

**SNOHOMISH  
HEALTH  
DISTRICT**

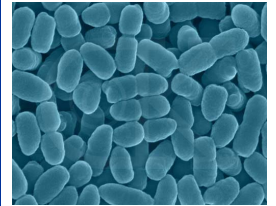
# **COMMUNICABLE DISEASE REPORT 2003-2007**

**•For Health Care Providers•**  
Published January 2009



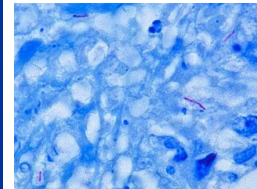
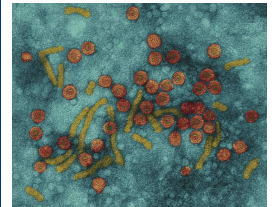
**ENTERICS**

**VACCINE-  
PREVENTABLE  
DISEASE**



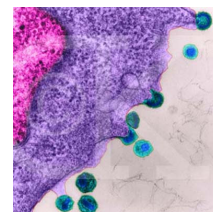
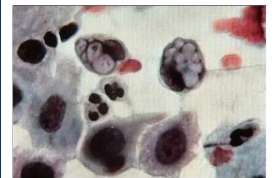
**ZOONOTICS**

**HEPATITIS**



**TUBERCULOSIS**

**SEXUALLY  
TRANSMITTED  
DISEASE**



**HIV/AIDS**

## CONTACTS & ACKNOWLEDGEMENTS

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**SNOHOMISH  
HEALTH  
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#### **Mission Statement:**

*To improve the health of individuals, families, and communities through disease prevention, health promotion, and protection from environmental threats.*

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## INTRODUCTION

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Communicable disease control played a major role in the declining death rate in the twentieth century. The discovery and development of antibiotics and vaccines allowed many diseases to become treatable and even preventable. Public health actions have also contributed to the control of communicable diseases. Advances in water treatment, food safety, and disease surveillance and investigation have all contributed to declining rates of disease.

Despite all efforts to reduce and eliminate communicable disease, new threats are constantly emerging. New strains of familiar diseases such as influenza, as well as new viruses and bacteria always pose a threat to the health of our community.

At the heart of communicable disease control is disease surveillance. Local public health jurisdictions conduct disease surveillance by partnering with health care providers, laboratories, and veterinarians. In Washington State there are currently over sixty notifiable conditions which require public health partners to report disease to their local health jurisdiction in a timely manner. Prompt reporting allows local health jurisdictions to detect disease outbreaks, identify persons at risk of developing disease, implement preventive measures when possible, monitor disease trends, and develop interventions aimed at the reduction and elimination of disease transmission.

This report presents summary data on notifiable conditions reported to the Snohomish Health District (SHD) from 2003-2007. Washington Administrative Code (WAC) Chapters 246-100 and 246-101 outline disease surveillance and reporting requirements for healthcare providers and facilities, laboratories, veterinarians, food service establishments, childcare facilities, and schools.

All numbers reported are for confirmed cases only. Please note that confirmed cases are just a proportion of the actual disease burden in Snohomish County. Depending on the condition, infected persons may not seek medical attention because they are not aware they have the disease. They also may become ill and chose not to receive care. Cases that do seek medical attention may not be confirmed due to inappropriate testing or are not reported after diagnosis.

Population estimates (Appendix A) used to calculate rates come from the Washington State Office of Financial Management: <http://www.ofm.wa.gov/pop/index.htm>. Rates are not provided for fewer than 5 cases and are not age-adjusted due to the small numbers of cases. Conditions are categorized into enteric disease, vaccine-preventable disease, zoonotic disease, hepatitis, tuberculosis, sexually transmitted disease, HIV, and AIDS.

## ENTERIC DISEASE

Enteric (gastrointestinal) diseases cause disruption to the body's digestive system. These illnesses are associated with nausea, vomiting and diarrhea. Disease is most often acquired through contaminated food or water. Most enterics can also be transmitted from person-to-person through the fecal-oral route. Illness can be prevented and transmission of disease reduced through good hygiene and proper food handling.

