

2005

Communicable Disease Surveillance Summary

**Communicable Disease Epidemiology
and Immunization Section**

999 Third Avenue, Suite 500
Seattle, Washington 98104
206-296-4774

Sexually Transmitted Diseases (STD) Program

Harborview Medical Center
325 9th Avenue, PO Box 359777
Seattle, Washington 98104
206-731-3954

Tuberculosis (TB) Clinic

Harborview Medical Center
325 9th Avenue, PO Box 359776
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HIV/AIDS Epidemiology Program

400 Yesler Way, 3rd Floor
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Introduction

Public health surveillance is the ongoing, systematic collection of data regarding health-related events. The analysis, interpretation, and dissemination of this information are used to reduce morbidity and mortality and to improve public health.

Surveillance data can be used for immediate public health action, program planning and evaluation, and formulating research hypotheses. For example, data from a public health surveillance system can be used to:

- Guide investigation and disease control activities for cases of public health importance;
- Measure the burden of a disease (or other health-related event), including changes in causative factors, the identification of populations at high risk, and the identification of new or emerging health concerns;
- Monitor trends in the burden of a disease (or other health-related event), including the detection of epidemics (outbreaks) and pandemics;
- Guide the planning, implementation, and evaluation of programs to prevent and control disease, injury, or adverse exposure;
- Evaluate public policy;
- Detect changes in health practices and the effects of these changes;
- Prioritize the allocation of healthcare resources;
- Describe the clinical course of disease; and
- Provide a basis for epidemiologic research.

This is the third annual surveillance summary to be published in this format containing data from the Communicable Disease Epidemiology and Immunization Section, the Tuberculosis Control Program, and the Sexually Transmitted Diseases Program. Additional information about the content of this report is available from these respective programs. Epidemiological reports on HIV/AIDS are published separately by Public Health's HIV/AIDS Program and are available as quarterly epidemiology reports at:

<http://www.metrokc.gov/health/apu/epi/epipub.htm>

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Definitions of Terms Used in this Report

Bacteremia: The presence of live bacteria in the blood stream.

CDC: Centers for Disease Control and Prevention.

Enteric infection: An infection of the intestinal tract.

Fecal-oral transmission: A means of transmission in which viruses, bacteria, or parasites in the stool of one person are swallowed by another person, causing infection. The risk of fecal-oral transmission is increased by inadequate hand washing (especially prior to food preparation) after activities that involve exposure to stool, such as personal toileting, assisting incontinent children or adults with toileting, diaper changing, and certain sexual practices.

Incidence rate: The number of new cases of a disease in a population over a defined time period. In this report, incidence rate is reported as the number of new cases of disease per 100,000 people per year, using 2005 King County population statistics from the State of Washington Office of Financial Management. The number of children under 12 months of age was estimated by using the proportion of the population under 12 months in the year 2000, the last year for which estimates for this age group are available.

Incubation period: The period between the initial exposure to an infectious agent and the onset of symptoms of disease.

MSM: Men who have sex with men.

Nosocomial: Originating or taking place in a hospital or other health care facility.

Prodrome: Nonspecific symptoms (e.g., fever) that precede the more characteristic symptoms of an illness.

Prophylaxis: Treatment given before or after exposure to an infectious agent to prevent the subsequent occurrence of disease. This can include administration of antibiotics (e.g., pertussis, meningococcal disease), antivirals (e.g., influenza), anti-parasitics (e.g., malaria), immune-globulin (e.g., hepatitis A and B, tetanus, and rabies), or vaccine (e.g., measles and rabies).

Public Health: Refers to Public Health-Seattle & King County. The sections within Public Health that investigate communicable disease include the Sexually Transmitted Disease section, the HIV/AIDS section, the Tuberculosis Program, and the Communicable Disease Epidemiology and Immunization Section.

Public Health Laboratory: Refers to the Public Health-Seattle & King County Laboratory located at 325 Ninth Avenue, Seattle, Washington 98104.

Public Health Contact Numbers

	Phone	Fax
24-Hour Disease Report Line (voice mail): For reporting ONLY non-immediately notifiable conditions	(206) 296-4782	
All other notifiable communicable diseases (daytime and after hours)	(206) 296-4774	(206) 296-4803
HIV/AIDS Program	(206) 296-4645	(206) 205-5281
Public Health Laboratory	(206) 731-8950	
Sexually Transmitted Diseases Report Fax Line		(206) 731-5622
Tuberculosis Clinic and Report Line (daytime and after hours)	(206) 731-4579	(206) 731-4350

Notifiable Communicable Disease Conditions in Washington State

Notification Timeframes, and Specimen Submission Requirements
 for Health care professionals and Laboratories

Notifiable Condition	Notifiable by Health Care Provider	Notifiable by Laboratory	Specimen Submission Required
Acquired Immunodeficiency Syndrome (AIDS)	Within 3 work days		
Animal Bites	Immediately		
Arboviral disease	Within 3 work days	Within 2 work days	
Botulism (Foodborne)	Immediately	Immediately	Serum and Stool - If available, submit suspect food (2 days)
Botulism (Infant)	Immediately	Immediately	Stool (2 days)
Botulism (Wound)	Immediately	Immediately	Culture, Serum, Debrided tissue, or Swab sample (2 days)
Brucellosis (Brucella species)	Immediately	Within 2 work days	Culture (2 days)
CD4+ (T4) lymphocyte counts less than 200 or 14%		Monthly	
Campylobacteriosis	Within 3 work days		
Chancroid	Within 3 work days		
<i>Chlamydia trachomatis</i> infection	Within 3 work days	Within 2 work days	
Cholera	Immediately	Immediately	Culture (2 days)
Cryptosporidiosis	Within 3 work days	Within 2 work days	
Cyclosporiasis	Within 3 work days	Within 2 work days	Specimen (2 days)
Diphtheria	Immediately	Within 2 work days	Culture (2 days)
Disease of Suspected Bioterrorism Origin:			
Anthrax	Immediately	Immediately	Culture (2 days)
Smallpox	Immediately	Immediately	Consult with Public Health
Disease of Suspected Foodborne Origin (clusters only)	Immediately		
Disease of Suspected Waterborne Origin (clusters only)	Immediately		
Enterohemorrhagic <i>E. coli</i> , including <i>E. coli</i> O157:H7 infection	Immediately	Within 2 work days	Culture (2 days)
Gonorrhea	Within 3 work days	Within 2 work days	
Granuloma Inguinale	Within 3 work days		
<i>Haemophilus influenzae</i> invasive disease (under age 5 years, excluding otitis media)	Immediately		
Hantavirus Pulmonary Syndrome	Within 3 work days		
Hemolytic Uremic Syndrome	Immediately		
Hepatitis A	Immediately	IgM Positive, Within 2 work days	
Hepatitis B (acute)	Within 3 work days	Monthly	
Hepatitis B surface antigen+ in pregnant women	Within 3 work days	Monthly	
Hepatitis B (chronic) Initial diagnosis, and previously unreported prevalent cases	Monthly	Monthly	
Hepatitis C (acute and chronic)	Monthly	Monthly	
Hepatitis, unspecified (infectious)	Within 3 work days		

Notifiable Communicable Disease List, Continued			
Notifiable Condition	Notifiable by Health Care Provider	Notifiable by Laboratory	Specimen Submission Required
Herpes simplex, neonatal and genital (initial infections only)	Within 3 work days		
Human immunodeficiency virus (HIV) infection (Western Blot assays, P24 antigen or viral culture)	Within 3 work days	Within 2 work days	
Human immunodeficiency virus (HIV) infection (RNA or DNA nucleic acid tests)		Monthly	
Immunization reactions, severe, adverse	Within 3 work days		
Legionellosis	Within 3 work days		
Leptospirosis	Within 3 work days		
Listeriosis	Immediately	Within 2 work days	
Lyme Disease	Within 3 work days		
Measles (rubeola)	Immediately	Immediately	Serum (2 days)
Meningococcal disease	Immediately	Within 2 work days	Culture from blood/CSF, or other sterile sites (2 days)
Paralytic Shellfish Poisoning	Immediately		
Pertussis	Immediately	Within 2 work days	
Plague	Immediately	Immediately	Culture or appropriate clinical material (2 days)
Poliomyelitis	Immediately		
Psittacosis	Within 3 work days		
Q Fever	Within 3 work days		
Rabies post-exposure prophylaxis	Immediately	Immediately	Tissue or other appropriate clinical material (upon request only)
Relapsing Fever	Immediately		
Rubella (including congenital rubella syndrome)	Immediately		
Salmonellosis (including typhoid fever)	Immediately	Within 2 work days	Culture (2 days)
Shigellosis	Immediately	Within 2 work days	Culture (2 days)
Syphilis (including congenital)	Within 3 work days		Serum (2 days)
Tetanus	Within 3 work days		
Trichinosis	Within 3 work days		
Tuberculosis	Immediately	Within 2 work days	Culture (2 days)
Tuberculosis (Antibiotic sensitivity for first isolates only)		Within 2 work days	
Tularemia	Within 3 work days		Culture or appropriate clinical material (2 days)
Typhus	Immediately		
Vibriosis	Within 3 work days		
Yellow Fever	Immediately		
Yersiniosis	Within 3 work days		
Other rare diseases of public health significance	Immediately	Immediately	
Unexplained critical illness or death	Immediately		

Reported Notifiable Condition Table: 2000 to 2005

Disease	2000	2001	2002	2003	2004	2005
Animal Bites and other Potential Rabies Exposures	NR	NR	NR	106	223	430
Botulism, Infant	1	1	0	1	0	0
Botulism, Foodborne	0	0	0	0	0	0
Botulism, Wound	0	0	0	0	1	0
Brucellosis	0	0	0	1	0	0
Campylobacteriosis	320	325	300	262	264	337
Chlamydia	4,495	4,295	4,471	5,189	5,428	5,520
Cholera	0	1	1	1	0	0
Cryptosporidiosis	5	29	34	38	34	69
Cyclosporiasis	0	5	5	1	9	5
Diphtheria	0	0	0	0	0	0
Encephalitis (Viral)	2	2	12	5	12	*NR
Enterohemorrhagic <i>E. Coli</i> (including <i>E. coli</i> O157:H7)	60	36	32	43	42	45
Giardiasis	229	150	171	124	126	144
Gonorrhea	1,222	1,556	1,462	1,349	1,286	1,769
<i>Haemophilus influenzae</i> invasive disease (under age 5 years)	0	0	1	2	2	2
Hantavirus Pulmonary Syndrome	0	0	0	1	0	0
Hepatitis A	98	28	32	30	14	17
Hepatitis B, Acute	42	36	31	34	23	23
Hepatitis B, Chronic	398	629	585	526	632	692
Hepatitis C, Chronic (Probable or Confirmed)	775	1,314	1,417	758	1,285	1,331
Hepatitis C, Chronic (Possible)	577	639	507	343	359	394
Hepatitis C, Acute	13	9	12	8	10	10
HIV/AIDS (new AIDS cases)	242	320	278	328	252	247
Legionellosis	4	4	3	2	7	8
Leptospirosis	1	2	0	1	0	1
Listeriosis	8	4	4	6	4	3
Lyme disease	3	2	6	2	10	6
Malaria	20	9	15	16	12	12
Measles	2	12	0	0	6	1
Meningococcal Disease	17	13	21	6	18	15
Mumps	9	1	0	0	1	1
Paralytic Shellfish Poisoning	0	0	0	0	0	0
Pertussis	207	39	156	280	201	318
Psittacosis	0	0	0	0	0	0
Q Fever	0	0	0	0	0	0
Relapsing Fever	1	0	5	2	1	0
Rubella	2	0	2	0	0	1
Salmonellosis	205	260	212	243	234	218
Shigellosis	156	111	86	88	63	72
Streptococcal Group A Invasive Disease	4	36	41	35	26	*NR
Syphilis	117	110	96	84	166	188
Tetanus	0	0	0	0	0	1
Trichinosis	1	0	0	0	0	0
Tuberculosis	127	139	158	155	133	127
Tularemia	0	0	0	1	0	1
Typhoid Fever	3	4	4	2	4	7
Vibriosis	7	5	13	7	8	8
Yersiniosis	20	17	12	10	15	9
Total	9,393	10,143	10,185	10,090	10,911	12,032

* Not reportable in 2005.

Animal Bites and Other Potential Rabies Exposures

Disease Reporting Requirements

Health care professionals: Immediately report animal bites from potentially rabid animals, and all bat exposures to Public Health.

Laboratories: No requirement.

Purpose of Surveillance:

- To prevent rabies in humans.
- To identify persons potentially exposed to rabies, and to assure appropriate evaluation and treatment if necessary.
- To assure that potentially rabid animals are managed appropriately.
- To identify and eliminate preventable sources of rabies transmission.

Definition of Human Exposure to Rabies:

Any bite, scratch, or other situation in which saliva or central nervous system (CNS) tissue of a potentially rabid animal could have entered an open or fresh wound or come in contact with a mucous membrane by entering the eye, mouth or nose. Touching or handling a potentially rabid animal does not constitute an exposure unless wet saliva or CNS tissue entered a wound or had contact with a mucous membrane. Handling an inanimate object that has had contact with a rabid animal does not constitute an exposure. Likewise, contact with urine, feces, or blood of a potentially rabid animal does not constitute an exposure since rabies virus is primarily found in nerve tissue and saliva.

In 2005, a total of 430 animal bites, bat exposures or other exposures were reported to Public Health. Three hundred and twelve of these were determined to be potential rabies exposures. Seventy exposed persons required rabies post-exposure prophylaxis (PEP) because either (1) the animal could not be watched for signs of illness for 10 days (such monitoring is only appropriate for dogs, cats or ferrets), (2) the animal or bat was not available for testing, or (3) the animal or bat tested positive for rabies.

Thirty six (51%) of the 70 rabies PEP recommendations resulted from exposures within King County to bats (26), raccoons (7), or dogs (2). Rabies PEP was recommended for one King County case after a laboratory exposure to rabies virus. Of the remaining 34 exposures (49%) resulting in PEP, 12 were dog bites that occurred in China (1), Vietnam (1), Nigeria (1), Costa Rica (2), Ecuador (1), Peru (1), Israel (1), Mexico (1), Thailand (1) and Louisiana (2). Eighteen exposures outside of King County were attributed to bats, 12 of which occurred within Washington State, and 6 of which occurred in other U.S. states. The remaining exposures outside of King County were attributed

to a monkey (1), cats (2), and contact with a human case of rabies (1).

The majority of animal bites that were determined not to be potential rabies exposures were provoked bites from cats, dogs, squirrels, and rats. Bites and possible exposures to rabies are most often reported during the summer months when the number of exposures to bats increases.

