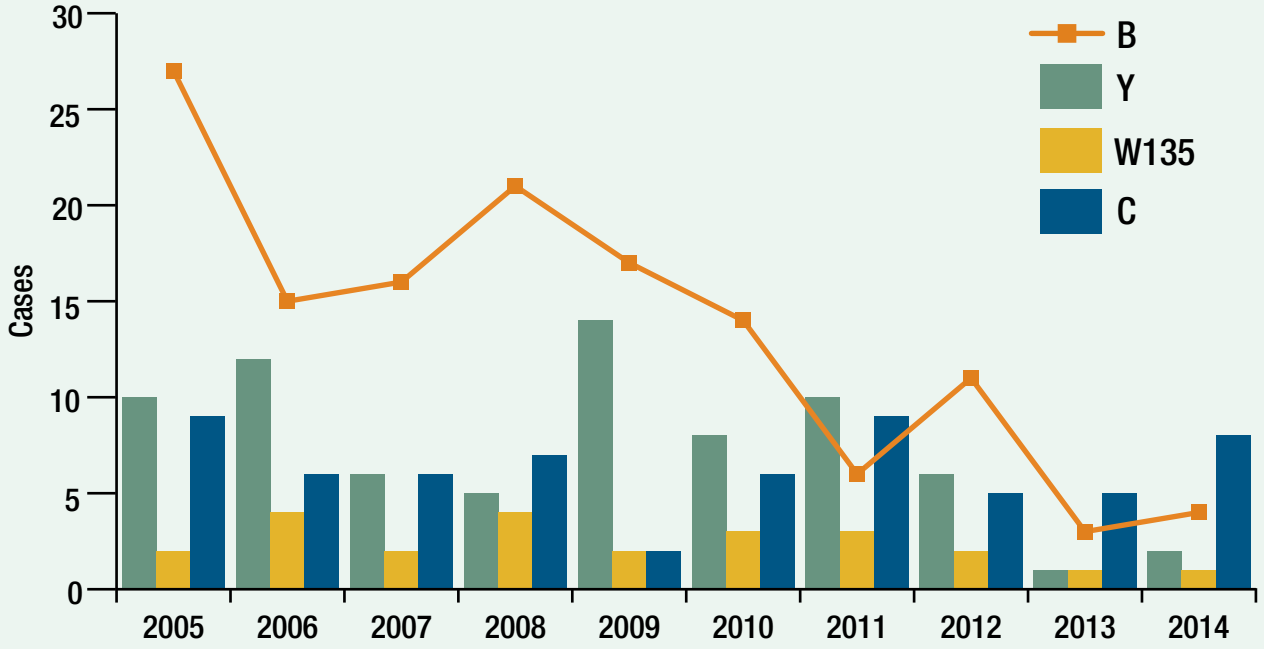


Incidence of meningococcal disease: Oregon vs. nationwide, 2000–2014



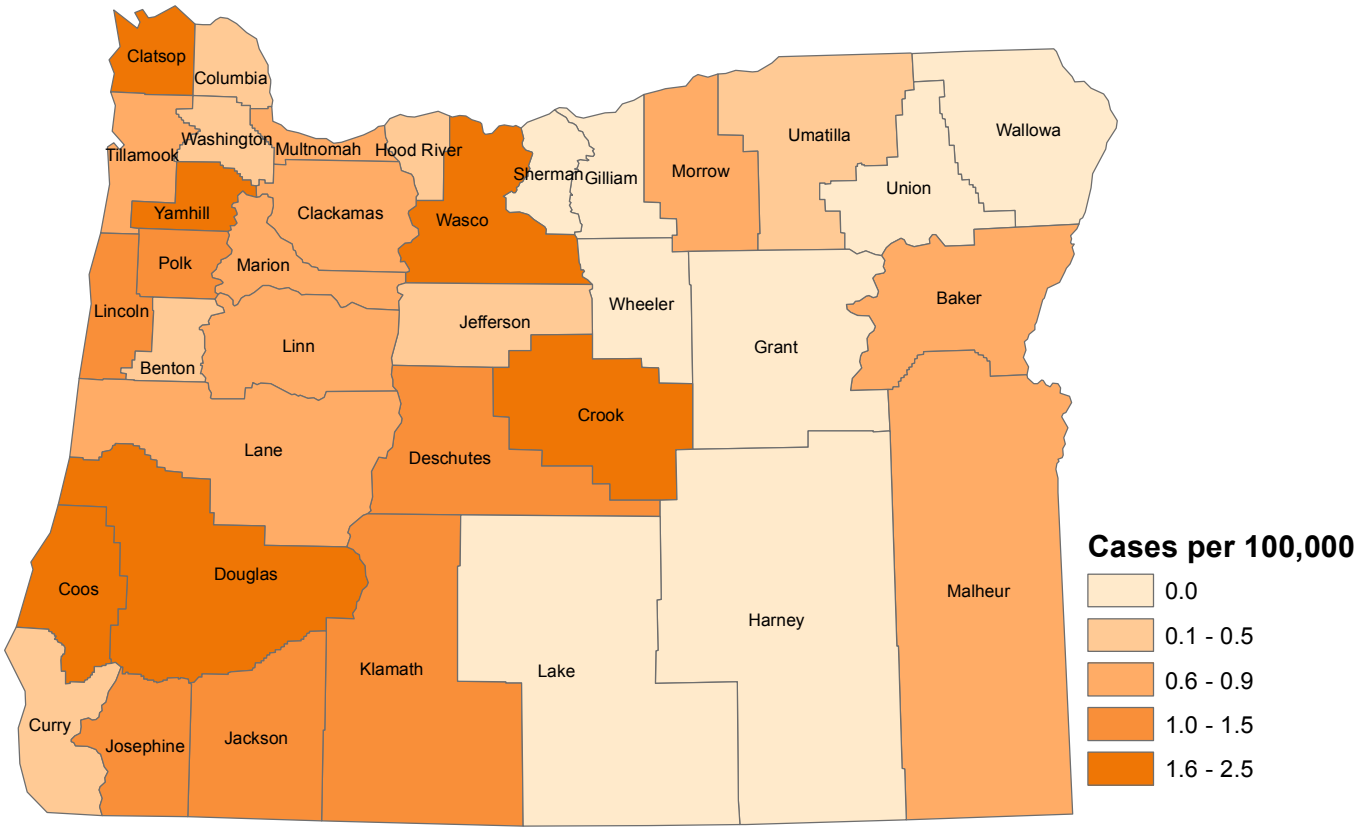
Oregon	2.1	1.9	1.3	1.7	1.7	1.5	1.1	0.9	1.0	1.0	0.8	0.8	0.7	0.3	0.5
U.S.	0.8	0.8	0.6	0.6	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.1	0.2	0.1

Meningococcal disease by serogroup: Oregon, 2005–2014



B	27	15	16	21	17	14	6	11	3	4
Y	10	12	6	5	14	8	10	6	1	2
W135	2	4	2	4	2	3	3	2	1	1
C	9	6	6	7	2	6	9	5	5	8

Incidence of meningococcal disease by county of residence: Oregon, 2005–2014



Prevention

- Vaccinate to prevent illness from serogroups A, C, Y, W-155 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 smoking and exposing children to tobacco smoke, which have been associated with an increased risk of invasive meningococcal disease.

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.

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 re-established July 1, 2006, prompted by outbreaks of illness. One case was reported in 2014. Three cases were reported in 2010, four in 2011, six in 2012 and three in 2013.

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.

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 persons born during or after 1957 who are not at high risk of mumps exposure.

Pertussis

Pertussis is a highly contagious, acute bacterial respiratory tract 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 may be milder 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 rates, pertussis remains endemic in the U.S., with epidemics every 3–5 years. In 2012, Oregon experienced a pertussis epidemic with the most cases (910) seen in a single year since 1953. Because pertussis often goes undiagnosed in adolescents and adults, it is likely the actual number of cases greatly exceeds the number reported.

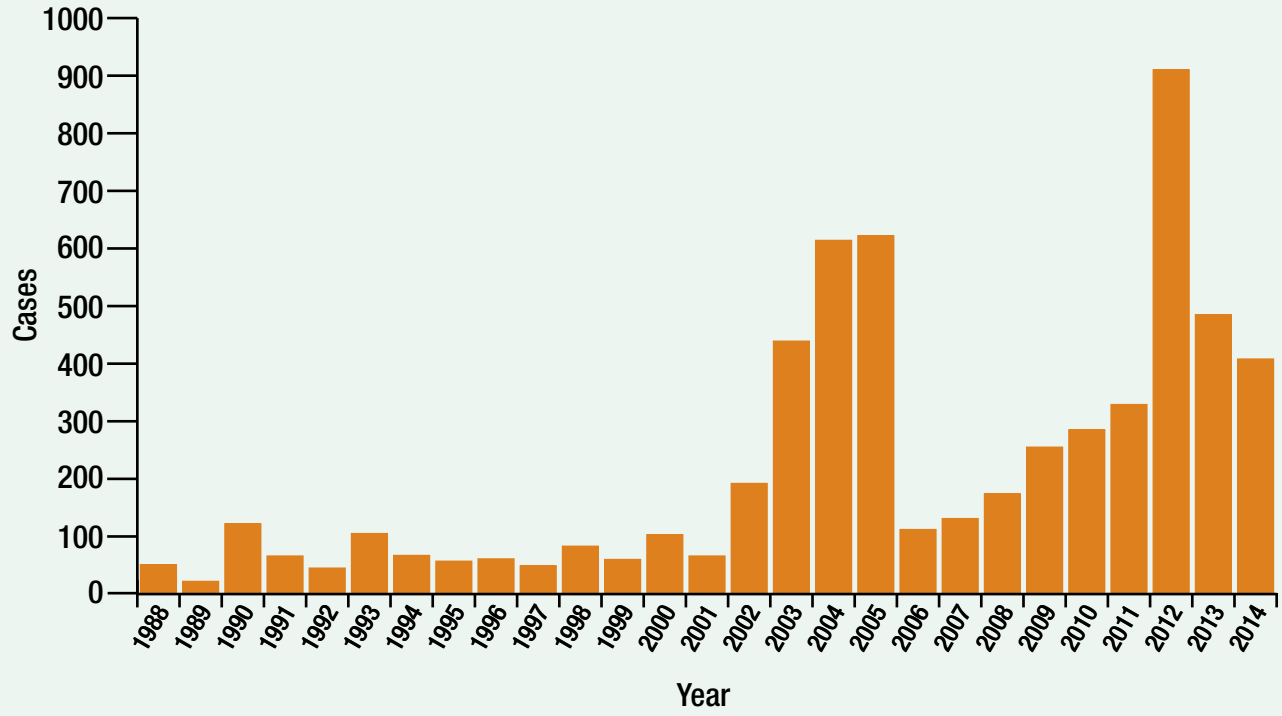
Despite the overall decrease in the number of reported pertussis cases in 2014, Deschutes. Marion. Lane, Multnomah, Lincoln and Benton counties experienced large school and community outbreaks during 2014.

Infants with pertussis are also the most likely to suffer complications and death. Since 2003, 224 (35%) of the 637 infants diagnosed with pertussis in Oregon have been hospitalized and five have died.

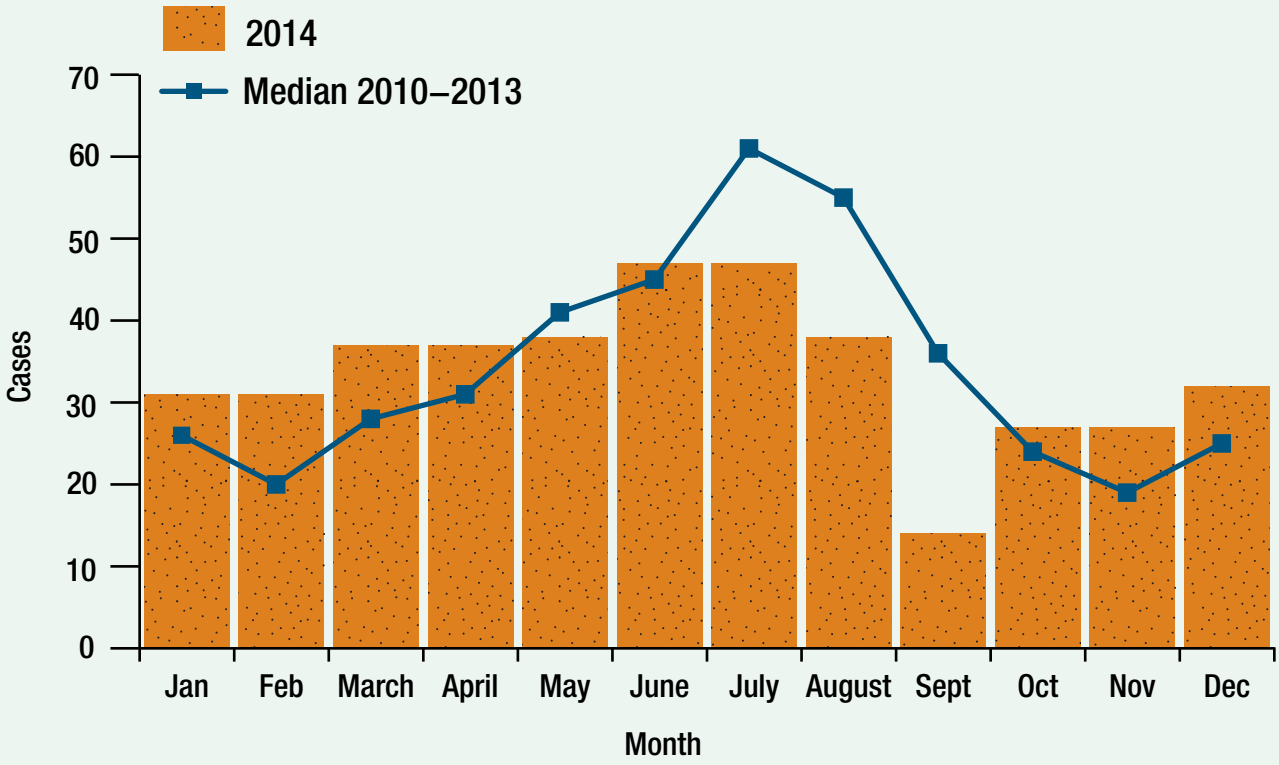
The greatest increase in incidence in recent years has been in adolescents and adults. Since 2003, 55% of pertussis cases reported in Oregon have been in children >10 years of age. Immunity wanes with time, so adolescents and adults need a Tdap booster shot, both to protect themselves and to avoid spreading it to vulnerable infants. All persons ≥10 years of age (including persons ≥65 years) who have not already received Tdap are advised to get a single dose. Pregnant women should receive Tdap preferably at 27 and 36 weeks' gestation, so they can develop antibodies to pertussis and pass them to their babies before birth. Vaccination of health care workers is strongly encouraged. Children need a series of five DTaP vaccinations before kindergarten, starting at two months of age.

Since 2010, with funding from the CDC, Oregon launched the Metropolitan Area Pertussis Surveillance (MAPS) project, which enhances surveillance for pertussis in Clackamas, Multnomah and Washington counties. Each reported case is investigated extensively and standardized data are collected. These data will guide future developments in regional and national public health policy.

