Washington State Department of Health

Washington State
COMMUNICABLE DISEASE REPORT 2016

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

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

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Office of Environmental Health and Safety, Washington State Department of Health

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WASHINGTON STATE DEPARTMENT OF HEALTH
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COMMUNICABLE DISEASE REPORT 2016

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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.

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Appendices

Tables

Executive Summary – 2016

This report summarizes notifiable communicable diseases reported by local health jurisdictions to the Department of Health (DOH) in 2016. The most common case reports continued to be sexually transmitted conditions, chronic hepatitis, infections caused by enteric pathogens, pertussis, and tuberculosis.

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 report to DOH electronically via the Public Health Issue Management System (PHIMS).

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 2016 CDC Year (January 3, 2016 – December 31, 2016).
3. Case report entered into PHIMS by March 1, 2017 if the condition is common (>10 cases per year).
4. Reported to DOH through PHIMS prior to May 15, 2017 if the condition is rare (≤10 cases per year).
5. Given a valid DOH case classification by DOH (as described in the guidelines for each condition: http://www.doh.wa.gov/PublicHealthandHealthcareProviders/NotifiableConditions/ListofNotifiableConditions.aspx).
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: http://www.ofm.wa.gov/pop/asr/default.asp. Previously reported disease rates for 2000 through 2010 were updated using new population estimates based on the 2010 decennial census. Rates by county are not provided for conditions with fewer than five reported cases.

This report is available online at:
http://www.doh.wa.gov/DataandStatisticalReports/DiseasesandChronicConditions/CommunicableDiseaseSurveillanceData/AnnualCDSurveillanceReports

Monthly Washington State disease surveillance data are available online at:
http://www.doh.wa.gov/DataandStatisticalReports/DiseasesandChronicConditions/CommunicableDiseaseSurveillanceData/MonthlyCDSurveillanceReport.aspx.

Additional information on communicable disease surveillance and case investigation in Washington is available at:
http://www.doh.wa.gov/PublicHealthandHealthcareProviders/NotifiableConditions/ListofNotifiableConditions.aspx.

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 (http://www.doh.wa.gov/PublicHealthandHealthcareProviders/NotifiableConditions.aspx), 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 at http://www.doh.wa.gov/Portals/1/Documents/1200/LHJCommunicableDiseaseReporting.pdf. 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 http://www.doh.wa.gov/PublicHealthandHealthcareProviders/NotifiableConditions/HowToReport.aspx

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 C, acute
- Hepatitis D, acute
- 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 B, chronic
- 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)

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

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)

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."

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, ten to 20 cases of travel-associated dengue and a few travel-associated chikungunya cases were reported annually. An outbreak of chikungunya began in late 2013 in the Caribbean quickly spread to many countries in Central and South America. This outbreak led to a peak in travel-associated chikungunya cases in 2015, when 40 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. DOH began offering facilitation of testing of symptomatic patients and asymptomatic pregnant women with a history of travel to affected countries or possible sexual exposure in early 2016 due to concerns about birth defects. The circulation of multiple flaviviruses and their cross-reactivity on serologic testing led to inability to distinguish virus types in some cases. 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.

2016: 23 cases of dengue fever (0.3 cases/100,000 population), 10 cases of chikungunya (0.1 cases /100,000 population), 68 cases of Zika virus disease (0.9 cases/100,000 population), 5 cases of Zika virus infection (0.1 cases/100,000 population), and 3 cases of unspecified flavivirus disease were reported following travel.

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 1 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, so 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. In 2015, Washington had the second most severe season on record, with 24 cases and eight presumptive viremic donors.

2016: 9 cases were reported (0.1 cases/100,000 population); all with in-state exposure. Three asymptomatic viremic blood donors with in-state exposure were also reported.

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.

2016: 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.

2016: 2 fatal cases of foodborne botulism (type A) associated with home-canned food, one case of infant botulism (type A) and one probable case of wound botulism 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.

2016: No cases were reported.

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 1,551 to 1,911 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.

2016: 1,911 cases were reported (26.6 cases/100,000 population).

Chlamydia Infection

Cause: Bacterium *Chlamydia trachomatis*.

Illness and treatment: Asymptomatic infection is common. There may be pain during urination or abnormal genital discharge. 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 acquired at birth.

Additional risks: Disease rates are highest among sexually active adolescents and young adults. Perinatal infection can result in neonatal conjunctivitis or pneumonia.

Prevention: Use safe sexual practices to reduce transmission. Screen sexually active women at risk 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 26,000 cases are reported each year.

2016: 31,193 cases were reported (434.2 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.

2016: 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: Eighty-four to 131 cases are reported each year. An increase in culture-independent laboratory testing has contributed to increased reports since 2015.

2016: 131 cases were reported (1.8 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 yearly, mainly among people exposed during international travel.

2016: 3 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.

2016: No cases were reported.

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.

2016: 672 cases were reported (9.4 cases/100,000 population)

Gonorrhea

Cause: Bacterium *Neisseria gonorrhoeae.*

Illness and treatment: Many women and some men have no symptoms 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, or epididymitis in men. There can be 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 acquired at birth.

Additional risks: Disease rates are highest among men and sexually active younger adults. Perinatal infection can result in neonatal conjunctivitis or sepsis.

Prevention: Use safe sexual practices to reduce transmission. Screening to detect asymptomatic patients is only recommended for women at increased risk for infection. 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 6,000 cases were reported each year.

2016: 8,165 cases were reported (113.7 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 73 cases reported in this age group during 2007 through 2016, isolates were available to serotype for 69 (95 percent) cases. Among those only 14 (20 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, 51 percent of isolates available for serotyping in Washington did not agglutinate to any of the six known serotypes.

2016: 9 cases were reported (2.0 cases/100,000 population).

Table 1. Number of *H. influenzae* Cases Among Children <5 Years Old by Serotype, Washington State, 2007-2016

Year	Total	Not tested	Isolate available	b	Non-b	Not typeable	%b	% Not typeable
2007	6	0	6	3	2	1	50%	17%
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%
Total	**73**	**4**	**69**	**14**	**20**	**35**	**20%**	**51%**

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, 48 cases were reported through 2016 with 16 (33 percent) associated deaths (including a retrospectively identified case from 1985). In recent years there are usually one to three cases, predominately exposed in eastern counties.

2016: One case was reported with no deaths.

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 international travel. Recent 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.

2016: 31 cases were reported (0.4 cases/100,000 population) with one death. 4 cases had out-of-state travel, one was an injection drug user, and 11 related to international travel: 7 with travel to Mexico, 2 to Dominican Republic, and one each to Cote d'Ivoire and Russia.

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, healthcare 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 ≥ 2 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, 1,205 cases of chronic hepatitis B were reported per year between 2007 and 2016. 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.

2016: 45 acute cases were reported (0.6 cases/100,000 population). 20 used injection drugs and 10 had risk sexual exposures. Preliminary numbers indicate that among 304 infants born to surface antigen positive women in 2016, no perinatal infections have been reported among the 118 (39%) that had received follow-up testing through the end of August, 2017. A total of 1,521 chronic hepatitis B cases were reported (21.2 cases/100,000 population).

Hepatitis C

Cause: Hepatitis C virus, which has 6 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 2016, there were an average of 67 acute cases reported each year. Between 2007 and 2016, an average of 5,863 cases of chronic hepatitis C were reported each year.

2016: 95 acute cases were reported (1.3 cases/100,000 population). The youngest was age 15 years. 65 of 82 cases with information had injection drug use as a risk factor. A total of 8,118 chronic hepatitis C cases were reported (113.0 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 typically have abrupt onset of fever, nausea, and abdominal pain followed by jaundice. Hepatitis D may 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: 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.

2016: One case of hepatitis D had likely injection drug use and 3 cases of hepatitis E were associated with travel to India and Bangladesh.

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. 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 acquired at 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.

2016: 2,548 cases of initial genital HSV infection (35.5 cases/100,000 population) and two 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 can eventually cause a person to develop Acquired Immune Deficiency Syndrome (AIDS).

Illness and treatment: AIDS is defined by a person's CD4+ T-cell count being below 200 cells/mL and/or the existence of one or more of a broad range of opportunistic illnesses that are specific to HIV disease. The presence of AIDS is usually an indication that a person has been infected with HIV for many years.

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 an HIV-positive partner.

Additional risks: Groups at increased risk for HIV include injection drug users, people who use illegal stimulants such as methamphetamines or cocaine, 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. Do not have a sexual relationship with more than one person at a time.

Recent Washington trends: Statewide, annual HIV case counts have been stable over the past several years. Roughly 450 people are newly diagnosed with HIV infection per year, on average. About one in three 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.

2016: 436 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 an upward trend with more than 50 cases reported each year since 2013.

2016: 72 cases were reported (1.0 cases/100,000 population) with 10 deaths. Nationwide as well as in Washington legionellosis incidence is on an 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.

2016: 2 cases were reported, one with exposure while hunting in British Columbia and one with travel to Puerto Rico.

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.

2016: 14 cases were reported (0.2 cases/100,000 population) with 2 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.

Some patients may experience post-treatment Lyme disease syndrome, in which symptoms linger after treatment and clearance of *B. burgdorferi*. Current scientific evidence does not support the effectiveness of prolonged antibiotic treatment for a diagnosis of chronic Lyme disease.

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. In Washington, *I. pacificus* is found in the western half of the state and along the eastern slopes of the Cascade Mountains. In the northeastern and Upper Midwest regions of the United States, the tick vector is *I. scapularis* (blacklegged or "deer" tick). 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 33 Lyme disease cases are reported in Washington. Most Washington cases 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.

2016: 33 cases were reported (0.4 cases/100,000 population); 6 were exposed in Washington, 18 were exposed in other states, 3 were exposed in other countries, and 6 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.

2016: 46 cases were reported (0.6 cases/100,000 population) with 29 *P. falciparum*, 8 *P. vivax,* one *P. ovale*, one *P. malariae*, and 7 unknown *Plasmodium* species. All involved travel exposures, mainly in Africa with some in Asia.

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 101^{o}F 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 healthcare 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.

2016: No 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 22 cases (range 10 to 29) have been reported annually, with as many as five deaths in a year.

2016: 13 cases were reported (0.2 cases/100,000 population).

Table 2. Number of Meningococcal Disease Cases by Serogroup, Washington State, 2007-2016

Year	Total	Not Tested*	Isolate available	B	C	Y	W135	Other	% Vaccine (A/C/Y/W) serogroup	% B
2007	28	1	27	13	4	10	0	0	52%	48%
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%
Total	**219**	**12**	**207**	**86**	**41**	**63**	**10**	**7**	**55%**	**42%**

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 healthcare 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 2016, Washington State had two outbreaks of mumps. The first was limited to four cases in a college setting, and the index case was exposed out of country. The second outbreak included 139 cases with symptom onset in 2016 and was ongoing at the end of the calendar year. DNA sequenced from initial cases were genetically identical those from an outbreak that began in Arkansas in mid-2016.

2016: 152 cases were reported (2.1 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.

2016: 618 cases were reported (8.6 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.

2016: 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).

2016: 10 cases of AFM (0.1 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.

2016: 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.

2016: 7 cases were reported (0.1 cases/100,000 population). These cases were not outbreak-linked; five were likely exposed in Washington and two had exposures in other states.

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 a few notable exceptions: experimental treatment in this country saved one young girl in Wisconsin (2005); Texas reported a case of presumptive abortive human rabies (2009); California reported a recovery of a patient with clinical rabies (2011).

Sources: Rabies virus is carried by mammals. In Washington, bats are the primary 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.

2016: 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).

2016: 329 reports of suspected rabies exposure were reported (4.6 cases/100,000 population). The most common exposures were bats (73 percent) and dogs (12 percent). Twenty (seven percent) of 298 tested bats were rabid (Table 4).

Table 3. Rabid Non-Bat Animals and Rabies Strains, Washington, 1987–2016

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 2012-2016

	2012		2013		2014		2015		2016		County Total	
Counties	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Total	Positive	Tested
Adams	0	0	0	0	0	1	0	0	0	6	0	7
Asotin	0	0	0	3	0	0	0	0	0	0	0	3
Benton	0	1	0	2	0	1	0	2	0	3	0	9
Chelan	1	13	0	2	0	6	0	8	3	17	4	46
Clallam	0	1	1	6	1	5	0	4	0	0	2	16
Clark	0	9	0	18	0	16	1	16	1	15	2	74
Columbia	0	0	0	0	0	0	0	0	0	0	0	0
Cowlitz	1	3	0	14	0	13	0	7	0	16	1	53
Douglas	0	1	0	0	0	0	0	0	0	0	0	1
Ferry	0	2	0	0	0	1	0	0	1	1	1	4
Franklin	0	1	1	1	0	0	0	1	0	0	1	3
Garfield	0	0	0	0	0	0	0	0	0	0	0	0
Grant	0	3	0	1	0	3	0	2	1	4	1	13
Grays Harbor	1	3	0	1	0	0	0	5	0	3	1	12
Island	1	9	0	10	1	10	0	12	0	5	2	46
Jefferson	0	5	1	4	0	6	0	8	0	6	1	29
King	1	47	4	64	4	64	2	65	3	52	14	292
Kitsap	0	10	1	27	3	19	0	20	1	23	5	99
Kittitas	0	2	1	3	0	4	0	3	0	0	1	12
Klickitat	0	3	0	0	2	3	0	3	0	0	2	9
Lewis	0	9	0	11	0	13	0	7	2	16	2	56
Lincoln	0	0	0	1	0	1	0	0	0	0	0	2
Mason	0	9	0	4	0	11	2	8	1	8	3	40
Okanogan	0	1	0	2	0	3	0	1	0	0	0	7
Pacific	0	7	0	4	0	4	1	4	0	4	1	23
Pend Oreille	0	1	0	0	0	0	0	0	0	0	0	1
Pierce	0	10	0	13	0	8	0	8	1	16	1	55
San Juan	0	2	0	1	0	1	0	3	0	2	0	9
Skagit	1	8	0	5	1	8	0	7	0	5	2	33
Skamania	0	0	0	0	0	2	0	2	0	0	0	4
Snohomish	1	16	0	22	1	21	1	25	0	15	3	99
Spokane	0	9	0	19	0	12	1	34	3	44	4	118
Stevens	0	2	0	6	0	3	0	7	0	4	0	22
Thurston	0	18	0	11	0	13	1	17	1	16	2	75
Wahkiakum	1	1	0	2	0	1	0	2	0	0	1	6
Walla Walla	0	1	0	1	0	0	0	1	0	1	0	4
Whatcom	1	12	3	22	2	19	0	15	2	14	8	82
Whitman	0	0	0	2	0	0	0	5	0	2	0	9
Yakima	0	2	0	2	0	4	0	3	0	0	0	11
Total	9	221	12	284	15	276	9	305	20	298	65	1384

Table 5. Washington State Animals Tested for Rabies, 1988-2016[α] (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)
Total 1988-2016	**7,192 (451)**	**3,369 (2)**	**2,293**	**148**	**280**	**70**	**234**	**25**	**301**	**240 (2)**	**14,152 (455)**

[α] Numbers reported through 2007 were inclusive of positive and negative test results; beginning in 2008 all specimens submitted (including unsatisfactory results) were included in counts.

* 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 2014, four cases of anaplasmosis were reported, two with exposure in the Upper Midwest (both in 2013) and two with exposures in the northeastern United States (2004, 2007). One case of ehrlichiosis due to *E. chaffeensis* was reported in 2011, associated with travel to the southeastern United States.

2016: No cases reported.

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. New evidence (2014) documented the presence of *C. immitis* 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, 11 cases with exposure in south-central Washington were reported.

2016: 40 cases were reported (0.6 cases/100,000 population) with two deaths; 38 were travel-related and two were exposed in south-central Washington.

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 (10– 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 2007 to 2016, the median number of cases per year was 12 cases (range: 5–18 cases). The incidence of human prion disease in Washington is consistent with reported rates worldwide, with an average incidence of 1.8 cases/million population in the last decade (Table 6).

2016: 18 cases were reported (0.3 cases/100,000 population); 17 were sporadic and one was familial.

Table 6. Prion Disease - Definite and Probable Cases

Year of death	Sporadic	Familial	Iatrogenic	Variant	Combined Rate*
2007	5	0	0	0	0.1
2008	17	0	0	0	0.3
2009	7	2	0	0	0.1
2010	7	1	0	0	0.1
2011	9	0	0	0	0.1
2012	12	1	0	0	0.2
2013	13	1	1	0	0.2
2014	10	1	0	0	0.2
2015	11	1	0	0	0.2
2016	17	1	0	0	0.3

*All rates are cases per 100,000 population.

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. Exposure is through inhalation of spores from the environment.

Prevention: There are no specific precautions.

Recent Washington trends: Since 2005, 59 animal cases have been identified in the state, including porpoises, cats, dogs, a sheep, an elk, a horse, and a bird. *C. gattii* has been found in a few surface swabs, including investigators' shoes and vehicle wheel wells, a fence post and a parking lot in northwestern counties. Since 2006, one to seven human cases are reported each year, some with presumed in-state exposure. The case fatality rate among all cases is 14 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.

2016: 5 cases were reported (0.1 cases/100,000 population).

Tick Paralysis

Cause: Toxin in the saliva of ticks.

Illness and treatment: Symptoms include acute ataxia and ascending flaccid paralysis which develop after 4 to 7 days of tick feeding. Treatment requires removal of the engorged tick. Recovery typically occurs within 24 hours of tick removal with no lasting deficits.

Sources: In the Pacific Northwest, the American dog tick (*Dermacentor variabilis*) or the Rocky Mountain wood tick (*D. andersoni*) can cause tick paralysis. Cases typically occur between April and June when *Dermacentor* ticks emerge to mate and seek blood meals.

Prevention: During outdoor activities avoid tick bites by wearing appropriate clothing and using repellents. Check the body for ticks and use tweezers to remove any attached ticks.

Recent Washington trends: Washington has had 0–2 cases per year since 2007, with exposures mostly in eastern Washington.

2016: One case was reported.

Vaccinia Transmission

Cause: Vaccinia (smallpox vaccine) virus.

Illness and treatment: Symptoms are vesicles where the vaccine virus was inadvertently inoculated. Treatment is supportive; special medications may be needed for severe infections.

Sources: Rare transmission from vaccinated military personnel to a secondary case through close contact (e.g., sexual partner, parent-infant, sports); tertiary cases have occurred but are very rare.

Prevention: A smallpox vaccine site should be covered until fully healed, and the scab monitored and safely discarded. Unvaccinated persons should avoid contact with a fresh vaccine site or scab.

Recent Washington trends: One secondary case occurred in each of 2010 and 2012.

2016: No cases were reported.

Other Reports

Two cases of histoplasmosis were reported, one with travel to Kentucky and one without exposure information.

One probable case of Chagas disease was reported, identified in a blood donor with unknown exposure history.

Rare Sexually Transmitted Diseases

Cause: Bacterium *Haemophilus ducreyi* causes chancroid. Bacterium *Calymmatobacterium granulamatis* causes granuloma inguinale. 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 two chancroid cases, no granuloma inguinale cases, and 10 lymphogranuloma venereum cases.

2016: 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 afebrile periods of four to 14 days, with one to 10 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 (1500-8000 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 10 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.

2016: One case of TBRF with exposure in Washington was reported.

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 (1 in 6000 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.

2016: 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).

2016: 754 cases were reported (10.5 cases/100,000 population) with two deaths.

Table 7. Salmonella Serotypes, 2016

Known serotypes (n=726)	Count
Enteritidis	195
Typhimurium	79
I 4,5,12:i:-	70
Unknown	31
Oranienburg	28
Infantis	24
Thompson	24
Muenchen	22
Braenderup	19
Heidelberg	18
Javiana	17
Newport	16
Other	15
Montevideo	14
Brandenburg	11
Saintpaul	11
Paratyphi B Tar + Java	10
Stanley	9
Dublin	8
I 4 5 12:b:-	8
Paratyphi A	7
Berta	6
Multiple others (below)	

Two to Five Cases Each: Adelaide, Agono, Anatum, Chester, Clackamas, Cotham, Daytona, Give, Guinea, Hadar, Indiana, Kentucky, Kiambu, Litchfield, London, Mbandaka, Meleagridis, Monschaui, Muenster, Oslo, Panama, Poona, Rissen, Sandiego, Schwarzengrund, Senftenberg, Sundsvall, Telelkebir, Uganda, Virchow, Weltevreden

One Case Each: Agbeni, Ago, Albany, Bareilly, Bergen, Birkenhead, Bovismorbificans, Bredeney, Cannstatt, Corvallis, Ealing, Emek, Gaminara, Haifa, Hvittinfoss, I 4,5,12:b:-, I Rough b:1,2, II 13,22:z29:1,5, IIIa 35:Z29:-, IIIa 41:z4,z23:-, IIIb 48:I:z, IIIb 56:z10:z, IV 43:z4,z23:-, IV 44:z4,z32:-, Kenya, Manhattan, Napoli, Norwich, Nottingham, Ohio, Pomona, Portland, Reading, Stanleyville, Tennessee, Ughelli, 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.