Animal Bites and Other Potential Rabies Exposures

2005 Potential Rabies Exposures and Recommendations for Rabies Post-Exposure Prophylaxis (PEP)

Animal	PEP Recommended*		PEP Not Recommended		Total
	No Animal Available for Testing or Quarantine	Animal Tested Positive for Rabies	Animal Survived Quarantine	Animal Tested Negative for Rabies	
Bat	42	2	—	29	
Cat	2	0	30	12	
Dog	14	0	151	8	
Ferret	0	0	0	2	
Monkey	1	0	—	0	
Rabbit	0	0	—	7	
Raccoon	7	0	—	0	
Total	66	2	181	58	312[‡]

* One health care provider was recommended to receive rabies PEP after having direct contact with a human case of rabies and one laboratory worker was recommended to receive rabies PEP after a laboratory exposure to rabies.

‡ Three dog bite cases were lost to follow-up.

Bioterrorism— Diseases of Suspected Bioterrorism Origin

Disease Reporting Requirements

Health care professionals: Report diseases of suspected bioterrorism origin to Public Health immediately.

Laboratories: Report the receipt of any specimen in which the health care professional asks that an agent of possible bioterrorism be ruled out. For instance, report immediately any specimen labeled by the health care professional “rule out *Bacillus anthracis*,” or “rule out variola virus.” Report confirmed or suspected *Brucella*, *Bacillus anthracis*, *Francisella tularensis*, *Yersinia pestis* and variola virus immediately. Consult with Public Health before transporting such specimens to the Public Health Laboratory.

Purpose of Surveillance:

- To identify illnesses caused by the intentional release of a bioterrorism agent.

Since January of 2001, diseases of suspected bioterrorism origin have been notifiable in Washington State. This disease category includes, but is not limited to anthrax, brucellosis, Q fever, hemorrhagic fevers, plague, smallpox and tularemia. Clinicians practicing in the community should be alert to any diseases of suspected bioterrorism origin and report them immediately. There have been no reports of diseases of suspected bioterrorism origin in 2005.

Some epidemiologic clues that a biologic or chemical attack has occurred:

- 1) Large numbers of ill persons with a similar disease or syndrome.
- 2) An increase in unexplained diseases or deaths.
- 3) Unusual illness in a population (e.g., renal disease in a large population may suggest exposure to a toxic agent such as mercury).
- 4) Higher than expected morbidity and mortality in association with a common disease or syndrome, or failure of such patients to respond to usual therapy.
- 5) A single case of a disease caused by an uncommon agent (e.g., *Burkholderia mallei* or *pseudomallei*, smallpox, viral hemorrhagic fever, pulmonary anthrax).
- 6) Several unusual or unexplained diseases coexisting in the same patient without any other explanation.
- 7) Disease with an unusual geographic or seasonal distribution (e.g., tularemia in a non-endemic area, influenza in the summer).
- 8) Illness that is unusual (or atypical) for a given population or age group (e.g., outbreak of atypical varicella-like rash in adults).
- 9) Unusual disease presentation (e.g., pulmonary instead of cutaneous anthrax).
- 10) Similar genetic type among agents isolated from distinct sources at different times and locations.
- 11) Unusual, atypical, genetically engineered, or antiquated strain of an agent or antibiotic resistance pattern.
- 12) Stable endemic disease with an unexplained increase in incidence (e.g., tularemia, relapsing fever).
- 13) Simultaneous clusters of similar illness in noncontiguous domestic or foreign areas.
- 14) Atypical disease transmission through aerosols, food, or water, which suggests deliberate sabotage.
- 15) Ill persons who seek treatment at about the same time (point source with compressed epidemic curve).
- 16) No illness in persons who have separate, closed ventilation systems when illness is seen in persons in close proximity who have a common ventilation system.
- 17) Unusual pattern of death or illness among animals, (which may be unexplained or attributed to an agent of bioterrorism) that precedes or accompanies illness or death in humans.

Bioterrorism— Diseases of Suspected Bioterrorism Origin

Symptoms and Clinical Findings in Diseases of Possible Bioterrorism Origin

Agent	Disease	Symptoms and Clinical Findings
<i>Bacillus anthracis</i>	Inhalation Anthrax	Fever, malaise, cough and mild chest discomfort progressing to severe respiratory distress with dyspnea, diaphoresis, stridor, cyanosis and shock. X-ray may show mediastinal widening.
<i>Yersinia pestis</i>	Pneumonic Plague	High fever, chills, headache, followed by cough (often with hemoptysis) progressing rapidly to dyspnea, stridor, cyanosis and death. GI symptoms are also often present.
<i>Coxiella burnetii</i>	Q fever	Fever, cough and pleuritic chest pain.
<i>Francisella tularensis</i>	Typhoidal Tularemia	Fever, headache, malaise, substernal discomfort, prostration, weight loss and non-productive cough.
Variola Virus	Smallpox	Prodrome of malaise, fever, rigors, vomiting, headache and backache. Two to three days later, macular lesions quickly progress to papular and then pustular lesions. Lesions develop synchronously and are more abundant on the extremities, helping to differentiate it from rash due to varicella.
Various	Hemorrhagic Fever	Variable: Fever, flushing of the face and chest, petechiae, bleeding, edema, hypotension and shock; may include malaise, myalgias, headache, vomiting and diarrhea.
<i>Clostridium botulinum</i> toxin	Inhalation Botulism	Cranial nerve palsies including ptosis, blurred vision, diplopia, dysphonia, dysphagia followed by symmetrical descending flaccid paralysis.

Botulism

Disease Reporting Requirements

Health care professionals: Report suspected cases immediately.

Laboratories: Report immediately and submit appropriate specimens to the Public Health Laboratory.

Purpose of Surveillance:

- To confirm suspected cases and identify common source outbreaks.
- To promptly identify cases and potentially exposed persons requiring medical evaluation, monitoring and/or treatment, including therapy with botulinum antitoxin.
- To identify and remove contaminated food products that could cause further cases of foodborne botulism.

Spores from *Clostridium botulinum* are found worldwide in soil, agricultural products, and animal intestinal tracts. Neurotoxins produced by the bacterium cause three forms of botulism: infant, foodborne, and wound botulism. Public Health is the community resource for obtaining both botulinum antitoxin through the CDC (for treatment of probable or confirmed cases of foodborne or wound botulism), and botulism immune globulin through the California Department of Health Services Infant Botulism program (for treatment of infant botulism).

Foodborne botulism results from eating improperly handled or preserved food contaminated with the spores of *Clostridium botulinum*. In a low-oxygen environment, the spores germinate and produce the botulinum toxin. Improperly home-canned foods, especially foods that are low in acid, such as green beans, are frequently implicated. Botulism has also occurred with commercial products, and in items such as foil-wrapped baked potatoes, sautéed onions, and cured foods in airtight packaging. Treatment is supportive care and early administration of botulinum toxin. With treatment, the mortality rate for foodborne botulism is 5-10%. Testing and botulinum antitoxin can be obtained by reporting suspected cases to Public Health.

There have been no cases of foodborne botulism reported in King County since 1993, when three cases occurred which were associated with home-canned beets.

Infant botulism is the most common form of botulism reported in the United States. Infant botulism occurs when an individual ingests *Clostridium botulinum* spores that germinate and

colonize the intestines, releasing toxin upon growth. As the name indicates, infant botulism occurs almost exclusively in children under one year of age due to the low acidity of their gastrointestinal tracts; however, there have been documented cases in adults who have altered gastrointestinal anatomy and microflora. Raw honey has been implicated in some cases of infant botulism.

Symptoms usually begin with constipation followed by lethargy, difficulty swallowing, and weakness (a.k.a. “floppy baby”). Currently, human-derived botulinum antitoxin for treatment of infants is available through a California Department of Health Services protocol. Stool and sera should be submitted for diagnostic testing on suspected cases.

Infant botulism is rare in King County. Since 1993, there have been five reported cases of infant botulism. No source of exposure was determined for any of these cases. No cases of infant botulism or adult intestinal botulism were reported in King County in 2005.

Wound botulism occurs when *Clostridium botulinum* infects a wound or sinus cavity. Symptoms are similar to those seen in foodborne botulism, but gastrointestinal symptoms are generally absent. The treatment for wound botulism is the same as for foodborne botulism. Outbreaks have occurred among persons who used illicit drugs. Recent cases in Washington State have been associated with injection of “black tar” heroin. There have been 12 total cases of wound botulism reported in Washington State since 1999. There was one reported case of wound botulism in King County in 2004, in a person who reported injecting “black tar” heroin. There were no reported cases of wound botulism in 2005.

Brucellosis

Disease Reporting Requirements

Health care professionals: Report suspected cases immediately.

Laboratories: Report within two working days, and submit isolate to the Public Health Laboratory. Consult the Public Health Laboratory before transporting isolates because special precautions should be taken to prevent transmission to laboratory workers.

Purpose of Surveillance:

- To identify naturally occurring cases of brucellosis and common source outbreaks for investigation.
- To identify and eliminate sources of transmission.
- To identify cases resulting from a bioterrorism attack.

Brucellosis is caused by the bacteria of the genus *Brucella*. These bacteria cause disease in many different mammals, especially sheep, goats, and cattle. Humans become infected by coming in contact with infected animals or contaminated animal products. In humans, brucellosis can cause a range of nonspecific symptoms including fever, sweats, headaches, back pain, and physical weakness. Brucellosis can also cause chronic, recurrent fevers, joint pain, and fatigue. Diagnosis of brucellosis is usually by detecting a rise in serum antibody titer in acute and convalescent sera.

In the United States, 100 to 200 brucellosis cases are reported each year. Because small amounts of aerosolized bacteria can cause disease, *Brucella* is considered a potential agent of bioterrorism.

Since 1994, there have been six cases of brucellosis reported in King County. One case of brucellosis in an African immigrant was reported in 2003. No cases of brucellosis were reported in 2005.

Campylobacteriosis

Disease Reporting Requirements

Health care professionals: Report within three working days of diagnosis.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify common source outbreaks for investigation.
- To identify and eliminate sources of transmission including contaminated food and water.

C*ampylobacter* is the most commonly reported bacterial cause of diarrheal illness in the United States. Campylobacteriosis is an acute infection that normally lasts from 2 to 5 days, rarely longer than 10 days. Symptoms are diarrhea (sometimes bloody), abdominal cramps, fever, nausea, and vomiting. Several species cause disease in humans, with the most prevalent being *Campylobacter jejuni*. Rare post-infectious complications include reactive arthritis and Guillain-Barré syndrome. Other serotypes, such as *C. coli* and *C. lari*, are associated with bloodstream infections among the elderly and immunocompromised.

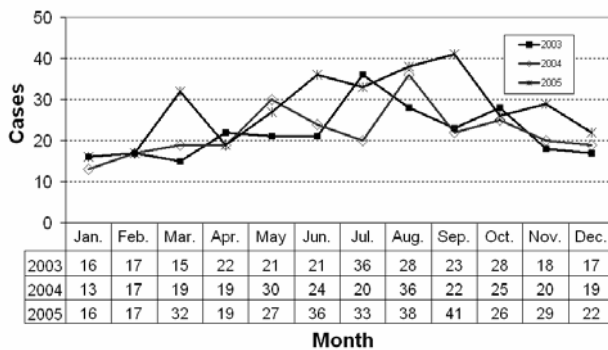
Most cases of campylobacteriosis occur as sporadic events associated with consumption of undercooked meat (especially poultry) or ready-to-eat foods that have been cross-contaminated with juices from raw meat. Person-to-person transmission is uncommon. Large outbreaks due to *Campylobacter* are usually related to consumption of contaminated water or unpasteurized milk or cheese. Humans can become infected after contact with infected pets, especially puppies and kittens. Campylobacteriosis is common in the developing world, and travelers to foreign countries are at risk for infection.

In 2005, 336 cases of campylobacteriosis were reported, for an incidence rate in King County of 18.6 cases per 100,000 persons. Approximately 50% of isolates were serotyped and *C. jejuni* accounted for over 99% of typed isolates.

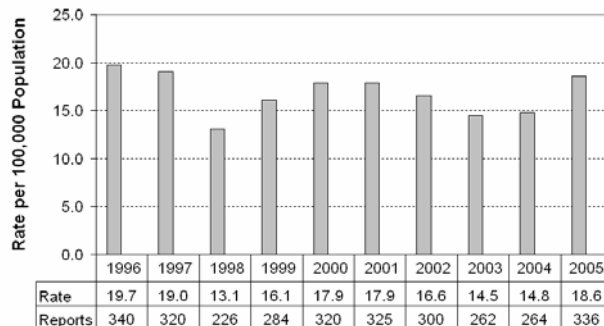
An outbreak of campylobacteriosis associated with a class camping trip to a private farm on Vashon Island occurred in May 2005. No specific source was identified, but high risk activities included consuming raw milk products and contact with farm animals and their fecal matter. There were 4 confirmed and 10 probable cases of

campylobacteriosis identified in this outbreak. Another outbreak of campylobacteriosis occurred between July and September 2005. This outbreak was associated with consumption of chicken liver paté at a Seattle restaurant, though the paté had been cooked to at least 165° F, which should have inactivated *Campylobacter*. There were 7 confirmed cases associated with this outbreak; 5 were King County residents and 2 resided outside King County.

**Campylobacteriosis by Month of Onset
2003 - 2005**



**Campylobacteriosis Rates by Year
1996 - 2005**



Cholera

Disease Reporting Requirements

Health care professionals: Report suspected cases immediately.

Laboratories: Report immediately and submit isolate to the Public Health Laboratory within two days.

Purpose of Surveillance:

- To identify cases and common source outbreaks for investigation.
- To identify and eliminate sources of transmission including contaminated food and water.

Cholera, a severe and potentially fatal diarrheal disease, is caused by infection with certain toxin-producing strains of *Vibrio cholera* (serogroups O1 and O139). Eating undercooked or raw shellfish, especially when traveling in the developing world, is the main risk for acquiring cholera. Failure to keep shellfish cold after harvesting can contribute to bacterial growth.

There has been one case of cholera reported each year for the years 2001, 2002, and 2003, all associated with international travel. There were no cases reported in 2005.

Cryptosporidiosis

Disease Reporting Requirements

Health care professionals: Report within three working days of diagnosis.

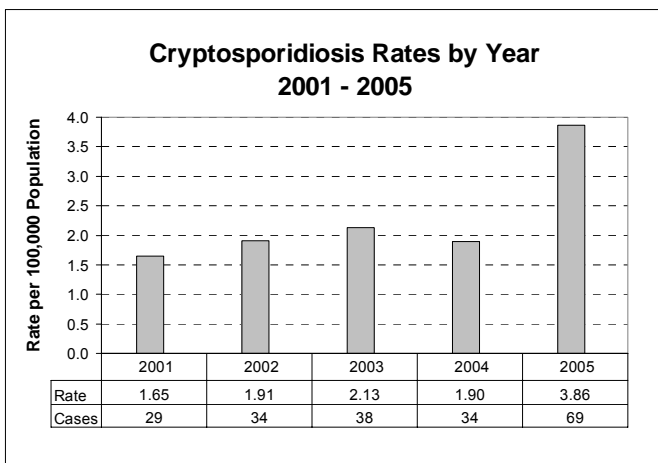
Laboratories: Report within two working days.