Campylobacteriosis is the most commonly reported enteric disease in Snohomish County and Washington State. There were no significant differences in the rates of campylobacteriosis in Snohomish County compared to state rates during the time period of 2003-2007. In 2004 and 2006 Snohomish County had significantly higher rates of giardiasis than are seen in the state as a whole. The higher rates were not due to any known outbreaks of disease. All other years (2003, 2005, 2007) there were no differences in the rates of giardiasis between Snohomish County and Washington State. Overall, rates of enterohemorrhagic *E. coli*, salmonellosis, and shigellosis are relatively stable. The rate of shigellosis reported in Snohomish County for 2007 is significantly higher than the state rate, which reflects the impact of an outbreak (see page 10). The number of cases of cryptosporidiosis, listeriosis, vibriosis, and yersiniosis were too small for comparative analysis of rates. Rates of vibriosis in Washington State were higher in 2006 due to a statewide outbreak.

Foodborne illnesses are also reported to SHD by individuals complaining of vomiting and/or diarrhea following a meal at a restaurant. These illnesses are tracked and many are referred to the Food and Living Environment Program for follow-up with the restaurant. During 2007 there were two outbreaks detected through foodborne illness reporting (see page 9).

ENTERIC DISEASE		2003		2004		2005		2006		2007	
		Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000
<b>Campylobacteriosis</b>	Snohomish County	96	15.1	88	13.6	110	16.8	94	14.0	117	17.0
	Washington State	943	15.5	861	14.0	1045	16.7	993	15.6	1020	15.7
<b>Cryptosporidiosis</b>	Snohomish County	7	1.1	6	0.9	2	*	9	1.3	14	2.0
	Washington State	65	1.1	63	1.0	94	1.5	95	1.5	139	2.1
<b>Enterohemorrhagic <i>E. coli</i></b>	Snohomish County	12	1.9	20	3.1	17	2.6	17	2.5	19	2.8
	Washington State	128	2.1	153	2.5	149	2.4	162	2.5	141	2.2
<b>Giardiasis</b>	Snohomish County	43	6.7	63	9.8	54	8.2	62	9.2	73	10.6
	Washington State	435	7.1	444	7.2	437	7.0	451	7.1	591	9.1
<b>Hemolytic Uremic Syndrome</b>	Snohomish County	0	*	1	*	1	*	1	*	0	*
	Washington State	1	0.0	6	0.1	4	0.1	1	0.0	2	0.0
<b>Listeriosis</b>	Snohomish County	0	*	1	*	2	*	2	*	7	1.0
	Washington State	13	0.2	13	0.2	14	0.2	18	0.2	25	0.4
<b>Salmonellosis</b>	Snohomish County	70	11.0	67	10.4	69	10.5	65	9.7	73	10.6
	Washington State	699	11.5	660	10.7	626	10.0	627	9.8	758	11.7
<b>Shigellosis</b>	Snohomish County	17	2.7	10	1.6	16	2.4	11	1.6	30	4.4
	Washington State	188	3.1	133	2.2	185	3.0	170	2.7	159	2.5
<b>Vibriosis</b>	Snohomish County	3	*	2	*	4	*	8	1.2	5	0.7
	Washington State	18	0.3	28	0.5	20	0.3	80	1.3	25	0.4
<b>Yersiniosis</b>	Snohomish County	6	0.9	6	0.9	1	*	3	*	5	0.7
	Washington State	28	0.5	34	0.6	19	0.3	22	0.3	28	0.4

\*Incidence rates not calculated for <5 cases.

## VACCINE-PREVENTABLE DISEASE

Many communicable diseases that were once considered common (e.g., measles, polio, pertussis) are now preventable through the use of vaccines. Vaccines are 80-100% effective (depending on the disease specific vaccine) when given at the correct doses and in accordance with the CDC immunization schedule. To eliminate reservoirs of vaccine-preventable diseases in our community, vaccines must be given throughout a person's lifetime. For example, the new acellular pertussis vaccine is now available for older children and adults. Revaccinating this population can help to reduce the transmission of pertussis to vulnerable individuals.