2016: 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.

2016: 340 cases were reported (4.7 cases/100,000 population).

Table 8. STEC Serotypes, 2016

Known serotypes (n=237)	Count
O157:H7	76
O26	45
O157:NM	19
O121	17
O103	16
O111	15
O103:H2	6
O186:H2	4
Multiple others (below)	

Two Cases Each: O118:H16, O103:H2, O157 (H antigen not identified), O177:NM, O181:H49, O45:H2, O5:NM, O71:H11

One Case Each: O103:H25**,** O93:H46, O178:H19**,** O113:H21**,** O118:H2**,** O118:NM**,** O128ab**,** O142:H38**,** O145**,** O146:H21**,** O2:H6**,** O28:H25**,** O76:H19**,** O79:H2, O80:H42, O91:H14, O91:NM, Orough:H45, Orough:NM, Oundetermined:H11, Oundetermined:H25, Oundetermined:H7, Oundetermined:H21

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 193 reports. An increase in culture-independent laboratory testing has contributed to increased reports since 2015.

2016: 191 cases were reported (2.7 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 is asymptomatic and not transmitted sexually. Late syphilis can result in damage to the brain, heart, or other organs. Congenital syphilis may result in organ damage and bone deformities. Antibiotics treat a syphilis infection but any damage to organs is permanent.

Sources: Syphilis is sexually transmitted or acquired 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. 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 eleven cases were reported. Recently over 350 primary and secondary cases have been reported annually.

2016: 566 cases of primary and secondary syphilis were reported (7.9 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 10 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: 3 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.

2016: No cases were reported.

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 two cases have been reported. Exposures were bear and cougar meat eaten raw or undercooked.

2016: No cases were reported.

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 foreign-born persons, originating from countries other than the United States 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, diabetics, organ transplant recipients 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 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 2012 through 2016 between 185 and 210 cases of active TB disease were

diagnosed in Washington annually. For 2016 the state rate of 2.9 cases per 100,000 population was unchanged from the previous year and equaled the national rate.

2016: 205 cases of active TB disease were reported (2.9 cases/100,000 population). Only three of Washington's 39 counties reported ten or more cases, together accounting for 78% of all state cases along with 52% of the state's total population. King County reported 101 cases, which represents 49% of all Washington cases and a county rate of 4.8.

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 10 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.

2016: One case was reported with exposure in Washington State; this person reported a squirrel bite.

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 4 to 22 reports each year.

2016: 13 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: Two large outbreaks occurred in years when environmental conditions favored growth of *Vibrio* (1997 and 2006). Annual case counts are variable, ranging from 9 to 80 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.

2016: 63 cases were reported (0.9 cases/100,000 population) with one death.

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 2016, 0 to 3 outbreaks were reported each year (median, 1 outbreak per year). Distinct

outbreaks have ranged in size from very small (2 cases) to very large (hundreds of cases) (Table 6).
2016: 2 waterborne disease outbreaks were reported, one legionellosis and one norovirus.

Table 9. Waterborne Disease Outbreaks, 1991-2016*

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

*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: Twenty-one to 55 cases are reported each year. An increase in culture-independent laboratory testing has contributed to increased reports since 2015.

2016: 56 cases were reported (0.8 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]

[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	0
1991	0	3	0	0.1	0
1992	0	2	0	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	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	0
2015	0	6	2	0.1	0
2016	2	1	1	0.1	2

*All rates are cases per 100,000 population.

BRUCELLOSIS

Year	Cases	Rate*	Deaths
1986	1	0.0	0
1987	1	0.0	0
1988	1	0.0	0
1989	1	0.0	0
1990	0	0.0	0
1991	3	0.1	0
1992	1	0.0	0
1993	0	0.0	0
1994	0	0.0	0
1995	0	0.0	0
1996	2	0.0	0
1997	3	0.1	0
1998	3	0.1	0
1999	0	0.0	0
2000	0	0.0	0
2001	0	0.0	0
2002	2	0.0	0
2003	1	0.0	0
2004	2	0.0	0
2005	0	0.0	0
2006	0	0.0	0
2007	1	0.0	0
2008	1	0.0	0
2009	1	0.0	0
2010	0	0.0	0
2011	1	0.0	0
2012	0	0.0	0
2013	1	0.0	0
2014	4	0.1	0
2015	4	0.1	0
2016	0	0.0	0

*All rates are cases per 100,000 population.

CAMPYLOBACTERIOSIS

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	4	*	3	*	4	*	10	51.5	6	30.8
Asotin	3	*	2	*	2	*	2	*	2	*
Benton	31	17.2	41	22.4	33	18	28	14.8	51	26.8
Chelan	5	6.8	10	13.6	15	20.2	8	10.7	15	19.8
Clallam	4	*	3	*	2	*	3	*	4	*
Clark	83	19.2	97	22.3	87	19.6	73	16.2	82	17.8
Columbia	0	0	2	*	2	*	4	*	2	*
Cowlitz	24	23.3	22	21.3	18	17.4	24	23	19	18.1
Douglas	6	15.4	4	*	8	20.2	7	17.5	3	*
Ferry	2	*	2	*	2	*	2	*	3	*
Franklin	11	13.3	21	24.8	11	12.7	11	12.6	11	12.4
Garfield	0	0	0	0	2	*	1	*	1	*
Grant	25	27.5	15	16.3	19	20.5	24	25.6	31	32.8
Grays Harbor	13	17.8	14	19.1	14	19.1	10	13.7	13	17.9
Island	18	22.7	8	10	16	20	17	21.1	29	35.0
Jefferson	5	16.6	21	69.4	18	58.6	16	51.8	12	38.6
King	447	22.8	455	23	487	24.1	604	29.4	589	28.0
Kitsap	34	13.4	41	16.1	40	15.6	48	18.6	58	22.1
Kittitas	14	33.7	7	16.7	10	23.8	9	21.1	10	22.9
Klickitat	2	*	9	43.5	6	28.8	4	*	5	23.5
Lewis	26	34.1	27	35.4	29	38	16	20.9	25	32.5
Lincoln	0	0	1	*	1	*	0	0	2	*
Mason	19	30.9	14	22.7	9	14.5	7	11.3	18	28.9
Okanogan	7	16.9	5	12	5	12	5	11.9	5	12.0
Pacific	4	*	5	23.8	8	37.9	3	*	2	*
Pend Oreille	4	*	0	0	2	*	2	*	0	0
Pierce	221	27.3	253	31.3	217	26.4	250	30.1	230	27.2
San Juan	3	*	4	25	1	*	5	30.9	6	36.8
Skagit	27	22.9	34	28.7	29	24.3	33	27.4	37	30.3
Skamania	2	*	0	0	0	*	0	0	0	0
Snohomish	159	22	180	24.6	190	25.6	231	30.5	237	30.7
Spokane	70	14.7	42	8.8	57	11.8	84	17.2	86	17.5
Stevens	4	*	8	18.3	3	*	17	38.6	18	40.8
Thurston	68	26.5	49	18.8	58	22	57	21.3	69	25.3
Wahkiakum	0	0	0	0	0	*	0	0	0	0
Walla Walla	11	18.6	20	33.6	14	23.3	14	23.1	25	41.2
Whatcom	77	37.8	56	27.2	59	28.4	60	28.6	56	26.3
Whitman	9	19.6	3	*	5	10.8	9	19	7	14.6
Yakima	109	44.3	153	61.9	108	43.4	149	59.6	142	56.6
STATEWIDE TOTAL	1,551	22.7	1,631	23.7	1,591	22.8	1,847	26.2	1,911	26.6

*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	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	0
1990	899	18.5	0
1991	930	18.5	4
1992	1,060	20.6	1
1993	1,051	20.0	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	17.0	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

*All rates are cases per 100,000 population.

CHLAMYDIA TRACHOMATIS

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rates	Cases	Rates	Cases	Rates	Cases	Rates
Adams	64	336	78	406.3	76	391.8	60	306.1	85	435.7
Asotin	80	368.7	80	367.0	81	369.0	92	419.0	86	388.3
Benton	597	331.7	672	366.4	648	347.5	677	357.7	739	387.9
Chelan	247	337.4	256	347.8	287	386.3	245	328.8	260	342.5
Clallam	172	238.9	188	259.9	162	223.5	187	256.6	200	272.4
Clark	1,382	320.5	1,419	325.8	1,534	346.4	1,686	379.7	1,912	414.7
Columbia	7	170.7	6	+	8	+	6	+	4	+
Cowlitz	439	426	292	282.7	426	410.8	475	456.9	481	458.8
Douglas	128	329	135	343.7	146	367.8	144	360.5	151	370.8
Ferry	32	418.3	26	339.9	26	339.4	26	337.9	24	311.7
Franklin	319	386.7	413	487	416	480.4	370	414.7	456	514.3
Garfield	1	*	0	+	5	+	5	+	3	+
Grant	329	361.5	383	417.2	392	422.0	382	406.7	404	427.0
Grays Harbor	176	240.6	171	233.6	205	279.7	192	261.2	198	271.9
Island	206	259.6	205	257.2	232	290.0	307	382.7	204	246.1
Jefferson	50	165.7	78	257.6	77	250.8	56	182.2	56	180.1
King	6,763	345.6	6,828	344.5	7,332	363.5	8,421	415.4	9,400	446.5
Kitsap	1,075	422.4	895	352.4	920	359.5	938	365.4	984	374.7
Kittitas	189	455.4	163	389	168	399.1	179	422.0	210	480.4
Klickitat	29	140.8	33	159.4	55	263.8	57	272.0	58	272.7
Lewis	233	305.4	261	342.5	252	330.3	265	345.6	252	327.7
Lincoln	13	121.8	6	+	5	+	19	+	15	141.0
Mason	153	249	177	286.4	198	319.4	230	368.2	234	375.5
Okanogan	136	328.3	130	313.3	77	184.7	76	181.7	114	273.2
Pacific	30	143.1	28	133.3	34	161.1	57	270.1	45	212.5
Pend Oreille	22	167.9	20	152.1	23	174.1	24	180.6	20	150.5
Pierce	4,293	531.2	4,298	527.7	4,372	532.3	4,646	563.2	4,976	589.2
San Juan	15	94.2	11	+	20	124.2	20	123.8	17	104.2
Skagit	342	290	409	344.9	335	280.3	399	333.0	415	339.4
Skamania	30	266.1	29	256.6	25	219.9	14	122.1	22	191.3
Snohomish	1,871	258.8	1,880	257.4	2,006	270.7	2,203	295.7	2,488	321.9
Spokane	1,923	404.3	2,037	424.4	2,142	442.1	2194	450.5	2,452	497.8
Stevens	85	194.5	129	294.5	103	234.6	123	297.8	128	290.3
Thurston	906	352.8	919	353.3	890	337.1	988	371.4	1,164	426.9
Wahkiakum	4	*	1	+	2	+	4	+	5	+
Walla Walla	191	323.2	209	351.3	190	315.9	237	393.8	238	391.9
Whatcom	593	291.4	580	281.8	570	274.6	765	366.4	692	325.6
Whitman	173	376.5	189	410.9	302	649.5	355	754.2	412	859.4
Yakima	1,302	529.3	1,379	557.7	1,504	604.5	1,597	638.4	1,589	633.3
STATEWIDE TOTAL	24,600	360.8	25,013	363.4	26,246	376.7	28,721	410.0	31,193	434.2

All incidence rates are cases per 100,000 population.
*For 2012, incidence rates not calculated for <5 cases.
+For 2013-2016, incidence rates suppressed for counts <20 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	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	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	0
2016	31,193	434.2	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	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	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	0
2014	0	0	0
2015	0	0	0
2016	0	0	0

*All rates are cases per 100,000 population.

CRYPTOSPORIDIOSIS

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	0	0	0	*	0	0	0	0
Asotin	0	0	0	0	0	*	0	0	0	0
Benton	1	*	2	*	2	*	1	*	2	*
Chelan	0	0	0	0	0	*	0	0	0	0
Clallam	4	*	1	*	3	*	2	*	3	*
Clark	14	3.2	8	1.8	5	1.1	9	2	10	2.2
Columbia	0	0	0	0	0	*	0	0	0	0.0
Cowlitz	2	*	4	*	3	*	3	*	3	*
Douglas	0	0	0	0	0	*	0	0	0	0
Ferry	0	0	0	0	0	*	0	0	0	0
Franklin	0	0	0	0	1	*	1	*	4	*
Garfield	0	0	0	0	0	*	0	0	0	0
Grant	0	0	1	*	0	*	1	*	0	0
Grays Harbor	0	0	0	0	0	*	0	0	0	0
Island	0	0	0	0	0	*	0	0	4	*
Jefferson	7	23.2	3	*	1	*	3	*	2	*
King	23	1.2	18	0.9	19	0.9	25	1.2	43	2.0
Kitsap	2	*	0	0	1	*	3	*	3	*
Kittitas	0	0	1	*	0	*	0	0	1	*
Klickitat	1	*	0	0	0	*	1	*	0	0
Lewis	0	0	1	*	0	*	9	11.7	2	*
Lincoln	0	0	1	*	0	*	0	0	0	0
Mason	1	*	0	0	1	*	0	0	0	0
Okanogan	0	0	0	0	0	*	1	*	0	0
Pacific	1	*	0	0	0	*	0	0	0	0
Pend Oreille	0	0	0	0	0	*	0	0	0	0
Pierce	22	2.7	24	3	18	2.2	24	2.9	14	1.7
San Juan	0	0	0	0	1	*	0	0	3	*
Skagit	0	0	0	0	0	*	0	0	2	*
Skamania	0	0	0	0	0	*	0	0	0	0
Snohomish	10	1.4	7	1	3	*	5	0.7	6	0.8
Spokane	3	*	4	*	2	*	5	1	0	0
Stevens	0	0	0	0	0	*	0	0	0	0
Thurston	3	*	2	*	7	2.7	3	*	10	3.7
Wahkiakum	0	0	0	0	0	*	0	0	0	0
Walla Walla	1	*	2	*	1	*	0	0	1	*
Whatcom	0	0	0	0	0	*	10	4.8	15	7.1
Whitman	1	*	1	*	0	*	0	0	0	0
Yakima	5	2	3	*	7	2.8	7	2.8	3	*
STATEWIDE TOTAL	101	1.5	84	1.2	75	1.1	113	1.6	131	1.8

*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	0
2003	65	1.1	0
2004	63	1.0	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

*All rates are cases per 100,000 population.

CYCLOSPORIASIS‡

Year	Cases	Rate*	Deaths
2002	5	0.1	0
2003	0	0.0	0
2004	11	0.2	0
2005	5	0.1	0
2006	1	0.0	0
2007	1	0.0	0
2008	1	0.0	0
2009	0	0.0	0
2010	2	0.0	0
2011	4	0.1	0
2012	0	0.0	0
2013	0	0.0	0
2014	2	0.0	0
2015	5	0.1	0
2016	3	0	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

*All rates are cases per 100,000 population.

GIARDIASIS

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	1	*	0	0	0	*	3	15.5	1	*
Asotin	1	*	3	*	4	*	1	*	1	*
Benton	3	*	8	4.4	6	3.3	2	*	8	4.2
Chelan	1	*	7	9.5	4	*	9	12	9	11.9
Clallam	7	9.7	6	8.3	5	6.9	7	9.6	6	8.2
Clark	30	7	25	5.7	32	7.2	28	6.2	39	8.5
Columbia	0	0	1	*	1	*	1	*	0	0
Cowlitz	5	4.9	6	5.8	3	*	3	*	2	*
Douglas	1	*	3	*	0	*	2	*	7	17.2
Ferry	0	0	1	*	0	*	1	*	0	0
Franklin	4	*	3	*	6	6.9	4	*	4	*
Garfield	0	0	0	0	0	*	0	0	0	0
Grant	3	*	3	*	4	*	4	*	4	*
Grays Harbor	4	*	1	*	3	*	5	6.8	6	8.2
Island	6	7.6	13	16.3	4	*	1	*	5	6.0
Jefferson	9	29.8	6	19.8	7	22.8	3	*	7	22.5
King	170	8.7	195	9.8	188	9.3	219	10.7	253	12.0
Kitsap	23	9	23	9	16	6.3	26	10.1	25	9.5
Kittitas	4	*	1	*	5	11.9	5	11.7	7	16.0
Klickitat	1	*	2	*	3	*	5	23.8	1	*
Lewis	7	9.2	7	9.2	5	6.6	3	*	5	6.5
Lincoln	0	0	0	0	0	*	0	0	2	*
Mason	7	11.4	4	*	4	*	4	*	8	12.8
Okanogan	2	*	7	16.9	5	12	6	14.3	4	9.6
Pacific	3	*	2	*	3	*	0	0	3	*
Pend Oreille	1	*	0	0	1	*	1	*	3	*
Pierce	48	5.9	46	5.7	41	5	42	5.1	41	4.9
San Juan	2	*	1	*	0	*	3	*	0	0
Skagit	3	*	6	5.1	7	5.9	9	7.5	10	8.2
Skamania	4	*	0	0	0	*	0	0	0	0
Snohomish	52	7.2	60	8.2	43	5.8	71	9.4	66	8.5
Spokane	39	8.2	24	5	47	9.7	60	12.3	72	14.6
Stevens	3	*	0	0	6	13.7	1	*	4	*
Thurston	33	12.9	27	10.4	19	7.2	17	6.4	34	12.5
Wahkiakum	0	0	0	0	0	*	1	*	0	0
Walla Walla	4	*	7	11.8	5	8.3	2	*	4	*
Whatcom	19	9.3	35	17	18	8.7	25	11.9	8	3.8
Whitman	2	*	3	*	2	*	4	*	2	*
Yakima	10	4.1	12	4.9	18	7.2	26	10.4	21	8.4
STATEWIDE TOTAL	512	7.5	548	8	515	7.4	604	8.6	672	9.4

*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	0
1997	738	13.0	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	0
2007	590	9.0	0
2008	486	7.4	0
2009	467	7.0	0
2010	521	7.7	0
2011	529	7.8	0
2012	512	7.5	0
2013	548	8.0	0
2014	515	7.4	0
2015	604	8.6	0
2016	672	9.4	0

*All rates are cases per 100,000 population.

GONORRHEA

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	8	42.0	3	+	9	+	32	163.3	14	71.8
Asotin	0	0.0	2	+	3	+	16	+	24	108.4
Benton	49	27.2	88	48.0	152	81.5	135	71.3	258	135.4
Chelan	10	13.7	10	+	13	17.5	27	36.2	37	48.7
Clallam	2	*	8	+	13	17.9	10	13.7	18	24.5
Clark	151	35.0	148	34.0	208	47.0	247	55.6	396	85.9
Columbia	2	*	0	+	1	+	2	+	0	+
Cowlitz	26	25.2	21	20.3	33	31.8	100	96.2	121	115.4
Douglas	3	*	9	+	8	+	11	+	18	44.2
Ferry	2	*	2	+	1	+	2	+	5	+
Franklin	24	29.1	73	86.1	98	113.2	67	75.1	118	133.1
Garfield	1	*	0	+	1	+	0	+	0	+
Grant	59	64.8	34	37.0	80	86.1	116	123.5	111	117.3
Grays Harbor	5	6.8	12	16.4	34	46.4	31	42.2	46	63.2
Island	19	23.9	24	30.1	25	31.3	27	33.7	35	42.2
Jefferson	1	*	3	+	21	68.4	9	+	11	+
King	1,527	78.0	1771	89.4	2,219	110.0	2,922	144.1	3,343	158.8
Kitsap	57	22.4	109	42.9	183	71.5	197	76.7	177	67.4
Kittitas	8	19.3	5	+	16	38.0	23	54.2	21	48.0
Klickitat	3	*	1	+	3	+	6	+	4	+
Lewis	12	15.7	21	27.6	16	21.0	31	40.4	52	67.6
Lincoln	1	*	0	+	0	+	3	+	6	+
Mason	15	24.4	14	22.7	38	61.3	40	64.0	48	77.0
Okanogan	5	12.1	12	28.9	10	+	10	+	27	64.7
Pacific	3	*	15	71.4	11	+	6	+	3	+
Pend Oreille	4	*	6	+	1	+	3	+	7	+
Pierce	657	81.3	966	118.6	1,271	154.8	1,363	165.2	1,196	141.6
San Juan	4	*	1	+	3	+	1	+	0	+
Skagit	22	18.7	41	34.6	55	46.0	53	44.2	65	53.2
Skamania	1	*	1	+	1	+	1	+	3	+
Snohomish	165	22.8	251	34.4	402	54.3	504	67.6	602	77.9
Spokane	181	38.1	329	68.5	530	109.4	527	108.2	520	105.6
Stevens	1	*	16	36.5	9	+	17	+	28	63.5
Thurston	88	34.3	114	43.8	146	55.3	192	72.0	263	96.5
Wahkiakum	0	0.0	0	+	1	+	0	+	1	+
Walla Walla	9	15.2	27	45.4	46	76.5	25	41.5	30	49.4
Whatcom	49	24.1	60	29.2	58	27.9	61	29.2	102	48.0
Whitman	26	56.6	13	28.3	11	+	10	21.2	12	25.0
Yakima	82	33.3	180	72.8	406	163.2	376	150.3	443	176.6
STATEWIDE TOTAL	3,282	48.1	4,390	63.8	6,136	88.1	7,203	102.8	8,165	113.7

All incidence rates are cases per 100,000 population.
*For 2012, incidence rates not calculated for <5 cases.
+For 2013-2016, incidence rates suppressed for counts <20 and rates with residual standard error (RSE) >30% due to statistical instability.