Purpose of Surveillance:

- To identify common source outbreaks for investigation.
- To identify and eliminate sources of transmission including contaminated food and water.

Infection with *Cryptosporidium parvum*, a protozoan organism, can cause fever, nausea, cramps, bloating, and watery diarrhea. Illness may last one to 14 days, but much more severe and prolonged illness occurs in immunocompromised individuals. Exposure is through the fecal-oral route, and may be due to exposure to untreated surface water, livestock, wild animals, pets, contaminated swimming pools or person-to-person transmission. Boiling water for at least one minute kills the parasite, but chlorination will not. Most swimming pool filters do not remove *Cryptosporidia*, and exposures to contaminated pools have caused large outbreaks of cryptosporidiosis.

Cryptosporidiosis became a reportable disease in Washington State in December of 2000. Thirty-eight cases were reported in 2003, 34 cases in 2004, and 69 cases were reported in 2005. This increase in the number of cryptosporidium cases in 2005 was also seen in other large metropolitan counties within Washington State, and coincides with the commencement of cryptosporidium testing at a local commercial laboratory. Since no clusters of illness or common risk factors were identified, it is likely that the increase in incidence is probably due to better detection and reporting of the organism.



Cyclosporiasis

Disease Reporting Requirements

Health care professionals: Report within three working days of diagnosis.

Laboratories: Report within two working days and submit specimen to the Public Health Laboratory.

Purpose of Surveillance:

- To identify common source outbreaks for investigation.
- To identify and eliminate sources of transmission including contaminated food or water.

Infection with the parasite *Cyclospora cayetanensis* causes persistent, watery diarrhea, nausea, fatigue, and weight loss. The incubation period for cyclosporiasis is about one week. Because *Cyclospora cayetanensis* must mature outside the human host for approximately one week before it can cause infection, cyclosporiasis cannot be spread directly from person to person. Cyclosporiasis is primarily waterborne, but may also be foodborne. It has been most often associated with consumption of imported berries and herbs that were sprayed with contaminated water.

Cyclosporiasis became reportable in Washington State in December of 2000. There were 5 reported cases of cyclosporiasis in both 2001 and 2002, one case in 2003, 5 cases in 2004, and 5 cases in 2005.

Diphtheria

Disease Reporting Requirements

Health care professionals: Report suspected cases immediately.

Laboratories: Report within two days and submit isolate to the Public Health Laboratory.

Purpose of Surveillance:

- To facilitate appropriate treatment of cases, disease control measures, and preventive treatment for contacts of cases.
- To identify other exposed persons at risk for diphtheria.

Diphtheria is an acute, toxin-mediated disease caused by infection with *Corynebacterium diphtheriae*. Diphtheria primarily involves the tonsils, pharynx, larynx, and nose. However, occasionally skin or membranes in other parts of the body, including the conjunctivae or vagina can be affected. A characteristic feature of pharyngeal diphtheria is an asymmetric, adherent, grayish-white membrane, with surrounding inflammation. Myocarditis with heart block and progressive, congestive heart failure may occur approximately one week after onset. Late complications include paralysis that can mimic Guillain-Barré syndrome. Mortality rates for non-cutaneous diphtheria are 5% - 10%. The lesions of cutaneous diphtheria vary, and may look very much like impetigo. Strains of *Corynebacterium diphtheriae* in cutaneous lesions are not usually toxin-producing.

There have been no reported cases of toxigenic diphtheria in Washington State for many years.

Encephalitis (Viral)

Disease Reporting Requirements

Health care professionals: Arboviral disease (Arthropod-borne virus) is reportable within three working days. As of February 14, 2005, viral encephalitis as a class is no longer reportable. However, arboviral encephalitis is still a notifiable condition. This includes Western equine encephalitis (WEE), Eastern equine encephalitis (EEE), St. Louis Encephalitis (SLE), West Nile Virus (WNV), Venezuelan equine encephalitis (VEE), Japanese Encephalitis (JE), La Crosse encephalitis, Dengue, and Yellow Fever.

Laboratories: No requirement, but voluntary reporting is encouraged.

Purpose of Surveillance:

- To identify cases and outbreaks, and monitor the extent of illness due to the agents of viral encephalitis.
- To detect locally acquired cases of WNV as soon as possible.
- To implement appropriate disease control activities to interrupt transmission of infection.
- To facilitate appropriate diagnostic testing.

Western equine encephalitis (WEE), St. Louis encephalitis (SLE), and West Nile virus (WNV) are viral diseases found in Washington State and transmitted from infected wild birds and small mammals to humans by certain species of mosquitoes. Typically there is no direct person-to-person transmission; however, in rare cases, WNV has been spread through blood transfusions, organ transplants, breastfeeding and perinatally.

The majority of persons infected with these viruses are asymptomatic. Mild cases are characterized by low-grade fevers, headache, and body aches. More severe infections are characterized by neurological symptoms.

In 2005, WNV was not detected in humans, mosquitoes, birds or other animals in King County.

Another arboviral infection is dengue fever, which is associated with travel to tropical regions of the world. In 2005, there were 3 cases of dengue fever reported in King County residents—all had a history of travel to either Mexico or Central America.

In 2005, 4 King County residents were reported with encephalitis potentially due to arboviral infection; however, none had laboratory testing consistent with arboviral infection.

No cases of WEE have been reported in Washington since 1988. No human cases of SLE have been reported in Washington since 1972.

Enterohemorrhagic *E. Coli*, including O157:H7

Disease Reporting Requirements

Health care professionals: Report suspected cases immediately.

Laboratories: Report within two working days, and submit isolate to the Public Health Laboratory.

Purpose of Surveillance:

- To identify sporadic cases and common source outbreaks for investigation.
- Implement disease control measures to prevent continued spread of the infection.
- To identify and eliminate sources of transmission including contaminated food and water.

Infections with *E. coli* O157:H7 and other Enterohemorrhagic *Escherichia coli* (EHEC) strains are characterized by diarrhea, abdominal cramps, and little or no fever. The diarrhea ranges from mild and non-bloody, to diarrhea with stools that appear to be mostly blood. The incubation period for EHEC including *E. coli* O157:H7 is typically 3 to 5 days, but can range from 1 to 8 days.

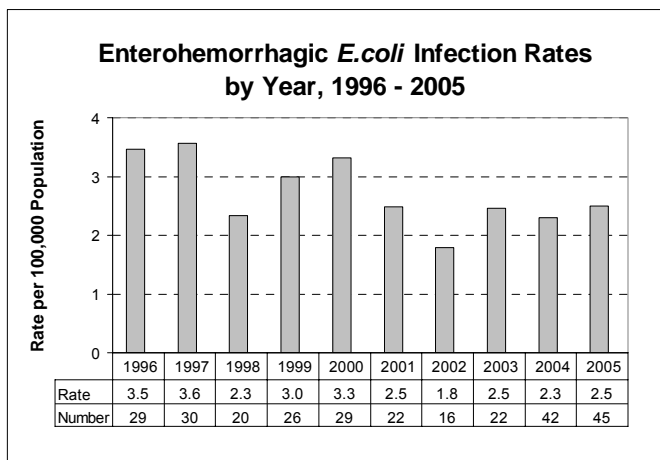
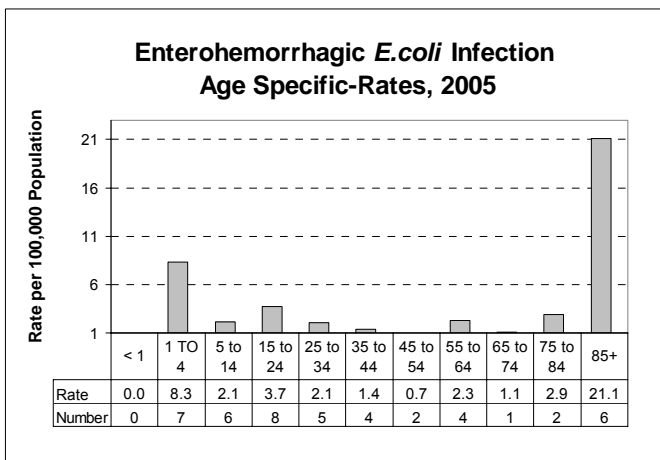
The most commonly reported EHEC strain in Washington State is *E. coli* O157:H7, for which cattle are the primary reservoir. Sources of transmission include consumption of undercooked, contaminated ground beef and other beef products; unpasteurized milk, cheese, and juice; contaminated raw fruits, vegetables, and herbs; water contaminated with animal feces; direct contact with farm animals; and swimming or playing in contaminated lakes and pools. Person-to-person transmission can occur within households, child daycare centers, and long-term care facilities.

EHEC strains produce a Shiga toxin that contributes to the sometimes life-threatening complications of infection in humans. Such complications include hemolytic uremic syndrome (HUS) and renal failure, which occur in 10% of infected children under 11 years of age, and in 2 - 7% of cases overall. It is estimated that about 90% of HUS cases in the United States are caused by infection with EHEC.

In 2005, there were 45 cases of EHEC reported in King County; 38 of these were caused by O157:H7 and 7 were caused by non-O157 strains of EHEC. One case of HUS was reported in a child from whom no bacterial pathogen was isolated. Two-thirds of reported EHEC cases occurred among females, and incidence rates were highest for

children under the age of 5 and adults aged 85 years and older.

Three restaurant-associated clusters were identified in 2005. Each of these was most likely associated with consumption of contaminated produce. One long-term care facility outbreak that affected 11 residents and 3 staff occurred in the fall of 2005, and included one fatality. No definitive cause of illness was identified, though on-site contamination of food items was a suspected source.



Foodborne Illness

Disease Reporting Requirements

Health care professionals: Report cases and clusters of suspect foodborne illness immediately.

Laboratories: No requirement.

Purpose of Surveillance:

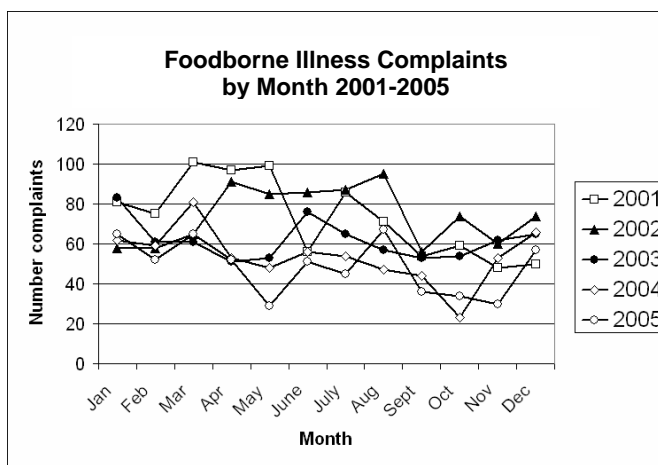
- To identify outbreaks for investigation.
- To identify and eliminate sources of transmission including contaminated food and water.

Foodborne illness investigations are initiated in response to reports of suspected foodborne illnesses by citizens, health care professionals, and restaurants. Foodborne illness reports are evaluated to determine the likelihood that the reported illnesses are associated with food consumption.

Public Health received 583 foodborne illness complaints in 2005 and 18 of these were determined to be probable or confirmed foodborne disease outbreaks. Outbreaks classified as "confirmed" cases must be laboratory confirmed, whereas outbreaks classified as "probable" lack supporting laboratory evidence. Both confirmed and probable outbreaks require either evidence of food handling violations from an environmental investigation or strong epidemiologic evidence of an outbreak.

The largest outbreak of the year was a suspected norovirus outbreak associated with raw oysters consumed at a single restaurant on a single day. An estimated 49 out of 270 guests became ill and three people tested positive for norovirus. No single type of oyster was implicated in the outbreak.

The second largest outbreak identified occurred on a charter cruise ship. Twenty-four out of 130 people became ill with a norovirus-like illness. Norovirus testing was not conducted. No single suspect food item was identified.



Giardiasis

Disease Reporting Requirements

Health care professionals: Report within three working days of diagnosis.

Laboratories: No requirement.

Purpose of Surveillance:

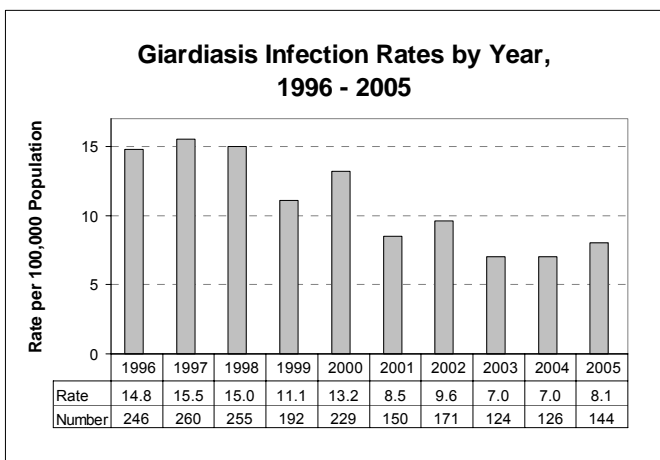
- To identify common source outbreaks for investigation.
- To identify and eliminate sources of transmission including contaminated food and water.
- To identify cases associated with child-care centers to control spread of infection.

G*iardia lamblia* is a flagellate protozoan widely found in nature that infects the upper small intestine of humans and other mammals, especially beavers, puppies, cats, and kittens. Severity of disease ranges from asymptomatic to an acute or chronic gastrointestinal illness with diarrhea, cramps, bloating, steatorrhea (oily stools), fatigue, and weight loss. Untreated, the illness can last weeks to months. Some individuals, particularly immigrants from developing countries, are chronic carriers. Serious complications may include malabsorption which causes failure to thrive, a complication most commonly seen in children.

The incubation period can vary from 5 days to more than 25 days, though the average incubation period is 7 to 10 days. Persons with giardiasis shed cysts in their stool and are infectious for the entire period of their illness. Fecal-oral transmission can occur in child-care centers, households, and during sexual contact. Child-care center outbreaks are often associated with toddler wading pools where several diapered children share the same water.

Similar to other enteric infections, rates of giardiasis infection increase during warmer months probably due more frequent exposure to contaminated water through swimming or camping.

In King County there were 124 cases of giardiasis reported in 2003, 126 in 2004, and 144 cases in 2005.



Haemophilus influenzae Invasive Disease

Disease Reporting Requirements

Health care professionals: Report cases of invasive disease in persons under age 5 years (excluding cases of otitis media) immediately.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify *Haemophilus influenzae* serotype b (Hib) disease for investigation.
- To monitor for occurrence of invasive disease due to non-serotype b *Haemophilus influenzae*.
- To identify contacts of persons with *Haemophilus influenzae* serotype b (Hib) infection, and assure administration of post-exposure prophylaxis.

