
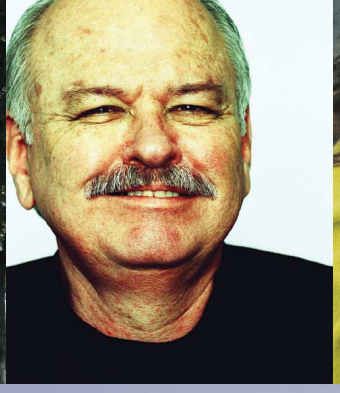

2004 British Columbia Annual Summary of Reportable Diseases

BC Centre for Disease Control
AN AGENCY OF THE PROVINCIAL HEALTH SERVICES AUTHORITY



BC Centre for Disease Control
AN AGENCY OF THE PROVINCIAL HEALTH SERVICES AUTHORITY

04

Above photo: BC Centre for Disease Control - 655 West 12th Avenue, Vancouver BC, V5Z 4R4

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Contents

2004 Highlights

Vaccine Preventable Diseases

Surveillance of these diseases uniformly demonstrates incidence reductions. These are most marked for the diseases that can now be enumerated by small case counts: Hib, acute hepatitis B, measles, mumps, rubella, as well as no reports of tetanus, diphtheria and polio. Routine immunization programs against meningococcal group C disease and invasive pneumococcal disease in children were introduced in 2003 and disease incidence reductions among targeted age groups are starting to be seen. While this publication does not provide data on serotype-specific rates, the decline among infants from 24 cases of invasive pneumococcal disease in 2003 to 6 cases in 2004 is highly suggestive of an effect of vaccination. These two new programs may also result in disease reductions outside of targeted age groups as a result of "herd immunity". More difficult to assess will be the impact of the adolescent acellular pertussis vaccine program, due to diagnostic challenges presented by and cyclic nature of pertussis.

This year's summary includes a review of the avian influenza experience (page 19). Although this disease is not "vaccine preventable", influenza vaccine was used among potentially exposed persons to prevent co-infection with human and avian strains in an attempt to reduce the possibility of viral reassortment. This was the first such experience in British Columbia (BC) and we thought it merited inclusion in the report. Activities to improve communication and collaboration between human and animal health professionals are under way with the increasing recognition that many emerging pathogens have zoonotic origins.

Sexually Transmitted and Bloodborne Pathogens

Unlike the vaccine preventable diseases, STD rates are on the increase in BC this year. HIV, genital chlamydia, gonorrhea and syphilis were all observed at higher rates. Of these, only the increase in gonorrhea reporting may be explained by diagnostic artifact with the introduction of a new testing methodology for males. Hepatitis C rates declined to the lowest rates observed in BC but are still above the nationally reported rates.

04

Diseases Transmitted by Direct Contact and Respiratory Routes

The reported incidence of invasive group A Streptococcal disease declined after three years of annual increases. Tuberculosis case reports decreased by 5%, although the provincial rate continues to be strongly influenced by the high rates in Vancouver and Richmond. Methicillin resistant *Staphylococcus aureus* appears to be on the increase based on aggregate reporting of new patients and isolates, carried out by the Medical Microbiologists of BC.

Enteric, Food and Waterborne Diseases

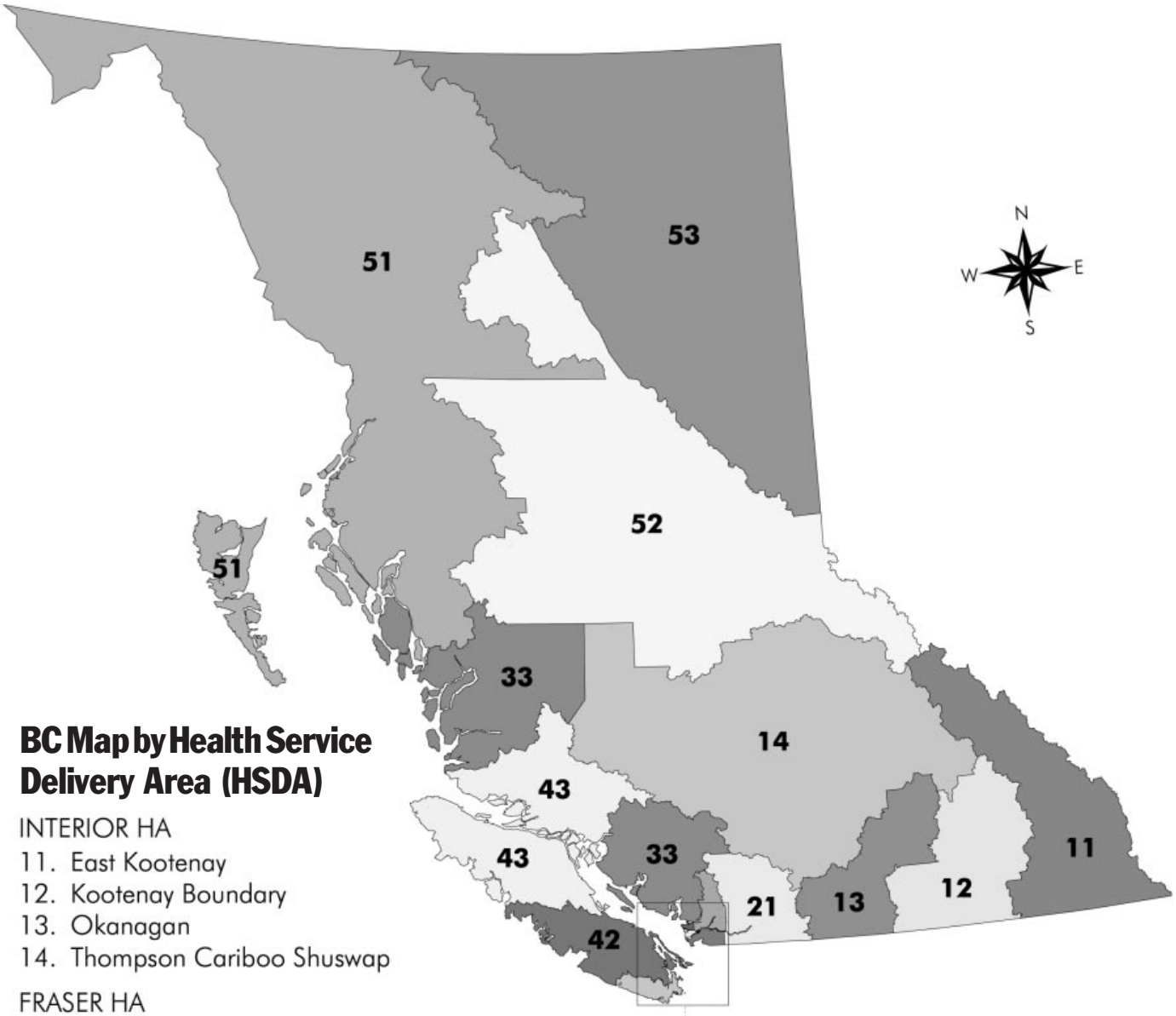
There were no consistent trends in this varied group of diseases, many of which show seasonal patterns with increases in the summer months, or are related to travel. The number of cases and corresponding rates of these diseases are highly influenced by the occurrence of outbreaks, which were noted for campylobacteriosis, cyclosporiasis, verotoxigenic *E. coli*, and salmonellosis. As well, changes or variations in diagnostic practices were potential explanations for increased reporting of amoebiasis and yersiniosis.

