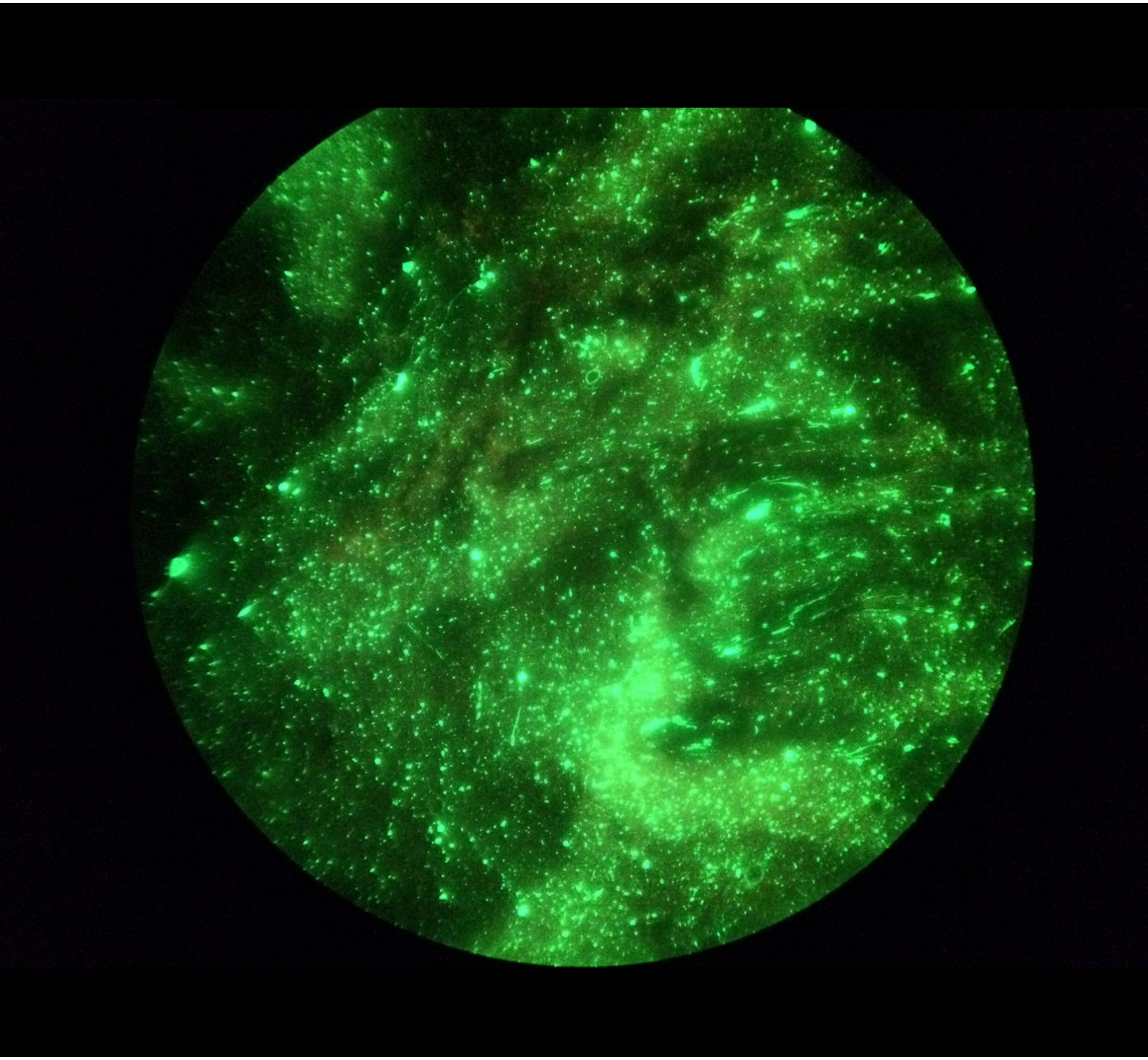
Washington State Department of Health

Washington State
COMMUNICABLE DISEASE REPORT 2017



"Public health - always working for a safer and healthier Washington."

For additional copies of this document or to obtain this document in an alternative format please contact:

Washington State Department of Health
Communicable Disease Epidemiology
1610 NE 150th Street
Shoreline WA, 98155
206-418-5500 or 1-877-539-4344

Cover art:
Fluorescent image of rabies virus antigen on bat brain tissue, detected by fluorescently-labeled anti-rabies antibody using a fluorescence microscope.
Washington State Department of Health Public Health Laboratories, Virology Laboratory

DOH 420-004 Revised November 2018

WASHINGTON STATE DEPARTMENT OF HEALTH
Disease Control and Health Statistics
Communicable Disease Epidemiology
1610 NE 150th Street
Shoreline, WA 98155
206-418-5500 or 1-877-539-4344

COMMUNICABLE DISEASE REPORT 2017

CONTRIBUTORS

COMMUNICABLE DISEASE EPIDEMIOLOGY

Krisandra Allen, MPH
Joanne Amlag, MPH
Elyse Bevers, MPH
Michael Boysun, MPH
Leslie Byerly
Sherry Carlson, MPH
Mary Chadden
Mary Chan, MPH
Izumi Chihara, PhD, MPH
Natasha Close, MPH
Marisa D'Angeli, MD, MPH
Chas DeBolt, MPH, RN
Amanda Dodd
Mohamed Elameen, MPH
Shannon Franks
Mackenzie Fuller, MPH
Marcia Goldoft, MD, MPH, MS
Cynthia Harry, MPH
Vivian Hawkins, PhD, MS
Lindsay Horn, MPH
Jennifer Hubber, MPH
Thomas Hulse, MPH
Wendy Inouye, MPH
Heidi Iyall
Amanda Jones, MPH
Elyse Kadokura, MPH
Kelly Kauber, MPH
Melissa Kemperman, MPH
Staci Kvak, MPH, BSN, RN
Anika Larson, MPH
Tri Nhan Le, MPH
Larissa Lewis, BSN, RN
Natalie Linton, MPH
Soyeon Lippman, PhD
Kim MacLeod
Jasmine Matheson, MPH
Shawn McBrien, MPH
Beth Melius, MPH, MN, RN
Patricia Montgomery, MPH, RN
Amanda Morse, MPH
Jillian Neary, MPH
Justina Novak
Laura Newman, PhD, MPH
Hanna Oltean, MPH
Michelle Passater, MPH
Kim Peifer, MPH
Sara Podczervinski, MPH, RN
Amy Poel, MPH
Tashina Robinson, MS
Nicole Schwalbe, MPH
Laurie Stewart, MS
Nancy Stone, MT (ASCP)
Azadeh Tasslimi, MPH
Doreen Terao
Sherryl Terletter
Wayne Turnberg, PhD, MSPH
Melissa Turner, MBA
Lana Kay Tyer, RN, MSN
Kevin Wickersham, MS

INFECTIOUS DISEASE

Rachel Amiya, PhD
Karlie Bagan, MS
Teal Bell, MPH
Jason Carr, MPH
Erin Davies, MPH
Jon Downs, MPH
Steven Erly, MPH
Tessa Fairfortune, MPH
Tom Jaenicke, MPH, MBA, MES
Jennifer Lam, MPH
Jennifer Reuer, MPH

PREVENTION AND COMMUNITY HEALTH

Steffen Burney

OFFICE OF THE SECRETARY

Jesse Bonwitt, MSc, MRCVS, BVSc

John Wiesman, DrPH, MPH
Secretary of Health

Kathy Lofy, MD
State Health Officer/Chief Science Officer

Jerrod Davis, PE
Assistant Secretary
Disease Control and Health Statistics

Wayne Turnberg, PhD, MSPH
Director, Office of Communicable Disease Epidemiology

Claudia Catastini, MA
Director, Office of Infectious Disease

Scott Lindquist, MD, MPH
State Epidemiologist for Communicable Disease

Romesh Gautom, PhD
Director, Washington State Public Health Laboratories

Cathy Wasserman, PhD, MPH
State Epidemiologist for Non-Infectious Conditions

This report represents Washington State communicable disease surveillance: the ongoing collection, analysis and dissemination of morbidity and mortality data to prevent and control communicable disease. In addition to the contributors listed on the previous page, we would like to recognize the staff of the Washington State Public Health Laboratories, the staff of Washington's local health jurisdictions who contribute to surveillance, investigation, and prevention of communicable diseases in our state, and the thousands of people in clinics, hospitals and clinical laboratories throughout Washington whose disease reports constitute the basis for this document.

Table of Contents

Tables

Executive Summary – 2017

This report summarizes notifiable communicable diseases reported by local health jurisdictions to the Department of Health (DOH) in 2017. The most common case reports continued to be sexually transmitted conditions, chronic hepatitis, infections caused by enteric pathogens, pertussis, and tuberculosis. Due to outbreaks in multiple counties, the number of mumps cases reached 779 reports.

Technical Notes

Washington Administrative Code (WAC) Chapters 246-100 and 246-101 outline disease surveillance requirements: healthcare providers and facilities, laboratories, veterinarians, food service establishments, childcare facilities and schools must report certain notifiable conditions including communicable diseases to the local health jurisdiction or DOH. Local health jurisdictions reported DOH electronically via the Public Health Issue Management System (PHIMS). Tuberculosis only was reported via PHIMS until March, 2017, then reported via the Washington Disease Reporting System (WDRS).

Cases of communicable notifiable conditions were included in this annual report if they met the following criteria (these criteria do not apply to HIV, chronic hepatitis, sexually transmitted diseases, or tuberculosis):

1. Resident of Washington.
2. Onset dates during the 2017 CDC Year (January 1, 2017 – December 30, 2017).
3. Case report entered into PHIMS by March 1, 2018 if the condition is common (>10 cases per year).
4. Reported to DOH through PHIMS prior to May 15, 2018 if the condition is uncommon (≤10 cases per year).
5. Given a valid DOH case classification by DOH, as described in the guidelines for each condition.
6. In addition, the report includes very rare conditions (zero to two cases per year) reported to DOH after the previous year's deadline (if not reported in a previous annual report).

Depending on the condition, it is likely only a fraction of the actual number of cases will be reported to a surveillance system. Case patients may not be aware of being infected, are symptomatic but do not contact a health care provider, are not confirmed with appropriate tests, or are not reported after the diagnostic testing.

Disease summary tables in Appendix I reflect historical years when data are reliable. Population estimates used in rate calculations come from the Washington State Office of Financial Management. Previously reported disease rates for 2000 through 2010 were updated using new population estimates based on the 2010 decennial census. Rates by county are not provided for conditions with fewer than five reported cases.

This report is available online on DOH's website.

Additional information on communicable disease surveillance and case investigation in Washington is available on DOH's website under List of Notifiable Conditions.

For other information or to request the report in an alternate format, contact:
Washington State Department of Health
Communicable Disease Epidemiology
1610 NE 150th Street, MS K17-9
Shoreline, WA 98155
206-418-5500

Reporting a Notifiable Condition

In accordance with Washington State rule WAC 246-101, public health and health-care professionals should report most notifiable conditions to the local health jurisdiction in the county of the patient's residence. Disease reporting telephone numbers for each local health jurisdiction are provided on the DOH website. If no one is available at the local health jurisdiction and a condition is immediately notifiable or is notifiable to DOH, please call the 24-hour reporting line: 877-539-4344 or 206-418-5500. For a complete list of notifiable conditions for health-care providers, hospitals, laboratories and veterinarians, please refer to the corresponding reporting poster on the next five pages. These posters are also available on the DOH website, How to Report – Posters.

Washington State Department of Health

Notifiable Conditions Reporting

LOCAL HEALTH JURISDICTIONS

Notifiable to the Washington State Department of Health

IMMEDIATELY NOTIFIABLE: (suspect or confirmed cases)
Notifiable to the Office of Communicable Disease Epidemiology: 1-877-539-4344

- Anthrax
- Botulism (foodborne, wound, infant)
- Cholera
- Diphtheria
- Disease of suspected bioterrorism origin
- Emerging condition with outbreak potential
- Influenza, novel strain
- Measles (rubeola)
- Paralytic shellfish poisoning
- Plague
- Poliomyelitis
- Rabies, human
- SARS
- Smallpox
- Tularemia
- Viral hemorrhagic fever
- Yellow fever
- Outbreak, or suspected outbreak, of illness due to infectious agent or toxin

Notifiable within 7 days of case investigation completion or summary information required within 21 days of initial notification for the following:

Notifiable to the Office of Communicable Disease Epidemiology: 1-877-539-4344

- Arboviral disease (Zika, West Nile virus disease, dengue, eastern and western equine encephalitis, etc.)
- **Brucellosis** ⚠
- ***Burkholderia mallei* or *pseudomallei*** ⚠
- Campylobacteriosis
- Cryptosporidiosis
- Cyclosporiasis
- Enterohemorrhagic *E. coli* (see Shiga toxin-producing *E. coli*)
- Giardiasis
- *Haemophilus influenzae* invasive disease
- Hantavirus pulmonary syndrome
- Hepatitis A, acute
- Hepatitis B, acute
- Hepatitis B, chronic
- Hepatitis D, acute
- Hepatitis D, chronic
- Hepatitis E, acute
- Influenza-associated death (lab-confirmed)
- Legionellosis
- Leptospirosis
- Listeriosis
- Lyme disease
- Malaria
- Meningococcal disease
- Monkeypox
- Mumps
- Pertussis
- Prion disease, including Creutzfeldt-Jakob disease (CJD)
- **Psittacosis** ⚠
- **Q Fever** ⚠
- Rabies, suspected human exposure
- Relapsing fever
- Rubella
- Salmonellosis
- Shiga toxin-producing *E. coli* infections (enterohemorrhagic *E. coli* including but not limited to *E. coli* O157:H7)
- Shigellosis
- Tetanus
- Trichinosis
- Typhoid fever
- Vaccinia transmission
- Vancomycin-resistant *Staphylococcus aureus* (does not include vancomycin-intermediate)
- Varicella-associated death
- Vibriosis
- Yersiniosis

Other rare diseases of public health significance, including but not limited to:

- Amoebic meningitis
- Anaplasmosis
- Babesiosis
- Carbepenemase-producing carbepenem-resistant Enterobacteriaceae (CP-CRE)
- Chagas disease
- Coccidioidomycosis
- *Cryptococcus gattii*
- Ehrlichiosis
- Histoplasmosis
- Shellfish poisoning (diarrhetic)
- Tickborne rickettsioses (including Rocky Mountain spotted fever)
- Tick paralysis
- Typhus

Unexplained critical illness or death

Notifiable to Infectious Disease Assessment: 360-236-3464

- Acquired immunodeficiency syndrome (AIDS) (including AIDS in persons previously reported with HIV infection)
- Chancroid
- *Chlamydia trachomatis*
- Gonorrhea
- Granuloma inguinale
- Hepatitis C, acute
- Hepatitis C, chronic
- Herpes simplex
- HIV infection
- Lymphogranuloma venereum
- Syphilis

Notifiable to TB Reporting Line 360-236-3397

- Tuberculosis

Notifiable to Immunization Program CHILD Profile Fax: 360-236-3590

- Hepatitis B, surface antigen-positive pregnant women
- Immunization reactions (severe, adverse)

⚠ If bioterrorism is suspected, case must be immediately reported.

The conditions listed above are notifiable to the Washington State Department of Health in accordance with WAC 246-101.

- The 2011 revision of WAC 246-101-010 states "'Other rare diseases of public health significance' means a disease or condition, of general or international public health concern, which is occasionally or not ordinarily seen in the state of Washington including, but not limited to, spotted fever rickettsiosis, babesiosis, tick paralysis, anaplasmosis, and other tick borne diseases. This also includes public health events of international concern and communicable diseases that would be of general public concern if detected in Washington."

Washington State Department of Health

Notifiable Conditions Reporting

HEALTH CARE PROVIDERS

Notifiable to the local health jurisdiction (LHJ) of the patient's residence

Phone numbers by LHJ are listed on the other side of this poster. If unable to reach the LHJ of the patient's residence, please call: **1-877-539-4344**

IMMEDIATELY NOTIFIABLE: Requires a phone call to reach a live person at the local health jurisdiction, 24/7

Must be reported as soon as clinically suspected

Animal bites, when human exposure to rabies is suspected
Anthrax
Botulism (foodborne, wound and infant)
***Burkholderia mallei* (glanders) and *pseudomallei* (melioidosis)**
Cholera
Diphtheria
Disease of suspected bioterrorism origin
Domoic acid poisoning (amnesic shellfish poisoning)
***E. coli* – refer to "Shiga toxin-producing *E. coli* infections"**
Emerging condition with outbreak potential
***Haemophilus influenzae* (invasive disease, children <5 years)**
Influenza, novel or unsubtypable strain
Measles (rubeola), acute
Meningococcal disease (invasive)
Monkeypox
Outbreaks of suspected foodborne origin
Outbreaks of suspected waterborne origin
Paralytic shellfish poisoning
Pesticide poisoning—hospitalized, fatal, or cluster: 1-800-222-1222
Plague
Poliomyelitis
Rabies, confirmed human or animal
Rabies, suspected human exposure
Rubella (include congenital rubella syndrome), acute
SARS (Severe Acute Respiratory Syndrome)
Shiga toxin-producing *E. coli* infections (STEC, including but not limited to *E. coli* O157:H7; also includes post-diarrheal hemolytic uremic syndrome)
Smallpox
Tuberculosis
Tularemia
Vaccinia transmission
Viral hemorrhagic fever
Yellow fever

Notifiable on a monthly basis

Asthma, occupational (suspected or confirmed): **1-888-66-SHARP**

Birth defects: **360-236-3533**
(autism spectrum disorders, cerebral palsy, alcohol-related birth defects)

Hepatitis B, chronic (initial diagnosis/previously unreported cases)

Hepatitis C, chronic

The conditions listed above are notifiable to public health authorities in accordance with WAC 246-101.

- Report to the local health jurisdiction of the patient's residence within the timeframe indicated (except for conditions followed by a reporting phone number).
- 'Other rare diseases of public health significance' means a disease or condition, of general or international public health concern, which is occasionally or not ordinarily seen in the state of Washington including, but not limited to, spotted fever rickettsiosis, babesiosis, tick paralysis, anaplasmosis, and other tick borne diseases. This also includes public health events of international concern and communicable diseases that would be of general public concern if detected in Washington.

Notifiable within 24 hours: Requires a phone call if reporting after normal public health business hours

Brucellosis
Hantavirus pulmonary syndrome
Hepatitis A, acute
Hepatitis B, acute
Hepatitis E, acute
Legionellosis
Leptospirosis
Listeriosis
Mumps, acute
Pertussis
Psittacosis
Q fever
Relapsing fever (borreliosis)
Salmonellosis
Shigellosis
Vancomycin-resistant *Staphylococcus aureus* (not to include Vancomycin-intermediate)
Vibriosis
Yersiniosis

Other rare diseases of public health significance, including but not limited to:

- Amoebic meningitis
- Anaplasmosis
- Babesiosis
- Carbepenemase-producing carbepenem-resistant Enterobacteriaceae (CP-CRE)
- Chagas disease
- Coccidioidomycosis
- *Cryptococcus gattii*
- Ehrlichiosis
- Histoplasmosis
- Shellfish poisoning (diarrhetic)
- Tickborne rickettsioses (including Rocky Mountain spotted fever)
- Tick paralysis
- Typhus

Unexplained critical illness and death

3 Notifiable within 3 business days

Acquired immunodeficiency syndrome (AIDS), including in persons previously reported with HIV infection
Arboviral disease (acute disease only, including: West Nile virus, dengue, eastern & western equine encephalitis, Zika, etc.)
Campylobacteriosis
Chancroid
Chlamydia trachomatis infection
Cryptosporidiosis
Cyclosporiasis
Giardiasis
Gonorrhea
Granuloma inguinale
Hepatitis B, surface antigen positive pregnant women
Hepatitis C, acute
Hepatitis D, acute and chronic
Herpes simplex, neonatal and genital (initial infection only)
HIV infection
Immunization reactions (severe, adverse)
Influenza-associated death, laboratory-confirmed
Lyme disease
Lymphogranuloma venereum
Malaria
Pesticide poisoning—non-hospitalized, non-fatal, non-cluster: **1-800-222-1222**
Prion disease, including Creutzfeldt-Jakob disease (CJD)
Syphilis (including congenital)
Tetanus
Trichinosis
Varicella-associated death

Washington State Department of Health

Notifiable Conditions Reporting

HEALTH CARE FACILITIES

Notifiable to the local health jurisdiction (LHJ) of the patient's residence

Phone numbers by LHJ are listed on the other side of this poster. If unable to reach the LHJ of the patient's residence, please call: **1-877-539-4344**

IMMEDIATELY NOTIFIABLE: Requires a phone call to reach a live person at the local health jurisdiction, 24/7

Must be reported as soon as clinically suspected

Animal bites, when human exposure to rabies is suspected
Anthrax
Botulism (foodborne, infant, and wound)
***Burkholderia mallei* (glanders) and *pseudomallei* (melioidosis)**
Cholera
Diphtheria
Disease of suspected bioterrorism origin
Domoic acid poisoning (amnesic shellfish poisoning)
***E. coli* – refer to "Shiga toxin-producing *E. coli* infections"**
Emerging condition with outbreak potential
***Haemophilus influenzae* (invasive disease, children < 5 years)**
Influenza, novel or unsubtypable strain
Measles (rubeola), acute
Meningococcal disease (invasive)
Monkeypox
Outbreaks of disease that occur or are treated in the health care facility
Outbreaks of suspected foodborne origin
Outbreaks of suspected waterborne origin
Paralytic shellfish poisoning
Pesticide poisoning (hospitalized, fatal, or cluster): 1-800-222-1222
Plague
Poliomyelitis
Rabies, confirmed human or animal
Rabies, suspected human exposure
Rubella (include congenital rubella syndrome), acute
SARS (Severe Acute Respiratory Syndrome)
Shiga toxin-producing *E. coli* infections (STEC, including but not limited to *E. coli* O157:H7; also includes post-diarrheal hemolytic uremic syndrome)
Smallpox
Tuberculosis
Tularemia
Vaccinia transmission
Viral hemorrhagic fever
Yellow fever

Notifiable on a monthly basis

Asthma, occupational (suspected or confirmed): **1-888-66SHARP**

Birth defects: **360-236-3533**
(abdominal wall defects, autism spectrum disorders, cerebral palsy, Down syndrome, alcohol-related birth defects, hypospadias, limb reductions, neural tube defects, oral clefts)

Cancer, see WAC 246-430

Gunshot wounds: **360-236-2867**

Hepatitis B, chronic (initial diagnosis/previously unreported cases)

Hepatitis C, chronic

The conditions listed above are notifiable to public health authorities in accordance with WAC 246-101. When a condition occurs in or is treated by the health care facility:

- Report to the local health jurisdiction of the patient's residence within the timeframe indicated (except for conditions followed by a reporting phone number).
- 'Other rare diseases of public health significance' means a disease or condition, of general or international public health concern, which is occasionally or not ordinarily seen in the state of Washington including, but not limited to, spotted fever rickettsiosis, babesiosis, tick paralysis, anaplasmosis, and other tick borne diseases. This also includes public health events of international concern and communicable diseases that would be of general public concern if detected in Washington.

Notifiable within 24 hours: Requires a phone call if reporting after normal public health business hours

Brucellosis
Hantavirus pulmonary syndrome
Hepatitis A, acute
Hepatitis B, acute
Hepatitis E, acute
Legionellosis
Leptospirosis
Listeriosis
Mumps, acute
Pertussis
Psittacosis
Q fever
Relapsing fever (borreliosis)
Salmonellosis
Shigellosis
Vancomycin-resistant *Staphylococcus aureus* (not to include Vancomycin-intermediate)
Vibriosis
Yersiniosis

Other rare diseases of public health significance, including but not limited to:

- Amoebic meningitis
- Anaplasmosis
- Babesiosis
- Carbepenemase-producing carbepenem-resistant Enterobacteriaceae (CP-CRE)
- Chagas disease
- Coccidioidomycosis
- *Cryptococcus gattii*
- Ehrlichiosis
- Histoplasmosis
- Shellfish poisoning (diarrhetic)
- Tickborne rickettsioses (including Rocky Mountain spotted fever)
- Tick paralysis
- Typhus

Unexplained critical illness or death

3 Notifiable within 3 business days

Acquired immunodeficiency syndrome (AIDS), including in persons previously reported with HIV infection
Arboviral disease (acute disease only, including: West Nile virus, dengue, eastern & western equine encephalitis, Zika, etc.)
Campylobacteriosis
Chancroid
Chlamydia trachomatis
Cryptosporidiosis
Cyclosporiasis
Giardiasis
Gonorrhea
Granuloma inguinale
Hepatitis B, surface antigen positive pregnant women
Hepatitis C, acute
Hepatitis D, acute and chronic
HIV infection
Immunization reactions (severe, adverse)
Influenza-associated death, laboratory-confirmed
Lyme disease
Lymphogranuloma venereum
Malaria
Pesticide poisoning—non-hospitalized, non-fatal, non-cluster: **1-800-222-1222**
Prion disease, including Creutzfeldt-Jakob disease (CJD)
Serious adverse reactions to immunizations
Syphilis, including congenital
Tetanus
Trichinosis
Varicella-associated death

Hospital laboratories, refer to the *Laboratories Notifiable Conditions Poster.*

Washington State Department of Health

Notifiable Conditions Reporting

LABORATORIES

Notifiable to the local health jurisdiction (LHJ) of the patient's residence

Phone numbers by LHJ are listed on the other side of this poster. If unable to reach the LHJ of the patient's residence, please call: **1-877-539-4344**

(If patient residence is unknown, notify the LHJ of the health care provider that ordered the diagnostic test)

BACTERIA

- *Bacillus anthracis* (anthrax)
- *Bordetella pertussis* (pertussis)
- 2 *Borrelia burgdorferi* (Lyme disease)
- *Borrelia hermsii* or *B. recurrentis* (Relapsing fever, tick- or louseborne)
- *Brucella* species (brucellosis)
- *Burkholderia mallei* and *B. pseudomallei*
- 2 *Campylobacter* species (campylobacteriosis)
- *Chlamydia (chlamydophila) psittaci* (psittacosis)
- 2 *Chlamydia trachomatis*
- *Clostridium botulinum* (botulism)
- *Corynebacterium diphtheriae* (diphtheria)
- *Coxiella burnetii* (Q fever)
- *E. coli (refer to* "Shiga toxin-producing *E. coli")*
- *Francisella tularensis* (tularemia)
- *Haemophilus influenzae* (children < 5 years)
- *Legionella* species (legionellosis)
- *Leptospira* species (leptospirosis)
- *Listeria monocytogenes* (listeriosis)
- 2 *Neisseria gonorrhoeae* (gonorrhea)
- *Neisseria meningitidis* (meningococcal disease)
- *Salmonella* species (salmonellosis, typhoid fever)
- Shiga toxin-producing *E. coli (*STEC, including but not limited to *E. coli O*157:H7)
- *Shigella* species (shigellosis)
- 2 *Treponema pallidum* (syphilis)
- Vancomycin-resistant *Staphylococcus aureus*
- *Vibrio cholerae* O1 or O139 (cholera)
- *Vibrio* species (vibriosis)
- *Yersinia enterocolitica* or *Y. pseudotuberculosis*
- *Yersinia pestis* (plague)

FUNGI

- 2 *Cryptococcus,* non-*neoformans*

PARASITES

- 2 *Cryptosporidium* (cryptosporidiosis)
- 2 *Cyclospora cayetanensis* (cyclosporiasis)
- 2 *Giardia lamblia* (giardiasis)
- 2 *Plasmodium* species (malaria)
- 2 *Trichinella* species (trichinellosis)

Icons for reporting timeframes and recipients are explained in the legend.

*The 2011 revision of WAC 246-101-010 states "'Other rare diseases of public health significance' means a disease or condition, of general or international public health concern, which is occasionally or not ordinarily seen in the state of Washington including, but not limited to, spotted fever rickettsiosis, babesiosis, tick paralysis, anaplasmosis, and other tick borne diseases. This also includes public health events of international concern and communicable diseases that would be of public concern if detected in Washington."

VIRUSES

- 2 Arboviruses, acute, by viral isolation or IgM or PCR positivity (West Nile virus, eastern and western equine encephalitis, dengue, St. Louis encephalitis, La Crosse encephalitis, Japanese encephalitis, Powassan, chikungunya, Zika*)
  *both positive and negative results are requested for Zika
- Coronavirus (SARS-associated)
- Hantavirus
- Hepatitis A virus, acute, by IgM positivity (include hepatocellular enzyme levels in report)
- Hepatitis B virus, acute, by IgM positivity
- Hepatitis B virus: HBsAg, HBeAg, and HBV DNA
- Hepatitis C virus
- 2 Hepatitis D virus
- Hepatitis E virus
- Influenza virus, novel or unsubtypable strain
- Measles virus (rubeola), acute, by IgM or PCR positivity
- Mumps virus, acute, by IgM or PCR positivity
- Poliovirus, acute, by IgM or PCR positivity
- Rabies virus (human or animal)
- Variola virus (smallpox)
- Viral hemorrhagic fever
  Arenaviruses, bunyaviruses, filoviruses, flaviviruses
- Yellow fever virus

*Reportable as rare diseases of public health significance**

- *Coccidioides*
- Carbapenem-resistant Enterobacteriaceae (CRE), resistant to ≥1 carbapenem, using M100-S25 CLSI breakpoints
- Carbapenemase-producing CRE

Notifiable to the Department of Health (DOH)

- 2 LEAD Blood lead level (elevated)
- LEAD Blood lead level (non-elevated)
- ID CD4 + (T4) lymphocyte counts and/or CD4 + (T4) (patients aged 13 and older)
- 2 ID Human immunodeficiency virus (HIV) infection (for example, positive Western Blot, p24 antigen, or viral culture tests)
- ID Human immunodeficiency virus (HIV) infection (all viral load detection test results—detectable and undetectable)
- 2 TB *Mycobacterium tuberculosis* (tuberculosis)

LEGEND

- Immediately notifiable—requires a phone call to reach a live person at the LHJ, 24/7
- Notifiable within 24 hours: Requires phone call if reporting after normal business hours
- 2 Notifiable within 2 business days
- Notifiable on a monthly basis
- Specimen/culture submission to the Public Health Laboratories required (upon request for all others)
- LEAD Notifiable to the DOH Lead Program
  Contact phone: 360-236-4280
- ID Notifiable to the DOH Office of Infectious Disease
  Contact phone: 360-236-3464
- TB Notifiable to the DOH Tuberculosis Program
  Contact phone: 360-236-3397
  Fax: 360-236-3405
- Antibiotic sensitivity testing (first isolates only)

The laboratory results listed above (preliminary or confirmed) are notifiable to public health authorities in Washington in accordance with WAC 246-101.

Information provided with public health notifications and specimen submissions must include: specimen type; name and telephone number of laboratory; date specimen collected and received; requesting health care provider's name and phone number; test result; and name of patient. Also required when available in the lab database are: patient sex, date of birth or age, full patient address (zip code at a minimum), and health care provider address.

Per WAC 246-101-201(3), LHJs may request laboratory reporting of additional test results pertinent to an investigation of a notifiable condition.

Notifiable Conditions & the Veterinarian

Washington State Department of Health

Veterinarians, including those working in private practices, laboratories, academic settings, zoos, wildlife centers, animal shelters and government agencies, have an important public health role in the identification and control of zoonotic and vector-borne diseases.

The Washington State Administrative Code (WAC 246-101-405) outlines these responsibilities for veterinarians:

A. Notify the local health officer of the jurisdiction in which the human resides of any suspected human case or suspected human outbreak based on the human's exposure to a confirmed animal case of any disease listed in Table

B. Cooperate with public health authorities in the investigation of cases, suspected cases, outbreaks, and suspected outbreaks of zoonotic disease.

C. Cooperate with public health authorities in the implementation of infection control measures including isolation and quarantine.

D. Comply with requirements in chapter 16-70 WAC for submitting positive specimens and isolates for specific diseases, and provide information requested by the Washington State Department of Health or local health jurisdiction.