Prior to 1987, most invasive *Haemophilus influenzae* infections were due to *H. influenzae* serotype b (Hib). The introduction of the Hib conjugate vaccine in 1987 led to a rapid decline in the number of pediatric invasive *H. influenzae* infections, including meningitis, bacteremia, epiglottitis, and pneumonia. Meningitis accounts for approximately 50 - 60% of invasive cases, and can lead to complications such as hearing impairment and neurologic sequelae in 15-30% of cases.

The diagnosis of invasive *H. influenzae* disease is made by isolating the organism from blood, cerebrospinal fluid (CSF), or another normally sterile body site. There were 2 reported cases in 2005 in King County: a 2-year-old with *H. influenzae* type A bacteremia and a 5-month-old with *H. influenzae* type F meningitis.

Hantavirus Pulmonary Syndrome

Disease Reporting Requirements

Health care professionals: Report within three working days of diagnosis.

Laboratories: No requirement.

Purpose of Surveillance:

- To facilitate diagnostic testing.
- To facilitate environmental clean up of rodent-infested areas where cases have occurred.

Hantavirus Pulmonary Syndrome (HPS) was first reported in the United States in the Southwest in 1993. The Sin Nombre virus is the main cause of HPS reported in the United States, but other viruses may cause similar diseases in other countries. The deer mouse *Peromyscus maniculatus* is the main carrier of the virus in the U.S., but other wild rodents can also be carriers. Infected rodents shed the virus in their urine, saliva, and droppings, but do not show any signs of illness. Illness in humans results from inhalation of aerosolized virus-containing rodent excreta.

The incubation period is approximately 2 weeks, with a range of a few days to 6 weeks. The first symptoms are non-specific, including fever, myalgias, and gastrointestinal symptoms, progressing abruptly to hypotension, and ventilatory compromise, often requiring mechanical ventilation. Most cases show an elevated hematocrit, hypoalbuminemia, and thrombocytopenia.

Since 1997, a total of 3 cases of HPS have been reported in King County. A 23-year-old man died of HPS in 1997, a 35-year-old man survived infection in 1999, and a 19-year-old man survived infection in 2003. All three cases were most likely exposed in Eastern or Central Washington.

Hepatitis A

Disease Reporting Requirements

Health care professionals: Report suspected cases immediately.

Laboratories: Report positive hepatitis A IgM antibody results within two days.

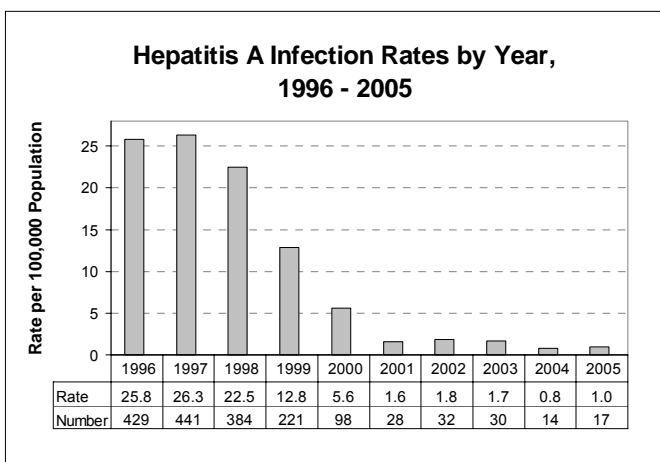
Purpose of Surveillance:

- To promptly identify persons exposed to cases of infectious hepatitis so that preventive treatment can be administered.
- To identify common source outbreaks.
- To identify and eliminate sources of transmission including contaminated food and water.

Hepatitis A virus (HAV) infection is characterized by an abrupt onset of fever, malaise, nausea, vomiting, and abdominal pain. Jaundice typically follows within a few days. Illness ranges from a mild illness lasting a few weeks to a severe illness lasting several months. Severity of illness increases with age, and children are often asymptomatic. HAV does not cause chronic infection or carriage.

Hepatitis A virus infection is primarily acquired via the fecal-oral route, either through person-to-person contact, or by ingestion of feces-contaminated food or water. Prior to the introduction of hepatitis A vaccine in 1995, the incidence of reported hepatitis A cases in King County fluctuated, with cyclical peaks occurring approximately every five years. Since 1997, hepatitis A cases have been declining in King County.

There were 17 cases of HAV reported in 2005 for an overall incidence of about 1 per 100,000. Seventy one percent (12/17) of the cases were in males. Adults 25 to 44 years old accounted for 59% (10/17) of cases, and there was only one case in a child under 15 years old. International travel (or recent immigration) was the most common risk factor, reported by 65% (11/17) of cases.



Hepatitis B—Acute and Chronic Infections

Disease Reporting Requirements

Health care professionals: Report cases of acute or chronic hepatitis B in pregnant women within three working days. Report other cases of chronic hepatitis B within one month.

Laboratories: Report within one month.

Purpose of Surveillance:

- To identify outbreaks and sporadic cases for investigation.
- To identify pregnant women with hepatitis B, and ensure prompt treatment to prevent infection of the newborn.
- To identify exposed persons eligible for post-exposure prophylaxis.
- To identify and eliminate sources of nosocomial transmission.

Symptoms of acute hepatitis B virus (HBV) infection range from no symptoms to severe illness, and may include abdominal pain, loss of appetite, nausea, and vomiting. Because most infected infants and children and up to 50% of adults have no symptoms, many infections go undetected.

Most infected adults (90 - 95%) will resolve their infection within 6 months. However, 50% of children and over 90% of infants with acute HBV infection develop chronic infection, which increases the risk of later liver disease including cirrhosis and liver cancer. One quarter of infants with chronic HBV infection develop liver disease later in life.

HBV is spread through infected blood and body fluids. Risk factors include being born to an HBV-infected woman, having unprotected sex, sharing injection drug equipment, sharing personal hygiene items (e.g., razors, nail clippers, toothbrushes), and living in a household with infected persons. The incubation period is 6 weeks to 6 months.

Acute HBV cases reported in King County and nationally have been declining since the 1980's. The decrease in the number of cases is attributed primarily to HIV prevention efforts, and increasing hepatitis B vaccine use among injection drug users and men who have sex with men (MSM).

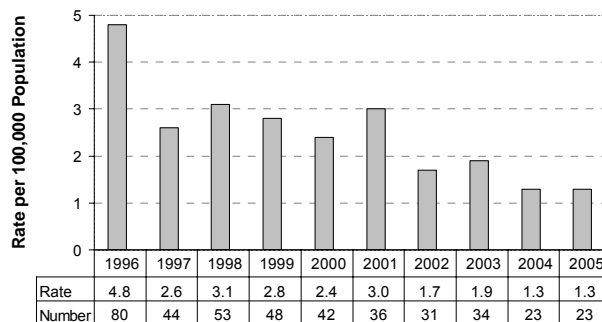
Twenty-three cases of acute hepatitis B were reported in 2005 and the majority (17/23) were men. The highest incidence of HBV infection is among men aged 25-34 years.

In the U.S., babies who are born to women with acute or chronic HBV infections and develop hepatitis B by 24 months of age are classified as

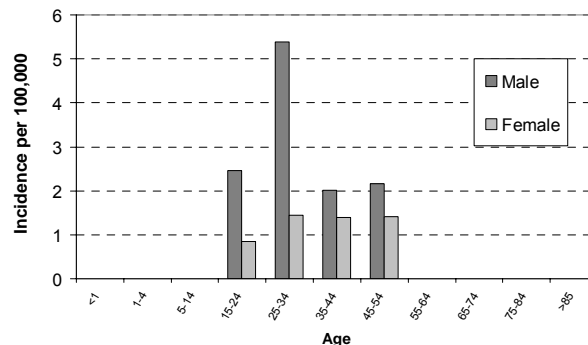
acute hepatitis B cases. No perinatally acquired acute hepatitis B infections were reported in 2005, compared to 3 cases in 2004.

Chronic HBV infection was made reportable in December of 2000, and since then the number of reports has ranged from 522 to 708 reports per year. In 2005, there were 683 reports, of which 55% were in men.

Acute Hepatitis B Infection Rates by Year, 1996 - 2005



Acute Hepatitis B by Age and Sex, 2005



Hepatitis C – Acute and Chronic Infections

Disease Reporting Requirements

Health care professionals: Report acute and chronic cases within one month.

Laboratories: Report within one month.

Purpose of Surveillance:

- To identify risk factors for acquisition of hepatitis C virus (HCV).
- To identify and eliminate sources of transmission.
- To provide education to cases in order to minimize risk of transmission and to reduce risk factors for development of chronic liver disease.
- To monitor the prevalence of disease and associated disease burden in the community.
- To identify epidemiological features of hepatitis C for prioritization of prevention activities and other HCV-related services.

Hepatitis C virus (HCV) is transmitted primarily by direct exposure to the blood of an infected person. Before screening was introduced in 1992, blood and blood product transfusions accounted for a large proportion of infections. Today, the most likely way to acquire HCV infection is through injection drug use (IDU). The risk of perinatal transmission from an HCV-infected pregnant woman is about 5%. No post-exposure prophylaxis is available. The risk of sexual transmission is low among long-term, monogamous partners and higher for persons with multiple sexual partners. The risk for sexual transmission appears to be increased for women, similar to other bloodborne viruses.

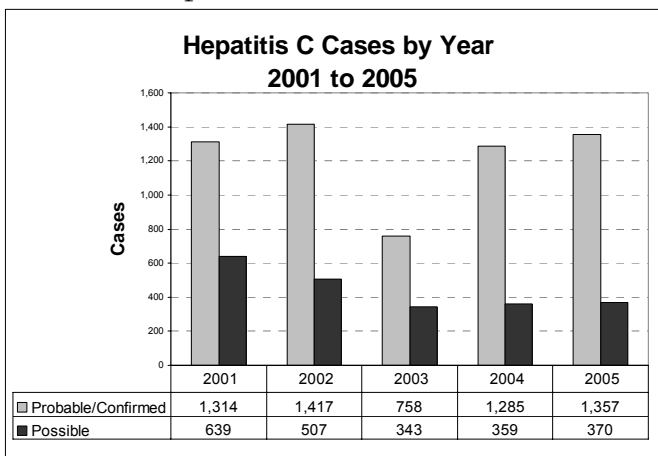
Eighty-five percent of persons with acute hepatitis C virus (HCV) infections are asymptomatic. Symptoms of acute infection may include abdominal pain, anorexia, nausea, vomiting, rash, and jaundice. Sixty to 85% of persons infected with hepatitis C develop chronic infections and approximately 10 - 15% of them will go on to develop cirrhosis within 20 years after infection.

Acute HCV infection was reportable as acute non-A, non-B hepatitis prior to 2000. The number of cases that meet the criteria for acute infection remains consistent at less than 1% of all reports (between 6 and 13 new cases per year). Of the persons reported with acute HCV infections between 1998 and 2002, 63% reported a history of IDU. In 2005, 50% (5/10) of cases reported recent IDU during the exposure period.

Chronic HCV infection became reportable in December 2000. In 2005, there were 1,725 reports of chronic hepatitis C, accounting for 40% of all

diseases or conditions reported to Public Health. Reports of chronic hepatitis C cases are expected to remain high because of the sometimes 20 to 30 year delay between the time of infection and diagnosis.

Chronic hepatitis C cases can be classified as confirmed, probable, or possible. A confirmed case of chronic HCV infection is a case that has tested positive for HCV by anti-HCV enzyme immunoassay (EIA), plus *supplemental confirmatory* testing by recombinant immunoblot assay (RIBA) or anti-HCV screening-test-positive with a signal to cut-off ratio predictive of a true positive as determined for the particular assay (e.g., ≥ 3.8 for the enzyme immunoassays) as determined and posted by CDC, or any case with positive qualitative or quantitative HCV RNA testing. A probable case is defined as a positive HCV EIA test result with no confirmatory testing in persons at high risk for HCV infection, including injection drug users. Cases with a positive HCV EIA test who don't meet the "confirmed" or "probable" case definitions are classified as possible HCV cases.



Hepatitis E

Disease Reporting Requirements

Health care professionals: Report suspected cases immediately (reportable as hepatitis, unspecified, infectious).

Laboratories: Voluntary reporting of positive hepatitis E IgM antibody results within two days.

Purpose of Surveillance:

- To promptly identify persons exposed to cases of infectious hepatitis so that counseling on preventing transmission can be given.
- To assure that other causes of infectious viral hepatitis have been appropriately ruled out.
- To identify common source outbreaks.
- To identify and eliminate sources of transmission including contaminated food and water.
- To better understand the incidence of disease in King County.

Hepatitis E virus (HEV) infects the liver, causing an illness clinically similar to hepatitis A virus (HAV) infection. The illness is acute and self-limiting, without a chronic state. HEV is a common cause of viral hepatitis worldwide, especially in poor countries where most infections occur in childhood and are mild or asymptomatic.

HEV infection is characterized by an abrupt onset of fever, malaise, nausea, vomiting, and abdominal pain. Jaundice follows within a few days. The spectrum of disease ranges from a mild illness lasting a few weeks to a severe illness lasting several months. Severity of illness appears to increase with age, and children are often asymptomatic and anicteric. The incubation period is 15 to 64 days. Secondary transmission in households through person-to-person transmission appears limited.

HEV is primarily acquired via the fecal-oral route, predominantly through consumption of contaminated water. Outbreaks in poor countries often occur after floods, monsoon rains, or other events that release raw sewage into the water supply. There is no vaccine to prevent HEV infection. Treatment with immune globulin (IG) in the U.S. is not effective in preventing infection in potentially exposed persons.

Health care professionals should consider HEV infection in persons with a history of international travel to HEV endemic areas, with a clinical illness consistent with HAV infection but negative serologic tests for HAV, HBV or HCV.

There was one probable case of HEV infection reported in an adult traveler exposed in India. The patient had serologic evidence consistent with HEV, but testing for HAV, HBV, and HCV was not done.

No other cases of HEV infection have been reported in King County residents in the past 10 years.

HIV and AIDS

Disease Reporting Requirements:

Health Care Professionals: Report within 3 working days any new diagnosis of HIV infection, or a new diagnosis of AIDS.

Laboratories: Report within 2 working days any HIV diagnosis (Western blot or other antibody test, P-24 antigen, or viral culture), and report monthly associated clinical indicators (any HIV viral load any result, any CD4 test result)

Purposes of Surveillance:

- To monitor the occurrence of HIV, AIDS, and HIV-related mortality in King County
- Identify and screen partners to reduce further spread of HIV and to facilitate referral to appropriate care and other services
- To describe characteristics of people with HIV and changes over time
- To facilitate special laboratory testing among newly diagnosed people to estimate length of time infected, and whether the virus is resistant to medication.
- To target prevention efforts to specific populations where infections are occurring.