Pertussis is by far the most common vaccine-preventable disease that is reported to the Snohomish Health District. During 2004 to 2006 Snohomish County had a significantly lower rate of pertussis when compared to the overall incidence in Washington State. During 2003 and 2007 there were no differences between the rates seen in Washington State and Snohomish County. The number of confirmed cases of pertussis are only a fraction of the true burden of disease in our community. Older children and adults often only have mild illness and do not seek medical care. If ill persons do seek medical attention, they are often diagnosed with bronchitis or similar illnesses and are not tested. Also, testing for pertussis needs to be timely and done within the first two weeks to yield reliable results.

Meningococcal disease is reported to the Snohomish Health District every year. It is important to remember that the meningococcal vaccine does not protect against all types of meningococcal disease. The vaccine covers against serogroups A, C, Y and W-135. During 2003 to 2007 there were 22 cases of meningococcal disease. Ten of these cases were serogroup B which is not covered by the currently available vaccine. Eight of the cases were vaccine preventable with 3 cases of serogroup C and 5 cases of serogroup Y. For four of the 22 cases reported during 2003 to 2007, serogroup results were not available.

From 2003 to 2007 there were 2 cases each of *Haemophilus Influenzae* (invasive disease), measles, and mumps in Snohomish County. There were no cases of diphtheria, poliomyelitis, rubella, or tetanus in Snohomish County.

VACCINE-PREVENTABLE DISEASE		2003		2004		2005		2006		2007	
		Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000
<b><i>Haemophilus Influenzae</i></b>	Snohomish County	0	0.0	0	0.0	0	0.0	0	0.0	2	*
	Washington State	13	3.3	4	1.0	5	1.2	5	1.2	6	1.4
<b>Measles</b>	Snohomish County	0	0.0	1	*	0	0.0	0	0.0	1	*
	Washington State	0	0.0	7	0.1	1	0.0	1	0.0	3	0.0
<b>Meningococcal disease</b>	Snohomish County	6	0.9	3	*	4	*	5	0.7	4	*
	Washington State	61	1.0	42	0.7	53	0.8	45	0.7	32	0.5
<b>Mumps</b>	Snohomish County	0	0.0	0	0.0	2	*	0	0.0	0	0.0
	Washington State	11	0.2	2	0.0	3	0.0	42	0.7	53	0.8
<b>Pertussis</b>	Snohomish County	95	14.9	40	6.2	55	8.4	21	3.1	46	6.7
	Washington State	844	13.8	842	13.7	1026	16.4	377	5.9	482	7.4

\*Incidence rates not calculated for <5 cases.

## ZOONOTIC DISEASE

Zoonotic diseases are transmitted to humans from animals. Animals can transmit disease to humans through a variety of mechanisms. One way animals can transmit disease to humans is through insect bites. These zoonotic illnesses are called vector-borne and include diseases such as West Nile virus, malaria, and Lyme disease. Animals can also transmit illness to people through ingestion or aerosolization of blood, urine, or fecal matter, or through improper handling of an animal carcass. For example, people can contract hantavirus by breathing in the aerosolized urine, droppings, or saliva of an infected deer mouse.

Zoonotic illnesses are rare in Snohomish County and in Washington State. From 2003 to 2007 there was only one endemically acquired case of tularemia. There were also 4 cases of travel-associated Lyme disease and 11 cases of malaria. During 2003 to 2007 there were no cases of arboviral disease (including West Nile virus), brucellosis, hantavirus pulmonary syndrome, leptospirosis, plague, psittacosis, Q fever, rabies, or relapsing fever.

ZOONOTIC DISEASE		2003		2004		2005		2006		2007	
		Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000
<b>Hantavirus</b>	Snohomish County	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>Pulmonary Syndrome</b>	Washington State	2	0.0	2	0.0	1	0.0	3	0.0	2	0.0
<b>Leptospirosis</b>	Snohomish County	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Washington State	1	0.0	0	0.0	4	0.1	1	0.0	5	0.1
<b>Lyme Disease</b>	Snohomish County	0	0.0	0	0.0	2	*	0	0.0	2	*
	Washington State	7	0.1	14	0.2	13	0.2	8	0.1	12	0.2
<b>Malaria</b>	Snohomish County	1	*	1	*	1	*	4	*	4	*
	Washington State	34	0.6	24	0.4	24	0.4	43	0.7	30	0.5
<b>Tularemia</b>	Snohomish County	0	0.0	0	0.0	0	0.0	0	0.0	1	*
	Washington State	2	0.0	4	0.1	10	0.2	1	0.0	1	0.0
<b>West Nile Virus<sup>^</sup></b>	Snohomish County	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Washington State	8	0.1	1	0.0	3	0.0	8	0.1	5	0.1

\*Incidence rates not calculated for <5 cases.