Notifiable Condition (report suspected human cases)	Report Immediately	Report within 24 hours
Anthrax	X	
Arboviral disease		X
Brucellosis (*Brucella* species)		X
Burkholderia mallei (Glanders)	X	
Disease of suspected bioterrorism origin (including but not limited to anthrax)	X	
E. coli – Refer to "Shiga toxin-producing *E. coli*"	X	
Emerging condition with outbreak potential	X	
Influenza virus, novel or unsubtypable strain	X	
Leptospirosis		X
Plague	X	
Psittacosis		X
Q Fever		X
Rabies (suspected human case or exposure or animal case)	X	
Shiga toxin-producing *E. coli* infections (enterohemorrhagic *E. coli* including, but not limited to, *E. coli* O157:H7)	X	
Tularemia	X	

IMPORTANT NOTE: Selected animal diseases, especially in livestock and poultry, must be reported to the Washington State Department of Agriculture, State Veterinarian's Office. These include eradicated diseases (e.g., tuberculosis, brucellosis), suspected foreign animal diseases (e.g., foot and mouth disease, exotic Newcastle disease, hog cholera) and certain domestic diseases (e.g., anthrax, rabies). See: http://app.leg.wa.gov/WAC/default.aspx?cite=16-70.

*A list of local health departments can be found at http://www.doh.wa.gov/AboutUs/PublicHealthSystem/LocalHealthJurisdictions.aspx.

Communicable Disease Summary

Arboviral Disease

Cause: Various viruses transmitted by arthropods. Arthropod-borne viral (arboviral) diseases include West Nile virus disease and yellow fever (both discussed separately below), chikungunya virus disease, Colorado tick fever, dengue fever, eastern and western equine encephalitis, Japanese encephalitis, St. Louis encephalitis, Zika virus disease and others.

Illness and treatment: There are four main clinical forms: central nervous system (CNS) illnesses; fevers of short duration with or without rash; hemorrhagic fevers; and polyarthritis and rash with or without fevers. Zika virus can cause birth defects. Treatment is supportive.

Sources: Transmission is most commonly by the bite of arthropods (e.g., mosquitoes, sandflies, ticks). Rare transmission occurs through blood transfusions or organ transplantations. Zika virus can be sexually transmitted from symptomatic or asymptomatic persons and vertically transmitted from mother to fetus.

Prevention: Avoid arthropod bites by wearing appropriate clothing and using insect repellents. If traveling to risk areas, consult with a travel clinic or the CDC Travelers' Health website regarding additional measures, including vaccination for Japanese encephalitis or yellow fever and prevention of sexually transmitted Zika virus.

Recent Washington trends: Prior to 2013, fewer than 20 cases of travel-associated arboviral disease were reported annually. An outbreak of chikungunya began in late 2013 in the Caribbean and quickly spread throughout Central and South America; in 2015, a peak of 40 travel-associated chikungunya cases were reported. In early 2015, an outbreak of Zika virus disease was detected in Brazil and soon spread to South and Central America, the Caribbean, and the South Pacific. In 2016, 68 cases of Zika virus disease, five cases of Zika virus infection, and three cases of unspecified flavivirus disease were reported following travel. Rare reports of other travel-associated arboviral diseases include Colorado tick fever and Japanese encephalitis in 2008, and St. Louis encephalitis and Toscana virus in 2009. Other than West Nile virus, the last reported human arboviral infection acquired in the state was western equine encephalitis in 1988. St. Louis encephalitis infections occurred in the past, primarily east of the Cascade Mountains.

2017: 19 cases of dengue fever, three cases of chikungunya, 16 cases of Zika virus disease, five cases of Zika virus infection, one case of Toscana virus, and three cases of unspecified flavivirus disease were reported.

West Nile virus (WNV) Disease

Cause: West Nile virus.

Illness and treatment: About 80 percent of those infected are asymptomatic, around 20 percent have WNV fever (fever, headache, rash), and less than one percent develop WNV neuroinvasive disease (meningitis, encephalitis, paralysis). Treatment is supportive.

Sources: Many bird species are reservoirs. Mosquitoes are the vectors, transmitting the virus through bites to humans and other mammals such as horses. WNV can be transfused; donated blood is screened and presumptive viremic donors are reported as possible cases.

Prevention: Avoid mosquito bites by wearing appropriate clothing and using insect repellents. Make sure windows and doors are "bug tight." Maintain window screens. Eliminate breeding sites by draining standing water such as in pots or tires.

Recent Washington trends: Infected birds and horses were first detected in 2002. The first locally acquired human infections were reported in 2006. In 2009, Washington had the highest number of cases to-date with 38 cases and two presumptive viremic donors. Of these cases, 36 were known to be endemically acquired within Washington.

2017: 13 cases were reported; eight with in-state exposure and five without out-of-state exposure.

Yellow Fever

Cause: Yellow fever virus.

Illness and treatment: Early symptoms include fever, headache, muscle aches, and vomiting. Later signs include jaundice, gum bleeding, and bloody vomit in addition to liver and kidney failure. Twenty to 50 percent of jaundiced cases are fatal. Treatment is supportive.

Sources: Yellow fever occurs in tropical and subtropical areas of Africa and South America. Transmission is by the bite of an infected mosquito. There are two transmission cycles, a jungle cycle involving non-human primates, and an urban cycle involving humans.

Prevention: When in endemic countries, avoid mosquito bites by wearing appropriate clothing, using insect repellents, using bed nets, and making sure windows and doors are "bug tight." Consult with a travel clinic or the CDC Travelers' Health website for recommendations about vaccination.

Recent Washington trends: No cases, with the exception of a vaccine-associated infection in 2002, have been reported in over 50 years of surveillance.

2017: No cases were reported.

Botulism

Cause: Bacterial toxin from *Clostridium botulinum*, mainly types A, B, and E.

Illness and treatment: Forms are foodborne botulism (ingested toxin), wound botulism (toxin production in an infected wound), infant botulism (toxin produced in the intestine of a child under a year of age), adult colonization botulism (toxin produced in the intestine of an adult), and inhalational botulism (inhaling toxin, which does not happen naturally). Paralysis starts with facial muscles and often progresses to involve the breathing muscles. Infants may have a weak cry, difficulty feeding leading to weight loss, and weakness. Treatment is supportive care plus either human-derived botulism hyperimmune globulin (BIG-IV) for infants or botulism antitoxin for older children and adults. In addition, antibiotics are given for wound botulism.

Sources: *C. botulinum* spores are common in soil. No consistent exposure is known for infants. Most foodborne cases are due to inadequately processed home-canned foods. Wound botulism is usually associated with injecting black-tar heroin injection into the skin ("skin popping") or muscle, or sometimes with deep contaminated injuries.

Additional risks: Infant botulism cases usually occur in babies under three months old (almost always under six months), both breast fed and formula fed.

Prevention: Follow safe home canning procedures. Boil risky home-canned foods (i.e., low acidic, non-pickled foods) before consumption. Clean any deep puncture wounds promptly.

Recent Washington trends: Each year there are zero to four reports of foodborne botulism, zero to nine reports of infant botulism and zero to seven reports of wound botulism. Almost all are type A.

2017: Six cases of infant botulism (five type A, one type B acquired out of state) and four cases of wound botulism (one type A, three probable) were reported.

Brucellosis

Cause: Bacteria in the genus *Brucella.*

Illness and treatment: Symptoms include fever, profuse sweating, fatigue, loss of appetite, chills, weight loss, headache, and joint pain. Treatment is with antibiotics.

Sources: Infection results from broken or damaged skin contacting animal tissues (particularly placentas or aborted fetuses) and animal fluids, or by consuming unpasteurized dairy products from infected species (mainly cattle, goats, sheep and swine). Airborne infection can occur in laboratories handling strains of *Brucella* cultures.

Prevention: Avoid unpasteurized dairy foods. Veterinarians, farmers and hunters should wear gloves when handling sick or dead animals or when assisting an animal giving birth. Laboratory workers should handle all specimens under appropriate biosafety conditions.

Recent Washington trends: Although brucellosis has been eradicated from cattle in the state since 1988, there are zero to four reports of human brucellosis infections each year, primarily due to consumption of raw dairy products in foreign countries.

2017: One case was reported; this person reported consuming unpasteurized dairy products during international travel.

Campylobacteriosis

Cause: Bacteria in the genus *Campylobacter*, most commonly *C. jejuni*.

Illness and treatment: Symptoms include diarrhea, sometimes containing blood, abdominal pain, fatigue, fever, and vomiting. Most persons will recover without treatment; however, serious complications can occur.

Sources: Transmission is fecal-oral, through ingestion of contaminated food that was inadequately cooked or mishandled, or through direct contact with animals. Reservoirs are animals such as cattle, puppies, kittens, swine, sheep, rodents and birds. Person-to-person transmission is uncommon. Commonly recognized exposures include: handling or eating undercooked/raw poultry, meat, unpasteurized (raw) milk or dairy products; drinking contaminated and inadequately treated water; and having contact with animals, especially young animals with diarrhea and poultry.

Additional risks: Those with weakened immune systems are at increased risk for infection.

Prevention: Avoid eating undercooked poultry and unpasteurized dairy products. Thoroughly clean cutting boards and counters used for raw meat or poultry to prevent contamination of other foods. Wash hands after handling animals, bird feces, or raw meat, particularly poultry.

Recent Washington trends: Campylobacteriosis is the most commonly reported enteric illness in Washington with 1,500 to 2,000 reports each year. Outbreaks involving person-to-person transmission are uncommon. An increase in culture-independent laboratory testing has contributed to increased reports since 2015.

2017: 2,215 cases were reported (30.3 cases/100,000 population).

Chlamydia Infection

Cause: Bacterium *Chlamydia trachomatis*.

Illness and treatment: Asymptomatic infection is common. There may be pain during urination, abnormal genital discharge, or, in men, pain and swelling of one or both testicles. Females can have abdominal pain due to pelvic inflammatory disease, which can cause infertility or ectopic pregnancy. The patient and sexual partners should take appropriate antibiotics. Treated patients should be retested in three months or when they next present for medical care.

Sources: Chlamydial infection is sexually transmitted, or may be passed from an infected mother to her child during vaginal birth.

Additional risks: Disease rates are highest among sexually active adolescents and young adults, particularly women, due in part to better screening and detection within such groups. Perinatal infection can result in neonatal conjunctivitis or pneumonia. Untreated chlamydia may increase a person's chances of acquiring or transmitting HIV.

Prevention: Use safe sexual practices to reduce transmission. Screen sexually active women under 25 years annually, others at risk, and at the first prenatal visit to detect infection in asymptomatic patients. Test and treat all recent sexual partners of a person diagnosed with chlamydia infection to stop ongoing transmission.

Recent Washington trends: Recently over 30,000 cases are reported each year.

2017: 32,454 cases were reported (444.0 cases/100,000 population).

Cholera

Cause: Bacterial toxin from *Vibrio cholerae* serogroup O1 or O139. Other *V. cholerae* do not produce toxin and cause milder illness, and are notifiable as Vibriosis.

Illness and treatment: Illness ranges from mild symptoms to severe sudden profuse watery diarrhea leading to life-threatening dehydration. Treatment is fluid replacement and antibiotics.

Sources: The bacteria are carried in the human intestine and spread mainly through fecally contaminated food or water. The only environmental reservoir in the United States is the Gulf of Mexico where raw seafood may be contaminated.

Additional risks: Unsafe drinking water, poor hygiene, poor sanitation and crowded living conditions can cause epidemics, particularly in urban areas of developing countries and in refugee situations in Asia, Africa and Latin America. Persons with reduced stomach acid are at increased risk.

Prevention: If traveling to risk areas, consult with a travel clinic or the CDC Travelers' Health website for recommendations about vaccination and other measures.

Recent Washington trends: A case was reported in 2002 following travel to the Philippines.

2017: No cases were reported.

Cryptosporidiosis

Cause: Various species of the protozoan *Cryptosporidium*, which form resistant oocysts.

Illness and treatment: Symptoms may be prolonged, and include watery diarrhea, abdominal pain, nausea, vomiting, weight loss and fever. An anti-protozoal drug is available for persistent symptoms.

Sources: Cryptosporidia are common in animals. In this country oocysts are found in most surface waters tested. Transmission is by ingesting fecally contaminated water, milk or food, or by direct contact with infected animals or humans. Those with asymptomatic infections may infect others. Outbreaks have occurred in water parks, swimming pools and child-care facilities.

Additional risks: For persons with weakened immune systems, especially those with advanced HIV infection, the disease can be severe and persistent. Cryptosporidia resist standard chemical disinfectants and may occur in municipal water systems, home filtered water, or bottled water.

Prevention: Wash hands thoroughly after using the toilet or contact with animals, particularly calves or animals with diarrhea. Avoid swallowing water during water recreation. Do not drink untreated surface water. Boil untreated drinking water for one minute or use other appropriate water treatment.

Recent Washington trends: 84 to 131 cases are reported each year. An increase in culture-independent laboratory testing has contributed to increased reports since 2015.

2017: 150 cases were reported (2.1 cases/100,000 population).

Cyclosporiasis

Cause: Protozoan *Cyclospora cayetanensis.*

Illness and treatment: Symptoms include persistent watery diarrhea, nausea, loss of appetite, abdominal pain, fatigue and weight loss. Antibiotics are available to treat persistent symptoms.

Sources: Cyclospora are common in many developing countries. Transmission occurs through ingestion of contaminated water or food, often fresh fruit or vegetables. Outbreaks in the United States have been attributed to imported produce such as raspberries, basil and lettuce. Tests for Cyclospora must be specifically requested at many diagnostic labs in addition to O&P testing.

Additional risks: Diarrhea may persist with immunosuppression.

Prevention: Wash produce thoroughly before it is eaten. If traveling to risk areas, consult with a travel clinic or the CDC Travelers' Health website.

Recent Washington trends: Most years zero to 11 cases are reported, mainly among people exposed during international travel.

2017: Nine cases were reported.

Diphtheria

Cause: Toxigenic strains of the bacterium *Corynebacterium diphtheriae.*

Illness and treatment: Classic diphtheria is an upper-respiratory tract illness characterized by sore throat, low-grade fever, and an adherent membrane of the tonsil(s), pharynx, and/or nose, sometimes with neck swelling. Diphtheria can involve almost any mucous membrane and may also be cutaneous. Treatment is with antitoxin, antibiotics, and supportive care.

Sources: Human carriers are the reservoir. Transmission from asymptomatic carriers can occur. Transmission is by respiratory droplets. Contact with infected skin lesions may also transmit disease. Contaminated raw milk or articles of clothing/bedding soiled with discharges from an infected person may be vehicles for transmission.

Additional risks: Susceptible travelers to areas where routine immunization is lacking are at higher risk for diphtheria infection, especially if an epidemic is in progress.

Prevention: Universal immunization including booster doses prevents infection. Respiratory and hand hygiene prevent transmission.

Recent Washington trends: The last recorded case was in 1981.

2017: No cases of respiratory diphtheria were reported. One case of cutaneous diphtheria was reported. Since there is no national case definition that includes cutaneous diphtheria, this case was not reported in the data tables included in this report.

Giardiasis

Cause: Protozoan *Giardia lamblia*, also known as *G. intestinalis* or *G. duodenalis*.

Illness and treatment: Infection may be asymptomatic or may cause diarrhea, abdominal pain, nausea, fatigue, and weight loss. Illness may be self-limited or be prolonged with persistent pale and greasy stools due to fat malabsorption. Anti-protozoal drugs are available.

Sources: Humans and both wild and domestic animals are reservoirs. Exposures include untreated surface water, shallow well water, recreational water, or, less commonly, food contaminated by feces. Person-to-person transmission can occur, such as in child-care facilities, or by oral-anal sexual contact.

Additional risks: Children under five years of age are infected more frequently than adults. Concentrations of chlorine used in routine water treatment may not kill *Giardia* cysts, especially if the water is cold. Giardiasis is one of the most common waterborne diseases in the country.

Prevention: Wash hands thoroughly after using the toilet or contact with animals, particularly animals with diarrhea. Avoid swallowing water during water recreation. Do not drink untreated surface water. Boil untreated drinking water for one minute or use other appropriate water treatment.

Recent Washington trends: Reported cases have been declining somewhat over the past decade. Incidence is highest in the summer and fall months. Most frequently reported exposures include recreational water and international travel. Outbreaks are uncommon. An increase in culture-independent laboratory testing has contributed to increased reports since 2015.

2017: 668 cases were reported (9.1 cases/100,000 population).

Gonorrhea

Cause: Bacterium *Neisseria gonorrhoeae.*

Illness and treatment: Most women and many men are asymptomatic with infection. When symptoms occur, urethral discharge and painful urination are typical of genital infections. Complications include pelvic inflammatory disease in women, producing a risk of infertility and ectopic pregnancy, or epididymitis in men. It can also cause conjunctivitis, pharyngitis, proctitis, or,

rarely, sepsis. Due to increasing drug resistance, treatment with two antibiotics is recommended. Treated patients should be retested in three months or when they next present for medical care.

Sources: Gonorrhea is sexually transmitted or may be passed from an infected mother to her child during vaginal birth.

Additional risks: Disease rates are highest among men and sexually active younger adults, with roughly half of all male cases occurring among men who have sex with men (MSM). Perinatal infection can result in neonatal conjunctivitis or sepsis. Untreated gonorrhea can increase a person's risk of acquiring or transmitting HIV.

Prevention: Use safe sexual practices to reduce transmission. Screening to detect asymptomatic patients is only recommended for women at increased risk for infection, including those younger than 25 years who are sexually active and those with new sexual partners, and for men who have sex with men. If gonorrhea is found, also test for other sexually transmitted infections including HIV. Test and treat all recent sexual partners of a person diagnosed with gonorrhea to stop ongoing transmission.

Recent Washington trends: Recently over 8,000 cases were reported each year.

2017: 10,022 cases were reported (137.1 cases/100,000 population).

Haemophilus influenzae (Invasive Disease, Under Age 5 Years)

Cause: Bacterium *Haemophilus influenzae.* Invasive disease due to any of the six capsular types, including type b (Hib), in a child under five years of age is reportable.

Illness and treatment: Invasive syndromes can include meningitis, bacteremia, epiglottitis, pneumonia, or bone and joint infections. Symptoms of meningitis include fever, headache, stiff neck, vomiting, light sensitivity, and confusion. About ten percent of cases surviving *H. influenzae* meningitis due to any capsular type have permanent neurological damage. Among cases surviving meningitis due to Hib, 15 to 30 percent have hearing impairment or permanent neurologic damage. Treatment is with antibiotics.

Sources: Humans, including asymptomatic carriers, are the reservoir. Transmission is through respiratory droplets or direct contact with respiratory secretions.

Additional risks: Unimmunized or under-immunized infants and children are at risk for Hib, especially when they are taken into crowded settings.

Prevention: Immunize all infants to prevent *H. influenzae* type b infection. Respiratory and hand hygiene reduces transmission of all serotypes.

Recent Washington trends: Two to 11 cases (all serotypes) are reported annually in children less than five years of age. Among the 74 cases reported in this age group during 2008 through 2017, isolates were available to serotype for 70 (95 percent) cases. Among those only 12 (17 percent) were due to serotype b (Hib). In both Washington and nationwide, there has been a recent increase in the proportion of isolates from invasive disease cases that are non-typeable over the past decade. During that period, 53 percent of isolates available for serotyping in Washington did not agglutinate to any of the six known serotypes.

2017: Seven cases were reported (1.0 cases/100,000 population).

Table 1. Number of *H. influenzae* Cases Among Children <5 Years Old by Serotype, Washington State, 2007-2017

Year	Total	Not tested	Isolate available	b	Non-b	Not typeable	%b	% Not typeable
2008	2	0	**2**	0	0	2	0%	100%
2009	9	3	**6**	1	3	2	17%	34%
2010	10	0	**10**	0	3	7	0%	70%
2011	8	0	**8**	1	3	4	13%	50%
2012	4	0	**4**	1	1	2	25%	50%
2013	11	0	**11**	2	2	7	18%	64%
2014	9	0	**9**	4	2	3	45%	33%
2015	5	0	**5**	1	2	2	20%	40%
2016	9	1	**8**	1	2	5	13%	63%
2017	7	0	**7**	1	3	3	14%	43%
Total	**74**	**4**	**70**	**12**	**21**	**37**	**17%**	**53%**

Hantavirus Pulmonary Syndrome (HPS)

Cause: Sin Nombre virus in western United States, other viruses elsewhere.

Illness and treatment: Fever and mild flu-like symptoms are followed by acute respiratory distress syndrome (ARDS) with respiratory failure and shock. Treatment is supportive.

Sources: The deer mouse (*Peromyscus maniculatus*) is the only reservoir for Sin Nombre virus. Exposure generally occurs by inhaling aerosolized virus excreted in mouse urine, feces or saliva, particularly during improper cleaning of deer mouse infested areas.

Prevention: Keep rodents out of the home and workplace. When cleaning rodent-infested areas, use appropriate safety precautions. Avoid coming into contact with rodents

Recent Washington trends: Since the recognition of hantavirus in 1993, 53 cases were reported through 2017 with 19 (35 percent) associated deaths (including a retrospectively identified case from 1985). Zero to five cases are reported each year, with most exposures occurring in eastern Washington.

2017: Five cases and three deaths were reported.

Hepatitis A

Cause: Hepatitis A virus.

Illness and treatment: Onset is usually abrupt with fever, nausea, and abdominal pain followed by jaundice. Cases may be asymptomatic, particularly in children. Almost all cases recover but rare infections are fatal or require liver transplantation. Treatment is supportive.

Sources: Acutely infected humans shed virus in the feces and transmit directly (fecal-oral spread) or through fecally contaminated food (produce, shellfish, uncooked items), water, and environment, often encountered during housing instability or international travel. Recent foodborne outbreaks in this country have been associated with imported produce. Bloodborne transmission is very rare.

Additional risks: Infected young children may have no symptoms but can be communicable. Transmission can occur within groups having poor hygiene or fecal-oral sexual practices.

Prevention: To prevent infection, immunize all children and any adults with risks for exposure, including travel to endemic areas.

Recent Washington trends: Since 1989 when there were 3,273 cases, with increased vaccination hepatitis A incidence decreased to fewer than 100 cases a year.

2017: 28 cases were reported (0.4 cases/100,000 population) with zero deaths. Four cases had out-of-state travel and 15 related to international travel including Africa, Europe, the Middle East, and Asia.

Hepatitis B

Cause: Hepatitis B virus.

Illness and treatment: Acute infection may be asymptomatic or have abrupt onset with fever, abdominal pain, and jaundice. Chronic infection is typically asymptomatic until complications such as liver damage or cancer develop after decades. Surface antigen positivity (indicating infectiousness) during pregnancy from acute or chronic infection gives a risk of transmitting the virus during delivery. Perinatal infection is typically asymptomatic but carries a high risk for later complications. A specialist can determine treatment options for hepatitis B virus infections.

Sources: Transmission is by contact with the blood, semen, or vaginal secretions of an infected person, and can occur with minor exposures or during childbirth.

Additional risks: After acute infection, about 30 percent of children under five years will become chronically infected compared to about five percent of adults. Infants born to surface antigen positive women are at extremely high risk (90 percent) of becoming chronically infected, and for developing later complications including liver cancer.

Prevention: To prevent infection, routine hepatitis B immunization of all infants and children is recommended starting at birth. Adults at high risk are also recommended to get the hepatitis B vaccine, including household and sexual contacts, health-care workers, men who have sex with men, persons with HIV infection, and adults with diabetes aged 19 to 59 years. The vaccine can also be administered during pregnancy to those at risk. Routine testing is recommended for those born in Asia, Africa, and other regions with ≥ two percent prevalence of chronic infections. For infants born to hepatitis B positive women, hepatitis B vaccine and one dose of hepatitis B immune globulin (HBIG) administered within 12 hours after birth are 85 to 95 percent effective in preventing both acute HBV infection and chronic infection.

Recent Washington trends: Since 1987 when there were 1,126 acute cases, hepatitis B incidence has recently decreased to fewer than 50 acute cases per year with increased vaccination. On average, 1,268 cases of chronic hepatitis B were reported per year between 2008 and 2017. Between 2006 and 2015, 3,367 babies born to HBsAg positive women were reported to local health jurisdictions. Of these, 98 percent received treatment within one day of birth. Only 24 infants who received all recommended treatment and follow-up testing developed chronic hepatitis B infection.

2017: 45 cases of acute hepatitis B were reported (0.6 cases/100,000 population). Twenty-two reported using injection drugs and 17 had sexual exposures. A total of 1,787 chronic hepatitis B cases were reported (24.4 cases/100,000 population). Preliminary numbers indicate that among 321 infants born to surface antigen positive women in 2016; no perinatal infections have been reported among the 194 (60 percent) that had received follow-up testing through the end of December 2017.

Hepatitis C

Cause: Hepatitis C virus, which has six genotypes.

Illness and treatment: Most acute infections are asymptomatic but about 20 percent of cases have abrupt onset with fever, abdominal pain, and jaundice. Chronic infection is typically asymptomatic until complications such as liver damage or cancer develop after decades. A specialist can determine treatment options for hepatitis C viral infections.

Sources: Transmission is usually by contact with blood, particularly while sharing drug paraphernalia, or less commonly with semen or vaginal secretions of an infected person.

Additional risks: Chronic infection follows acute infection in 75 to 85 percent of cases and is more likely for males, those infected after 25 years of age, or the immunosuppressed including persons co-infected with HIV.

Prevention: Avoid sharing drug paraphernalia including needles, cotton balls, spoons, and water; screen blood and tissue products; and use safe sexual practices to prevent transmission. Routine testing is recommended for those with any bloodborne transmission risk and one-time screening is recommended for all persons born from 1945 to 1965.

Recent Washington trends: Before 2011, fewer than 30 acute cases were reported per year. Since 2011, however, reports of acute cases have increased. From 2011 to 2017, there were an average of 67 acute cases reported each year. Between 2008 and 2017, an average of 6.206 cases of chronic hepatitis C were reported each year.

2017: 73 acute cases were reported (1.0 cases/100,000 population). A total of 8,839 chronic hepatitis C cases were reported (120.9 cases/100,000 population).

Hepatitis D or E

Cause: Hepatitis D virus and hepatitis E virus. Hepatitis D virus infection always occurs with hepatitis B infection, either with a chronic hepatitis B infection (superinfection) or as two simultaneous new infections (coinfection).

Illness and treatment: Hepatitis D and E both typically have abrupt onset of fever, nausea, and abdominal pain followed by jaundice. Hepatitis D can progress to chronic hepatitis.

Sources: Humans are the reservoir for hepatitis D, which is usually transmitted by blood or body fluids, particularly shared drug paraphernalia. Although risk factor are not well understood, humans and animals (swine) are the likely reservoirs for hepatitis E, with transmission through fecally contaminated food and water. Cases of hepatitis E are typically travel associated.

Additional risks: Persons with hepatitis B are at risk for hepatitis D infection. Pregnant women have higher risk for hepatitis E complications. Japan has reported more virulent hepatitis E strains.

Prevention: To avoid hepatitis B infection, and therefore hepatitis D infection, immunize all infants and children as well as any adult with risks for exposure. Use safe sexual practices, avoid sharing drug paraphernalia, and screen blood and tissue products to prevent hepatitis D transmission. Use precautions while traveling to ensure safe food and water to avoid hepatitis E infection.

Recent Washington trends: Reports are rare. Cases of hepatitis D are typically associated with injection drug use.

2017: One suspect case of hepatitis D occurred in a person that recently arrived in the US and also had tattooing done. Two cases of hepatitis E were associated with travel to India and Mexico.

Herpes Simplex, Genital and Neonatal

Cause: Herpes simplex virus serotypes HSV-1 and HSV-2.

Illness and treatment: Genital infection is lifelong, ranging from no symptoms to recurring episodes of mild to painful genital ulcers. Flu-like symptoms may also occur. Antiviral medications partially control the frequency and severity of the episodes, but are not a cure. Neonatal infection may be severe, involving the liver or brain; or mild, involving the skin, eyes, and mouth.

Sources: Herpes infection is sexually transmitted or passed from an infected mother to her child during birth.

Additional risks: Disease rates are higher in younger women.

Prevention: Use safe sexual practices to reduce transmission. During the third trimester, pregnant women without herpes should abstain from sexual contact with partners known or suspected of having herpes.

Recent Washington trends: Recently about 2,000 cases reported each year.

2017: 2,058 cases of initial genital HSV infection (28.2 cases/100,000 population) and six cases of neonatal infection were reported.

HIV/AIDS

Cause: HIV disease is caused by the human immunodeficiency virus (HIV). After HIV enters the body, it infects and kills white blood cells (CD4+ T-cell lymphocytes). This weakens the body's immune system, and, if untreated, can eventually cause a person to develop Acquired Immune Deficiency Syndrome (AIDS).

Illness and treatment: After the acute primary infection, most people living in the early stages of HIV do not have any symptoms. Progression to AIDS is defined by a person's CD4+ T-cell count being below 200 cells/mL and/or a broad range of opportunistic illnesses specific to HIV disease. Anti-retroviral therapy is successful in managing HIV infection and preventing progression to AIDS.

Sources and spread: HIV enters the body as a result of direct contact with blood, semen, vaginal fluid, or breast milk from a person with HIV infection. Most HIV cases are the result of unprotected sex with a HIV-positive partner or sharing injection drug equipment with an HIV-positive individual.

Additional risks: Groups at increased risk for HIV include men who have sex with men, people who inject drugs, people who have concurrent sexual relationships, and people recently diagnosed with other sexually transmitted infections.

Prevention: Wear condoms during sex. Use clean needles and other equipment used to inject drugs.

Limit your number of sexual partners and consider newer HIV prevention methods such as (using Truvada as Pre-Exposure Prophylaxis).

Recent Washington trends: Statewide, the number of people living with HIV continues to increase about three percent per year, in part due to the success of treatments in prolonging the life expectancy of those living with the virus. Then number of newly diagnosed cases in Washington State remains stable at roughly 450 cases per year. About one in four cases is diagnosed late in the course of his or her HIV illness, or develops AIDS within 12 months of HIV diagnosis. HIV rates are highest among gay and bisexual men as well as racial or ethnic minorities.

2017: 443 cases were reported (6.1/100,000 population).

Legionellosis

Cause: Bacteria in the genus *Legionella*, commonly *L. pneumophila* serogroup 1 but also other serogroups or other species such as *L. micdadei*, *L. bozemanii*, and *L. longbeachae*.

Illness and treatment: There are two clinically and epidemiologically distinct illnesses. Legionnaires' disease presents with pneumonia. Pontiac fever is a milder illness without pneumonia. Treatment is with antibiotics.

Sources: The organism is ubiquitous in the environment and can be amplified in human made water systems. The organism grows ideally between temperatures of 90°F to 108°F and causes infection via a person breathing in contaminated water droplets. Potable water systems, cooling towers, whirlpool spas, respiratory therapy devices, decorative fountains, and potting soil have been implicated epidemiologically in outbreaks.

Additional risks: Illness is more common with age over 50 years, current or former smokers, chronic lung disease or immunosuppression.

Prevention: CDC recommends that many building types implement a water management program and has a toolkit for program development. In addition, it is important to carefully follow manufacturer instructions for respiratory therapy devices including CPAP machines.

Recent Washington trends: The number of cases has been on a generally upward trend with more than 50 cases reported each year since 2013.

2017: 56 cases were reported (0.8 cases/100,000 population) with six deaths. Nationwide as well as in Washington legionellosis incidence is on a generally upward trend, though reasons for the increase are unclear; increased awareness and testing may be a factor.

Leptospirosis

Cause: Spiral shaped bacteria (spirochetes) in the genus *Leptospira*.

Illness and treatment: Symptoms include fever, headache, and severe muscle aches. Jaundice, kidney failure, or meningitis can develop. Treatment is with antibiotics.

Sources: The disease affects wild and domestic animals, including pets. Urine and tissues are infective. Transmission occurs by skin or mucous membrane contact with urine or tissues from an infected animal or exposure to contaminated water, food, or soil, or inhalation of aerosolized fluids during recreation or farm work.

Prevention: Avoid contact with urine from infected animals and with water or soil potentially contaminated with animal urine.

Recent Washington trends: Generally zero to five cases are reported. Most infections relate to recreational water exposure in Washington or during travel.

2017: No cases reported.

Listeriosis

Cause: Bacterium *Listeria monocytogenes*.