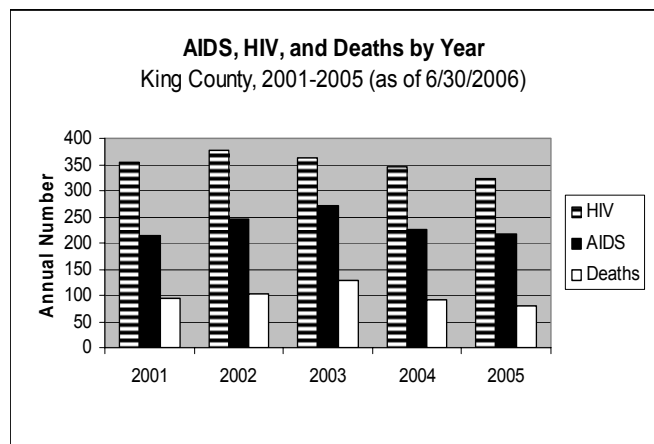
Human Immunodeficiency Virus (HIV) infection generates a specific, life-long antibody response. Diagnoses of HIV infection are typically made with a non-specific ELISA screening test, and a specific confirmatory Western Blot test. A number of other tests may be used to diagnose HIV or monitor its effect on the immune system. In addition, donated blood and tissue specimens are required to be tested for HIV. Surveillance data suggest that one-quarter of infections are diagnosed within the first year while as many as one-quarter of HIV infections are not diagnosed until the person develops symptoms of AIDS, which may occur 10 or more years after infection. Recent CDC guidance recommends that health care providers routinely offer HIV testing to all patients aged 13-64 years.

Once HIV is diagnosed, routine laboratory reporting helps ensure that completeness of reporting exceeds 90%. In recent years 350-400 King County residents have been diagnosed with HIV annually. We estimate a total of 7,500 to 8,400 King County residents are currently infected, including some who are unaware of their status.

Public Health staff contact the diagnosing provider and attempt to contact all patients in order to offer standardized partner counseling and referral services.

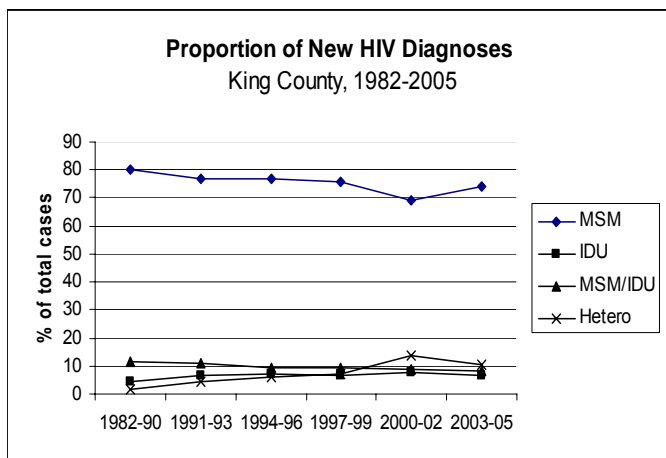
Patients are generally referred for care immediately upon the diagnosis of HIV infection. Based upon laboratory surveillance of viral load and CD4 tests, it

appears that 90% enter care within 3 months of initial diagnosis. For a majority of new diagnoses, Public Health conducts additional testing for HIV incidence and drug resistance. Since 1999, about 11% of all new diagnoses occur in people infected with a virus that is already resistant to one or more medications used for treating HIV infection.



If untreated, HIV infection attacks the immune system, specifically the CD4 cells. AIDS occurs when the CD4 level is shown to drop below 200 cells per microliter, or when an opportunistic infection occurs (typically these occur some time after the CD4 drops below 200). Each year, about 200-250 HIV infected people progress to AIDS. This annual total includes about 100 people diagnosed with HIV within the past 3 months and therefore did not have an opportunity to use HIV medications to prevent AIDS.

About 100 people a year die with HIV, almost all after being diagnosed with AIDS. Since the late 1990's, deaths due to specific opportunistic diseases have decreased because of effective treatment and prophylaxes for the specific conditions that occur with AIDS. Meanwhile, mortality among HIV-infected people is increasingly due to chronic conditions. This is partly due to co-existing illness (such as hepatitis), an aging population, longer time living with HIV infection, and longer exposures to toxic treatments for HIV.



In King County, HIV is likely transmitted through sexual exposure (84% of cases), sharing of injection drug use equipment (IDU, 7%), or among people with both exposures (8%). Perinatal exposure rarely results in transmission from the mother to the infant. The vast majority of sexual transmission is among men who have sex with men (MSM). Over the past two decades, heterosexual transmission has increased slightly while transmission among men who have sex with men has declined.

In 2005 there were 321 new cases of HIV and 247 new cases of AIDS reported, for a total of 568. There were no pediatric cases (under 13 years old) in 2005.

Legionellosis

Disease Reporting Requirements

Health care professionals: Report within three working days of diagnosis.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify common source outbreaks and nosocomial cases for investigation.
- To identify and eliminate preventable sources of transmission.

Legionellosis (“Legionnaires’ disease”) is a bacterial infection that was first identified after a 1976 outbreak in Philadelphia among attendees of the American Legion’s annual convention. Various species of *Legionella*, most commonly *L. pneumophila*, cause pneumonia and febrile illness. Other possible symptoms include diarrhea, abdominal pain, headache, and neurologic changes. In the U.S., 8,000 to 18,000 people are hospitalized with Legionnaires’ disease each year. However, this is probably an underestimate because many infections are not diagnosed or reported.

Legionella live in soil, natural bodies of water, water distribution systems, and building cooling towers. Disease occurs when the organism is inhaled in aerosolized water droplets, causing pneumonia. It has also been associated with inhalation of aerosols generated when using potting soil. Persons at increased risk for legionellosis include the elderly as well as those with underlying lung and heart disease, cancer, organ transplants, and other immune system disorders. The incubation period is typically 2 to 10 days, but can be longer. Legionellosis outbreaks have occurred in hospitals and long-term care facilities, where residents are at higher risk due to advanced age and other chronic conditions.

Of the reported cases in the six-year period between 2000 and 2005 in King County, most (79%) have been in persons over 40 years of age or on immunosuppressive therapy. In 2003 and 2004, respectively, there were 2 cases (both *L. pneumophila*) and 7 cases (5 infections due to *L. pneumophila*, and one each due to *L. micdadei* and *L. longbeachae*). During 2005, 8 cases of legionellosis were reported in King County, all due to *L. pneumophila*. The cases ranged in age from 42 to 81 years. One case was likely exposed during international travel and the remaining cases

were locally acquired. All but one of the persons were hospitalized. There was one death reported in a person with multiple chronic medical conditions.

Leptospirosis

Disease Reporting Requirements

Health care professionals: Report within three working days of diagnosis.

Laboratories: No requirement. Voluntary submission of isolates for molecular testing is encouraged.

Purpose of Surveillance:

- To identify common source outbreaks and cases for investigation.
- To identify and eliminate preventable sources of transmission.

Leptospirosis is a zoonotic disease caused by the bacteria *Leptospira interrogans*. Over 200 pathogenic serovars have been identified, of which the most commonly identified in the U.S. are *L. icterohaemorrhagiae*, *L. canicola*, *L. autumnalis*, *L. hebdomidis*, *L. australis* and *L. pomona*. Leptospirosis occurs worldwide and is more common in temperate and tropical areas. It is estimated that 100 to 200 cases are identified annually in the U.S., of which half are reported in Hawaii. However, this is likely an underestimate of the actual incidence of disease because leptospirosis is not legally notifiable in all states and mild cases are often not diagnosed.

Some wild and domestic animals, such as rodents, raccoons, cattle, pigs, and dogs carry the *Leptospira* bacteria and pass them in their urine. Not all animals become sick when they are infected with *Leptospira* and can excrete the bacteria in their urine for months to years.

Exposure occurs when water contaminated with the urine of infected animals is ingested or comes into contact with mucous membranes or breaks in the skin. Leptospirosis is rarely spread from person to person. People are often exposed through recreational activities such as swimming, canoeing, or participating in open water events such as triathlons or adventure racing. Occupations at greater risk include farmers, rice and sugarcane field workers, miners, slaughterhouse workers, sewer workers, and veterinarians.

The incubation period for leptospirosis is typically 10 days (range 2 to 30 days). The illness lasts from a few days to several weeks with a case fatality rate of 1-5%. Most people have mild disease, but severity ranges from asymptomatic infections to life-threatening illness. Initial symptoms can include the

insidious onset of fever, severe headache, back and leg pain, and vomiting and diarrhea. In some people the symptoms improve briefly before the development of more severe illness that may be complicated by anemia, liver and kidney failure (i.e., Weil's disease), meningitis, mental confusion and depression.

Leptospirosis is diagnosed by a fourfold or greater increase in *Leptospira* agglutination titers on paired sera or isolation of the bacteria from a clinical specimen.

In 2005, there was only one human case of leptospirosis reported in a King County, an adult who was one of a number of confirmed cases participating in an adventure race in Florida. There were also 32 canine leptospirosis cases reported in King County (23 confirmed and 9 probable), most of which occurred during the rainy seasons of winter and early spring.

Listeriosis

Disease Reporting Requirements

Health care professionals: Report suspected or confirmed cases immediately.

Laboratories: Report within two working days.

Purpose of Surveillance:

- To identify common source outbreaks for investigation.
- To identify and eliminate sources of transmission including contaminated food products.

Listeriosis is a bacterial infection caused by *Listeria monocytogenes*. Persons at increased risk for severe infections such as meningoen­cephalitis and sepsis include immunocompromised persons, the elderly, pregnant women, and newborn infants. Persons with healthy immune systems who are infected may have no symptoms or only mild flu-like symptoms. The median incubation period is 3 weeks (range 3 to 70 days).

The primary reservoir of *L. monocytogenes* is the feces of mammals and birds. Therefore the organism is found in soil, water, mud, and animal feed. The bacterium is unusual among foodborne pathogens in that it multiplies in refrigerated foods. Transmission occurs primarily through ingestion of contaminated drinks and foods, including raw (unpasteurized) or contaminated milk, soft cheeses, vegetables, and ready-to-eat meats. Intrauterine transmission can lead to spontaneous abortion, stillbirth or premature birth. Transmission during delivery can cause severe, often fatal, infections in the newborn, even if the mother is asymptomatic.

Three cases of listeriosis were reported in King County in 2005, two males over 55 years of age and one immunocompromised female. All three cases were hospitalized and there were no deaths.

Of note, in 2001, three pregnant Hispanic residents of King County developed listeriosis after consuming privately distributed *queso fresco*, a soft Mexican cheese that is often made with unpasteurized milk. One of the women delivered an infected stillborn infant at 23 weeks gestation, and the other two delivered infants that suffered serious medical complications requiring lengthy hospitalizations. In 2003 and 2004, respectively, there were 6 and 4 cases reported. One case in 2004 was in a pregnant woman who experienced fetal demise at 20 weeks of pregnancy.

Lyme Disease

Disease Reporting Requirements

Health care professionals: Report cases within three working days of diagnosis.

Laboratories: No requirement.

Purpose of Surveillance:

- To detect and investigate any increase in the incidence of disease.
- To facilitate appropriate diagnostic testing and treatment for infected persons.

Lyme disease is caused by the spirochete *Borrelia burgdorferi*, which is transmitted by the bite of infected *Ixodes* ticks. Ticks are infected by feeding on infected deer and deer mice. The incubation period is typically 7 to 10 days, but ranges from 3 to 32 days.

Most infections begin with a classic “bull’s-eye” appearing rash that slowly expands in diameter (erythema migrans). Other symptoms include malaise, fever, headache, arthralgias, myalgias and lymphadenopathy. With appropriate and timely antibiotic treatment most acute infections resolve without complications. However, serious neurologic and cardiac sequelae may result from untreated infections. Chronic arthritis may develop years after an untreated infection.

In the U.S., exposure to Lyme disease is common in the northeastern states, Atlantic coastal states, and the upper Midwest. Infections occur most often in late spring and summer when ticks are most prevalent. Lyme disease is uncommon in much of Washington State, and the Pacific Northwest in general. Most cases thought to be acquired in Washington State have had outdoor exposure in counties west of the Cascade Mountains or in the Cascade foothills, where *Ixodes* ticks, along with their deer and rodent hosts, are located.

In 2005, there were 6 reports of Lyme disease, compared to 10 in 2004 and 2 in 2003. All of the cases in 2005 were most likely exposed outside of Washington State, with 5 of 6 exposed during travel to the East Coast. The cases ranged in age from 4 to 38 years and all were males.

Malaria

Disease Reporting Requirements

Health care professionals: Report within three working days of diagnosis.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify risk factors for malaria among King County residents.
- To guide targeted interventions to prevent malaria among travelers to malaria-endemic regions.

Malaria is an infection caused by a parasite of the genus *Plasmodium*, of which there are four species: *malariae*, *vivax*, *ovale*, and *falciparum*. The parasite is transmitted to humans in warmer climates through the bite of infected *Anopheline* mosquitoes. Untreated *P. falciparum* malaria has a high mortality rate.

Symptoms of malaria include malaise, anorexia, chills, sweats, fever, and headache. The illness may last for days and present in a cyclical fever pattern with a relief of symptoms during non-febrile periods. The incubation period is 9 to 40 days, and varies by species. Suboptimal malaria chemoprophylaxis may increase the incubation period.

In 2005, there were 12 cases of malaria reported, compared to 12 in 2004 and 16 in 2003. Of the cases reported in 2005, 4 were by *P. falciparum*, 4 were by *P. vivax*, one was by *P. Ovale* and 4 were untypeable or unknown. The 12 cases reported in 2005 visited 11 different malaria-endemic countries (see table). Eight of the 12 cases were interviewed and of these, half did not take malaria prophylaxis. Unlike the previous year, 2005 saw no immigration-associated cases of malaria.

In 2002, there was one fatal case of *P. falciparum* in a returned traveler to Africa who did not take malaria prophylaxis or seek medical care for the infection. This is the only reported fatal malaria case on record in King County during the past 17 years.

In the six-year period between 2000 and 2005, 84 malaria cases were reported with 74% laboratory confirmed as either *P. falciparum* or *P. vivax* (39 *P. falciparum*, 23 *P. vivax*, 2 *P. ovale*, 1 *P. malariae*, and 19 untypeable or unknown).

King County Malaria Cases, 2005
 (by country of probable exposure)

Country	Number of Cases
Columbia	1*
Honduras	2*
India	3
Indonesia	1
Kenya	2*
Liberia	1
Papua New Guinea	1
Rwanda	1*
Sierra Leone	1
Sudan	1*
Uganda	1

*Two cases traveled to more than one country during the incubation period: One person traveled to Columbia and Honduras and the other traveled to Kenya, Rwanda, and Sudan.

Measles

Disease Reporting Requirements

Health care professionals: Report suspected cases immediately.

Laboratories: Report immediately and submit specimen to the Public Health Laboratory.

Purpose of Surveillance:

- To rapidly identify cases and exposed persons at risk for transmitting measles to others.
- To identify susceptible contacts of cases for measles post-exposure prophylaxis or preventive treatment.
- To implement disease control measures to prevent transmission and community outbreaks.