GONORRHEA
STATEWIDE BY YEAR

Year	Cases	Rate*	Deaths
1982	11,381	266.1	0
1983	9,895	229.7	0
1984	9,158	210.3	0
1985	10,073	228.1	0
1986	9,848	220.7	0
1987	8,909	196.8	0
1988	7,154	155.0	0
1989	6,369	134.7	0
1990	5,009	102.9	0
1991	4,441	88.4	0
1992	4,169	81.1	0
1993	3,740	71.0	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	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	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	102.8	0
2016	8,165	113.7	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	6.0	6
1988	200	4.3	0
1989	163	3.4	2
1990	123	2.5	6
1991	51	1.0	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	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	0
2015*	5	1.1	0
2016*	9	2.0	0

*All rates are cases per 100,000 population. Rates for 2001-2016 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**	1	0.0	1
1994	2	0.1	1
1995	4	0.1	2
1996	4	0.1	2
1997	3	0.0	1
1998	2	0.1	0
1999	5	0.0	1
2000	1	0.0	0
2001	1	0.0	0
2002	1	0.0	0
2003	2	0.0	1
2004	2	0.0	0
2005	1	0.0	0
2006	3	0.0	2
2007	2	0.0	0
2008	2	0.0	1
2009	3	0.0	1
2010	2	0.0	0
2011	2	0.0	1
2012	2	0.0	2
2013	0	0.0	0
2014	1	0.0	0
2015	1	0.0	0
2016	1	0.0	0

‡ Hantavirus Pulmonary Syndrome first became a notifiable condition in Washington in 12/2000.
*All rates are cases per 100,000 population.
** One retrospective case from 1985 was reported.

HEPATITIS A, ACUTE

	2012		2013		2014		2015		2016	
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	1	*	0	0	0	0	0	0
Benton	1	*	0	0	1	*	1	*	0	0
Chelan	1	*	4	*	0	0	1	*	0	0
Clallam	0	0	1	*	0	0	0	0	0	0
Clark	1	*	2	*	3	*	3	*	2	*
Columbia	0	0	0	0	0	0	0	0	0	0
Cowlitz	2	*	1	*	0	0	1	*	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	1	*	0	0	0	0	0	0	0	0
Garfield	0	0	0	0	0	0	0	0	0	0
Grant	1	*	2	*	0	0	1	*	0	0
Grays Harbor	1	*	0	0	0	0	0	0	1	*
Island	0	0	0	0	0	0	0	0	0	0
Jefferson	1	*	0	0	0	0	0	0	0	0
King	10	0.5	13	0.7	6	0.3	8	0.4	13	0.6
Kitsap	0	0	2	*	0	0	0	0	1	*
Kittitas	1	*	0	0	0	0	0	0	0	0
Klickitat	0	0	0	0	1	*	0	0	0	0
Lewis	1	*	1	*	0	0	0	0	1	*
Lincoln	0	0	0	0	0	0	0	0	0	0
Mason	0	0	0	0	0	0	0	0	1	*
Okanogan	0	0	0	0	0	0	0	0	0	0
Pacific	0	0	1	*	0	0	0	0	0	0
Pend Oreille	0	0	0	0	0	0	0	0	0	0
Pierce	1	*	1	*	4	*	0	0	2	*
San Juan	0	0	0	0	0	0	0	0	0	0
Skagit	1	*	0	0	1	*	1	*	1	*
Skamania	0	0	0	0	0	0	0	0	0	0
Snohomish	1	*	9	1.2	6	0.8	5	0.7	4	*
Spokane	0	0	1	*	3	*	1	*	1	*
Stevens	0	0	0	0	0	0	0	0	0	0
Thurston	2	*	1	*	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	0	0
Whatcom	1	*	1	*	1	*	3	*	4	*
Whitman	0	0	0	0	0	0	0	0	0	0
Yakima	2	*	4	*	0	0	0	0	0	0
STATEWIDE TOTAL	29	0.4	45	0.7	26	0.4	26	0.4	31	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	31.0	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	18.0	3
1997	1,019	18.0	1
1998	1,037	18.0	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	1.0	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

*All rates are cases per 100,000 population.

HEPATITIS B, ACUTE

	2012		2013		2014		2015		2016	
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	*	1	*	0	0	0	0	0	0
Chelan	0	0	0	0	1	*	1	*	0	0
Clallam	0	0	0	0	1	*	0	0	0	0
Clark	0	0	0	0	0	0	3	*	1	*
Columbia	0	0	0	0	1	*	0	0	0	0
Cowlitz	1	*	2	*	1	*	2	*	6	5.7
Douglas	1	*	1	*	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	1	*	0	0	1	*	2	*	0	0
Grays Harbor	1	*	1	*	5	6.8	1	*	3	*
Island	0	0	0	0	0	0	0	0	1	*
Jefferson	0	0	0	0	0	0	0	0	0	0
King	11	0.6	10	0.5	10	0.5	7	0.3	3	*
Kitsap	1	*	0	0	0	0	1	*	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	1	*	0	0	0	0	0	0	1	*
Lincoln	0	0	0	0	0	0	0	0	0	0
Mason	0	0	0	0	0	0	1	*	2	*
Okanogan	0	0	0	0	0	0	0	0	0	0
Pacific	0	0	0	0	1	*	0	0	1	*
Pend Oreille	0	0	0	0	0	0	0	0	0	0
Pierce	1	*	3	*	0	0	5	0.6	6	0.7
San Juan	0	0	0	0	0	0	0	0	0	0
Skagit	0	0	1	*	1	*	0	0	1	*
Skamania	0	0	0	0	0	0	0	0	0	0
Snohomish	5	0.7	0	0	8	1.1	2	*	7	0.9
Spokane	4	*	13	2.7	13	2.7	8	1.6	10	2
Stevens	1	*	0	0	0	0	0	0	0	0
Thurston	1	*	1	*	0	0	0	0	1	*
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	1	*	0	0	0	0	0	0	0	0
Whatcom	3	*	1	*	1	*	1	*	0	0
Whitman	0	0	0	0	0	0	0	0	0	0
Yakima	0	0	0	0	0	0	0	0	2	*
STATEWIDE TOTAL	34	0.5	34	0.5	44	0.6	34	0.5	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	11.0	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	2.0	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	1.0	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

*All rates are cases per 100,000 population.

HEPATITIS B, CHRONIC

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	*	0	*	1	*	0	*	0	*
Asotin	0	*	0	*	0	*	0	*	0	*
Benton	0	*	0	*	5	2.7	2	*	5	2.6
Chelan	0	*	4	*	1	*	1	*	1	*
Clallam	1	*	1	*	1	*	0	*	1	*
Clark	60	13.9	60	13.8	86	19.4	75	16.6	70	15.2
Columbia	0	*	1	*	0	*	0	*	0	*
Cowlitz	14	13.6	10	9.7	8	7.7	10	9.6	5	4.8
Douglas	0	*	0	*	0	*	2	*	0	*
Ferry	0	*	0	*	0	*	1	*	0	*
Franklin	0	*	0	*	2	*	2	*	0	*
Garfield	0	*	0	*	0	*	0	*	0	*
Grant	1	*	0	*	3	*	5	5.3	0	*
Grays Harbor	3	*	0	*	2	*	3	*	0	*
Island	7	8.8	4	*	7	8.8	4	*	3	*
Jefferson	0	*	0	*	1	*	4	*	1	*
King	631	32.2	479	24.2	592	29.3	699	34.1	888	42.2
Kitsap	26	10.2	20	7.9	19	7.4	39	15.1	33	12.6
Kittitas	1	*	3	*	2	*	0	*	1	*
Klickitat	0	*	0	*	0	*	2	*	0	*
Lewis	3	*	2	*	1	*	5	6.5	4	*
Lincoln	0	*	0	*	0	*	0	*	0	*
Mason	3	*	5	8.1	1	*	1	*	2	*
Okanogan	1	*	0	*	1	*	1	*	1	*
Pacific	1	*	3	*	0	*	2	*	1	*
Pend Oreille	0	*	1	*	1	*	0	*	0	*
Pierce	113	14	24	2.9	93	11.3	119	14.3	168	19.9
San Juan	0	*	0	*	0	*	0	*	1	*
Skagit	3	*	7	5.9	1	*	6	5	11	9
Skamania	1	*	0	*	0	*	0	*	0	*
Snohomish	156	21.6	157	21.5	169	22.8	159	21	173	22.4
Spokane	46	9.7	61	12.7	55	11.4	66	13.5	59	12
Stevens	3	*	3	*	1	*	2	*	1	*
Thurston	30	11.7	33	12.7	35	13.3	57	21.3	59	21.6
Wahkiakum	0	*	0	*	0	*	0	*	0	*
Walla Walla	3	*	1	*	0	*	0	*	1	*
Whatcom	17	8.4	9	4.4	12	5.8	17	8.1	15	7.1
Whitman	5	10.9	0	*	0	*	1	*	1	*
Yakima	1	*	3	*	8	3.2	13	5.2	6	2.4
Unspecified**	9	-	10	-	11	-	12	-	10	-
STATEWIDE TOTAL‡	1,139	16.7	901	13.1	1,119	16.1	1,310	18.6	1,521	21.2

*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

*All rates are cases per 100,000 population.

HEPATITIS C, ACUTE

	2012		2013		2014		2015		2016	
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	1	*	0	0	0	0
Chelan	0	0	0	0	1	*	0	0	0	0
Clallam	2	*	2	*	3	*	2	*	1	*
Clark	2	*	2	*	3	*	0	0	0	0
Columbia	0	0	0	0	0	0	0	0	0	0
Cowlitz	1	*	0	0	0	0	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	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	3	*	2	*	0	0	2	*
King	5	0.3	18	0.9	21	1	20	1	14	0.7
Kitsap	0	0	1	*	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	1	*	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	1	*
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	3	*	7	0.9	16	1.9	22	2.7	31	3.7
San Juan	0	0	0	0	0	0	0	0	0	0
Skagit	4	*	1	*	3	*	2	*	6	4.9
Skamania	0	0	0	0	0	0	0	0	0	0
Snohomish	1	*	3	*	2	*	1	*	7	0.9
Spokane	13	2.7	14	2.9	16	3.3	13	2.7	24	4.9
Stevens	2	*	1	*	0	0	0	0	0	0
Thurston	0	0	0	0	0	0	0	0	1	*
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	0	0	0	0	0	0	0	0	0	0
Whatcom	19	9.3	9	4.4	11	5.3	2	*	3	*
Whitman	0	0	0	0	0	0	0	0	0	0
Yakima	2	*	0	0	2	*	1	*	4	*
STATEWIDE TOTAL	54	0.8	63	0.9	83	1.2	63	0.9	95	1.3

*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	3.0	2
1985	145	3.3	1
1986	167	3.7	7
1987	207	4.6	1
1988	232	5.0	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

*All rates are cases per 100,000 population.

HEPATITIS C, CHRONIC

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	7	36.7	0	*	7	36.1	4	*	7	35.9
Asotin	19	87.6	19	87.2	16	72.9	2	*	0	*
Benton	11	6.1	37	20.2	51	27.3	31	16.4	39	20.5
Chelan	18	24.6	14	19	31	41.7	15	20	35	46.1
Clallam	37	51.4	32	44.2	81	111.7	85	117	79	107.6
Clark	473	109.7	416	95.5	621	140.2	670	148.3	657	142.5
Columbia	6	146.3	2	*	6	147.1	2	*	0	*
Cowlitz	191	185.3	167	161.7	273	263.3	272	260.8	257	245.1
Douglas	9	23.1	6	15.3	6	15.1	6	15	9	22.1
Ferry	13	169.9	3	*	12	156.7	16	207.5	10	129.9
Franklin	9	10.9	8	9.4	18	20.8	5	5.7	5	5.6
Garfield	2	*	0	*	6	267.9	0	*	2	*
Grant	46	50.5	23	25.1	19	20.5	26	27.7	51	53.9
Grays Harbor	88	120.3	77	105.2	147	200.5	146	199.7	122	167.5
Island	38	47.9	42	52.7	60	75	54	67	65	78.4
Jefferson	10	33.1	11	36.3	24	78.2	32	103.6	33	106.1
King	1147	58.6	906	45.7	1096	54.3	1121	54.6	1931	91.7
Kitsap	200	78.6	179	70.5	232	90.7	301	116.6	244	92.9
Kittitas	11	26.5	14	33.4	38	90.3	17	39.8	15	34.3
Klickitat	20	97.1	12	58	11	52.8	19	90.5	22	103.4
Lewis	64	83.9	75	98.4	110	144.2	99	129.1	114	148.3
Lincoln	1	*	5	46.8	7	65.4	0	*	7	65.8
Mason	121	196.9	170	275.1	146	235.5	180	289.4	106	170.1
Okanogan	19	45.9	14	33.7	8	19.2	16	38.2	19	45.5
Pacific	22	104.9	23	109.5	43	203.8	29	136.7	36	170
Pend Oreille	10	76.3	5	38	22	166.5	22	166.2	24	180.6
Pierce	490	60.6	337	41.4	423	51.5	952	114.7	1002	118.7
San Juan	7	44	9	56.3	13	80.7	17	105.1	10	61.3
Skagit	105	89	105	88.5	158	132.2	153	126.8	115	94.1
Skamania	4	*	1	*	0	*	1	*	1	*
Snohomish	519	71.8	497	68	654	88.3	728	96.1	912	118
Spokane	587	123.4	631	131.5	702	144.9	725	148.5	739	150
Stevens	51	116.7	27	61.6	55	125.3	46	104.5	42	95.2
Thurston	182	70.9	193	74.2	283	107.2	274	102.5	293	107.4
Wahkiakum	5	124.2	1	*	0	*	0	*	0	*
Walla Walla	40	67.7	36	60.5	36	59.9	41	67.6	26	42.8
Whatcom	248	121.9	296	143.8	302	145.5	286	136.3	296	139.3
Whitman	14	30.5	3	*	5	10.8	3	*	4	*
Yakima	0	*	16	6.5	251	100.9	187	74.8	180	71.7
Unspecified**	21	-	26	-	22	-	502	-	609	-
STATEWIDE TOTAL‡	4,865	71.4	4,438	64.5	5,995	86	7,085	100.3	8,118	113

*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

*All rates are cases per 100,000 population.

HERPES SIMPLEX

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	3	*	3	+	1	+	2	+	3	+
Asotin	4	*	6	+	3	+	3	+	4	+
Benton	44	24.4	50	27.3	62	33.2	66	34.9	70	36.8
Chelan	21	28.7	9	+	6	+	4	+	9	+
Clallam	12	16.7	20	27.6	18	24.8	22	30.2	14	19.1
Clark	90	20.9	153	35.1	193	43.6	183	41.2	231	50.1
Columbia	1	*	2	+	0	+	0	+	0	+
Cowlitz	53	51.4	31	30.0	57	55.0	52	50.0	55	52.5
Douglas	6	15.4	7	+	4	+	1	2.5	1	+
Ferry	0	0.0	4	+	4	+	3	39.0	1	+
Franklin	13	15.8	18	21.2	27	31.2	36	40.4	40	45.1
Garfield	0	0.0	1	+	0	+	0	+	0	+
Grant	16	17.6	9	+	14	15.1	18	+	30	31.7
Grays Harbor	11	15.0	23	31.4	26	35.5	19	+	14	19.2
Island	31	39.1	34	42.7	28	35.0	22	27.4	14	16.9
Jefferson	5	16.6	2	+	6	+	5	+	3	+
King	742	37.9	633	31.9	385	19.1	770	38.0	739	35.1
Kitsap	67	26.3	71	28.0	78	30.5	91	35.5	67	25.5
Kittitas	17	41.0	8	+	17	40.4	25	58.9	21	48.0
Klickitat	3	*	2	+	2	+	2	+	5	+
Lewis	31	40.6	27	35.4	11	+	8	+	20	26.0
Lincoln	0	0.0	1	+	1	+	2	+	4	+
Mason	19	30.9	6	+	7	+	10	+	11	+
Okanogan	9	21.7	20	48.2	7	+	7	+	14	33.6
Pacific	1	*	5	+	9	+	3	+	6	+
Pend Oreille	1	*	2	+	1	+	3	+	3	+
Pierce	346	42.8	364	44.7	400	48.7	474	57.5	474	56.1
San Juan	3	*	0	*	1	+	1	+	2	+
Skagit	21	17.8	26	21.9	27	22.6	25	20.9	41	33.5
Skamania	1	*	1	+	0	+	0	+	1	+
Snohomish	228	31.5	282	38.6	274	37.0	217	29.1	203	26.3
Spokane	134	28.2	132	27.5	201	41.5	186	38.0	206	41.8
Stevens	8	18.3	11	+	1	+	6	+	2	+
Thurston	103	40.1	91	35.0	71	26.9	67	25.2	99	36.3
Wahkiakum	0	0.0	3	+	0	+	1	+	0	+
Walla Walla	17	28.8	14	23.5	18	29.9	21	34.9	25	41.2
Whatcom	66	32.4	71	34.5	54	26.0	53	25.4	45	21.2
Whitman	10	21.8	9	+	8	+	6	+	8	+
Yakima	60	24.4	56	22.7	60	24.1	110	44.0	63	25.1
STATEWIDE TOTAL	2,197	32.2	2,207	32.1	2,082	29.9	2,524	36.0	2,548	35.5

All incidence rates are cases per 100,000 population.
*For 2012, incidence rates not calculated for <5 cases.
+For 2013-2016, incidence rates suppressed for counts <20 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	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	0
2016	2,548	35.5	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)[§]

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	.	.	.	.	.	.	1	.	.	.
Asotin	.	.	1	.	.	.	1	.	.	.
Benton	5	.	7	.	8	.	1	.	5	.
Chelan	3	.	3	.	4	.	5	.	6	.
Clallam	4	.	3	.	1	.	4	.	3	.
Clark	26	6.0	25	5.7	23	5.2	20	4.4	22	4.8
Columbia	.	.	.	.	.	.	.	.	.	.
Cowlitz	5	.	1	.	5	.	2	.	2	.
Douglas	.	.	2	.	.	.	3	.	.	.
Ferry	.	.	.	.	1	.	.	.	1	.
Franklin	2	.	.	.	1	.	5	.	5	.
Garfield	.	.	.	.	.	.	.	.	.	.
Grant	3	.	.	.	.	.	.	.	.	.
Grays Harbor	7	.	1	.	3	.	4	.	1	.
Island	3	.	3	.	2	.	1	.	2	.
Jefferson	1	.	1	.	2	.	1	.	2	.
King	286	14.6	252	12.7	273	13.5	234	11.4	217	10.3
Kitsap	11	.	7	.	6	.	10	.	8	.
Kittitas	.	.	2	.	1	.	1	.	1	.
Klickitat	1	.	.	.	.	.	.	.	.	.
Lewis	1	.	1	.	1	.	1	.	.	.
Lincoln	.	.	.	.	.	.	.	.	1	.
Mason	9	.	3	.	1	.	5	.	4	.
Okanogan	3	.	.	.	.	.	.	.	1	.
Pacific	2	.	.	.	1	.	.	.	.	.
Pend Oreille	.	.	.	.	.	.	1	.	2	.
Pierce	51	6.3	59	7.2	44	5.4	67	8.1	48	5.7
San Juan	.	.	2	.	.	.	.	.	.	.
Skagit	4	.	9	.	5	.	1	.	9	.
Skamania	.	.	.	.	1	.	1	.	.	.
Snohomish	39	5.4	28	3.8	35	4.7	40	5.3	48	6.2
Spokane	25	5.3	21	4.4	6	.	24	4.9	23	4.7
Stevens	.	.	2	.	.	.	.	.	.	.
Thurston	4	.	8	.	5	.	8	.	11	.
Wahkiakum	.	.	.	.	1	.	.	.	.	.
Walla Walla	3	.	.	.	.	.	.	.	1	.
Whatcom	4	.	8	.	5	.	9	.	2	.
Whitman	.	.	.	.	1	.	2	.	.	.
Yakima	7	.	6	.	9	.	6	.	11	.
STATEWIDE TOTAL	509	7.5	455	6.6	445	6.4	458	6.5	436	6.1

§ Cases are presented by year of initial HIV diagnosis, regardless of diagnostic status (HIV or AIDS), and by county of residence at time of diagnosis. Data reflects cases reported through 7/31/17.