Vectorborne and Other Zoonotic Diseases

No significant endemically acquired human illness was reported in BC in 2004, despite extensive surveillance for West Nile virus through a variety of activities.

Environmental Fungi

Continued surveillance of the pathogen *Cryptococcus neoformans* var gattii, newly emerged as endemic to British Columbia, suggests that incidence may be reaching a steady state, and, as in prior years, cases reported in 2004 had a history consistent with acquisition on Vancouver Island.



BC Map by Health Service Delivery Area (HSDA)

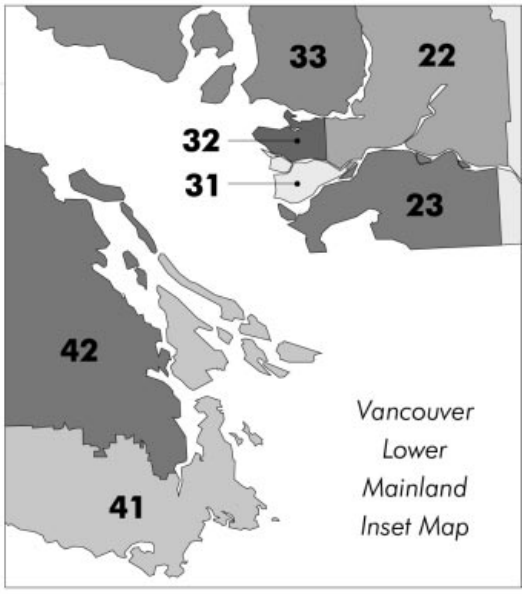
INTERIOR HA
11. East Kootenay
12. Kootenay Boundary
13. Okanagan
14. Thompson Cariboo Shuswap

FRASER HA
21. Fraser East
22. Fraser North
23. Fraser South

VANCOUVER COASTAL HA
31. Richmond
32. Vancouver
33. North Shore/Coast Garibaldi

VANCOUVER ISLAND HA
41. South Vancouver Island
42. Central Vancouver Island
43. North Vancouver Island

NORTHERN HA
51. Northwest
52. Northern Interior
53. Northeast



Diseases Preventable by Vaccination

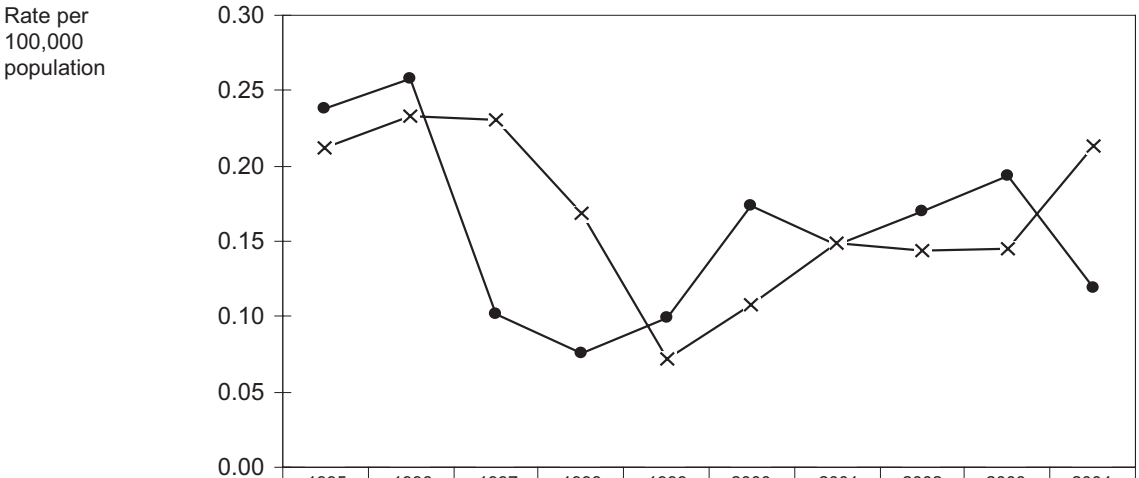
2004

04

Haemophilus influenzae type b (Hib), invasive

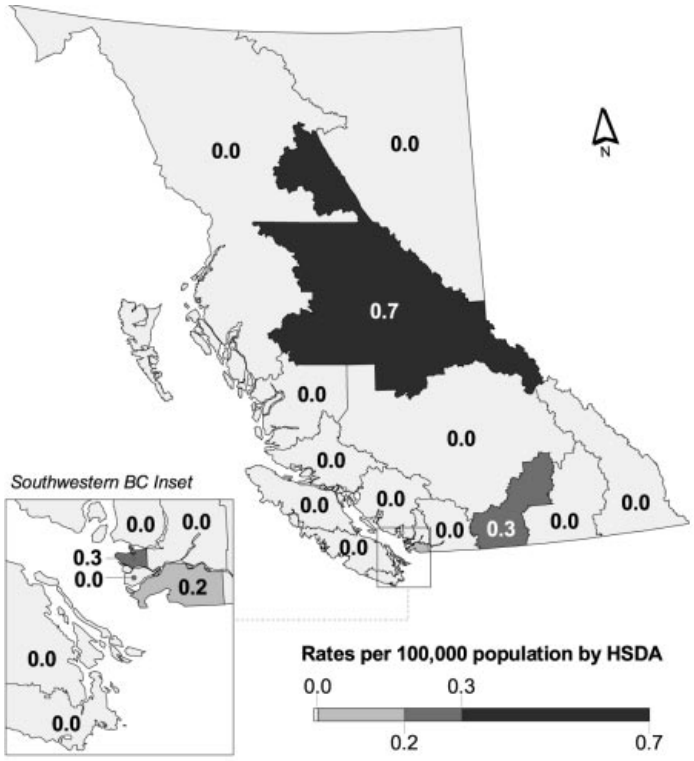
Five cases of invasive Hib disease were reported in 2004. Three were adults in their 40s. Two cases were aged 5 and 6 years; one had not received any Hib-containing vaccines, while the other had been fully immunized with 4 doses of Hib-containing vaccine at the appropriate milestones.