Illness and treatment: Symptoms depend on the host. Immunocompromised, neonatal, and elderly persons usually present with sepsis and meningitis. In pregnant women, listeriosis may cause a flu-like illness (i.e., fever, headache, and muscle aches) and may cause miscarriages, preterm births, or stillbirths. Immunocompetent persons may have acute febrile gastroenteritis. While diarrhea can occur, standard stool culture methods usually do not detect *Listeria*. Severe infections are treated with antibiotics.

Sources: The organism occurs in soil, water, and the intestines of animals and humans. Transmission is mainly through food, such as unpasteurized milk, cheese, processed meats, deli salads, fruits and vegetables. Food can be contaminated during or after processing.

Additional risks: Unlike most foodborne pathogens, *Listeria* can multiply in refrigerated foods. Illness may be severe for newborns, the elderly, and persons with weakened immune systems. Pregnant women with listeriosis may have few symptoms but have fetal loss or premature birth.

Prevention: If pregnant or immunocompromised, avoid soft cheeses made with unpasteurized milk, processed ready-to-eat foods, and smoked fish. Thoroughly cook all foods from animal sources, wash raw produce thoroughly, and heat leftovers, hot dogs and deli meats until steaming before eating.

Recent Washington trends: Each year there are 11 to 29 reports with zero to five deaths.

2017: 17 cases were reported (0.2 cases/100,000 population) with two deaths.

Lyme Disease

Cause: Spiral shaped bacterium (spirochete) *Borrelia burgdorferi*.

Illness and treatment: The classic sign of early Lyme disease is erythema migrans, a rash apparent in 70-80 percent of cases. Systemic symptoms such as fatigue, headache, fever, and muscle and joint aches can also occur in early infection. Disseminated infection can manifest as recurrent joint swelling, peripheral or central nervous system involvement, or heart complications. Treatment with two to four weeks antibiotics clears infection.

Sources: *B. burgdorferi* is maintained in an enzootic cycle involving *Ixodes* ticks and mammal reservoirs, especially mice and other small mammals. In the Pacific Coastal United States, the primary vector is *Ixodes pacificus* (western blacklegged tick), which lives in wooded or brushy areas.

I. pacificus is not uniformly distributed, but is found in much of the state. Ticks must be attached for at least 24-36 hours to transmit *B. burgdorferi*.

Prevention: During outdoor activities in *Ixodes* tick habitat, avoid tick bites by wearing light-colored clothing and using repellents containing DEET or permethrin. Check the body thoroughly for ticks after time outdoors. Be alert for rash, fever, or other symptoms of Lyme disease during the month after a known tick bite or spending time in tick habitat; if symptoms develop, see a health-care provider.

Recent Washington trends: Each year, seven to 39 Lyme disease cases are reported in Washington. Most cases in Washington residents result from a tick bite that occurred out-of-state. The few endemic cases have tick exposures predominantly on the west side of the Cascade Mountains, reflecting the known distribution of the *Ixodes* vector ticks. Low levels of *B. burgdorferi* have been found in ticks collected from Washington State.

2017: 39 cases were reported; seven were exposed in Washington, 26 were exposed in other states, four were exposed in other countries, and two had an unknown exposure location.

Malaria

Cause: *Plasmodium* species, commonly *P. vivax*, *P. falciparum*, *P. ovale*, and *P. malariae*.

Illness and treatment: Classic malaria involves recurrent bouts of fever, chills, sweats, and headache. Many other symptoms can occur, affecting the gastrointestinal, respiratory, muscular, and neurological systems. Treatment is with antimalarial drugs and supportive care.

Sources: Transmission occurs by the bite of infected anopheline mosquitoes.

Additional risks: Although rarely seen in the United States, transmission can occur through blood contact (e.g., transfusions or needle-sharing).

Prevention: When traveling in risk areas avoid mosquito bites, take medication to avoid malaria, and receive proper treatment if infected.

Recent Washington trends: Each year there are 20 to 40 reports among tourists, military personnel, business travelers, mission workers, immigrants and refugees.

2017: 34 cases were reported (0.5 cases/100,000 population) with 17 *P. falciparum*, three *P. vivax,* four *P. ovale*, four *P. malariae*, and six unknown *Plasmodium* species. All involved travel exposures, mainly in Africa.

Measles

Cause: Measles virus, a family Paramyxovirus, genus *Morbillivirus*.

Illness and treatment: Typical measles includes a two to four-day prodrome that includes fever up to 101ºF with a cough, conjunctivitis, or runny nose. The prodrome is followed by a maculopapular rash which typically starts at the hairline and extends downward to cover the entire body. The rash usually lasts five to six days, but may last longer. Complications are more common among children under five and adults over 20 years of age and can include diarrhea, ear infection, pneumonia, and acute encephalitis. Measles can be fatal. Rarely, measles can occur in a person known to have received a vaccination for measles but the illness in these cases may not be typical. The case fatality

rate for measles in this country is 0.1–0.3 percent, but in parts of the world with poor nutrition and limited access to health care, it can be much higher. Treatment is supportive.

Sources: Humans are the reservoir. Measles is highly contagious with transmission occurring primarily through respiratory droplets. However, airborne transmission has been documented to have occurred in closed areas for up to two hours after a person with measles was present.

Additional risks: Measles in the United States is mainly related to international travel by susceptible persons who travel to and from countries where measles is endemic or where an outbreak is occurring. Transmission to additional persons that are not vaccinated can occur, leading to outbreaks. In developing countries, malnutrition increases the risk of severe complications and death.

Prevention: Universal immunization prevents initial infection in almost all exposed persons. Aggressive follow-up with exposed persons, along with respiratory hygiene and isolation of contagious individuals, can prevent further transmission.

Recent Washington trends: Since 1996, when 36 cases were reported related to a large outbreak at Western Washington University, there have typically been fewer than five cases reported annually. However, outbreaks with seven to 33 cases occurred in Washington in 2001, 2004, 2008, and 2014. In 2015, one outbreak occurred with six cases, one of which was fatal.

2017: Three cases were reported.

Meningococcal Disease (Invasive)

Cause: *Neisseria meningitidis*, mainly serogroups B, C, Y, and W135 in the United States, and additionally serogroup A, elsewhere. Invasive disease is reportable.

Illness and treatment: Invasive meningococcal disease most commonly manifests as meningitis with symptoms of fever, headache, stiff neck, vomiting, light sensitivity and confusion, or as a bloodstream infection (meningococcemia) which can cause fever and septic shock as well as a rash (bruise-like skin lesions) and often leads to severe outcomes (e.g. permanent disability due to loss of limbs) or even death. A person may have both syndromes together. Pneumonia and joint infections can also occur. Even with appropriate antibiotic treatment and supportive care, overall case fatality rate for invasive disease is nine to 12 percent.

Sources: Humans, including asymptomatic carriers, are the reservoir. Transmission is through respiratory droplets or direct contact with respiratory secretions. Secondary cases are rarely documented, though outbreaks can occur.

Additional risks: Rates are highest for infants under 12 months. An increasing proportion of cases are in adolescents and young adults. Crowded living conditions such as dormitories, recent history of an upper respiratory illness, and tobacco smoke exposure may increase risk, as do certain immune deficiencies including asplenia.

Prevention: Universal immunization is recommended for all adolescents aged 11 to 18 years and for some persons aged two to 55 years at increased risk for this disease (e.g., persons with HIV, complement disorder, or asplenia, and some microbiologists and travelers at prolonged increased risk for disease exposure). Prophylactic antibiotics are usually advised for persons having recent close contact with a confirmed case. Good respiratory hygiene can reduce transmission risk.

Recent Washington trends: During the past decade, an average of 20 cases (range ten to 31) have been reported annually, with as many as five deaths in a year.

2017: 11 cases were reported (0.2 cases/100,000 population).

Table 2. Number of Meningococcal Disease Cases by Serogroup, Washington State, 2008-2017

Year	Total	Not Tested*	Isolate available	B	C	Y	W135	Other	% Vaccine (A/C/Y/W) serogroup	% B
2008	31	3	28	11	5	9	2	1	57%	39%
2009	25	2	23	13	2	8	0	0	43%	57%
2010	29	2	27	7	7	12	1	0	74%	26%
2011	22	0	22	12	2	7	1	0	45%	55%
2012	24	0	24	9	4	8	0	3	50%	40%
2013	20	3	17	9	2	3	2	1	41%	53%
2014	17	0	17	6	5	4	1	1	59%	35%
2015	10	0	10	3	4	1	2	0	70%	30%
2016	13	1	12	3	6	1	1	1	67%	25%
2017	11	0	11	3	6	0	0	2	55%	27%
Total	**202**	**11**	**191**	**76**	**43**	**53**	**10**	**9**	**55%**	**40%**

Mumps

Cause: Mumps virus, a paramyxovirus.

Illness and treatment: Mumps causes inflammation of glandular tissue, most commonly the salivary glands (parotitis occurs in 30 to 40 percent of infected persons). Other glandular tissue involvement that can occur includes inflammation of testes (orchitis) or ovaries (oophoritis). Up to 20 percent of infections have no symptoms and an additional 40 to 50 percent have mild, nonspecific, or primarily respiratory symptoms. Complications include encephalitis or aseptic meningitis (occasionally resulting in deafness), pancreatitis, and myocarditis. Treatment is supportive.

Sources: Humans, including persons with asymptomatic infection, are the reservoir. Transmission is mainly through direct contact with infected respiratory droplets or saliva.

Additional risks: A large outbreak of mumps occurred in 2006 in nine midwestern states; the majority of cases were college-aged persons and adults in their 20s. Outbreaks in college settings have continued to occur since that time. Another outbreak in 2009–10 involved a religious community with many of the cases in immunized adolescent males who attended private schools and spent many hours face to face each day. In 2016, a large outbreak began in Arkansas that centered around the Marshallese community.

Prevention: Recommendations for universal childhood immunization have greatly reduced the number of infections. Two doses of mumps-containing vaccine are now recommended for school-

aged children, college students, and health-care workers born after 1956. Respiratory and hand hygiene can also reduce transmission. A third dose has been used in some settings to control an ongoing outbreak.

Recent Washington trends: Between 1992 and 2005 the rate of reported mumps infections was up to 0.5 per 100,000 persons or less (zero to 26 cases per year). Increased awareness of mumps followed the 2006 outbreak in the midwest. In 2006 and 2007 respectively, 42 and 53 cases were reported. A change in the national reporting criteria was made in 2008 and the rate of reported mumps returned to pre-2006 levels. In 2017, Washington State had two outbreaks of mumps. The first was a continuation of a multistate outbreak from 2016 that included 801 cases. The second outbreak included 48 cases in a college setting. The remaining seven cases were out of state and international imports.

2017: 856 cases were reported (11.7 cases/100,000 population).

Pertussis

Cause: Bacterium *Bordetella pertussis*.

Illness and treatment: Classic pertussis symptoms include initial cold-like manifestations followed by an extended cough illness that can include severe spasms of coughing (paroxysms) that are often followed by an inspiratory gasp or whoop, or by vomiting. The coughing can last for weeks. Infants with pertussis may have feeding difficulties and often become apneic (unable to breathe). Treatment is with antibiotics and supportive care.

Sources: Humans. Older adolescents and adults with mild symptoms not recognized as pertussis often serve as a reservoir in the community. Pertussis is transmitted through respiratory droplets or direct contact with respiratory secretions.

Additional risks: Complications, which occur most often in very young infants, can include pneumonia, seizures, encephalopathy, and death.

Prevention: Recommended universal childhood immunization with a booster dose for adolescents and adults can reduce the risk of infection and generally prevents severe illness in most age groups. Very young infants (under two months of age) too young to be immunized can be protected by vaccinating pregnant women during the last trimester of each pregnancy. Assuring that others who will have close contact with the infant have been vaccinated is also important. Respiratory and hand hygiene can reduce transmission. Any person with a cough illness should avoid contact with pregnant women and young infants.

Recent Washington trends: The number of cases reported each year varies considerably, ranging from 184 to 4,916 (during the 2012 outbreak) cases a year over the past two decades. There is also variation between health jurisdictions in the rate of reported disease, reflecting local outbreaks.

2017: 740 cases were reported (10.1 cases/100,000 population).

Plague

Cause: Bacterium *Yersinia pestis.*

Illness and treatment: Plague causes three clinical syndromes: bubonic (fever, headache, nausea and unilateral lymph node swelling); septicemic (bacteremia and multi-organ system failure); and

pneumonic (pneumonia). A patient may have several syndromes. About 11 percent of plague cases in the United States are fatal. Treatment is with antibiotics and supportive care.

Sources: Wild rodent populations are the natural reservoir where plague is maintained by fleas. Humans are infected through flea bites, handling tissues from infected animals, or respiratory droplet spread from animals or people with pneumonic plague.

Prevention: Avoid contact with sick or dead wild animals, rodent-proof houses, prevent pets from contracting fleas, and use repellents on skin and clothing when outdoors.

Recent Washington trends: Testing of 8,787 wildlife (mostly coyote) serum specimens collected July 1975 to June 2014 in Washington found 226 (2.6 percent) seropositive, a measure of previous exposure, not necessarily current disease. Human infections are rare. The last reported case was an animal trapper in Yakima exposed while skinning a bobcat in 1984. In neighboring Oregon, seven people have been diagnosed with plague between 2010 and 2015, along with a positive cat in 2012.

2017: No human cases of plague were reported.

Polio

Cause: Poliovirus, a member of the enterovirus subgroup, family Picornaviridae. Three serotypes, P1, P2, and P3 (and the related live oral vaccine strains), can cause disease.

Illness and treatment: Over 90 percent of infections are asymptomatic and four to eight percent result in only minor illnesses. Non-paralytic aseptic meningitis with full recovery occurs in one to two percent of infections. Less than one percent of infections result in flaccid paralysis. Treatment is supportive.

Sources: Humans are the reservoir. Transmission is mainly through the fecal-oral route. Virus may be present in the stool of an infected person for three to six weeks.

Additional risks: Travel by susceptible persons to the few countries where polio is still endemic or to countries still routinely using oral polio vaccine can increase the risk of becoming infected.

Prevention: Universal childhood immunization prevents infection. Only inactivated polio vaccine—which can prevent paralysis, but does not provide intestinal immunity – is now used in this country. There is no recommendation for routine immunization of adult residents of the United States.

In 2015, surveillance for Acute Flaccid Myelitis (AFM) was implemented in Washington State. Since all patients who present with AFM and no sensory or cognitive loss should be considered as a possible paralytic poliomyelitis case, risk factors and immunization status are reviewed. If appropriate, testing to rule out polio is conducted in order to assure that any case of polio that occurs in Washington is rapidly detected to prevent further spread.

Recent Washington trends: The last naturally acquired infection with wild-type polio virus was in 1977. In 1993, a case of vaccine-associated paralytic polio occurred in a state resident after a family member received live oral polio vaccine (which is no longer used in the United States).

2017: Three cases of AFM (0.04 cases/100,000 population) and no cases of polio were reported.

Psittacosis

Cause: Bacterium *Chlamydia psittaci*.

Illness and treatment: Abrupt onset of fever, chills, headache, and nonproductive cough which may progress to shortness of breath and pneumonia. Treatment is with antibiotics.

Sources: Birds in the parrot family are common sources, with poultry, pigeons, canaries, and sea birds being less common sources. Infection usually occurs when a person inhales organisms excreted in aerosolized dried feces or respiratory tract secretions of infected birds.

Prevention: Avoid purchasing or selling birds that appear ill, practice preventive husbandry, and wear protective clothing when cleaning cages or handling infected birds. If respiratory or influenza-like symptoms occur after bird caretaking, seek medical attention and report bird contact.

Recent Washington trends: Each year there are zero to two reports commonly associated with indoor exposure to pet birds and less commonly farm or wild birds or occupational exposure.

2017: No cases of psittacosis were reported.

Q Fever

Cause: Bacterium *Coxiella burnetii.*

Illness and treatment: Acute Q fever symptoms are fever, cough, chills, retrobulbar headache, malaise, weakness, and severe sweats. Chronic Q fever manifests primarily as endocarditis. Treatment is with antibiotics.

Sources: The most common reservoirs are sheep, cattle, and goats. Infected animals are usually asymptomatic; they shed the organism in highest concentration in birthing products but also in urine, feces, and milk. A common exposure mechanism is inhalation of dust from premises contaminated by placental tissues, birth fluids, or excreta of infected animals.

Additional risks: Pregnant women, persons with pre-existing heart valvulopathies, and immunosuppressed persons are at increased risk of developing chronic infection.

Prevention: Consume only pasteurized milk and dairy products. Appropriately dispose of animal birth products. Restrict access to barns and facilities housing potentially infected animals. Compost manure in a covered area instead of spreading it in fields. Persons with risk factors should not assist in animal birthing. Limit visitors during kidding season and advise them about high risk groups.

Recent Washington trends: In most years there are zero to five cases. A notable exception occurred in 2011, when eight cases were linked to a goat-associated outbreak.

2017: Two cases were reported. One was likely exposed in Washington and one had international exposure.

Rabies (Human)

Cause: Rabies virus.

Illness and treatment: Initial neurologic symptoms include abnormal skin sensation or pain, often affecting the site of the bite, and subtle personality changes. Later neurologic symptoms include

seizures, excess salivation, fear of water, delirium, agitation, and paralysis. Symptomatic illness is considered to be universally fatal with few exceptions.

Sources: Rabies virus is carried by mammals. In Washington, bats are the only known reservoir of rabies virus. Skunks, raccoons, and foxes are additional reservoirs elsewhere in this country. In some countries, dogs are the main reservoirs.

Although bats are Washington's primary known reservoir, other mammals can acquire rabies virus from a bat, and importation of rabies from other regions could also occur. Rabies virus is most often transmitted via a bite from a rabid animal, but can also be spread if saliva or other infectious material (e.g., brain tissue) contaminates broken skin or mucosa. Person-to-person transmission is documented only by tissue/organ transplantation.

Prevention: Obtain post-exposure prophylaxis for exposure to a rabid or potentially rabid animal. Certain high risk groups, such as veterinary staff or persons who frequently handle wild animals, should have pre-exposure vaccination. Keep vaccinations up-to-date for all dogs, cats and ferrets, avoid contact with unfamiliar animals, and keep bats out of the home.

Recent Washington trends: Two human cases due to infection with the bat rabies variant of rabies virus were reported in the past 50 years, one in 1995 and one in 1997.

2017: No human rabies cases were reported.

Rabies, Suspected Human Exposure

Information about rabies post-exposure prophylaxis (PEP) is available from the Advisory Committee on Immunization Practices available from CDC (www.cdc.gov/rabies/). Also see Rabies (Human).

Recent Washington trends: In previous years PEP administration was tracked, with typically 240 to 290 persons receiving PEP per year. Following a WAC change in February 2011, this condition changed to "suspected rabies exposure" which should include all PEP as well as instances where PEP was advised but declined by patient. Of bats tested in Washington, three to ten percent are identified as rabid each year. Since 1987, only five rabid domestic animals have been identified; three with bat variant virus (Table 3).

2017: 343 reports of suspected rabies exposure were reported. The most common exposures were bats (78 percent) and dogs (ten percent). Twenty-two (six percent) of 376 tested bats were rabid (Table 4).

Table 3. Rabid Non-Bat Animals and Rabies Strains, Washington, 1987–2017

Year	Animal type (County)	Rabies strain
2015	Cat (Jefferson)	Bat-variant
2002	Cat (Walla Walla)	Bat-variant
1994	Llama (King)	Bat-variant
1992	Horse (Franklin)	Unknown
1987	Dog (Pierce)*	Unknown, but history of bat exposure

* Infection was not confirmed at CDC

Table 4. Washington State Bats Tested for Rabies 2013-2017

	2013		2014		2015		2016		2017		Total	
County	**Positive**	**Total**	**Positive**	**Total**	**Positive**	**Total**	**Positive**	**Total**	**Positive**	**Total**	**Positive**	**Tested**
Adams	0	0	0	1	0	0	0	6	0	1	0	8
Asotin	0	3	0	0	0	0	0	0	0	0	0	3
Benton	0	2	0	1	0	2	0	3	0	0	0	8
Chelan	0	2	0	6	0	8	3	17	1	11	4	44
Clallam	1	6	1	5	0	4	0	0	0	7	2	22
Clark	0	18	0	16	1	16	1	15	1	10	3	75
Columbia	0	0	0	0	0	0	0	0	0	0	0	0
Cowlitz	0	14	0	13	0	7	0	16	0	10	0	60
Douglas	0	0	0	0	0	0	0	0	0	1	0	1
Ferry	0	0	0	1	0	0	1	1	0	0	1	2
Franklin	1	1	0	0	0	1	0	0	0	0	1	2
Garfield	0	0	0	0	0	0	0	0	0	0	0	0
Grant	0	1	0	3	0	2	1	4	0	2	1	12
Grays Harbor	0	1	0	0	0	5	0	3	0	3	0	12
Island	0	10	1	10	0	12	0	5	0	18	1	55
Jefferson	1	4	0	6	0	8	0	6	0	7	1	31
King	4	64	4	64	2	65	3	52	8	78	21	323
Kitsap	1	27	3	19	0	20	1	23	0	27	5	116
Kittitas	1	3	0	4	0	3	0	0	0	3	1	13
Klickitat	0	0	2	3	0	3	0	0	1	5	3	11
Lewis	0	11	0	13	0	7	2	16	1	18	3	65
Lincoln	0	1	0	1	0	0	0	0	0	0	0	2
Mason	0	4	0	11	2	8	1	8	0	5	3	36
Okanogan	0	2	0	3	0	1	0	0	0	1	0	7
Pacific	0	4	0	4	1	4	0	4	0	7	1	23
Pend Oreille	0	0	0	0	0	0	0	0	0	0	0	0
Pierce	0	13	0	8	0	8	1	16	2	25	3	70
San Juan	0	1	0	1	0	3	0	2	0	1	0	8
Skagit	0	5	1	8	0	7	0	5	0	9	1	34
Skamania	0	0	0	2	0	2	0	0	0	0	0	4
Snohomish	0	22	1	21	1	25	0	15	3	37	5	120
Spokane	0	19	0	12	1	34	3	44	5	31	9	140
Stevens	0	6	0	3	0	7	0	4	0	3	0	23
Thurston	0	11	0	13	1	17	1	16	0	33	2	90
Wahkiakum	0	2	0	1	0	2	0	0	0	0	0	5
Walla Walla	0	1	0	0	0	1	0	1	0	0	0	3
Whatcom	3	22	2	19	0	15	2	14	0	21	7	91
Whitman	0	2	0	0	0	5	0	2	0	1	0	10
Yakima	0	2	0	4	0	3	0	0	0	1	0	10
Total	**12**	**284**	**15**	**276**	**9**	**305**	**20**	**298**	**22**	**376**	**78**	**1,539**

Table 5. Washington State Animals Tested for Rabies, 1988-2017

(Rabid animals in parentheses)

Year	Bat	Cat	Dog	Ferret	Raccoon	Skunk	Rodent	Lagomorph	Other Wild	Other Domestic	Total
1988	69 (4)	165	110	15	16	3	12	2	5	3	400 (4)
1989	102 (9)	124	91	20	9	4	8	1	9	4	372 (9)
1990	63 (4)	104	82	5	7	5	5	1	14	4	290 (4)
1991	90 (9)	105	96	13	8	3	13	0	19	2	349 (9)
1992	73 (6)	132	90	16	14	2	12	0	14	6 (1)*	359 (7)
1993	68 (1)	122	95	8	4	8	16	2	10	13	346 (1)
1994	58 (14)	105	90	7	4	3	15	0	16	14 (1)^	312 (15)
1995	263 (15)	140	114	12	8	1	23	3	15	18	597 (15)
1996	257 (13)	104	101	8	9	2	14	3	20	12	530 (13)
1997	780 (51)	155	118	7	17	4	15	2	18	11	1,127 (51)
1998	447 (27)	126	109	8	11	1	6	0	19	16	743 (27)
1999	334 (25)	103	71	3	11	3	8	1	14	13	561 (25)
2000	330 (23)	105	60	1	2	4	6	1	9	4	522 (23)
2001	263 (22)	111	93	2	3	1	8	0	4	5	490 (22)
2002	186 (12)	99 (1)	53	7	2	2	9	1	8	9	376 (13)
2003	229 (23)	137	72	0	11	1	4	1	9	10	474 (23)
2004	311 (20)	141	70	3	13	6	11	0	6	10	571 (20)
2005	245 (15)	132	66	3	12	2	5	1	10	4	480 (15)
2006	273 (15)	105	70	4	13	1	2	1	8	5	482 (15)
2007	315 (22)	132	97	1	16	3	5	0	9	3	581 (22)
2008	337 (17)	143	76	1	10	2	5	1	9	11	595 (17)
2009	311 (14)	133	90	1	12	5	4	1	7	9	573 (14)
2010	200 (14)	103	63	0	14	1	6	1	9	10	407 (14)
2011	204 (11)	87	51	1	9	1	2	0	8	5	368 (11)
2012	221 (9)	98	54	2	7	0	4	0	7	9	402 (9)
2013	284 (12)	80	65	0	13	0	3	0	5	9	459 (12)
2014	276 (15)	75	53	0	12	0	1	1	6	11	435 (15)
2015	305 (9)	95 (1)	49	0	8	2	8	0	11	7	485 (10)
2016	298 (20)	108	44	0	5	0	4	1	3	3	466 (20)
2017	376(22)	81	48	0	8	1	4	0	2	5	525 (22)
Total 1988-2017	**7,568 (473)**	**3,450 (2)**	**2,341**	**148**	**288**	**70**	**238**	**25**	**303**	**245 (2)**	**14,677 (477)**

* Horse

^ Llama

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

Lagomorphs include: rabbit and pika

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

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

Rare Diseases of Public Health Significance

Rare diseases of public health significance are defined as diseases or conditions of general public health concern, which are not commonly diagnosed in Washington residents.

Anaplasmosis/Ehrlichiosis

Cause: *Anaplasma phagocytophilum* (cause of human granulocytic anaplasmosis, formerly called human granulocytic ehrlichiosis) and several *Ehrlichia* species (causes of ehrlichiosis). All are closely related bacteria that infect white blood cells. The terms "anaplasmosis" and "ehrlichiosis" are sometimes used interchangeably, and antibodies can be cross-reactive on serologic testing.

Illness and treatment: Illnesses with anaplasmosis and ehrlichiosis are very similar. Signs and symptoms can include fever, headache, muscle pain, and fatigue. Anaplasmosis and ehrlichiosis are treated with antibiotics, typically doxycycline.

Sources: *A. phagocytophilum*, the cause of anaplasmosis, is maintained in an enzootic cycle involving *Ixodes* ticks and mammal reservoirs, a cycle similar to that of *Borrelia burgdorferi* (the cause of Lyme disease). In the Pacific Coastal United States, the primary vector is *Ixodes pacificus* (western blacklegged tick), which lives in wooded or brushy areas. *Ehrlichia chaffeensis* and *E. ewingii*, both causes of ehrlichiosis, are transmitted by *Amblyomma americanum* (Lone star tick), found in south central and southeastern states. The newly-identified *E. muris*-like agent, also a cause of ehrlichiosis, is transmitted by *I. scapularis* in the Upper midwest. Rarely, *A. phagocytophilum* and *Ehrlichia* species can also be transmitted via blood transfusion or solid organ transplant.

Prevention: During outdoor activities in tick habitat, avoid tick bites by wearing light-colored clothing and using repellents containing DEET or permethrin. Check the body thoroughly for ticks. Be alert for sudden onset of fever; if symptoms develop, see a health care provider.

Recent Washington trends: From 2004 to 2016, six cases of anaplasmosis were reported; five reported exposure in the upper midwest or the northeastern United States and one had unknown exposure location. One case of ehrlichiosis due to *E. chaffeensis* was reported in 2011, associated with travel to the southeastern United States. To date, no locally-exposed Washington cases of anaplasmosis have been reported but very low levels of *A. phagocytophilum* have been found in *Ixodes* ticks collected from the state.

2017: One case of anaplasmosis following travel to Wisconsin and no cases of ehrlichiosis were reported.

Babesiosis

Cause: *Babesia* species, including *Babesia microti*, *B. duncani*, and other rare species. *Babesia* are protozoan parasites that infect red blood cells.

Illness and treatment: Malaria-like illness ranging from flu-like symptoms such as fever, chills, sweats, and body aches to severe, life-threatening disease in people who are elderly, asplenic, or have other forms of immune compromise. Illness can involve severe anemia. Treatment is with antibiotics. Healthy persons may have asymptomatic infections, which can last weeks to months.

Sources: *Babesia* parasites are transmitted by infected ticks. *B. duncani* (formerly "WA1") and the *B. divergens*-like agent have been transmitted within Washington, but their tick vectors are unknown. *B. microti* is the most commonly identified *Babesia* species in the United States and is transmitted by *Ixodes scapularis* in the upper midwest and northeastern United States. *Babesia* parasites may also be transmitted via blood transfusion from infected asymptomatic blood donors. Transmission from mother to infant during pregnancy or delivery can also occur.

Prevention: During outdoor activities in endemic areas, wear appropriate clothing, use repellents, and check the body for ticks.

Recent Washington trends: From 1990-2016, 13 babesiosis cases were reported. Four of these cases were exposed to *Babesia* in Washington: three cases caused by *B. duncani* (one in 1991 and two in 1994, in a blood transfusion recipient and associated donor); and one caused by the *B. divergens*-like organism (2002). The other babesiosis cases were associated with travel to the upper midwest or northeastern United States or blood donation from an out-of-state donor and were likely or confirmed *B. microti* (2004, 2008, 2013, 2014, 2015). To date, tick surveillance has not identified *Babesia*-positive ticks in Washington.

2017: One babesiosis case *(B. microti*) was reported in a patient exposed in Massachusetts.

Burkholderia

Cause: Bacterium *Burkholderia pseudomallei* (Melioidosis) or *Burkholderia mallei* (Glanders)
Illness and treatment: Melioidosis is spread to humans (and animals) through direct contact with the contaminated soil or water. Glanders is primarily a disease affecting horses, donkeys, and mules, though it is possible for humans to get the disease. Both diseases may result in four types of infection: localized, pulmonary, bloodstream and disseminated. Symptoms vary based on the type of infection. Treatment is with antibiotics.

Sources: Melioidosis is predominately a disease of tropical climates (e.g., Southeast Asia and northern Australia); the bacteria causing melioidosis are found in contaminated water and soil. Contact with the tissue or body fluids of infected animals is the primary route of infection for glanders, but the bacteria may also be inhaled via infected aerosols or dust.

Prevention: In the healthcare setting, standard contact precautions. In countries with endemic glanders in animals, prevention of disease in humans requires identification and elimination of infected animals.

Recent Washington trends: One case of melioidosis in 2007 associated with travel to Vietnam, one case of melioidosis in 2011 associated with travel to Mexico, and one case of melioidosis in 2013 associated with travel to Thailand.

2017: Two cases of melioidosis associated with travel to Malaysia. Three laboratory exposures were associated with the handling of the culture for one of these cases.

Coccidioidomycosis (Valley Fever)

Cause: The soil-dwelling fungi *Coccidioides immitis* and *C. posadasii.*

Illness and treatment: If symptomatic, a pneumonia or flu-like illness with fever, cough, headache, rash, and muscle aches. Disseminated infections occur. Treatment is with antifungals.

Sources: Generally exposure to airborne spores. The fungi are found in soil in semi-arid climates in the southwestern United States and parts of Central and South America. *C. immitis* has been documented in soil in south-central Washington State.

Prevention: Avoid exposure to dusty environments in endemic regions.

Recent Washington trends: Coccidioidomycosis was made reportable as a rare disease of public health significance in 2014. Prior to 2014, up to six travel-associated cases were reported each year. During 2010-2016, eleven cases with exposure in south-central Washington State were reported.

2017: 69 cases were reported, one fatal; 58 were travel-related, two were exposed in south-central Washington, and nine had unknown exposure location.

Cryptococcosis

Cause: Fungus *Cryptococcus*. Notifiable condition surveillance is only for *C. gattii*.

Illness and treatment: Symptoms include severe cough with shortness of breath, chills, night sweats, and loss of appetite. Typical presentations are meningitis and pneumonia. Treatment is with antifungals.

Sources: *C. gattii* is an environmental fungus that has been isolated from native trees, soil, and air in the Pacific Northwest. The endemic area is now thought to extend along the Pacific Coast.

Exposure is through inhalation of spores from the environment.