<sup>^</sup>All cases were travel related except for 3 cases in 2006.

## HEPATITIS

Hepatitis is liver disease caused by one of 5 different known types of hepatitis viruses. The different types of hepatitis viruses are A, B, C, D, and E. Disease caused by these viruses ranges from mild to severe illness. These different viruses also vary in how they are transmitted, and if they can become a chronic condition. Vaccines are available for hepatitis A and hepatitis B.

Hepatitis A (HAV) and E are transmitted through the fecal-oral route and do not become chronic conditions. Hepatitis E is very rare in the United States, but is endemic in many parts of the world. Hepatitis B (HBV) and D are transmitted through the blood and sexual fluids. Hepatitis D relies on the hepatitis B virus to replicate and can only be transmitted along with HBV. Hepatitis C virus (HCV) is transmitted primarily through the blood, but is also rarely spread through sexual contact. Both HBV and HCV can be passed from the mother to her baby at the time of delivery. Acute hepatitis B and C disease are rarely reported, as most cases are asymptomatic at the time of infection. Hepatitis B, C, and D can become chronic infections. Chronic hepatitis B and C can cause liver disease, cirrhosis, and liver cancer. There are approximately 2,000-4,000 deaths per year in the United States from chronic HBV infection, and 8,000-10,000 from chronic HCV.

There were no significant differences between the rates of hepatitis A in Snohomish County and those in Washington State from 2003-2007. In 2007 there was a large hepatitis A contact investigation involving a daycare center (see pg 9). Acute hepatitis B has gone down from 11 cases in 2004 to 3 cases in 2007. There were only 2 cases of acute hepatitis C in 2003 and 1 case in 2005. Chronic hepatitis B and C rates are not analyzed by Washington State Department of Health and therefore cannot be compared. The number of confirmed chronic hepatitis B and C cases has risen sharply in 2006 and 2007. This is most likely due to a combination of increased number of cases and new confirmatory testing, i.e. HCV RNA testing. Note that chronic hepatitis B and C cases are listed only in the year they were reported to SHD, not the year of disease onset.

HEPATITIS		2003		2004		2005		2006		2007	
		Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000
<b>Hepatitis A</b>	Snohomish County	5	0.8	5	0.8	11	1.7	8	1.2	9	1.3
	Washington State	76	1.2	69	1.1	63	1.0	52	0.8	60	0.9
<b>Hepatitis B, Acute</b>	Snohomish County	9	1.4	11	1.7	6	0.9	6	0.9	3	*
	Washington State	90	1.5	64	1.0	80	1.3	80	1.3	72	1.1
<b>Hepatitis B, Chronic</b>	Snohomish County	33	5.2	42	6.5	82	12.5	81	12.1	88	12.8
	Washington State	na	na	na	na	na	na	na	na	na	na
<b>Hepatitis C, Acute</b>	Snohomish County	2	*	0	0.0	1	*	0	0.0	0	0.0
	Washington State	21	0.3	23	0.4	21	0.3	23	0.4	18	0.3
<b>Hepatitis C, Chronic</b>	Snohomish County	141	22.1	183	28.4	236	36.0	650	96.8	707	103
	Washington State	na	na	na	na	na	na	na	na	na	na

\*Incidence rates not calculated for <5 cases.

## TUBERCULOSIS

Tuberculosis (TB) is a bacterial infection which spreads by airborne transmission. TB has a highly variable latency period (the time between infection and the development of active TB disease). TB can infect many different organs in the body. However, it most often infects the lungs (pulmonary TB). If active TB disease is not treated, the 5-year survival rate is approximately 50%. With effective antibiotic treatment, however, TB infection is preventable and active TB disease is curable.