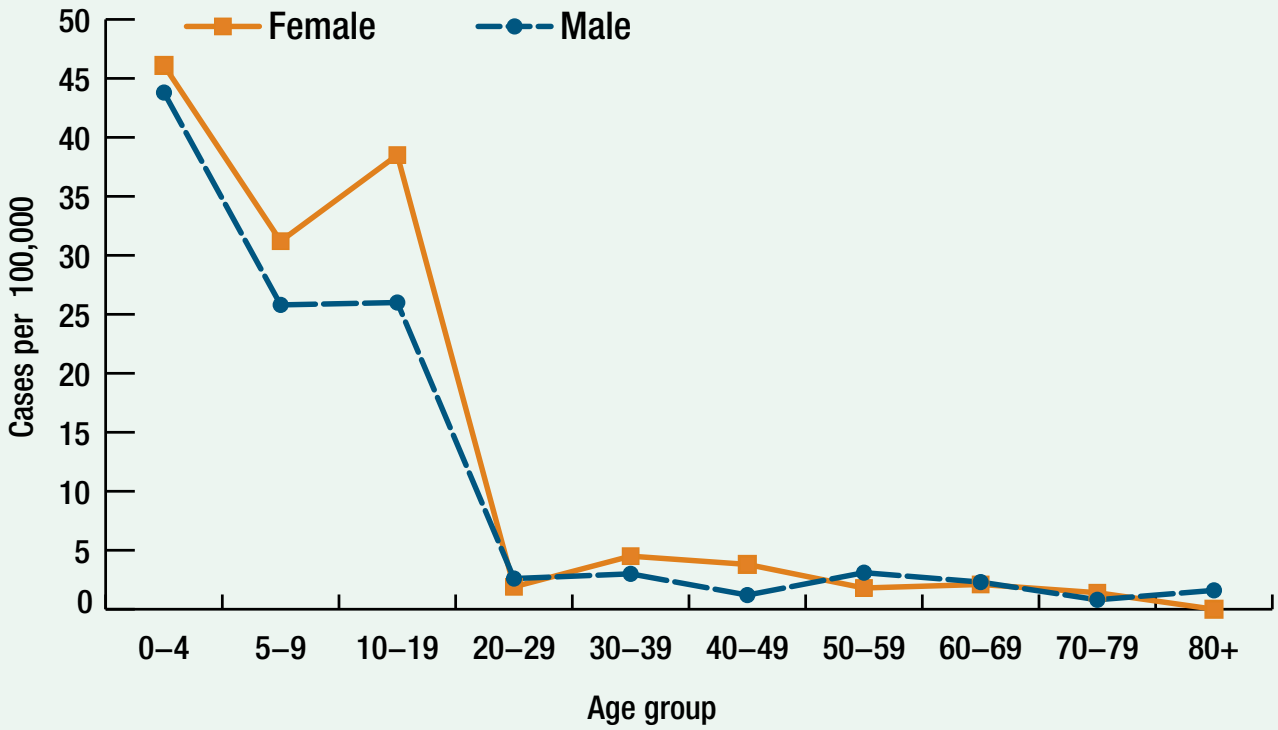
Pertussis by year: Oregon, 1988–2014



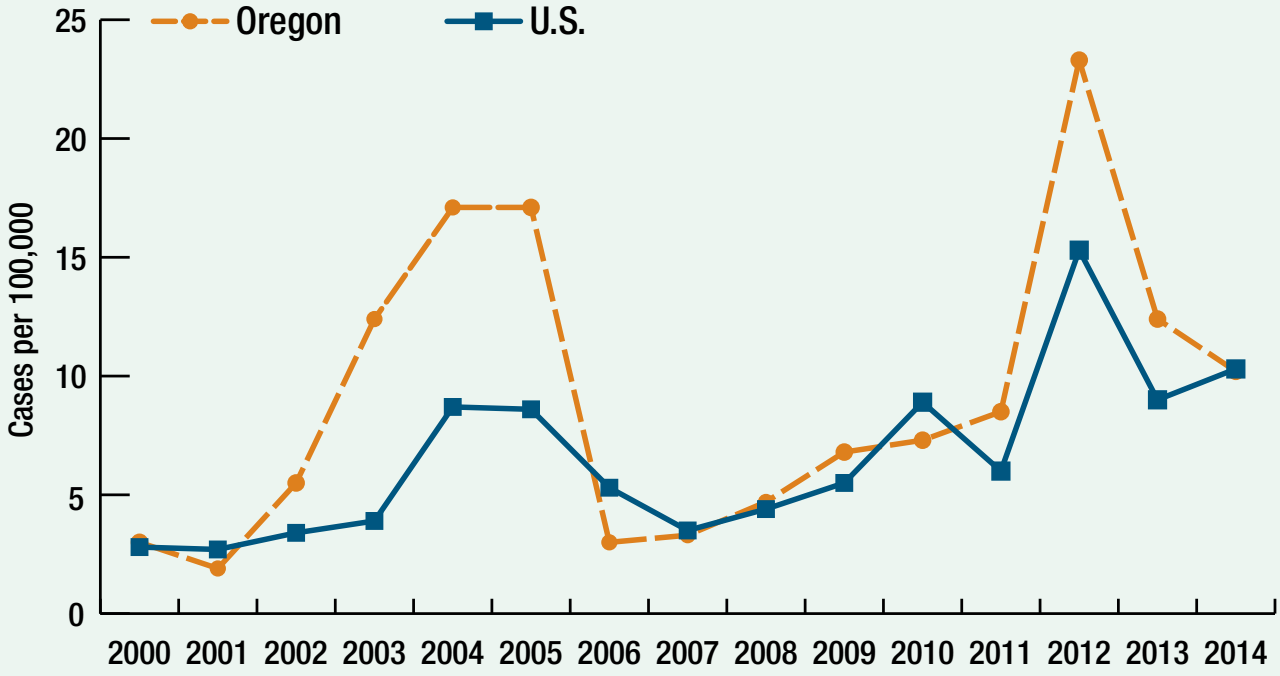
Pertussis by onset month: Oregon, 2014



Incidence of pertussis by age and sex: Oregon, 2014

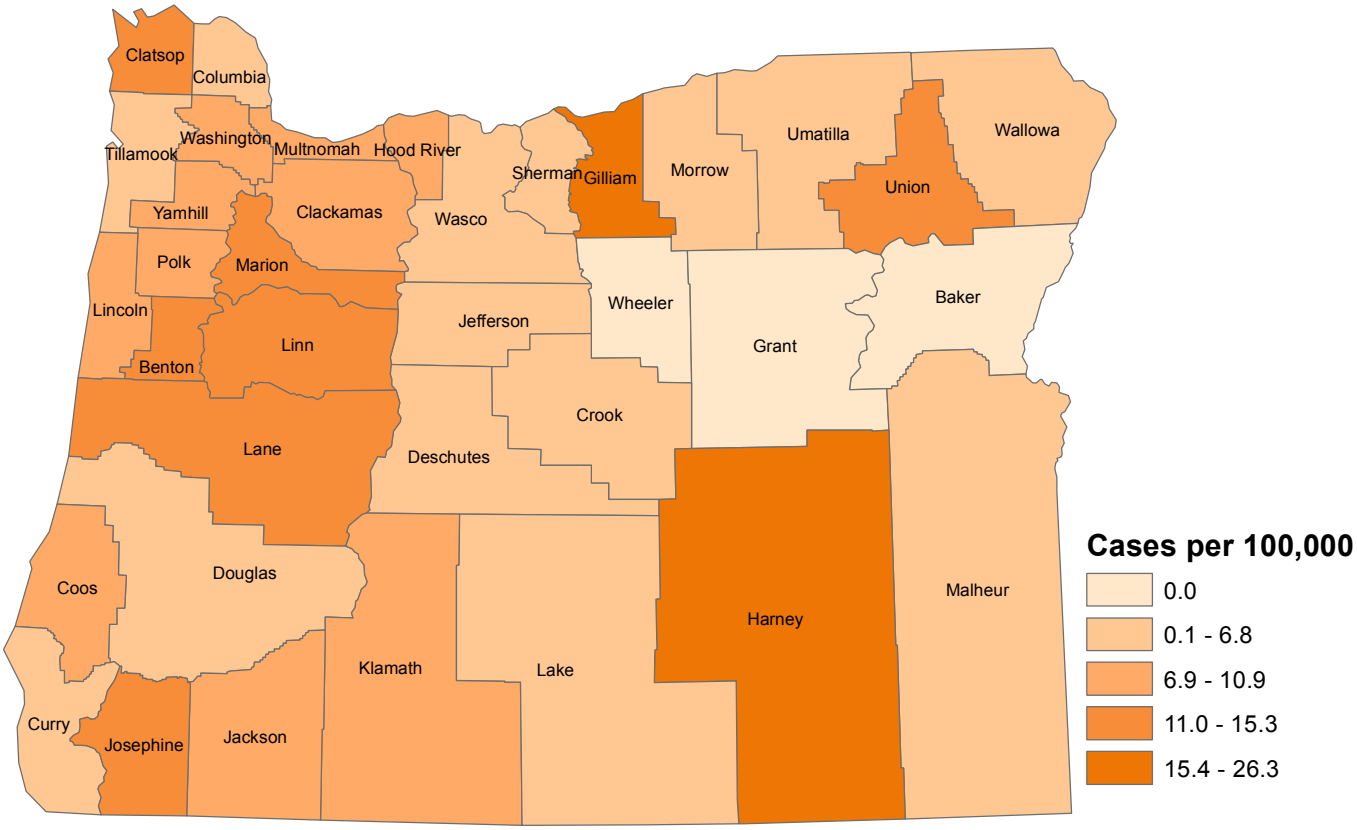


Incidence of pertussis: Oregon vs. nationwide, 2000–2014



Oregon	3.0	1.9	5.5	12.4	17.1	17.1	3.0	3.3	4.7	6.8	7.3	8.5	23.3	12.4	10.2
U.S.	2.8	2.7	3.4	3.9	8.7	8.6	5.3	3.5	4.4	5.5	8.9	6.0	15.3	9.0	10.3

Incidence of pertussis by county of residence: Oregon, 2005–2014



Prevention

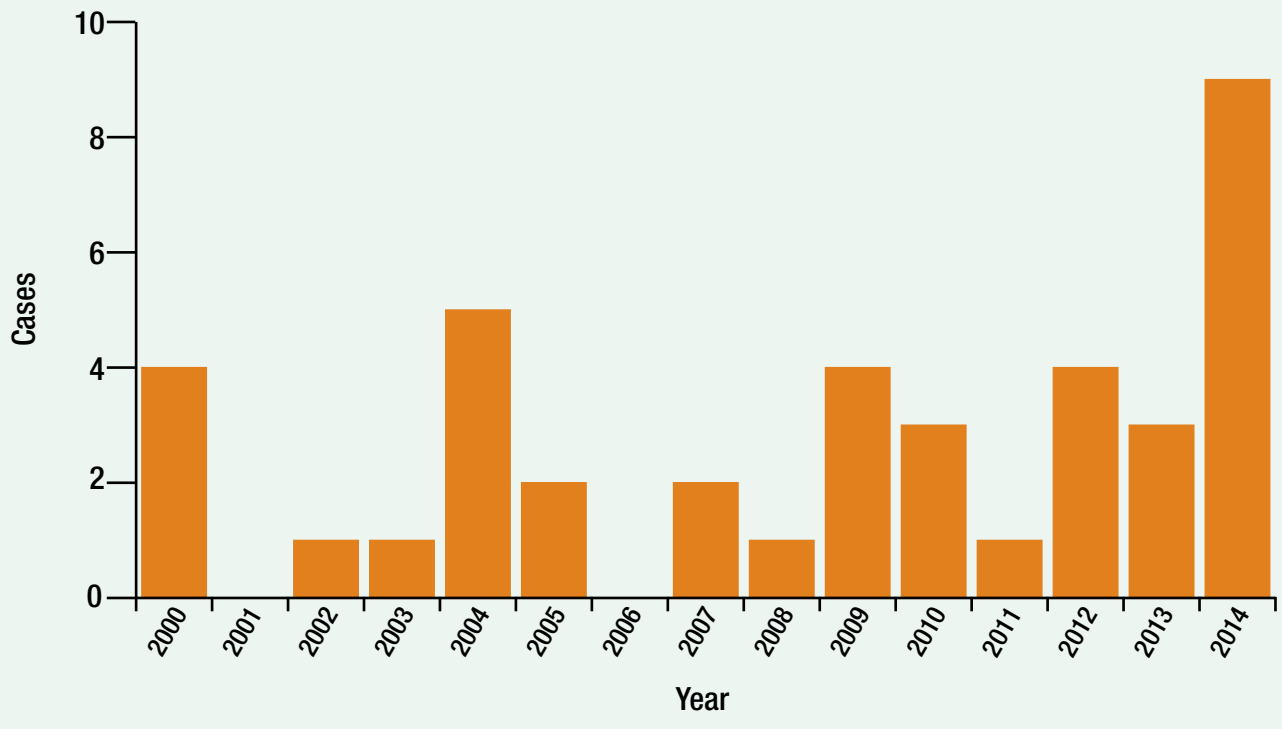
- Immunization is the best way to prevent pertussis.
- Cover your cough and wash your hands.
- Keep babies away from anyone who is coughing.

Q fever

Q fever is a bacterial infection caused by *Coxiella burnetii*. It can result in acute or chronic illness in humans, and is usually acquired through inhalation of barnyard dust contaminated with bacteria from the placentas, body fluids or excreta from infected animals. The primary reservoirs are cattle, sheep and goats. Infection may also result from consumption of unpasteurized milk. Acute Q fever can be accompanied by a host of symptoms, including 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. Chronic infection can be treated with long courses of antibiotics. Outbreaks in the U.S. have been the result of occupational exposure to infected livestock.

Q fever reports are rare in Oregon; in 2014 nine acute cases were reported. This increase in cases was due in part to a small outbreak associated with a farm.

Q fever by year: Oregon, 2000–2014



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.
- Quarantine imported animals.

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 come in contact with rabid bats, acquire the infection and be capable of transmitting it to humans. Since 2000, 9% 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. The Oregon State Public Health Laboratory will test mammals involved in bona fide human exposures at no cost to the patient; and (for a fee) the Oregon State University's Veterinary Diagnostic Laboratory will test mammals involved in other exposures.

Ten bats and three foxes tested positive in 2014. Positive foxes were residents of Josephine, Douglas and Lane counties. 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; and four doses of rabies vaccine, one each on days 0, 3, 7 and 14. Before 2008, a five-dose vaccine regimen was recommended. However, review of serologic and case data indicated four doses of vaccination in combination with HRIG elicited a protective immune response and a fifth dose of vaccine provided no additional benefit.

Though bats are the reservoir 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.

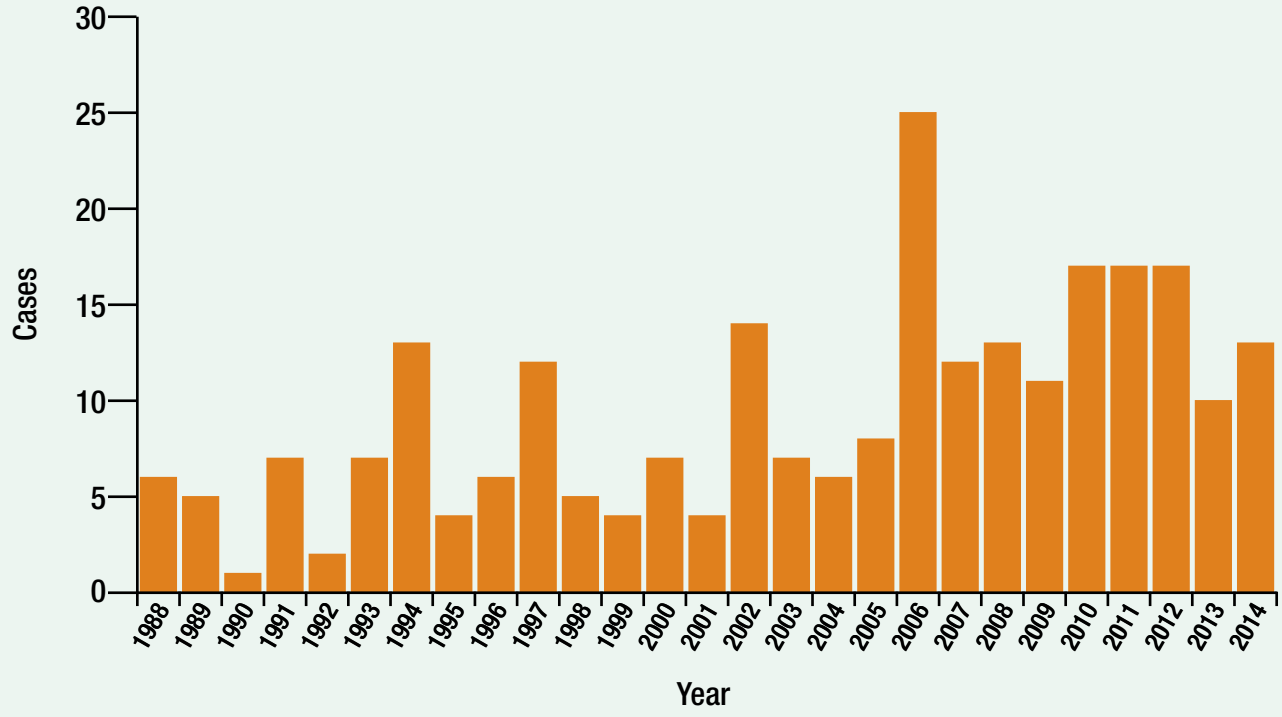
Additional information and an algorithm to follow for assessment of rabies risk.

Rabies tests in Oregon, 2000–2014 (number of positive/total tested)

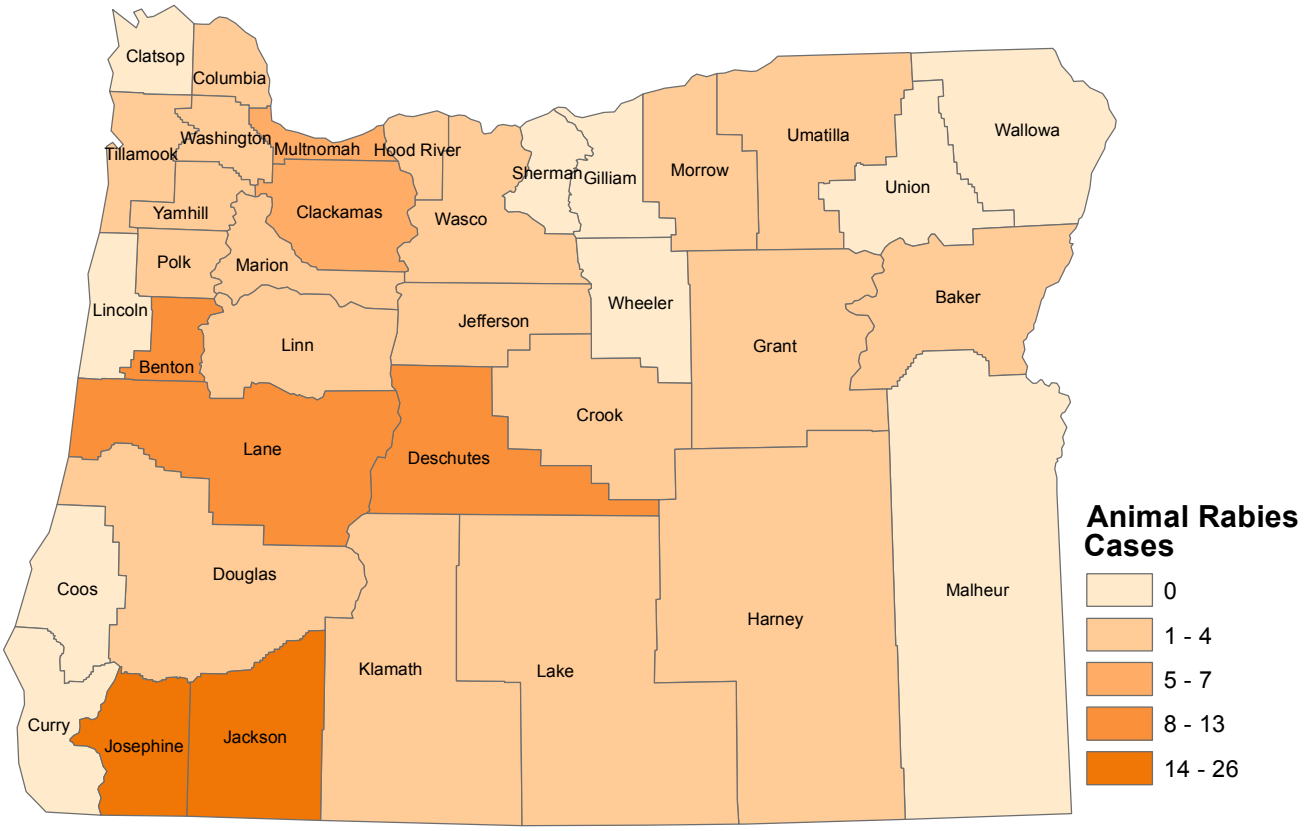
Year	Bat	Cat	Dog	Fox	Other
2000	8/73	0/79	0/56	1/4	0/4
2001	4/59	0/67	0/46	0/1	0/41
2002	12/134	0/102	0/27	2/4	0/29
2003	6/61	0/75	0/36	1/5	0/39
2004	7/88	0/105	0/42	0/2	0/27
2005	8/83	0/100	0/48	0/1	0/23
2006	23/126	0/72	0/26	2/4	0/41
2007	12/153	0/80	0/33	0/1	0/26
2008	13/128	0/58	0/23	0/3	0/53
2009	11/117	0/73	0/27	0/1	0/42
2010	10/104	0/67	0/41	6**/15	1/48 (goat)
2011	11/143	0/86	0/32	5**/44	1**/61 (coyote)
2012	14/203	0/79	0/37	3**/28	0/45
2013	7/193	0/90	0/36	2/34	0/31
2014	10/148	0/79	0/39	3/7	1/53 (coyote)
Totals 2000 – 2014	**156/1813 8.6 %**	**0/1210**	**0/549**	**25/154 16.2%**	**3/563 0.53%**