Prevention: There are no specific precautions.

Recent Washington trends: Since 2006, one to nine human cases are reported each year, some with presumed in-state exposure. The case fatality rate among all cases is 13 percent. The majority of the cases occur in residents of northwestern counties, although cases can occur anywhere in the state following travel to an endemic area.

2017: One case was reported.

Human Prion Disease

Cause: Prions, or "proteinaceous infectious particles," in which normal cellular prion proteins in the brain (PrPc) fold into abnormal, pathologic forms (PrPsc), causing a fatal neurodegenerative disease known as prion disease or transmissible spongiform encephalopathy (TSE). TSEs are a family of disorders in animals and humans, of which Creutzfeldt-Jakob disease (CJD) is the most common type.

Illness and treatment: Prion diseases present with a wide variety of clinical manifestations. Rapidly progressive dementia is the key clinical feature. Other manifestations include movement abnormalities (myoclonus, tremor), cerebellar signs (ataxia, nystagmus) visual changes (diplopia, hallucinations), sleep disturbances, and akinetic mutism. Variant CJD has more prominent psychiatric and behavioral symptoms at onset with a delay in neurologic signs. All cases are fatal, and treatment is supportive.

Sources: Prion diseases can be sporadic (85 percent of cases; unknown cause), familial (ten to 15 percent of cases; inherited), or iatrogenic (acquired through contaminated surgical instruments,

dura mater or corneal transplants, or human growth hormone supplements). Variant CJD (vCJD) is associated with ingesting beef products contaminated with the prion that causes bovine spongiform encephalopathy ("mad cow disease"). Variant CJD was discovered in 1996, with most cases in the United Kingdom and some cases in other European countries, the Middle East, Asia, and North America. To date, four vCJD cases have been reported in the United States, all of which were acquired overseas.

Prevention: Since most cases are sporadic, few personal precautions can be advised. To prevent transmission during invasive medical procedures, a combination of specific chemical and autoclaving methods are used in health care facilities to disinfect and sterilize medical instruments. If traveling for prolonged periods of time in Europe, risk might be reduced by avoiding beef products, especially brain parts or other non-muscle meat; however, transmission risk is very low.

Recent Washington trends: During 2008 to 2017, the median number of cases per year was 12 cases (range: five to 18 cases). The incidence of human prion disease in Washington State is consistent with reported rates worldwide, with an average incidence of 1.7 cases/million population in the last decade.

2017: Ten cases of CJD were reported, ten cases sporadic.

Table 6. Prion Disease - Definite and Probable Cases

Year of death	Sporadic	Familial	Iatrogenic	Variant	Combined Rate*
2008	17	0	0	0	2.57
2009	7	2	0	0	1.35
2010	7	1	0	0	1.19
2011	9	0	0	0	1.33
2012	12	1	0	0	1.91
2013	13	1	1	0	2.18
2014	10	1	0	0	1.58
2015	11	1	0	0	1.70
2016	17	1	0	0	2.51
2017	10	0	0	0	1.37
*All rates are cases per 1,000,000 population.					

Spotted Fever Rickettsiosis

Cause: Bacteria of the spotted fever group *Rickettsia*, including *Rickettsia rickettsii* (Rocky Mountain spotted fever) (RMSF), *R. africae* (African tick bite fever), *R. conorii* (Mediterranean spotted fever or Boutonneuse fever), and numerous other disease-causing *Rickettsia* species.

Illness and treatment: Spotted fever rickettsioses are characterized by fever plus a rash and/or scab-like skin wound ("eschar"); other signs and symptoms can include headache, fatigue, muscle aches, and swollen lymph nodes. RMSF is the most commonly reported spotted fever rickettsiosis in the United States and often begins with fever followed in two to five days by a spotty rash. Many of the other spotted fever rickettsioses, including African tick bite fever and Mediterranean spotted fever, can involve blackened or crusted skin at the site of one or more tick bites. Severe complications can occur in some spotted fever rickettsioses. Antibiotic treatment for spotted fever rickettsioses should be initiated immediately after clinical suspicion and should not await laboratory confirmation.

Sources: In the United States, RMSF tick vectors include *Dermacentor variabilis* (American dog tick) and *D. andersoni* (American wood tick), both of which are found in Washington State, and *Rhipicephalus sanguineus* (brown dog tick). Other spotted fever group *Rickettsia* are transmitted by various hard tick species vectors, which may involve different vertebrate reservoirs.

Prevention: During outdoor activities in endemic areas, wear appropriate clothing, use repellents, and check the body for ticks.

Recent Washington trends: RMSF was reported at greater numbers in the first half of the twentieth century than in recent years, e.g., 90 cases during 1920-1949 (median annual cases, two; range, zero to nine), in contrast to ten cases during 2004-2016 (median cases per year, zero; range, zero to three). The last locally acquired case of RMSF in Washington was reported in 2011. African tick bite fever was reported in ten Washington residents from 2005 to 2016; nine were exposed in South Africa and one in Ethiopia. Mediterranean spotted fever was reported in two cases with travel to South Africa (one in 2011 and one in 2015), and in one case with unknown travel history in 2015. In 2013, one spotted fever rickettsiosis case of undetermined etiology was reported in a case with exposure in Southeast Asia.

2017: Five spotted fever rickettsioses cases were reported. Four RMSF cases were reported with out-of-state travel. One African tick bite fever case was reported with travel to South Africa.

Other Reports

One infection with *Balamuthia mandrillaris* was reported.

One case of histoplasmosis was reported in a patient reporting travel to Ohio and Indiana.

One case of typhus was reported in a patient with travel to Hawaii.

Rare Sexually Transmitted Diseases

Cause: Bacterium *Haemophilus ducreyi* causes chancroid*;* bacterium *Calymmatobacterium granulamatis* causes granuloma inguinale; and L1, L2 and L3 serovars of bacterium *Chlamydia trachomatis* cause lymphogranuloma venereum.

Illness and treatment: These are three rare genital ulcer diseases. Treatment recommendations are available from CDC.

Sources: The infections are sexually transmitted.

Additional risks: These diseases are endemic in some tropical and subtropical regions.

Prevention: Use safe sexual practices to reduce transmission.

Recent Washington trends: In the past decade, there were 12 lymphogranuloma venereum cases, two chancroid cases, and no granuloma inguinale cases.

2017: One lymphogranuloma venereum case, no chancroid cases, and no granuloma inguinale cases were reported.

Relapsing Fever

Cause: Spiral-shaped bacteria (spirochetes). *Borrelia hermsii* for tick-borne relapsing fever (TBRF) and *B. recurrentis* for louse-borne relapsing fever.

Illness and treatment: A typical sign is a fever lasting two to seven days cycling with a febrile periods of four to 14 days, with one to ten cycles if untreated. Along with fever, other signs and symptoms can include shaking chills, sweats, headache, muscle or joint pain, or sometimes a rash. Treatment is with antibiotics.

Sources: For TBRF, the most common reservoirs in Washington appear to be wild rodents, with the bacteria transmitted by *Ornithodoros hermsi*, a soft tick typically found in eastern parts of the state at higher altitudes (1,500-8,000 feet). The ticks live in rodent nests and inflict painless bites at night that are often unnoticed. Louse-borne relapsing fever is not endemic to the United States but may occur in travelers if an infected body louse contaminates a wound or mucous membranes.

Prevention: Avoid sleeping in rodent infested buildings. Rodent-proof structures to prevent future colonization by rodents and their soft ticks.

Recent Washington trends: Each year, about one to ten TBRF cases are reported. Most are associated with overnight stays in rustic summer cabins, but some are exposed in their primary homes. Louse-borne disease is rare, even in travelers; no cases have been reported in recent years.

2017: Three cases of TBRF were reported; two with exposure in Washington State and one with international exposure.

Rubella

Cause: Rubella virus, family Togaviridae, genus *Rubivirus*.

Illness and treatment: Acquired rubella is a mild illness that usually includes fever and a maculopapular rash that starts on the face and spreads downward to include the entire body. The rash usually lasts three days and may itch. However, up to 50 percent of infections can be sub-clinical or inapparent. Older children and adults may have malaise, lymph node swelling, and upper respiratory symptoms before the rash. Arthritis and arthralgia frequently accompany the disease in adults, especially in women. Complications including encephalitis (one in 6,000 cases) are uncommon and occur more often in adults. Congenital rubella syndrome (CRS) in an infant can result if the mother acquires rubella during pregnancy, especially in the first trimester. The virus may cause a variety of congenital malformations, the most common of which is deafness. Fetal death or premature delivery may also occur.

Sources: Humans are the reservoir. Transmission is through droplet spread of the respiratory secretions of infected persons (or less commonly airborne), including those with asymptomatic or subclinical infections. Infants with CRS can shed virus for extended periods, but a true carrier state does not occur.

Additional risks: Since 2004, rubella is no longer considered endemic in the United States. Most reported rubella cases in the country are now among adults born in areas where rubella vaccine was not routinely used, or in unimmunized persons who travel outside the United States to areas where rubella is still endemic.

Prevention: Universal childhood immunization has been effective in preventing infection and eliminating endemic circulation of rubella in this country. Respiratory and hand hygiene can also reduce the risk of transmission. Pregnant women are routinely tested at initial prenatal visits to verify immunity to rubella.

Recent Washington trends: Since 2000 only zero to two cases of acquired rubella have been reported annually. In 2000, an infant with CRS was born in Washington to a mother born outside the United States. This was the only CRS case reported in the state in the past 20 years.

2017: No cases were reported.

Salmonellosis (Non-Typhoid)

Cause: Myriad serotypes in the bacterial genus *Salmonella*, excluding *S.* Typhi (see Typhoid).

Illness and treatment: Typical symptoms are fever, headache, diarrhea, nausea and abdominal pain, with or without vomiting. Most persons recover without treatment. Occasionally bacteria enter the bloodstream and infect internal organs. Treatment for severe cases is with antibiotics.

Sources: Healthy animals, especially reptiles, chickens, cattle, dogs and cats, can carry *Salmonella* without illness and be a direct source for human infection. Most human cases result from contaminated food. Common exposures include contaminated eggs, unpasteurized milk, poultry and produce. Person-to-person transmission can occur.

Additional risks: Illness including serious dehydration may be severe in the very young, the elderly, or those with chronic diseases. Incidence is highest in infants and young children.

Prevention: Use good food handling and personal hygiene practices, including thorough handwashing after contact with animals. Prevent contact between young children or persons with weakened immune systems and reptiles, farm animals, or birds.

Recent Washington trends: Salmonellosis is the second most common notifiable enteric infection with 589 to 1,100 cases reported per year. Infections occur year round with some increase during the spring and summer months. Many serotypes are reported (Table 7).

2017: 810 cases were reported (11.1 cases/100,000 population) with four deaths.

Table 7. Salmonella Serotypes, 2017

Known serotypes (N=731)	Count
Enteritidis	147
Typhimurium	79
Newport	61
I 4,5,12:i:-	44
Paratyphi B var. L (+)	28
Infantis	28
Stanley	21
Muenchen	20
Oranienburg	19
Thompson	18
Javiana	18
Montevideo	16
Heidelberg	14
Braenderup	12
Saintpaul	11
I 4,5,12:b:- L(+) Tartrate(+)	11
Virchow	8
Hadar	7
Agona	7
Sandiego	6
Bareilly	6
Multiple others (below)	

Two to Five Cases Each: Adelaide, Albert, Anatum, Berta, Brandenburg, Carrau, Cerro, Chailey, Chester, Clackamas, Corvallis, Daytona, Derby, Dublin, Eastbourne, Florida, Give, Haifa, Hartford, I 4,12:i:-, Irumu, Kiambu, Mbandaka, Muenster, Ohio, Okatie, Oslo, Ouakam, Panama, Paratyphi A, Pomona, Poona, Senftenberg, Telelkebir, Uganda, Weltevreden

One Case Each: 4,5,12:-:1,2, Aberdeen, Agbeni, Albany, Amager, Apapa, Bovismorbificans, Cannstatt, Corvellis, Cotham, Cubana, Durban, Ealing, Gaminara, Goldcoast, Havana, I 9,12:l,z28:-, I Rough:z4,Z23:-, IIIa 56:z4,z23:-, IIIb 61:1,v:1,5/7, IIIb 61:z52:z53, Indiana, IV 50:z4 z23:-, Kentucky, Kottbus, Lomalinda, London, Luciana, Michigan, Mikawasima, Monschaui, Newyork, Odozi, Portland, Reading, Rissen, Singapore, Soerenga, Urbana, Worthington

Shellfish Poisoning, Paralytic, Domoic Acid, or Diarrhetic

Cause: Saxitoxin from the phytoplankton *Alexandrium catenella* causes paralytic shellfish poisoning (PSP). Domoic acid from the diatom *Pseudo-nitzschia* causes domoic acid poisoning (DAP). Diarrhetic toxin from dinoflagellates *Pseudo-niszschia* causes diarrhetic shellfish poisoning (DSP).

Illness and treatment: PSP symptoms begin minutes or hours after consumption with numbness of the mouth and limbs. Severe poisoning progresses rapidly to paralysis and respiratory arrest. With DAP, gastrointestinal symptoms of vomiting, diarrhea and abdominal cramps begin within 24 hours of shellfish ingestion and there may be later confusion, seizures and permanent short-term memory loss. DSP begins in 30 minutes to 36 hours, with severe diarrhea and sometimes vomiting. There are no anti-toxins. Acute supportive care may be needed.

Sources: Bivalve mollusks such as clams, oysters, mussels, and geoduck concentrate the PSP toxin. Razor clams, other clams, Dungeness crab, mussels, and oysters concentrate the DAP toxin. There is no person-to-person spread for either.

Additional risks: PSP is only rarely associated with reddish discoloration of the water, although the term "red tide" is popularly used. PSP or DAP can be present in dangerous amounts even when the harvest site water looks clean. Cooking does not destroy either toxin.

Prevention: Before harvesting shellfish check the Marine Biotoxin Hotline (1-800-562-5632) or website for updates on affected sites and site closures, which may not always have signs posted.

Recent Washington trends: Three clusters of PSP have been reported during the past 20 years (seven reports in 2012, seven reports in 2000, and five reports in 1998). There are no recent DAP cases reported. A DSP cluster in 2011 was from mussels gathered in Puget Sound.

2017: No cases were reported

Shiga Toxin-producing *Escherichia coli* (STEC)

Cause: Shiga toxin-producing *E. coli* strains (STEC) including *E. coli* O157:H7.

Illness and treatment: Symptoms include abdominal cramping and severe or bloody diarrhea, usually without fever. Serious complications include hemolytic uremic syndrome (HUS) or thrombotic thrombocytopenic purpura (TTP). Most persons will recover without treatment. Treating STEC diarrhea with antibiotics may increase the risk of developing HUS.

Sources: Cattle are the most important source, although other herbivores also may carry STEC. Other known sources are unpasteurized milk, undercooked ground beef and contaminated raw produce. There can be person-to-person and animal-to-person transmission, but most cases are due to ingesting contaminated food or water.

Additional risks: Children under five years of age are diagnosed most frequently and are at the greatest risk of developing HUS.

Prevention: Wash hands thoroughly after contact with farm animals, visiting farm environments, and handling raw meat. Thoroughly cook ground beef and venison and wash preparation areas to avoid contaminating other foods. Wash produce thoroughly before eating.

Recent Washington trends: For the past several years there have been 203 to 417 cases reports each year. STEC has a seasonal pattern with most cases occurring during summer and fall months.

2017: 404 cases were reported (5.5 cases/100,000 population), with one death.

Table 8. STEC Serotypes, 2017

Known serotypes (n=242)	Count
O157:H7	68
O26	60
O103	23
O111	19
O121	13
O157:NM	12
O103:H2	8
Multiple others (below)	

Two Cases Each: O undetermined:H7, O118:H2, O157, O165:NM, O186:H2

One Case Each: O rough:H2, O rough:H7, O rough:NM, O undetermined:NM, O undetermined:H25, O Undetermined:H45, O undetermined:H5, O100:NM, O103:NM, O109:H25, O119:H4, O121:H19, O146, O146:NM, O152:H40, O168:H8, O174:H8, O22:H8, O28:NM, O45:H8, O55:H7, O58:H4, O69:H11, O7:H7, O71:H undetermined, O76:H19, O79:H14, O91:H14, O91:NM

Shigellosis

Cause: Bacteria in the genus *Shigella*, typically *S. sonnei* or S. *flexneri*. Other species including *S. boydii and S. dysenteriae* are more common in developing countries.

Illness and treatment: Symptoms include fever, watery or bloody diarrhea, abdominal pain, fatigue and headache. Most persons will recover without treatment. Antibiotics may be used to shorten the duration of intestinal excretion of the organism.

Sources: Humans are the only reservoir, transmitting through feces-contaminated food or water or through person-to-person transmission, including oral-anal sex. Outbreaks are occasionally associated with child care or food service facilities, and very rarely with swimming.

Additional risks: Ingesting very few organisms can cause infection. Outbreaks occur under conditions of crowding and poor hygiene, putting institutions for children, mental hospitals, and prisons at additional risk.

Prevention: Wash hands carefully including cleaning under the nails with soap and water after defecation or changing diapers and before food handling.

Recent Washington trends: Each year there are 100 to 285 reports. An increase in culture-independent laboratory testing has contributed to increased reports since 2015.

2017: 285 cases were reported (3.9 cases/100,000 population).

Syphilis

Cause: Spirochete bacterium *Treponema pallidum*.

Illness and treatment: The disease has four stages. Primary syphilis involves a painless ulcer at the site of infection. Secondary syphilis involves fever, diffuse rash, headache, hair loss, and muscle aches. Latent syphilis, which can last for years, is asymptomatic. Late syphilis can result in damage to the brain, heart, or other organs. Congenital syphilis may result in organ damage and bone deformities. If untreated, symptoms can spread to the brain, spinal cord, and nervous system, resulting in neurosyphilis; or spread to the eye, causing ocular syphilis. This can occur during any stage of syphilis. Antibiotics treat a syphilis infection, but any damage to organs is permanent.

Sources: Syphilis is transmitted sexually or vertically through the mother's placenta to the fetus before birth.

Additional risks: Disease rates are highest among men, with a higher incidence among men who have sex with men.

Prevention: Use safe sexual practices to reduce transmission. If syphilis is found, also test for other sexually transmitted infections including HIV. Screen mothers during early pregnancy to prevent congenital syphilis in the newborn, and sexually active men who have sex with men yearly. Test and treat all recent sexual partners of a person diagnosed with the early stages of syphilis to stop ongoing transmission.

Recent Washington trends: Rates have increased since 1996, when 11 cases were reported. Recently over 500 primary and secondary cases have been reported annually.

2017: 674 cases of primary and secondary syphilis were reported (9.2 cases/100,000 population).

Tetanus

Cause: Neurotoxin produced by the bacterium *Clostridium tetani*.

Illness and treatment: Of the four types of known tetanus presentation, by far the majority of cases present as generalized tetanus, characterized by descending rigidity and painful spasms of the skeletal muscles beginning with jaw and neck spasms (commonly referred to as "lockjaw"). Spasms can continue for three to four weeks and progress to total body spasms known as opisthotonos. Complications include bone fractures and abnormal heart rhythms. Complete recovery can take months. Case fatality rate for generalized tetanus is ten percent or higher, depending on available care, with more deaths occurring in infants and elderly persons. Neonatal tetanus is a form of generalized tetanus that occurs in newborn infants who are born under unhygienic conditions to inadequately immunized mothers, and therefore, lack protective passive immunity. Local tetanus and cephalic tetanus are less common presentations which often progress to generalized tetanus.

Treatment includes tetanus immune globulin (TIG), wound care, and supportive care including pharmacotherapy to control spasms. Antibiotics may theoretically reduce bacterial multiplication in the wound and thereby prevent further toxin production. Active immunization should be undertaken soon as the person is medically stable.

Sources: Spores are widely distributed in soil and in the intestinal tracts (and feces) of animals and humans. The spores can also be found on skin and in contaminated heroin. *C. tetani* usually enters the body through a wound (which may or may not be apparent) and grows best deep within damaged tissue in an anaerobic environment. Tetanus is not transmitted person to person.

Additional risks: Almost all reported cases of tetanus are in persons with either no history of vaccination with tetanus toxoid, or without a vaccine booster in the preceding decade. Any person presenting with a wound that has fewer than three documented doses of tetanus toxoid should be considered at risk for tetanus. Injection drug use, especially intramuscular and subcutaneous use, can lead to individual cases and occasionally to outbreaks in specific populations.

Prevention: Universal childhood immunization with regular booster doses for adolescents and adults is effective in preventing of tetanus.

Recent Washington trends: Three cases were reported in 2014, including one in a toddler who was never vaccinated and one in an elderly adult whose most recent booster was received 8.5 years prior to onset. Before that, one case was reported in each of the years 2000, 2006, and 2012.

2017: No cases have been reported since 2014.

Trichinosis (Trichinellosis)

Cause: Intestinal roundworm *Trichinella spiralis.*

Illness and treatment: Ingested larvae migrate and become encapsulated in muscle. Infection ranges from asymptomatic to severe, depending on the dose. Diarrhea may occur first. There is usually sudden onset of muscle pain, swelling of the upper eyelids, and recurring fever. Death can result from damage to heart muscle. Treatment depends on the stage of illness at diagnosis.

Sources: The infection is caused by ingesting raw or insufficiently cooked meat from infected animals. Historically, undercooked pork was a risk. Wild game is now the most likely exposure in North America. There is no person-to-person spread.

Additional risks: Freezing meat will not necessarily inactivate larvae of arctic strains.

Prevention: Cook or irradiate all wild game to reliably kill larvae. Regulations to prevent trichinosis require the cooking of garbage and offal fed to swine.

Washington trends: In the past decade only three cases have been reported. Exposures were bear and cougar meat eaten raw or undercooked.

2017: One case was reported with bear meat consumption.

Tuberculosis

Cause: Bacterium *Mycobacterium tuberculosis*.

Illness and treatment: Tuberculosis (TB) usually affects the lungs, but can also affect lymph nodes, bones, joints, as well as other parts of the body. When contained by a mature, strong immune system, infection with TB most often never causes symptoms and remains non-infectious. However, TB infection may also progress to active TB disease that can be infectious and must be treated. Typical symptoms of active TB disease include persistent cough, bloody sputum, fever, unexplained weight loss, night sweats, and chest pain. Persons experiencing any of these symptoms should consult a medical provider or local health department immediately.

Effective medical treatments are available to prevent TB infection from developing into active TB disease, and to cure active TB disease if it develops. Persons infected with TB should consider treatment to prevent the development of active TB disease. Patients with active TB disease must complete a full course of appropriate treatment with multiple drugs.

Sources and spread: TB is spread person-to-person through the air. When a person with infectious active TB disease of the lungs or throat coughs, sneezes or sings, bacteria are spread into the air which then may be breathed in by others.

Additional risks: Approximately 75 to 80 percent of all cases in Washington are among non-U.S.-born persons, originating from countries where rates of TB are typically higher and risk of becoming infected is greater. If infected with TB, persons with an immature, weakened or over-burdened immune system—for example young children, people infected with HIV, persons with diabetes, those having received an organ transplant, and the elderly—are at increased risk of developing active TB disease.

Prevention: Prompt diagnosis of active TB disease with proper isolation during the initial infectious period and completion of effective treatment are each vital to minimizing the spread of TB. In addition, risk-based screening for TB infection along with completion of appropriate treatment if infected also aid in preventing the future spread of TB.

Washington trends: From 2013 through 2017 between 193 and 210 cases of active TB disease were diagnosed in Washington annually. For 2017 the state rate of 2.8 cases per 100,000 population was unchanged from the previous year and equaled the national rate.

2017: Washington State reported 207 cases of active TB disease, for a crude case rate of 2.8. Only four of Washington's 39 counties reported ten or more cases, together accounting for 74 percent of all state cases along with 58 percent of the state's total population. King County reported 98 cases, this representing 47 percent of all Washington cases while resulting in a county rate of 4.6.

Tularemia

Cause: Bacterium *Francisella tularensis*.

Illness and treatment: Symptoms reflect the route of transmission and can include fever, malaise, swollen lymph nodes, skin ulcers, eye infection, sore throat, abdominal pain, diarrhea, and pneumonia; any infection can cause sepsis. Treatment is with antibiotics.

Sources: The reservoir is wild mammals (especially rabbits, hares, voles, squirrels, muskrats, beavers). Infection can occur through direct contact with an infected animal, bite from an arthropod (e.g., tick, deerfly), ingestion of contaminated raw meat or water, or inhalation, including during outdoor work or with improper handling of cultures in laboratories.

Prevention: Wear gloves if skinning wild game and keep hands or gloves away from the eyes. Drink only treated water when in wilderness areas. Avoid tick and insect bites.

Recent Washington trends: There are generally one to ten reports annually. Exposures include insect and animal bites, contaminated water, exposure to wild rabbits or rodents, and inhalation while farming or landscaping with power tools. In 2004 to 2005 a statewide serosurvey of 370 outdoor pet cats and dogs found 0.6 percent positive overall but 4.5 percent positive in southwest counties.

2017: Six cases were reported; four with exposure in Washington State, one with exposure during travel, and one with unknown exposure location.

Typhoid Fever

Cause: Bacterium *Salmonella* Typhi.

Illness and treatment: Symptoms include fever, headache, rash, constipation or diarrhea, and lymph node swelling. Severity ranges from mild febrile illness to severe disease with multiple complications. Treatment is with antibiotics.

Sources: Humans are the reservoir and transmit through fecal contamination of food, water or milk, or directly person-to-person.

Additional risks: There can be a prolonged intestinal carrier state, sometimes due to gallbladder infection; re-culture patients after antibiotic treatment to confirm clearance of the infection.

Prevention: If traveling to risk areas, consult with a travel clinic or the CDC Travelers' Health website for recommendations about vaccination and other measures.

Recent Washington trends: Cases occur mainly after international travel, most commonly to South Asia. Case counts range from four to 22 reports each year.

2017: 14 cases were reported (0.2 cases/100,000 population).

Vibriosis (Non-Cholera)

Cause: Bacteria in the family *Vibrionaceae*, including *V. parahaemolyticus*, *V. vulnificus*, non-toxin-producing *V. cholera,* other less common *Vibrio* species, and *Grimontia hollisae*. Infections caused by toxin-producing *V. cholerae* (serotypes O1 or O139) are notifiable as Cholera.

Illness and treatment: Symptoms include abdominal pain, watery diarrhea, vomiting, headache and fever. Skin infections can occur. *V. vulnificus*, a species occurring mainly in the Gulf of Mexico, but recently found in Washington marine waters, can cause life-threatening septicemia in persons with weakened immune systems. Most persons recover without treatment but antibiotics may be needed for severe cases.

Sources: *V. parahaemolyticus* occur naturally in Pacific coastal waters, especially during warmer months. Transmission of vibriosis usually occurs through ingesting raw or undercooked oysters or through skin injuries exposed to seawater.

Additional risks: Persons with liver disease, alcoholics, and others with weakened immune systems should be warned not to eat raw or undercooked seafood.

Prevention: Keep shellfish cold throughout the transport from harvest to preparation. To lessen risk of illness, consume raw or undercooked shellfish only from approved harvest areas and only during cooler months of the year.

Recent Washington trends: Annual case counts are variable, ranging from nine to 96 cases reported, with a mixture of locally acquired and travel-associated exposures. Cases among out-of-state residents associated with consumption of Washington shellfish are not included in these counts.

2017: 96 cases were reported (1.3 cases/100,000 population).

Waterborne Outbreaks

Cause: Many infectious agents including viruses, bacteria, and parasites. Commonly implicated agents include norovirus, *Giardia, Cryptosporidium*, and *Legionella*. Also includes waterborne disease outbreaks due to non-infectious agents, e.g., harmful algal bloom-associated toxins.

Illness and treatment: Illness depends on the etiologic agent, e.g., gastrointestinal, dermatologic, or respiratory. Treatment also depends on the involved agent.

Sources: Sources vary with the agent. Exposure can occur through various means, such as ingestion, skin contact, or inhalation. Waterborne outbreaks can occur from exposure to drinking water, recreational water, or other water sources. Drinking water sources include water intended for drinking, such as bottled water or community or private water systems. Recreational sources include treated water (e.g., swimming pools, interactive fountains, hot tubs) and untreated natural water (e.g., lakes, rivers). Other sources can include water not intended for drinking or recreation, such as cooling towers, ornamental water, misters, etc.

Additional risks: Risks vary with the agent.

Prevention: Test private wells every year for coliform bacteria and nitrate, as well as after potential contamination such as floods. Shower thoroughly with soap before entering recreational water. If ill with diarrhea, do not enter recreational water, pools, or interactive fountains. Check infants' diapers frequently when using recreational water.

Recent Washington trends: Waterborne outbreaks are often difficult to detect or investigate. From 2007 to 2017, zero to three outbreaks were reported each year (median, one outbreak per year). Distinct outbreaks have ranged in size from very small (two cases) to very large (hundreds of cases) (Table 9).

2017: Three waterborne disease outbreaks were reported, all legionellosis.

Table 9. Waterborne Disease Outbreaks, 1991-2017*

Year	Agent	Water Type	County	Cases
1991	*Giardia*	Recreational – Untreated	Clark	4
	Unknown	Recreational – Untreated	Thurston	4
1992	Hepatitis A	Drinking	Klickitat	10
1993	*Norovirus*	Recreational – Untreated	Thurston	604
	Cryptosporidium	Drinking	Yakima	7
	Giardia	Recreational – Untreated	Clark	6
1994	*Cryptosporidium*	Recreational – Untreated	Yakima	4
	Cryptosporidium/Giardia	Drinking	Walla Walla	86
1995	*Giardia*	Drinking	Yakima	87
1996	*Cryptosporidium*	Drinking	Yakima	18
1997	STEC	Drinking	Yakima	2
1998	Suspect viral	Recreational – Untreated	Kitsap	248
	Suspect viral	Recreational – Untreated	Snohomish	58
	Unknown	Drinking	Klickitat	6
1999	Unknown	Drinking	Lincoln	46
	E. coli O157:H7	Recreational – Untreated	Clark	36
	Suspect viral	Drinking	Spokane	68
2003	*Campylobacter*	Drinking	Walla Walla	110
2007	Suspect viral	Drinking	Okanogan	32
	Cryptosporidium	Recreational – Untreated	Clark	12
	Cryptosporidium	Recreational – Treated	Whatcom	14
2011	*Legionella*	Drinking	Spokane	3
2012	*Shigella sonnei*	Recreational – Untreated	Clark	3
2013	Norovirus	Recreational – Treated	King	11
2014	Norovirus	Recreational – Untreated	Kitsap	260+
	Norovirus	Recreational – Untreated	Clark	20
2015	*Legionella*	Drinking	Thurston	3
	Legionella	Other (cooling tower)	Chelan	10
2016	Norovirus	Recreational – Treated	King	17
	Legionella	Drinking	King	4
2017	*Legionella*	Unknown	King	2
	Legionella	Recreational – Treated	Benton-Franklin	3
	Legionella	Recreational – Treated	Yakima	2

*Excluding spa-associated folliculitis outbreaks and illness outbreaks associated with harmful algal blooms.

Yersiniosis

Cause: Bacteria in the genus Y*ersinia*, usually *Y. enterocolitica or Y. pseudotuberculosis*.

Illness and treatment: Symptoms are acute fever, diarrhea and abdominal pain that may mimic appendicitis. Complications are uncommon. Antibiotics may be used for severe cases.

Sources: Wild and domestic animals, particularly pigs, are reservoirs. Transmission occurs by ingesting contaminated food or water, or by direct contact with animals. Raw or undercooked pork and pork products, such as chitterlings, have been particularly associated with the illness. Person-to-person transmission appears to be rare.

Additional risks: Illness is more severe in children. *Yersinia* can multiply under refrigeration.

Prevention: Do not eat undercooked or raw pork or unpasteurized milk. Wash hands thoroughly after touching animals or raw pork and before eating. Dispose of animal feces in a sanitary way.

Recent Washington trends: 21 to 81 cases are reported each year. An increase in culture-independent laboratory testing has contributed to increased reports since 2015.
2017: 81 cases were reported (01.1 cases/100,000 population).