*All rates expressed as cases per 100,000 population. New HIV case rates not calculated for 11 or fewer cases.

People Living with HIV Disease and Related Deaths

STATEWIDE BY YEAR

Year	Cases[α]	Rate*	Deaths**
2002	8,513	140.5	143
2003	7,620	124.4	216
2004	8,211	132.3	179
2005	8,813	139.9	227
2006	9,386	146.2	183
2007	9,891	151.6	162
2008	10,297	155.8	170
2009	10,612	159.1	202
2010	10,987	163.4	165
2011	11,083	163.8	176
2012	11,242	164.9	154
2013	11,558	167.9	168
2014	11,691	167.8	155
2015	12,063	170.8	149
2016	12,404	172.7	---

[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 2016 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

*All rates are cases per 100,000 population.

LEPTOSPIROSIS

Year	Cases	Rate*	Deaths
1986	0	0.0	0
1987	0	0.0	0
1988	0	0.0	0
1989	0	0.0	0
1990	0	0.0	0
1991	0	0.0	0
1992	0	0.0	0
1993	0	0.0	0
1994	0	0.0	0
1995	0	0.0	0
1996	2	0.0	0
1997	2	0.0	0
1998	0	0.0	0
1999	0	0.0	0
2000	0	0.0	0
2001	4	0.1	0
2002	0	0.0	0
2003	1	0.0	0
2004	0	0.0	0
2005	4	0.1	0
2006	1	0.0	0
2007	5	0.1	0
2008	1	0.0	0
2009	0	0.0	0
2010	1	0.0	0
2011	0	0.0	0
2012	2	0.0	0
2013	0	0.0	0
2014	0	0.0	0
2015	2	0.0	0
2016	2	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

*All rates are cases per 100,000 population.

LYME DISEASE

Year	Cases	Rate*	Deaths
1986	1	0.0	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	33	0.4	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

*All rates are cases per 100,000 population.

MEASLES

	2012		2013		2014		2015		2016	
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	0	0	6	8.3	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	0	0	1	1.4	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	0	0	4	*	13	0.6	0	0	0	0
Kitsap	0	0	0	0	1	0.4	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	0	0	3	0.4	0	0	0	0
San Juan	0	0	0	0	7	43.5	0	0	0	0
Skagit	0	0	0	0	1	*	0	0	0	0
Skamania	0	0	0	0	0	0	0	0	0	0
Snohomish	0	0	0	0	1	*	0	0	0	0
Spokane	0	0	0	0	0	0	2	*	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	0	0	6	2.9	1	*	0	0
Whitman	0	0	0	0	0	0	0	0	0	0
Yakima	0	0	0	0	0	0	0	0	0	0
STATEWIDE TOTAL	0	0	4	0.1	33	0.5	10	0.1	0	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	0
1983	43	1.0	0
1984	178	4.1	0
1985	178	4.0	0
1986	176	3.9	0
1987	47	1.0	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	0
1994	5	0.1	0
1995	17	0.3	0
1996	38	0.7	0
1997	2	0.0	0
1998	1	0.0	0
1999	5	0.1	0
2000	3	0.1	0
2001	15	0.3	0
2002	1	0.0	0
2003	0	0.0	0
2004	7	0.1	0
2005	1	0.0	0
2006	1	0.0	0
2007	3	0.0	0
2008	19	0.3	0
2009	1	0.0	0
2010	1	0.0	0
2011	4	0.1	0
2012	0	0.0	0
2013	4	0.1	0
2014	33	0.5	0
2015	10	0.1	1
2016	0	0.0	0

*All rates are cases per 100,000 population.

MENINGOCOCCAL DISEASE

	2012		2013		2014		2015		2016	
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	1	*	0	0
Chelan	0	0	1	*	0	0	1	*	0	0
Clallam	0	0	1	*	0	0	0	0	0	0
Clark	0	0	2	*	2	*	1	*	0	0
Columbia	0	0	0	0	0	0	0	0	0	0
Cowlitz	1	*	1	*	1	*	0	0	0	0
Douglas	0	0	1	*	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	1	*	0	0	0	0
Grays Harbor	2	*	0	0	0	0	0	0	0	0
Island	0	0	0	0	1	*	0	0	0	0
Jefferson	0	0	0	0	0	0	0	0	0	0
King	4	*	3	*	1	*	3	*	3	*
Kitsap	0	0	2	*	0	0	0	0	0	0
Kittitas	2	*	1	*	0	0	0	0	0	0
Klickitat	1	*	0	0	0	0	0	0	0	0
Lewis	0	0	0	0	0	0	2	*	0	0
Lincoln	0	0	1	*	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	3	*	1	*	4	*	1	*	8	0.9
San Juan	0	0	0	0	1	*	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	*	2	*	1	*	0	0	1	*
Spokane	2	*	2	*	2	*	0	0	0	0
Stevens	0	0	1	*	0	0	0	0	0	0
Thurston	1	*	0	0	2	*	1	*	1	*
Wahkiakum	0	0	0	0/0	0	0	0	0	0	0
Walla Walla	1	*	0	0	0	0	0	0	0	0
Whatcom	1	*	0	0	0	0	0	0	0	0
Whitman	2	*	0	0	0	0	0	0	0	0
Yakima	2	*	0	0	1	*	0	0	0	0
STATEWIDE TOTAL	24	0.4	20	0.3	17	0.2	10	0.1	13	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	2.0	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	2.0	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	1.0	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

*All rates are cases per 100,000 population.

MUMPS

Year	Cases	Rate*	Deaths
1980	166	4.0	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	0
1986	30	0.7	0
1987	70	1.5	0
1988	44	1.0	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	0
2000	10	0.2	0
2001	2	0.0	0
2002	0	0.0	0
2003	11	0.2	0
2004	2	0.0	0
2005	3	0.0	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	0
2012	2	0.0	0
2013	2	0.0	0
2014	9	0.1	0
2015	7	0.1	0
2016	152	2.1	0

*All rates are cases per 100,000 population.

PERTUSSIS

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	15	78.7	2	*	11	56.7	1	*	1	*
Asotin	4	*	1	*	1	*	1	*	1	*
Benton	85	47.2	8	4.4	7	3.8	4	*	7	3.7
Chelan	46	62.8	7	9.5	3	*	5	6.7	1	*
Clallam	25	34.7	13	18	20	27.6	4	*	12	16.3
Clark	326	75.6	59	13.5	59	13.3	322	71	64	13.9
Columbia	1	*	1	*	0	0	3	*	0	0
Cowlitz	72	69.9	5	4.8	10	9.6	24	23	21	20
Douglas	10	25.7	3	*	0	0	1	*	0	0
Ferry	7	91.5	0	0	0	0	0	0	0	0
Franklin	45	54.5	5	5.9	4	*	1	*	1	*
Garfield	0	0	1	*	0	0	0	0	0	0
Grant	53	58.2	58	63.2	35	37.7	14	14.9	4	*
Grays Harbor	24	32.8	1	*	0	0	10	13.7	10	13.7
Island	46	58	0	0	6	7.5	17	21.1	4	*
Jefferson	25	82.9	0	0	1	*	30	97.2	13	41.8
King	785	40.1	113	5.7	151	7.5	210	10.2	121	5.7
Kitsap	92	36.1	7	2.8	43	16.8	95	36.8	14	5.3
Kittitas	34	81.9	8	19.1	0	0	7	16.4	8	18.3
Klickitat	6	29.1	2	*	2	*	5	23.8	0	0
Lewis	71	93.1	6	7.9	16	21	16	20.9	2	*
Lincoln	2	*	1	*	0	0	0	0	0	0
Mason	14	22.8	7	11.3	0	0	4	*	2	*
Okanogan	22	53.1	15	36.1	3	*	0	0	0	0
Pacific	7	33.4	0	0	0	0	10	47.1	0	0
Pend Oreille	4	*	0	0	1	*	1	*	0	0
Pierce	783	96.9	116	14.2	86	10.5	157	18.9	87	10.3
San Juan	14	87.9	0	0	3	*	0	0	2	*
Skagit	559	473.9	18	15.2	18	15.1	5	4.1	11	9.0
Skamania	3	*	0	0	0	0	1	*	0	0
Snohomish	549	75.9	52	7.1	25	3.4	244	32.2	81	10.5
Spokane	198	41.6	48	10	26	5.4	48	9.8	67	13.6
Stevens	42	96.1	3	*	0	0	1	*	3	*
Thurston	63	24.5	43	16.5	13	4.9	32	12	24	8.8
Wahkiakum	1	*	0	0	0	0	0	0	0	0
Walla Walla	55	93.1	1	*	14	23.3	37	61	0	0
Whatcom	333	163.6	35	17	24	11.6	61	29.1	52	24.5
Whitman	2	*	8	17.4	1	*	2	*	1	*
Yakima	493	200.4	101	40.8	17	6.8	10	4	4	*
STATEWIDE TOTAL	4,916	72.1	748	10.9	600	8.6	1,383	19.6	618	8.6

*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	0
1992	241	4.7	0
1993	96	1.8	0
1994	140	2.6	0
1995	491	9.0	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	7.0	1
2009	291	4.4	0
2010	607	9.0	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

*All rates are cases per 100,000 population.

PLAGUE

Year	Cases	Rate*	Deaths
1986	0	0.0	0
1987	0	0.0	0
1988	0	0.0	0
1989	0	0.0	0
1990	0	0.0	0
1991	0	0.0	0
1992	0	0.0	0
1993	0	0.0	0
1994	0	0.0	0
1995	0	0.0	0
1996	0	0.0	0
1997	0	0.0	0
1998	0	0.0	0
1999	0	0.0	0
2000	0	0.0	0
2001	0	0.0	0
2002	0	0.0	0
2003	0	0.0	0
2004	0	0.0	0
2005	0	0.0	0
2006	0	0.0	0
2007	0	0.0	0
2008	0	0.0	0
2009	0	0.0	0
2010	0	0.0	0
2011	0	0.0	0
2012	0	0.0	0
2013	0	0.0	0
2014	0	0.0	0
2015	0	0.0	0
2016	0	0.0	0

*All rates are cases per 100,000 population.

POLIOMYELITIS

Year	Cases	Rate*	Deaths
1985	0	0.0	0
1986	0	0.0	0
1987	1‡	0.0	0
1988	1‡	0.0	0
1989	0	0.0	0
1990	0	0.0	0
1991	1‡	0.0	0
1992	1‡	0.0	0
1993	1‡	0.0	0
1994	0	0.0	0
1995	0	0.0	0
1996	0	0.0	0
1997	0	0.0	0
1998	0	0.0	0
1999	0	0.0	0
2000	0	0.0	0
2001	0	0.0	0
2002	0	0.0	0
2003	0	0.0	0
2004	0	0.0	0
2005	0	0.0	0
2006	0	0.0	0
2007	0	0.0	0
2008	0	0.0	0
2009	0	0.0	0
2010	0	0.0	0
2011	0	0.0	0
2012	0	0.0	0
2013	0	0.0	0
2014	0	0.0	0
2015	0	0.0	0
2016	0	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	0
1998	3	0.1	0
1999	0	0.0	0
2000	1	0.0	0
2001	0	0.0	0
2002	0	0.0	0
2003	0	0.0	0
2004	0	0.0	0
2005	1	0.0	0
2006	0	0.0	0
2007	0	0.0	0
2008	0	0.0	0
2009	0	0.0	0
2010	0	0.0	0
2011	0	0.0	0
2012	0	0.0	0
2013	0	0.0	0
2014	0	0.0	0
2015	0	0.0	0
2016	0	0.0	0

*All rates are cases per 100,000 population.

Q FEVER

Year	Cases	Rate*	Deaths
1986	2	0.0	0
1987	1	0.0	1
1988	1	0.0	0
1989	0	0.0	0
1990	2	0.0	0
1991	0	0.0	0
1992	1	0.0	0
1993	0	0.0	0
1994	0	0.0	0
1995	1	0.0	0
1996	0	0.0	0
1997	0	0.0	0
1998	0	0.0	0
1999	1	0.0	0
2000	0	0.0	0
2001	0	0.0	0
2002	0	0.0	0
2003	0	0.0	0
2004	0	0.0	0
2005	2	0.0	0
2006	0	0.0	0
2007	1	0.0	0
2008	0	0.0	0
2009	1	0.0	0
2010	3	0.0	1
2011	8	0.1	0
2012	3	0.0	2
2013	3	0.0	0
2014	1	0.0	0
2015	3	0.0	0
2016	7	0.1	0

*All rates are cases per 100,000 population.

RABIES (HUMAN)

Year	Cases	Rate*	Deaths
1985	0	0.0	0
1986	0	0.0	0
1987	0	0.0	0
1988	0	0.0	0
1989	0	0.0	0
1990	0	0.0	0
1991	0	0.0	0
1992	0	0.0	0
1993	0	0.0	0
1994	0	0.0	0
1995	1	0.0	1
1996	0	0.0	0
1997	1	0.0	1
1998	0	0.0	0
1999	0	0.0	0
2000	0	0.0	0
2001	0	0.0	0
2002	0	0.0	0
2003	0	0.0	0
2004	0	0.0	0
2005	0	0.0	0
2006	0	0.0	0
2007	0	0.0	0
2008	0	0.0	0
2009	0	0.0	0
2010	0	0.0	0
2011	0	0.0	0
2012	0	0.0	0
2013	0	0.0	0
2014	0	0.0	0
2015	0	0.0	0
2016	0	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

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

RELAPSING FEVER

Year	Cases	Rate*	Deaths
1986	2	0.0	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	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	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	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	0.0	0
2016	1	0.0	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	0
1985	16	0.4	0
1986	15	0.3	0
1987	2	0.0	0
1988	0	0.0	0
1989	2	0.0	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	0
1995	2	0.0	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	0
2002	2	0.0	0
2003	0	0.0	0
2004	0	0.0	0
2005	1	0.0	0
2006	0	0.0	0
2007	0	0.0	0
2008	0	0.0	0
2009	0	0.0	0
2010	1	0.0	0
2011	2	0.0	0
2012	0	0.0	0
2013	1	0.0	0
2014	0	0.0	0
2015	0	0.0	0
2016	0	0.0	0

*All rates are cases per 100,000 population.

SALMONELLOSIS

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	2	*	3	*	1	*	2	10.3	1	*
Asotin	1	*	1	*	2	*	0	0	1	*
Benton	30	16.7	27	14.7	23	12.5	26	13.8	25	13.1
Chelan	6	8.2	2	*	5	6.7	6	8	4	*
Clallam	3	*	5	6.9	4	*	5	6.9	7	9.5
Clark	156	36.2	46	10.6	58	13.1	49	10.8	77	16.7
Columbia	0	0	0	0	1	*	0	0	0	0.0
Cowlitz	16	15.5	9	8.7	14	13.5	15	14.4	14	13.4
Douglas	4	*	2	*	0	*	2	*	3	*
Ferry	5	65.4	0	0	2	*	0	0	1	*
Franklin	7	8.5	15	17.7	10	11.5	11	12.6	11	12.4
Garfield	0	0	0	0	1	*	1	*	0	0
Grant	15	16.5	14	15.3	12	12.9	10	10.6	3	*
Grays Harbor	7	9.6	7	9.6	5	6.8	5	6.8	4	*
Island	7	8.8	7	8.8	7	8.8	6	7.4	3	*
Jefferson	4	*	5	16.5	1	*	1	*	5	16.1
King	219	11.2	199	10	229	11.4	435	21.2	234	11.1
Kitsap	16	6.3	19	7.5	29	11.3	22	8.5	23	8.8
Kittitas	7	16.9	5	11.9	2	*	6	14.1	5	11.4
Klickitat	0	0	2	*	4	*	2	*	3	*
Lewis	6	7.9	5	6.6	12	15.7	8	10.4	6	7.8
Lincoln	1	*	2	*	0	0	1	*	1	*
Mason	3	*	9	14.6	6	9.7	9	14.5	7	11.2
Okanogan	0	0	1	*	4	*	1	*	4	*
Pacific	2	*	2	*	0	0	2	*	3	*
Pend Oreille	8	61.1	1	*	1	*	0	0	0	0
Pierce	75	9.3	74	9.2	77	9.4	95	11.4	101	12.0
San Juan	2	*	0	0	2	*	8	49.4	1	*
Skagit	15	12.7	15	12.6	9	7.5	6	5	6	4.9
Skamania	0	0	1	*	0	0	2	*	0	0
Snohomish	67	9.3	64	8.8	89	12	120	15.8	78	10.1
Spokane	63	13.2	33	6.9	30	6.2	45	9.2	40	8.1
Stevens	6	13.7	6	13.7	5	11.4	5	11.4	4	*
Thurston	34	13.2	32	12.3	22	8.3	40	15	19	7.0
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	3	*	8	13.4	2	*	8	13.2	7	11.5
Whatcom	14	6.9	16	7.8	15	7.2	26	12.4	23	10.8
Whitman	12	26.1	2	*	4	*	6	12.7	0	0
Yakima	26	10.6	31	12.5	53	21.3	48	19.2	30	12.0
STATEWIDE TOTAL	842	12.4	670	9.7	741	10.6	1,034	14.6	754	10.5

*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	13.0	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

*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	0
1987	0	0.0	0
1988	7	0.2	0
1989	0	0.0	0
1990	0	0.0	0
1991	0	0.0	0
1992	0	0.0	0
1993	0	0.0	0
1994	0	0.0	0
1995	0	0.0	0
1996	0	0.0	0
1997	0	0.0	0
1998	5	0.1	0
1999	0	0.0	0
2000	7	0.1	0
2001	0	0.0	0
2002	0	0.0	0
2003	0	0.0	0
2004	0	0.0	0
2005	1	0.0	0
2006	1	0.0	0
2007	0	0.0	0
2008	0	0.0	0
2009	0	0.0	0
2010	0	0.0	0
2011	0	0.0	0
2012	9	0.1	0
2013	0	0.0	0
2014	0	0.0	0
2015	1	0.0	0
2016	0	0.0	0

*All rates are cases per 100,000 population.

SHIGA TOXIN-PRODUCING *ESCHERICHIA COLI* (STEC)

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	0	0	1	5.2	3	*	0	0
Asotin	2	*	2	*	1	4.6	1	*	0	0
Benton	2	*	12	6.5	9	4.9	8	4.2	12	6.3
Chelan	3	*	5	6.8	3	4	4	*	1	*
Clallam	2	*	2	*	0	0	2	*	0	0
Clark	27	6.3	51	11.7	27	6.1	45	10	25	5.4
Columbia	0	0	0	0	0	0	0	0	0	0
Cowlitz	7	6.8	0	0	3	*	8	7.7	3	*
Douglas	0	0	0	0	0	0	1	*	0	0
Ferry	0	0	0	0	0	0	0	0	0	0
Franklin	1	*	4	*	6	6.9	2	*	4	*
Garfield	0	0	0	0	1	*	1	*	1	*
Grant	7	7.7	6	6.5	5	5.4	9	9.6	3	*
Grays Harbor	1	*	2	*	5	6.8	4	*	1	*
Island	1	*	6	7.5	2	*	3	*	0	0
Jefferson	4	*	0	0	0	0	2	*	0	0
King	71	3.6	72	3.6	93	4.6	113	5.5	121	5.7
Kitsap	6	2.4	1	*	9	3.5	3	*	5	1.9
Kittitas	6	14.5	6	14.3	7	16.6	4	*	4	*
Klickitat	3	*	1	*	2	*	0	0	0	0
Lewis	2	*	6	7.9	8	10.5	6	7.8	7	9.1
Lincoln	0	0	1	*	1	*	1	*	0	0
Mason	1	*	2	*	1	*	0	0	3	*
Okanogan	1	*	2	*	2	*	1	*	1	*
Pacific	0	0	0	0	0	0	0	0	0	0
Pend Oreille	1	*	0	0	0	0	0	0	2	*
Pierce	11	1.4	14	1.7	16	1.9	26	3.1	33	3.9
San Juan	0	0	2	*	0	0	0	0	4	*
Skagit	4	*	9	7.6	11	9.2	12	9.9	10	8.2
Skamania	1	*	0	0	0	0	0	0	0	0
Snohomish	21	2.9	42	5.7	22	3	35	4.6	26	3.4
Spokane	13	2.7	19	4	16	3.3	17	3.5	17	3.5
Stevens	3	*	4	*	1	*	2	*	2	*
Thurston	13	5.1	20	7.7	14	5.3	8	3	13	4.8
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	0	0	2	*	1	*	1	*	1	*
Whatcom	14	6.9	15	7.3	17	8.2	75	35.8	17	8.0
Whitman	3	*	0	0	0	0	2	*	1	*
Yakima	8	3.3	22	8.9	15	6	20	8	23	9.2
STATEWIDE TOTAL	239	3.5	330	4.8	299	4.3	419	5.9	340	4.7

*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	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	3.0	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

*All rates are cases per 100,000 population.