** enhanced surveillance due to positive goat and foxes in 2010–12

Rabies by year: Oregon, 1988–2014



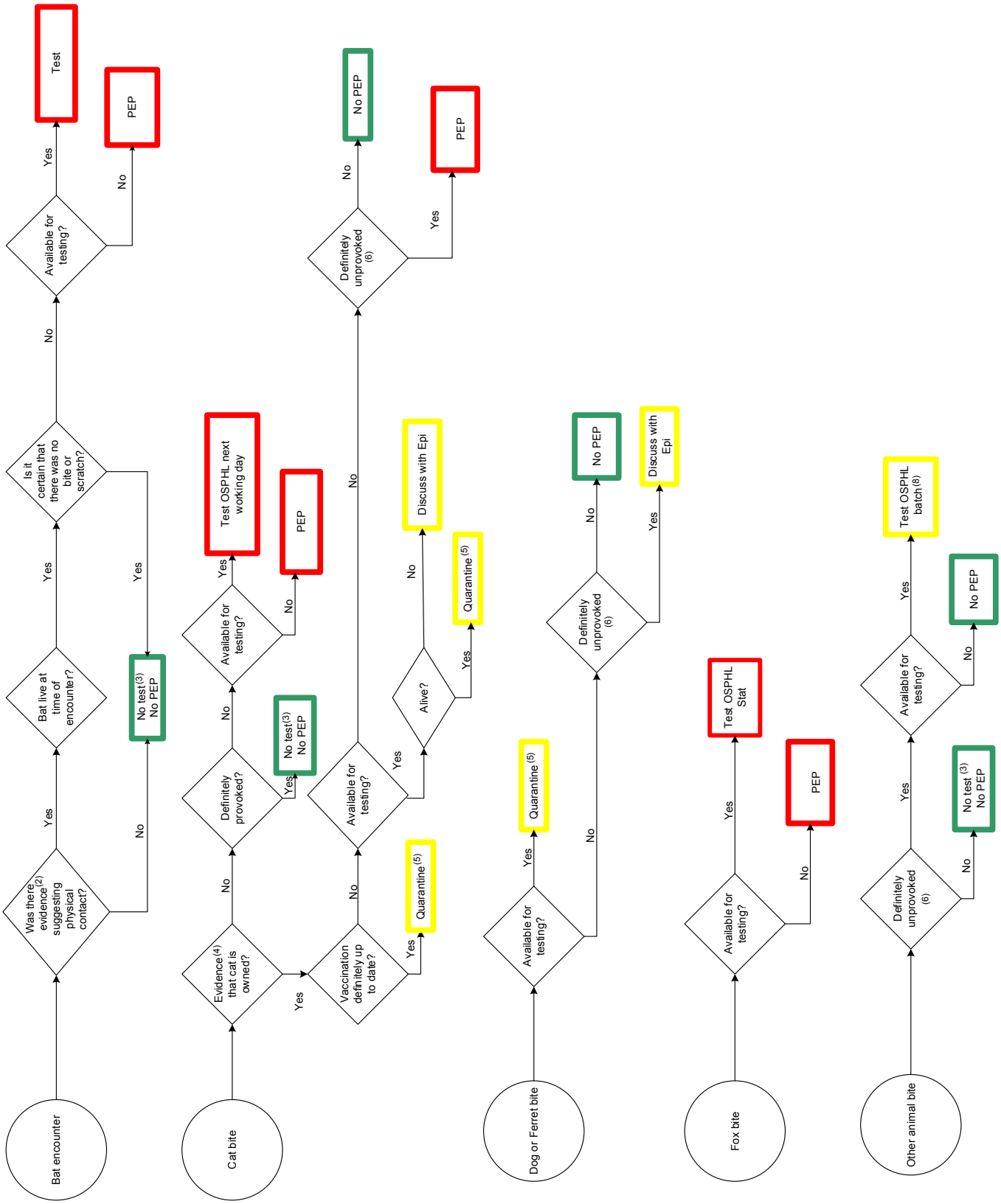
Animal rabies cases by county of residence: 2005–2014



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.

Algorithm for prevention of rabies after animal encounter in Oregon[1]



Algorithm for prevention of rabies after animal encounter in Oregon notes

Rabies testing, Oregon 2000–2014			
Animal	Positive	Tested	% Positive
Bat	156	1813	8.6%
Cat	0	1210	0
Dog	0	549	0
Fox	25	154	16.2%

Notes

1. Oregon law mandates reporting of any bite of a human being by any other mammal (Oregon Administrative Rule 333-018-0015[5] [c]); such reports should be made to the local public health authority for the jurisdiction in which the patient resides. Decisions about rabies PEP are the purview of the clinician attending the patient; although these recommendations regarding the need for rabies PEP represent the best judgment of state public-health officials, they are not binding on clinicians. Clinicians should be advised that, aside from concern about rabies, prophylaxis against tetanus or bacterial infection might be warranted, depending on the nature of the wound and the animal involved. Local health department personnel are advised to call Acute and Communicable Disease Prevention at 971-673-1111 with specific questions regarding application of these guidelines.
2. Such evidence might include, e.g., a young child's waking up, crying, with a bat found in the room.
3. "No Test" means that the animal will not be tested at OSPHL, at state expense. In such cases, the animal may be tested at the Oregon State University Veterinary Diagnostics Laboratory (541-737-3261) at private expense.
4. Evidence of ownership might include, e.g., presence of collar or previous appearances of the animal in a neighborhood.
5. "Quarantine" means confining a dog, cat or ferret for 10 days to observe for signs of illness after biting a human being. The nature of the confinement is determined by the local public health authority. If the animal develops neurological illness during the period of quarantine, it should be euthanized and its head shipped to OSPHL for testing within one working day.
6. "Unprovoked" implies that in the context of the situation there was no obvious alternative motivation for the animal to bite. A good history is essential .In practice, unprovoked bites are quite rare. Examples of provocation would include being hit by a car, being handled, fed. or caged; being cornered in a garage, having a jogger run past your yard or crowding animal's space, etc.
7. For purposes of determining need for rabies PEP, wolf-hybrids are considered wild animals and not dogs. Wolf-dog hybrids that bite or otherwise expose persons, pets, or livestock should be considered for euthanasia and rabies examination. Whether an animal is a dog or a wolf-dog hybrid must be determined by a licensed veterinarian, subject to review by the State Public Health Veterinarian or designee (OR 333-019-0022).
8. Batch testing for rabies is generally done at OSPHL on Mondays and Wednesdays. Results are available the following day.

Abbreviations:

OSPHL: Oregon State Public Health Laboratory (503-229-5882)

PEP: Post-Exposure Prophylaxis against rabies

Epi Epidemiologists at the Oregon Health Authority; Weekdays, nights and weekends (971-673-1111)

Salmonellosis

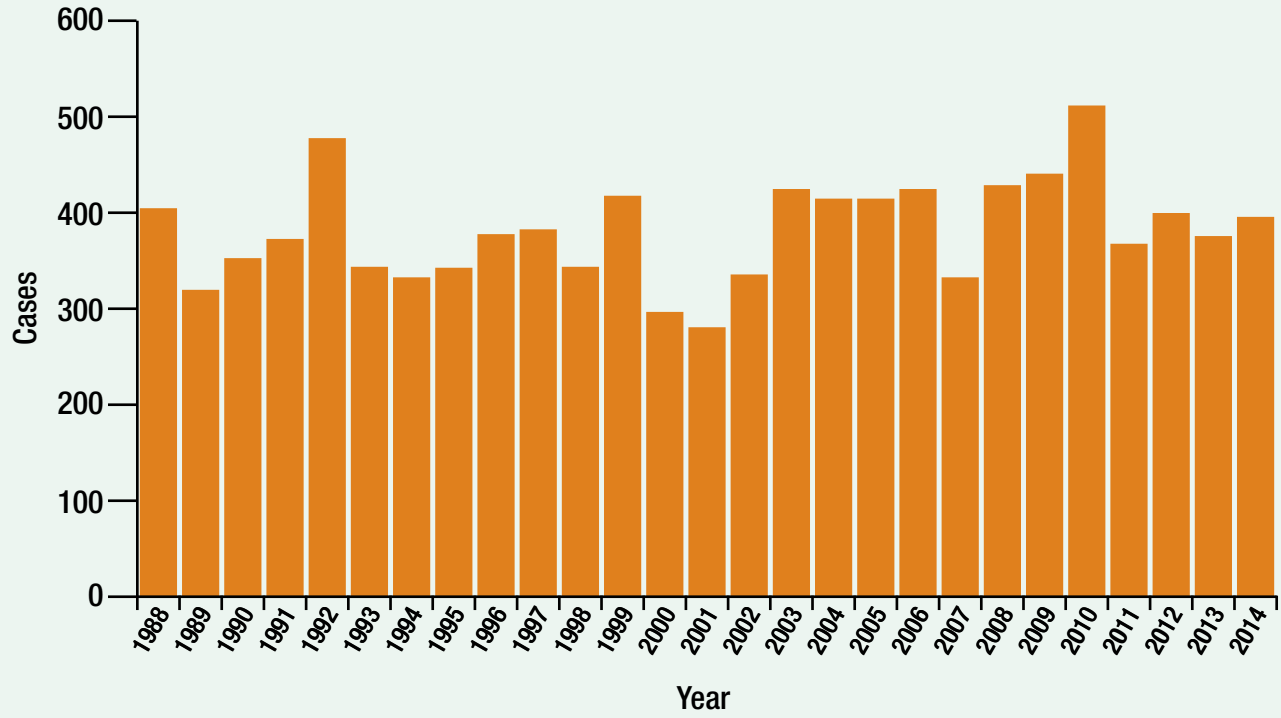
Salmonellosis is a bacterial illness characterized by acute abdominal pain, diarrhea and often fever that usually begins one to five days after exposure. Excretion of *Salmonella* may persist for several days or even months beyond the acute phase of illness. Antibiotics are not needed by most patients (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 are carriers of *Salmonella*, including poultry, swine, cattle, rodents, iguanas, tortoises, turtles, snakes, young poultry, 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. Though not as common as *Escherichia coli* O157 infection, person-to-person transmission of salmonellosis is well documented. The incidence of reported infection is highest among children <5 years of age. In 2014, Oregon's incidence among children <5 years was 21.6 per 100,000.

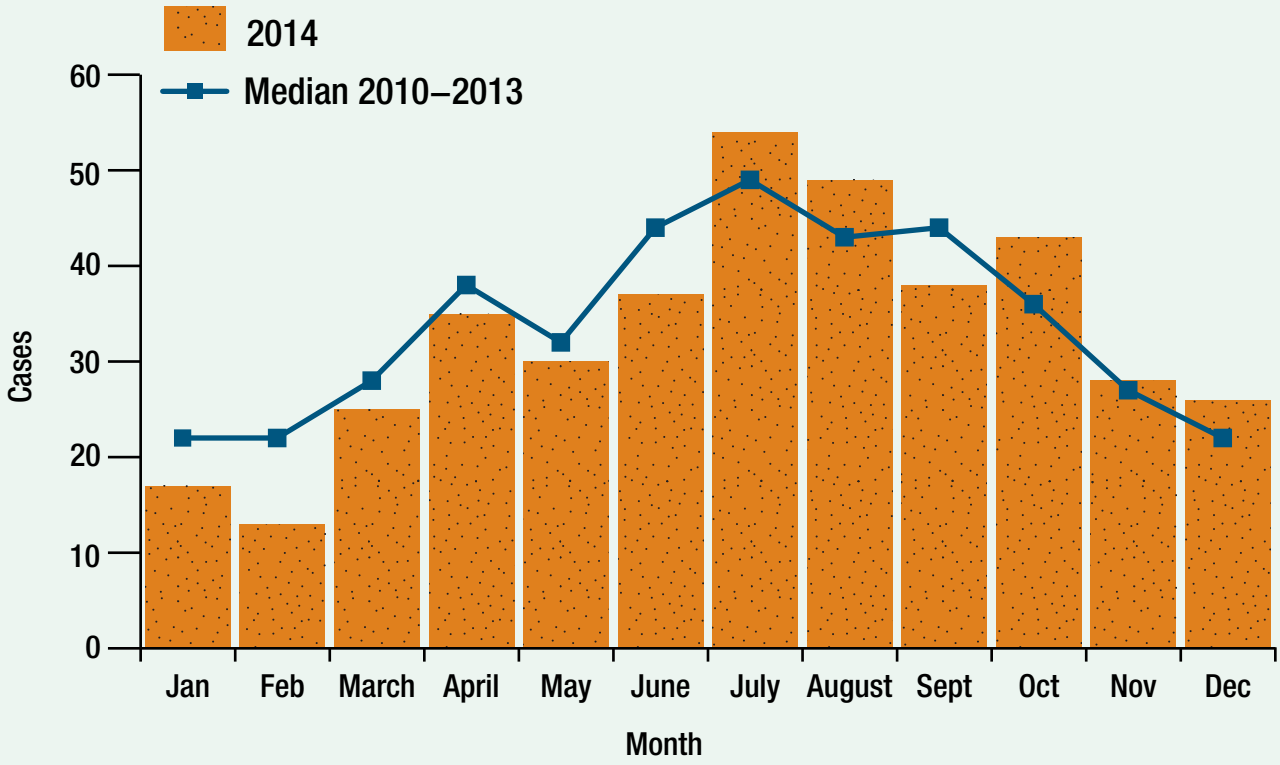
Of approximately 2,500 known serotypes, only about 200 are detected in the United States in any given year. In Oregon, *S.* Enteritidis and *S.* Typhimurium have historically been the two most commonly reported serotypes, comprising 28% and 16% of all lab-confirmed isolates in 2014, respectively. However, an ongoing outbreak of *S.* Heidelberg infections has allowed this particular serotype to rank third with 6% of the reported salmonellosis cases during 2014.

In 2014, 395 salmonellosis cases were reported in Oregon, down from a high of 511 in 2010. Ten outbreaks of salmonellosis were reported. Most of these were small; however, one large outbreak with 25 cases including six Oregon residents was associated with a particular restaurant on Kauai, Hawaii. In total, four outbreaks were foodborne, three were associated with animal contact (bearded dragon, snakes, live poultry), the others remained indeterminate despite investigations.

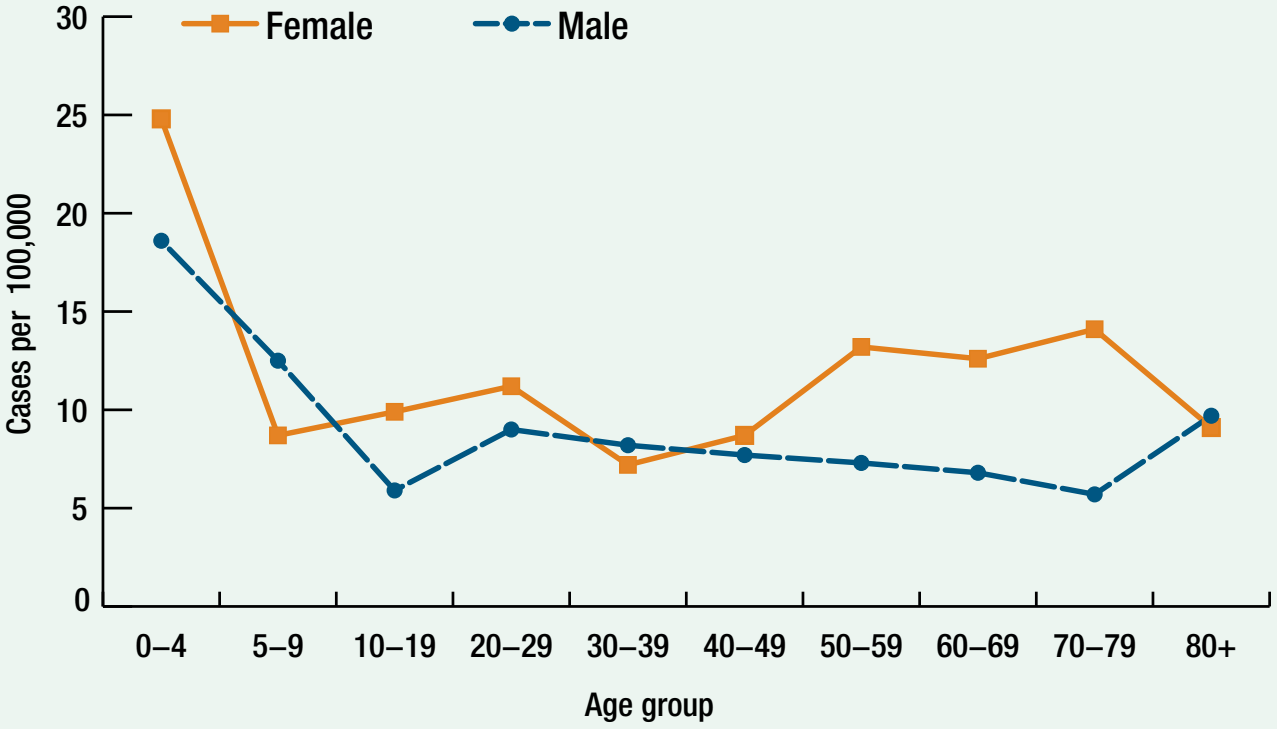
Salmonellosis by year: Oregon, 1988–2014