APPENDIX I

Disease Incidence and Mortality Rates

ARBOVIRAL DISEASE TYPES

Year	Total Cases	Chikungunya	Colorado Tick Fever	Dengue	Japanese Encephalitis	St. Louis Encephalitis	West Nile Virus	Yellow Fever	Zika Virus	Other/Unknown flavivirus
2002	1	0	0	0	0	0	0	1[V]	0	0
2003	8	0	0	0	0	0	8[T]	0	0	0
2004	3	0	0	1[T]	1[T]	0	1[T]	0	0	0
2005	6	0	0	3[T]	0	0	3[T]	0	0	0
2006	13	1[T]	0	4[T]	0	0	8 (5[T], 3[E])	0	0	0
2007	16	0	0	10[T]	0	0	5[T]	0	0	1[T]
2008	19	0	1[T]	14[T]	1[T]	0	3[E]	0	0	0
2009	52	0	0	11[T]	0	1[T]	38 (36[E], 2[U])	0	0	2 (1[T], 1[E])
2010	24	3[T]	0	19[T]	0	0	2 (1[E], 1[T])	0	0	0
2011	9	0	0	9[T]	0	0	0	0	0	0
2012	20	0	0	16[T]	0	0	4 (2[E], 2[T])	0	0	0
2013	15	0	0	14[T]	0	0	1[T]	0	0	0
2014*	36	15[T]	0	9[T]	0	0	12 (10[E], 2[T])	0	0	0
2015	84	40[T]	0	19[T]	0	0	24 (22[E], 2[T])	0	0	1[T]
2016	113	10[T]	0	23[T]	0	0	9[E]	0	68[T]	3[T]
2017	55	3[T]	0	19[T]	0	0	13 (8[E], 5[T])	0	16[T]	4[T]

[V] Vaccine-associated

[T] Travel-associated

[E] Endemically acquired

[U] Unknown exposure location

*2014 data were updated from the 2014 annual report

BOTULISM

Year	Food	Infant	Wound	Combined Rate*	Deaths
1985	5	4	0	0.2	0
1986	2	4	0	0.1	0
1987	1	1	1	0.1	0
1988	3	4	0	0.2	0
1989	10	0	0	0.2	0
1990	1	0	0	0	0
1991	0	3	0	0.1	0
1992	0	2	0	0	0
1993	4	5	0	0.2	0
1994	3	2	0	0.1	0
1995	4	2	0	0.1	0
1996	2	0	2	0.1	0
1997	0	1	2	0.1	0
1998	2	4	0	0.1	0
1999	2	4	1	0.1	0
2000	1	4	0	0.1	0
2001	1	6	0	0.1	0
2002	1	1	4	0.1	0
2003	1	3	7	0.2	0
2004	1	3	5	0.1	0
2005	0	2	4	0.1	0
2006	0	9	1	0.2	0
2007	1	1	2	0.1	1
2008	0	1	2	0	0
2009	4	2	4	0.1	1
2010	0	3	1	0.1	0
2011	0	3	4	0.1	0
2012	1	4	2	0.1	1
2013	2	4	4	0.1	0
2014	0	3	0	0	0
2015	0	6	2	0.1	0
2016	2	1	1	0.1	2
2017	0	6	4	0.1	0

*All rates are cases per 100,000 population.

BRUCELLOSIS

Year	Cases	Rate*	Deaths
1986	1	0	0
1987	1	0	0
1988	1	0	0
1989	1	0	0
1990	0	0	0
1991	3	0.1	0
1992	1	0	0
1993	0	0	0
1994	0	0	0
1995	0	0	0
1996	2	0	0
1997	3	0.1	0
1998	3	0.1	0
1999	0	0	0
2000	0	0	0
2001	0	0	0
2002	2	0	0
2003	1	0	0
2004	2	0	0
2005	0	0	0
2006	0	0	0
2007	1	0	0
2008	1	0	0
2009	1	0	0
2010	0	0	0
2011	1	0	0
2012	0	0	0
2013	1	0	0
2014	4	0.1	0
2015	4	0.1	0
2016	0	0	0
2017	1	0	0

*All rates are cases per 100,000 population.

CAMPYLOBACTERIOSIS

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	3	*	4	*	10	51.5	6	30.8	1	*
Asotin	2	*	2	*	2	*	2	*	4	*
Benton	41	22.4	33	18	28	14.8	51	26.8	32	16.5
Chelan	10	13.6	15	20.2	8	10.7	15	19.8	12	15.6
Clallam	3	*	2	*	3	*	4	*	3	*
Clark	97	22.3	87	19.6	73	16.2	82	17.8	107	22.7
Columbia	2	*	2	*	4	*	2	*	2	*
Cowlitz	22	21.3	18	17.4	24	23	19	18.1	22	20.8
Douglas	4	*	8	20.2	7	17.5	3	*	5	12.1
Ferry	2	*	2	*	2	*	3	*	2	*
Franklin	21	24.8	11	12.7	11	12.6	11	12.4	3	*
Garfield	0	0	2	*	1	*	1	*	0	0
Grant	15	16.3	19	20.5	24	25.6	31	32.8	24	25.1
Grays Harbor	14	19.1	14	19.1	10	13.7	13	17.9	19	26.0
Island	8	10	16	20	17	21.1	29	35.0	31	37.4
Jefferson	21	69.4	18	58.6	16	51.8	12	38.6	11	35.1
King	455	23	487	24.1	604	29.4	589	28.0	699	32.5
Kitsap	41	16.1	40	15.6	48	18.6	58	22.1	89	33.7
Kittitas	7	16.7	10	23.8	9	21.1	10	22.9	8	17.9
Klickitat	9	43.5	6	28.8	4	*	5	23.5	6	27.7
Lewis	27	35.4	29	38	16	20.9	25	32.5	24	31.0
Lincoln	1	*	1	*	0	0	2	*	2	*
Mason	14	22.7	9	14.5	7	11.3	18	28.9	33	52.2
Okanogan	5	12	5	12	5	11.9	5	12.0	9	21.4
Pacific	5	23.8	8	37.9	3	*	2	*	1	*
Pend Oreille	0	0	2	*	2	*	0	0	4	*
Pierce	253	31.3	217	26.4	250	30.1	230	27.2	272	31.6
San Juan	4	25	1	*	5	30.9	6	36.8	10	60.6
Skagit	34	28.7	29	24.3	33	27.4	37	30.3	47	37.9
Skamania	0	0	0	*	0	0	0	0	0	0
Snohomish	180	24.6	190	25.6	231	30.5	237	30.7	279	35.3
Spokane	42	8.8	57	11.8	84	17.2	86	17.5	105	21.0
Stevens	8	18.3	3	*	17	38.6	18	40.8	12	27.0
Thurston	49	18.8	58	22	57	21.3	69	25.3	86	31.1
Wahkiakum	0	0	0	*	0	0	0	0	0	0
Walla Walla	20	33.6	14	23.3	14	23.1	25	41.2	32	52.1
Whatcom	56	27.2	59	28.4	60	28.6	56	26.3	93	43.5
Whitman	3	*	5	10.8	9	19	7	14.6	3	*
Yakima	153	61.9	108	43.4	149	59.6	142	56.6	122	48.2
STATEWIDE TOTAL	1,631	23.7	1,591	22.8	1,847	26.2	1,911	26.6	2,214	30.3

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

CAMPYLOBACTERIOSIS STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1980	8	0.2	0
1981	106	2.5	0
1982	299	7	0
1983	149	3.5	0
1984	146	3.4	1
1985	250	5.7	0
1986	347	7.8	0
1987	420	9.3	1
1988	709	15.4	1
1989	899	19	0
1990	899	18.5	0
1991	930	18.5	4
1992	1,060	20.6	1
1993	1,051	20	0
1994	1,050	19.6	0
1995	1,050	19.2	4
1996	1,139	20.5	1
1997	1,150	20.3	0
1998	901	15.7	1
1999	950	16.3	2
2000	1,006	17.1	2
2001	991	16.6	0
2002	1,032	17	1
2003	943	15.4	0
2004	861	13.9	0
2005	1,045	16.6	0
2006	993	15.5	0
2007	1,020	15.6	0
2008	1,069	16.2	0
2009	1,030	15.4	1
2010	1,315	19.6	2
2011	1,538	22.7	0
2012	1,551	22.7	3
2013	1,631	23.7	6
2014	1,591	22.8	0
2015	1,847	26.2	2
2016	1,911	26.6	1
2017	2,214	30.3	1

*All rates are cases per 100,000 population.

CHLAMYDIA TRACHOMATIS

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	78	406	76	392	60	306	85	436	93	468.0
Asotin	80	367	81	369	92	419	86	388	77	345.5
Benton	672	366	648	348	677	358	739	388	906	468.2
Chelan	256	348	287	386	245	329	260	343	270	351.4
Clallam	188	260	162	224	187	257	200	272	199	268.1
Clark	1,419	326	1,534	346	1,686	380	1,912	415	1,85	393.8
Columbia	6	+	8	+	6	+	4	+	9	+
Cowlitz	292	283	426	411	475	457	481	459	478	451.4
Douglas	135	344	146	368	144	361	151	371	154	371.8
Ferry	26	340	26	339	26	338	24	312	22	284.2
Franklin	413	487	416	480	370	415	456	514	517	572.4
Garfield	0	+	5	+	5	+	3	+	1	+
Grant	383	417	392	422	382	407	404	427	345	360.8
Grays Harbor	171	234	205	280	192	261	198	272	221	302.9
Island	205	257	232	290	307	383	204	246	246	297.1
Jefferson	78	258	77	251	56	182	56	180	52	165.8
King	6,828	345	7,332	364	8,421	415	9,400	447	9,760	453.2
Kitsap	895	352	920	360	938	365	984	375	1,104	417.7
Kittitas	163	389	168	399	179	422	210	480	240	536.6
Klickitat	33	159	55	264	57	272	58	273	64	295.5
Lewis	261	343	252	330	265	346	252	328	284	366.7
Lincoln	6	+	5	+	19	+	15	141	15	+
Mason	177	286	198	319	230	368	234	376	221	349.7
Okanogan	130	313	77	185	76	182	114	273	103	244.6
Pacific	28	133	34	161	57	270	45	213	45	211.8
Pend Oreille	20	152	23	174	24	181	20	151	40	299.2
Pierce	4,298	528	4,372	532	4,646	563	4,976	589	5,434	632.3
San Juan	11	+	20	124	20	124	17	104	12	+
Skagit	409	345	335	280	399	333	415	339	481	387.6
Skamania	29	257	25	220	14	122	22	191	21	179.6
Snohomish	1,880	257	2,006	271	2,203	296	2,488	322	2,619	331.8
Spokane	2,037	424	2,142	442	2194	451	2,452	498	2,337	467.6
Stevens	129	295	103	235	123	298	128	290	95	213.4
Thurston	919	353	890	337	988	371	1,164	427	1,139	411.3
Wahkiakum	1	+	2	+	4	+	5	+	3	+
Walla Walla	209	351	190	316	237	394	238	392	193	314.3
Whatcom	580	282	570	275	765	366	692	326	708	327.3
Whitman	189	411	302	650	355	754	412	859	446	916.9
Yakima	1,379	558	1,504	605	1,597	638	1,589	633	1,643	649.4
STATEWIDE TOTAL	25,013	363	26,246	377	28,721	410	31,193	434	32,454	444.0

All incidence rates are cases per 100,000 population.
+Incidence rates suppressed for counts ≤16 and rates with residual standard error (RSE) >30% due to statistical instability.

CHLAMYDIA TRACHOMATIS
STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1989	10,865	229.8	0
1990	12,709	261.1	0
1991	12,917	257.2	0
1992	11,762	228.8	0
1993	10,331	196.2	0
1994	10,575	197.1	0
1995	9,463	173	0
1996	9,237	165.9	0
1997	9,523	168.1	0
1998	10,998	191.3	0
1999	11,964	205.2	0
2000	13,066	221.7	0
2001	13,631	228.3	0
2002	14,936	246.5	0
2003	16,796	274.1	0
2004	17,635	284	0
2005	18,617	295.6	0
2006	17,819	277.5	0
2007	19,123	293.1	0
2008	21,327	322.7	0
2009	21,178	317.4	0
2010	21,401	318.3	0
2011	23,237	343.3	0
2012	24,600	360.8	0
2013	25,013	363.4	0
2014	26,246	376.7	0
2015	28,721	410	0
2016	31,193	434.2	0
2017	32,454	444.0	0

*All rates are cases per 100,000 population.

CHOLERA

Year	Cases	Rate*	Deaths
1985	0	0	0
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	2	0	0
1993	0	0	0
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001	0	0	0
2002	1	0	0
2003	0	0	0
2004	0	0	0
2005	0	0	0
2006	0	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	1	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	0	0	0

*All rates are cases per 100,000 population.

CRYPTOSPORIDIOSIS

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	0	*	0	0	0	0	1	*
Asotin	0	0	0	*	0	0	0	0	2	*
Benton	2	*	2	*	1	*	2	*	1	*
Chelan	0	0	0	*	0	0	0	0	0	0
Clallam	1	*	3	*	2	*	3	*	0	0
Clark	8	1.8	5	1.1	9	2	10	2.2	17	3.6
Columbia	0	0	0	*	0	0	0	0.0	0	0
Cowlitz	4	*	3	*	3	*	3	*	2	*
Douglas	0	0	0	*	0	0	0	0	0	0
Ferry	0	0	0	*	0	0	0	0	0	0
Franklin	0	0	1	*	1	*	4	*	0	0
Garfield	0	0	0	*	0	0	0	0	0	0
Grant	1	*	0	*	1	*	0	0	0	0
Grays Harbor	0	0	0	*	0	0	0	0	3	*
Island	0	0	0	*	0	0	4	*	1	*
Jefferson	3	*	1	*	3	*	2	*	3	*
King	18	0.9	19	0.9	25	1.2	43	2.0	65	3.0
Kitsap	0	0	1	*	3	*	3	*	1	*
Kittitas	1	*	0	*	0	0	1	*	1	*
Klickitat	0	0	0	*	1	*	0	0	2	*
Lewis	1	*	0	*	9	11.7	2	*	2	*
Lincoln	1	*	0	*	0	0	0	0	0	0
Mason	0	0	1	*	0	0	0	0	2	*
Okanogan	0	0	0	*	1	*	0	0	0	0
Pacific	0	0	0	*	0	0	0	0	0	0
Pend Oreille	0	0	0	*	0	0	0	0	0	0
Pierce	24	3	18	2.2	24	2.9	14	1.7	19	2.2
San Juan	0	0	1	*	0	0	3	*	0	0
Skagit	0	0	0	*	0	0	2	*	3	*
Skamania	0	0	0	*	0	0	0	0	0	0
Snohomish	7	1	3	*	5	0.7	6	0.8	8	1.0
Spokane	4	*	2	*	5	1	0	0	0	0
Stevens	0	0	0	*	0	0	0	0	0	0
Thurston	2	*	7	2.7	3	*	10	3.7	4	*
Wahkiakum	0	0	0	*	0	0	0	0	0	0
Walla Walla	2	*	1	*	0	0	1	*	2	*
Whatcom	0	0	0	*	10	4.8	15	7.1	5	2.3
Whitman	1	*	0	*	0	0	0	0	0	0
Yakima	3	*	7	2.8	7	2.8	3	*	6	2.4
STATEWIDE TOTAL	84	1.2	75	1.1	113	1.6	131	1.8	150	2.1

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

CRYPTOSPORIDIOSIS STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
2001	73	1.2	0
2002	62	1	0
2003	65	1.1	0
2004	63	1	0
2005	94	1.5	0
2006	95	1.5	0
2007	139	2.1	0
2008	99	1.5	0
2009	102	1.5	0
2010	102	1.5	0
2011	88	1.3	0
2012	101	1.5	0
2013	84	1.2	0
2014	75	1.1	0
2015	113	1.6	0
2016	131	1.8	0
2017	150	2.1	0

*All rates are cases per 100,000 population.

CYCLOSPORIASIS‡

Year	Cases	Rate*	Deaths
2002	5	0.1	0
2003	0	0	0
2004	11	0.2	0
2005	5	0.1	0
2006	1	0	0
2007	1	0	0
2008	1	0	0
2009	0	0	0
2010	2	0	0
2011	4	0.1	0
2012	0	0	0
2013	0	0	0
2014	2	0	0
2015	5	0.1	0
2016	3	0	0
2017	9	0.1	0

‡Cyclosporiasis first became a notifiable condition in Washington in 12/2000.
*All rates are cases per 100,000 population.

DIPHTHERIA

Year	Cases	Rate*	Deaths
1985	0	0	0
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	0	0	0
1993	0	0	0
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0
2005	0	0	0
2006	0	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	0	0	0

*All rates are cases per 100,000 population.

GIARDIASIS

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	0	*	3	15.5	1	*	1	*
Asotin	3	*	4	*	1	*	1	*	1	*
Benton	8	4.4	6	3.3	2	*	8	4.2	11	5.7
Chelan	7	9.5	4	*	9	12	9	11.9	6	7.8
Clallam	6	8.3	5	6.9	7	9.6	6	8.2	5	6.7
Clark	25	5.7	32	7.2	28	6.2	39	8.5	25	5.3
Columbia	1	*	1	*	1	*	0	0	2	*
Cowlitz	6	5.8	3	*	3	*	2	*	3	*
Douglas	3	*	0	*	2	*	7	17.2	0	0
Ferry	1	*	0	*	1	*	0	0	2	*
Franklin	3	*	6	6.9	4	*	4	*	2	*
Garfield	0	0	0	*	0	0	0	0	0	0
Grant	3	*	4	*	4	*	4	*	9	9.4
Grays Harbor	1	*	3	*	5	6.8	6	8.2	4	*
Island	13	16.3	4	*	1	*	5	6.0	5	*
Jefferson	6	19.8	7	22.8	3	*	7	22.5	7	22.3
King	195	9.8	188	9.3	219	10.7	253	12.0	277	12.9
Kitsap	23	9	16	6.3	26	10.1	25	9.5	22	8.3
Kittitas	1	*	5	11.9	5	11.7	7	16.0	9	20.1
Klickitat	2	*	3	*	5	23.8	1	*	1	*
Lewis	7	9.2	5	6.6	3	*	5	6.5	3	*
Lincoln	0	0	0	*	0	0	2	*	1	*
Mason	4	*	4	*	4	*	8	12.8	5	7.9
Okanogan	7	16.9	5	12	6	14.3	4	9.6	7	16.6
Pacific	2	*	3	*	0	0	3	*	0	0
Pend Oreille	0	0	1	*	1	*	3	*	3	*
Pierce	46	5.7	41	5	42	5.1	41	4.9	46	5.4
San Juan	1	*	0	*	3	*	0	0	1	*
Skagit	6	5.1	7	5.9	9	7.5	10	8.2	10	8.1
Skamania	0	0	0	*	0	0	0	0	0	0
Snohomish	60	8.2	43	5.8	71	9.4	66	8.5	64	8.1
Spokane	24	5	47	9.7	60	12.3	72	14.6	66	13.2
Stevens	0	0	6	13.7	1	*	4	*	8	18.0
Thurston	27	10.4	19	7.2	17	6.4	34	12.5	25	9.0
Wahkiakum	0	0	0	*	1	*	0	0	0	0
Walla Walla	7	11.8	5	8.3	2	*	4	*	4	*
Whatcom	35	17	18	8.7	25	11.9	8	3.8	17	7.9
Whitman	3	*	2	*	4	*	2	*	2	*
Yakima	12	4.9	18	7.2	26	10.4	21	8.4	14	5.5
STATEWIDE TOTAL	548	8	515	7.4	604	8.6	672	9.4	668	9.1

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

GIARDIASIS STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1980	840	20.3	0
1981	547	12.9	0
1982	956	22.4	0
1983	706	16.4	0
1984	710	16.3	0
1985	779	17.6	0
1986	811	18.2	0
1987	827	18.3	0
1988	851	18.4	0
1989	980	20.7	0
1990	792	16.3	0
1991	876	17.4	1
1992	860	16.7	1
1993	747	14.2	0
1994	722	13.5	0
1995	855	15.6	0
1996	668	12	0
1997	738	13	0
1998	740	12.9	1
1999	560	9.6	1
2000	622	10.6	1
2001	512	8.6	0
2002	510	8.4	0
2003	435	7.1	0
2004	444	7.2	0
2005	437	6.9	0
2006	451	7	0
2007	590	9	0
2008	486	7.4	0
2009	467	7	0
2010	521	7.7	0
2011	529	7.8	0
2012	512	7.5	0
2013	548	8	0
2014	515	7.4	0
2015	604	8.6	0
2016	672	9.4	0
2017	668	9.1	0

*All rates are cases per 100,000 population.

GONORRHEA

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	3	+	9	+	32	163	14	71.8	19	95.6
Asotin	2	+	3	+	16	+	24	108	31	139.1
Benton	88	48	152	81.5	135	71.3	258	135	216	111.6
Chelan	10	+	13	17.5	27	36.2	37	48.7	28	36.4
Clallam	8	+	13	17.9	10	13.7	18	24.5	6	+
Clark	148	34	208	47	247	55.6	396	85.9	511	108.5
Columbia	0	+	1	+	2	+	0	+	4	+
Cowlitz	21	20.3	33	31.8	100	96.2	121	115	109	102.9
Douglas	9	+	8	+	11	+	18	44.2	9	+
Ferry	2	+	1	+	2	+	5	+	2	+
Franklin	73	86.1	98	113	67	75.1	118	133	129	142.8
Garfield	0	+	1	+	0	+	0	+	0	+
Grant	34	37	80	86.1	116	124	111	117	116	121.3
Grays Harbor	12	16.4	34	46.4	31	42.2	46	63.2	46	63.0
Island	24	30.1	25	31.3	27	33.7	35	42.2	38	45.9
Jefferson	3	+	21	68.4	9	+	11	+	11	+
King	1771	89.4	2,219	110	2,922	144	3,343	159	4,178	194.0
Kitsap	109	42.9	183	71.5	197	76.7	177	67.4	276	104.4
Kittitas	5	+	16	38	23	54.2	21	48	16	+
Klickitat	1	+	3	+	6	+	4	+	3	+
Lewis	21	27.6	16	21	31	40.4	52	67.6	40	51.7
Lincoln	0	+	0	+	3	+	6	+	3	+
Mason	14	22.7	38	61.3	40	64	48	77	37	58.6
Okanogan	12	28.9	10	+	10	+	27	64.7	11	+
Pacific	15	71.4	11	+	6	+	3	+	9	+
Pend Oreille	6	+	1	+	3	+	7	+	4	+
Pierce	966	119	1,271	155	1,363	165	1,196	142	1,772	206.2
San Juan	1	+	3	+	1	+	0	+	3	+
Skagit	41	34.6	55	46	53	44.2	65	53.2	60	48.4
Skamania	1	+	1	+	1	+	3	+	1	+
Snohomish	251	34.4	402	54.3	504	67.6	602	77.9	741	93.9
Spokane	329	68.5	530	109	527	108	520	106	693	138.7
Stevens	16	36.5	9	+	17	+	28	63.5	14	+
Thurston	114	43.8	146	55.3	192	72	263	96.5	253	91.4
Wahkiakum	0	+	1	+	0	+	1	+	2	+
Walla Walla	27	45.4	46	76.5	25	41.5	30	49.4	20	32.6
Whatcom	60	29.2	58	27.9	61	29.2	102	48	147	68.0
Whitman	13	28.3	11	+	10	21.2	12	25	31	63.7
Yakima	180	72.8	406	163	376	150	443	177	433	171.2
STATEWIDE TOTAL	4,390	63.8	6,136	88.1	7,203	103	8,165	114	10,022	137.1

All incidence rates are cases per 100,000 population.
+Incidence rates suppressed for counts ≤16 and rates with residual standard error (RSE) >30% due to statistical instability.

GONORRHEA STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1982	11,381	266	0
1983	9,895	230	0
1984	9,158	210	0
1985	10,073	228	0
1986	9,848	221	0
1987	8,909	197	0
1988	7,154	155	0
1989	6,369	135	0
1990	5,009	103	0
1991	4,441	88.4	0
1992	4,169	81.1	0
1993	3,740	71	0
1994	2,893	53.9	0
1995	2,765	50.5	0
1996	2,020	36.3	0
1997	1,955	34.5	0
1998	1,948	33.9	0
1999	2,132	36.6	0
2000	2,419	41	0
2001	2,991	50.1	0
2002	2,925	48.3	0
2003	2,754	44.9	0
2004	2,810	45.3	0
2005	3,738	59.3	0
2006	4,231	65.9	0
2007	3,646	55.9	0
2008	3,116	47.2	0
2009	2,268	34	0
2010	2,865	42.6	0
2011	2,730	40.3	0
2012	3,282	48.1	0
2013	4,390	63.8	0
2014	6,136	88.1	0
2015	7,203	103	0
2016	8,165	114	0
2017	10,022	137.1	0

*All rates are cases per 100,000 population.

HAEMOPHILUS INFLUENZAE INVASIVE DISEASE

Year	Cases	Rate*	Deaths
1981	156	3.7	0
1982	149	3.5	6
1983	123	2.9	5
1984	110	2.5	5
1985	153	3.5	6
1986	319	7.1	11
1987	271	6	6
1988	200	4.3	0
1989	163	3.4	2
1990	123	2.5	6
1991	51	1	0
1992	22	0.4	1
1993	17	0.3	0
1994	10	0.2	0
1995	11	0.2	3
1996	10	0.2	0
1997	6	0.1	0
1998	11	0.2	1
1999	5	0.1	1
2000	8	0.1	0
2001*	7	1.8	0
2002*	5	1.2	0
2003*	13	3.2	1
2004*	4	1	0
2005*	5	1.2	0
2006*	5	1.2	0
2007*	6	1.4	0
2008*	2	0.5	0
2009*	9	2.1	0
2010*	10	2.3	1
2011*	8	1.8	1
2012*	4	0.9	0
2013*	11	2.4	0
2014*	9	2	0
2015*	5	1.1	0
2016*	9	2	0
2017*	7	1.5	0

*All rates are cases per 100,000 population. Rates for 2001-2017 are for population aged 0-4 years, while rates for prior years are for the entire population.

HANTAVIRUS PULMONARY SYNDROME‡

Year	Cases	Rate*	Deaths
1985	2	0	1
1994	4	0.1	2
1995	4	0.1	2
1996	3	0.1	1
1997	2	0	0
1998	5	0.1	1
1999	1	0	0
2000	1	0	0
2001	1	0	0
2002	2	0	1
2003	2	0	0
2004	1	0	0
2005	3	0	2
2006	2	0	0
2007	2	0	1
2008	2	0	1
2009	3	0	1
2010	2	0	0
2011	2	0	1
2012	2	0	2
2013	0	0	0
2014	1	0	0
2015	1	0	0
2016	1	0	0
2017	5	0.1	3

‡ Hantavirus Pulmonary Syndrome first became a notifiable condition in Washington in 12/2000.
*All rates are cases per 100,000 population.

HEPATITIS A, ACUTE

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	0	0	0	0	0	0	0	0
Asotin	1	*	0	0	0	0	0	0	0	0
Benton	0	0	1	*	1	*	0	0	0	0
Chelan	4	*	0	0	1	*	0	0	0	0
Clallam	1	*	0	0	0	0	0	0	0	0
Clark	2	*	3	*	3	*	2	*	3	*
Columbia	0	0	0	0	0	0	0	0	0	0
Cowlitz	1	*	0	0	1	*	0	0	1	*
Douglas	0	0	0	0	0	0	0	0	0	0
Ferry	0	0	0	0	0	0	0	0	0	0
Franklin	0	0	0	0	0	0	0	0	0	0
Garfield	0	0	0	0	0	0	0	0	0	0
Grant	2	*	0	0	1	*	0	0	0	0
Grays Harbor	0	0	0	0	0	0	1	*	0	0
Island	0	0	0	0	0	0	0	0	0	0
Jefferson	0	0	0	0	0	0	0	0	0	0
King	13	0.7	6	0.3	8	0.4	13	0.6	11	0.5
Kitsap	2	*	0	0	0	0	1	*	2	*
Kittitas	0	0	0	0	0	0	0	0	0	0
Klickitat	0	0	1	*	0	0	0	0	0	0
Lewis	1	*	0	0	0	0	1	*	0	0
Lincoln	0	0	0	0	0	0	0	0	0	0
Mason	0	0	0	0	0	0	1	*	1	*
Okanogan	0	0	0	0	0	0	0	0	0	0
Pacific	1	*	0	0	0	0	0	0	0	0
Pend Oreille	0	0	0	0	0	0	0	0	0	0
Pierce	1	*	4	*	0	0	2	*	1	*
San Juan	0	0	0	0	0	0	0	0	0	0
Skagit	0	0	1	*	1	*	1	*	3	*
Skamania	0	0	0	0	0	0	0	0	0	0
Snohomish	9	1.2	6	0.8	5	0.7	4	*	1	*
Spokane	1	*	3	*	1	*	1	*	2	*
Stevens	0	0	0	0	0	0	0	0	0	0
Thurston	1	*	0	0	1	*	0	0	1	*
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	0	0	0	0	0	0	0	0	1	*
Whatcom	1	*	1	*	3	*	4	*	0	0
Whitman	0	0	0	0	0	0	0	0	0	0
Yakima	4	*	0	0	0	0	0	0	1	*
STATEWIDE TOTAL	45	0.7	26	0.4	26	0.4	31	0.4	28	0.4

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

HEPATITIS A, ACUTE STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1980	554	13.4	2
1981	791	18.7	0
1982	494	11.6	1
1983	268	6.2	1
1984	373	8.6	0
1985	702	15.9	2
1986	1,385	31	1
1987	2,589	57.2	1
1988	2,669	57.8	7
1989	3,273	69.2	5
1990	1,380	28.4	1
1991	608	12.1	3
1992	865	16.8	1
1993	926	17.6	1
1994	1,119	20.9	2
1995	937	17.1	9
1996	1,001	18	3
1997	1,019	18	1
1998	1,037	18	2
1999	505	8.7	1
2000	298	5.1	1
2001	184	3.1	0
2002	162	2.7	0
2003	50	0.8	0
2004	69	1.1	0
2005	63	1	1
2006	52	0.8	2
2007	60	0.9	0
2008	51	0.8	0
2009	42	0.6	1
2010	21	0.3	0
2011	31	0.5	1
2012	29	0.4	1
2013	45	0.7	1
2014	26	0.4	0
2015	26	0.4	0
2016	31	0.4	1
2017	28	0.4	0

*All rates are cases per 100,000 population.

HEPATITIS B, ACUTE

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	0	0	0	0	0	0	0	0
Asotin	0	0	0	0	0	0	0	0	0	0
Benton	1	*	0	0	0	0	0	0	0	0
Chelan	0	0	1	*	1	*	0	0	1	*
Clallam	0	0	1	*	0	0	0	0	0	0
Clark	0	0	0	0	3	*	1	*	2	*
Columbia	0	0	1	*	0	0	0	0	0	0
Cowlitz	2	*	1	*	2	*	6	5.7	7	6.6
Douglas	1	*	0	0	0	0	0	0	0	0
Ferry	0	0	0	0	0	0	0	0	0	0
Franklin	0	0	0	0	0	0	0	0	0	0
Garfield	0	0	0	0	0	0	0	0	0	0
Grant	0	0	1	*	2	*	0	0	1	*
Grays Harbor	1	*	5	6.8	1	*	3	*	2	*
Island	0	0	0	0	0	0	1	*	0	0
Jefferson	0	0	0	0	0	0	0	0	0	0
King	10	0.5	10	0.5	7	0.3	3	*	7	0.3
Kitsap	0	0	0	0	1	*	0	0	0	0
Kittitas	0	0	0	0	0	0	0	0	0	0
Klickitat	0	0	0	0	0	0	0	0	0	0
Lewis	0	0	0	0	0	0	1	*	3	*
Lincoln	0	0	0	0	0	0	0	0	0	0
Mason	0	0	0	0	1	*	2	*	1	*
Okanogan	0	0	0	0	0	0	0	0	0	0
Pacific	0	0	1	*	0	0	1	*	0	0
Pend Oreille	0	0	0	0	0	0	0	0	0	0
Pierce	3	*	0	0	5	0.6	6	0.7	4	*
San Juan	0	0	0	0	0	0	0	0	0	0
Skagit	1	*	1	*	0	0	1	*	1	*
Skamania	0	0	0	0	0	0	0	0	1	*
Snohomish	0	0	8	1.1	2	*	7	0.9	4	*
Spokane	13	2.7	13	2.7	8	1.6	10	2	7	1.4
Stevens	0	0	0	0	0	0	0	0	0	0
Thurston	1	*	0	0	0	0	1	*	3	*
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	0	0	0	0	0	0	0	0	0	0
Whatcom	1	*	1	*	1	*	0	0	1	*
Whitman	0	0	0	0	0	0	0	0	0	0
Yakima	0	0	0	0	0	0	2	*	0	0
STATEWIDE TOTAL	34	0.5	44	0.6	34	0.5	45	0.6	45	0.6

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

HEPATITIS B, ACUTE STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1980	257	6.2	6
1981	345	8.2	11
1982	358	8.4	2
1983	307	7.1	3
1984	317	7.3	2
1985	484	11	6
1986	989	22.2	8
1987	1,126	24.9	4
1988	979	21.2	6
1989	1,055	22.3	9
1990	616	12.7	7
1991	470	9.4	5
1992	399	7.8	1
1993	247	4.7	0
1994	255	4.8	2
1995	226	4.1	2
1996	158	2.8	1
1997	114	2	2
1998	136	2.4	0
1999	111	1.9	1
2000	132	2.2	5
2001	171	2.9	0
2002	83	1.4	0
2003	90	1.5	1
2004	64	1	1
2005	80	1.3	0
2006	80	1.2	2
2007	71	1.1	1
2008	56	0.8	0
2009	48	0.7	0
2010	50	0.7	1
2011	35	0.5	0
2012	34	0.5	1
2013	34	0.5	1
2014	44	0.6	0
2015	34	0.5	0
2016	45	0.6	0
2017	45	0.6	0

*All rates are cases per 100,000 population.