1.1 *Haemophilus influenzae* type b (invasive) Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Invasive Hib Reports	9	10	4	3	4	7	6	7	8	5
—●— BC Invasive Hib Rate	0.24	0.26	0.10	0.08	0.10	0.17	0.15	0.17	0.19	0.12
—×— Canadian Hib Rate	0.21	0.23	0.23	0.17	0.07	0.11	0.15	0.14	0.15	0.21

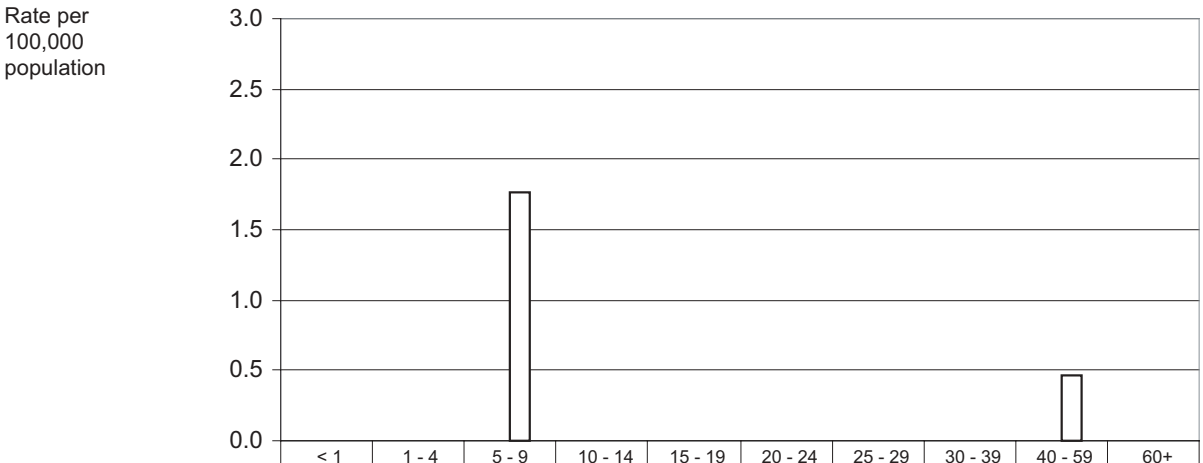
1.2 *Haemophilus influenzae* type b (Hib), invasive Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	0	0.0
13	Okanagan	1	0.3
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	0	0.0
22	Fraser North	0	0.0
23	Fraser South	1	0.2
31	Richmond	0	0.0
32	Vancouver	2	0.3
33	North Shore/Coast Garibaldi	0	0.0
41	South Vancouver Island	0	0.0
42	Central Vancouver Island	0	0.0
43	North Vancouver Island	0	0.0
51	Northwest	0	0.0
52	Northern Interior	1	0.7
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

1.3 *Haemophilus influenzae* type b (invasive) Rates by Age Group and Sex, 2004



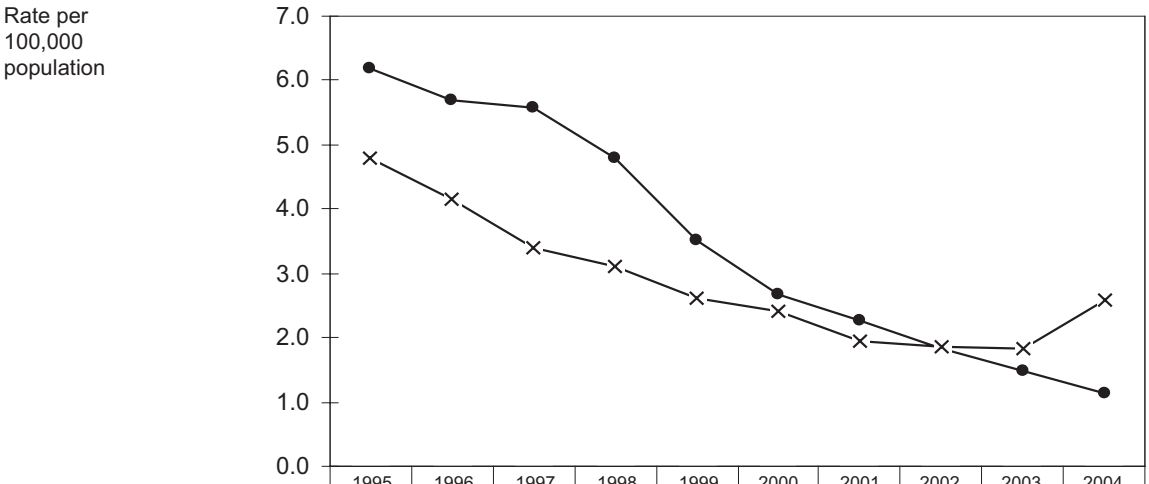
	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Invasive Hib Reports - Female	0	0	2	0	0	0	0	0	3	0
Invasive Hib Reports - Male	0	0	0	0	0	0	0	0	0	0
□ Invasive Hib Rate - Female	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.5	0.0
■ Invasive Hib Rate - Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Hepatitis B

The reporting rate of acute hepatitis B in British Columbia has continued to decline. Forty eight cases were reported in 2004 for a rate of 1.1 per 100,000. The decline continues to be a consequence of the introduction of the provincially funded hepatitis B immunization programs. The grade 6 program was introduced in 1992, the universal infant and expanded high risk programs were introduced in 2001.

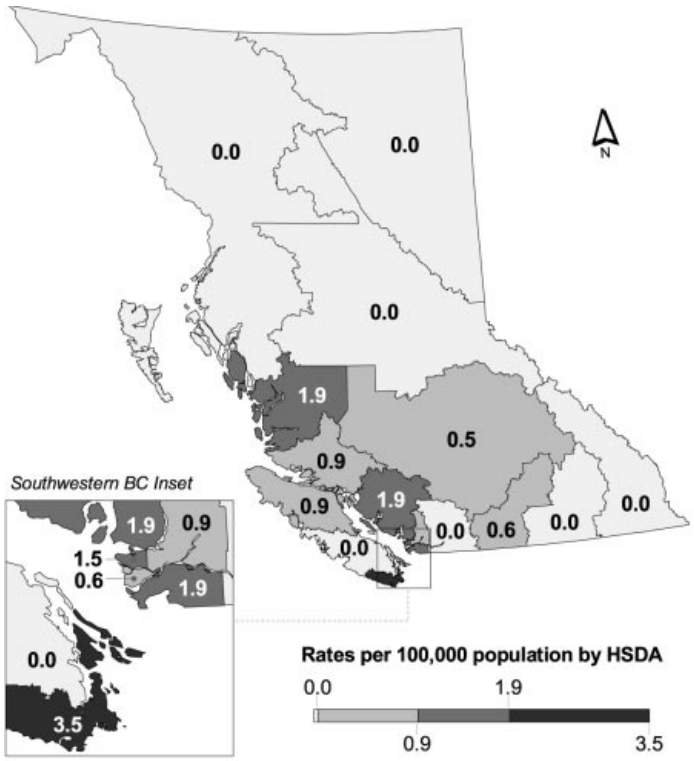
No cases of acute hepatitis B were reported in persons under 20 years of age. The rate of acute hepatitis B in males exceeded the rate in females in every age group. South Vancouver Island again had the highest rate of acute hepatitis B; more than 3 times the provincial rate.