In 2003 and 2004 Snohomish County had a significantly lower rate of active tuberculosis than the overall incidence in Washington State. There were no significant differences in TB rates between Snohomish County and Washington State from 2005 through 2007. In 2005-2006 there was an outbreak of TB in Snohomish County among methamphetamine users.

TUBERCULOSIS		2003		2004		2005		2006		2007	
		Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000
Tuberculosis, Active	Snohomish County	12	1.8	15	2.3	24	3.6	26	3.8	24	3.5
	Washington State	250	4.1	245	3.9	256	4.0	262	4.1	291	4.5

## SEXUALLY TRANSMITTED DISEASE

Sexually transmitted diseases (STDs) include a variety of illnesses caused by bacterial, viral, and parasitic organisms. STDs are transmitted from one person to another through vaginal, anal, or oral sex. Bacterial STDs such as *Chlamydia*, gonorrhea and syphilis can be cured with antibiotics. Most STDs caused by viruses cannot be cured, but they can usually be treated to relieve symptoms and help prevent complications. If untreated, STDs can have consequences ranging from mild brief illness to serious complications such as infertility, tubal pregnancy, cancer, stroke, and death. Many STDs can cause serious health problems in infants born to infected mothers.

The rates of *Chlamydia* and gonorrhea have increased in Snohomish County and Washington State from 2003-2007. Snohomish County, however, had significantly lower rates of *Chlamydia* and gonorrhea throughout the 5 year period of 2003 to 2007 when compared to Washington State as a whole. Conversely, the rates of genital herpes simplex (HSV-1 and HSV-2) are significantly higher in Snohomish County than the rates seen in Washington State from 2003 to 2007. The rate of herpes simplex in Snohomish County has gone down in 2007. The rates of syphilis in Snohomish County (2003-2007) remain stable and are too low to compare to Washington State.

SEXUALLY TRANSMITTED DISEASE		2003		2004		2005		2006		2007	
		Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000
<i>Chlamydia</i>	Snohomish County	1467	230.1	1632	253.1	1556	237.3	1503	223.7	1416	206.3
<i>Trachomatis</i>	Washington State	16796	275.4	17635	285.9	18617	297.6	17819	279.5	19123	294.7
Gonorrhea	Snohomish County	139	21.8	166	25.7	244	37.2	317	47.2	296	43.1
	Washington State	2754	45.2	2810	45.6	3738	59.7	4231	66.4	3646	56.2
Herpes Simplex, Genital	Snohomish County	268	42.0	268	44.4	305	46.5	395	55.8	270	39.3
	Washington State	2073	34.0	2153	34.9	2331	37.3	2446	38.4	1952	30.1
Syphilis, Primary and Secondary	Snohomish County	8	1.3	8	1.2	3	*	6	0.9	9	1.3
	Washington State	82	1.3	150	2.4	152	2.4	182	2.9	168	2.6

## HIV/AIDS

Human immunodeficiency virus (HIV) is found in the blood, semen, or vaginal fluid of an infected person. It is transmitted through sexual contact, percutaneous exposure, and from mother to baby (before or during delivery and through breastfeeding). HIV causes acquired immunodeficiency syndrome (AIDS) in the late stages of infection. It can take years, even without treatment, for HIV to progress into AIDS. A person is determined to have AIDS when that individual's immune system is to the point of having difficulty fighting off unusual infections.

Rates of HIV in Snohomish County remain relatively stable. In 2003, 2004, 2006, and 2007, the incidence of newly diagnosed cases of HIV in Snohomish County was significantly lower than the incidence in Washington State. In 2005 the rate of newly diagnosed HIV in Snohomish County was similar to that seen in Washington State as a whole.

HIV/AIDS		2003		2004		2005		2006		2007	
		Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000	Cases	Rate per 100,000
<b>Human Immunodeficiency Virus</b>	Snohomish County	33	5.2	38	5.9	53	8.1	43	6.4	47	7.0
	Washington State	565	9.3	561	9.1	577	9.2	570	8.9	610	9.4

## **OUTBREAKS 2007**

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### **Norovirus Outbreak Associated with Local Restaurant**

In the first week of February 2007, the Snohomish Health District Communicable Disease (CD) Program received eight separate foodborne illness complaints, involving groups of patrons who became ill after eating at a Snohomish County restaurant. Environmental Health's Food and Living Environment (FLE) Program was immediately notified and completed an onsite inspection of the restaurant.