HEPATITIS B, CHRONIC

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	*	1	*	0	*	0	*	1	*
Asotin	0	*	0	*	0	*	0	*	2	*
Benton	0	*	5	2.7	2	*	5	2.6	39	20.2
Chelan	4	*	1	*	1	*	1	*	4	*
Clallam	1	*	1	*	0	*	1	*	9	12.1
Clark	60	13.8	86	19.4	75	16.6	70	15.2	60	12.7
Columbia	1	*	0	*	0	*	0	*	0	*
Cowlitz	10	9.7	8	7.7	10	9.6	5	4.8	14	13.2
Douglas	0	*	0	*	2	*	0	*	0	*
Ferry	0	*	0	*	1	*	0	*	0	*
Franklin	0	*	2	*	2	*	0	*	5	5.5
Garfield	0	*	0	*	0	*	0	*	0	*
Grant	0	*	3	*	5	5.3	0	*	1	*
Grays Harbor	0	*	2	*	3	*	0	*	3	*
Island	4	*	7	8.8	4	*	3	*	0	*
Jefferson	0	*	1	*	4	*	1	*	1	*
King	479	24.2	592	29.3	699	34.1	888	42.2	1,074	49.9
Kitsap	20	7.9	19	7.4	39	15.1	33	12.6	19	7.2
Kittitas	3	*	2	*	0	*	1	*	3	*
Klickitat	0	*	0	*	2	*	0	*	4	*
Lewis	2	*	1	*	5	6.5	4	*	11	14.2
Lincoln	0	*	0	*	0	*	0	*	0	*
Mason	5	8.1	1	*	1	*	2	*	1	*
Okanogan	0	*	1	*	1	*	1	*	0	*
Pacific	3	*	0	*	2	*	1	*	2	*
Pend Oreille	1	*	1	*	0	*	0	*	1	*
Pierce	24	2.9	93	11.3	119	14.3	168	19.9	150	17.5
San Juan	0	*	0	*	0	*	1	*	0	*
Skagit	7	5.9	1	*	6	5	11	9	13	10.5
Skamania	0	*	0	*	0	*	0	*	0	*
Snohomish	157	21.5	169	22.8	159	21	173	22.4	201	25.5
Spokane	61	12.7	55	11.4	66	13.5	59	12	78	15.6
Stevens	3	*	1	*	2	*	1	*	1	*
Thurston	33	12.7	35	13.3	57	21.3	59	21.6	48	17.3
Wahkiakum	0	*	0	*	0	*	0	*	0	*
Walla Walla	1	*	0	*	0	*	1	*	1	*
Whatcom	9	4.4	12	5.8	17	8.1	15	7.1	23	10.6
Whitman	0	*	0	*	1	*	1	*	8	16.4
Yakima	3	*	8	3.2	13	5.2	6	2.4	9	3.6
Unspecified**	10	-	11	-	12	-	10	-	1	*
STATEWIDE TOTAL‡	901	13.1	1,119	16.1	1,310	18.6	1,521	21.2	1,787	24.4

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

**Includes cases diagnosed in correctional facilities and cases entered at the state level into the Public Health Issue Management System (PHIMS).

‡ Statewide data represent cases classified as confirmed or probable based on laboratory data and established classification criteria. Changes were made to the way data were compiled in 2016, and these changes affected case counts in many counties for the previous five years.

HEPATITIS B, CHRONIC STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
2001	1,078	18.1	55
2002	979	16.2	52
2003	950	15.5	48
2004	939	15.3	55
2005	1,034	16.4	49
2006	1,119	17.4	39
2007	1,138	17.4	47
2008	1,464	22.2	52
2009	1,194	17.9	64
2010	1,238	18.4	47
2011	1,030	15.2	54
2012	1,139	16.7	47
2013	901	13.1	60
2014	1,119	16.1	56
2015	1,310	18.6	48
2016	1,512	21.2	49
2017	1,787	24.4	49

*All rates are cases per 100,000 population.

HEPATITIS C, ACUTE

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	0	0	0	0	0	0	0	0
Asotin	0	0	0	0	0	0	0	0	0	0
Benton	0	0	1	*	0	0	0	0	0	0
Chelan	0	0	1	*	0	0	0	0	0	0
Clallam	2	*	3	*	2	*	1	*	0	0
Clark	2	*	3	*	0	0	0	0	1	*
Columbia	0	0	0	0	0	0	0	0	0	0
Cowlitz	0	0	0	0	0	0	1	*	3	*
Douglas	0	0	0	0	0	0	0	0	0	0
Ferry	0	0	0	0	0	0	0	0	0	0
Franklin	0	0	0	0	0	0	0	0	0	0
Garfield	0	0	0	0	0	0	0	0	0	0
Grant	0	0	0	0	0	0	0	0	0	0
Grays Harbor	1	*	1	*	0	0	0	0	0	0
Island	0	0	0	0	0	0	0	0	0	0
Jefferson	3	*	2	*	0	0	2	*	1	*
King	18	0.9	21	1	20	1	14	0.7	13	0.6
Kitsap	1	*	1	*	0	0	0	0	3	*
Kittitas	0	0	0	0	0	0	0	0	0	0
Klickitat	0	0	0	0	0	0	0	0	0	0
Lewis	1	*	0	0	0	0	0	0	0	0
Lincoln	0	0	0	0	0	0	0	0	0	0
Mason	0	0	0	0	0	0	1	*	0	0
Okanogan	0	0	0	0	0	0	0	0	0	0
Pacific	0	0	0	0	0	0	0	0	0	0
Pend Oreille	0	0	0	0	0	0	0	0	0	0
Pierce	7	0.9	16	1.9	22	2.7	31	3.7	27	3.1
San Juan	0	0	0	0	0	0	0	0	0	0
Skagit	1	*	3	*	2	*	6	4.9	2	1.6
Skamania	0	0	0	0	0	0	0	0	0	0
Snohomish	3	*	2	*	1	*	7	0.9	8	1.0
Spokane	14	2.9	16	3.3	13	2.7	24	4.9	7	1.4
Stevens	1	*	0	0	0	0	0	0	0	0
Thurston	0	0	0	0	0	0	1	*	0	0
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	0	0	0	0	0	0	0	0	1	*
Whatcom	9	4.4	11	5.3	2	*	3	*	6	2.8
Whitman	0	0	0	0	0	0	0	0	0	0
Yakima	0	0	2	*	1	*	4	*	1	*
STATEWIDE TOTAL	63	0.9	83	1.2	63	0.9	95	1.3	73	1.0

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

HEPATITIS C, ACUTE STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1981	54	1.3	8
1982	94	2.2	0
1983	151	3.5	1
1984	131	3	2
1985	145	3.3	1
1986	167	3.7	7
1987	207	4.6	1
1988	232	5	2
1989	208	4.4	4
1990	141	2.9	6
1991	164	3.3	4
1992	186	3.6	1
1993	219	4.2	1
1994	294	5.5	0
1995	234	4.3	1
1996	66	1.2	1
1997	42	0.7	0
1998	29	0.5	0
1999	24	0.4	0
2000	44	0.7	0
2001	31	0.5	0
2002	27	0.4	0
2003	21	0.3	0
2004	23	0.4	1
2005	21	0.3	0
2006	23	0.4	0
2007	18	0.3	0
2008	25	0.4	0
2009	22	0.3	0
2010	25	0.4	0
2011	41	0.6	0
2012	54	0.8	0
2013	63	0.9	0
2014	83	1.2	0
2015	63	0.9	0
2016	95	1.3	0
2017	73	1.0	0

*All rates are cases per 100,000 population.

HEPATITIS C, CHRONIC

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	*	7	36.1	4	*	7	35.9	8	40.3
Asotin	19	87.2	16	72.9	2	*	0	*	10	44.9
Benton	37	20.2	51	27.3	31	16.4	39	20.5	159	82.2
Chelan	14	19	31	41.7	15	20	35	46.1	51	66.4
Clallam	32	44.2	81	111.7	85	117	79	107.6	95	128.0
Clark	416	95.5	621	140.2	670	148.3	657	142.5	603	128.0
Columbia	2	*	6	147.1	2	*	0	*	1	*
Cowlitz	167	161.7	273	263.3	272	260.8	257	245.1	283	267.2
Douglas	6	15.3	6	15.1	6	15	9	22.1	13	31.4
Ferry	3	*	12	156.7	16	207.5	10	129.9	6	77.5
Franklin	8	9.4	18	20.8	5	5.7	5	5.6	10	11.1
Garfield	0	*	6	267.9	0	*	2	*	0	*
Grant	23	25.1	19	20.5	26	27.7	51	53.9	48	50.2
Grays Harbor	77	105.2	147	200.5	146	199.7	122	167.5	131	179.5
Island	42	52.7	60	75	54	67	65	78.4	86	103.9
Jefferson	11	36.3	24	78.2	32	103.6	33	106.1	31	98.9
King	906	45.7	1,096	54.3	1,121	54.6	1,931	91.7	2,383	110.6
Kitsap	179	70.5	232	90.7	301	116.6	244	92.9	292	110.5
Kittitas	14	33.4	38	90.3	17	39.8	15	34.3	19	42.5
Klickitat	12	58	11	52.8	19	90.5	22	103.4	38	175.4
Lewis	75	98.4	110	144.2	99	129.1	114	148.3	114	147.2
Lincoln	5	46.8	7	65.4	0	*	7	65.8	6	56.1
Mason	170	275.1	146	235.5	180	289.4	106	170.1	87	137.7
Okanogan	14	33.7	8	19.2	16	38.2	19	45.5	13	30.9
Pacific	23	109.5	43	203.8	29	136.7	36	170	47	221.2
Pend Oreille	5	38	22	166.5	22	166.2	24	180.6	16	119.7
Pierce	337	41.4	423	51.5	952	114.7	1,002	118.7	1,187	138.1
San Juan	9	56.3	13	80.7	17	105.1	10	61.3	10	60.6
Skagit	105	88.5	158	132.2	153	126.8	115	94.1	128	103.1
Skamania	1	*	0	*	1	*	1	*	0	*
Snohomish	497	68	654	88.3	728	96.1	912	118	1,239	157.0
Spokane	631	131.5	702	144.9	725	148.5	739	150	812	162.5
Stevens	27	61.6	55	125.3	46	104.5	42	95.2	113	253.9
Thurston	193	74.2	283	107.2	274	102.5	293	107.4	291	105.1
Wahkiakum	1	*	0	*	0	*	0	*	2	*
Walla Walla	36	60.5	36	59.9	41	67.6	26	42.8	40	65.1
Whatcom	296	143.8	302	145.5	286	136.3	296	139.3	199	92.0
Whitman	3	*	5	10.8	3	*	4	*	8	16.4
Yakima	16	6.5	251	100.9	187	74.8	180	71.7	235	92.9
Unspecified**	26	-	22	-	502	-	609	-	25	-
STATEWIDE TOTAL‡	4,438	64.5	5,995	86	7,085	100.3	8,118	113	8,839	120.9

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

**Includes cases diagnosed in correctional facilities and cases entered at the state level into the Public Health Issue Management System (PHIMS).

‡ Statewide data represent cases classified as confirmed or probable based on available laboratory data and established classification criteria. Changes were made to the way data were compiled in 2016, and these changes affected case counts in many counties for the previous five years.

HEPATITIS C, CHRONIC STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
2001	6,052	101.4	296
2002	5,218	86.1	335
2003	4,142	67.6	299
2004	4,681	76.4	362
2005	4,708	74.7	322
2006	5,296	82.5	355
2007	5,481	84.0	444
2008	6,450	97.6	473
2009	5,511	82.6	550
2010	5,619	83.6	560
2011	5,066	74.9	580
2012	4,865	71.4	604
2013	4,438	64.5	584
2014	5,995	86.0	645
2015	7,085	100.3	651
2016	8,118	113.0	534
2017	8,839	120.9	543

*All rates are cases per 100,000 population.

HERPES SIMPLEX

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	3	+	1	+	2	+	3	+	3	+
Asotin	6	+	3	+	3	+	4	+	5	+
Benton	50	27.3	62	33.2	66	34.9	70	36.8	64	33.1
Chelan	9	+	6	+	4	+	9	+	15	+
Clallam	20	27.6	18	24.8	22	30.2	14	19.1	20	26.9
Clark	153	35.1	193	43.6	183	41.2	231	50.1	305	64.8
Columbia	2	+	0	+	0	+	0	+	0	+
Cowlitz	31	30	57	55	52	50	55	52.5	50	47.2
Douglas	7	+	4	+	1	2.5	1	+	6	+
Ferry	4	+	4	+	3	39	1	+	1	+
Franklin	18	21.2	27	31.2	36	40.4	40	45.1	27	29.9
Garfield	1	+	0	+	0	+	0	+	0	+
Grant	9	+	14	15.1	18	+	30	31.7	21	22.0
Grays Harbor	23	31.4	26	35.5	19	+	14	19.2	3	+
Island	34	42.7	28	35	22	27.4	14	16.9	9	+
Jefferson	2	+	6	+	5	+	3	+	4	+
King	633	31.9	385	19.1	770	38	739	35.1	356	16.5
Kitsap	71	28	78	30.5	91	35.5	67	25.5	108	40.9
Kittitas	8	+	17	40.4	25	58.9	21	48	14	+
Klickitat	2	+	2	+	2	+	5	+	1	+
Lewis	27	35.4	11	+	8	+	20	26	9	+
Lincoln	1	+	1	+	2	+	4	+	0	+
Mason	6	+	7	+	10	+	11	+	20	31.7
Okanogan	20	48.2	7	+	7	+	14	33.6	1	+
Pacific	5	+	9	+	3	+	6	+	0	+
Pend Oreille	2	+	1	+	3	+	3	+	10	+
Pierce	364	44.7	400	48.7	474	57.5	474	56.1	409	47.6
San Juan	0	+	1	+	1	+	2	+	0	+
Skagit	26	21.9	27	22.6	25	20.9	41	33.5	57	45.9
Skamania	1	+	0	+	0	+	1	+	2	+
Snohomish	282	38.6	274	37	217	29.1	203	26.3	127	16.1
Spokane	132	27.5	201	41.5	186	38	206	41.8	163	32.6
Stevens	11	+	1	+	6	+	2	+	11	+
Thurston	91	35	71	26.9	67	25.2	99	36.3	72	26.0
Wahkiakum	3	+	0	+	1	+	0	+	0	+
Walla Walla	14	23.5	18	29.9	21	34.9	25	41.2	25	40.7
Whatcom	71	34.5	54	26	53	25.4	45	21.2	53	24.5
Whitman	9	+	8	+	6	+	8	+	11	+
Yakima	56	22.7	60	24.1	110	44	63	25.1	76	30.0
STATEWIDE TOTAL	2,207	32.1	2,082	29.9	2,524	36	2,548	35.5	2,058	28.2

All incidence rates are cases per 100,000 population.
+Incidence rates suppressed for counts ≤16 and rates with residual standard error (RSE) >30% due to statistical instability.

HERPES SIMPLEX STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
2003	2,073	33.8	0
2004	2,153	34.7	0
2005	2,331	37	0
2006	2,446	38.1	0
2007	1,952	29.9	0
2008	2,009	30.4	0
2009	1,875	28.1	0
2010	2,028	30.2	0
2011	2,149	31.8	0
2012	2,197	32.2	0
2013	2,207	32.1	0
2014	2,082	29.9	0
2015	2,524	36	0
2016	2,548	35.5	0
2017	2,058	28.2	0

*All rates are cases per 100,000 population.

Note: Data prior to 2009 are based on year reported rather than year diagnosed.

HUMAN IMMUNODEFICIENCY VIRUS (HIV)[§]

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	*	0	*	1	*	0	*	0	*
Asotin	1	*	0	*	1	*	0	*	0	*
Benton	7	*	8	*	1	*	7	*	3	*
Chelan	3	*	4	*	5	*	6	*	2	*
Clallam	3	*	1	*	4	*	3	*	2	*
Clark	25	5.74	23	5.19	20	4.43	21	4.56	31	6.58
Columbia	0	*	0	*	0	*	0	*	1	*
Cowlitz	1	*	5	*	2	*	3	*	5	*
Douglas	2	*	0	*	3	*	0	*	1	*
Ferry	0	*	1	*	0	*	0	*	0	*
Franklin	0	*	1	*	5	*	5	*	2	*
Garfield	0	*	0	*	0	*	0	*	0	*
Grant	0	*	0	*	0	*	0	*	0	*
Grays Harbor	1	*	3	*	4	*	1	*	4	*
Island	4	*	2	*	1	*	2	*	3	*
Jefferson	1	*	2	*	1	*	2	*	0	*
King	252	12.72	274	13.58	234	11.4	217	10.31	219	10.17
Kitsap	7	*	6	*	10	*	9	*	10	*
Kittitas	2	*	1	*	1	*	1	*	1	*
Klickitat	0	*	0	*	0	*	0	*	1	*
Lewis	1	*	1	*	1	*	0	*	0	*
Lincoln	0	*	0	*	0	*	1	*	1	*
Mason	3	*	1	*	5	*	4	*	4	*
Okanogan	0	*	0	*	0	*	1	*	0	*
Pacific	0	*	1	*	0	*	0	*	0	*
Pend Oreille	0	*	0	*	1	*	0	*	0	*
Pierce	59	7.24	44	5.36	68	8.19	46	5.45	49	5.70
San Juan	2	*	0	*	0	*	0	*	1	*
Skagit	9	*	5	*	1	*	9	*	1	*
Skamania	0	*	1	*	1	*	0	*	0	*
Snohomish	28	3.83	35	4.72	40	5.28	48	6.21	34	4.31
Spokane	21	4.38	7	*	24	4.91	26	5.28	24	4.80
Stevens	2	*	0	*	0	*	1	*	0	*
Thurston	8	*	5	*	8	*	10	*	9	*
Wahkiakum	0	*	1	*	0	*	0	*	0	*
Walla Walla	0	*	0	*	0	*	1	*	3	*
Whatcom	8	*	5	*	8	*	2	*	8	*
Whitman	0	*	1	*	2	*	0	*	0	*
Yakima	6	*	9	*	6	*	11	*	24	9.49
STATEWIDE TOTAL	456	6.63	448	6.43	461	6.53	437	6.08	443	6.06

§ Cases are presented by year of initial HIV diagnosis, regardless of diagnostic status (HIV or AIDS), and by county of residence at time of diagnosis. Data reflects cases reported through 8/30/18.

*All rates expressed as cases per 100,000 population. New HIV case rates not calculated for fewer than 12 cases.

People Living with HIV Disease and Related Deaths

STATEWIDE BY YEAR

Year	Cases[α]	Rate*	Deaths**
2003	8,224	134.23	180
2004	8,675	139.73	143
2005	9,112	144.66	164
2006	9,622	149.87	121
2007	10,130	155.25	114
2008	10,512	159.07	110
2009	10,792	161.75	134
2010	11,125	165.44	107
2011	11,187	165.29	118
2012	11,317	165.99	99
2013	11,624	168.89	107
2014	11,788	169.17	79
2015	12,158	172.18	83
2016	12,433	173.07	66
2017	12,931	176.89	---

[α] Includes resident cases of HIV disease that have been reported to the health department and are presumed living in Washington at a specific point in time, regardless of where each case was diagnosed. This methodology accounts for in-migration as well as out-migration, which results in a slower increase of people living with HIV in Washington over time.

*All rates are cases per 100,000 population.

**Includes only deaths attributed to HIV or AIDS. The number of HIV deaths in 2017 was unavailable at the time of this report.

LEGIONELLOSIS

Year	Cases	Rate*	Deaths
1985	7	0.2	2
1986	15	0.3	8
1987	24	0.5	3
1988	29	0.6	4
1989	30	0.6	5
1990	18	0.4	4
1991	15	0.3	5
1992	15	0.3	5
1993	12	0.2	2
1994	13	0.2	2
1995	22	0.4	6
1996	7	0.1	2
1997	11	0.2	0
1998	15	0.3	2
1999	21	0.4	4
2000	19	0.3	1
2001	10	0.2	1
2002	8	0.1	3
2003	14	0.2	1
2004	15	0.2	4
2005	18	0.3	1
2006	20	0.3	1
2007	24	0.4	2
2008	19	0.3	1
2009	29	0.4	2
2010	35	0.5	4
2011	43	0.6	4
2012	30	0.4	5
2013	52	0.8	5
2014	63	0.9	8
2015	58	0.8	2
2016	72	1.0	10
2017	56	0.8	6

*All rates are cases per 100,000 population.

LEPTOSPIROSIS

Year	Cases	Rate*	Deaths
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	0	0	0
1993	0	0	0
1994	0	0	0
1995	0	0	0
1996	2	0	0
1997	2	0	0
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001	4	0.1	0
2002	0	0	0
2003	1	0	0
2004	0	0	0
2005	4	0.1	0
2006	1	0	0
2007	5	0.1	0
2008	1	0	0
2009	0	0	0
2010	1	0	0
2011	0	0	0
2012	2	0	0
2013	0	0	0
2014	0	0	0
2015	2	0	0
2016	2	0	0
2017	0	0	0

*All rates are cases per 100,000 population.

LISTERIOSIS

Year	Cases	Rate*	Deaths
1985	21	0.5	1
1986	37	0.8	5
1987	36	0.8	6
1988	38	0.8	4
1989	21	0.4	2
1990	22	0.5	3
1991	18	0.4	6
1992	13	0.3	0
1993	21	0.4	2
1994	13	0.2	3
1995	24	0.4	1
1996	11	0.2	3
1997	17	0.3	1
1998	12	0.2	3
1999	19	0.3	5
2000	12	0.2	2
2001	15	0.3	1
2002	11	0.2	0
2003	13	0.2	3
2004	13	0.2	3
2005	14	0.2	3
2006	18	0.3	3
2007	25	0.4	2
2008	29	0.4	3
2009	24	0.4	4
2010	24	0.4	1
2011	19	0.3	2
2012	26	0.4	5
2013	21	0.3	1
2014	24	0.3	5
2015	21	0.3	3
2016	14	0.2	2
2017	17	0.2	3

*All rates are cases per 100,000 population.

LYME DISEASE

Year	Cases	Rate*	Deaths
1986	1	0	0
1987	10	0.2	0
1988	12	0.3	0
1989	37	0.8	0
1990	33	0.7	0
1991	7	0.1	0
1992	14	0.3	0
1993	9	0.2	0
1994	4	0.1	0
1995	10	0.2	0
1996	18	0.3	0
1997	10	0.2	0
1998	7	0.1	0
1999	14	0.2	0
2000	9	0.2	0
2001	9	0.2	0
2002	12	0.2	0
2003	7	0.1	0
2004	14	0.2	0
2005	13	0.2	0
2006	8	0.1	0
2007	12	0.2	0
2008	23	0.3	0
2009	16	0.2	0
2010	16	0.2	0
2011	19	0.3	0
2012	15	0.2	0
2013	21	0.3	0
2014	15	0.2	0
2015	24	0.3	0
2016	31	0.4	0
2017	39	0.5	0

*All rates are cases per 100,000 population.

MALARIA

Year	Cases	Rate*	Deaths
1981	30	0.7	0
1982	24	0.6	0
1983	15	0.3	0
1984	20	0.5	0
1985	34	0.8	0
1986	35	0.8	0
1987	28	0.6	0
1988	24	0.5	0
1989	44	0.9	0
1990	33	0.7	0
1991	29	0.6	0
1992	21	0.4	0
1993	41	0.8	0
1994	45	0.8	0
1995	23	0.4	0
1996	41	0.7	0
1997	49	0.9	0
1998	30	0.5	0
1999	43	0.7	0
2000	43	0.7	0
2001	19	0.3	0
2002	26	0.4	0
2003	34	0.6	0
2004	24	0.4	0
2005	24	0.4	0
2006	43	0.7	1
2007	30	0.5	0
2008	32	0.5	0
2009	26	0.4	1
2010	39	0.6	0
2011	24	0.4	0
2012	26	0.4	0
2013	30	0.4	0
2014	41	0.6	0
2015	23	0.3	0
2016	46	0.6	0
2017	34	0.5	0

*All rates are cases per 100,000 population.

MEASLES

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	0	0	0	0	0	0	0	0
Asotin	0	0	0	0	0	0	0	0	0	0
Benton	0	0	0	0	0	0	0	0	0	0
Chelan	0	0	0	0	0	0	0	0	0	0
Clallam	0	0	0	0	6	8.3	0	0	0	0
Clark	0	0	0	0	0	0	0	0	0	0
Columbia	0	0	0	0	0	0	0	0	0	0
Cowlitz	0	0	0	0	0	0	0	0	0	0
Douglas	0	0	0	0	0	0	0	0	0	0
Ferry	0	0	0	0	0	0	0	0	0	0
Franklin	0	0	0	0	0	0	0	0	0	0
Garfield	0	0	0	0	0	0	0	0	0	0
Grant	0	0	0	0	0	0	0	0	0	0
Grays Harbor	0	0	1	*	1	*	0	0	0	0
Island	0	0	0	0	0	0	0	0	0	0
Jefferson	0	0	0	0	0	0	0	0	0	0
King	4	*	13	0.6	0	0	0	0	2	*
Kitsap	0	0	1	*	0	0	0	0	0	0
Kittitas	0	0	0	0	0	0	0	0	0	0
Klickitat	0	0	0	0	0	0	0	0	0	0
Lewis	0	0	0	0	0	0	0	0	0	0
Lincoln	0	0	0	0	0	0	0	0	0	0
Mason	0	0	0	0	0	0	0	0	0	0
Okanogan	0	0	0	0	0	0	0	0	0	0
Pacific	0	0	0	0	0	0	0	0	0	0
Pend Oreille	0	0	0	0	0	0	0	0	0	0
Pierce	0	0	3	*	0	0	0	0	0	0
San Juan	0	0	7	43.5	0	0	0	0	0	0
Skagit	0	0	1	*	0	0	0	0	0	0
Skamania	0	0	0	0	0	0	0	0	0	0
Snohomish	0	0	1	*	0	0	0	0	0	0
Spokane	0	0	0	0	2	*	0	0	0	0
Stevens	0	0	0	0	0	0	0	0	0	0
Thurston	0	0	0	0	0	0	0	0	0	0
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	0	0	0	0	0	0	0	0	0	0
Whatcom	0	0	6	2.9	1	*	0	0	0	0
Whitman	0	0	0	0	0	0	0	0	1	*
Yakima	0	0	0	0	0	0	0	0	0	0
STATEWIDE TOTAL	4	0.1	33	0.5	10	0.1	0	0	3	0

All rates are cases per 100,000 population.
* Incidence rates not calculated for <5 cases.

MEASLES STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1980	178	4.3	0
1981	3	0.1	0
1982	42	1	0
1983	43	1	0
1984	178	4.1	0
1985	178	4	0
1986	176	3.9	0
1987	47	1	0
1988	7	0.2	0
1989	56	1.2	0
1990	357	7.3	2
1991	67	1.3	0
1992	11	0.2	0
1993	0	0	0
1994	5	0.1	0
1995	17	0.3	0
1996	38	0.7	0
1997	2	0	0
1998	1	0	0
1999	5	0.1	0
2000	3	0.1	0
2001	15	0.3	0
2002	1	0	0
2003	0	0	0
2004	7	0.1	0
2005	1	0	0
2006	1	0	0
2007	3	0	0
2008	19	0.3	0
2009	1	0	0
2010	1	0	0
2011	4	0.1	0
2012	0	0	0
2013	4	0.1	0
2014	33	0.5	0
2015	10	0.1	1
2016	0	0	0
2017	3	0	0

*All rates are cases per 100,000 population.

MENINGOCOCCAL DISEASE

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	0	0	0	0	0	0	0	0
Asotin	0	0	0	0	0	0	0	0	0	0
Benton	1	*	0	0	1	*	0	0	0	0
Chelan	1	*	0	0	1	*	0	0	0	0
Clallam	1	*	0	0	0	0	0	0	0	0
Clark	2	*	2	*	1	*	0	0	1	*
Columbia	0	0	0	0	0	0	0	0	0	0
Cowlitz	1	*	1	*	0	0	0	0	0	0
Douglas	1	*	0	0	0	0	0	0	0	0
Ferry	0	0	0	0	0	0	0	0	0	0
Franklin	0	0	0	0	0	0	0	0	0	0
Garfield	0	0	0	0	0	0	0	0	0	0
Grant	0	0	1	*	0	0	0	0	1	*
Grays Harbor	0	0	0	0	0	0	0	0	0	0
Island	0	0	1	*	0	0	0	0	0	0
Jefferson	0	0	0	0	0	0	0	0	0	0
King	3	*	1	*	3	*	3	*	2	*
Kitsap	2	*	0	0	0	0	0	0	1	*
Kittitas	1	*	0	0	0	0	0	0	0	0
Klickitat	0	0	0	0	0	0	0	0	0	0
Lewis	0	0	0	0	2	*	0	0	0	0
Lincoln	1	*	0	0	0	0	0	0	0	0
Mason	0	0	0	0	0	0	0	0	0	0
Okanogan	0	0	0	0	0	0	0	0	0	0
Pacific	0	0	0	0	0	0	0	0	0	0
Pend Oreille	0	0	0	0	0	0	0	0	0	0
Pierce	1	*	4	*	1	*	8	0.9	2	*
San Juan	0	0	1	*	0	0	0	0	0	0
Skagit	0	0	0	0	0	0	0	0	0	0
Skamania	0	0	0	0	0	0	0	0	0	0
Snohomish	2	*	1	*	0	0	1	*	1	*
Spokane	2	*	2	*	0	0	0	0	1	*
Stevens	1	*	0	0	0	0	0	0	0	0
Thurston	0	0	2	*	1	*	1	*	1	*
Wahkiakum	0	0/0	0	0	0	0	0	0	0	0
Walla Walla	0	0	0	0	0	0	0	0	0	0
Whatcom	0	0	0	0	0	0	0	0	1	*
Whitman	0	0	0	0	0	0	0	0	0	0
Yakima	0	0	1	*	0	0	0	0	0	0
STATEWIDE TOTAL	20	0.3	17	0.2	10	0.1	13	0.2	11	0.2

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

MENINGOCOCCAL DISEASE STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1980	67	1.6	2
1981	78	1.8	3
1982	56	1.3	2
1983	48	1.1	3
1984	56	1.3	3
1985	67	1.5	6
1986	62	1.4	5
1987	87	1.9	4
1988	76	1.6	3
1989	96	2	12
1990	80	1.6	5
1991	73	1.5	8
1992	92	1.8	5
1993	97	1.8	6
1994	111	2.1	7
1995	126	2.3	7
1996	116	2.1	10
1997	115	2	11
1998	77	1.3	7
1999	93	1.6	4
2000	71	1.2	6
2001	71	1.2	6
2002	76	1.3	8
2003	61	1	7
2004	42	0.7	4
2005	53	0.8	4
2006	45	0.7	1
2007	32	0.5	8
2008	40	0.6	4
2009	26	0.4	3
2010	33	0.5	3
2011	22	0.3	0
2012	24	0.4	1
2013	20	0.3	3
2014	17	0.2	2
2015	10	0.1	1
2016	13	0.2	1
2017	11	0.2	1

*All rates are cases per 100,000 population.