2.1 Acute Hepatitis B Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Hepatitis B: Acute Reports	234	220	220	191	141	108	92	75	61	48
BC Hepatitis B: Acute Rate	6.2	5.7	5.6	4.8	3.5	2.7	2.3	1.8	1.5	1.1
Canadian Hepatitis B Rate	4.8	4.1	3.4	3.1	2.6	2.4	1.9	1.9	1.8	2.6

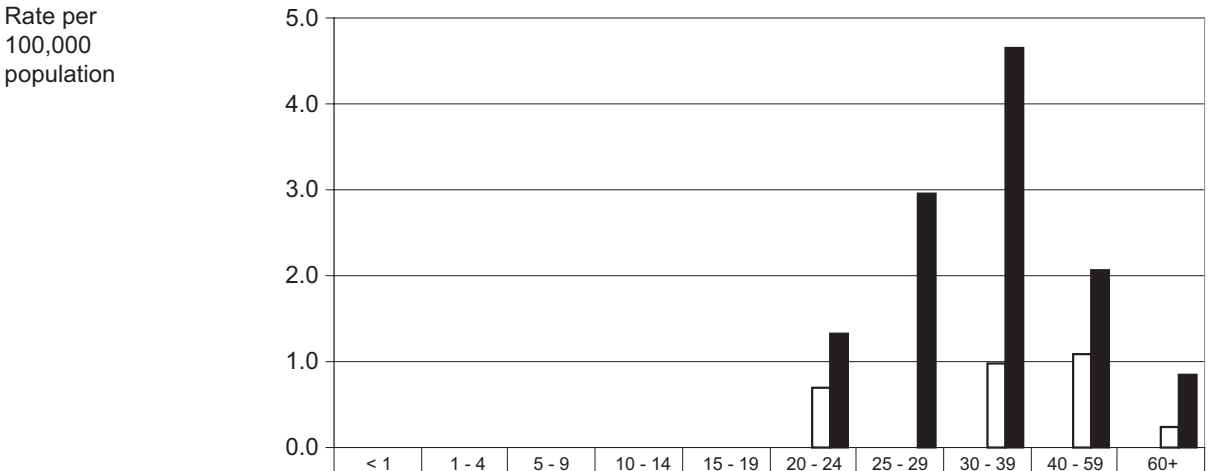
2.2 Acute Hepatitis B Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	0	0.0
13	Okanagan	2	0.6
14	Thompson Cariboo Shuswap	1	0.5
21	Fraser East	0	0.0
22	Fraser North	5	0.9
23	Fraser South	12	1.9
31	Richmond	1	0.6
32	Vancouver	9	1.5
33	North Shore/Coast Garibaldi	5	1.9
41	South Vancouver Island	12	3.5
42	Central Vancouver Island	0	0.0
43	North Vancouver Island	1	0.9
51	Northwest	0	0.0
52	Northern Interior	0	0.0
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

2.3 Acute Hepatitis B Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Hepatitis B: Acute Reports - Female	0	0	0	0	0	1	0	3	7	1
Hepatitis B: Acute Reports - Male	0	0	0	0	0	2	4	14	13	3
Hepatitis B: Acute Rate - Female	0.0	0.0	0.0	0.0	0.0	0.7	0.0	1.0	1.1	0.2
Hepatitis B: Acute Rate - Male	0.0	0.0	0.0	0.0	0.0	1.3	2.9	4.7	2.1	0.8

Influenza

Influenza surveillance in BC consists of the collection, analysis and distribution of data on influenza activity. The influenza surveillance season typically begins during the first week of October (week 40) and continues through the end of September (week 39) the following year.

The objectives of influenza surveillance are:

1. To detect laboratory-confirmed influenza early;
2. To detect and monitor influenza type and strain variation during the influenza season; and
3. To estimate morbidity and mortality due to influenza and influenza-like illness (ILI) and to compare trends from year to year .

Surveillance findings are used to determine population-based susceptibility to emerging and current strains, provide information to assist in the prevention and control of influenza, and evaluate the performance of influenza control programs.

A network of health agencies and professionals provide the information vital to influenza surveillance and are described below. The results presented in this report include weeks 40 (September 26, 2004) through 20 (May 21, 2005). In the 2004-2005 season, influenza activity peaked in January 2005.

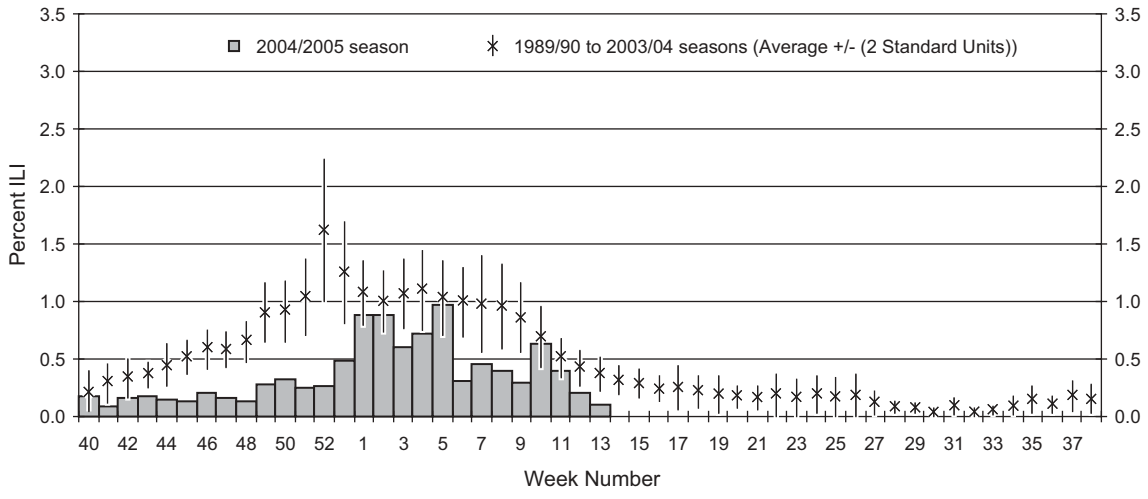
1. Patient visits due to influenza-like illness

Volunteer sentinel physicians record the proportion and demographic characteristics of patient visits due to ILI. Sentinel physicians also collect specimens for testing for respiratory pathogens from patients presenting with acute ILI symptoms.