A total of 57 interviews with patrons were completed involving 14 different parties. After initial analysis of the patron interviews, no specific food items were implicated, and the illness appeared to be of viral origin. During the restaurant inspection, FLE was notified of several staff that had called in ill. Stool specimens were collected on several patrons and ill staff for norovirus testing.

The epidemiological, environmental, and laboratory evidence from this outbreak are strongly suggestive of a viral etiology. Symptoms, spread of illness, and food handling errors are consistent with viral gastroenteritis and fecal-oral transmission. Laboratory tests from a sample of cases were positive for norovirus. No specific food items were implicated in this outbreak. However, environmental health investigations revealed ill staff members and bare hand contact with ready to eat foods.

### **Foodborne-illness Outbreak Associated with Catered Event**

The CD Program was contacted by a corporate employee health clinic to report that several employees became ill after attending a catered meeting at a local facility. Twenty-seven persons attended the meeting on a Friday and 12 employees reported being ill by the following Tuesday. The FLE Program was immediately notified and completed an onsite inspection of the event facility. The facility did not have a permit to prepare food onsite and was immediately notified by FLE to cease all food preparations until a permit could be obtained.

After completing interviews with all ill persons, it was determined that the possible source of illness was bacterial in origin based on incubation period and duration. SHD was unable to obtain stool specimens from ill persons and the exact cause of illness is unknown. FLE worked with the facility to obtain proper permitting for onsite food preparation.

### **Hepatitis A Contact Investigation in Daycare Center**

In early July, 2007, the CD Program was notified of Hepatitis A in a young child who had attended a daycare center in Snohomish County during the infectious period. The CD Program alerted the Child Care Health Program, which assisted with inspection and notification of the daycare center. Letters notifying parents of the possible exposure and prophylaxis recommendations were sent out by the CD program immediately. A special clinic was arranged at the Snohomish Health District's Everett office to provide prophylactic treatment to daycare attendees and staff.

The investigation identified nine family members and close contacts that needed prophylaxis; all nine received immunoglobulin (IG). There were 98 childcare attendees, ranging in age from <1 to 12 years old, exposed to the case. Fifty-seven childcare attendees needed IG and 33 did not. Eight attendees were of unknown status. Thirty-three of the 57 attendees needing IG received treatment. There were 19 childcare staff exposed and 15 received IG. No other cases of Hepatitis A occurred related to this exposure.

Note that this outbreak occurred before the new Hepatitis A prophylaxis guidelines had been approved in late 2007. The new guidelines suggest that vaccination is an effective substitute for immunoglobulin in outbreak settings.

### **Shigellosis Outbreak in a Daycare Center**

The CD Program was notified of two shigellosis cases in October 2007. Interviews determined that the cases were a staff member and attendee in the same daycare center. The Child Care Health Program was informed and the daycare center was investigated. Of 40 individuals interviewed there were 10 confirmed shigellosis cases (seven daycare center attendees, one daycare staff member and two attendee parents).

Letters were distributed to all daycare center staff and attendee parents. Due to the amount of diarrheal illness and poor hand hygiene sanitation practices found during the center investigation, it was decided that all attendees and staff of the center with diarrheal illness should be excluded until stool culture negative and asymptomatic for 24 hours. All confirmed cases of shigellosis required two negative stool cultures before they could return to the center. Active surveillance for diarrheal illness continued at the center for two incubation periods from last exposure.

Controlling transmission required prompt investigation of shigellosis cases, inspection of the daycare center, strict exclusion criteria, continued active surveillance, and working with the daycare center staff to improve hygiene practices.

## APPENDIX A: POPULATION ESTIMATES

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<b>Year</b>	<b>Snohomish County</b>	<b>Washington State</b>
2003	637,500	6,098,300
2004	644,800	6,167,800
2005	655,800	6,256,400
2006	671,800	6,375,600
2007	686,300	6,488,000