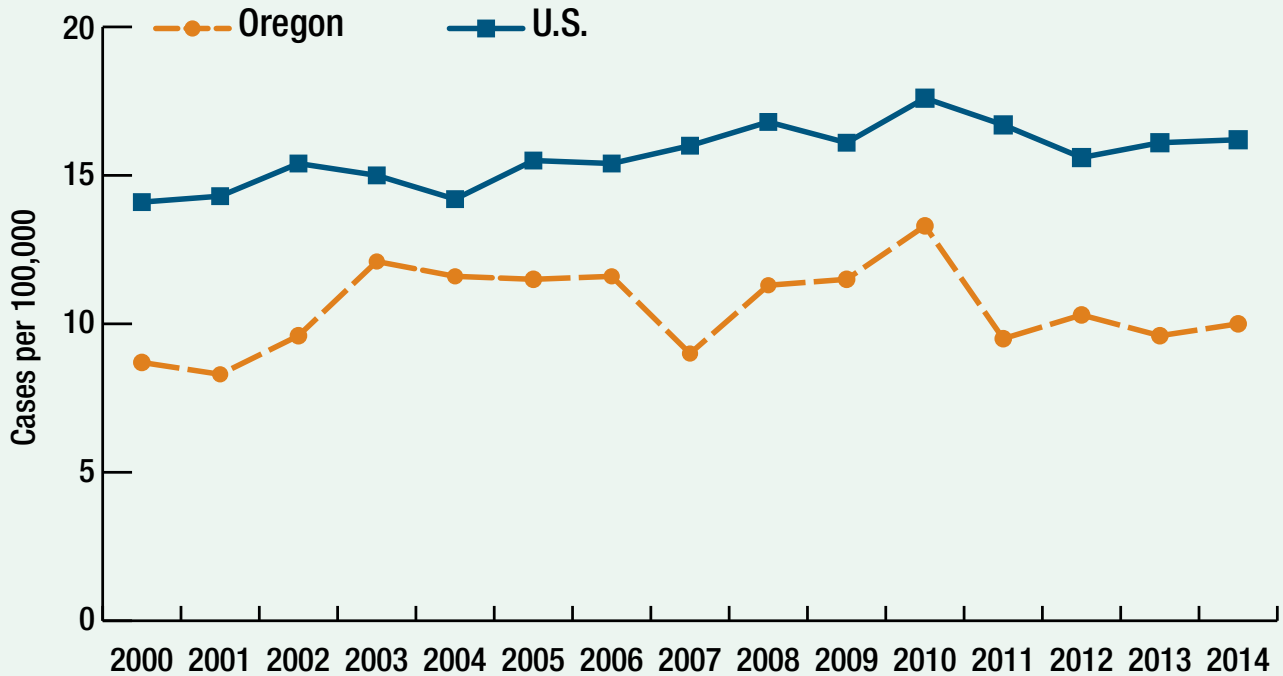
Salmonellosis by onset month: Oregon, 2014



Incidence of salmonellosis by age and sex: Oregon, 2014

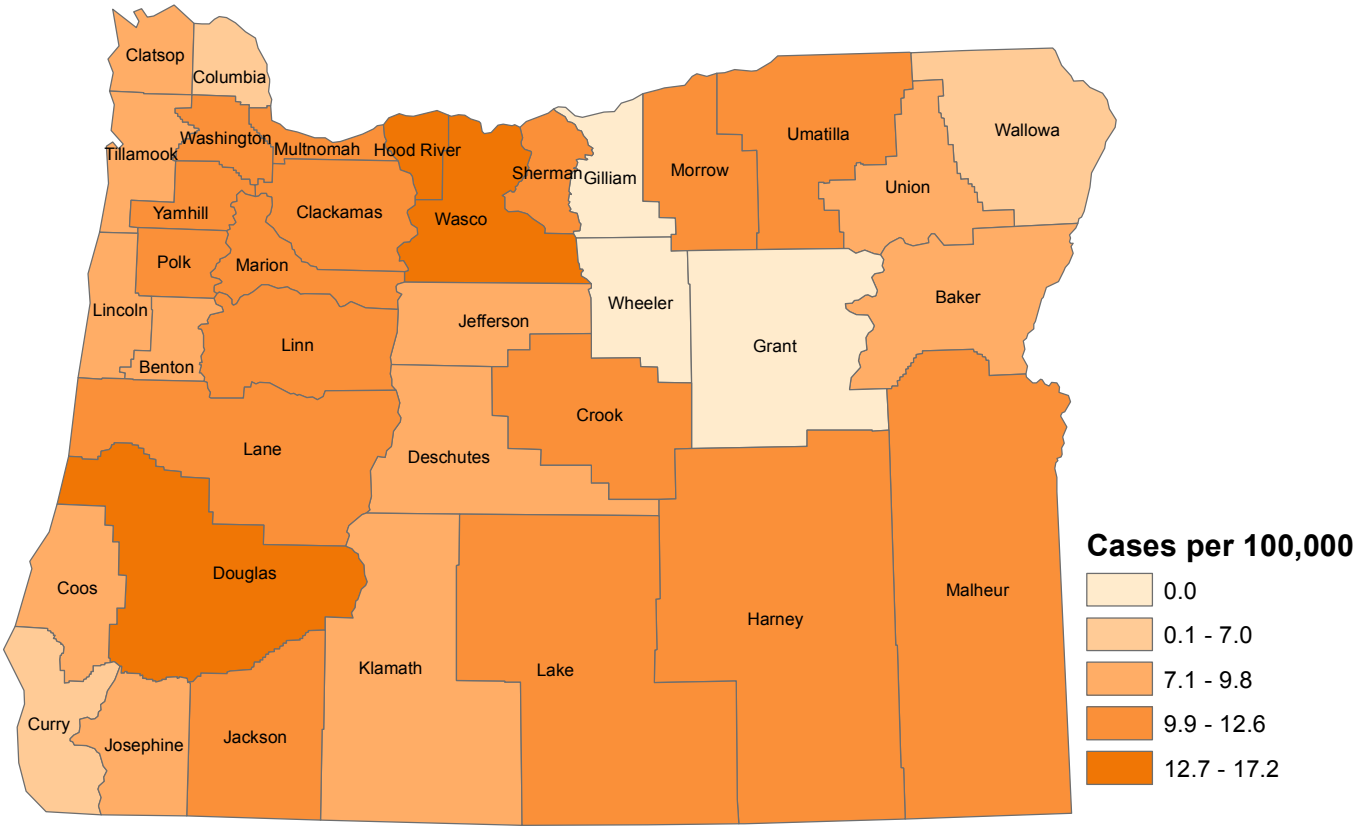


Incidence of salmonellosis: Oregon vs. nationwide, 2000–2014



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Oregon	8.7	8.3	9.6	12.1	11.6	11.5	11.6	9.0	11.3	11.5	13.3	9.5	10.3	9.6	10.0
U.S.	14.1	14.3	15.4	15.0	14.2	15.5	15.4	16.0	16.8	16.1	17.6	16.7	15.6	16.1	16.2

Incidence of salmonellosis by county of residence: Oregon, 2014



Selected* salmonellosis cases by serotype, Oregon, 2005–2014

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Braenderup	1	11	8	1	21	36	9	10	7	12
Enteritidis	86	74	54	76	61	123	67	74	80	103
Hadar	5	5	1	3	7	8	8	11	6	4
Heidelberg	51	19	26	23	44	28	13	57	23	21
Infantis	5	7	5	8	9	9	13	15	10	6
Montevideo	15	13	12	15	22	12	17	13	5	4
Muenchen	8	8	9	9	10	10	5	5	3	5
Newport	17	16	17	15	15	24	13	8	15	18
Oranienburg	8	5	8	8	6	8	11	8	9	12
Saintpaul	7	10	3	23	10	13	8	3	12	10
Thompson	6	9	4	7	12	14	14	9	12	18
Typhimurium	84	90	52	65	74	40	47	50	82	61
I 4,[5],12:i:-	0	20	29	9	11	8	9	9	18	22

*Selected because at least one case was reported in 2014 and it is a more common serotype.

Prevention

- Cook poultry, ground beef and eggs thoroughly.
- Do not eat or drink foods 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., feed, change diaper) at the same time.

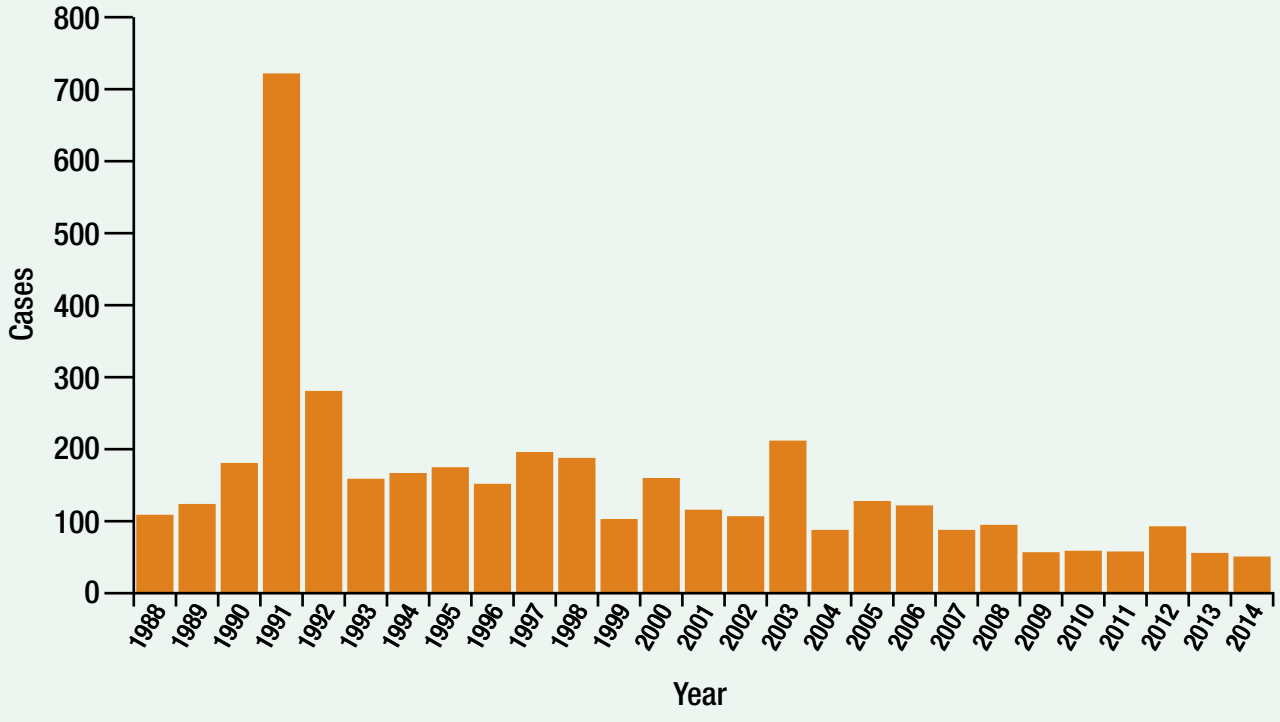
Shigellosis

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 rate has historically been highest among children 1–4 years of age. The incidence of shigellosis typically peaks in late summer and fall.

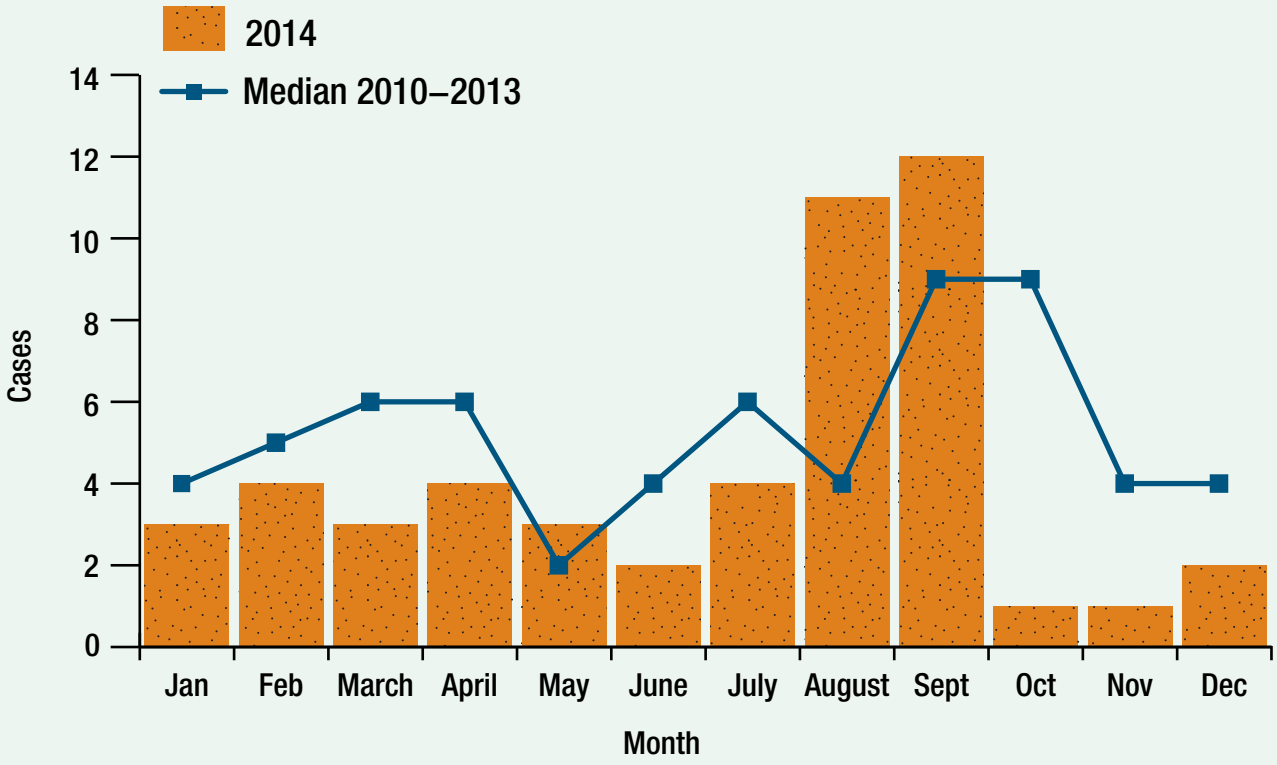
Outbreaks in daycare centers are common, mainly due to the poor hygienic practices of small children. Hand washing is the most important means of prevention. Treatment reduces duration of illness, but the organism has become resistant to many antibiotics used for empiric therapy. Testing for antibiotic susceptibility is important for treatment.

In 2014, 50 cases were reported; a 9% decrease from the 55 cases reported in 2013. This is a historic low for Oregon. Thirty-two were sporadic cases, 12 involved household transmission, two were part of an outbreak and four were part of a cluster.

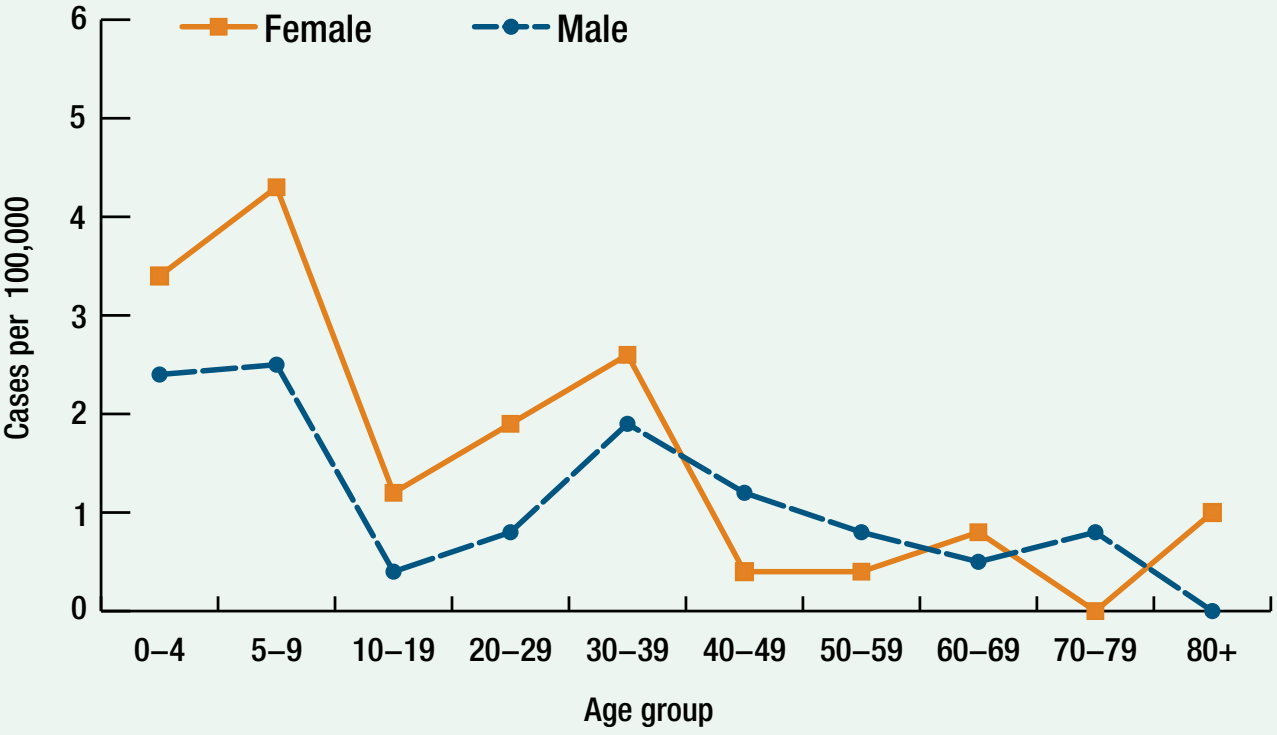
Shigellosis by year: Oregon, 1988–2014



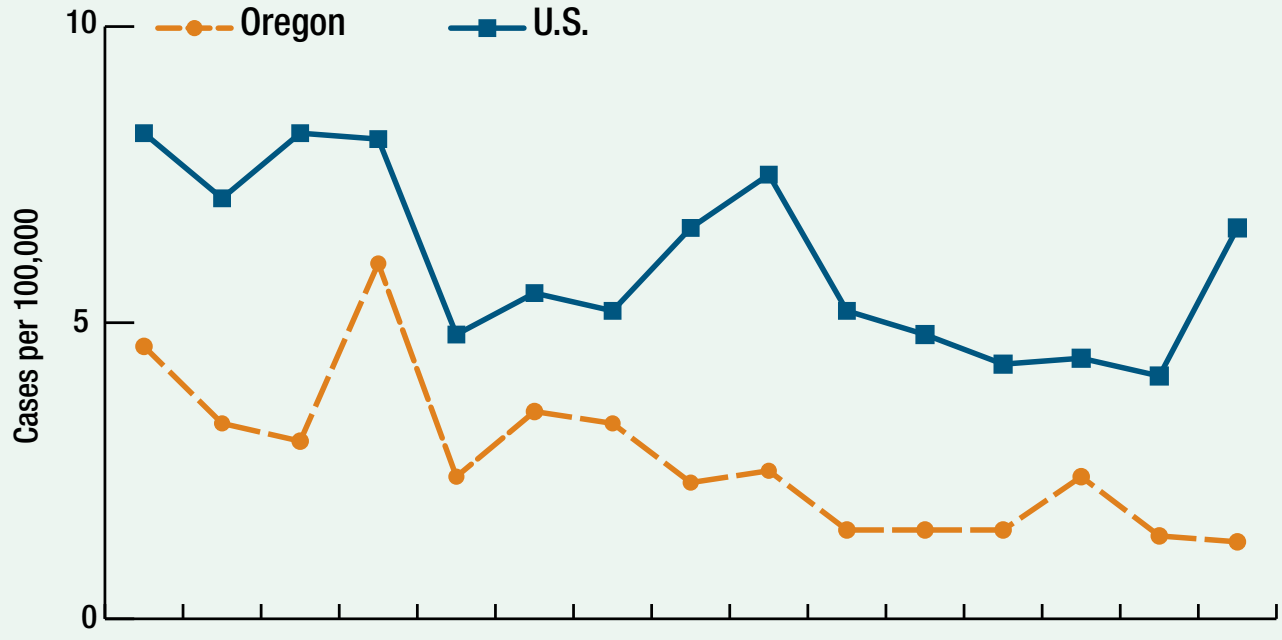
Shigellosis by onset month: Oregon, 2014