SHIGELLOSIS

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	20	104.2	4	20.6	5	25.8	19	97.4
Asotin	0	0	0	0	0	0	0	0	0	0
Benton	5	2.8	2	*	3	*	2	*	1	*
Chelan	2	*	1	*	2	*	1	*	2	*
Clallam	0	0	0	0	0	0	0	0	1	*
Clark	14	3.2	11	2.5	14	3.2	10	2.2	11	2.4
Columbia	0	0	0	0	0	0	0	0	0	0
Cowlitz	0	0	0	0	0	0	2	*	2	*
Douglas	0	0	0	0	0	0	1	*	0	0
Ferry	0	0	0	0	0	0	0	0	0	0
Franklin	2	*	2	2.4	0	0	1	*	3	*
Garfield	0	0	0	0	0	0	0	0	0	0
Grant	1	*	9	9.9	1	*	7	7.5	1	*
Grays Harbor	3	*	1	*	0	0	0	0	0	0
Island	0	0	0	0	0	0	2	*	0	0
Jefferson	0	0	0	0	0	0	0	0	0	0
King	74	3.8	43	2.2	71	3.5	78	3.8	82	3.9
Kitsap	1	*	3	*	2	*	6	2.3	1	*
Kittitas	0	0	0	0	0	0	2	*	0	0
Klickitat	0	0	0	0	0	0	0	0	0	0
Lewis	0	0	1	*	0	0	0	0	1	*
Lincoln	0	0	0	0	0	0	0	0	0	0
Mason	2	*	1	*	0	0	0	0	1	*
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	1	*
Pierce	5	0.6	4	*	6	0.7	14	1.7	9	1.1
San Juan	0	0	0	0	1	*	0	0	1	*
Skagit	1	*	0	0	4	*	0	0	1	*
Skamania	0	0	0	0	0	0	0	0	0	0
Snohomish	16	2.2	8	1.1	13	1.8	15	2	18	2.3
Spokane	1	*	3	*	11	2.3	2	*	10	2.0
Stevens	0	0	0	0	0	0	0	0	0	0
Thurston	2	*	1	*	5	1.9	1	*	3	*
Wahkiakum	0	0	0	0	0	0	0	0	0	0
Walla Walla	2	*	0	0	0	0	0	0	0	0
Whatcom	1	*	5	2.4	4	*	1	*	6	2.8
Whitman	0	0	1	*	1	*	1	*	0	0
Yakima	1	*	6	2.4	15	6	1	*	17	6.8
STATEWIDE TOTAL	133	2	122	1.8	157	2.3	152	2.2	191	2.7

*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	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	6.0	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	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	0
2013	122	1.8	0
2014	157	2.3	0
2015	152	2.2	0
2016	191	2.7	0

*All rates are cases per 100,000 population.

SYPHILIS (PRIMARY AND SECONDARY)

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	0	0	+	2	+	0	+	0	+
Asotin	0	0	0	+	0	+	0	+	0	+
Benton	0	0	7	+	18	+	13	+	4	+
Chelan	0	0	0	+	0	+	1	1.3	1	+
Clallam	0	0	0	+	1	+	1	1.4	2	+
Clark	23	5.3	22	5.1	20	4.5	21	4.7	21	4.6
Columbia	0	0	0	+	1	+	0	+	0	+
Cowlitz	1	*	1	+	8	+	4	+	3	+
Douglas	0	0	0	+	0	+	0	+	1	+
Ferry	0	0	0	+	0	+	0	+	0	+
Franklin	3	*	4	+	6	+	6	+	3	+
Garfield	0	0	0	+	0	+	0	+	0	+
Grant	1	*	1	+	4	+	9	+	9	+
Grays Harbor	0	0	0	+	3	+	0	+	1	+
Island	0	0	2	+	1	+	0	+	0	+
Jefferson	0	0	0	+	0	+	0	+	0	+
King	210	10.7	174	8.8	173	8.6	250	12.3	292	13.9
Kitsap	5	2	4	+	6	+	6	+	14	5.3
Kittitas	1	*	3	+	1	+	3	+	0	+
Klickitat	0	0	0	+	0	+	0	+	1	+
Lewis	0	0	0	+	1	+	1	+	0	+
Lincoln	0	0	0	+	0	+	0	+	0	+
Mason	2	*	0	+	0	+	4	+	6	+
Okanogan	0	0	0	+	0	+	1	+	1	+
Pacific	0	0	0	+	0	+	0	+	2	+
Pend Oreille	0	0	0	+	0	+	0	+	1	+
Pierce	22	2.7	28	3.4	30	3.7	41	5	58	6.9
San Juan	0	0	0	+	0	+	0	+	0	+
Skagit	1	*	2	+	2	+	5	+	4	+
Skamania	0	0	0	+	1	+	1	+	1	+
Snohomish	12	1.7	13	1.8	27	3.6	25	3.4	48	6.2
Spokane	5	1.1	2	+	11	+	28	5.7	60	12.2
Stevens	0	0	0	+	0	+	1	+	1	+
Thurston	2	*	3	+	2	+	9	+	6	+
Wahkiakum	0	0	0	+	0	+	0	+	1	+
Walla Walla	0	0	0	+	1	+	3	+	3	+
Whatcom	4	*	5	+	2	+	6	+	8	+
Whitman	2	*	0	+	1	+	1	+	3	+
Yakima	6	2.4	14	+	15	+	7	+	11	+
STATEWIDE TOTAL	300	4.4	285	4.1	337	4.8	452	6.5	566	7.9

All incidence rates are cases per 100,000 population.
*For 2012, incidence rates not calculated for <5 cases.
+For 2013-2016, incidence rates suppressed for counts <20 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	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	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	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

*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	0
1986	0	0.0	0
1987	1	0.0	0
1988	1	0.0	0
1989	1	0.0	0
1990	1	0.0	0
1991	1	0.0	0
1992	3	0.1	0
1993	1	0.0	0
1994	1	0.0	0
1995	0	0.0	0
1996	1	0.0	0
1997	1	0.0	0
1998	0	0.0	0
1999	0	0.0	0
2000	1	0.0	0
2001	0	0.0	0
2002	0	0.0	0
2003	0	0.0	0
2004	0	0.0	0
2005	1	0.0	0
2006	0	0.0	0
2007	0	0.0	0
2008	0	0.0	0
2009	0	0.0	0
2010	0	0.0	0
2011	0	0.0	0
2012	1	0.0	0
2013	0	0.0	0
2014	3	0.0	1
2015	0	0.0	0
2016	0	0.0	0

*All rates are cases per 100,000 population.

TRICHINOSIS

Year	Cases	Rate*	Deaths
1986	0	0.0	0
1987	0	0.0	0
1988	0	0.0	0
1989	2	0.0	0
1990	1	0.0	0
1991	0	0.0	0
1992	1	0.0	0
1993	1	0.0	0
1994	0	0.0	0
1995	0	0.0	0
1996	0	0.0	0
1997	0	0.0	0
1998	0	0.0	0
1999	0	0.0	0
2000	1	0.0	0
2001	0	0.0	0
2002	0	0.0	0
2003	0	0.0	0
2004	0	0.0	0
2005	0	0.0	0
2006	1	0.0	0
2007	0	0.0	0
2008	0	0.0	0
2009	0	0.0	0
2010	0	0.0	0
2011	0	0.0	0
2012	0	0.0	0
2013	0	0.0	0
2014	2	0.0	0
2015	1	0.0	0
2016	0	0.0	0

*All rates are cases per 100,000 population.

TUBERCULOSIS

	2012		2013		2014		2015		2016	
County	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Adams	0	-	1	*	0	-	0	-	1	*
Asotin	0	-	0	-	0	-	0	-	0	-
Benton	0	-	1	*	2	*	3	*	2	*
Chelan	0	-	2	*	0	-	4	*	2	*
Clallam	0	-	1	*	0	-	0	-	1	*
Clark	7	1.6	5	1.1	15	3.4	6	1.3	8	1.7
Columbia	0	-	0	-	0	-	0	-	0	-
Cowlitz	0	-	2	*	3	*	2	*	0	-
Douglas	0	-	1	*	0	-	2	*	1	*
Ferry	0	-	0	-	0	-	0	-	0	-
Franklin	3	*	2	*	4	*	3	*	3	*
Garfield	0	-	0	-	0	-	0	-	0	-
Grant	1	*	0	-	1	*	0	-	1	*
Grays Harbor	2	*	1	*	0	-	0	-	1	*
Island	0	-	1	*	0	-	0	-	0	-
Jefferson	0	-	0	-	0	-	0	-	0	-
King	108	5.5	114	5.8	99	4.9	98	4.7	101	4.8
Kitsap	4	*	1	*	5	2	5	1.9	1	*
Kittitas	0	-	0	-	0	-	1	*	0	-
Klickitat	0	-	0	-	0	-	0	-	1	*
Lewis	0	-	0	-	0	-	1	*	2	*
Lincoln	0	-	0	-	0	-	0	-	0	-
Mason	2	*	3	*	0	-	0	-	2	*
Okanogan	0	-	2	*	1	*	1	*	2	*
Pacific	0	-	0	-	1	*	2	*	0	-
Pend-Oreille	0	-	0	-	0	-	0	-	0	-
Pierce	19	2.4	22	2.7	13	1.6	16	1.9	28	3.3
San Juan	0	-	1	*	0	-	0	-	0	-
Skagit	3	*	4	*	2	*	4	*	0	-
Skamania	0	-	1	*	1	*	0	-	0	-
Snohomish	18	2.5	26	3.6	19	2.6	30	4	30	3.9
Spokane	7	1.5	7	1.5	5	1	2	*	2	*
Stevens	0	-	0	-	0	-	0	-	0	-
Thurston	5	1.9	5	1.9	7	2.7	6	2.2	6	2.6
Wahkiakum	0	-	0	-	0	-	0	-	0	-
Walla Walla	0	-	1	*	0	-	1	*	0	-
Whatcom	1	*	4	*	4	*	7	3.3	2	*
Whitman	0	-	0	-	0	-	1	*	0	-
Yakima	5	2	2	*	11	4.4	12	4.8	7	2.8
STATEWIDE TOTAL	185	2.7	210	3.1	193	2.8	207	2.9	205	2.9

*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	5
2010	234	3.5	7
2011	199	2.9	6
2012	185	2.7	6
2013	210	3.1	4
2014	193	2.8	4
2015	207	2.9	4
2016	205	2.9	7

*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

TULAREMIA

Year	Cases	Rate*	Deaths
1986	1	0.0	0
1987	4	0.1	0
1988	1	0.0	0
1989	2	0.0	0
1990	4	0.1	0
1991	2	0.0	0
1992	2	0.0	0
1993	2	0.0	0
1994	1	0.0	0
1995	4	0.1	0
1996	2	0.0	0
1997	2	0.0	0
1998	8	0.1	0
1999	2	0.0	0
2000	2	0.0	0
2001	5	0.1	0
2002	3	0.0	0
2003	2	0.0	0
2004	4	0.1	0
2005	10	0.2	0
2006	1	0.0	0
2007	1	0.0	0
2008	4	0.1	0
2009	5	0.1	1
2010	3	0.0	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	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

*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	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	0
2013	90	1.3	0
2014	92	1.3	0
2015	68	1.0	0
2016	63	0.9	1

*All rates are cases per 100,000 population.

YERSINIOSIS

	2012		2013		2014		2015		2016	
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	*	2	*	0	0	2	*	1	*
Chelan	0	0	0	0	0	0	1	*	0	0
Clallam	0	0	0	0	0	0	0	0	0	0
Clark	0	0	1	*	5	1.1	0	0	9	2.0
Columbia	0	0	0	0	0	0	0	0	0	0
Cowlitz	0	0	0	0	0	0	0	0	1	*
Douglas	0	0	0	0	0	0	1	*	0	0
Ferry	0	0	0	0	0	0	0	0	0	0
Franklin	0	0	0	0	1	*	2	*	1	*
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	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	23	1.2	14	0.7	17	0.8	16	0.8	20	1.0
Kitsap	1	*	1	*	5	2	1	*	0	0
Kittitas	0	0	0	0	1	*	0	0	0	0
Klickitat	0	0	2	*	0	0	1	*	1	*
Lewis	0	0	0	0	1	*	0	0	1	*
Lincoln	0	0	0	0	0	0	0	0	0	0
Mason	0	0	2	*	0	0	0	0	1	*
Okanogan	0	0	0	0	0	0	0	0	0	0
Pacific	0	0	1	*	1	*	0	0	0	0
Pend Oreille	0	0	0	0	0	0	0	0	0	0
Pierce	1	*	0	0	0	0	4	*	7	0.8
San Juan	0	0	1	*	0	0	2	*	1	*
Skagit	0	0	1	*	0	0	1	*	2	*
Skamania	0	0	0	0	0	0	0	0	0	0
Snohomish	4	*	4	*	3	*	3	*	6	0.8
Spokane	1	*	0	0	1	*	2	*	0	0
Stevens	0	0	0	0	0	0	0	0	0	0
Thurston	1	*	1	*	0	0	0	0	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	2	*	2	*	1	*	0	0	1	*
Whitman	1	*	0	0	0	0	0	0	0	0
Yakima	1	*	2	*	0	0	3	*	1	*
STATEWIDE TOTAL	36	0.5	34	0.5	36	0.5	40	0.6	56	0.8

*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

*All rates are cases per 100,000 population.

APPENDIX II

Special Topics

Outbreak of Carbapenemase-Producing Carbapenem-Resistant *Enterobacteriaceae* (CP-CRE) in a Healthcare Facility Setting, 2016

Clark County Public Health
Dana C. Nguyen, RN, BSN, CIC, Monica Czapla MPH,

On February 19, 2016, Clark County Public Health was notified of a long-term care facility (LTCF) resident who tested positive for carbapenemase-producing carbapenem-resistant *Enterobacteriaceae* (CP-CRE). Residents in LTCFs are at increased risk of infection due to their vulnerable health status, frequent exposure to antibiotics, and healthcare environment. Further, CP-CRE investigations in LTCFs are challenging due to the complexity of the pathogen, limited infection prevention expertise, and absence of specific investigative guidance.

In total, two cases of CP-CRE, confirmed by polymerase chain reaction (PCR) for the oxacillinase-48 gene, were identified at an 88-bed LTCF within a 3 month period of time. The corresponding investigation was directed by existing CRE guidance documents, and involved medical records review, site visits, and surveillance cultures. Onsite visits focused on identifying opportunities for transmission by evaluating infection prevention practices, staff schedules, and facility design. Case finding prioritized residents at highest risk for carbapenemase resistant *Enterobacteriaceae* (CRE) as those who had high care needs, invasive lines, catheters, wounds, and/or a length of stay $\geq$3 days. Caregiver room assignments and facility floor maps were used to determine if the cases had common caregivers during the exposure period.

Through the investigation, CRE screening was prioritized for 15 residents. A total of ten swabs were collected from nine residents (nine rectal and one wound), while six residents declined participation or were not screened due to discharge. 100% (10/10) of the surveillance specimens were negative. While caregivers were not screened for CRE, the study found that multiple staff members cared for both confirmed cases during the exposure period.

Investigating CP-CRE outbreaks in LTCFs requires a strong understanding of care delivery practices, facility design, and infection prevention capacity. While evidence-based tools have been developed surrounding CP-CRE outbreaks, these materials lack direct applicability to a LTCF setting. As a result, this investigation led to the development of a CP-CRE investigation checklist, including guidance, processes, and tools useful for determining outbreak scope and developing appropriate investigation and response practices.

Pair of Fatal Botulism Cases

Grant County Health District
Amber McCoy, RS

On February 15, 2016, Grant County Health District was notified by Spokane Regional Health District that a patient from Grant County was being treated in a hospital there for suspected botulism poisoning. The attending physician became highly suspicious of botulism after learning another person from the same household had died two days prior of respiratory failure. This patient was suffering from respiratory distress, difficulty swallowing and ptosis. Antitoxin was ordered and administered, however, the patient's condition could not be reversed and they too passed away. *Clostridium botulinum* Type A was eventually identified in serum samples from both patients. Grant County Health District staff responded immediately to the home of the deceased patients and met with the remaining household members to identify the potential source of the toxin. There were several challenges to the investigation including language and cultural barriers, in addition to the inability to interview the patients to obtain an accurate food history. The advanced age of the patients also influenced the household members' beliefs about the cause of the deaths. Several meetings, phone calls, and the use of an interpreter were necessary to educate them about botulism and how critical it was to identify and remove any potentially contaminated food to ensure no one else would be exposed.

Though early in the investigation, home-preserved fish (salted and dried at room temperature) was implicated, the household contained a vast amount of home-canned fruits and vegetables. It was also determined the canning practices used were not within the recommended guidelines. Signs of failed seals such as leakage on jars and storage shelves were observed by health district staff. Unfortunately, there were not any leftover, opened jars of food that the two patients may have eaten from prior to the illnesses, therefore, none of the canned food could be tested for *botulinum* toxin. The aforementioned fish, however, was collected and sent for testing at CDC and found to be free of the toxin. The exact food which contained the toxin could not be identified.

Out of an abundance of caution, all the home-canned food at the residence was placed under a health officer order and removed. Grant County Health District staff collected and disposed of over 1,000 pounds of home-canned food into the sanitary landfill. Follow up education on safe canning practices was provided to the household members and to the rest of the community via media releases and social media posts.

Whole Family Exposure to Rabid Bat

Kittitas County Public Health Department
Liz Whitaker, MN, RN, BSN, Tim Roth, RN, BSN

In November 2016, a Kittitas County resident called requesting advice because the cat had caught a bat in their home that morning. Initial assessment indicated that there had been no human contact with the bat. The cat had received rabies vaccine several years previously. The caller was interested in having the bat tested for rabies, even though the cost of testing is about $100. The benefit of testing in this situation would be to avoid quarantine of the cat if the bat tested negative. Information was provided on where and how that testing could be done through the Oregon State University Veterinary Lab. The cat owner was advised to re-vaccinate the cat as soon as possible, and that the cat should be quarantined for 45 days if the bat was not tested, or if it tested positive.

Two days later, notification was received that the bat tested positive for rabies. Additional questioning of the cat owner, intended only to ensure the cat was re-vaccinated and quarantined, revealed that though the cat and bat were found in the bathroom, it was likely that the bat had been in other areas of the home prior to being caught by the cat. In addition, the chalet-style home has no separate, enclosed sleeping spaces. Therefore, any of the five members of the family were at risk of rabies exposure. Rabies prophylaxis was recommended for the whole family, and was initiated four days after the exposure.

Monroe Montessori Shiga Toxin-producing *E. coli* (STEC) Investigation

Snohomish Health District
Hollianne Bruce, MPH, Micha Horn, MS, RS

On July 18th, 2016 the Snohomish Health District received notification of a suspect case of Shiga toxin-producing *E. coli* (STEC) in a 3 year-old female. The patient was hospitalized with bloody diarrhea and hemolytic uremic syndrome (HUS). The patient's 2 year-old sibling was also symptomatic and was referred for testing. Both the patient and her sibling came back culture positive for *E. coli* O157:H7.