The BC Sentinel physician surveillance system for the 2004-2005 influenza season consisted of 45 sentinel sites around the province: two emergency rooms, three walk-in clinics, and 40 family practice clinics. During the 2004-2005 influenza season the proportion of patient visits due to ILI reported by sentinel physicians was at or below the historic average. Reports of ILI visits peaked in week 5 at 0.97%. (See Figure 3.1)

3.1

Proportion of Patient Visits due to Influenza Like Illness (ILI) per Week Compared to Average Proportion of ILI Visits for the Past 15 Seasons Sentinel Physicians, British Columbia, 2004- 2005



2. Outbreak reports

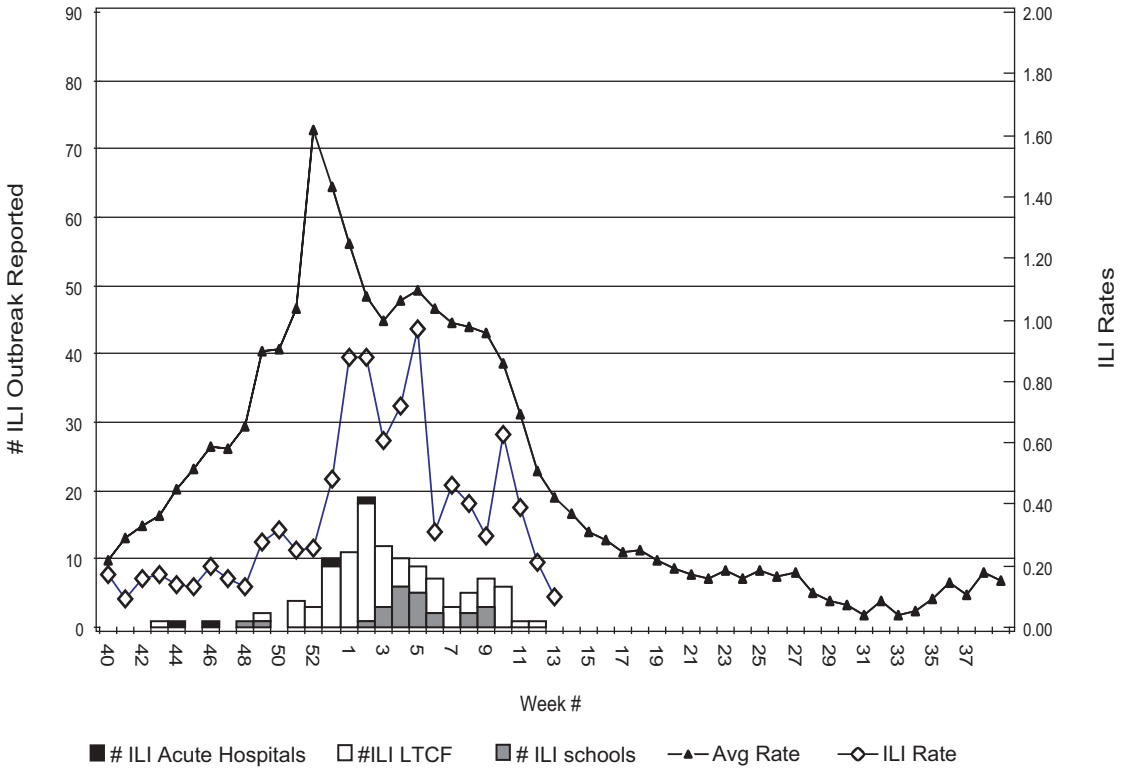
Health regions report ILI outbreaks in long-term care facilities (LTCFs) and hospitals, as well as absenteeism greater than 10% due to ILI in schools and worksites. In the 2004-2005 influenza season, health regions reported 123 ILI outbreaks. The majority (90 outbreaks (73.1%)) were in Long Term Care Facilities (LTCFs). Of the remainder, 27 (21.2%) were in schools, and five (4.1%) were in acute care hospitals (see Figure 3.2).

In the 2003-2004 influenza season, antigenic drift resulted in the emergence of the A/Fujian strain (not included as a component of the 2003-2004 influenza vaccine) and an increased number of school outbreaks. As expected in the second year of a drift strain, in 2004-2005 an abundance of outbreaks in older institutionalized populations were observed.

The causative organism was identified in 80 (65%) of the outbreaks. Influenza A was responsible for 71 (57.8%) of these outbreaks. Six (4.9%) outbreaks were due to Respiratory Syncytial Virus, and three outbreaks (2.4%) were due to Influenza B.

3.2

Number of Influenza-Like Illness (ILI) Outbreaks Reported, ILI Rates from Sentinel Physicians and Average ILI Rate for past 15 years, per Week British Columbia, 2004-2005



3. Virologic testing and strain characterization

The virology laboratories at the BCCDC and the Children's and Women's Health Centre report the number of respiratory virology tests performed weekly and the number positive for respiratory viruses. Some influenza isolates are forwarded to the National Microbiology Laboratory for strain characterization.

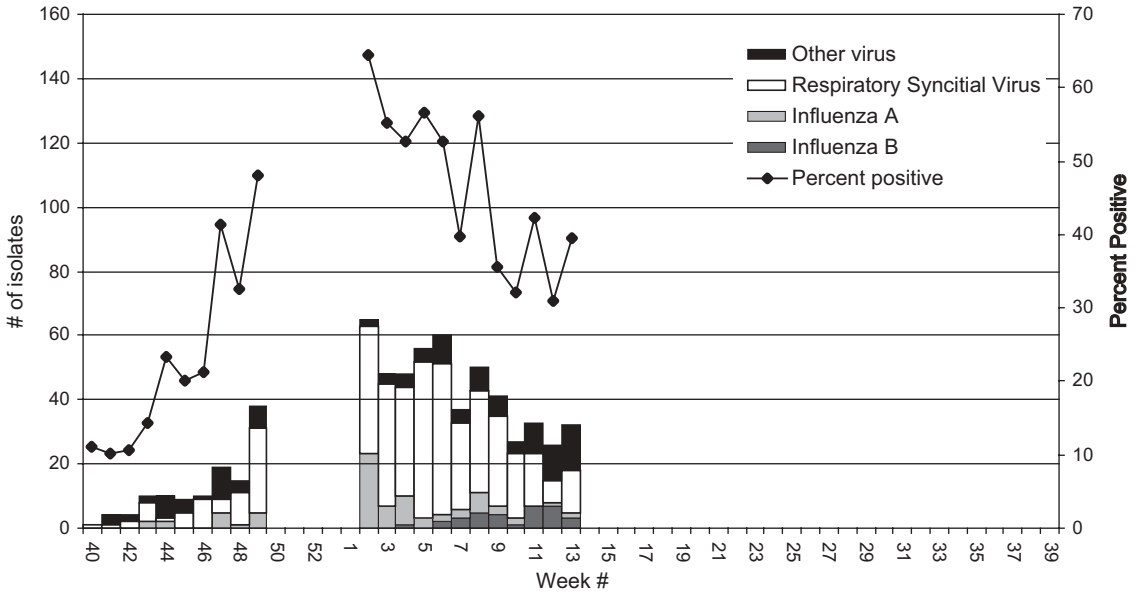
The BCCDC Virology Laboratory and the Children's and Women's Health Centre Virology Laboratory tested 6226 specimens for respiratory viruses between September 26, 2004 and May 21, 2005. Of these, 1625 (26.1%) were positive: 605 (9.7%) were influenza A, 111 (1.8%) were influenza B, 593 (9.5%) were respiratory syncitial virus, and 316 (5.1%) were other respiratory viruses (adenovirus or parainfluenza 1, 2, 3 or 4 (see Figure 3.3).