Incidence of shigellosis by age and sex: Oregon, 2014

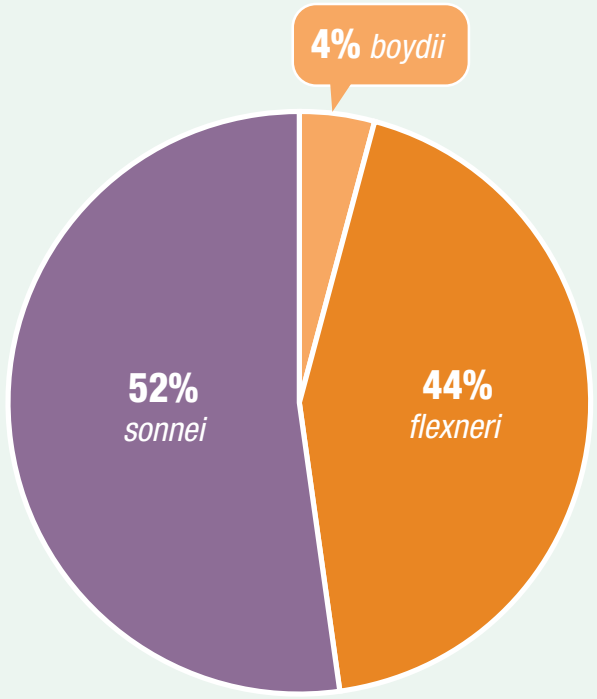


Incidence of shigellosis: Oregon vs. nationwide, 2000–2014

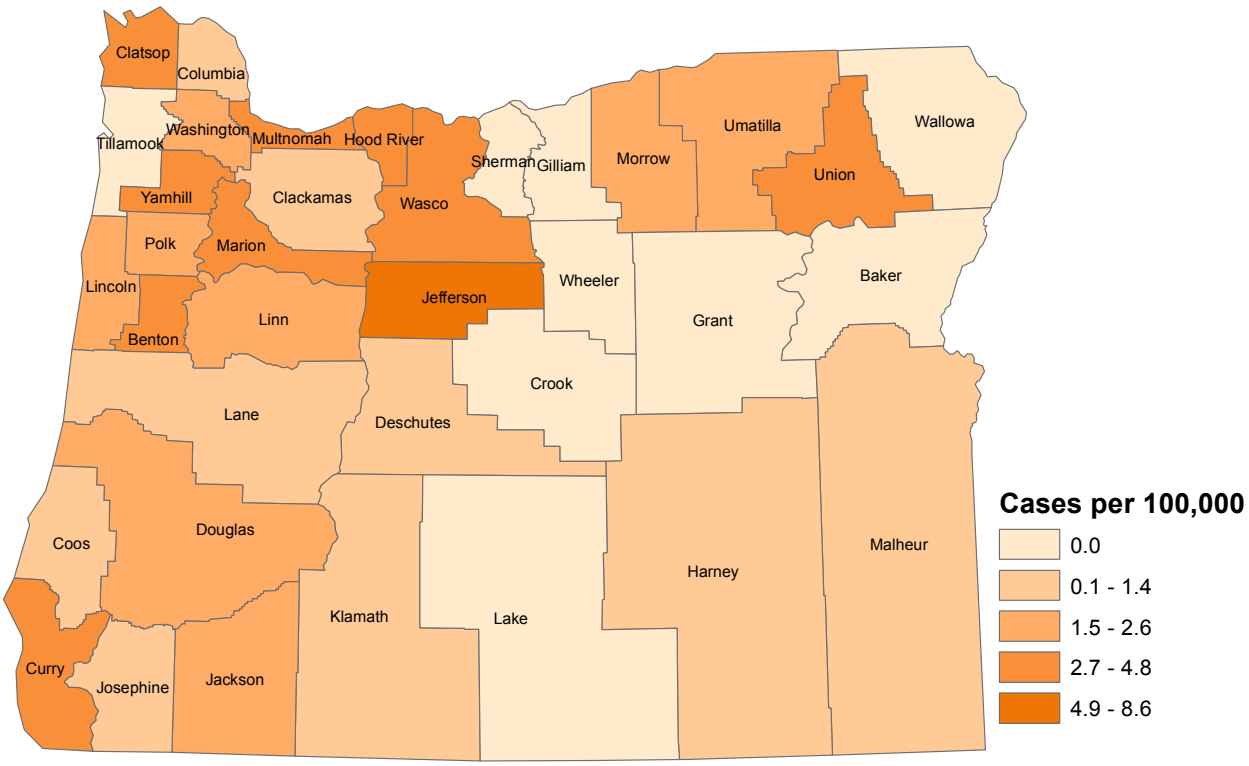


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Oregon	4.6	3.3	3.0	6.0	2.4	3.5	3.3	2.3	2.5	1.5	1.5	1.5	2.4	1.4	1.3
U.S.	8.2	7.1	8.2	8.1	4.8	5.5	5.2	6.6	7.5	5.2	4.8	4.3	4.4	4.1	6.6

Shigellosis by species: Oregon, 2014



Incidence of shigellosis by county of residence: Oregon, 2005–2014



Prevention

- 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.
- Dispose soiled diapers properly.
- 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.

Tularemia

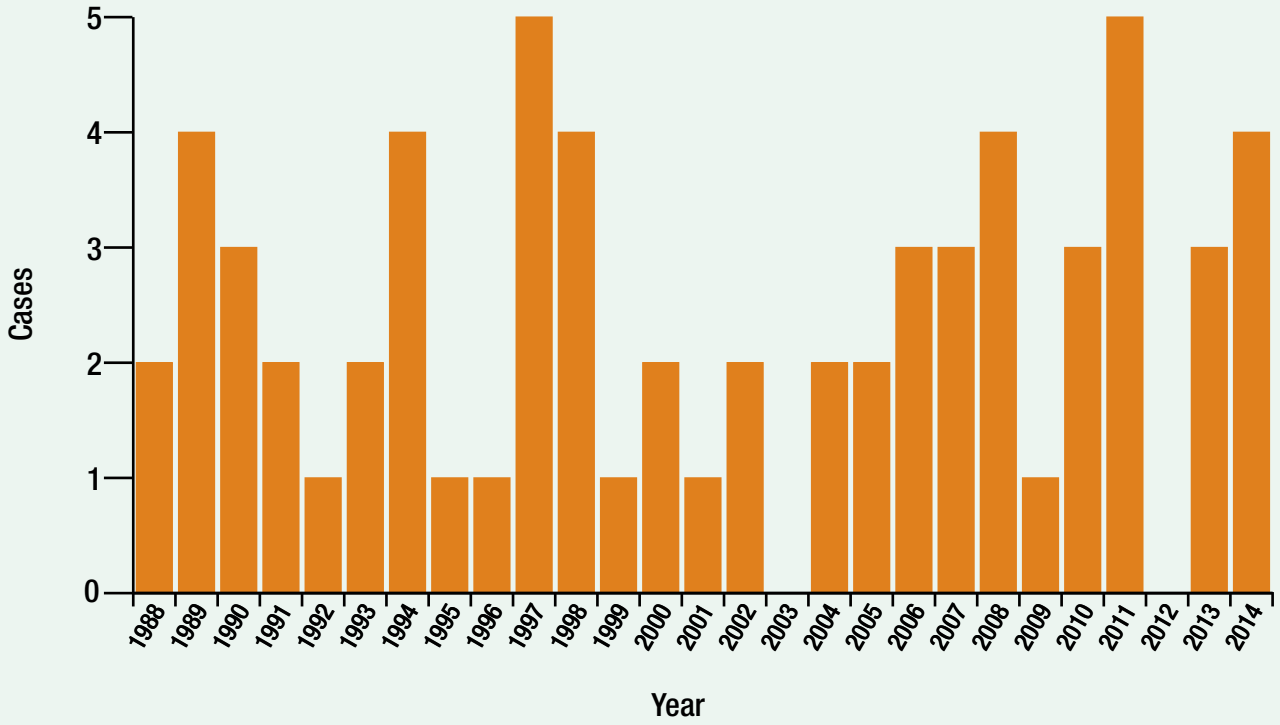
Tularemia, also known as rabbit or deer-fly fever, is considered a "category A" agent of potential bioterrorism. It is caused by *Francisella tularensis*, a hardy organism found in rodents, rabbits and squirrels; in ticks, deer flies and mosquitoes; and in contaminated soil, water and animal carcasses.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

Tularemia occurs throughout the United States. Persons become 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 for infection among laboratory workers. For potentially exposed workers, management options include a "fever watch" or antimicrobial prophylaxis.

Disease onset is usually sudden, and includes fever, malaise, myalgias, 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 skin lesion); oculoglandular (painful, purulent conjunctivitis with adenopathy); and oropharyngeal (pharyngitis with adenopathy).

Four sporadic cases were reported in Oregon in 2014.

Tularemia by year: Oregon, 1988–2014



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 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.

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"*).

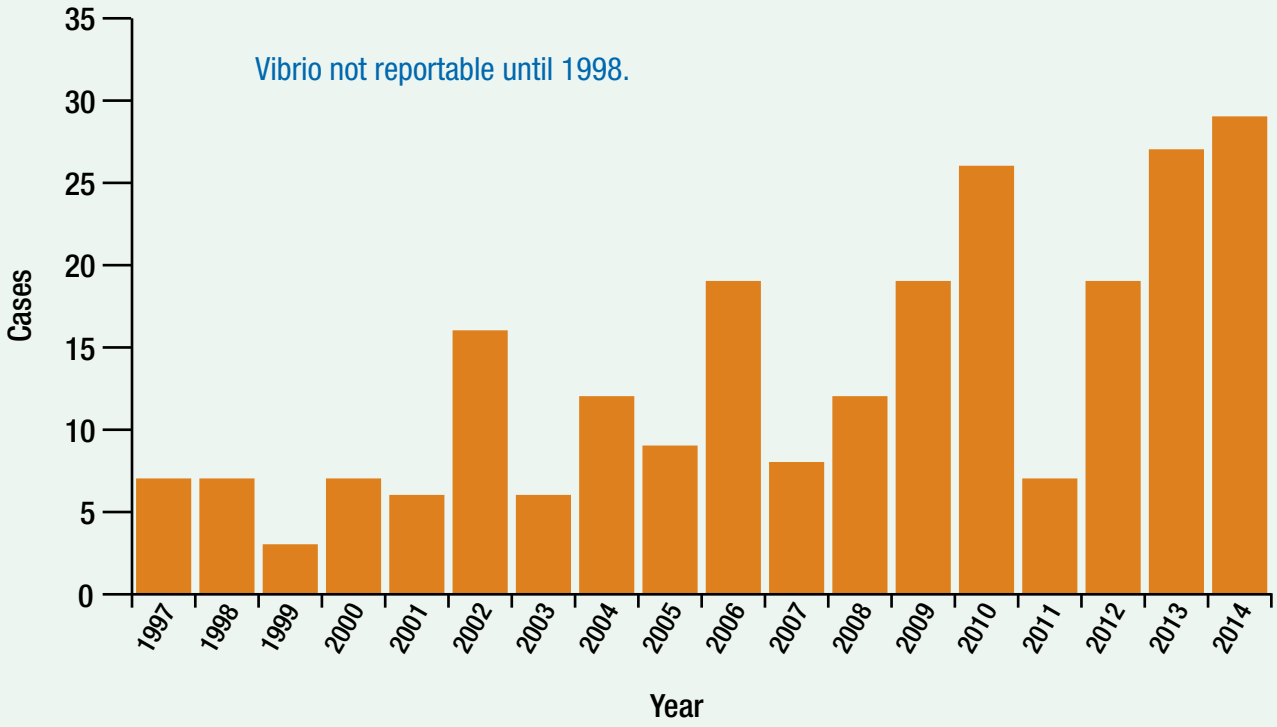
Commonly, vibriosis is acquired by eating raw or undercooked molluscan shellfish and presents as watery diarrhea, abdominal cramps and fever. In Oregon, *V. parahaemolyticus* is the most frequently reported species, as this pathogen is found naturally in the coastal waters and shellfish of the Pacific 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* represents 142 people not diagnosed with the infection.

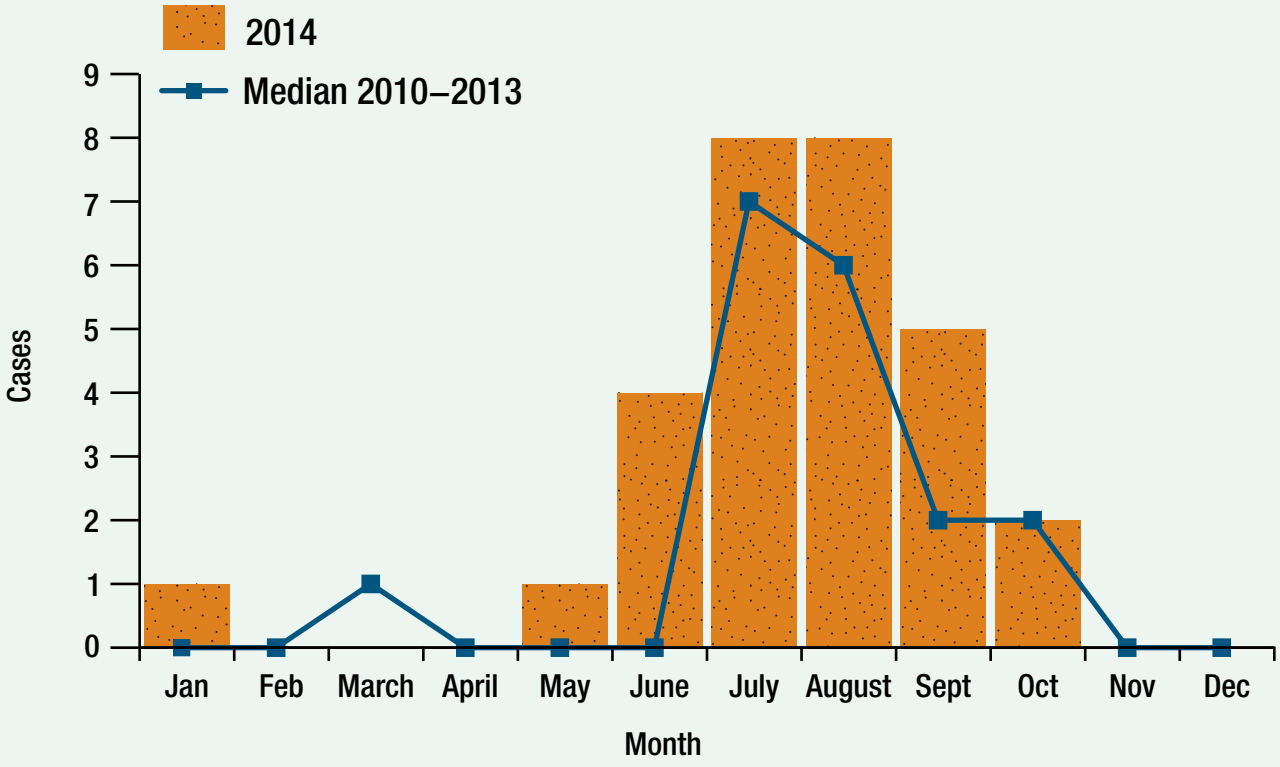
Nationally, reported rates of vibriosis have trended upwards in the past decade. Rates of reported infections have also been rising in Oregon, although increases are not seen every year. The reason for the increasing trend is not clear. It could be that we're getting better at identifying cases or it could be that with warmer temperatures there are just more opportunities for exposure.

In 2014, Oregon saw 29 confirmed cases of vibriosis, an increase from the 27 cases reported in 2013. The majority of reported cases 17 (59%) of the cases occurred in males. The majority of cases reported continue to be *V. parahaemolyticus* (24), with two *V. alginolyticus* cases reported and one each of *V. mimicus, V. metschnikovii,* and *V. cholerae* (non-O1, non-O139).