MUMPS

Year	Cases	Rate*	Deaths
1980	166	4	0
1981	165	3.9	0
1982	102	2.4	0
1983	55	1.3	0
1984	56	1.3	0
1985	42	1	0
1986	30	0.7	0
1987	70	1.5	0
1988	44	1	0
1989	59	1.2	0
1990	66	1.4	0
1991	178	3.5	0
1992	18	0.4	0
1993	14	0.3	0
1994	23	0.4	0
1995	16	0.3	0
1996	26	0.5	0
1997	21	0.4	0
1998	11	0.2	0
1999	2	0	0
2000	10	0.2	0
2001	2	0	0
2002	0	0	0
2003	11	0.2	0
2004	2	0	0
2005	3	0	0
2006	42	0.7	0
2007	53	0.8	0
2008	14	0.2	0
2009	6	0.1	0
2010	7	0.1	0
2011	2	0	0
2012	2	0	0
2013	2	0	0
2014	9	0.1	0
2015	7	0.1	0
2016	152	2.1	0
2017	779	10.7	0

*All rates are cases per 100,000 population.

PERTUSSIS

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	2	*	11	56.7	1	*	1	*	1	*
Asotin	1	*	1	*	1	*	1	*	0	0
Benton	8	4.4	7	3.8	4	*	7	3.7	5	2.6
Chelan	7	9.5	3	*	5	6.7	1	*	3	*
Clallam	13	18	20	27.6	4	*	12	16.3	0	0
Clark	59	13.5	59	13.3	322	71	64	13.9	101	21.4
Columbia	1	*	0	0	3	*	0	0	0	0
Cowlitz	5	4.8	10	9.6	24	23	21	20	12	11.3
Douglas	3	*	0	0	1	*	0	0	1	*
Ferry	0	0	0	0	0	0	0	0	0	0
Franklin	5	5.9	4	*	1	*	1	*	3	*
Garfield	1	*	0	0	0	0	0	0	0	0
Grant	58	63.2	35	37.7	14	14.9	4	*	64	66.9
Grays Harbor	1	*	0	0	10	13.7	10	13.7	1	*
Island	0	0	6	7.5	17	21.1	4	*	2	*
Jefferson	0	0	1	*	30	97.2	13	41.8	2	*
King	113	5.7	151	7.5	210	10.2	121	5.7	121	5.6
Kitsap	7	2.8	43	16.8	95	36.8	14	5.3	10	3.8
Kittitas	8	19.1	0	0	7	16.4	8	18.3	5	11.2
Klickitat	2	*	2	*	5	23.8	0	0	0	0
Lewis	6	7.9	16	21	16	20.9	2	*	5	6.5
Lincoln	1	*	0	0	0	0	0	0	0	0
Mason	7	11.3	0	0	4	*	2	*	5	7.9
Okanogan	15	36.1	3	*	0	0	0	0	0	0
Pacific	0	0	0	0	10	47.1	0	0	0	0
Pend Oreille	0	0	1	*	1	*	0	0	0	0
Pierce	116	14.2	86	10.5	157	18.9	87	10.3	119	13.8
San Juan	0	0	3	*	0	0	2	*	1	*
Skagit	18	15.2	18	15.1	5	4.1	11	9.0	17	13.7
Skamania	0	0	0	0	1	*	0	0	0	0
Snohomish	52	7.1	25	3.4	244	32.2	81	10.5	47	6.0
Spokane	48	10	26	5.4	48	9.8	67	13.6	34	6.8
Stevens	3	*	0	0	1	*	3	*	0	0
Thurston	43	16.5	13	4.9	32	12	24	8.8	19	6.9
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	1	*	14	23.3	37	61	0	0	1	*
Whatcom	35	17	24	11.6	61	29.1	52	24.5	95	43.9
Whitman	8	17.4	1	*	2	*	1	*	0	0
Yakima	101	40.8	17	6.8	10	4	4	*	66	26.1
STATEWIDE TOTAL	748	10.9	600	8.6	1,383	19.6	618	8.6	740	10.1

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

PERTUSSIS STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1980	77	1.9	0
1981	58	1.4	1
1982	36	0.8	1
1983	20	0.5	0
1984	326	7.5	1
1985	92	2.1	0
1986	163	3.7	2
1987	110	2.4	0
1988	130	2.8	1
1989	201	4.3	0
1990	227	4.7	0
1991	149	3	0
1992	241	4.7	0
1993	96	1.8	0
1994	140	2.6	0
1995	491	9	0
1996	830	14.9	1
1997	481	8.5	0
1998	406	7.1	1
1999	739	12.7	0
2000	458	7.8	1
2001	184	3.1	0
2002	575	9.5	0
2003	844	13.8	0
2004	842	13.6	0
2005	1,026	16.3	0
2006	377	5.9	1
2007	482	7.4	0
2008	460	7	1
2009	291	4.4	0
2010	607	9	2
2011	962	14.2	2
2012	4,916	72.1	0
2013	748	10.9	0
2014	600	8.6	0
2015	1,383	19.6	0
2016	618	8.6	0
2017	740	10.1	0

*All rates are cases per 100,000 population.

PLAGUE

Year	Cases	Rate*	Deaths
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	0	0	0
1993	0	0	0
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0
2005	0	0	0
2006	0	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	0	0	0

*All rates are cases per 100,000 population.

POLIOMYELITIS

Year	Cases	Rate*	Deaths
1985	0	0	0
1986	0	0	0
1987	1‡	0	0
1988	1‡	0	0
1989	0	0	0
1990	0	0	0
1991	1‡	0	0
1992	1‡	0	0
1993	1‡	0	0
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0
2005	0	0	0
2006	0	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	0	0	0

*All rates are cases per 100,000 population.

‡Vaccine-associated cases.

PSITTACOSIS

Year	Cases	Rate*	Deaths
1985	3	0.1	1
1986	7	0.2	0
1987	12	0.3	0
1988	8	0.2	0
1989	4	0.1	1
1990	5	0.1	0
1991	6	0.1	0
1992	13	0.3	0
1993	4	0.1	0
1994	4	0.1	0
1995	7	0.1	0
1996	4	0.1	0
1997	0	0	0
1998	3	0.1	0
1999	0	0	0
2000	1	0	0
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0
2005	1	0	0
2006	0	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	0	0	0

*All rates are cases per 100,000 population.

Q FEVER

Year	Cases	Rate*	Deaths
1986	2	0	0
1987	1	0	1
1988	1	0	0
1989	0	0	0
1990	2	0	0
1991	0	0	0
1992	1	0	0
1993	0	0	0
1994	0	0	0
1995	1	0	0
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	1	0	0
2000	0	0	0
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0
2005	2	0	0
2006	0	0	0
2007	1	0	0
2008	0	0	0
2009	1	0	0
2010	3	0	1
2011	8	0.1	0
2012	3	0	2
2013	3	0	0
2014	1	0	0
2015	3	0	0
2016	7	0.1	0
2017	2	0	0

*All rates are cases per 100,000 population.

RABIES (HUMAN)

Year	Cases	Rate*	Deaths
1985	0	0	0
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	0	0	0
1993	0	0	0
1994	0	0	0
1995	1	0	1
1996	0	0	0
1997	1	0	1
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0
2005	0	0	0
2006	0	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	0	0	0

*All rates are cases per 100,000 population.

RARE SEXUALLY TRANSMITTED DISEASES

Statewide Total Cases

Year	Total	Chancroid	Granuloma inguinale	Lymphogranuloma venereum
1986	1	1	0	0
1987	7	1	1	5
1988	1	0	0	1
1989	13	6	0	7
1990	3	1	1	1
1991	7	3	2	2
1992	4	2	0	2
1993	4	0	0	4
1994	4	1	0	3
1995	6	5	0	1
1996	2	1	0	1
1997	2	2	0	0
1998	1	1	0	0
1999	0	0	0	0
2000	1	0	0	1
2001	0	0	0	0
2002	1	1	0	0
2003	1	0	0	1
2004	0	0	0	0
2005	3	0	0	3
2006	0	0	0	0
2007	1	0	0	1
2008	5	1	0	4
2009	2	0	0	2
2010	3	1	0	2
2011	1	0	0	1
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0
2015	1	0	0	1
2016	1	0	0	1
2017	1	0	0	1

Note: Data prior to 2009 are based on year reported rather than year diagnosed

RELAPSING FEVER

Year	Cases	Rate*	Deaths
1986	2	0	0
1987	7	0.2	1
1988	5	0.1	0
1989	5	0.1	0
1990	4	0.1	0
1991	6	0.1	0
1992	6	0.1	0
1993	2	0	0
1994	9	0.2	0
1995	12	0.2	0
1996	8	0.1	0
1997	4	0.1	0
1998	5	0.1	0
1999	3	0.1	0
2000	5	0.1	1
2001	1	0	0
2002	7	0.1	0
2003	6	0.1	0
2004	6	0.1	0
2005	6	0.1	0
2006	2	0	0
2007	9	0.1	0
2008	4	0.1	0
2009	5	0.1	0
2010	7	0.1	0
2011	11	0.2	0
2012	6	0.1	0
2013	4	0.1	0
2014	7	0.1	0
2015	3	0.1	0
2016	1	0.1	0
2017	3	0	0

*All rates are cases per 100,000 population.

RUBELLA

Year	Cases	Rate*	Deaths
1981	108	2.6	0
1982	58	1.4	0
1983	10	0.2	0
1984	2	0	0
1985	16	0.4	0
1986	15	0.3	0
1987	2	0	0
1988	0	0	0
1989	2	0	0
1990	6	0.1	0
1991	8	0.2	0
1992	8	0.2	0
1993	3	0.1	0
1994	0	0	0
1995	2	0	0
1996	15	0.3	0
1997	5	0.1	0
1998	5	0.1	0
1999	5	0.1	0
2000	8	0.1	0
2001	0	0	0
2002	2	0	0
2003	0	0	0
2004	0	0	0
2005	1	0	0
2006	0	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0
2010	1	0	0
2011	2	0	0
2012	0	0	0
2013	1	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	0	0	0

*All rates are cases per 100,000 population.

SALMONELLOSIS

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	3	*	1	*	2	10.3	1	*	2	*
Asotin	1	*	2	*	0	0	1	*	1	*
Benton	27	14.7	23	12.5	26	13.8	25	13.1	24	12.4
Chelan	2	*	5	6.7	6	8	4	*	3	*
Clallam	5	6.9	4	*	5	6.9	7	9.5	3	*
Clark	46	10.6	58	13.1	49	10.8	77	16.7	66	14.0
Columbia	0	0	1	*	0	0	0	0.0	1	*
Cowlitz	9	8.7	14	13.5	15	14.4	14	13.4	10	9.4
Douglas	2	*	0	*	2	*	3	*	2	*
Ferry	0	0	2	*	0	0	1	*	0	0
Franklin	15	17.7	10	11.5	11	12.6	11	12.4	5	5.5
Garfield	0	0	1	*	1	*	0	0	0	0
Grant	14	15.3	12	12.9	10	10.6	3	*	13	13.6
Grays Harbor	7	9.6	5	6.8	5	6.8	4	*	8	11.0
Island	7	8.8	7	8.8	6	7.4	3	*	7	8.5
Jefferson	5	16.5	1	*	1	*	5	16.1	2	*
King	199	10	229	11.4	435	21.2	234	11.1	242	11.2
Kitsap	19	7.5	29	11.3	22	8.5	23	8.8	21	8.0
Kittitas	5	11.9	2	*	6	14.1	5	11.4	9	20.1
Klickitat	2	*	4	*	2	*	3	*	3	*
Lewis	5	6.6	12	15.7	8	10.4	6	7.8	11	14.2
Lincoln	2	*	0	0	1	*	1	*	1	*
Mason	9	14.6	6	9.7	9	14.5	7	11.2	4	*
Okanogan	1	*	4	*	1	*	4	*	4	*
Pacific	2	*	0	0	2	*	3	*	2	*
Pend Oreille	1	*	1	*	0	0	0	0	0	0
Pierce	74	9.2	77	9.4	95	11.4	101	12.0	116	13.5
San Juan	0	0	2	*	8	49.4	1	*	0	0
Skagit	15	12.6	9	7.5	6	5	6	4.9	14	11.3
Skamania	1	*	0	0	2	*	0	0	0	0
Snohomish	64	8.8	89	12	120	15.8	78	10.1	80	10.1
Spokane	33	6.9	30	6.2	45	9.2	40	8.1	46	9.2
Stevens	6	13.7	5	11.4	5	11.4	4	*	6	13.5
Thurston	32	12.3	22	8.3	40	15	19	7.0	27	9.8
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	8	13.4	2	*	8	13.2	7	11.5	6	9.8
Whatcom	16	7.8	15	7.2	26	12.4	23	10.8	18	8.3
Whitman	2	*	4	*	6	12.7	0	0	0	0
Yakima	31	12.5	53	21.3	48	19.2	30	12.0	53	20.9
STATEWIDE TOTAL	670	9.7	741	10.6	1,034	14.6	754	10.5	810	11.1

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

SALMONELLOSIS STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1980	462	11.2	0
1981	574	13.6	5
1982	749	17.5	0
1983	739	17.2	0
1984	515	11.8	0
1985	565	12.8	0
1986	783	17.5	2
1987	660	14.6	1
1988	612	13.3	0
1989	630	13.3	2
1990	634	13	6
1991	791	15.8	1
1992	609	11.8	1
1993	830	15.8	0
1994	863	16.1	0
1995	691	12.6	0
1996	734	13.2	0
1997	675	11.9	0
1998	703	12.2	2
1999	792	13.6	2
2000	659	11.2	1
2001	681	11.4	2
2002	655	10.8	0
2003	699	11.4	1
2004	660	10.6	2
2005	626	9.9	0
2006	627	9.8	3
2007	758	11.6	2
2008	846	12.8	3
2009	820	12.3	2
2010	780	11.6	3
2011	589	8.7	2
2012	842	12.4	0
2013	671	9.7	1
2014	741	10.6	2
2015	1,034	14.6	1
2016	754	10.5	2
2017	810	11.1	4

*All rates are cases per 100,000 population.

SHELLFISH POISONING: PARALYTIC, DOMOIC ACID, DIARRHETIC

Year	Cases	Rate*	Deaths
1985	3	0.1	0
1986	0	0	0
1987	0	0	0
1988	7	0.2	0
1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	0	0	0
1993	0	0	0
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	0	0	0
1998	5	0.1	0
1999	0	0	0
2000	7	0.1	0
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0
2005	1	0	0
2006	1	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0
2010	0	0	0
2011	0	0	0
2012	9	0.1	0
2013	0	0	0
2014	0	0	0
2015	1	0	0
2016	0	0	0
2017	0	0	0

*All rates are cases per 100,000 population.

SHIGA TOXIN-PRODUCING *ESCHERICHIA COLI* (STEC)

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	1	5.2	3	*	0	0	0	0
Asotin	2	*	1	4.6	1	*	0	0	1	*
Benton	12	6.5	9	4.9	8	4.2	12	6.3	11	5.7
Chelan	5	6.8	3	4	4	*	1	*	2	*
Clallam	2	*	0	0	2	*	0	0	4	*
Clark	51	11.7	27	6.1	45	10	25	5.4	38	8.1
Columbia	0	0	0	0	0	0	0	0	0	0
Cowlitz	0	0	3	*	8	7.7	3	*	6	5.7
Douglas	0	0	0	0	1	*	0	0	0	0
Ferry	0	0	0	0	0	0	0	0	0	0
Franklin	4	*	6	6.9	2	*	4	*	0	0
Garfield	0	0	1	*	1	*	1	*	0	0
Grant	6	6.5	5	5.4	9	9.6	3	*	7	7.3
Grays Harbor	2	*	5	6.8	4	*	1	*	1	*
Island	6	7.5	2	*	3	*	0	0	2	*
Jefferson	0	0	0	0	2	*	0	0	3	*
King	72	3.6	93	4.6	113	5.5	121	5.7	129	6.0
Kitsap	1	*	9	3.5	3	*	5	1.9	6	2.3
Kittitas	6	14.3	7	16.6	4	*	4	*	9	20.1
Klickitat	1	*	2	*	0	0	0	0	2	*
Lewis	6	7.9	8	10.5	6	7.8	7	9.1	3	*
Lincoln	1	*	1	*	1	*	0	0	1	*
Mason	2	*	1	*	0	0	3	*	2	*
Okanogan	2	*	2	*	1	*	1	*	2	*
Pacific	0	0	0	0	0	0	0	0	1	*
Pend Oreille	0	0	0	0	0	0	2	*	0	0
Pierce	14	1.7	16	1.9	26	3.1	33	3.9	41	4.8
San Juan	2	*	0	0	0	0	4	*	1	*
Skagit	9	7.6	11	9.2	12	9.9	10	8.2	9	7.3
Skamania	0	0	0	0	0	0	0	0	0	0
Snohomish	42	5.7	22	3	35	4.6	26	3.4	32	4.1
Spokane	19	4	16	3.3	17	3.5	17	3.5	22	4.4
Stevens	4	*	1	*	2	*	2	*	0	0
Thurston	20	7.7	14	5.3	8	3	13	4.8	16	5.8
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	2	*	1	*	1	*	1	*	1	*
Whatcom	15	7.3	17	8.2	75	35.8	17	8.0	24	11.1
Whitman	0	0	0	0	2	*	1	*	0	0
Yakima	22	8.9	15	6	20	8	23	9.2	28	11.1
STATEWIDE TOTAL	330	4.8	299	4.3	419	5.9	340	4.7	404	5.5

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

SHIGA TOXIN-PRODUCING *ESCHERICHIA COLI (STEC)*

STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1988	167	3.6	0
1989	157	3.3	1
1990	220	4.5	0
1991	164	3.3	0
1992	300	5.8	2
1993	741	14.1	3
1994	174	3.2	2
1995	140	2.6	1
1996	187	3.4	1
1997	149	2.6	0
1998	144	2.5	0
1999	186	3.2	0
2000	237	4	0
2001	150	2.5	0
2002	166	2.7	0
2003	128	2.1	0
2004	153	2.5	3
2005	149	2.4	0
2006	162	2.5	0
2007	141	2.2	0
2008	189	2.9	1
2009	206	3.1	0
2010	226	3.4	1
2011	203	3	1
2012	239	3.5	0
2013	330	4.8	3
2014	229	4.3	2
2015	419	5.9	1
2016	340	4.7	0
2017	404	5.5	1

*All rates are cases per 100,000 population.

SHIGELLOSIS

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	20	104.2	4	20.6	5	25.8	19	97.4	4	*
Asotin	0	0	0	0	0	0	0	0	1	*
Benton	2	*	3	*	2	*	1	*	5	2.6
Chelan	1	*	2	*	1	*	2	*	2	*
Clallam	0	0	0	0	0	0	1	*	2	*
Clark	11	2.5	14	3.2	10	2.2	11	2.4	14	3.0
Columbia	0	0	0	0	0	0	0	0	0	0
Cowlitz	0	0	0	0	2	*	2	*	0	0
Douglas	0	0	0	0	1	*	0	0	1	*
Ferry	0	0	0	0	0	0	0	0	0	0
Franklin	2	2.4	0	0	1	*	3	*	0	0
Garfield	0	0	0	0	0	0	0	0	0	0
Grant	9	9.9	1	*	7	7.5	1	*	1	*
Grays Harbor	1	*	0	0	0	0	0	0	6	8.2
Island	0	0	0	0	2	*	0	0	1	*
Jefferson	0	0	0	0	0	0	0	0	1	*
King	43	2.2	71	3.5	78	3.8	82	3.9	160	7.4
Kitsap	3	*	2	*	6	2.3	1	*	5	1.9
Kittitas	0	0	0	0	2	*	0	0	0	0
Klickitat	0	0	0	0	0	0	0	0	0	0
Lewis	1	*	0	0	0	0	1	*	0	0
Lincoln	0	0	0	0	0	0	0	0	0	0
Mason	1	*	0	0	0	0	1	*	0	0
Okanogan	0	0	0	0	0	0	0	0	2	*
Pacific	0	0	0	0	0	0	0	0	0	0
Pend Oreille	0	0	0	0	0	0	1	*	0	0
Pierce	4	*	6	0.7	14	1.7	9	1.1	22	2.6
San Juan	0	0	1	*	0	0	1	*	0	0
Skagit	0	0	4	*	0	0	1	*	9	7.3
Skamania	0	0	0	0	0	0	0	0	0	0.0
Snohomish	8	1.1	13	1.8	15	2	18	2.3	19	2.4
Spokane	3	*	11	2.3	2	*	10	2.0	8	1.6
Stevens	0	0	0	0	0	0	0	0	0	0
Thurston	1	*	5	1.9	1	*	3	*	3	*
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	0	0	0	0	0	0	0	0	1	*
Whatcom	5	2.4	4	*	1	*	6	2.8	5	2.3
Whitman	1	*	1	*	1	*	0	0	0	0
Yakima	6	2.4	15	6	1	*	17	6.8	13	5.1
STATEWIDE TOTAL	122	1.8	157	2.3	152	2.2	191	2.7	285	3.9

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

SHIGELLOSIS STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1980	287	6.9	0
1981	426	10.1	1
1982	284	6.6	0
1983	370	8.6	0
1984	224	5.1	0
1985	144	3.3	0
1986	321	7.2	0
1987	318	7	0
1988	306	6.6	0
1989	232	4.9	0
1990	278	5.7	0
1991	405	8.1	0
1992	439	8.5	0
1993	797	15.1	0
1994	478	8.9	0
1995	426	7.8	0
1996	333	6	1
1997	318	5.6	0
1998	277	4.8	0
1999	172	2.9	0
2000	501	8.5	0
2001	236	4	0
2002	230	3.8	0
2003	188	3.1	0
2004	133	2.1	0
2005	185	2.9	0
2006	170	2.6	0
2007	159	2.4	0
2008	116	1.8	0
2009	153	2.3	0
2010	112	1.7	0
2011	104	1.5	0
2012	133	2	0
2013	122	1.8	0
2014	157	2.3	0
2015	152	2.2	0
2016	191	2.7	0
2017	285	3.9	0

*All rates are cases per 100,000 population.

SYPHILIS (PRIMARY AND SECONDARY)

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	+	2	+	0	+	0	+	1	+
Asotin	0	+	0	+	0	+	0	+	1	+
Benton	7	+	18	+	13	+	4	+	6	+
Chelan	0	+	0	+	1	1.3	1	+	3	+
Clallam	0	+	1	+	1	1.4	2	+	5	+
Clark	22	5.1	20	4.5	21	4.7	21	4.6	33	7.0
Columbia	0	+	1	+	0	+	0	+	0	+
Cowlitz	1	+	8	+	4	+	3	+	21	19.8
Douglas	0	+	0	+	0	+	1	+	0	+
Ferry	0	+	0	+	0	+	0	+	0	+
Franklin	4	+	6	+	6	+	3	+	2	+
Garfield	0	+	0	+	0	+	0	+	0	+
Grant	1	+	4	+	9	+	9	+	4	+
Grays Harbor	0	+	3	+	0	+	1	+	3	+
Island	2	+	1	+	0	+	0	+	2	+
Jefferson	0	+	0	+	0	+	0	+	1	+
King	174	8.8	173	8.6	250	12.3	292	13.9	323	15.0
Kitsap	4	+	6	+	6	+	14	5.3	18	6.8
Kittitas	3	+	1	+	3	+	0	+	3	+
Klickitat	0	+	0	+	0	+	1	+	1	+
Lewis	0	+	1	+	1	+	0	+	5	+
Lincoln	0	+	0	+	0	+	0	+	0	+
Mason	0	+	0	+	4	+	6	+	5	+
Okanogan	0	+	0	+	1	+	1	+	2	+
Pacific	0	+	0	+	0	+	2	+	1	+
Pend Oreille	0	+	0	+	0	+	1	+	1	+
Pierce	28	3.4	30	3.7	41	5	58	6.9	63	7.3
San Juan	0	+	0	+	0	+	0	+	1	+
Skagit	2	+	2	+	5	+	4	+	2	+
Skamania	0	+	1	+	1	+	1	+	0	+
Snohomish	13	1.8	27	3.6	25	3.4	48	6.2	53	6.7
Spokane	2	+	11	+	28	5.7	60	12.2	78	15.6
Stevens	0	+	0	+	1	+	1	+	0	+
Thurston	3	+	2	+	9	+	6	+	8	+
Wahkiakum	0	+	0	+	0	+	1	+	1	+
Walla Walla	0	+	1	+	3	+	3	+	5	+
Whatcom	5	+	2	+	6	+	8	+	6	+
Whitman	0	+	1	+	1	+	3	+	2	+
Yakima	14	+	15	+	7	+	11	+	14	+
STATEWIDE TOTAL	285	4.1	337	4.8	452	6.5	566	7.9	674	9.2

All incidence rates are cases per 100,000 population.
+Incidence rates suppressed for counts ≤16 and rates with residual standard error (RSE) >30% due to statistical instability.

SYPHILIS PRIMARY AND SECONDARY STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1982	172	4	0
1983	196	4.6	0
1984	158	3.6	2
1985	115	2.6	2
1986	194	4.3	0
1987	176	3.9	0
1988	265	5.7	0
1989	461	9.8	0
1990	354	7.3	0
1991	178	3.5	0
1992	85	1.7	0
1993	67	1.3	0
1994	36	0.7	0
1995	17	0.3	0
1996	9	0.2	0
1997	17	0.3	0
1998	44	0.8	0
1999	77	1.3	0
2000	66	1.1	0
2001	57	1	0
2002	70	1.2	0
2003	82	1.3	0
2004	150	2.4	0
2005	152	2.4	0
2006	182	2.8	0
2007	168	2.6	0
2008	181	2.7	0
2009	135	2	0
2010	261	3.9	0
2011	329	4.9	0
2012	300	4.4	0
2013	285	4.1	0
2014	337	4.8	0
2015	452	6.5	0
2016	566	7.9	0
2017	674	9.2	0

*All rates are cases per 100,000 population.

Note: Data prior to 2009 are based on year reported rather than year diagnosed.

TETANUS

Year	Cases	Rate*	Deaths
1985	0	0	0
1986	0	0	0
1987	1	0	0
1988	1	0	0
1989	1	0	0
1990	1	0	0
1991	1	0	0
1992	3	0.1	0
1993	1	0	0
1994	1	0	0
1995	0	0	0
1996	1	0	0
1997	1	0	0
1998	0	0	0
1999	0	0	0
2000	1	0	0
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0
2005	1	0	0
2006	0	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0
2010	0	0	0
2011	0	0	0
2012	1	0	0
2013	0	0	0
2014	3	0	1
2015	0	0	0
2016	0	0	0
2017	0	0	0

*All rates are cases per 100,000 population.

TRICHINOSIS

Year	Cases	Rate*	Deaths
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	2	0	0
1990	1	0	0
1991	0	0	0
1992	1	0	0
1993	1	0	0
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	0	0	0
2000	1	0	0
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0
2005	0	0	0
2006	1	0	0
2007	0	0	0
2008	0	0	0
2009	0	0	0
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	2	0	0
2015	1	0	0
2016	0	0	0
2017	1	0	0

*All rates are cases per 100,000 population.

TUBERCULOSIS

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	1	*	0	-	0	-	1	*	0	-
Asotin	0	-	0	-	0	-	0	-	0	-
Benton	1	*	2	*	3	*	2	*	4	*
Chelan	2	*	0	-	4	*	2	*	0	-
Clallam	1	*	0	-	0	-	1	*	1	*
Clark	5	1.1	15	3.4	6	1.3	8	1.7	10	2.1
Columbia	0	-	0	-	0	-	0	-	0	-
Cowlitz	2	*	3	*	2	*	0	-	0	-
Douglas	1	*	0	-	2	*	1	*	1	*
Ferry	0	-	0	-	0	-	0	-	0	-
Franklin	2	*	4	*	3	*	3	*	1	*
Garfield	0	-	0	-	0	-	0	-	0	-
Grant	0	-	1	*	0	-	1	*	1	*
Grays Harbor	1	*	0	-	0	-	1	*	1	*
Island	1	*	0	-	0	-	0	-	0	-
Jefferson	0	-	0	-	0	-	0	-	0	-
King	114	5.8	99	4.9	98	4.7	101	4.8	98	4.6
Kitsap	1	*	5	2	5	1.9	1	*	5	1.9
Kittitas	0	-	0	-	1	*	0	-	0	-
Klickitat	0	-	0	-	0	-	1	*	0	-
Lewis	0	-	0	-	1	*	2	*	2	*
Lincoln	0	-	0	-	0	-	0	-	0	-
Mason	3	*	0	-	0	-	1	*	2	*
Okanogan	2	*	1	*	1	*	2	*	3	*
Pacific	0	-	1	*	2	*	0	-	0	-
Pend-Oreille	0	-	0	-	0	-	0	-	0	-
Pierce	22	2.7	13	1.6	16	1.9	28	3.3	17	2.0
San Juan	1	*	0	-	0	-	0	-	0	-
Skagit	4	*	2	*	4	*	0	-	2	*
Skamania	1	*	1	*	0	-	0	-	0	-
Snohomish	26	3.6	19	2.6	30	4	30	3.9	29	3.7
Spokane	7	1.5	5	1	2	*	2	*	2	*
Stevens	0	-	0	-	0	-	0	-	0	-
Thurston	5	1.9	7	2.7	6	2.2	7	2.6	3	*
Wahkiakum	0	-	0	-	0	-	0	-	0	-
Walla Walla	1	*	0	-	1	*	0	-	0	-
Whatcom	4	*	4	*	7	3.3	2	*	6	2.8
Whitman	0	-	0	-	1	*	0	-	0	-
Yakima	2	*	11	4.4	12	4.8	7	2.8	7	2.8
STATEWIDE TOTAL	210	3.1	193	2.8	207	2.9	204	2.8	207	2.8

*All rates are reported as cases per 100,000 population. Incidence rates are suppressed for case counts <5 due to inherent instability of resulting estimate.

TUBERCULOSIS STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1980	424	10.3	13
1981	401	9.5	15
1982	301	7	6
1983	239	5.5	10
1984	207	4.8	6
1985	220	5	5
1986	218	4.9	3
1987	255	5.6	10
1988	236	5.1	9
1989	248	5.2	4
1990	284	5.8	12
1991	309	6.2	7
1992	306	6	7
1993	286	5.4	7
1994	264	4.9	6
1995	278	5.1	2
1996	285	5.1	3
1997	305	5.4	6
1998	265	4.6	5
1999	258	4.4	5
2000	258	4.4	2
2001	261	4.4	6
2002	252	4.2	4
2003	250	4.1	11
2004	245	3.9	9
2005	255	4	14
2006	262	4.1	18
2007	291	4.5	12
2008	228	3.5	2
2009	255	3.8	7
2010	234	3.5	6
2011	199	2.9	7
2012	185	2.7	6
2013	210	3.1	5
2014	193	2.8	3
2015	207	2.9	4
2016	204	2.8	7
2017	207	2.8	4

*All rates are reported as cases per 100,000 population.

Tuberculosis-related deaths include:

1. Cases deceased at diagnosis for whom tuberculosis was reported among cause(s) of death; and

2. Cases alive at diagnosis stopping treatment prematurely, for whom the reason for treatment stoppage was reported as being TB-related death.

Note: TB-related death events are reported here as per the year of death in the TB surveillance record, and may have occurred in a year other than that of diagnosis. Death data above as generated from TB surveillance data may differ from comparable data sourced from vital records mortality data.