During the course of the case investigations it was discovered that both children had attended the Monroe Montessori child care, located in Monroe, WA, while symptomatic. The initial case had an uncontrolled bout of bloody diarrhea while at the child care facility. The Communicable Disease Outreach (CDO) program performed an on-site environmental health and illness assessment. Several significant deficiencies in policies and procedures related to hand hygiene, exclusion of ill children, and sanitation were found during the CDO assessment. As a result, on July 20th, the Snohomish Health District Health Officer ordered the facility to close until proper cleaning and disinfection could be performed. Snohomish Health District staff remained on-site at the child care to supervise and guide the cleaning process.

Due to extensive environmental health/hygiene issues at the child care, testing of all attendees during the exposure period was performed. Eighty-seven staff and students were considered exposed. One student was symptomatic. With the assistance of the Washington State Department of Health Communicable Disease Epidemiology and the Washington State Public Health Laboratory, the Snohomish Health District provided stool testing kits to exposed attendees and staff. Out of the 87 exposed staff and students 83 tested negative. Four of the exposed students/staff were unavailable for testing and were allowed to return after two incubation periods had passed without symptoms. Symptom watch screening was also performed for 2 incubation periods at the child care before the investigation was closed.

This exhaustive STEC investigation highlighted risks associated with Montessori-style child cares (small wooden and paper manipulatives that cannot be properly cleaned) and the education on cleaning/disinfecting and general hygiene practices that are needed in child care settings. The Snohomish Health District staff worked with the child care to address all policy and procedural changes needed to reduce the risk of transmission of illness in the facility. The Monroe Montessori was re-opened for business on July 27th, 2016.

Acute Flaccid Myelitis Cluster in Washington Children

Spokane Regional Health District, Betsy Bertelsen, RN, BSN
Washington Department of Health, Chas DeBolt, MPH, Amy Poel, MPH

In September through November of 2016, ten cases of acute flaccid myelitis (AFM) were identified in Washington children ≤ 14 years by local health, the Washington Department of Health (DOH) and CDC. Two additional suspected cases were investigated, but excluded by CDC neurologists because further analysis of the magnetic resonance imaging (MRI) showed they were not consistent with AFM. The confirmed cases identified were from six counties in Washington, on both the west and east sides of the state.

AFM is a neurologic condition based on standardized clinical criteria. AFM is characterized by acute onset of flaccid limb weakness and lesions on the gray matter of the spinal cord evident on MRI. Suspect cases should be reported to DOH if a patient of any age presents with acute focal limb weakness and either an MRI showing spinal cord lesions largely restricted to the gray matter and spanning one or more spinal segments, or CSF with pleocytosis (white blood cell count >5 cells/mm^3). Cases are classified by CDC based on patient summary forms, neurology and infectious disease consult notes, diagnostic laboratory reports, MRI reports, and MRI images.

Individual cases of AFM in Washington were investigated by the local health jurisdiction (LHJ) in conjunction with DOH. In October 2016, nine cases of suspect AFM with onset of limb weakness in September and October were reported to local health jurisdictions by Seattle Children's Hospital Three additional suspect cases, from Seattle Children's Hospital, Mary Bridge Children's Hospital, and Sacred Heart Medical Center were reported in November 2016. Two of the suspect cases were later ruled out. Although three families declined interview, parents of seven confirmed AFM cases were interviewed thoroughly, using a hypothesis-generating interview developed at DOH. Interview questions involved activities in the two months prior to onset of symptoms including travel, prior illness, and contact with others. No family members or close contacts of any of the cases developed AFM and there were no deaths. All cases tested negative for poliovirus.

Although two of the cases lived within 11 miles of one another, none of the cases of AFM were found to be linked, as no common source or exposures were identified. Six cases reported spending time in fresh water lakes or rivers, but not in a common location. Enterovirus D-68 was detected in the nasopharynx of two cases and enterovirus A-71 was found in the stool of another, but these viruses can also be present in the nasopharynx and stool of a healthy person. The identification of a virus in the cerebral spinal fluid (CSF) of a case would provide evidence of a possible cause for the neurologic symptoms; however, no virus was found in the CSF of any case in this cluster.

The baseline incidence of AFM in the United States is not known. Surveillance for AFM was established following the identification of clusters in Colorado and Missouri in late 2014. Public health requests that clinicians in Washington remain vigilant for patients presenting with possible AFM and report suspect cases as soon as possible to the local health jurisdiction.

A publication about the AFM cluster described above can be found here:
https://www.cdc.gov/mmwr/volumes/66/wr/pdfs/mm6631a2.pdf

House of Charity (HOC) Norovirus Outbreak

Spokane Regional Health District
Mark Springer, DC

On November 11, 2016, an outbreak of gastrointestinal illness was reported in 35 clients and staff at the House of Charity (HOC), a homeless shelter in downtown Spokane that feeds and sleeps more than 300 people each day. Unified command was established that day with the Spokane Regional Health District and the Spokane City Fire Department. Norovirus was identified by PCR testing on November 12th.

Response activities included keeping the shelter open during the outbreak, isolating ill clients in one area of the shelter, encouraging exposed clients to stay in heated tents erected on the premises, providing on-site medical triage, suspending hot meal service, and utilizing packaged meals prepared offsite. Medically fragile respite patients within the HOC were transported to and cared for at a separate facility.

Many challenges existed during an outbreak this size with cold and near freezing conditions. Temporary tent shelters were set up quickly with heating and portable toilets brought in. During the initial days of the outbreak, there was a risk of exposed clients disbursing to other shelters, since every effort was made to keep HOC open and to keep ill clients there. To manage the growing number of isolated clients, SRHD provided wristbands to ill clients, identifying onset date of symptoms. After 72 hours of active symptoms, clients were released from the medical shelter and moved back into the temporary general shelter.

The response was wrapped up on November 21, when the number of ill clients returned to a baseline level. At that time, approximately 80 clients and 13 staff had met the case definition for norovirus during the previous 10 days.

Whitworth Mumps Outbreak

Spokane Regional Health District
Anna Halloran, MHPA

In September 2016, Spokane Regional Health District (SRHD) confirmed a mumps case in a Whitworth University student who had traveled internationally. Three additional probable or confirmed cases related to the first case were reported in subsequent weeks. While college campus mumps outbreaks have been relatively common in the last decade across the country, this outbreak was Washington state's first college-related mumps outbreak in recent history. A small, private university with less than 3,000 students, Whitworth University is a highly immunized, tight-knit residential campus.

While all students must have proof of MMR vaccination, other proof of immunity, or valid exemption prior to attending classes, records of immunization were not available electronically and staff/faculty had no evidence of immunity on file. SRHD assisted the university in digitizing immunization records, organizing vaccination clinics for students and staff, coordinating communication efforts for the Whitworth community and parents, and monitoring symptoms of close contacts of cases using Everbridge's automated text messaging system.

This was the first time in Washington that an automated text messaging system was used for symptom monitoring for a communicable disease outbreak. Ultimately, nearly 100 people agreed to text message monitoring every two days, conserving hours of public health staff time as these texts normally would have been phone calls from staff. Contacts who responded with symptoms of possible mumps were triaged for evaluation by SRHD epidemiology staff and Whitworth's student health center.

Ultimately, 11 non-immune students were excluded from classes and university events until one incubation period had passed from their last potential exposure. The outbreak was declared over in early December 2016.

Salmonella Infection in Neonate

Tacoma-Pierce County Health Department
Jeni Nybo, RN, BSN

During June 2016 a full-term 2 week-old infant was admitted with fever 101°F, fussiness and feeding difficulties. A septic workup was performed and blood, urine and spinal cultures all grew *Salmonella* Litchfield. The infant was hospitalized for 9 days and received 6 weeks of intravenous antibiotics.

No immediate risk factors for *Salmonella* were identified. The mother reported an uncomplicated pregnancy. The baby was born full-term at home with a midwife. Mother labored in a birthing tub, but the baby was not born in the water. There was a reported history of stool contamination of the birthing tub. Mom did not recall having a diarrhea illness or ever being diagnosed with Salmonella. The child was breastfed.

As a precaution, a culture of mom's breastmilk and stool were collected. Her stool culture was also positive for *Salmonella* Litchfield, although she did not recall having a diarrhea illness. Mother completed 4 weeks of ciprofloxacin treatment. Follow-up stool and breastmilk cultures approximately 10 days after completing treatment were negative.

Two weeks after completing antibiotics, the child again developed a fever. Repeat CSF grew *Salmonella*, as did stool culture. Urine and blood cultures were negative. The child was started on meropenem during admission and ciprofloxacin was added on day 5 to ensure adequate treatment of Salmonellosis. A repeat lumbar puncture was done on hospital day 3 and CSF culture showed no growth for 2 days at time of discharge. The baby was discharged on IV meropenem and IV ciprofloxacin per PICC line for a minimum or 6 weeks.

This case provides an example of the importance of thorough investigation surrounding newborn infections. Follow up conversations with the infant's mother revealed the she had been taking placenta capsules after delivery. While the mother's stool culture and infant's cultures matched, neither the labor pool nor the placenta capsules were tested.

In 2017, MMWR, *Notes from the Field*, described two recent cases of Legionnaires' disease in newborns after water births and another issue reported a late-onset infant Group B Streptococcus infection associated with maternal consumption of capsules containing dehydrated placenta. A thorough investigation, including birth history and maternal placenta capsules ingestion in cases of infections in neonates may help identify sources of infection that will inform better infection control guidelines during the perinatal period.

Sources

https://www.cdc.gov/mmwr/volumes/66/wr/mm6622a4.htm
https://www.cdc.gov/mmwr/volumes/66/wr/mm6625a4.htm

Wohlfahrtiimonas sp.

Centers for Disease Control and Prevention
Jesse Bonwitt, BVSc, MSc, MRCVS

An unusual pathogen was identified in a patient with myiasis and septicemia in Washington State. Preliminary laboratory findings identified *Wohlfahrtiimonas chitiniclastica*, a rare cause of bacterial infection associated with wounds. The bacteria was previously isolated in Europe and Asia among nonbiting flies that can cause myiasis. Flies (larvae and adults) collected from patient's home grew *Wohlfahrtiimonas* spp. The isolate likely represents a new species in the genus *Wohlfahrtiimonas.* This was the first isolation of *Wohlfahrtiimonas* sp. among insects in the Americas and in a previously undescribed vector, *Lucilia sericata* (green bottle fly). Although PFGE patterns from patient and fly larvae did not match, we provide additional evidence of fly larvae as vectors.

Zika Outbreak 2015-2016

Washington State Department of Health
Mary Chan, MPH, Hanna Oltean, MPH

Zika virus is transmitted by infected *Aedes* species mosquitoes endemic to tropical and sub-tropical regions of the world, including South and Central America, Africa, and Southeast Asia, as well as the southern continental US, Hawaii, and Texas. It can also be transmitted through sexual contact or vertically, from mother to fetus. The first documented Zika virus outbreak occurred in 2007 on Yap Island in the Federated States of Micronesia. Outbreaks occurred subsequently in other Pacific Islands during 2013-2014 but were never reported in other *Aedes* endemic regions.[1] In early 2015, an outbreak of Zika virus disease was detected in Brazil and soon spread to neighboring countries. As of August 4, 2017, in this outbreak, autochthonous transmission of Zika has been confirmed in 48 countries and territories in the Americas.[2] The largest number of confirmed cases are in Brazil (134,057 cases, 11 deaths), Puerto Rico, Colombia, and Mexico. The US has confirmed 5,109 imported cases and 224 cases due to autochthonous transmission in Florida and Texas.[3]

Approximately 80% of those infected with Zika virus are asymptomatic. Disease among children and adults is typically mild, lasting from several days to a week. However, Zika infection in a fetus can be devastating, and is causally associated with microcephaly and other poor pregnancy outcomes. The CDC estimates that among the pregnant women with disease or infection reported in the US, 10% give birth to infants with Zika-related birth defects. In February 2016, the association of poor pregnancy outcomes with Zika led the WHO declare the outbreak as a Public Health Emergency of International Concern.

DOH began offering facilitation of testing of symptomatic patients and asymptomatic pregnant women with a history of travel to affected countries or possible sexual exposure in early 2016. Pregnant women were advised to avoid travel to areas with Zika transmission and couples were advised to postpone pregnancy following travel.

In 2016, DOH coordinated testing through public health reference laboratories for 1,249 persons with possible exposure to Zika virus. Laboratory confirmed disease was reported for 68 cases; all were imported through travel. Additionally, six cases of asymptomatic Zika virus infection were reported. A total of 16 pregnant women with Zika virus disease or infection were reported and entered into CDC's Zika Virus Pregnancy Registry; among these, three adverse outcomes were reported.

Together with the local health jurisdictions, Washington State DOH continues to provide testing, monitoring, and guidance as necessary for its residents, and to participate in national dialogue about the Zika epidemic and public health recommendations.

[1] http://www.who.int/emergencies/zika-virus/history/en/

[2] http://www.paho.org/hq/index.php?option=com_content&view=article&id=11599:regional-zika-epidemiological-update-americas&catid=8424:contents&Itemid=41691&lang=en

[3] http://www.paho.org/hq/index.php?option=com_content&view=article&id=12390&Itemid=42090&lang=en

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

Washington State Department of Health
Kelly Kauber, MPH, Marisa D'Angeli, MD, MPH, Tashina Robinson, MS

In 2012 the Washington State Department of Health (DOH) began tracking carbapenem-resistant Enterobacteriaceae (CRE). Goals of surveillance were to learn how common these organisms are in Washington, to determine the proportion of CRE that produce a carbapenemase (an enzyme inactivating certain antibiotics), and to use surveillance information to educate healthcare providers and facilities regarding infection prevention interventions to limit the spread of CRE in Washington. The family Enterobacteriaceae includes common genera such as *E. coli*, *Klebsiella*, and *Enterobacter* and is an important cause of healthcare-associated infections. CRE are resistant to drugs of last resort and have high morbidity and mortality.

CRE 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. CRE that produce carbapenemases, such as *Klebsiella pneumoniae* carbapenemase (KPC), New Delhi metallo-β-lactamases (NDM), Verona integron-encoded metallo-β-lactamases (VIM), imipenemase (IMP), and oxacillinase-48-like (OXA-48), are considered epidemiologically important because they can spread exponentially in healthcare settings, as evidenced by the rapid increase in CRE in the United States over the past decade. Carbapenemases are usually inherited via plasmids, mobile genes that can spread resistance horizontally to other bacteria.

The Washington State CRE case definition in effect in 2016 is below:

> *E. coli*, *Klebsiella* species and *Enterobacter* species resistant to any carbapenem according to Clinical Laboratory Standards Institute (CLSI) breakpoints (minimum inhibitory concentrations of ≥ 4 mcg/ml for meropenem, imipenem, and doripenem or ≥ 2 mcg/ml for ertapenem).
>
> PHL accepted additional genera within the family Enterobacteriaceae and other Gram-negative isolates for carbapenemase testing if specifically requested by a healthcare provider or microbiologist.

Washington State Public Health Laboratories (PHL) perform polymerase chain reaction (PCR) testing to detect presence of the five most common carbapenemases found in Enterobacteriaceae in the US: KPC, NDM, OXA-48, IMP and VIM.

This report includes CRE isolates collected in 2016, as well as other non-Enterobacteriaceae carbapenemase-producing 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, DOH 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 249 CRE isolates that met the case definition, and 19 of 249 (7.6%) isolates tested positive by PCR for carbapenemase. These 19 carbapenemase-producing CRE (CP-CRE) isolates were from 19 unique patients. (Table 10)

Of the 19 patients identified with CP-CRE, 10 (53%) were male. Ages of CP-CRE cases ranged from 21 to 87 years with a median age of 70 years. Twelve of 19 cases (63%) had chronic illness; of the seven patients without known chronic underlying conditions, five (71%) were exposed to international risk factors (country of origin outside of the United States or known international healthcare exposure). The most common underlying conditions were stroke (n=4, 21%), diabetes mellitus (n=4, 21%), and neurologic conditions (n=4, 21%). Eleven cases (58%) had urinary tract infection, four (21%) sepsis/blood stream infection, three (16%) wound infection, two (11%) surgical site infection, and two (11%) had pneumonia. Three of 19 cases (16%) presented with multiple infection sites (two cases had urinary tract infection + sepsis, one case had pneumonia + sepsis).

Of the 19 patients with CP-CRE, 6 had KPC, 8 had NDM and 5 had OXA-48 carbapenemase detected. Of the six patients with KPC carbapenemase, one was an out-of-state resident diagnosed in a Washington hospital, one received international healthcare in Italy, and one had out-of-state healthcare exposures; the remaining three (50%) were not known to have had healthcare outside of Washington. Of the thirteen patients with NDM or OXA-48 carbapenemase, nine (69%) had international exposures (foreign born or known international healthcare), the other four (31%) patients had only known Washington healthcare. Recent international locations of residence or travel included India, Ethiopia, Ghana, Cambodia, and Vietnam. These surveillance findings suggest that while non-KPC carbapenemase producing organisms are more commonly associated with international travel and healthcare, they are being detected in Washington residents with no known international exposure suggesting that they are circulating within the state.

Carbapenemases in Species other than *Enterobacteriaceae*

In past years, carbapenemases have been identified in *Acinetobacter* and *Pseudomonas* isolates. In 2016, the Washington State Department of Health identified VIM carbapenemase in two carbapenem-resistant *Pseudomonas aeruginosa* (CRPA) isolates from patients in the same long-term care facility. Carbapenemase producing *P. aeruginosa* has been implicated in nosocomial outbreaks reported in several countries worldwide.

Table 10. Carbapenemase-producing Isolates Identified in Washington Patients, 2016.

Genus and species: / **Carbapenemase**	*Enterobacter spp.* n=3	*Escherichia coli* n=10	*Klebsiella spp.* n=6	*Pseudomonas aeruginosa* n=2 (Non-Enterobacteriacea)
KPC	1	2	3	0
NDM	2	4	2	0
OXA-48	0	4	1	0
VIM[+]	0	0	0	2

[+] Not included in case numbers in text body as detected in non-Enterobacteriaceae species.

Lessons Learned from CDC's Infection Control Assessments and Response (ICAR) Initiative in Washington State

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The prevention of Healthcare Associated Infections (HAI) is a top priority of the US Department of Health and Human Services (HHS). Much of this renewed interest in HAI prevention stemmed from the 2014 Ebola outbreak in West Africa and the increasing battle against antibiotic resistant infections. In 2015, the Centers for Disease Control and Prevention (CDC) awarded state public health agencies three-year funding to initiate Infection Control Assessment and Response (ICAR) programs. ICAR aims to understand the current landscape of infection prevention capacity in a variety of healthcare settings and develop infection prevention improvement resources based on identified gaps.

Washington State directed CDC funding to hire three full-time infection preventionists (IP); two in local health jurisdictions (LHJ) and one based at the Washington State Department of Health. Washington State was the only grantee to fund infection prevention positions in local public health. Following an application and review process for Washington local health jurisdictions, infection prevention funds were directed to Clark County Public Health Department and Spokane Regional Health District. In the first two years of the grant project, the ICAR IPs performed facility infection control assessments and outreach in acute care hospitals, ambulatory care, dialysis centers, and long-term care (LTC) healthcare settings. Site visits were consultative and performed in a standardized manner using CDC ICAR tools, which address foundational infection prevention elements including surveillance, hand hygiene, and environmental cleaning.

From February 2016 to August 2017, a total of 104 ICAR site visits were conducted in Washington: 29 acute care hospitals, 44 LTC, 28 ambulatory care, and 3 dialysis centers. Despite having IPs in just three locations across the state, the ICAR IPs have visited 74.4% (29/39) of counties in Washington State (see Table 1). Differences in infection prevention gaps were observed based on healthcare setting. For example 93% of participating hospitals met all CDC criteria for infection control infrastructure compared to 70% of LTC (see Graph 1). The gaps in infection control have focused our outreach efforts to ensure that the education we develop is customized by healthcare setting. Furthermore, the site visits have enhanced our relationships with healthcare facilities, public health, and quality improvement and patient safety organizations. Adding healthcare associated infections (HAI) prevention expertise to public health agencies has enhanced public health's ability to better understand infection prevention capacity and respond to HAI questions and outbreaks in the healthcare community.