As of May 20, 2005, 206 influenza isolates from BC were characterized by the National Microbiology Laboratory. Of these 122 (59.2%) were A/Fujian/411/02-like, 47 (22.9%) were A/California/07/04-like, 26 (12.6%) were B/Shanghai/361/02, and 11 (5.3%) were B/Hong Kong/330/01-like. A/California/07/04-like virus was a new antigenic variant of the H3N2 virus and was not a component of the 2004-05 influenza vaccine. It was in circulation in BC as early as November 2004.

A/Wyoming/3/2003-like virus was the recommended influenza A (H3N2) component, A/New Caledonia/20/99-like virus was the recommended influenza A (H1N1) component, and B/Jiangsu/10/2003-like virus was the recommended influenza B component of the 2004-2005 influenza vaccine. A/Wyoming is antigenically equivalent to A/Fujian and B/Jiangsu is antigenically equivalent to B/Shanghai.

3.3

Virus Isolates and Percent Positive from Respiratory Virus Specimens Submitted to Children and Women's Health Centre Laboratory, per Week British Columbia, 2004-2005



4. Pneumonia and Influenza-related mortality

BC Vital Statistics Agency provides monthly reports on pneumonia and influenza mortality rates (number of deaths per 100,000 population), comparing the current month to the average rate for the same month in the previous 14 years.

From October 2004 through March 2005 BC Vital Statistics recorded 2425 deaths related to pneumonia and influenza combined (P&I) in BC; 61 of these were related to influenza. The expected number of P&I-related deaths based on historic averages between October and January is 2133, and the expected number of influenza-related deaths is 58. The overall P&I-related mortality rate for October 2004 through January 2005 was 9.57 deaths per 100,000 population (the average historic rate for this period is 9.29 deaths per 100,000 population). In January 2005, the observed P&I mortality rate was significantly higher than the historic average (13.47 vs 11.18 per 100,000). In all other months the mortality rate was within expected limits.

Of the 61 influenza-related deaths in BC between October 2004 and March 2005, 59 (96.7%) were individuals aged 65 years or older, and two (3.3%) were individuals aged 20 to 64 years.

Avian Influenza

On February 4, 2004, a flock of chickens on a poultry farm in the Fraser Valley of BC first became mildly ill. Low pathogenicity avian influenza (LPAI), subtype H7N3 was identified from the birds. Within 12 days, this virus mutated into a highly pathogenic form and decimated the farm's second flock. The virus spread to surrounding farms, eventually affecting 42 commercial farms and 11 backyard flocks, representing approximately 1.3 million birds. To control the outbreak, the Canadian Food Inspection Agency (CFIA) ordered the depopulation of all poultry in the Fraser Valley south of the Fraser River (approximately 19 million birds). The last infected farm was detected May 21, 2004.

During the outbreak, the BCCDC and Fraser Health Authority played leading roles in developing recommendations for individual and population human health protection and disease management, and implementing enhanced surveillance for human disease.

Federal workers involved in the depopulation were required to wear full personal protective equipment (masks, gloves, goggles, biosafety suit, footwear), to take prophylactic oseltamivir (an antiviral drug effective against influenza), and to receive the commercially available human influenza vaccine for the 2003-2004 season. All protective measures were provided free of charge and were recommended also for exposed farm workers and their families. Following reports of human illness, these measures were more rigorously promoted and reinforced through worker screening, information letters prepared by the BCCDC and media bulletins.

Enhanced surveillance was implemented for conjunctivitis and/or influenza-like illness (ILI) among federal workers, farm workers and their household contacts, and any other potentially exposed individuals. Suspect cases were individuals presenting after February 6, 2004 with two or more new or worsening conjunctivitis and/or ILI symptoms, with onset between one day after first exposure and seven days after last exposure to a potential source of avian influenza virus in the Fraser Valley. Confirmed cases were persons with laboratory confirmation of influenza A (H7) virus in eye, nose or throat by RT-PCR or cell culture. Laboratory tests were performed at BCCDC, and subtype (H7) identification was done at the National Microbiology Laboratory.

Between February 18 and June 1, 2004, 77 symptomatic individuals were reported to BCCDC. Fifty-seven met the suspect (n=55) or confirmed (n=2) case definitions. Among the suspect cases, respiratory symptoms predominated. None were hospitalized, and all recovered fully. The two confirmed cases were adult men identified in mid-March working on different farms. Both had direct eye contact with infected poultry. Influenza A H7N3 was detected in respiratory specimens from the men. Symptom onset was one to three days after exposure and included conjunctivitis and mild ILI symptoms. Both men received oseltamivir treatment and both recovered fully. Active surveillance detected no secondary cases.

The experience of the two infected individuals – conjunctivitis and mild ILI – is similar to that reported from the Netherlands in association with H7N7 subtype. To date, illness in humans due to H7 subtypes differs markedly in severity from that of AI H5N1. Their lower virulence should not be inferred to indicate lower pandemic potential since sub-clinical or mild infections may have greater opportunity through surreptitious spread to reassort and through mutation to become more virulent.

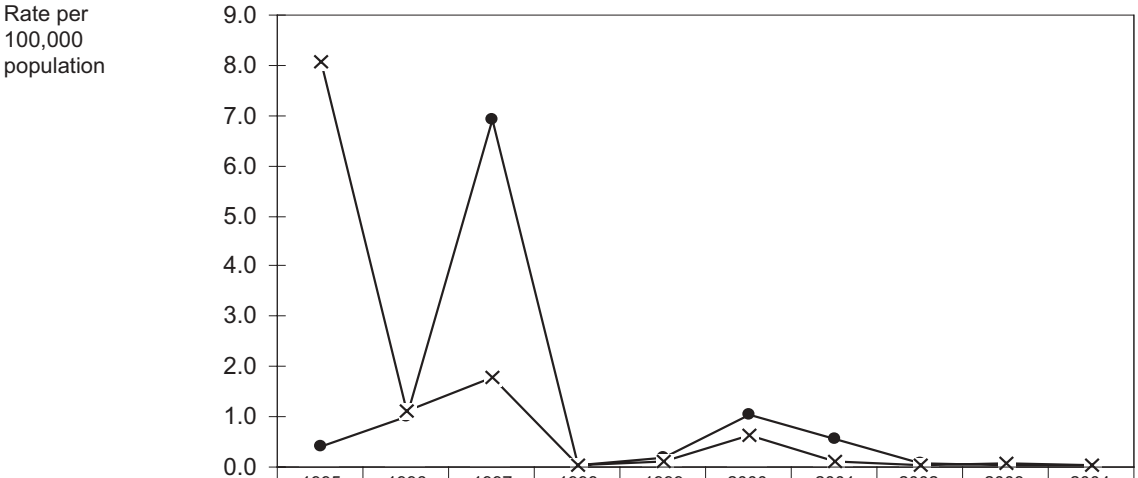
Reference:

Tweed SA, Skowronski DM, David ST, Larder A, Petric M, Lees M, et al. Human illness from avian influenza H7N3, British Columbia. Emerg Infect Dis 2004;10(12): 2196-2199.