TULAREMIA

Year	Cases	Rate*	Deaths
1986	1	0	0
1987	4	0.1	0
1988	1	0	0
1989	2	0	0
1990	4	0.1	0
1991	2	0	0
1992	2	0	0
1993	2	0	0
1994	1	0	0
1995	4	0.1	0
1996	2	0	0
1997	2	0	0
1998	8	0.1	0
1999	2	0	0
2000	2	0	0
2001	5	0.1	0
2002	3	0	0
2003	2	0	0
2004	4	0.1	0
2005	10	0.2	0
2006	1	0	0
2007	1	0	0
2008	4	0.1	0
2009	5	0.1	1
2010	3	0	0
2011	5	0.1	0
2012	5	0.1	0
2013	5	0.1	0
2014	4	0.1	0
2015	4	0.1	0
2016	1	0	0
2017	6	0.1	0

*All rates are cases per 100,000 population.

TYPHOID FEVER

Year	Cases	Rate*	Deaths
1985	3	0.1	0
1986	3	0.1	0
1987	9	0.2	0
1988	13	0.3	0
1989	11	0.2	0
1990	22	0.5	0
1991	10	0.2	0
1992	11	0.2	0
1993	8	0.2	0
1994	12	0.2	0
1995	4	0.1	0
1996	4	0.1	0
1997	7	0.1	0
1998	8	0.1	0
1999	8	0.1	0
2000	6	0.1	0
2001	7	0.1	0
2002	7	0.1	0
2003	4	0.1	0
2004	6	0.1	0
2005	11	0.2	0
2006	7	0.1	0
2007	7	0.1	0
2008	15	0.2	0
2009	4	0.1	0
2010	22	0.3	0
2011	9	0.1	0
2012	11	0.2	0
2013	11	0.2	0
2014	15	0.2	0
2015	10	0.1	0
2016	13	0.2	0
2017	14	0.2	0

*All rates are cases per 100,000 population.

VIBRIOSIS

Year	Cases	Rate*	Deaths
1985	4	0.1	0
1986	7	0.2	0
1987	18	0.4	0
1988	11	0.2	0
1989	4	0.1	0
1990	30	0.6	0
1991	4	0.1	0
1992	7	0.1	0
1993	33	0.6	0
1994	9	0.2	0
1995	6	0.1	0
1996	3	0.1	0
1997	58	1	0
1998	41	0.7	0
1999	21	0.4	0
2000	20	0.3	0
2001	9	0.2	0
2002	25	0.4	0
2003	18	0.3	0
2004	28	0.5	0
2005	20	0.3	0
2006	80	1.2	0
2007	25	0.4	0
2008	29	0.4	0
2009	48	0.7	0
2010	59	0.9	0
2011	45	0.7	0
2012	67	1	0
2013	90	1.3	0
2014	92	1.3	0
2015	68	1	0
2016	63	0.9	1
2017	95	1.3	0

*All rates are cases per 100,000 population.

YERSINIOSIS

	2013		2014		2015		2016		2017	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	0	0	0	0	0	0	0	0
Asotin	0	0	0	0	0	0	0	0	0	0
Benton	2	*	0	0	2	*	1	*	0	0
Chelan	0	0	0	0	1	*	0	0	0	0
Clallam	0	0	0	0	0	0	0	0	0	0
Clark	1	*	5	1.1	0	0	9	2.0	4	*
Columbia	0	0	0	0	0	0	0	0	1	*
Cowlitz	0	0	0	0	0	0	1	*	1	*
Douglas	0	0	0	0	1	*	0	0	0	0
Ferry	0	0	0	0	0	0	0	0	0	0
Franklin	0	0	1	*	2	*	1	*	0	0
Garfield	0	0	0	0	0	0	0	0	0	0
Grant	0	0	0	0	0	0	0	0	0	0
Grays Harbor	0	0	0	0	1	*	0	0	1	*
Island	0	0	0	0	0	0	0	0	0	0
Jefferson	0	0	0	0	0	0	0	0	3	*
King	14	0.7	17	0.8	16	0.8	20	1.0	42	2.0
Kitsap	1	*	5	2	1	*	0	0	4	*
Kittitas	0	0	1	*	0	0	0	0	1	*
Klickitat	2	*	0	0	1	*	1	*	0	0
Lewis	0	0	1	*	0	0	1	*	1	*
Lincoln	0	0	0	0	0	0	0	0	1	*
Mason	2	*	0	0	0	0	1	*	2	*
Okanogan	0	0	0	0	0	0	0	0	0	0
Pacific	1	*	1	*	0	0	0	0	0	0
Pend Oreille	0	0	0	0	0	0	0	0	0	0
Pierce	0	0	0	0	4	*	7	0.8	5	0.6
San Juan	1	*	0	0	2	*	1	*	0	0
Skagit	1	*	0	0	1	*	2	*	1	*
Skamania	0	0	0	0	0	0	0	0	0	0
Snohomish	4	*	3	*	3	*	6	0.8	9	1.0
Spokane	0	0	1	*	2	*	0	0	3	*
Stevens	0	0	0	0	0	0	0	0	0	0
Thurston	1	*	0	0	0	0	3	*	0	0
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	0	0	0	0	0	0	0	0	1	*
Whatcom	2	*	1	*	0	0	1	*	1	*
Whitman	0	0	0	0	0	0	0	0	0	0
Yakima	2	*	0	0	3	*	1	*	0	0
STATEWIDE TOTAL	34	0.5	36	0.5	40	0.6	56	0.8	81	1.1

*All rates are cases per 100,000 population. Incidence rates not calculated for <5 cases.

YERSINIOSIS STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1988	15	0.3	0
1989	40	0.8	0
1990	37	0.8	0
1991	28	0.6	0
1992	34	0.7	0
1993	50	0.9	0
1994	40	0.7	0
1995	50	0.9	0
1996	37	0.7	0
1997	30	0.5	0
1998	39	0.7	0
1999	32	0.5	0
2000	33	0.6	0
2001	23	0.4	0
2002	26	0.4	0
2003	28	0.5	0
2004	34	0.5	0
2005	19	0.3	0
2006	22	0.3	0
2007	28	0.4	0
2008	19	0.3	1
2009	15	0.2	0
2010	25	0.4	0
2011	21	0.3	0
2012	36	0.5	0
2013	34	0.5	0
2014	36	0.5	0
2015	40	0.6	0
2016	56	0.8	0
2017	81	1.1	0

*All rates are cases per 100,000 population.

APPENDIX II

Special Topics

2017-18 Spokane County Pilot Project on Blood Lead Screening with Washington Department of Health

Spokane Regional Health District, Betsy Bertelsen, RN, BSN
Washington State Department of Health, Elisabeth Long, MPH

No safe blood lead level has been identified in children and permanent neurological damage can occur in young children even at low levels. Less than four percent of Washington children under six years of age were tested in 2017, one of the lowest testing rates in the nation. There is a need for more data in Washington around blood-lead levels in children and this prompted a pilot project in Spokane County in 2017.

In collaboration with Washington State Department of Health and Unify Community Health in Spokane, Spokane Regional Health District (SRHD) implemented a six-month pilot project of universally testing all eligible children in the clinic setting using a Point of Care blood-lead testing system. The selected clinics serve many children at highest risk for lead exposure. The primary goal of the pilot was to identify the scope of the issue of elevated blood-lead levels in Spokane County. This pilot allowed SRHD to gain useful data to demonstrate a higher rate of blood-lead levels in children deemed "high risk" in comparison to the state average and the advantage of a universal testing protocol. Many of the elevated blood-lead levels found were in refugee children, as the clinic sites in the pilot serve as refugee health clinics, in addition to a large proportion of Medicaid-enrolled children. The next step for SRHD in 2018 and beyond is to place additional machines in community clinics across the county to gain more data and continue to analyze this data with Washington State Department of Health.

Moving forward, SRHD will be using this data for collaborative efforts within the health-care community, strengthening partnerships and encouraging more consistent testing across our region. Steps to implementing the blood-lead testing system included creating a policy, community outreach, and evaluation for further implications. This project is an example of how local public health, local clinics, and state health departments are working together to better the health of communities.

Community-wide Outbreak of Mumps, 2016-17, Spokane County

Spokane Regional Health District, Anna Halloran, MHPA

In late November 2016, Spokane Regional Health District (SRHD) was notified by Seattle-King County Public Health of a mumps outbreak affecting children in an ethnic community in the Seattle area. Due to this community's known travel between Spokane and Seattle, SRHD issued a health-care provider advisory to inform the medical community of the potential for cases in Spokane.

On December 12, 2016, SRHD was notified by a health-care provider that a child presenting to the emergency department was suspected to have mumps, which was later confirmed by RT-PCR testing at Washington State Public Health Laboratories. Another health-care provider alert was issued which prompted retroactive reporting of several cases that had been evaluated prior to the reporting of the December 12 case.

Another dozen Spokane residents contracted mumps just prior to and during the holidays. Epidemiologists theorize holiday festivities contributed to the disease's spread. At the height of the outbreak, during January and February of 2017, SRHD received 25-50 reports of confirmed or probable cases each week, in addition to numerous reports of parotitis investigated and classified as suspect cases. School-aged children were predominantly affected by this outbreak. Ultimately, the outbreak included cases in children and adults outside of the ethnic community where it began.

SRHD received disease investigation assistance from staff at Northeast Tri-County Health District, Tacoma-Pierce County Health Department, Panhandle Health District (Idaho), and the Washington State Department of Health (DOH). The majority of cases were reported by local health-care providers followed by school nurses. School exclusions for unvaccinated students occurred. Immunization clinics targeting schools, churches, and workplaces were held and over 2,000 doses of MMR were provided to the community. Additionally, numerous partnerships with the news media and social media postings occurred to promote health and prevention messaging in several languages.

By June 2017, over 330 confirmed or probable cases were identified and an additional 300 cases of parotitis were investigated by epidemiology staff. The outbreak strained resources across the community and the state, including SRHD, DOH, local medical offices, laboratories, and schools. Almost 900 confirmed and probable cases were identified in the state related to this outbreak, with most cases occurring in Spokane, King, Snohomish, Pierce, and Grant counties. An after-action report was written and presented to our Board of Health. Follow-up meetings with stakeholders have occurred due to the lessons learned, including superintendents and school nurses.

Highly Antibiotic Resistant Bacterial Surveillance—Carbapenem-resistant Enterobacteriaceae (CRE) and Other Carbapenemase-producing Organisms (CPO)

The Washington State Department of Health (DOH) performs statewide surveillance for carbapenem-resistant Enterobacteriaceae (CRE) since 2012. Since 2017, the department also requests voluntary surveillance for other carbapenem-resistant organisms (CRO) including *Pseudomonas* and *Acinetobacter*. CRO are resistant to drugs of last resort and have high morbidity and mortality.

CRO can be resistant to carbapenems through two main mechanisms: 1) resistance to broad spectrum antibiotics such as second and third generation cephalosporins due to extended-spectrum β-lactamase (ESBL) production or class C cephalosporinase (AmpC) resistance, plus a change in the porin structure that doesn't allow carbapenems into the cell, or 2) production of a carbapenemase that inactivates carbapenem antibiotics. In addition, some organisms have intrinsic resistance to carbapenems. CRO that produce carbapenemases, such as *Klebsiella pneumoniae* carbapenemase (KPC), New Delhi metallo-β-lactamase (NDM), Verona integron-encoded metallo-β-lactamase (VIM), imipenemase (IMP), and oxacillinase-48-like (OXA-48), are considered epidemiologically important because they can spread exponentially in health-care settings, as evidenced by the rapid increase in CRE in the United States over the last two decades. Carbapenemases are usually inherited via plasmids, mobile genes that can spread resistance horizontally to other bacteria.

The Washington State CRE case definition is:

> *E. coli, Klebsiella* species and *Enterobacter* species resistant to any carbapenem according to Clinical Laboratory Standards Institute (CLSI) breakpoints (minimum inhibitory concentrations (MIC) of ≥ 4 mcg/ml for meropenem, imipenem, and doripenem or ≥ 2 mcg/ml for ertapenem).

PHL solicits additional genera within the family Enterobacteriaceae and other Gram-negative bacterial isolates for carbapenemase testing:

> Other *Enterobacteriaceae* bacteria not included in the case definition must be resistant to at least one carbapenem according to CLSI breakpoints. Genera with intrinsic resistance to imipenem (ex. *Morganella* spp.*, Proteus* spp.*, Providencia* spp.) should be resistant to a second carbapenem: doripenem, ertapenem or meropenem.
>
> *Pseudomonas* spp. (non-mucoid) or *Acinetobacter* spp. resistant to any carbapenem according to CLSI breakpoints (MIC ≥ 8 mcg/ml for doripenem, imipenem, meropenem).

Washington State Public Health Laboratories (PHL) uses the modified Carbapenem Inactivation Method (mCIM) and polymerase chain reaction (PCR) to detect presence of the five most common carbapenemases in the US: KPC, NDM, OXA-48, IMP and VIM. PCR testing include both the Cepheid Carba-R test as well as a PHL-developed multiplex PCR.

This report includes CRE isolates reported in 2017, as well as other non-Enterobacteriaceae carbapenem-resistant Gram-negative organisms identified and reported to DOH. Reported isolates were from residents of Washington, some of whom were diagnosed out of state, and from residents of other states or countries who were diagnosed in Washington. For persons with more than one of the same genus-species isolate submitted, we have counted only the first and excluded all subsequent isolates of the same genus, species, and carbapenemase (if any). Any additional isolates submitted of a different genus, species, or carbapenemase from the same person were counted. Screening

surveillance isolates were counted only if carbapenem-resistant. For isolates from a single person that produced more than one carbapenemase, each was counted separately.

There were 511 CRO isolates tested in 2017, and 27 (5.3 percent) were positive by PCR for carbapenemase from 24 unique patients. Twenty-five of 250 (ten percent) CRE, one of 231 (0.4 percent) CR- Pseudomonas, and one of 30 (three percent) CR-Acinetobacter isolates carried a carbapenemase. (Table 10)

Of the 24 patients identified with CP-CR0, 16 (67 percent) were male. Ages of CP-CRE cases ranged from 12 to 76 years with a median age of 56 years. Older age and increased exposure to health-care remain the most common risk factor for CP-CRO acquisition.

In 2017, 12 KPC, 13 NDM and 2 OXA-48 isolates were identified; a breakdown of carbapenemase genes by genera of bacteria is shown in Table 10. Health care in Washington is the likely source of acquisition of KPC for eleven (92 percent) of 12 KPC patients, whereas one (eight percent) case likely acquired KPC during healthcare in North America (outside of the continental US). Travel or health care in Asia is the likely source of carbapenemase acquisition for ten (83 percent) of 12 patients with NDM and/or OXA-48 carbapenemase, whereas for two (17 percent) in-Washington health care is the likely source. These surveillance findings suggest that healthcare-associated transmission of carbapenemase producing bacteria is occurring in Washington. While non-KPC carbapenemase-producing organisms are more commonly associated with international travel and health care, they continue to be detected in Washington residents with no known international travel of health care exposure.

Table 10. Carbapenemase-producing isolates identified in Washington patients, 2017.

Genus and species:	*Enterobacter* spp. n=5	*Escherichia coli* n=7	*Klebsiella* spp. n=11	*Proteus* spp. N=2	*Acinetobacter baumanii* n=1	*Pseudomonas aeruginosa* n=1
Carbapenemase						
KPC	1	1	9	0	1	0
NDM	4	5	1	2	0	1
OXA-48	0	1	1	0	0	0
VIM	0	0	0	0	0	0
IMP	0	0	0	0	0	0

Foodborne Disease Outbreaks, 2017

Foodborne disease outbreaks are caused by a variety of agents including viruses, bacteria, toxins and parasites. A foodborne disease outbreak is defined as the occurrence of two or more cases of the same illness resulting from the ingestion of a common food where food is implicated as the source of illness. Outbreaks of foodborne disease are reportable to Washington State Department of Health (DOH) as outlined in WAC 246-101-510. In Washington, there are typically 25 to 50 outbreaks of foodborne disease reported every year, totaling about 300 to 700 cases.

In 2017, 66 outbreaks of foodborne disease were reported to DOH (Table 11); of these 12 were multistate outbreaks led by federal agencies, and 54 were led by agencies within Washington. Foodborne disease outbreaks are detected through public health surveillance and investigation of cases of notifiable conditions (e.g., bacterial agents such as *Salmonella* and *E. coli*) or by notification from members of the public or food establishments (mainly viral gastroenteritis and bacterial toxin outbreaks).

Table 11. Foodborne Disease Outbreaks, 2007 – 2017

Year	Cases	Outbreaks
2007	722	43
2008	564	46
2009	307	27
2010	344	37
2011	371	30
2012	552	27
2013	437	37
2014	432	45
2015	505	36
2016	543	49
2017	1016	66

Outbreaks occurred in a wide range of settings in 2017. Restaurants were the most frequently reported setting, accounting for approximately seventy percent of outbreaks. Other settings included camps, caterers banquet facilities, and private residences. The agents associated with foodborne disease outbreaks in 2017 are shown in Table 12. Most outbreaks and cases were due to viral agents.

Table 12. Agents Associated with Foodborne Disease Outbreaks, 2017

Agent	Outbreaks	Cases
Bacterial		
Campylobacter	2	4
Salmonella	14	80
Listeria monocytogenes	0	0
STEC	3	5
Vibrio parahaemolyticus	8	39
Vibrio vulnificus	1	2
Viral		
Confirmed Norovirus	7	600
Suspect Norovirus	23	207
Toxins		
Bacterial toxin (suspect)	6	46
Lectin	1	26
Parasites		
Giardia	1	7

Each outbreak of foodborne illness is investigated to determine contributing factors. A contributing factor is a fault or circumstance that singularly or in combination led to the outbreak of foodborne illness. Contributing factors may include food-handling practices which lead to the contamination of a food, and/or the proliferation, amplification or survival of an agent. A single outbreak may have multiple contributing factors identified during an investigation.

In 2017, there were 30 foodborne disease outbreaks confirmed or suspected to be due to Norovirus. Typically, outbreaks of Norovirus involve factors related to a suspected infectious individual who had contact with food. These factors included evidence of inadequate handwashing practices and/or bare hand contact with ready-to-eat foods.

In 2017, there were 28 bacterial outbreaks. Contributing factors most frequently associated with bacterial outbreaks included cross-contamination of raw and cooked ingredients, and contaminated raw product that was intended to be consumed raw or undercooked. The most common suspected vehicle/pathogen combination for bacterial outbreaks was *Vibrio parahaemolyticus* and raw oysters.

Seven outbreaks suspected to be associated with bacterial toxins were reported in 2017. Contributing factors associated with bacterial toxin outbreaks included improper hot holding, insufficient time/temperature during reheating, improper slow cooling and lack of control on time/temperature of the implicated food. Additionally, one outbreak of suspected lectin toxicity associated with uncooked cranberry beans was reported.

Foodborne outbreaks reported in Washington during 2017 are summarized in Table 13.

Table 13. Foodborne Disease Outbreaks Reported to Washington State Department of Health, 2017

#	Local Health Jurisdiction	Month	Illness Agent	# Confirmed Cases	# Probable Cases	Total # Cases	Exposure Source	Contributing Factors	Setting
1	Pierce	January	*Salmonella*	0	2	2	Chicken	Cross-contamination of ingredients, Other source of contamination, No attempt was made to control the temperature of implicated food or the length of time food was out of temperature control, Improper / slow cooling, Insufficient time and/or temperature during cooking / heat processing	Restaurant
2	King	January	Norovirus	0	4	4	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
3	King	January	Norovirus	0	4	4	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
4	Pierce	January	*Clostridium perfringens*	0	2	2	Taco salad	No attempt was made to control the temperature of implicated food or the length of time food was out of temperature control, Improper / slow cooling, Insufficient time and / or temperature during reheating	Restaurant
5	Jefferson	January	Norovirus	2	8	10	Unknown	Bare-hand contact by a food handler / worker / preparer who is suspected to be infectious, Other source of contamination	Restaurant
6	Pierce	January	Norovirus	0	3	3	Unknown	Bare-hand contact by a food handler / worker / preparer who is suspected to be infectious, Glove-hand contact by a food handler / worker / preparer who is suspected to be infectious, Other source of contamination	Restaurant
7	Multiple	February	*Salmonella* I4,[5],12:b:-, *S.* Thompson, *S.* Okatie	16	0	16	Kratom	Unknown	Distributed product
8	King	February	Norovirus	0	2	2	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
9	King	February	Norovirus	0	2	2	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant

#	Local Health Jurisdiction	Month	Illness Agent	# Confirmed Cases	# Probable Cases	Total # Cases	Exposure Source	Contributing Factors	Setting
10	King	February	Norovirus	0	5	5	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
11	King	February	*E. coli* O157	2	0	2	Soynut butter	Unknown	Distributed product
12	Cowlitz	March	*Salmonella* I 4,[5],12:i:-	1	0	1	Chicken	Unknown	Distributed product
13	King	March	*Salmonella* Chailey	2	0	2	Coconut meat	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Distributed product
14	Multiple	March	*E. coli* O121	2	0	2	Flour	Unknown	Distributed product
15	Clark	March	Norovirus	2	43	45	Fruit salad	Bare-hand contact by a food handler / worker / preparer who is suspected to be infectious, Other source of contamination	Banquet facility (food prep offsite)
16	Pierce	March	*Salmonella* Infantis	1	0	1	Mango	Unknown	Distributed product
17	King	March	Norovirus	0	2	2	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
18	King	March	Norovirus	0	23	23	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed, Foods originating from sources shown to be contaminated or polluted (such as a growing field or harvest area)	Restaurant
19	King	March	Norovirus	0	4	4	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
20	King	March	Norovirus	0	4	4	Unknown	Bare-hand contact by a food handler / worker / preparer who is suspected to be infectious, Other source of contamination	Restaurant
21	King	March	Norovirus	0	6	6	Unknown	Bare-hand contact by a food handler / worker / preparer who is suspected to be infectious, Other source of contamination	Restaurant
22	King	March	Norovirus	0	41	41	Unknown	Glove-hand contact by a food handler / worker / preparer who is suspected to be infectious	Restaurant

#	Local Health Jurisdiction	Month	Illness Agent	# Confirmed Cases	# Probable Cases	Total # Cases	Exposure Source	Contributing Factors	Setting
23	Clark	March	Norovirus	0	6	6	Unknown	Bare-hand contact by a food handler / worker / preparer who is suspected to be infectious, Glove-hand contact by a food handler / worker / preparer who is suspected to be infectious	Restaurant
24	King	April	*Clostridium perfringens*	0	4	4	Beans	Improper hot holding due to improper procedure or protocol, Improper / slow cooling	Restaurant
25	King	April	Norovirus	1	4	5	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed, Foods originating from sources shown to be contaminated or polluted (such as a growing field or harvest area)	Restaurant
26	King	April	Norovirus	0	2	2	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed, Foods originating from sources shown to be contaminated or polluted (such as a growing field or harvest area)	Restaurant
27	Multiple	April	*Salmonella* Enteritidis	2	0	2	Romaine lettuce	Unknown	Distributed product
28	King	April	Norovirus	1	4	5	Unknown	Glove-hand contact by a food handler / worker / preparer who is suspected to be infectious, Storage in contaminated environment, Other source of contamination, Insufficient or improper use of chemical processes designed for pathogen destruction	Restaurant
29	Kittitas	May	*Salmonella* Braenderup	1	0	1	Papaya	Unknown	Distributed product
30	Clark	May	Norovirus	0	7	7	Unknown	Glove-hand contact by a food handler / worker / preparer who is suspected to be infectious	Restaurant
31	King	June	*Campylobacter jejuni*	1	1	2	Foie gras	Insufficient time and/or temperature during cooking / heat processing	Restaurant
32	King	June	*Vibrio parahaemolyticus*	1	2	3	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
33	King	June	*Campylobacter jejuni*	2	0	2	Unknown	Unknown	Private home
34	Multiple	July	*Salmonella* I 4,[5],12:b:-	5	0	5	Frozen shredded coconut	Unknown	Distributed product

#	Local Health Jurisdiction	Month	Illness Agent	# Confirmed Cases	# Probable Cases	Total # Cases	Exposure Source	Contributing Factors	Setting
35	King	July	*Vibrio parahaemolyticus*	0	6	6	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
36	King	July	*Vibrio parahaemolyticus*	0	9	9	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed, Foods originating from sources shown to be contaminated or polluted (such as a growing field or harvest area)	Restaurant
37	King	July	*Vibrio parahaemolyticus*	0	2	2	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
38	King	July	*Vibrio parahaemolyticus*	0	3	3	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
39	Pierce	July	*Clostridium perfringens*	0	20	20	Roast beef	Improper hot holding due to improper procedure or protocol, Improper/slow cooling, Insufficient time and/or temperature during cooking / heat processing, Insufficient time and/or temperature during reheating	Caterer (food prep onsite)
40	King	July	*Vibrio vulnificus*	1	1	2	Tilapia	Contaminated raw product – food was intended to be consumed after a kill step, Foods originating from sources shown to be contaminated or polluted (such as a growing field or harvest area),Storage in contaminated environment, Other situations that promoted or allowed microbial growth or toxic production, Other process failures that permit pathogen survival	Grocery store
41	Yakima	July	Norovirus	0	9	9	Unknown	Glove-hand contact by a food handler / worker / preparer who is suspected to be infectious	Fast-food restaurant
42	Pierce	July	*Salmonella* I 4,[5],12:i:-	5	0	5	Whole roasted pig	Unknown	Private home
43	King	August	*Salmonella* Braenderup	4	3	7	Braised short ribs	Cross-contamination of ingredients, Other source of contamination, Food preparation practices that support proliferation of pathogens (during food preparation),Improper cold holding due to malfunctioning refrigeration equipment, Improper cold holding due to an improper procedure or protocol, Improper / slow cooling, Insufficient time and / or temperature during reheating, Insufficient or improper use of chemical processes designed for pathogen destruction	Restaurant

#	Local Health Jurisdiction	Month	Illness Agent	# Confirmed Cases	# Probable Cases	Total # Cases	Exposure Source	Contributing Factors	Setting
44	Clark	August	*Clostridium perfringens*	0	6	6	Chicken	Improper cold holding due to an improper procedure or protocol, Improper / slow cooling	Restaurant
45	Multiple	August	*Clostridium perfringens*	0	12	12	Chicken	No attempt was made to control the temperature of implicated food or the length of time food was out of temperature control (during food service or display of food), Improper cold holding due to an improper procedure or protocol, Improper hot holding due to improper procedure or protocol, Improper / slow cooling, Other situations that promoted or allowed microbial growth or toxic production, Insufficient time and/or temperature during reheating	Banquet facility (food prep offsite)
46	Whatcom	August	Lectin	0	26	26	Cranberry beans	Toxic substance part of tissue	Restaurant
47	King	August	*Vibrio parahaemolyticus*	0	2	2	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
48	Multiple	August	*Vibrio parahaemolyticus*	6	2	8	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
49	Clark	August	*Salmonella* Paratyphi B	8	0	8	Sushi	Unknown	Distributed product
50	King	August	Norovirus	0	29	29	Unknown	Glove-hand contact by a food handler / worker / preparer who is suspected to be infectious, Other source of contamination, Insufficient or improper use of chemical processes designed for pathogen destruction	Camp
51	Pierce	September	*Bacillus cereus*	0	2	2	Pinto beans	Improper / slow cooling	Restaurant
52	King	September	*Vibrio parahaemolyticus*	1	5	6	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
53	King	September	Norovirus	0	4	4	Oysters, raw	Other source of contamination, Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
54	Multiple	September	*Salmonella* I 4,5,12:i:-	3	1	4	Whole roasted pig	Unknown	Private home
55	Multiple	October	*Salmonella* Newport	21	1	22	Melons	Unknown	Distributed product

#	Local Health Jurisdiction	Month	Illness Agent	# Confirmed Cases	# Probable Cases	Total # Cases	Exposure Source	Contributing Factors	Setting
56	King	October	Norovirus	0	18	18	Unknown	Unknown	Restaurant
57	King	October	Norovirus	0	2	2	Unknown	Storage in contaminated environment, Other source of contamination, Glove-hand contact by a food handler / worker / preparer who is suspected to be infectious	Restaurant
58	King	October	Norovirus	0	3	3	Unknown	Unknown	Restaurant
59	King	November	Norovirus	3	10	13	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
60	Spokane	December	*E. coli* O157	1	0	1	Leafy greens	Unknown	Distributed product
61	Multiple	December	*Salmonella* Dublin	4	0	4	Raw milk	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Private home
62	King	December	Norovirus	0	2	2	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
63	Multiple	December	Giardia	7	0	7	Oysters, raw	Contaminated raw product – food was intended to be consumed raw or undercooked / underprocessed	Restaurant
64	King	December	Norovirus	1	68	69	Unknown	Bare-hand contact by a food handler / worker / preparer who is suspected to be infectious, Glove-hand contact by a food handler / worker / preparer who is suspected to be infectious	Restaurant
65	King	December	Norovirus	0	25	25	Unknown	Glove-hand contact by a food handler / worker / preparer who is suspected to be infectious	Restaurant
66	Pierce	December	Norovirus	4	449	453	Unknown	Bare-hand contact by a food handler / worker / preparer who is suspected to be infectious, Glove-hand contact by a food handler / worker / preparer who is suspected to be infectious, Other source of contamination	Restaurant

APPENDIX III

State Demographics

Washington State Population Estimates, 1985-2017

Washington State Office of Financial Management

Year	Estimate
1985	4,415,785
1986	4,462,212
1987	4,527,098
1988	4,616,886
1989	4,728,077
1990	4,866,692
1991	5,021,335
1992	5,141,177
1993	5,265,688
1994	5,364,338
1995	5,470,104
1996	5,567,764
1997	5,663,763
1998	5,750,033
1999	5,830,835
2000	5,894,143
2001	5,970,330
2002	6,059,316
2003	6,126,885
2004	6,208,515
2005	6,298,816
2006	6,420,258
2007	6,525,086
2008	6,608,245
2009	6,672,159
2010	6,724,540
2011	6,767,900
2012	6,817,770
2013	6,882,400
2014	6,968,170
2015	7,061,410
2016	7,183,700
2017	7,310,300

*State of Washington Office of Financial Management April 1, 2017 Population Trends. Accessed 8/6/2017 from http://www.ofm.wa.gov/pop/april1/poptrends.pdf

Washington State Population Estimates By County, 2017*

Washington State Office of Financial Management

County	Estimate
Adams	19,870
Asotin	22,290
Benton	193,500
Chelan	76,830
Clallam	74,240
Clark	471,000
Columbia	4,100
Cowlitz	105,900
Douglas	41,420
Ferry	7,740
Franklin	90,330
Garfield	2,200
Grant	95,630
Grays Harbor	72,970
Island	82,790
Jefferson	31,360
King	2,153,700
Kitsap	264,300
Kittitas	44,730
Klickitat	21,660
Lewis	77,440
Lincoln	10,700
Mason	63,190
Okanogan	42,110
Pacific	21,250
Pend Oreille	13,370
Pierce	859,400
San Juan	16,510
Skagit	124,100
Skamania	11,690
Snohomish	789,400
Spokane	499,800
Stevens	44,510
Thurston	276,900
Wahkiakum	4,030
Walla Walla	61,400
Whatcom	216,300
Whitman	48,640
Yakima	253,000
State Total	**7,310,300**

*State of Washington Office of Financial Management April 1, 2017 Population Trends. Accessed 8/6/2017 from http://www.ofm.wa.gov/pop/april1/poptrends.pdf

Washington State Population By Age and Sex, 2017*

Washington State Office of Financial Management

Age (years)	Male	Female	TOTAL
0-4	232,308	221,826	454,134
5-9	238,017	227,649	465,666
10-14	233,979	223,127	457,106
15-19	234,408	222,864	457,272
20-24	249,485	237,788	487,273
25-29	262,398	249,031	511,429
30-34	259,633	248,351	507,984
35-39	250,246	243,167	493,413
40-44	224,893	221,088	445,981
45-49	241,292	235,674	476,966
50-54	235,525	235,702	471,227
55-59	244,240	250,015	494,255
60-64	225,730	240,085	465,815
65-69	189,931	205,877	395,808
70-74	137,588	151,463	289,051
75-79	85,648	97,423	183,071
80-84	53,070	67,231	120,301
85 +	49,166	84,382	133,548
TOTAL	3,647,557	3,662,743	7,310,300

*State of Washington Office of Financial Management April 1, 2017 Population Trends. Accessed 8/6/2017 from http://www.ofm.wa.gov/pop/april1/poptrends.pdf