Figure 1. Infection Control Assessment Response Site Visit Findings by Healthcare Setting Type, February 2016-August 2017 (N=101*)

**Dialysis not included due to small N of 3*

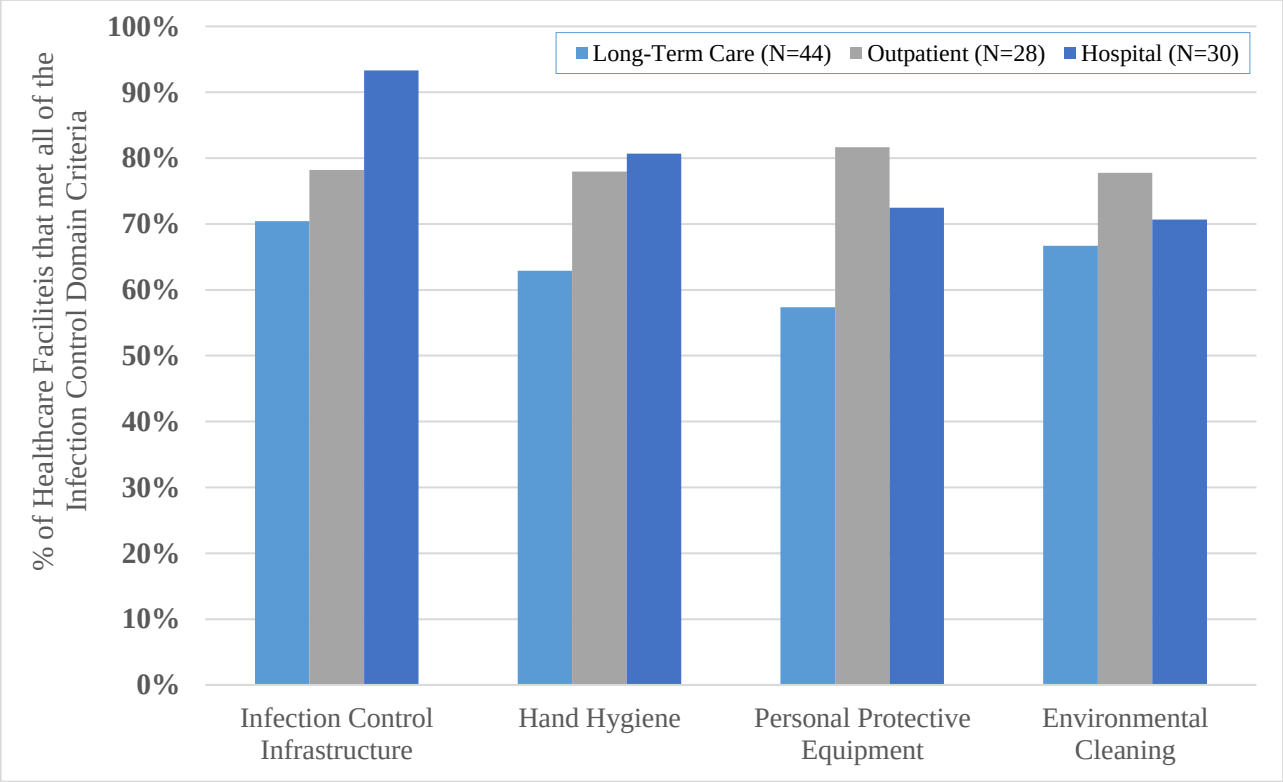


Table 11. Infection Control Assessment Site Visits by County

February 2016 – August 2017

County	Hospital	Outpatient	Long-Term Care	Dialysis	Total
Adams	1	0	0	0	**1**
Asotin	1	0	0	0	**1**
Benton	2	0	0	0	**2**
Chelan	1	0	0	0	**1**
Clallum	3	0	0	0	**3**
Clark	0	3	8	0	**11**
Columbia	0	0	1	0	**1**
Cowlitz	0	0	1	0	**1**
Douglas	0	1	0	0	**1**
Ferry	0	0	0	0	**0**
Franklin	1	0	0	0	**1**
Garfield	1	0	0	0	**1**
Grant	0	0	0	0	**0**
Greys Harbor	0	0	0	0	**0**
Island	1	0	0	0	**1**
Jefferson	0	0	0	0	**0**
King	2	8	2	3	**15**
Kitsap	1	3	1	0	**5**
Kittitas	0	0	0	0	**0**
Klickitat	0	0	0	0	**0**
Lewis	1	0	0	0	**1**
Lincoln	1	0	0	0	**1**
Mason	1	1	0	0	**2**
Okanogan	0	0	0	0	**0**
Pacific	0	0	0	0	**0**
Pend Oreille	1	0	1	0	**2**
Pierce	0	0	1	0	**1**
Skagit	1	0	0	0	**1**
Skamania	0	0	0	0	**0**
Snohomish	1	3	8	0	**12**
Spokane	3	4	17	0	**24**
Stevens	3	0	1	0	**4**
Thurston	2	2	0	0	**4**
Wahkiakum	0	0	0	0	**0**
Walla Walla	0	1	0	0	**1**
Whitman	1	0	0	0	**1**
Whatcom	0	1	2	0	**3**
Yakima	0	1	1	0	**2**
STATEWIDE TOTAL	**29**	**28**	**44**	**3**	**104**

Foodborne Disease Outbreaks, 2016

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 as outlined in WAC 246-101-510. In Washington, there are typically 25 to 50 outbreaks of foodborne disease reported every year, totaling about 300-700 cases.

In 2016, 49 outbreaks of foodborne disease were reported to DOH (Table 12). 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 12. Foodborne Disease Outbreaks, 2007 – 2016

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

Outbreaks occurred in a wide range of settings in 2016. Restaurants were the most frequently reported setting, accounting for approximately three-fourths of outbreaks. Other settings included catered meals, picnics/potlucks, mobile food trucks, and private residences. The agents associated with foodborne disease outbreaks in 2016 are shown in Table 13. Most outbreaks and cases were due to viral agents.

Table 13. Agents Associated with Foodborne Disease Outbreaks, 2016

Agent	Outbreaks	Cases
Bacterial		
Campylobacter	1	5
Salmonella	9	109
Listeria monocytogenes	0	0
STEC	3	15
Vibrio parahaemolyticus	3	6
Viral		
Confirmed *Norovirus*	2	34
Suspect *Norovirus*	19	316
Toxins		
Bacterial toxin (suspect)	8	25
Clostridium botulinum	1	2
Scombroid	0	0
Unknown Agent	3	31

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 2016, there were 21 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 2016, there were 16 bacterial outbreaks. Contributing factors most frequently associated with bacterial outbreaks included cross-contamination of raw and cooked ingredients, and food that was intended to be consumed after a kill step (e.g. heating to kill bacteria) that was inadequate.

Eight outbreaks suspected to be associated with bacterial toxins were reported in 2016. 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 *Clostridium botulinum* was reported from a private home where food was improperly canned.

Foodborne outbreaks reported in Washington during 2016 are summarized in Table 14.

Table 14. Foodborne Disease Outbreaks Reported to Washington State Department of Health, 2016

#	Local Health Jurisdiction	Month	Illness Agent	# Confirmed Cases	# Probable Cases	Total # Cases	Exposure Source	Contributing Factors	Setting
1	King	January	*Salmonella*	2	0	2	Unknown	Other source of contamination.	Restaurant
2	King	January	Norovirus	0	62	62	Unknown	Glove-hand contact by food worker suspected to be ill Storage in contaminated environment.	Restaurant
3	Pierce	January	Norovirus	0	44	44	Unknown	Bare hand contact. Foods contaminated by non-food worker suspected to be ill. Foods originating from sources shown to be contaminated.	Restaurant
4	Spokane	January	*Salmonella*	0	40	40	Chicken	Cross contamination. Improper hot holding. Insufficient time/temp control during cooking.	Restaurant
5	King	February	Bacterial toxin	0	2	2	Carne Asada	Food preparation practices that support proliferation of pathogens. No attempt to control temperature of implicated food. Improper cold holding.	Mobile Restaurant
6	King	February	Unknown	0	2	2	Unknown	No attempt to control temperature of implicated food. Other source of contamination	Restaurant
7	Grant	February	*Clostridium botulinum*	2	0	2	Home canned vegetables	Food preparation practices that support proliferation of pathogens. Insufficient time/temperature control during cooking.	Private Home
8	King	February	Bacterial toxin	0	2	2	Chicken	Insufficient time/temperature control during cooking. Improper/slow cooling. Improper cold holding.	Restaurant
9	King	March	*Salmonella*	3	1	4	Unknown	No attempt to control temperature of implicated food. Bare hand contact.	Restaurant
10	Skagit	March	Norovirus	0	3	3	Unknown	Bare hand contact.	Restaurant
11	Skagit	March	Bacterial toxin	0	2	2	Unknown	Improper/slow cooling. Foods originating from sources shown to be contaminated.	Restaurant
12	King	March	Norovirus	0	4	4	Unknown	Glove-hand contact by food worker suspected to be ill. Other mode of contamination by food worker suspected to be ill.	Restaurant
13	Clark	March	Bacterial toxin	0	3	3	Unknown	Improper/slow cooling.	Restaurant
14	Whatcom	April	Norovirus	0	8	8	Unknown	Improper/slow cooling. Glove-hand contact by food worker suspected to be ill. Other mode of contamination by food worker suspected to be ill.	Mobile Restaurant
15	Mason	April	Norovirus	0	15	15	Unknown	Bare hand contact. Glove-hand contact by food worker suspected to be ill.	Restaurant
16	Pierce	April	Norovirus	0	25	25	Unknown	Bare hand contact. Glove-hand contact by food worker suspected to be ill. Insufficient time/temp control during cooking.	Restaurant
17	Cowlitz	April	Norovirus	0	18	18	Unknown	Bare hand contact. Other source of contamination.	Restaurant

#	Local Health Jurisdiction	Month	Illness Agent	# Confirmed Cases	# Probable Cases	Total # Cases	Exposure Source	Contributing Factors	Setting
18	King	May	Norovirus	0	8	8	Unknown	Other source of contamination.	Restaurant
19	Clark	May	Norovirus	1	20	21	Unknown	Bare hand contact. Glove-hand contact by food worker suspected to be ill.	Restaurant
20	Pierce	May	Norovirus	0	8	8	Unknown	Bare hand contact. Glove-hand contact by food worker suspected to be ill. Other source of contamination.	Restaurant
21	Pierce	May	Norovirus	0	9	9	Potato salad, Macaroni salad	Bare hand contact. Other source of contamination.	Picnic/ Potluck
22	Pierce	May	Norovirus	0	12	12	Unknown	Bare hand contact. Other source of contamination.	Restaurant
23	Snohomish	May	Norovirus	0	8	8	Unknown	Cross contamination. Glove-hand contact by food worker suspected to be ill.	Other/Restaurant
24	King	June	*Salmonella*	2	0	2	unknown	Cross contamination. Other source of contamination, Improper cold holding.	Restaurant
25	King	June	Unknown	0	6	6	Unknown	Bare hand contact. Food preparation practices that support proliferation of pathogens. No attempt to control temperature of implicated food.	Restaurant
26	King	June	*Salmonella*	3	5	8	Unknown	Bare hand contact. No attempt to control temperature of implicated food. Improper cold holding.	Church, temple, religious location
27	King	June	*Vibrio parahaemolyticus*	1	1	2	Oysters, raw	Contaminated raw product. Foods originating from sources shown to be contaminated.	Restaurant
28	Clark	June	Norovirus	0	3	3	Unknown	Bare hand contact.	Restaurant
29	King	July	Bacterial toxin	0	3	3	Rice	Insufficient time/temp control during cooking. Food preparation practices that support proliferation of pathogens. No attempt to control temperature of implicated food.	Restaurant
30	Clark	July	*Camplyobacter*	3	2	5	Chicken liver mousse	Contaminated raw product - food intended to be consumed after a kill step. Bare hand contact. Insufficient time/temp control during cooking.	Restaurant
31	Pierce	July	*Salmonella*	3	22	25	Chicken	Food preparation practices that support proliferation of pathogens, Insufficient time/temp control during cooking. Cross contamination	Banquet Facility
32	Multiple	July	*Salmonella*	9	6	15	Pork	No attempt to control temperature of implicated food. Insufficient time/temp control during cooking. Food preparation practices that support proliferation of pathogens.	Multiple

#	Local Health Jurisdiction	Month	Illness Agent	# Confirmed Cases	# Probable Cases	Total # Cases	Exposure Source	Contributing Factors	Setting
33	Pierce	July	Bacterial toxin	0	4	4	Unknown	No attempt to control temperature of implicated food. Improper cold holding. Insufficient time / temperature during reheating.	Restaurant
34	King	August	Bacterial toxin	0	7	7	Unknown	Other source of contamination. Improper cold holding. Improper/slow cooling.	Restaurant
35	King	August	*Vibrio parahaemolyticus*	0	2	2	Oysters	Contaminated raw product. Foods originating from sources shown to be contaminated.	Restaurant
36	Grays Harbor	August	Norovirus	0	6	6	Unknown	Glove-hand contact by food worker suspected to be ill.	Restaurant
37	Benton-Franklin	September	Norovirus	0	17	17	Unknown	Bare hand contact. Foods contaminated by non-food worker suspected to be ill. Other source of contamination.	Restaurant
38	King	September	*E. coli* 0157	9	0	9	Unknown	Cross contamination. Improper cold holding. Insufficient use of chemical processes designed for pathogen destruction.	Restaurant
39	King	September	*Salmonella*	4	2	6	eggs, steak	Contaminated raw product. Cross contamination. No attempt to control temperature of implicated food.	Restaurant
40	King	September	*E. coli* 0157	2	0	2	Unknown	Improper cold holding. Cross contamination. Storage in contaminated environment.	Restaurant
41	Clark	September	*E. coli* 0157	4	0	4	Unknown	Cross contamination. Storage in contaminated environment. No attempt to control temperature of implicated food.	Restaurant
42	Spokane	September	Norovirus	1	12	13	Unknown	Cross contamination. Other source of contamination.	Restaurant
43	King	October	Norovirus	0	6	6	Unknown	Glove-hand contact by food worker suspected to be ill. Other mode of contamination by food worker suspected to be ill. Foods contaminated by non-food worker suspected to be ill.	Restaurant
44	King	October	*Vibrio parahaemolyticus*	2	0	2	Oysters, raw	Contaminated raw product. Foods originating from sources shown to be contaminated.	Restaurant
45	King	October	Norovirus	0	15	15	Unknown	Bare hand contact.	Banquet Facility
46	Chelan-Douglas	November	*Salmonella*	7	0	7	Scrambled eggs	Cross contamination. Food preparation practices that support proliferation of pathogens. Insufficient time/temp control during cooking.	Restaurant
47	Pierce	December	Norovirus	0	45	45	Unknown	Bare hand contact. Glove-hand contact by food worker suspected to be ill. Other source of contamination.	Restaurant
48	Clark	December	Bacterial toxin	0	2	2	Unknown	Unknown	Restaurant
49	King	December	Unknown	0	23	23	Unknown	Unknown	Ship/Boat

Influenza Surveillance, 2016–2017

The Department of Health (DOH), in collaboration with local health jurisdictions and Centers for Disease Control and Prevention (CDC), performed surveillance for influenza during the 2016 to 2017 season using several different systems. This report summarizes data collected from July 24, 2016 to July 22, 2017 (week 30 of 2015 through week 29 of 2016) through key systems.

Overall Summary

Nationally, the 2016-2017 season was categorized as moderate. Activity nationally peaked in February 2017 while in Washington influenza activity peaked slightly earlier in January. Nationally as well as in Washington, influenza A (H3N2) viruses predominated overall, with influenza B viruses occurring later in the season.

Influenza Laboratory Surveillance Data

For the 2016-2017 influenza season, CDC has generated separate graphs of data reported to CDC by public health laboratories (Figure 1) and commercial laboratories (Figure 2).

Figure 2: Influenza Positive Tests Reported to CDC, WA Public Health Laboratories

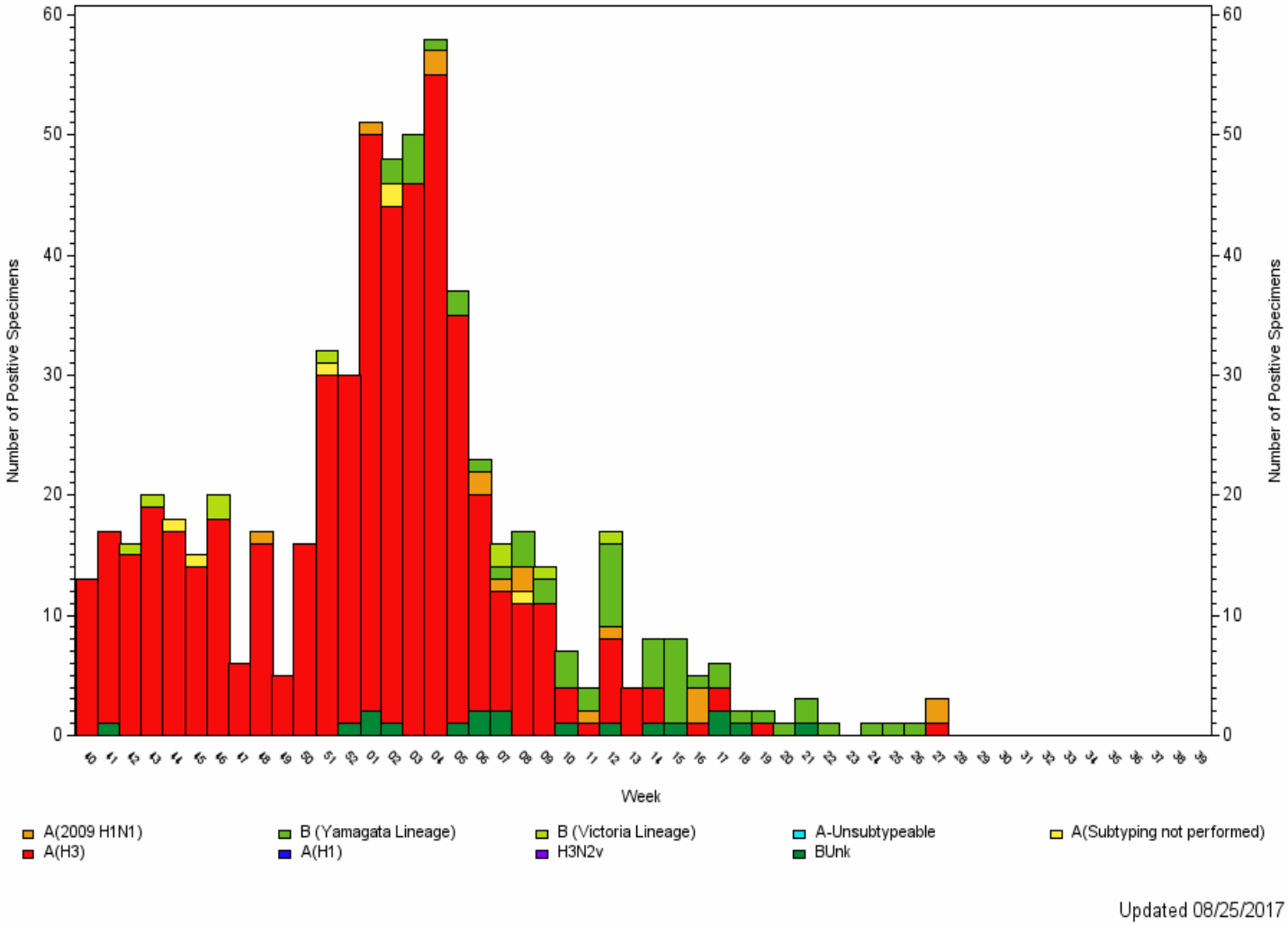
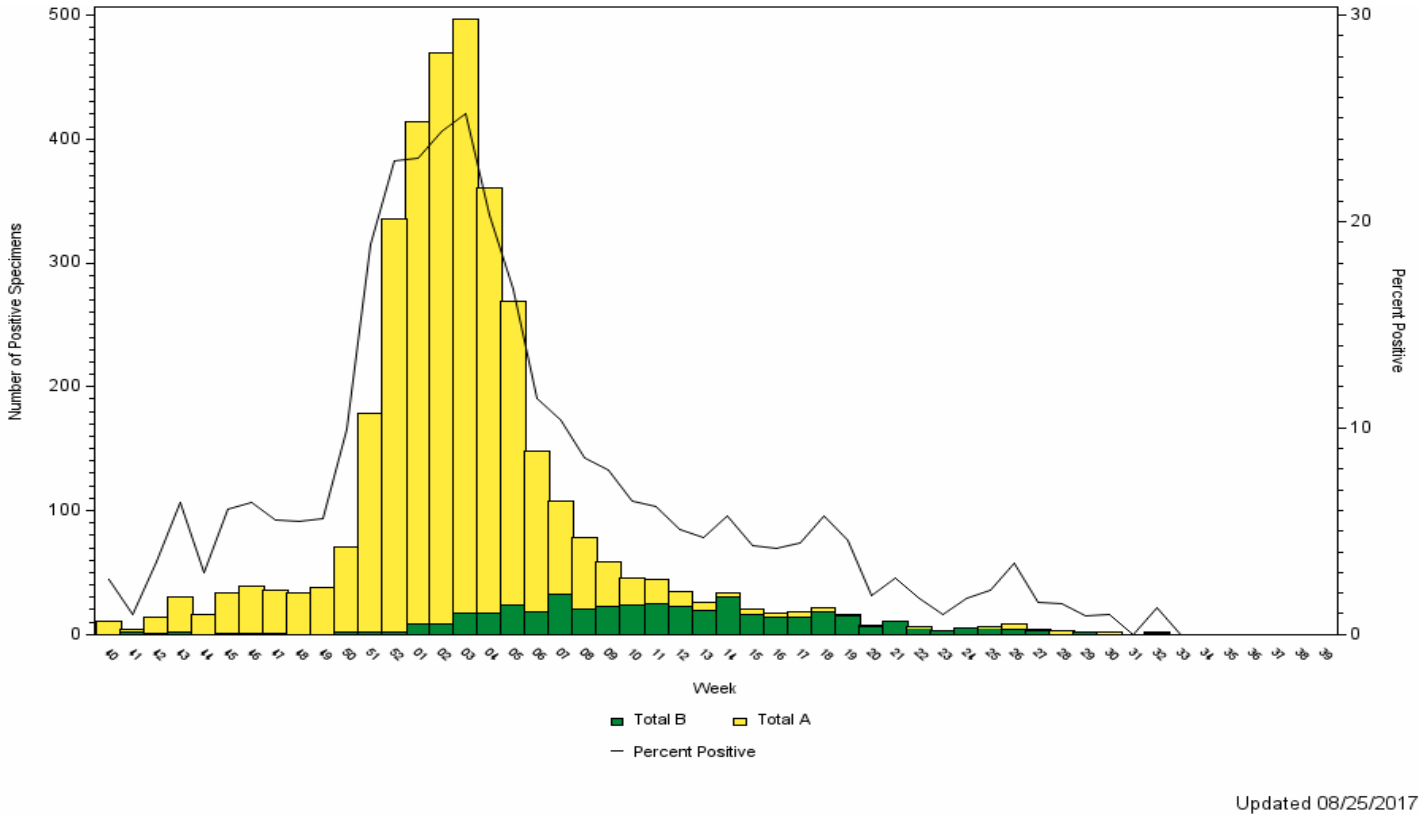


Figure 3: Influenza Positive Tests Reported to CDC, WA Commercial Laboratories



Antigenic Characterization

Antigenic characterization has been conducted by CDC on a subset of influenza specimens collected in Washington during the 2016-2017 season.