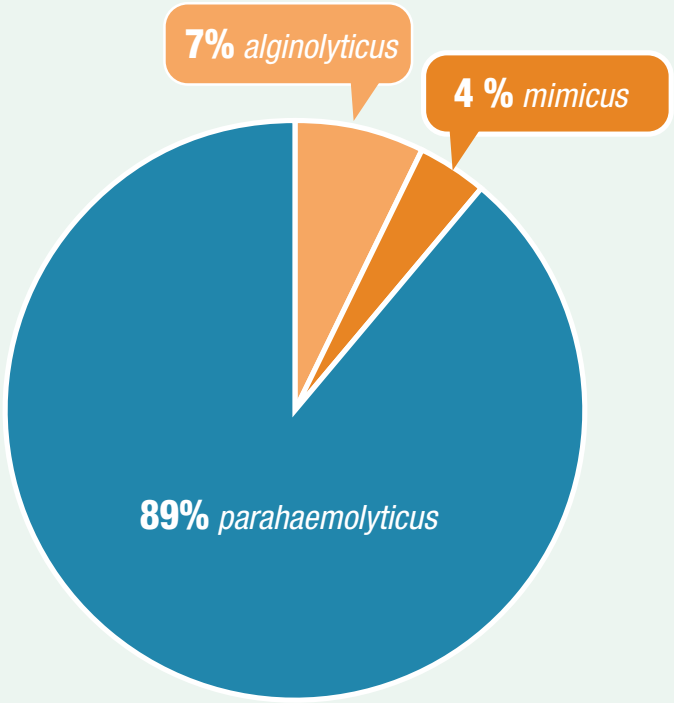
Vibrio infections: Oregon, 1997–2014



Vibriosis by onset month: Oregon, 2014



Vibriosis by species: Oregon, 2014



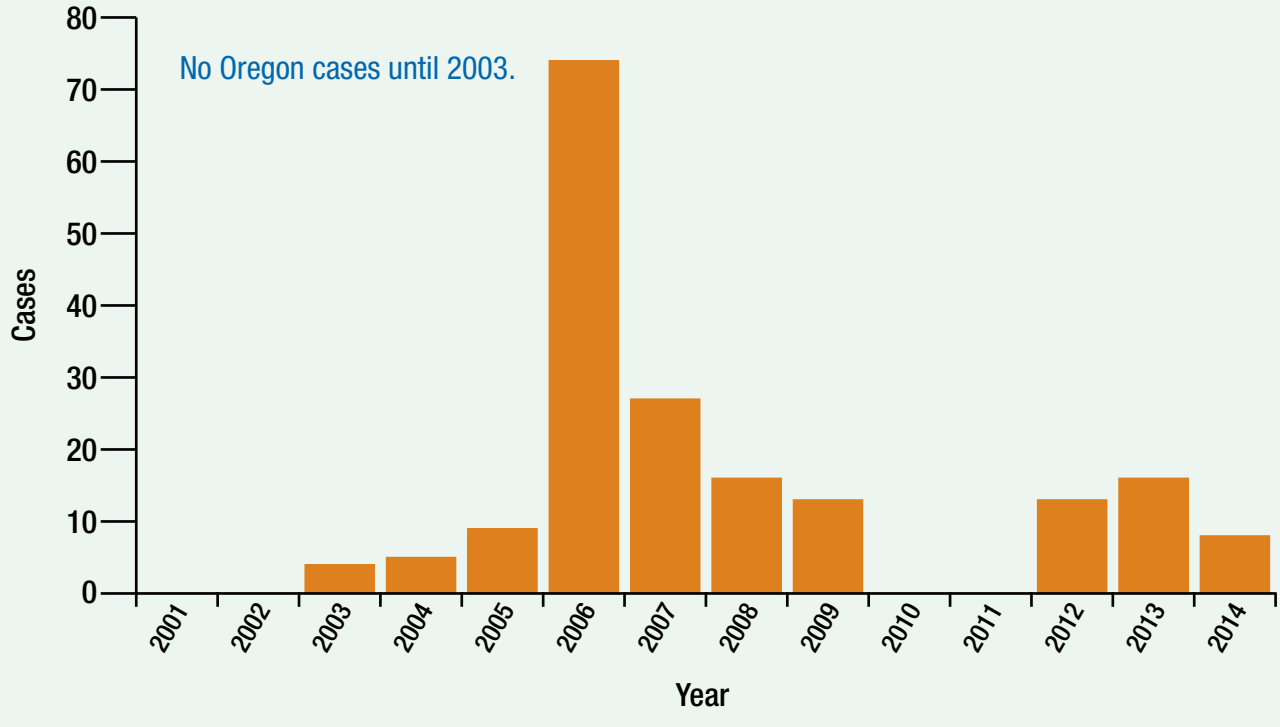
Prevention

- Avoid eating raw oysters or other raw shellfish.
- Cook shellfish (oysters, clams, mussels) thoroughly.

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 about 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 over 50 years of age have the highest risk of developing serious illness. Incidence is highest in the summer months. In 2014, eight human cases of West Nile virus were reported. In addition 88 mosquito pools, and seven birds and three horses tested positive for WNV infection.

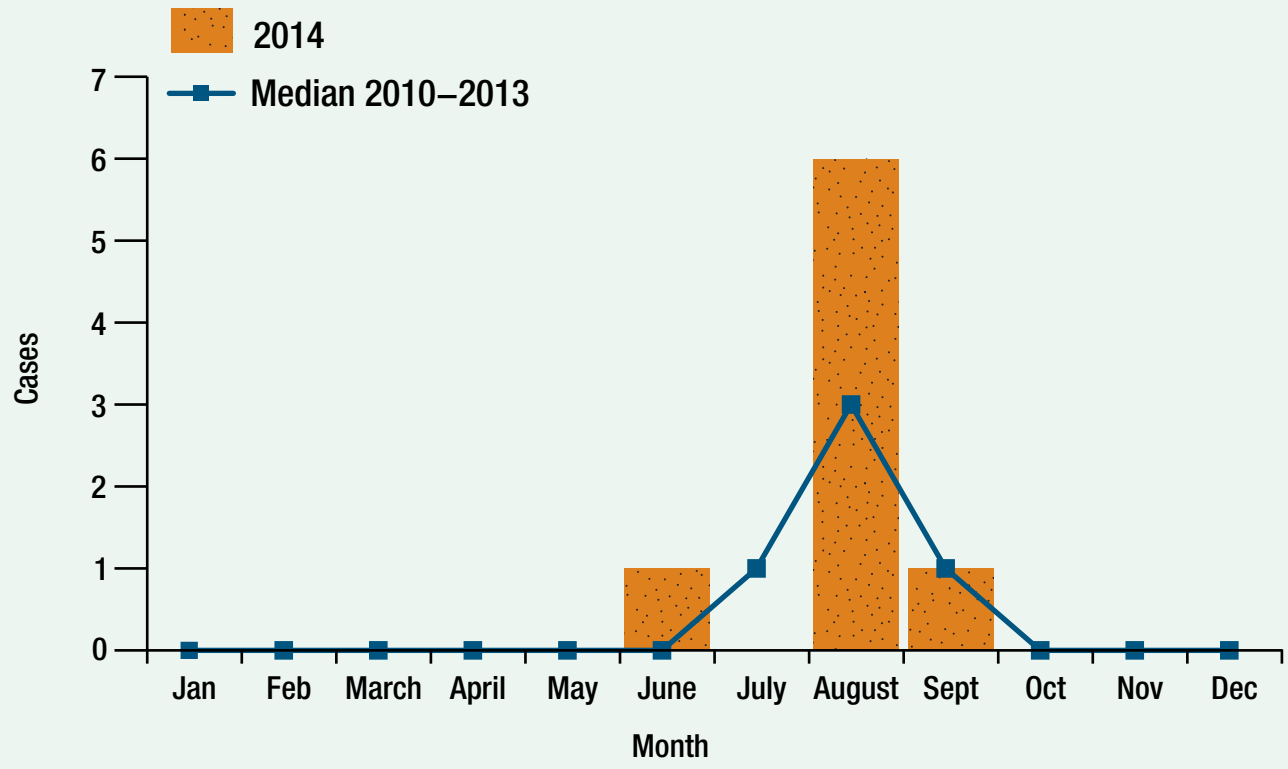
West Nile virus infection by year: Oregon, 2001–2014



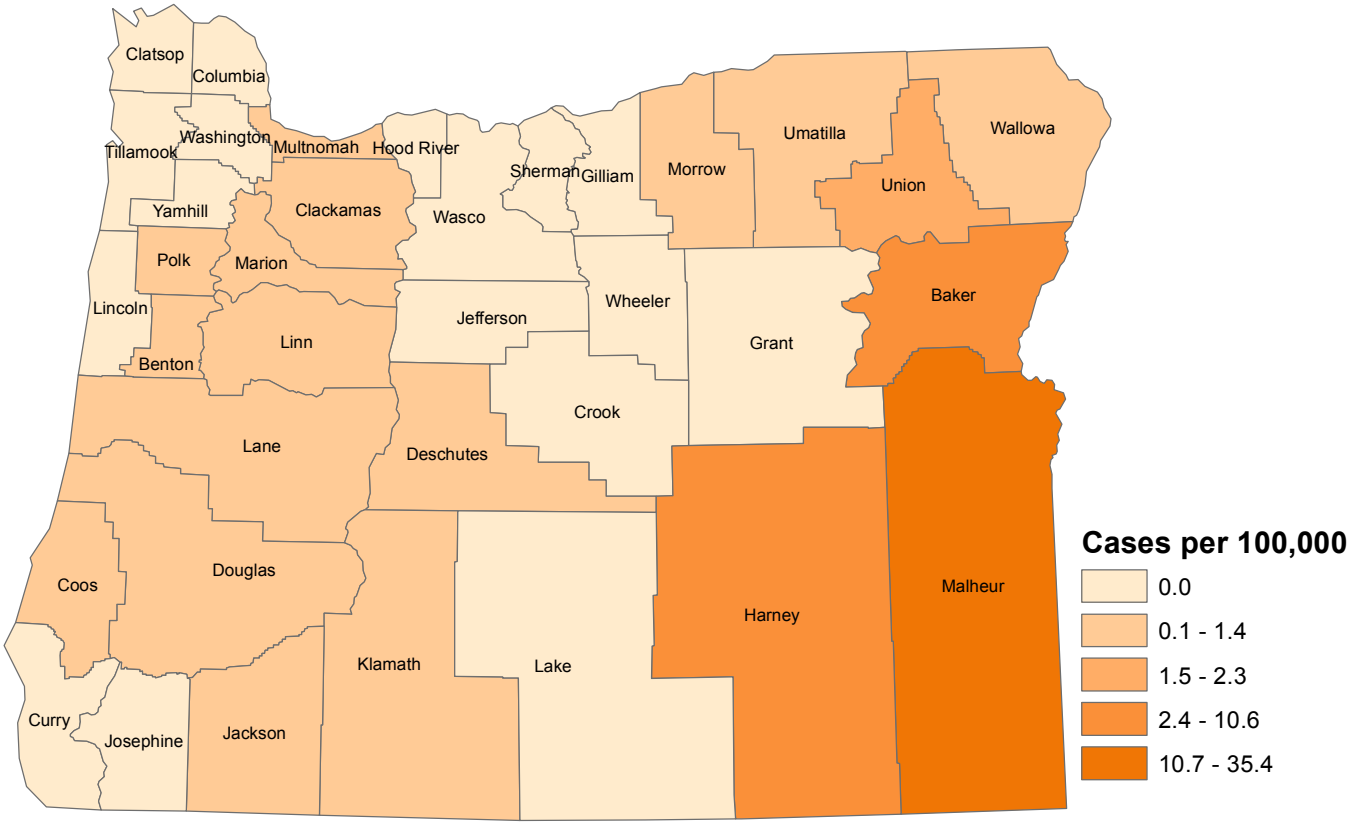
Confirmed WNV infections in Oregon, 2005–2014

Group	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Human	8	73	27	16	12	0	0	12	16	8
Horses	46	35	16	0	5	0	2	2	6	3
Birds	15	25	52	2	16	0	0	2	2	7
Mosquito pools	11	22	28	16	262	4	3	71	89	58

West Nile virus infection by onset month: Oregon, 2014



Incidence of West Nile virus infection by county of residence: Oregon, 2005–2014



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 emptying standing water from flowerpots, gutters, buckets, pool covers, pet water dishes, discarded tires and birdbaths regularly.
- Report dead birds to local authorities.

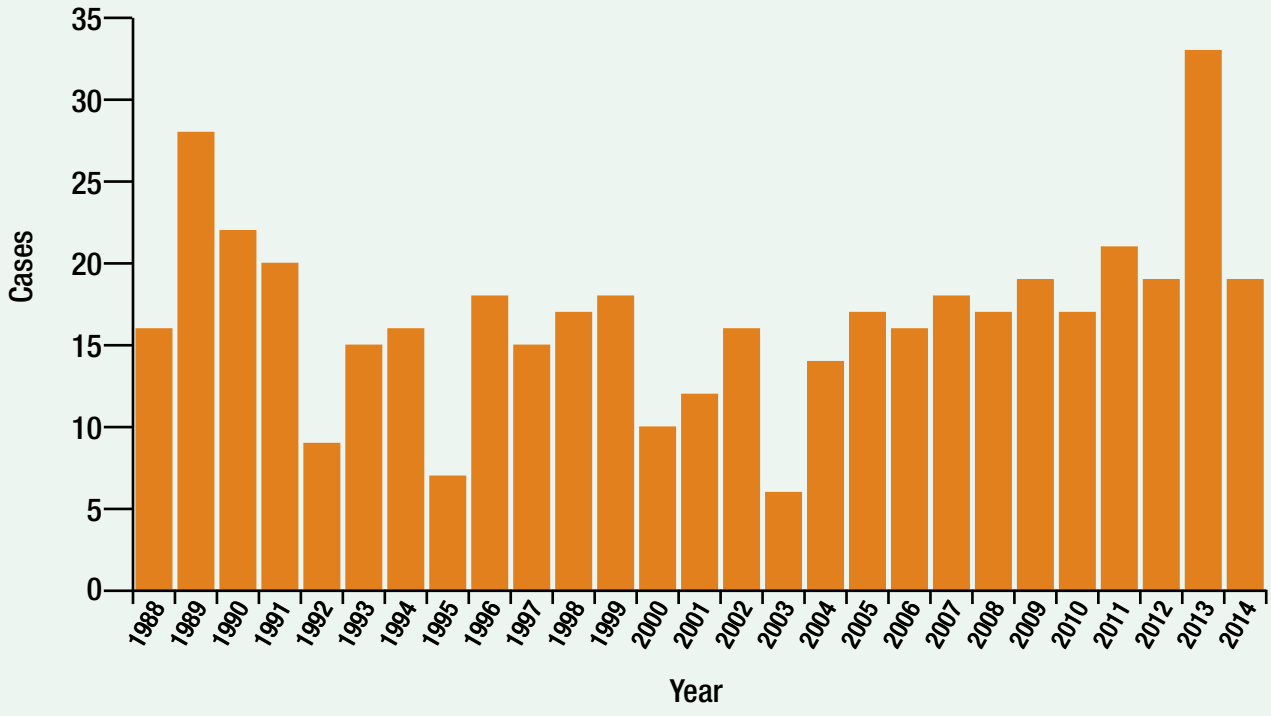
Yersiniosis

Yersiniosis is a bacterial infection characterized by (sometimes bloody) diarrhea, 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. Preventive measures include cooking food thoroughly, avoiding cross-contamination with raw food of animal origin and washing hands after handling food.

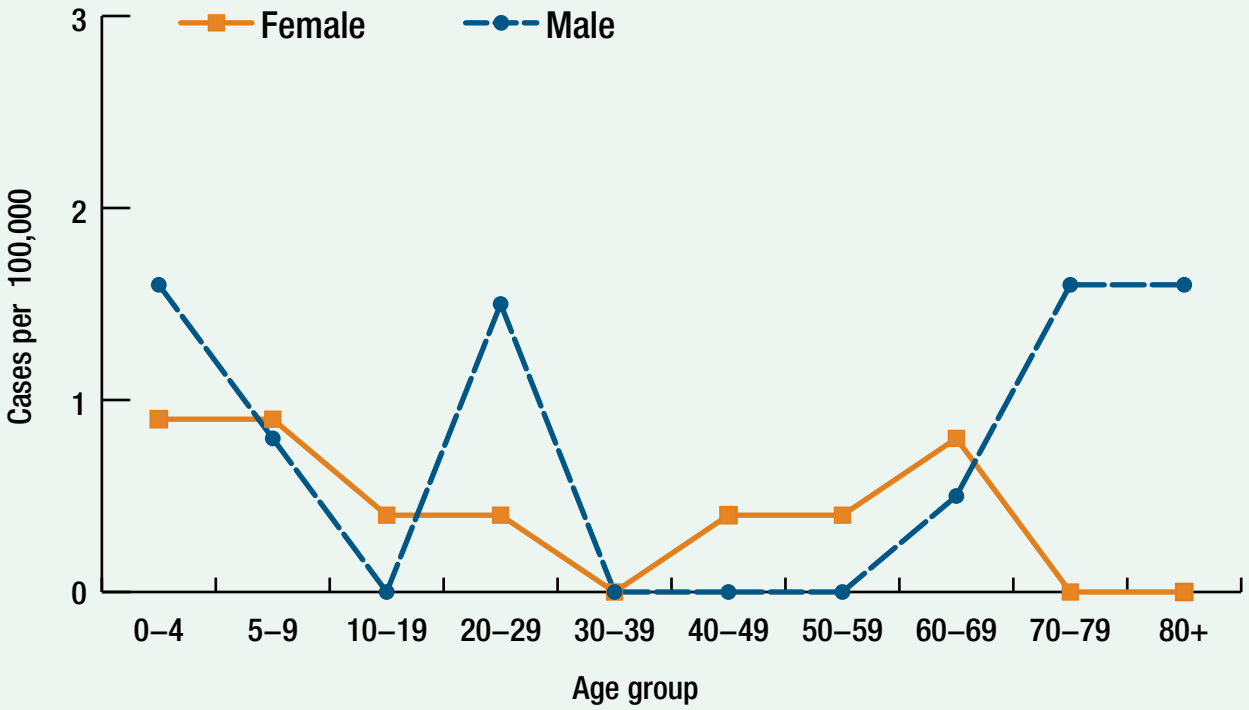
The incidence of yersiniosis in Oregon has been fairly stable over the years. Yersiniosis occurs throughout the year with no seasonality. The most common species is *Y. enterocolitica*. In 2014, there were 19 cases, a 42% decrease from 33 cases in 2013. All but one were sporadic cases. Fifteen were *enterocolitica*, one *frederiksenii*, one *kristensenii* and one *pseudotuberculosis*.