Measles

One case of measles was reported in 2004 in an adult who had acquired the infection in Japan; prior immunization history was not known. No secondary cases were identified.

4.1 Measles Rates by Year, 1995-2004

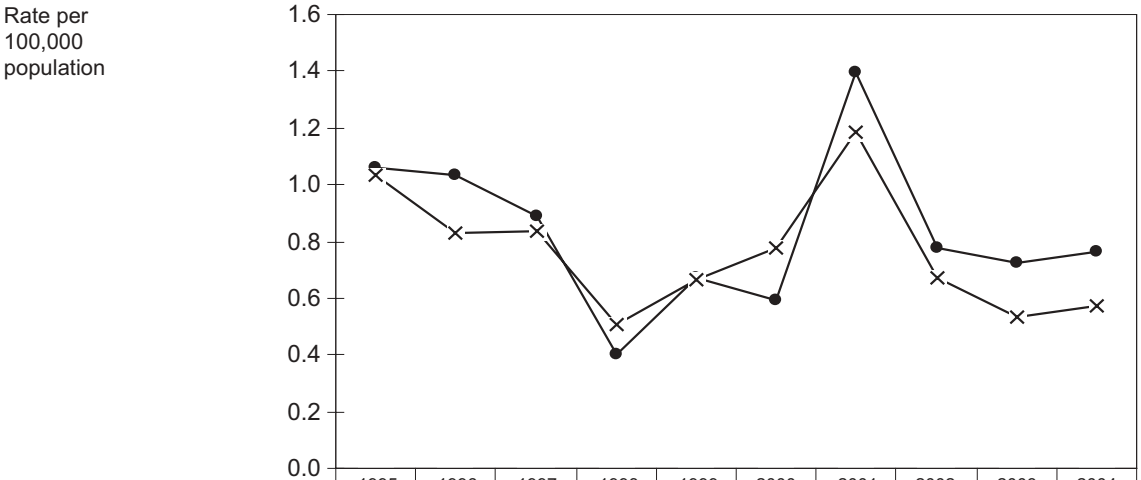


	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Measles Reports	15	39	273	2	8	42	23	3	1	1
—●— BC Measles Rate	0.4	1.0	6.9	0.1	0.2	1.0	0.6	0.1	0.0	0.0
—×— Canadian Measles Rate	8.1	1.1	1.8	0.1	0.1	0.6	0.1	0.0	0.1	0.0

Meningococcal Disease (invasive)

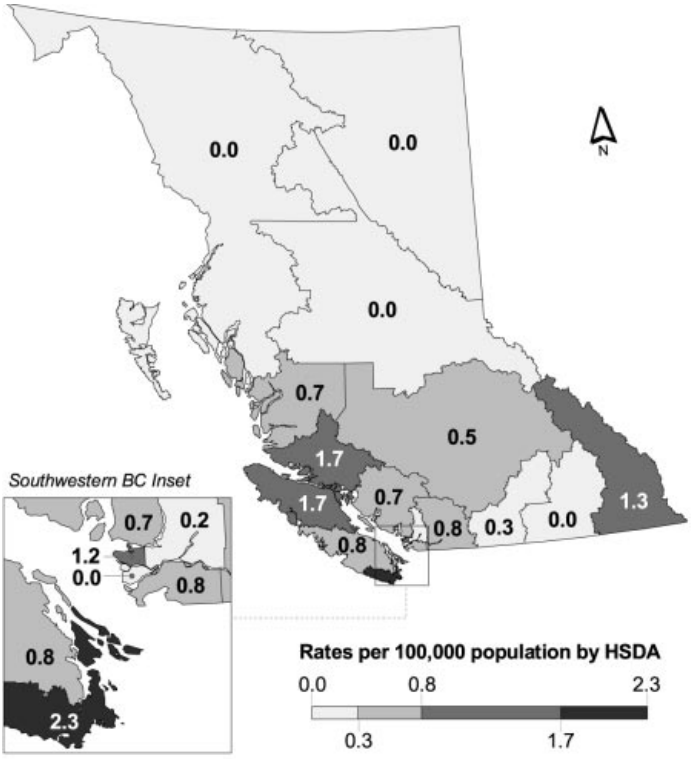
There were 32 reports of invasive meningococcal infection in BC during 2004 for a rate of 0.8 per 100,000 population. This is comparable to the 2004 Canadian meningococcal rate of 0.6 per 100,000. Two cases occurred in infants (both females) under the age of one year, so that infants had the highest rate (10.2/100,000) of infection. However, the majority of cases (27) occurred in those over the age of 20 years, primarily in males. In September 2004, an outbreak of meningococcal C disease started in men who have sex with men (MSM). Seven cases were reported in the MSM population. This represents 35% (7/20) of all cases reported in males during 2004. Serogrouping of the 32 isolates in 2004 indicated that 7 (23.3%) were serogroup B (a decline from 30.0% in 2003); 21 (70%) serogroup C (an increase from 30% in 2003), 1 (3.3%) serogroup W-135, and 1 (3.3%) serogroup Y. This is a considerable decrease from the 33.3% serogroup Y disease reported in 2003. There was no significant geographic clustering. South Vancouver Island HSDA reported the highest rate of infection at 2.3/100,000, followed by North Vancouver Island HSDA at 1.7/100,000.