Twenty one influenza A (H3N2) specimens were characterized as A/Hong Kong/4801/2014-like, the influenza A (H3N2) component of the 2016-2017 vaccine.

Three influenza B specimens were characterized as B/Brisbane/60/2008-like, the B Victoria lineage component of the 2016-2017 trivalent and quadrivalent influenza vaccines.

Fourteen influenza B specimens were characterized as B/Phuket/3073/2013-like, the B Yamagata lineage component of the 2016-2017 quadrivalent influenza vaccine.

Two influenza A specimens were characterized as A/Michigan/45/2015 (H1N1)pdm09-like.

Novel, Avian and Unsubtypable Influenza Viruses

In March 2017, influenza H7N9 was identified in Tennessee commercial poultry and low pathogenic avian influenza was identified in Alabama poultry.

In December 2016 influenza H7N2 was identified in cats in New York City, with one human infection reported. For more about avian influenza, see CDC's materials.

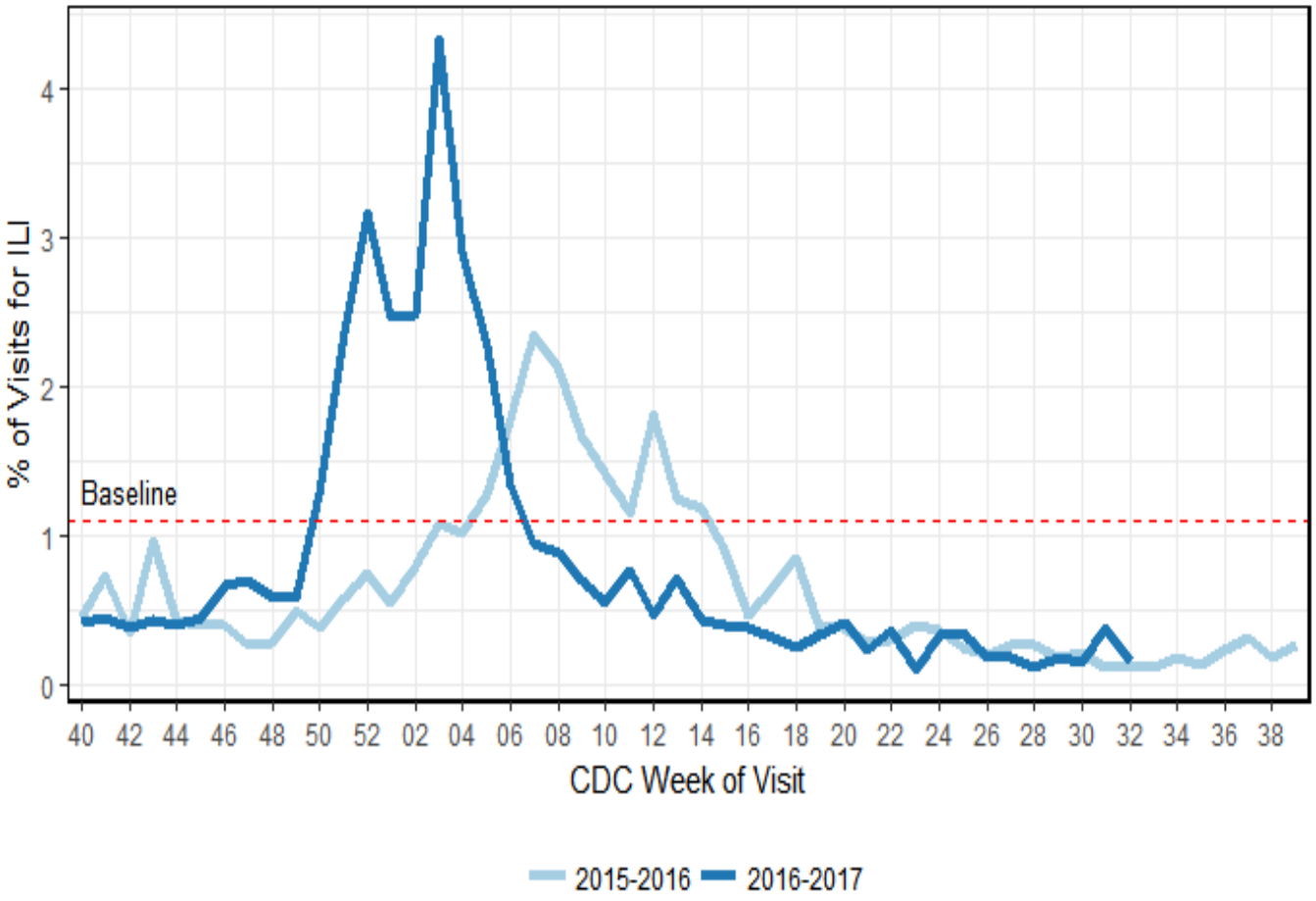
Outpatient Influenza-like Illness Surveillance Network (ILINet) Data

Information on patient visits to health care providers for influenza-like illness is collected through the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet).

Each week, up to 40 outpatient healthcare providers in Washington reported data to CDC on the total number of patients seen and the number of those patients with influenza-like illness (ILI) by age group. For the purposes of ILINet, ILI is defined as fever (temp 100ºF/37.8ºC or higher) plus cough and/or sore throat.

More information about ILINet is available here.

Figure 4. Percentage of ILI Visits Reported by Sentinel Providers, Washington, 2015–2017



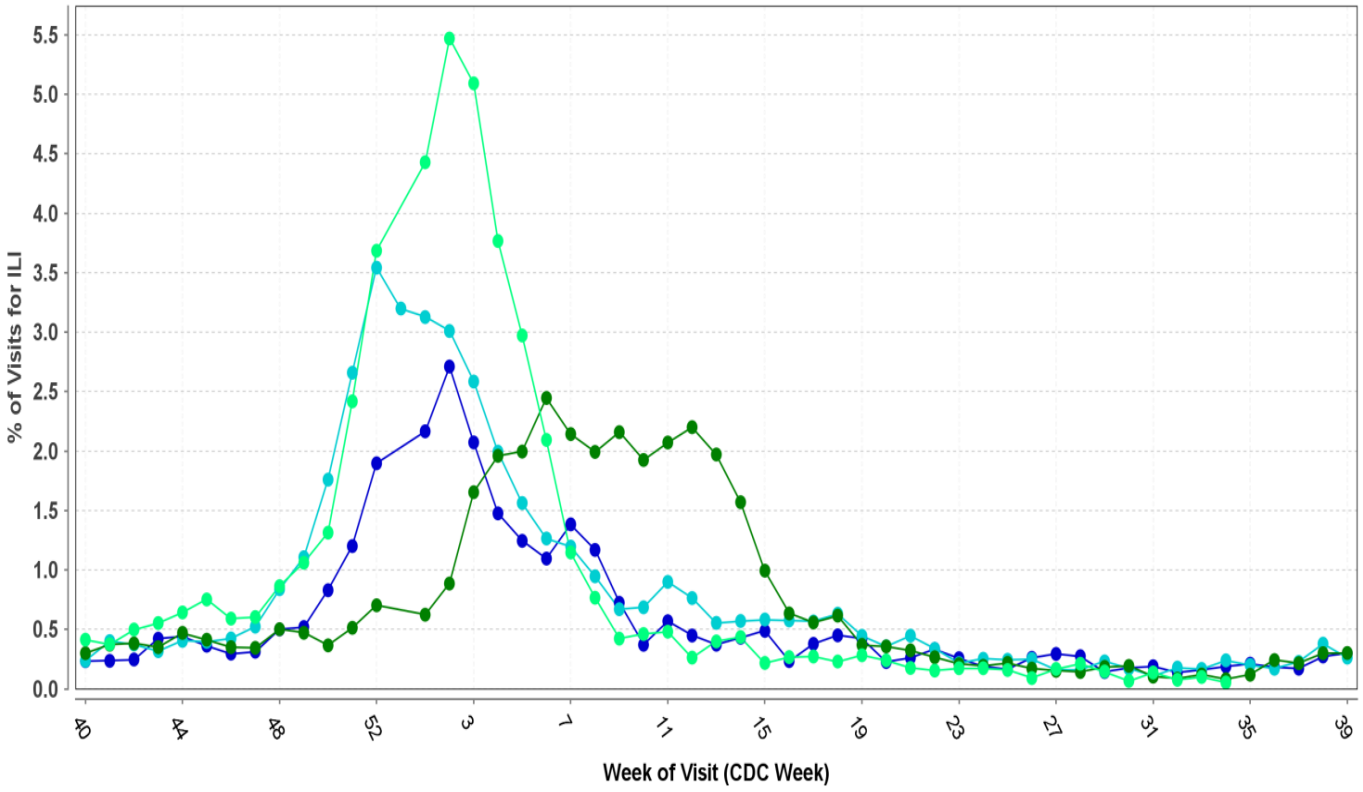
Influenza-like Illness Syndromic Surveillance Data, Western Washington

ESSENCE Syndromic Surveillance Data

Figure 5 shows the proportion of visits at a sample of emergency departments in western Washington for a chief complaint of influenza-like illness, or discharge diagnosis of influenza, by CDC week. For this purpose, ILI is defined as "influenza" or fever with cough and/or sore throat. Syndromic Surveillance ILI data are not available for eastern Washington facilities.

More information about Syndromic Surveillance in Washington state is available here

Figure 5: Syndromic Surveillance, Percentage of Hospital Visits for a Chief Complaint of ILI, or Discharge Diagnosis of Influenza, by CDC Week, Western Washington, 2013-2017



Influenza-like Illness Outbreaks in Long Term Care Facilities

Long term care facilities are required to report all suspected and confirmed outbreaks to their local health jurisdiction per Washington Administrative Code (WAC) 246-101-305. Long-term care facilities are required to report the following:

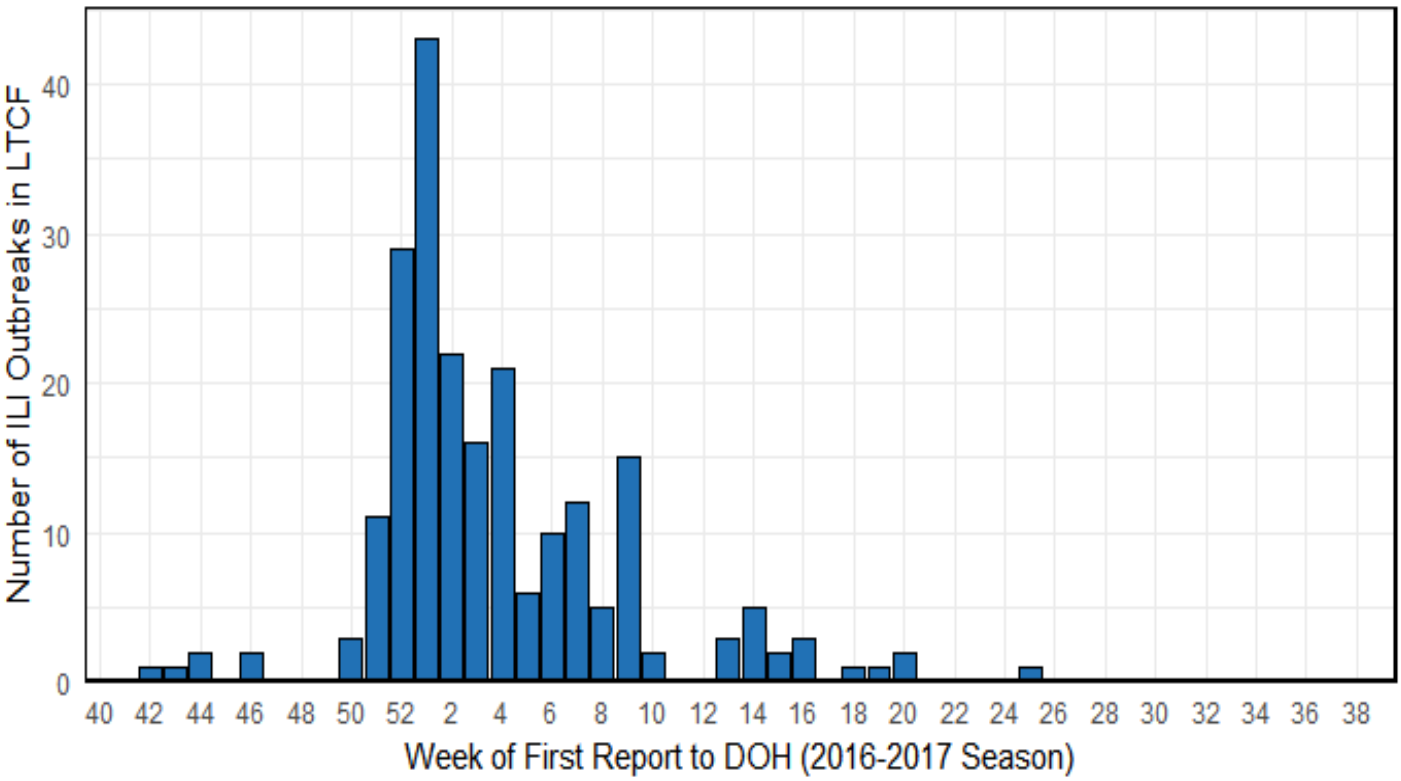
- A sudden increase in acute febrile respiratory illness over the normal background rate (e.g., 2 or more cases of acute respiratory illness occurring within 72 hours of each other) OR
- Any resident who tests positive for influenza

Recommendations for prevention and control of influenza outbreaks in long-term care facilities are available here.

Local health jurisdictions in turn report long-term care facility influenza-like illness outbreaks to the Washington State Department of Health.

Since July 2016, 234 influenza-like illness outbreaks in long-term care facilities have been reported to the Washington State Department of Health.

Figure 6: Influenza-like Illness Outbreaks in Long Term Care Facilities in Washington State, 2016-2017



Reported Laboratory-Confirmed Influenza-Associated Deaths

Reported laboratory-Confirmed Influenza Associated Deaths

Two hundred and seventy six laboratory-confirmed influenza deaths have been reported from week 40 of 2016 through week 32 of 2017: 259 influenza A and 17 influenza B. Most deaths have occurred in people with underlying health conditions, or in people with no pre-existing conditions but who were elderly. Six deaths have occurred in children.

Table 15: Number and Rate of Reported Laboratory-confirmed Influenza-associated deaths by age group, Washington, July 2015 - July 2016

Age Group (in years)	Number of Deaths	Death Rate (per 100,000 population)
0–4	2	0.46
5–24	5	0.28
25–49	15	0.22
50–64	22	1.58
65+	242	25.83
Total	276	4.01

Reported Laboratory-Confirmed Influenza-Associated Deaths, Past Seasons

For reference, lab-confirmed influenza death totals reported to the Department of Health for past seasons are presented below in Table 2. Note that for the purposes of tables 4 and 5, each influenza season runs from week 40 of one year to week 39 of the next (roughly October to October).

Past season summaries are available here.

Note that influenza deaths are likely under-reported. The reasons for this under-reporting vary. Influenza may not be listed as a cause of death, influenza testing may not have occurred in a timely fashion to identify the virus, or may not have been performed at all, and lab-confirmed influenza deaths may not have been appropriately reported to public health. CDC has published information about estimating seasonal influenza-associated deaths here.

Table 16: Number and Rate of Reported Laboratory-confirmed Influenza-associated Deaths by Age Group, Past Season Totals

Season	Count of Deaths for Season
2016-2017, weeks 32 to 40	276
2015-2016, total	67
2014-2015, total	156
2013-2014, total	80
2012-2013, total	54
2011-2012, total	20
2010-2011, total	36

APPENDIX III

State Demographics

Washington State Population Estimates, 1985-2016

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

*State of Washington Office of Financial Management April 1, 2016 Population Trends. Accessed 7/20/2017 from http://www.ofm.wa.gov/pop/april1/poptrends.pdf

Washington State Population Estimates By County, 2016*

Washington State Office of Financial Management

County	Estimate
Adams	19,510
Asotin	22,150
Benton	190,500
Chelan	75,910
Clallam	73,410
Clark	461,010
Columbia	4,050
Cowlitz	104,850
Douglas	40,720
Ferry	7,700
Franklin	88,670
Garfield	2,200
Grant	94,610
Grays Harbor	72,820
Island	82,910
Jefferson	31,090
King	2,105,100
Kitsap	262,590
Kittitas	43,710
Klickitat	21,270
Lewis	76,890
Lincoln	10,640
Mason	62,320
Okanogan	41,730
Pacific	21,180
Pend Oreille	13,290
Pierce	844,490
San Juan	16,320
Skagit	122,270
Skamania	11,500
Snohomish	772,860
Spokane	492,530
Stevens	44,100
Thurston	272,690
Wahkiakum	4,000
Walla Walla	60,730
Whatcom	212,540
Whitman	47,940
Yakima	250,900
State Total	**7,183,700**

*State of Washington Office of Financial Management April 1, 2016 Population Data Table. Accessed 7/20/2017 from http://www.ofm.wa.gov/pop/asr/default.asp

Washington State Population By Age and Sex, 2016*

Washington State Office of Financial Management

Age (years)	Male	Female	TOTAL
0-4	229,049	218,716	447,765
5-9	235,411	224,807	460,218
10-14	228,001	217,851	445,852
15-19	232,720	221,217	453,937
20-24	248,704	236,154	484,858
25-29	253,864	240,377	494,241
30-34	256,852	246,616	503,468
35-39	241,711	235,535	477,246
40-44	224,242	220,298	444,540
45-49	238,332	233,146	471,478
50-54	239,728	240,266	479,994
55-59	243,068	249,230	492,298
60-64	219,938	234,529	454,467
65-69	186,847	201,783	388,630
70-74	125,292	137,671	262,963
75-79	80,559	92,354	172,913
80-84	51,378	65,763	117,141
85 +	48,013	83,678	131,691
TOTAL	3,583,709	3,599,991	7,183,700

*State of Washington Office of Financial Management
April 1, 2016 Population Data Table. Accessed 7/20/2017 from
http://www.ofm.wa.gov/pop/asr/default.asp