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

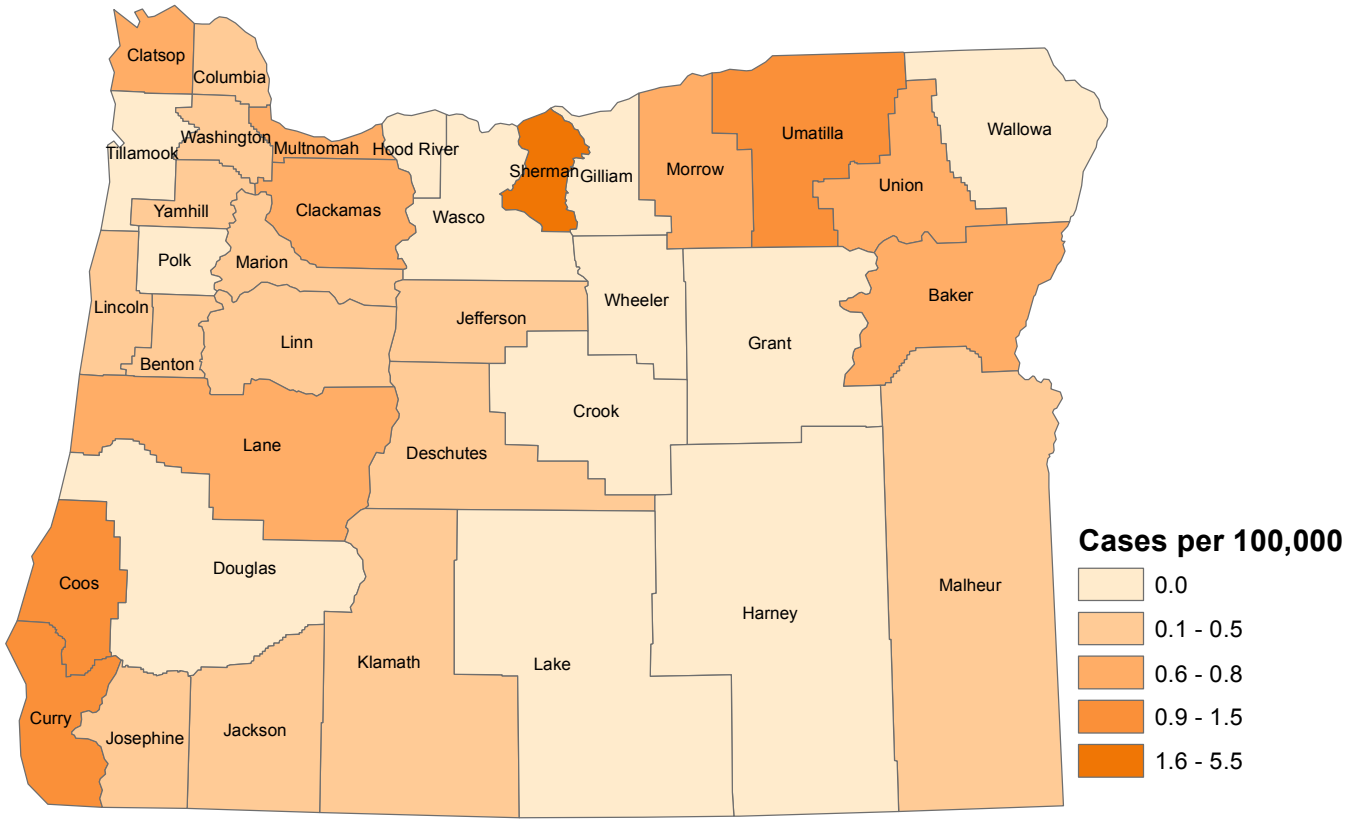
Yersiniosis by year: Oregon, 1988–2014



Yersiniosis by age and sex: Oregon, 2005–2014



Incidence of yersiniosis by county of residence: Oregon, 2005–2014



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, 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.

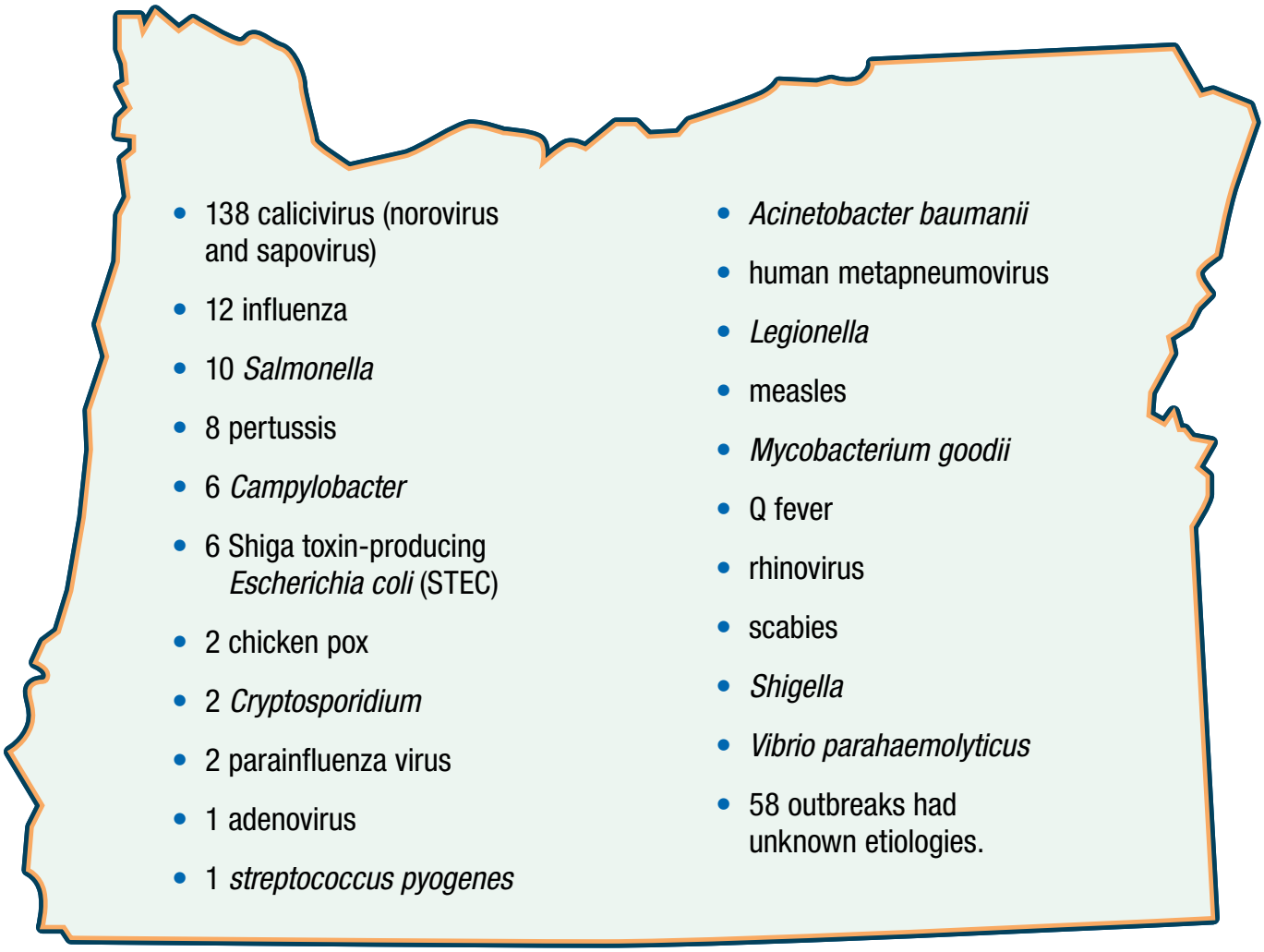
Disease outbreaks

Oregon state and local health departments investigated 256 acute and communicable disease outbreaks in 2014, down from 304 in 2013 (a 16% decrease). Fifty-four percent (138) of these were outbreaks of calicivirus gastroenteritis. Twenty-four outbreaks were foodborne, 33 were respiratory, four were due to animal contact, and three were waterborne. The mode of transmission was undetermined in 57 outbreaks. Sharing of respiratory secretions caused outbreaks of influenza (12) and pertussis (8) and two outbreaks of chickenpox (varicella) can be considered airborne. Foods contaminated with a variety of salmonellae 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."

Gastroenteritis is by far the most commonly reported type of outbreak in Oregon, accounting for 211 (82%) of the 256 outbreaks investigated in 2014.

Thanks to rigorous specimen collection by local health investigators, 112 of these outbreaks were confirmed. Sixty-nine percent of gastroenteritis outbreaks had disease-causing agents identified, mostly caliciviruses (norovirus and sapovirus). The Oregon State Public Health Laboratory (OSPHL) now routinely tests for sapovirus, astrovirus and rotavirus when stool specimens are norovirus-negative.

Disease outbreaks, by etiology: Oregon, 2014



- 138 calicivirus (norovirus and sapovirus)
- 12 influenza
- 10 *Salmonella*
- 8 pertussis
- 6 *Campylobacter*
- 6 Shiga toxin-producing *Escherichia coli* (STEC)
- 2 chicken pox
- 2 *Cryptosporidium*
- 2 parainfluenza virus
- 1 adenovirus
- 1 *streptococcus pyogenes*
- *Acinetobacter baumanii*
- human metapneumovirus
- *Legionella*
- measles
- *Mycobacterium goodii*
- Q fever
- rhinovirus
- scabies
- *Shigella*
- *Vibrio parahaemolyticus*
- 58 outbreaks had unknown etiologies.

Gastrointestinal outbreaks

Person-to-person transmission was responsible for 114 of gastroenteritis outbreaks and foodborne transmission for 24. Transmission was undetermined (we couldn't figure it out) or unknown (we didn't have enough data to figure it out) in 65 of the outbreaks. More than 76% of person-to-person outbreaks happened in institutional cohorts, especially among those in long-term care facilities (LTCFs).

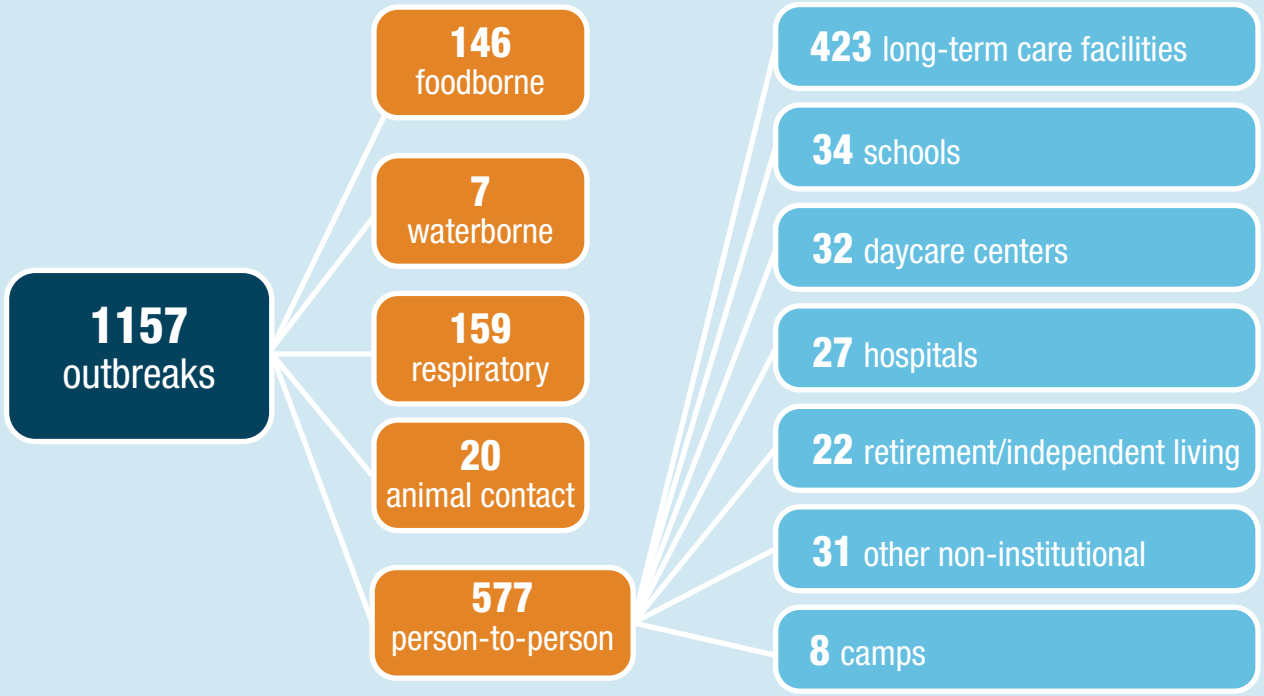
In 2013, the case definition of a norovirus outbreak was modified to be more in line with national standards. Some outbreaks previously classified as indeterminate were reclassified as suspect norovirus. The new classification includes outbreaks where symptoms were classical of norovirus but positive specimen was documented.

Fifty-four percent of reported gastroenteritis outbreaks reported from 2010–2014 occurred in long-term care facilities for the elderly.

Lab-confirmed norovirus and suspect norovirus outbreaks: Oregon, 2010–2014

	2010	2011	2012	2013	2014
Confirmed norovirus	138	75	121	124	118
Suspect norovirus	5	2	8	14	18

Reported outbreaks by transmission mode and settings, Oregon 2010–2014

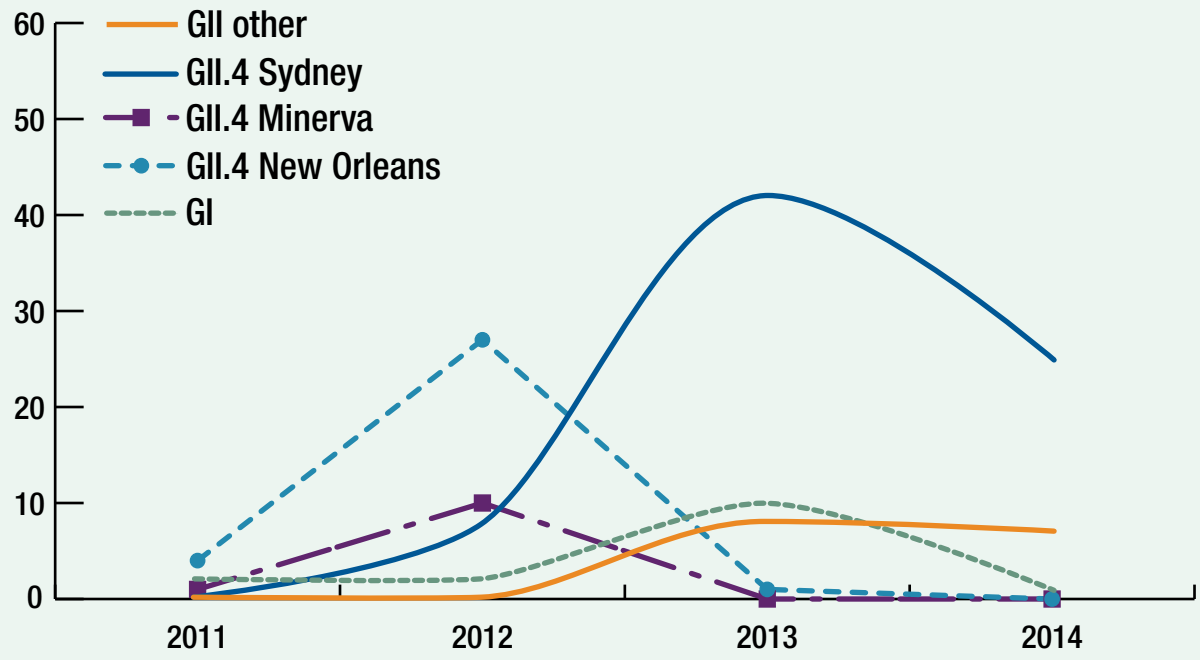


Norovirus outbreaks in long-term care facilities

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 and persons typically get norovirus by eating contaminated food containing infected stool or vomit particles.

The Oregon State Public Health Laboratory (OSPHL) began genotyping specimens associated with gastrointestinal outbreaks in late 2012. As shown in the figure, norovirus genogroup GII genotype 4 New Orleans was predominant in 2011 and 2012 accounting for 31 (25%) of 123 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 US. In 2013, GII.4 Sydney was responsible for 42 (48%) of 87 confirmed norovirus outbreaks among Oregon LTCF's.

Norovirus sequences in Oregon LTCFs, 2011–2014



(n=294 laboratory confirmed outbreaks)

Norovirus outbreaks in LTCFs by county of occurrence and year of investigation 2005–2014

County	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Baker	1	0	0	0	0	0	0	2	1	0	4
Benton	1	1	2	3	1	1	1	0	5	0	15
Clackamas	4	10	11	10	3	14	3	4	4	2	65
Clatsop	0	1	3	1	2	5	1	2	1	1	17
Columbia	0	0	0	1	1	1	0	0	2	1	6
Coos	1	1	2	2	2	2	0	1	2	2	15
Crook	0	0	0	1	1	0	0	0	2	0	4
Curry	0	1	0	0	0	0	0	0	1	0	2
Deschutes	1	6	4	5	5	3	3	10	3	1	41
Douglas	1	3	3	3	0	4	2	1	4	1	22
Grant	0	2	0	1	0	0	0	0	0	1	4
Harney	0	0	1	0	0	0	0	0	0	0	1
Hood River	0	1	1	1	2	1	1	2	2	2	13
Jackson	4	4	7	4	6	3	2	3	2	5	40
Jefferson	0	1	0	0	0	0	0	0	0	0	1
Josephine	1	5	2	2	0	0	0	0	1	0	11
Klamath	0	1	2	2	0	2	4	1	1	1	14
Lake	1	0	0	0	0	0	0	0	0	0	1
Lane	4	8	10	6	8	10	3	8	6	14	77
Lincoln	3	0	0	1	0	1	1	0	1	1	8
Linn	1	4	1	7	0	4	3	3	3	8	34
Malheur	0	0	0	1	0	0	0	0	0	0	1
Marion	5	13	12	12	5	9	4	10	8	12	90
Morrow	0	0	1	0	0	0	0	0	0	0	1
Multnomah	1	5	12	11	11	8	12	15	22	16	113
Polk	1	3	2	3	2	2	1	1	2	1	18
Tillamook	0	0	0	1	1	1	1	0	0	0	4
Umatilla	0	1	2	1	0	2	3	2	1	2	14
Union	1	0	1	1	0	0	1	0	0	2	6
Wasco	1	3	0	1	2	2	1	1	2	3	16
Washington	0	11	8	7	8	8	3	12	8	5	70
Yamhill	0	5	6	6	1	6	4	4	4	4	40
Total	**32**	**90**	**93**	**94**	**61**	**89**	**54**	**82**	**88**	**85**	**768**