Measles is one of the most highly infectious diseases known, but is preventable through vaccination. It is an acute viral respiratory illness that is accompanied by a characteristic full body “morbilliform” rash. Symptoms begin with fever, coryza, conjunctivitis, and cough. After 2 to 4 days the rash begins on the face and spreads downward to the rest of the body. The rash usually lasts 4 to 7 days. Complications of measles can include otitis media, pneumonia, and encephalitis. These complications can occur in all age groups, but are most severe in infants and adults.

The diagnosis of measles must be confirmed by laboratory testing. This can be done by serologic testing, viral isolation from nasopharyngeal secretions, conjunctiva, blood or urine, or identification of viral antigen in blood or tissues. Public Health can facilitate expedited laboratory testing for suspected cases.

In 2005, one case of measles was reported in a King County resident who traveled internationally during the incubation period. Public Health also investigated a second measles case in a child visiting from Romania, where the World Health Organization reported an outbreak of measles. No secondary cases occurred following either of these cases.

In 2004, there were 6 cases of measles in toddlers adopted from orphanages in China with one secondary case in a family member visiting from California. In 2001, 12 cases of measles linked to an outbreak in Korea were reported.

Meningococcal Disease

Disease Reporting Requirements

Health care professionals: Report suspected cases immediately.

Laboratories: Report within two working days and submit appropriate specimen to the Public Health Laboratory.

Purpose of Surveillance:

- To identify cases and exposed persons, and implement appropriate disease control measures including post-exposure prophylaxis.
- To identify outbreaks of disease requiring use of meningococcal vaccine.
- To monitor trends in the incidence of specific serotypes and strains of *Neisseria meningitidis*.

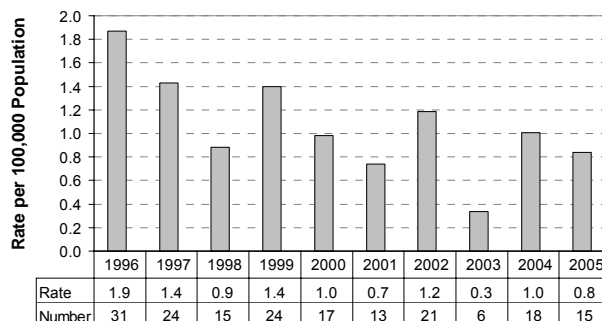
Meningococcal disease is caused by the bacterium *Neisseria meningitidis*. Meningitis is the most common presentation of invasive disease and is characterized by sudden onset of fever accompanied by severe headache, nausea and vomiting, stiff neck and often a petechial rash. Meningococcal sepsis, or meningococemia, is characterized by abrupt onset of fever and a petechial or purpuric rash, often associated with hypotension, shock, acute adrenal hemorrhage, and multiorgan failure. Even when treated, approximately 8 - 15% of cases of invasive meningococcal disease are fatal. Long-term sequelae, which occur in 10 - 20% of those who survive, include mental retardation, hearing loss, and amputation.

N. meningitidis is spread from person to person via respiratory droplets. The risk of transmission is increased by close contact. Many people are “carriers” who have the bacteria in their nose and mouth but have no symptoms or only mild respiratory symptoms. Risk factors for meningococcal disease include being less than one year of age, smoking, recent viral respiratory infection, and living in crowded settings (such as college dormitories or barracks for military recruits). In 2005, a new meningococcal vaccine became available in the United States, and young adolescents were added to the list of people for whom routine immunization is recommended.

There were 15 cases of *N. meningitidis* reported in King County in 2005 resulting in 3 deaths. Ten persons had bacteremia, 4 had meningitis, and one had cellulitis. Thirteen (87%) of these cases had laboratory confirmed cultures that were typed by the Washington State Department of Health (4

type B, 6 type C, and 3 type Y). Of the 2 remaining cases, one person had ocular cellulitis from *N. meningitidis*, while the other had organisms seen in CSF and a consistent clinical illness, but was not laboratory confirmed. Since 1995, there has been a 23% decrease of type C, the most prevalent vaccine-preventable strain.

Meningococcal Disease Rates by Year, 1996 - 2005



Mumps

Disease Reporting Requirements

Health care professionals: Report within three working days of diagnosis.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify cases and susceptible persons exposed to mumps cases in order to implement disease control interventions.

Mumps is an acute viral disease characterized by fever and swelling of the salivary (typically parotid) glands. Orchitis occurs in 20-30% of males infected after puberty. Mastitis occurs in 31% of females over the age of 15 years. Rare complications include meningitis, encephalitis, sterility, arthritis, renal involvement, thyroiditis, and hearing impairment.

The clinical diagnosis of mumps is challenging because there are common conditions that also cause swelling of the salivary glands. Laboratory confirmation is done by serologic testing or by culturing the mumps virus from a buccal swab, throat swab or throat washing, urine, or spinal fluid. PCR testing of buccal swabs became available in 2006.

In 2005, one case of mumps was reported in a person who had traveled to Pakistan during the incubation period. The prior year there was one mumps case reported in a person who had traveled to Japan.

Paralytic Shellfish Poisoning

Disease Reporting Requirements

Health care professionals: Report suspected cases immediately.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify common source outbreaks for investigation.
- To identify and eliminate distribution of contaminated shellfish.

Paralytic Shellfish Poisoning (PSP) is a neurologic syndrome caused by consuming shellfish contaminated with naturally-occurring toxic substances called "saxitoxins." High concentrations of these toxins occur in shellfish during algae blooms known as "red tides," but can also occur in the absence of a recognizable algae bloom.

Neurologic symptoms may begin within minutes to hours after eating contaminated shellfish, and include tingling, burning, numbness, drowsiness, incoherent speech, and respiratory paralysis. Additionally, gastrointestinal symptoms may occur. Symptoms usually resolve within a few days, but in unusual cases, death may occur despite supportive care. Diagnosis is based entirely on observed symptoms and recent dietary history. Infection is confirmed by detection of the toxin in epidemiologically implicated food, if available.

The last reported cases in King County were 5 cases which were part of a 1998 outbreak. Surveillance for PSP cases supplements monitoring for saxitoxin contamination in Washington grown and imported shellfish.

Pertussis

Disease Reporting Requirements

Health care professionals: Report suspected and confirmed cases immediately.

Laboratories: Report within two working days.

Purpose of Surveillance:

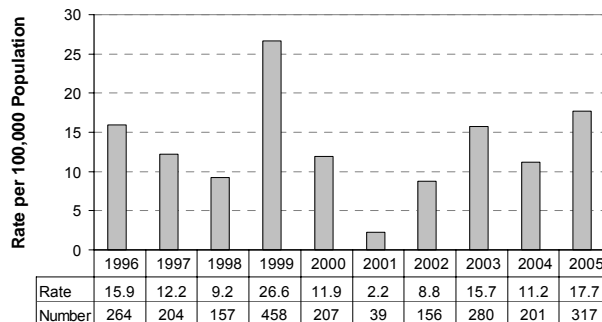
- To prevent transmission of pertussis to persons at high risk for severe illness and complications.
- To identify outbreaks and implement disease control measures including early recognition, testing, and treatment of cases.

Pertussis, also known as “whooping cough”, is a toxin-mediated disease caused by *Bordetella pertussis*. Classic symptoms include a persistent, paroxysmal cough of 2 or more weeks duration that is worse at night and often followed by vomiting. In infants, apnea and cyanosis are also seen. Fever is usually low grade or absent. Symptoms may last for two to three months or even longer despite antibiotic treatment as respiratory cilia recover from the effect of the pertussis toxin.

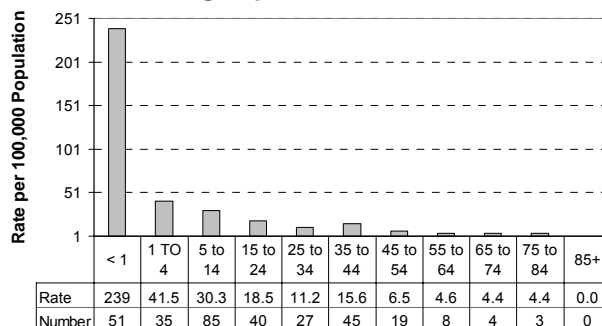
The disease is of particular concern in infants because they have higher rates of hospitalization, pneumonia, and death compared with older children and adults. Pertussis vaccination reduces the frequency and severity of disease among young children. However, the protective effect of pertussis vaccine wanes with time. Unrecognized infections in older children and adults are thought to be the reservoir for pertussis in the community.

In late 2005, the Advisory Committee on Immunization Practices (ACIP) provisionally recommended a tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine (Tdap) for routine use in children 11 to 18 years old.

Pertussis Incidence Rates by Year, 1996 - 2005



Pertussis Age Specific-Rates, 2005



Plague

Disease Reporting Requirements

Health care professionals: Report suspected and confirmed cases immediately.

Laboratories: Report the isolation of *Yersinia pestis* immediately, and submit the isolate to the Public Health Laboratory. Consult with the Public Health Laboratory before submission for precautions to prevent transmission to laboratory workers.

Purpose of Surveillance:

- To identify cases caused by potential agents of bioterrorism.
- To identify naturally occurring sources of infection.
- To confirm reported cases and to ensure that other exposed persons receive required post-exposure prophylaxis and/or monitoring.

Plague is caused by infection with the bacterium *Yersinia pestis*. This bacterium is found in rodents and their fleas, in many areas of the world, including the United States. Clinical forms of plague include bubonic, septicemic, pneumonic, and pharyngeal.

Bubonic plague is the most common form of this infection and is transmitted by the bite of an infected flea, or through the contamination of a break in the skin with *Y. pestis*. Symptoms include swollen, tender lymph glands (called buboes), fever, headache, chills, and weakness. Bubonic plague is not spread from person to person.

Pneumonic plague occurs when a person inhales *Y. pestis* suspended in respiratory droplets from an infected person (or animal), or from the spread of bubonic or septicemic plague to the lungs. Untreated pneumonic plague has a high fatality rate.

Septicemic plague refers to an infection of the bloodstream, and can be a complication of bubonic or pneumonic plague, or can occur by itself. Septicemic plague can also be acquired directly from the bite of an infected flea, or through the contamination of a break in the skin with *Y. pestis*. Patients have fever, chills, abdominal pain, shock, and bleeding into the skin and other organs. Septicemic plague does not spread from person to person.

The last case of plague reported in Washington State was bubonic plague in an animal trapper in 1984. Prior to that there had not been cases since 1907.

Y. pestis is considered a potential agent of bioterrorism.

Poliomyelitis

Disease Reporting Requirements

Health care professional: Report suspected cases immediately.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify cases of imported poliomyelitis.
- To identify cases and susceptible contacts of cases for post-exposure prophylaxis (e.g., immunization) and institute infection control measures.

Poliomyelitis (polio) is a paralytic disease classically caused by poliovirus, a highly infectious virus. Poliovirus was declared eradicated from the Western Hemisphere in 1991, from the Western Pacific in 1997, and from Europe in 1998.

Poliovirus is transmitted primarily from person to person via the fecal-oral route. The majority of cases are asymptomatic, with flaccid paralysis occurring in less than 1% of all infections. A polio-like illness can be caused by non-polio enteroviruses such as echovirus, enterovirus, and coxsackie virus, or West Nile virus. Accordingly, a thorough travel and immunization history should be taken and appropriate targeted diagnostic testing obtained for persons with a polio-like illness.

Psittacosis

Disease Reporting Requirements

Health care professionals: Report suspected or confirmed cases within three working days of diagnosis.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify source of transmission (i.e., infectious birds), and eliminate risk to others.
- To facilitate appropriate diagnostic testing and treatment for infected persons.
- To monitor clean-up of contaminated areas and management of infected birds.

Psittacosis (parrot fever, chlamydiosis or ornithosis) is caused by inhalation of the desiccated droppings, secretions, or dust from the feathers of birds infected with *Chlamydia psittaci*. Psittacine birds such as parrots, parakeets, and cockatiels are the most common reservoir, but infection may also occur in other wild, domestic, or pet birds. Birds may be symptomatic, particularly if stressed, but healthy birds can also carry the organism.

The last reported human case of psittacosis in King County occurred in 1998.

Q Fever

Disease Reporting Requirements

Health care professionals: Report within three working days of diagnosis.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify sources of transmission and reduce the risk to others.
- To identify cases caused by potential agents of bioterrorism.

Acute *Coxiella burnetii* infection is a febrile illness, usually accompanied by rigors, myalgias, malaise, and headache. Severe disease can include acute hepatitis, pneumonia, and meningoencephalitis. Elevated liver enzyme levels are common. Asymptomatic and chronic infections may also occur. Potentially fatal endocarditis may evolve months to years after acute infection, particularly in persons with underlying valve disease. A chronic-fatigue-like syndrome has been reported in some Q fever patients. The case fatality rate in untreated patients is less than 1%.

The reservoir for *C. burnetii* is animals including sheep, goats, cattle, some wild mammals, dogs and cats. Exposure is typically through inhalation of contaminated animal matter such as excrement and placental or birth fluids. The incubation period is typically 2 to 3 weeks.

The last case of Q fever reported in King County occurred in 1990.

C. burnetii is considered a potential agent of bioterrorism.

Relapsing Fever

Disease Reporting Requirements

Health care professionals: Report suspected or confirmed cases immediately.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify common source outbreaks.
- To identify and eliminate sources of transmission.
- To facilitate environmental clean-up.
- To facilitate appropriate treatment and to provide disease prevention information.

Relapsing fever is a systemic disease caused by different strains of the spirochete *Borrelia*. In the United States, relapsing fever is a tickborne disease that typically occurs in the western states. It is transmitted to humans by the bites of argasid ticks species (most commonly *Ornithodoros hermsi* and *O. turicata*) that become infected with the *Borrelia* spirochete when feeding on infected rodents and squirrels. These ticks are found where rodents burrow and nest, often in older buildings, and are difficult to eradicate. The ticks typically feed only at night and, unlike the ticks that cause Lyme disease, do not remain attached for prolonged times. They can survive for long periods between blood meals and typically don't leave a noticeable bite wound. In the western United States and British Columbia, exposure commonly occurs in older buildings and cabins located in higher elevations.

The illness is characterized by recurrent fevers of up to 105°F, lasting 2 to 9 days, followed by afebrile periods lasting 2 to 4 days. The number of relapses can be one to 10 or more. Other symptoms can include headache, chills, body aches, prostration, nausea and vomiting, and in some cases, a rash. The incubation period is typically 7 to 8 days (with a range of 4 to 18 days).

Relapsing fever is diagnosed by identification of spirochetes from blood drawn during a febrile episode, bone marrow aspirates, or cerebral spinal fluid. Relapsing fever is not spread from person to person, although infection can be acquired in utero. Treatment is with an appropriate antibiotic. Prophylaxis is not recommended for asymptomatic persons who were possibly exposed; instead, these persons should be monitored for fever for 18 days after the last exposure.

There have been 9 cases of relapsing fever reported in King County since 1999, all associated with exposures outside of western Washington. Exposure locations include Idaho, Montana, Oregon, and eastern Washington. In 2003 there were 2 cases and in 2004 there was one case, all of which were exposed while visiting cabins in eastern Washington. No cases were reported in 2005.

Rubella

Disease Reporting Requirements

Health care professionals: Report suspected cases immediately.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify cases and implement disease control interventions.
- To prevent transmission to susceptible pregnant women and resultant congenital rubella syndrome.
- To identify risk factors for rubella infection.

Rubella (German measles) is a viral illness that is important because of its ability to produce congenital anomalies in the developing fetus. Congenital rubella syndrome (CRS) occurs in up to 90% of infants born to women who are infected with rubella during the first trimester. Vision and hearing impairment or loss are among the many potential manifestations of CRS. In children and adults, rubella causes a usually mild illness consisting of a rash accompanied by mild fever and lymphadenopathy. Adults may have an extended illness, but other than chronic arthritis, complications are rare.

Diagnostic tests for rubella include antibody titers, virus isolation, and identification of viral antigen in blood or tissues. Congenital infection is confirmed by IgM antibody titers in the affected infant.

One adult case of rubella was reported in 2005. The case had traveled internationally and was exposed to ill family members. Two cases of rubella were reported in King County during 2002, both in unvaccinated, recent immigrants.

Salmonellosis

Disease Reporting Requirements:

Health care professionals: Report cases immediately.

Laboratories: Report within two working days and submit the isolate to the Public Health Laboratory.

Purpose of Surveillance:

- To identify common source outbreaks.
- To identify and eliminate sources of transmission including contaminated food and water.
- To educate cases on disease control measures to prevent continued transmission and re-infection.

Salmonellosis is a bacterial infection of the colon characterized by fever, abdominal pain, diarrhea, headache, nausea, and in some cases, vomiting. *Salmonella* is spread through ingestion of food or water contaminated by the fecal matter of an infected animal or human, and through direct and indirect contact with infected animals and their environments. Animals associated with transmission of salmonellosis include reptiles (e.g., lizards, snakes, turtles and iguanas), amphibians (e.g., newts, salamanders, and toads), birds (e.g., chickens, ducks and turkeys) and mammals (e.g., cows, dogs, cats, sugar gliders and hedgehogs). The incubation period is generally 12 to 36 hours (range 6 to 72 hours), and illness typically lasts 4 to 7 days.

Person-to-person spread of *Salmonella* is not common because the infective dose is relatively high (100 to 1000 organisms). Children and individuals with poor hygiene who are infected can contaminate the household environment, leading to infection. Persons with salmonellosis are typically communicable for several days to weeks, and in some cases longer. Up to 5% of infected children less than 5 years of age shed the organism for more than a year.

Complications of salmonellosis include extra-intestinal spread (abscesses, arthritis, bacteremia, and meningitis). Infants, the elderly, and the immunocompromised are at increased risk of serious complications including death. Tracking of *Salmonella* serotypes allows early identification of outbreaks.

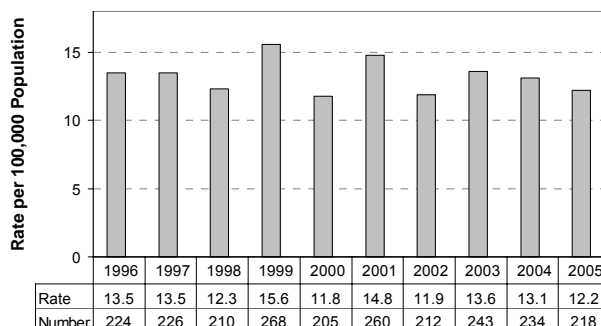
In 2005, there were 218 salmonellosis cases reported in King County. *S. enteritidis* (55 cases) and *S. typhimurium* (32 cases), accounted for 40% of all reported cases. The highest incidence was

among children under age 5 years.

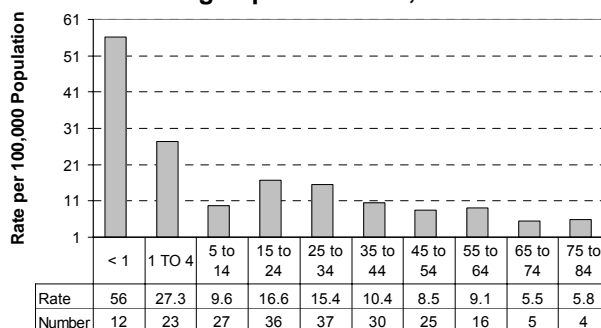
There were also additional cases from a Pacific Northwest outbreak of *S. thompson* that began in 2004, associated with pet treats containing contaminated beef and seafood made by a Washington and British Columbia manufacturer.

In May and June of 2005 there was also a multi-state outbreak of *S. typhimurium* associated with consumption of commercially-produced cake batter ice cream.

Salmonellosis Incidence Rates by Year, 1996 - 2005



Salmonellosis Age Specific-Rates, 2005



Sexually Transmitted Diseases: Chlamydia

Disease Reporting Requirements

Health care providers: Report cases of chlamydia to Public Health's Sexually Transmitted Disease Program within three business days.

Laboratories: Report positive results to Public Health's Sexually Transmitted Disease Program within three business days.

Purpose of Surveillance:

- To identify and screen contacts of chlamydia to reduce further spread.
- To identify infected pregnant women and provide treatment in order to reduce the risk of infection in the newborn.
- To identify high risk populations for prevention activities.
- To monitor changes in chlamydia trends over time and across subpopulations.

Chlamydia is the most commonly reported infection in the United States. It is transmitted through unprotected sex (vaginal, anal, and possibly oral), and can be transmitted from a mother to her baby during childbirth.

Chlamydial infection is often asymptomatic. Rates of disease based on case reports almost certainly underestimate the true incidence of infection. Those who do develop symptoms of chlamydia usually do so within 1 to 3 weeks of exposure. Symptoms in women can include burning with urination or vaginal discharge, due to urethral or cervical infection respectively. Symptoms in men include burning during urination and discharge from the penis. Symptoms of rectal infection may include discharge, pain, or bleeding.

If left untreated, chlamydia can result in serious long-term complications in women. Untreated chlamydia may result in pelvic inflammatory disease (PID), that can cause infertility, ectopic pregnancy, and/or chronic pelvic pain. Untreated chlamydia in men can occasionally lead to epididymitis (a painful inflammation of part of the testicles) which can also cause infertility.

A baby who contracts chlamydia from the mother during delivery may develop an eye infection or early infant pneumonia.

Adolescent and young adult women may be particularly susceptible to chlamydial infection because their cervical tissue is immature. Because so many infections among women cause no discernible symptoms, and young sexually active women are at

high risk for becoming infected, it is recommended that sexually active women between the ages of 14 and 24 be screened for chlamydial infection annually.

In 2005, 5,520 cases of chlamydial infection were reported among residents of King County, for a crude incidence of 310 per 100,000 persons. Recommended routine chlamydial screening for young women results in many more cases of chlamydia being detected among women than men, although the true incidence of disease is probably similar in men and women. Among women, 3,636 cases were reported in 2005, for an incidence of 407 per 100,000 persons. Among men, 1,884 cases were reported in 2005 resulting in an incidence of 213 cases per 100,000 men. Age-specific rates were highest among 15 to 20-year-old women (2,481 cases per 100,000 persons) and 20 to 24-year-old men (559 cases per 100,000 persons), likely reflecting the increased biological susceptibility of young women, low rates of condom use among adolescents and young adults, and age-discordant sexual partnerships between young women and older men.

Sexually Transmitted Diseases: Gonorrhea

Disease Reporting Requirements

Health care providers: Report cases of gonorrhea to Public Health's Sexually Transmitted Disease Program within three business days.

Laboratories: Report positive results to Public Health's Sexually Transmitted Disease Program within two business days.

Purpose of Surveillance:

- To identify and screen contacts of gonorrhea to reduce further spread.
- To identify infected pregnant women and provide treatment in order to reduce the risk of infection in the newborn.
- To identify high risk populations for prevention activities.
- To monitor changes in gonorrhea trends over time and across subpopulations.

Gonorrhea is transmitted through unprotected sex (oral, anal, and vaginal). Gonorrhea can also be transmitted from mother to baby during vaginal delivery.

Gonococcal infection is often experienced without symptoms, particularly among women. About 10% of men and 50% of women are asymptomatic. Symptoms of urethral infection among men usually occur from 2 to 30 days after exposure and may include discharge from the penis or burning during urination. In women, symptoms may include pain or vaginal discharge, burning during urination, irregular bleeding between menstrual periods, lower abdominal pain, or pain with intercourse. Symptoms of rectal infection in both women and men may include discharge, anal itching, painful bowel movements, or bleeding. Gonococcal infection in the throat may cause a sore throat, but more often results in no symptoms. Because gonorrhea is often asymptomatic, many cases go unreported and rates based on case reports are an underestimate of the true burden of disease.

If left untreated, gonorrhea may result in serious long-term sequelae, especially in women. Untreated gonorrhea may lead to pelvic inflammatory disease (PID), which in turn may cause infertility, ectopic pregnancy, and/or chronic pelvic pain. Untreated gonorrhea in men can lead to epididymitis (painful inflammation of part of the testicles) which can cause infertility. Individuals with gonorrhea are also at higher risk for acquisition of HIV.

An infant who contracts gonorrhea from her mother during delivery may develop gonococcal

conjunctivitis, which may lead to blindness if untreated.

In 2005, 1,769 cases of gonorrhea were diagnosed among King County residents, for an incidence of 99 per 100,000 persons. Of these, 581 cases occurred among women, for a rate of 65 per 100,000 women, and 1,188 cases occurred among men, for an incidence of 134 per 100,000 men. This gender differential probably reflects a higher incidence rate of gonorrhea among men who have sex with men (MSM). The total number of cases represents a 38% increase in cases over the number observed in 2004 (1,286).

Sexually Transmitted Diseases: Syphilis

Disease Reporting Requirements

Health care providers: Report cases of syphilis to Public Health's Sexually Transmitted Disease Program within three business days.

Laboratories: Report positive results to Public Health's Sexually Transmitted Disease Program within two working days.

Purpose of Surveillance:

- To identify and screen contacts of syphilis to reduce further spread.
- To identify infected pregnant women and provide treatment in order to reduce the risk of infection in the newborn.
- To identify high risk populations for prevention activities.
- To monitor changes in syphilis trends over time and across subpopulations.

Syphilis is transmitted most often through unprotected sex (oral, anal, and vaginal). *Treponema pallidum* can also be transmitted from mother to baby at any time during pregnancy, and can result in neonatal death or congenital syphilis. Without treatment an infected infant may develop late lesions resulting in blindness, deafness, mental retardation, bone deformities and death.

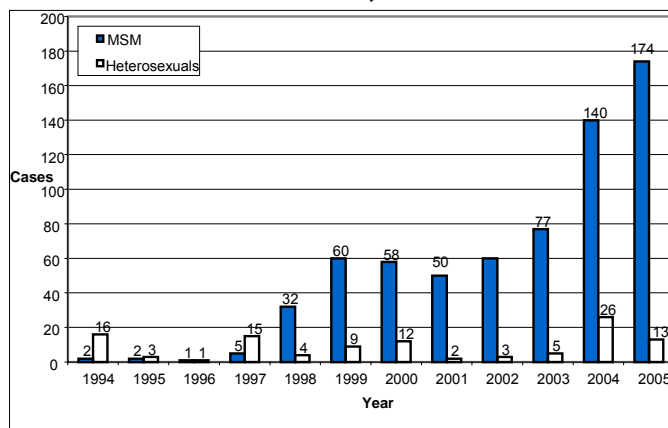
If untreated, persons with syphilis typically experience four clinical stages of infection. Primary infection is characterized by a painless chancre at the site of infection an average of 3 weeks from the time of exposure. Symptoms of secondary syphilis usually occur 3 to 6 weeks later and include a rash which characteristically involves the palms and soles, lymphadenopathy and malaise. Mucosal lesions of the oropharynx and genitals may also occur. By definition, latent syphilis is characterized by a positive serologic test with a lack of clinical symptoms, although patients may have spontaneous infectious relapses during this stage, usually in the first year following infection. Early latent syphilis is defined as infection less than one year and late latent syphilis is infection of one year or greater in duration. Neurosyphilis, the symptomatic manifestation of *T. pallidum* invasion of the central nervous system, can occur at any stage of syphilis infection.

King County continued to experience an increase in early syphilis cases in 2005, with 188 reported cases. Of these cases, 46 were diagnosed with primary syphilis, 87 with secondary syphilis, and 54 with early latent syphilis. The overall incidence of early syphilis in King County increased to 11 per 100,000,

from 9 per 100,000 in 2004. There were no cases of congenital syphilis in 2005.

Since 1997, King County has experienced an epidemic of syphilis among MSM. Of the 188 total cases of early syphilis in King County in 2005, 174 (93%) were among MSM, for an incidence of 403 in MSM (based on a population estimate of 43,150 MSM in King County). In comparison, the estimated 2005 incidence among heterosexuals was 0.8 per 100,000. HIV positive MSM have been particularly affected by the epidemic. In 2005, 87 of the 174 early syphilis cases in MSM occurred in HIV positive MSM, resulting in an incidence of 1,969 cases per 100,000 HIV positive MSM, compared to an incidence of 199 cases per HIV negative MSM.

Reported Cases of Early Syphilis by Sexual Orientation,* 2005



* Data on sexual orientation were missing for men in the following years: 2 men in 1998, and 1 man in 1999, 2000, 2002 and 2005.

Shigellosis

Disease Reporting Requirements

Health care professionals: Report cases immediately.

Laboratories: Report within two working days and submit the isolate to the Public Health Laboratory.

Purpose of Surveillance:

- To identify common source outbreaks for investigation.
- To identify and eliminate sources of transmission including contaminated food and water.
- To identify and eliminate person-to-person spread of infection.

Shigellosis is an invasive bacterial disease spread through the fecal-oral route affecting only humans. Shigellosis is characterized by diarrhea often accompanied by fever, nausea, vomiting, and cramps, typically lasting 4 to 7 days. The incubation period is typically one to 3 days (range 12 to 96 hours, and up to 1 week for *S. dysenteriae*).

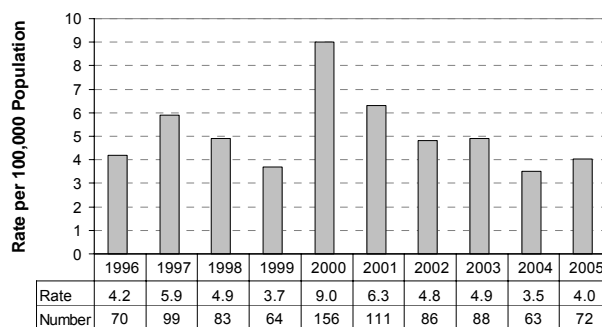
Food and water contaminated with fecal matter are common vehicles of transmission. Because the infective dose of *Shigella* bacteria is very low, this infection is commonly transmitted from person to person through household or sexual contact. In recent years, Seattle and other cities in the U.S. and overseas have had outbreaks of shigellosis among men who have sex with men (MSM) who may become infected through oral-anal contact (direct or indirect). In King County, international travel is the most common risk factor identified in shigellosis cases.