Data as of 10/8/2015

Selected cases of notifiable diseases by year,* Oregon 1993–2003

Disease	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Campylobacteriosis	712	656	626	702	736	698	599	568	598	575	597
Cryptosporidiosis	21	19	42	37	34	127	35	22	60	40	36
***E. coli* O157 (STEC)**	253	111	94	105	92	107	68	136	97	209	105
Giardiasis	1000	937	897	899	879	892	792	673	535	431	406
H. influenzae	11	25	27	32	36	41	49	30	38	57	42
Hepatitis A	581	1366	2929	883	387	430	248	164	106	61	62
Acute hepatitis B	282	232	186	164	131	186	122	123	166	126	118
Acute hepatitis C	1	1	7	23	12	9	29	18	15	13	16
Legionellosis	1	0	0	0	0	1	2	1	4	9	17
Listeriosis	10	11	13	15	11	18	17	6	12	9	5
Lyme	8	7	22	17	21	23	14	14	15	15	18
Malaria	14	16	23	23	26	16	22	41	15	14	10
Measles	4	2	1	14	0	3	9	0	3	0	3
Meningococcal disease	101	136	118	114	109	85	75	71	65	44	60
Pertussis	105	67	57	61	49	83	60	103	66	192	439
Rabies, animal	7	13	4	6	12	5	4	7	4	14	7
Salmonellosis	343	332	342	377	382	343	417	296	280	335	424
Shigellosis	158	166	174	151	195	187	102	159	115	106	211
Vibriosis	0	0	0	0	7	7	3	7	6	16	6
West Nile virus	0	0	0	0	0	0	0	0	0	0	4
Yersiniosis	15	16	7	18	15	17	18	10	12	16	6

*Data as of 9/15/2015

Selected cases of notifiable diseases by year,* Oregon 2004–2014

Disease	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Campylobacteriosis	656	647	652	729	703	733	863	984	912	851	905
Cryptosporidiosis	32	69	84	164	64	224	218	219	215	276	112
***E. coli* O157 (STEC)**	70	158	107	85	68	84	119	136	193	189	184
Giardiasis	443	417	426	463	452	429	483	438	387	362	350
H. influenzae	49	54	55	68	55	57	69	75	67	84	83
Hepatitis A	67	47	46	35	27	19	17	11	9	29	14
Acute hepatitis B	120	106	80	61	47	50	44	32	28	34	35
Acute hepatitis C	17	19	27	22	33	26	22	24	39	14	14
Legionellosis	8	15	22	14	18	19	18	24	32	27	41
Listeriosis	7	11	13	8	6	19	17	10	15	7	16
Lyme	28	26	28	33	48	44	44	40	49	42	44
Malaria	19	13	15	17	4	12	16	23	12	14	18
Measles	0	2	2	2	1	0	0	3	1	6	5
Meningococcal disease	61	56	41	32	38	39	32	31	26	12	18
Pertussis	614	622	112	131	174	255	285	329	910	485	408
Rabies, animal	6	8	25	12	13	11	17	17	17	10	13
Salmonellosis	414	414	424	332	428	440	511	367	399	375	395
Shigellosis	87	127	121	87	94	56	58	57	92	55	50
Vibriosis	12	9	19	8	12	19	26	7	19	27	29
West Nile virus	5	9	74	27	16	13	0	0	13	16	8
Yersiniosis	14	17	16	18	17	19	17	21	19	33	19

*Data as of 9/15/2015

Selected Oregon communicable disease case counts by county of residence, 2014

County	Campylobacteriosis	Cryptococcosis	Cryptosporidiosis	*E. coli* 0157 and (STEC) infection	Giardiasis	*Haemophilus influenzae*	Hepatitis A	Hepatitis B (acute)	Hepatitis B (chronic)*	Hepatitis C (acute)	Hepatitis C (chronic)*
Baker	1	0	0	2	0	0	0	0	0	0	21
Benton	16	1	4	1	4	2	0	0	5	1	52
Clackamas	85	5	10	23	19	5	2	2	34	4	462
Clatsop	5	0	0	0	4	1	0	1	0	0	67
Columbia	9	1	1	0	0	3	0	1	2	0	81
Coos	17	0	2	3	4	0	0	0	2	0	108
Crook	5	1	0	4	0	0	0	0	0	0	29
Curry	2	0	1	1	1	1	0	0	3	0	35
Deschutes	52	2	1	12	17	3	2	0	6	0	234
Douglas	29	0	6	10	5	1	0	0	9	1	206
Gilliam	1	0	0	1	0	0	0	0	0	0	0
Grant	2	0	0	4	0	0	0	0	0	0	0
Harney	1	0	0	2	1	1	0	0	0	0	13
Hood River	8	0	0	1	0	0	0	0	0	0	10
Jackson	43	1	13	8	15	5	0	4	9	0	309
Jefferson	13	0	1	0	2	1	0	0	0	0	69
Josephine	11	0	1	1	4	0	0	0	4	0	171
Klamath	12	0	0	4	0	2	0	0	4	0	113
Lake	1	0	0	0	0	0	0	0	0	0	20
Lane	86	5	8	17	28	13	1	3	24	1	593
Lincoln	13	1	0	3	2	1	0	0	4	0	107
Linn	32	0	10	9	4	1	0	5	5	0	171
Malheur	15	0	0	3	1	0	0	0	0	0	24
Marion	63	4	6	18	15	8	0	3	28	0	425
Morrow	1	0	0	0	3	1	0	0	0	0	8
Multnomah	216	20	18	18	153	22	4	11	261	7	1313
Polk	7	1	1	7	6	1	0	0	5	0	63
Sherman	0	0	0	0	0	0	0	0	0	0	2
Tillamook	9	0	5	5	0	0	1	0	2	0	37
Umatilla	12	4	0	6	9	1	1	0	3	0	123
Union	8	0	0	0	0	0	0	0	0	0	22
Wallowa	0	0	1	0	1	0	0	0	0	0	8
Wasco	2	0	0	0	0	0	0	0	1	0	28
Washington	104	9	21	14	49	10	3	5	107	0	534
Wheeler	1	0	0	0	0	0	0	0	0	0	0
Yamhill	23	3	2	7	3	0	0	0	4	0	101
Total	**905**	**58**	**112**	**184**	**350**	**83**	**14**	**35**	**522**	**14**	**5,559**

Orpheus data as of 9/15/2015

* Date of report - data as of 10/13/2015

Selected Oregon communicable disease case counts by county of residence, 2014

County	Legionellosis	Listeriosis	Lyme disease	Meningococcal disease	Pertussis	Rabies, animal	Salmonellosis	Shigellosis	Vibriosis	West Nile virus	Total
Baker	0	0	0	0	0	0	1	0	0	4	**29**
Benton	0	0	1	1	22	2	5	2	0	0	**119**
Clackamas	5	5	6	5	59	1	41	3	2	1	**779**
Clatsop	1	1	0	0	0	0	6	1	3	0	**90**
Columbia	0	0	0	0	0	0	6	0	0	0	**104**
Coos	0	1	0	0	0	0	7	1	1	0	**146**
Crook	0	0	0	0	2	1	3	0	0	0	**45**
Curry	1	0	0	0	0	0	0	0	1	0	**46**
Deschutes	0	0	3	0	60	1	15	0	1	0	**409**
Douglas	0	0	5	1	4	1	8	0	0	0	**286**
Gilliam	0	0	0	0	0	0	0	0	0	0	**2**
Grant	1	0	0	0	0	0	0	0	0	0	**7**
Harney	0	0	0	0	0	0	0	0	0	0	**18**
Hood River	0	0	1	0	1	0	6	0	0	0	**27**
Jackson	2	0	6	2	35	0	21	0	3	0	**476**
Jefferson	0	0	0	0	4	0	1	0	0	0	**91**
Josephine	1	0	2	0	8	1	14	2	0	0	**220**
Klamath	1	0	1	0	1	0	6	1	0	0	**145**
Lake	0	0	0	0	1	1	0	0	0	0	**23**
Lane	3	1	5	0	41	3	30	2	2	0	**866**
Lincoln	0	1	0	0	1	0	7	1	0	0	**141**
Linn	0	1	0	0	15	0	9	0	0	1	**263**
Malheur	0	0	0	0	3	0	3	0	0	2	**51**
Marion	2	0	0	4	22	0	37	6	1	0	**642**
Morrow	0	0	0	0	0	0	2	0	0	0	**15**
Multnomah	14	3	8	2	56	1	75	20	9	0	**2231**
Polk	0	1	0	1	14	0	8	0	0	0	**115**
Sherman	0	0	0	0	1	0	0	0	0	0	**3**
Tillamook	0	1	0	0	1	0	3	0	0	0	**64**
Umatilla	3	0	0	0	1	0	5	0	0	0	**168**
Union	0	0	0	0	0	0	1	0	0	0	**31**
Wallowa	0	0	0	0	0	0	1	0	0	0	**11**
Wasco	0	0	2	1	1	0	3	0	0	0	**38**
Washington	6	1	3	1	37	0	52	8	6	0	**970**
Wheeler	0	0	0	0	0	0	0	0	0	0	**1**
Yamhill	1	0	1	0	16	1	19	3	0	0	**184**
Total	**41**	**16**	**44**	**18**	**406**	**13**	**395**	**50**	**29**	**8**	**8856**

Orpheus data as of 9/15/2015

* Date of report - data as of 10/13/2015

Reported Cases of Low Incident Notifiable Diseases or Conditions by Year in Oregon
2014

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Babesiosis	0	0	0	0	1	0	1	0	0	1	3
Botulism	2	0	1	2	0	1	3	6	4	1	20
Brucellosis	1	0	2	1	3	1	1	0	2	1	12
Chikungunya	0	0	0	0	0	0	0	0	0	7	7
Cyclosporiasis	25	2	0	0	0	0	0	1	0	1	29
Ehrlichiosis	0	1	1	1	3	0	6	0	1	0	13
Filariasis	1	0	0	0	0	0	0	0	0	0	1
Hantavirus pulmonary	2	1	1	0	2	3	2	2	1	1	15
Leishmaniasis	1	0	0	0	0	0	0	0	1	0	2
Leprosy	2	0	1	1	2	0	0	0	0	0	6
Leptospirosis	1	1	0	1	0	0	1	0	0	2	6
Mumps	0	22	2	1	2	3	4	6	3	1	44
Plague	0	0	0	0	0	2	1	2	0	0	5
Q fever	2	0	2	1	4	3	1	4	3	9	29
Relapsing Fever	1	2	0	4	3	0	0	3	1	4	18
Rubella	1	0	0	0	0	0	0	0	1	0	2
Taeniasis	4	3	3	11	50	3	5	5	2	3	89
Tularemia	2	3	3	4	1	3	5	0	3	4	28
Zika	0	0	0	0	0	0	0	0	0	3	3
Total	45	35	16	27	71	19	30	29	22	38	332

Infections, diseases and conditions reportable by clinicians: 2013

Report immediately

- Anthrax *(Bacillus anthracis)*
- Botulism *(Clostridium botulinum)*
- Cholera (*Vibrio cholerae* O1, O139, or toxigenic)
- Diphtheria *(Corynebacterium diphtheriae)*
- Hemorrhagic fever caused by viruses of the filovirus (e.g., Ebola, Marburg) or arenavirus (e.g., Lassa, Machupo) families
- Influenza (novel)[1]
- Marine intoxication (intoxication caused by marine microorganisms or their byproducts (e.g., paralytic shellfish poisoning, domoic acid intoxication, ciguatera, scombroid)
- Measles (rubeola)
- Plague *(Yersinia pestis)*
- Poliomyelitis
- Rabies (human)
- Rubella
- SARS (Severe Acute Respiratory Syndrome or SARS-coronavirus)
- Smallpox (variola)
- Tularemia *(Francisella tularensis)*
- Yellow fever
- Outbreaks and uncommon illnesses (any known or suspected common-source outbreak; any uncommon illness of potential public health significance)

Report within 24 hours (including weekends and holidays)

- *Haemophilus influenzae* (any isolation or identification from a normally sterile site)
- *Neisseria meningitidis*
- Pesticide poisoning

Report within one working day

- Animal bites (of humans)
- Arthropod vector-borne disease (babesiosis, California encephalitis, Colorado tick fever, dengue, Eastern equine encephalitis, ehrlichiosis, Kyasanur Forest disease, St. Louis encephalitis, West Nile fever, Western equine encephalitis, etc.)
- Brucellosis *(Brucella)*
- Campylobacteriosis *(Campylobacter)*
- Chancroid *(Haemophilus ducreyi)*
- Chlamydiosis *(Chlamydia trachomatis;* lymphogranuloma venereum)
- Creutzfeldt-Jakob disease (CJD) and other transmissible spongiform encephalopathies
- Cryptococcosis *(Cryptococcus)*
- Cryptosporidiosis *(Cryptosporidium)*
- Cyclosporosis *(Cyclospora cayetanensis)*
- *Enterobacteriaceae* family isolates found to be non-susceptible to any carbapenem antibiotic
- *Escherichia coli* (Shiga-toxigenic, including *E. coli* O157 and other serogroups)
- Giardiasis *(Giardia)*
- Gonococcal infections *(Neisseria gonorrhoeae)*
- Hantavirus
- Hemolytic uremic syndrome
- Hepatitis A
- Hepatitis B (acute or chronic infection)
- Hepatitis C (acute or chronic infection)
- Hepatitis D (delta)
- Hepatitis E
- HIV infection (does not apply to anonymous testing) and AIDS
- Influenza (laboratory-confirmed) death of a person <18 years of age
- Lead poisoning[2]
- Legionellosis *(Legionella)*

Report within one working day (continued)

- Leptospirosis *(Leptospira)*
- Listeriosis *(Listeria monocytogenes)*
- Lyme disease *(Borrelia burgdorferi)*
- Malaria *(Plasmodium)*
- Mumps
- Pelvic inflammatory disease (PID, acute, non-gonococcal)
- Pertussis *(Bordetella pertussis)*
- Psittacosis *(Chlamydophila psittaci)*
- Q fever *(Coxiella burnetii)*
- Relapsing fever *(Borrelia)*
- *Rickettsia* (all species: Rocky Mountain spotted fever, typhus, others)
- Salmonellosis (*Salmonella*, including typhoid)
- Shigellosis *(Shigella)*
- Syphilis *(Treponema pallidum)*
- *Taenia* infection (including cysticercosis and tapeworm infections)
- Tetanus *(Clostridium tetani)*
- Trichinosis *(Trichinella)*
- Tuberculosis *(Mycobacterium tuberculosis* and *M. bovis)*
- Vibriosis (other than cholera)
- Yersiniosis (other than plague)

Footnotes

ORS 409.050, 433.004; OAR 333-018-0000 to OAR 333-018-0015 (http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_018.html)

[1] Influenza A virus that cannot be subtyped by commercially distributed assays

[2] "Lead poisoning" means a blood lead level of ≥10 µg/dl.

Diseases, infections, microorganisms and conditions reportable by laboratories: 2013

Bacteria

- *Bacillus anthracis*
- *Bordetella pertussis*
- *Borrelia*
- *Brucella*
- *Campylobacter*
- *Chlamydia trachomatis*
- *Chlamydophila psittaci*
- *Clostridium botulinum*
- *Clostridium tetani*
- *Corynebacterium diphtheriae*
- *Coxiella burnetii*
- *Enterobacteriaceae* family isolates found to be non-susceptible to any carbapenem antibiotic
- *Ehrlichia/Anaplasma*
- *Escherichia coli* (Shiga-toxigenic)[6]
- *Francisella tularensis*
- *Haemophilus ducreyi*
- *Haemophilus influenzae*[5,7]
- *Legionella*
- *Leptospira*
- *Listeria monocytogenes*[5]
- *Mycobacterium bovis*[5]
- *Mycobacterium tuberculosis*[5]
- *Neisseria gonorrhoeae*
- *Neisseria meningitidis*[5,7]
- *Rickettsia*
- *Salmonella*[5]
- *Shigella*[5]
- *Treponema pallidum*
- *Vibrio cholerae*[5]
- *Vibrio,* non-*cholerae*[5]
- *Yersinia, pestis*[5]
- *Yersinia,* non-*pestis*[5]

Fungi

- *Cryptococcus*[5]

Parasites

- *Babesia*
- *Cryptosporidium*
- *Cyclospora*
- *Giardia*
- *Plasmodium*
- *Taenia solium*[8]
- *Trichinella*

Viruses

- Arboviruses[1]
- Arenaviruses[10]
- Filoviruses[10]
- Hantavirus
- Hepatitis A[9]
- Hepatitis B[9]
- Hepatitis C
- Hepatitis D (delta)
- Hepatitis E
- Hemorrhagic fever viruses[10]
- HIV infection and AIDS
- Influenza, novel strain[11]
- Measles (rubeola)
- Mumps
- Polio
- Rabies
- Rubella
- SARS-coronavirus
- Variola major (smallpox)
- West Nile
- Yellow fever

Other important reportables

- Any "uncommon illness of potential public health significance"[1]
- Any outbreak of disease[1]
- Any other arthropod-borne viruses[1]
  California encephalitis
  - › Colorado tick fever
  - › Dengue
  - › Eastern equine encephalitis
  - › Kyasanur Forest
  - › St. Louis encephalitis
- All blood lead testing results, but lead poisoning should be reported to the local health department within one working day[12]
- All CD4 counts and HIV viral loads
- Creutzfeldt-Jakob disease (CJD) and other prion illnesses

Footnotes

[1] Oregon Revised Statute 433.004; Oregon Administrative Rule 333-018 (http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_018.html)

[2] Refer to www.healthoregon.org/lhd for a list of local health departments, reporting FAQs, and more details about what to report. When in doubt, report.

[3] ORS 433.004 and OAR 333-018-0013 (http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_018.html); Manual for Mandatory Electronic Laboratory Reporting (www.healthoregon.org/elrresources)

[4] ORS 431.262; OAR 333-018 (http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_018.html); OAR 333-026-0030 http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_026.html)

[5] Isolates must be forwarded to the Oregon State Public Health Laboratory (phone, 503-693-4100).

[6] All confirmed or suspect isolates of *E. coli* O157, and all non-O157 Shiga-toxin-positive broths, must be forwarded to the Oregon State Public Health Laboratory (phone 503-693-4100).

[7] Report only isolates from normally sterile sites (e.g., neither sputum nor throat cultures).

[8] Report cysticercosis and all undifferentiated *Taenia* spp. (e.g., eggs in stool O & P).

[9] IgM-positive HAV and HBV serum specimens must be forwarded to the Oregon State Public Health Laboratory.

[10] Hemorrhagic fever caused by viruses of the filovirus (e.g., Ebola, Marburg) or arenavirus (e.g., Lassa, Machupo) families are reportable.

[11] Influenza A virus that cannot be subtyped by commercially distributed assays.

[12] "Lead poisoning" means a blood lead level of at least 10 micrograms per deciliter.

PUBLIC HEALTH DIVISION

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