In 2005, 72 cases of shigellosis were reported in King County. The proportion of cases occurring in men was only 41.6% (30 cases), the first time in 5 years that the number of cases in males was less than females. Sixty-one percent of isolates were *S. sonnei* and the remainder was *S. flexneri*. International travel was the identified risk factor for 42.8% of cases (30), 21 of which were *S. sonnei* and 9 were *S. flexneri*. There was one cluster of infection in 4 children who attended the same child care program, but no large outbreaks detected in King County during 2005.

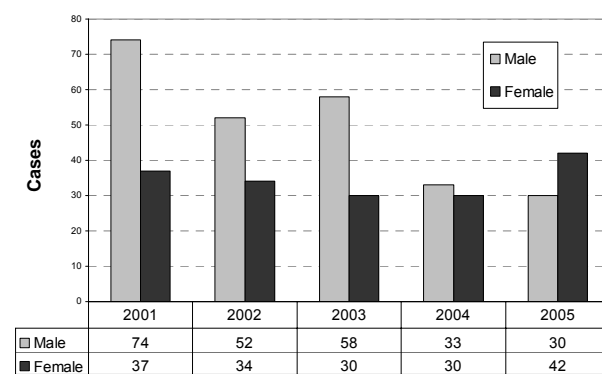
Antibiotic resistance to a number of antibiotics, including ampicillin and trimethoprim-sulfamethoxazole (TMP-SMX) is common among *Shigella* strains reported in King County. Clinicians should consider requesting antibiotic sensitivity

testing of *Shigella* isolates. Treatment is recommended if the patient is at high risk of spreading the infection to others, as is the case with those who are foodhandlers, in child care settings, or likely acquired the infection sexually. Appropriate antibiotic treatment shortens the duration of shedding of the organism and decreases the incidence of secondary cases.

Shigellosis Incidence Rates by Year, 1996 - 2005



Shigellosis Cases by Sex, 2001 to 2005



Tetanus

Disease Reporting Requirements

Health care professionals: Report cases within three working days.

Laboratories: No requirement.

Purpose of Surveillance:

- To facilitate prompt, appropriate diagnostic testing and management of cases.

Tetanus results from the action of a neurotoxin produced in infected tissues by *Clostridium tetani*, resulting in severe, potentially life-threatening muscle spasms. In the U.S., tetanus is predominately due to infection complicating injuries, including acute wounds contaminated with dirt, saliva, or feces, puncture wounds, crush injuries, and unsterile injections.

Mortality from tetanus can be high even with appropriate treatment. Tetanus is preventable with immunization. After an initial tetanus vaccination series, boosters should be administered every 10 years throughout life. For animal bites and injuries other than clean minor wounds, an additional dose is recommended if the time interval since the most recent tetanus immunization has been more than 5 years. In late 2005, the Advisory Committee on Immunization Practices (ACIP) provisionally recommended a tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine (Tdap) for routine use in children 11 to 18 years old.

One case of tetanus was reported in King County in 2005 in an adult over 60 years of age. Gardening and a sliver in a finger were the only risk factors identified. In the US, tetanus typically occurs in adults over 60 years of age, reflecting a lack of immunity in this population. This was the first case of tetanus since 1996, when two cases were reported.

Trichinosis

Disease Reporting Requirements

Health care professionals: Report cases within three working days.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify common source exposures.
- To identify and eliminate infected food products in order to prevent further consumption.

Trichinosis is a disease caused by an intestinal roundworm, *Trichinella spiralis*, which infects many wild mammals. Human infection results from eating undercooked pork or wild game harboring the encapsulated cysts of *T. spiralis*. Encysted larvae survive some preparation methods for wild meat jerky, and some strains resist freezing. The larvae may infect persons if the meat is consumed without further cooking.

The last human reported case in King County occurred in 2000, and was due to consumption of homemade cougar jerky.

Tuberculosis

Disease Reporting Requirements

Health care providers: Report suspected cases of tuberculosis to Public Health within one day (do not wait for laboratory results in order to report a suspected case). For hospitalized patients, obtain TB Control Program approval of outpatient management plans prior to discharge, including discussion of directly observed therapy and public health nurse case management records.

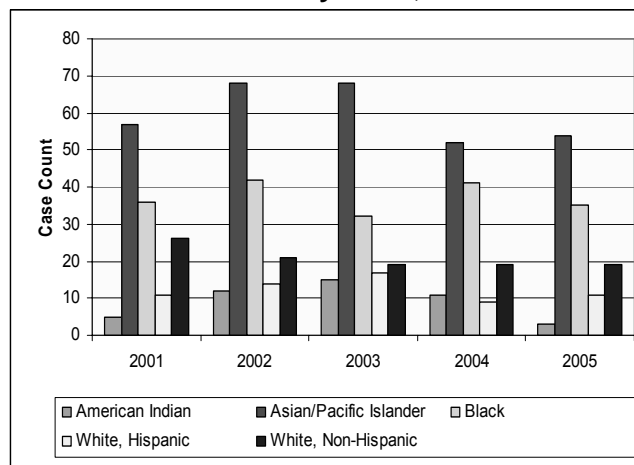
Laboratories: Report isolation of *Mycobacterium tuberculosis* within two working days to the Department of Health, and submit the isolate to the Public Health Laboratory.

Purpose of Surveillance:

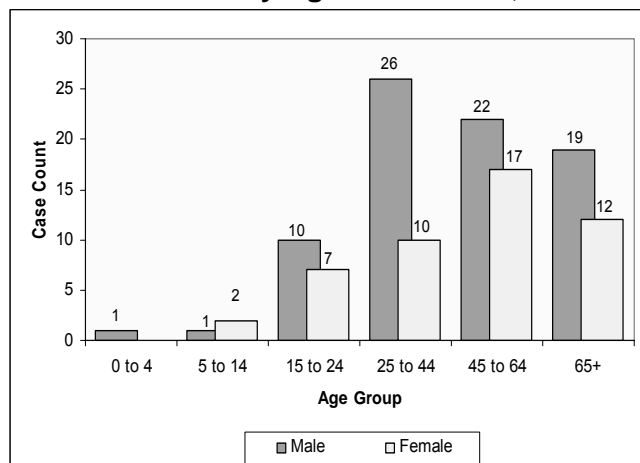
- To ensure that persons with active TB are found and fully treated.
- To ensure that contacts of persons with infectious TB are screened and offered appropriate preventive therapy.
- To ensure that persons at high risk for TB infection and reactivation receive appropriate screening and preventive therapy.
- To monitor the trend of TB in Seattle and King County.

Tuberculosis (TB) is caused by *Mycobacterium tuberculosis*. TB is spread person to person through airborne exposure. TB usually affects the lungs, but can affect other parts of the body such as the brain, kidneys or spine. TB bacteria are released into the air especially when a person with active TB disease coughs. An individual may be exposed to someone with active TB disease without ever becoming infected. An individual may also become infected with a dormant, latent TB infection by breathing in air that contains TB bacteria. Dormant, latent infection is asymptomatic and not contagious. About one-third of the world's population and about 5-10% of the US population is infected with latent TB. About 100,000 people are currently living with latent TB infection in King County.

Tuberculosis by Race, 2001-2005



Tuberculosis by Age and Gender, 2005



For those infected with latent TB, there is a 10% probability of developing active TB disease in their lifetime. If someone's immune system is compromised, there is a higher chance of developing TB (e.g., 8-10% per year in an HIV-infected person).

The general symptoms of TB disease include feeling sick or weak, weight loss, fever and night sweats. Symptoms of TB of the lungs also include coughing, chest pain, and hemoptysis. There are prescribed drugs that can be taken both for TB infection and active disease. Among communicable diseases, TB is one of the leading causes of death worldwide along with HIV/AIDS, killing nearly 2 million people each year.

Tuberculosis Case Rates 2001-2005 for the U.S., Washington and Seattle & King County

		2001	2002	2003	2004	2005
U.S.A.	Count	15,945	15,057	14,852	14,517	14,093
	rate/100,000	5.6	5.2	5.1	4.9	4.8
Washington State	Count	261	252	250	245	256
	rate/100,000	4.3	4.1	4.0	3.9	4.0
Seattle & King County	Count	139	158	155	133	127
	rate/100,000	7.9	8.9	8.7	7.4	7.0

There were 127 new cases of tuberculosis countywide in 2005, a 5% decrease from the 2004 count of 133, with a rate of 7.0 cases per 100,000 people, a decline from 7.4 the previous year. TB cases in 2005 were largely male (62%), with continued high rates reported among Asians, Blacks and American Indians. The largest proportion of cases occurred in the 45 to 64 year age group (32%). The TB case count among children under 5 years of age continues to be low, comprising 3% of cases in 2005. In the last 5 years, there have been approximately 100 cases of TB each year among

foreign-born residents. The number of TB cases with any drug resistance is 15% in King County. By 2005, the Homeless and East African outbreaks previously described in Seattle-King County were largely contained. However, the large pool of individuals with latent TB infection, lack of convenient preventive medications, and lack of an effective TB vaccine, make it unlikely that TB will be eliminated anytime soon.

To read the full 2005 TB report, please visit www.metrokc.gov/health/tb/tbfacts.htm

Tularemia

Disease Reporting Requirements

Health care professionals: Report cases within three working days.

Laboratories: Submit appropriate specimens to the Public Health Laboratory. Consult with the Public Health Laboratory before transporting specimens regarding precautions to prevent transmission to laboratory workers.

Purpose of Surveillance:

- To facilitate prompt and appropriate treatment for persons with tularemia.
- To identify and eliminate sources of transmission including contaminated food and water.
- To identify cases caused by potential agents of bioterrorism.

Tularemia is caused by the bacterium *Francisella tularensis* which naturally infects animals, especially rodents, rabbits, and hares. People become infected by the bite of an arthropod (most commonly ticks and deerflies) that has fed on an infected animal, by handling infected animal carcasses, by eating or drinking contaminated food or water, or by inhaling infected aerosols in a laboratory setting.

Approximately 200 human cases of tularemia are reported annually in the U.S., mostly in persons living in the south-central and western states. For infections caused by arthropod bites, symptoms include an ulcer at the site of the bite and swelling of regional lymph nodes. Ingestion of organisms in food or water can cause painful pharyngitis (sore throat), abdominal pain, diarrhea, and vomiting. Inhalation of *F. tularensis* can cause severe respiratory illness, including life-threatening pneumonia and systemic infection.

There was one case of tularemia reported in King County in 2005, which may have been acquired from an arthropod bite while camping at Ross Lake in Whatcom County.

The use of *F. tularensis* as a weapon of bioterrorism is of concern because it is highly infectious. As few as 10 to 50 organisms can cause disease.

Typhoid Fever

Disease Reporting Requirements

Health care professionals: Report suspected cases immediately.

Laboratories: Report within two working days and submit the isolate to the Public Health Laboratory.

Purpose of Surveillance:

- To identify and track chronic typhoid carriers who can transmit the disease.
- To identify and eliminate sources of transmission, including contaminated food and water.

Typoid fever is a potentially severe, systemic infection caused by the bacteria *Salmonella* Typhi, and is characterized by fever, headache, malaise, lymph node inflammation, and rose spots on the trunk; constipation is reported more commonly than diarrhea. Children frequently experience only fever. The incubation period is typically 8 to 14 days (range 3 days to 1 month). Typhoid fever is usually acquired by drinking water, or eating food contaminated with *S. Typhi*, often shed by a chronic carrier of the bacteria.

Humans are the only reservoirs of *S. Typhi*. The case-fatality rate is less than 1% with appropriate antibiotic therapy, but even 15 to 20% of persons treated with antibiotics may experience relapses.

A small number of infected persons become chronic carriers, and can shed *S. Typhi* intermittently in their feces and urine for prolonged periods. The chronic carrier state is more common among middle-age persons, particularly women, and carriers often have biliary tract or gallbladder disease.

Typhoid fever is not endemic in King County. In 2005 there were 7 cases of typhoid fever reported.

Vibriosis

Disease Reporting Requirements

Health care professionals: Report cases within three working days.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify common source outbreaks.
- To identify and eliminate sources of transmission including contaminated food and water.

Vibrio species occur naturally in marine waters, and different species can cause intestinal illness, septicemia, or wound infections. Eating undercooked or raw shellfish, especially when traveling in the developing world, is the main risk for acquiring vibriosis. Failure to keep shellfish cold after harvesting can contribute to bacterial growth.

Vibrio parahaemolyticus is most commonly seen in warm months when its growth in seawater is amplified, and levels in shellfish increase. Symptoms can include abdominal cramps, severe watery diarrhea, vomiting, headache, and fever. *Vibrio vulnificus*, also associated with consumption of raw shellfish, causes septicemia in persons with immunosuppression, chronic liver disease, chronic alcoholism, or hemochromatosis.

In 2005, 8 cases of vibriosis were reported in King County residents. There was one wound infection caused by non-toxigenic *V. cholera*. The remaining 7 cases were caused by *V. parahaemolyticus*, 6 of which were associated with consumption of shellfish. No risk factor was identified in the remaining case.

Yersiniosis

Disease Reporting Requirements

Health care professionals: Report cases within three working days.

Laboratories: No requirement.

Purpose of Surveillance:

- To identify common source outbreaks.
- To identify and eliminate sources of transmission.

Y*ersinia enterocolitica*, and less commonly *Y. pseudotuberculosis* and *Y. kristensii*, cause acute bacterial infections with watery diarrhea, abdominal pain, fever, headache, sore throat, and vomiting. The incubation period is 3 to 7 days. Fecal shedding can persist for months, and person-to-person transmission has been reported. Complications from infection with *Yersinia* include arthritis, skin ulcers, bone infections, liver or spleen abscesses, and sepsis. Because its symptoms strongly mimic those of appendicitis, persons with *Yersinia* infections have undergone appendectomies or laparoscopic surgery prior to diagnosis with yersiniosis. Rarely, blood products contaminated with *Yersinia* from an infected donor cause transfusion-associated cases.

Wild and domestic animals are reservoirs for *Yersinia*. Raw pork, pork chitterlings, cross-contaminated food, and animal contact are risk factors for infection. Unlike most bacteria, *Yersinia* is resistant to cold, and can multiply in refrigerated food.

Nine cases of yersiniosis were reported in King County in 2005; a total of 154 cases were reported from 1996 through 2005. About one-third of these cases occurred in children less than five years of age. Yersiniosis is likely underdiagnosed because in most laboratories it is not included in routine stool culture for gastrointestinal pathogens.