5.1 Meningococcal Disease (invasive) Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Meningococcal Reports	40	40	35	16	27	24	57	32	30	32
—●— BC Meningococcal Rate	1.1	1.0	0.9	0.4	0.7	0.6	1.4	0.8	0.7	0.8
—×— Canadian Meningococcal Rate	1.0	0.8	0.8	0.5	0.7	0.8	1.2	0.7	0.5	0.6

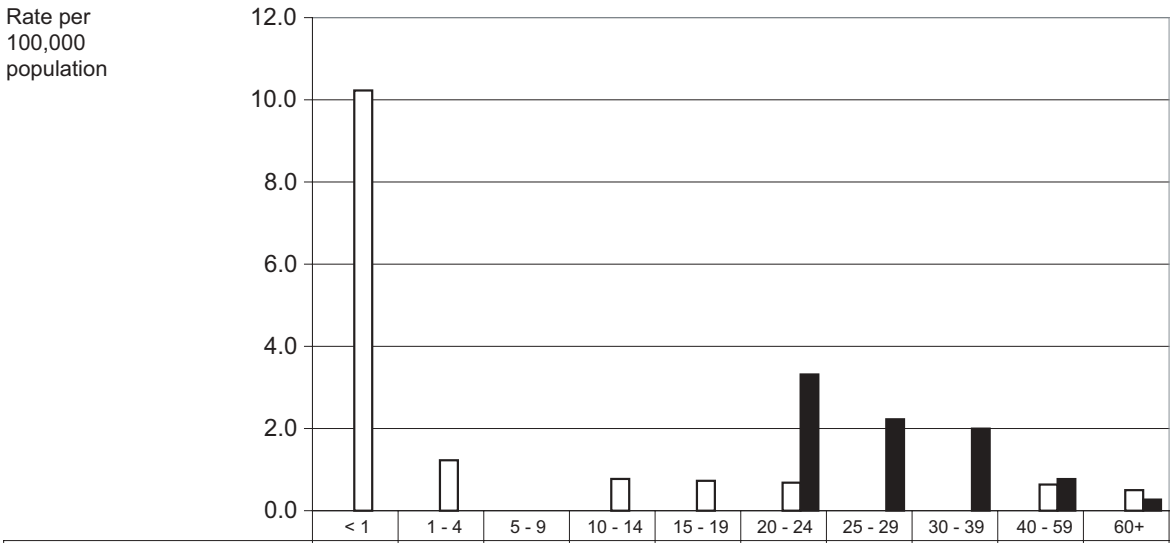
5.2 Meningococcal Disease (invasive) Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	1	1.3
12	Kootenay Boundary	0	0.0
13	Okanagan	1	0.3
14	Thompson Cariboo Shuswap	1	0.5
21	Fraser East	2	0.8
22	Fraser North	1	0.2
23	Fraser South	5	0.8
31	Richmond	0	0.0
32	Vancouver	7	1.2
33	North Shore/Coast Garibaldi	2	0.7
41	South Vancouver Island	8	2.3
42	Central Vancouver Island	2	0.8
43	North Vancouver Island	2	1.7
51	Northwest	0	0.0
52	Northern Interior	0	0.0
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

5.3 Meningococcal Disease (invasive) Rates by Age Group and Sex, 2004

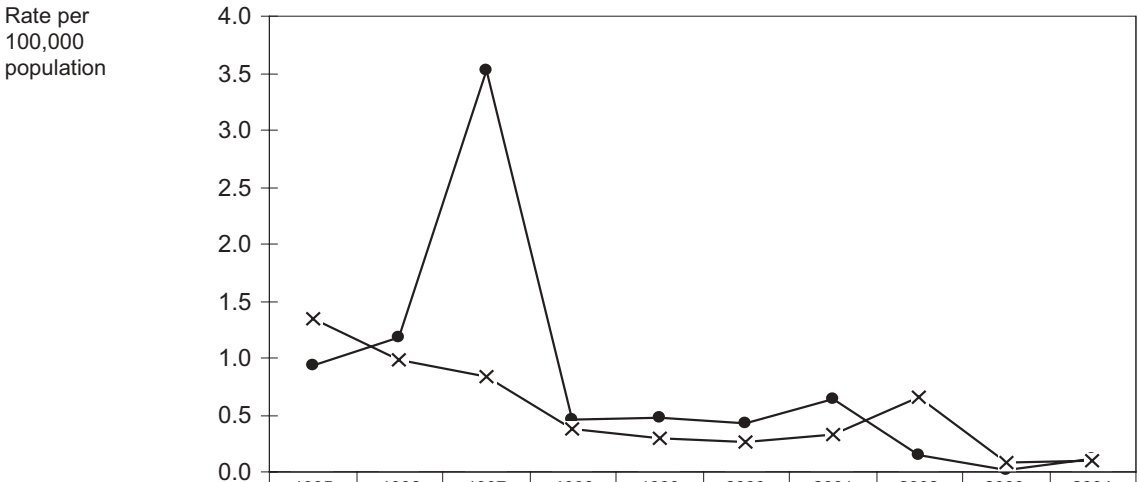


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Meningococcal Reports - Female	2	1	0	1	1	1	0	0	4	2
Meningococcal Reports - Male	0	0	0	0	0	5	3	6	5	1
□ Meningococcal Rate - Female	10.2	1.2	0.0	0.8	0.7	0.7	0.0	0.0	0.6	0.5
■ Meningococcal Rate - Male	0.0	0.0	0.0	0.0	0.0	3.3	2.2	2.0	0.8	0.3

Mumps

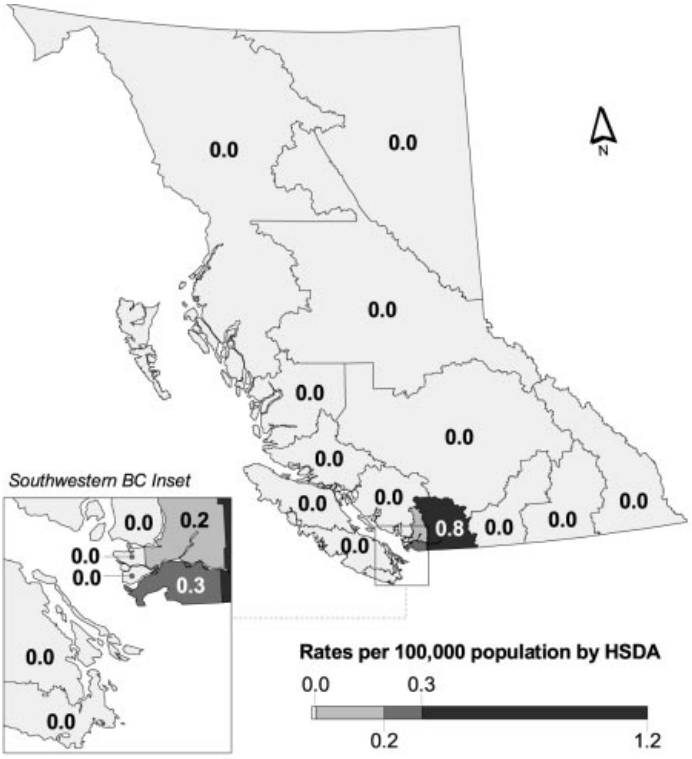
Five confirmed cases of mumps were reported. One was in a child aged 5 years who had received a single dose of MMR vaccine at 18 months of age; the others were aged 27 to 41 years. All 5 cases were reported from the three HSDAs of Fraser Regional Health Authority, but were not known to be epidemiologically linked to one another.

6.1 Mumps Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Mumps Reports	35	46	139	18	19	17	26	6	1	5
BC Mumps Rate	0.9	1.2	3.5	0.5	0.5	0.4	0.6	0.1	0.0	0.1
Canadian Mumps Rate	1.3	1.0	0.8	0.4	0.3	0.3	0.3	0.7	0.1	0.1

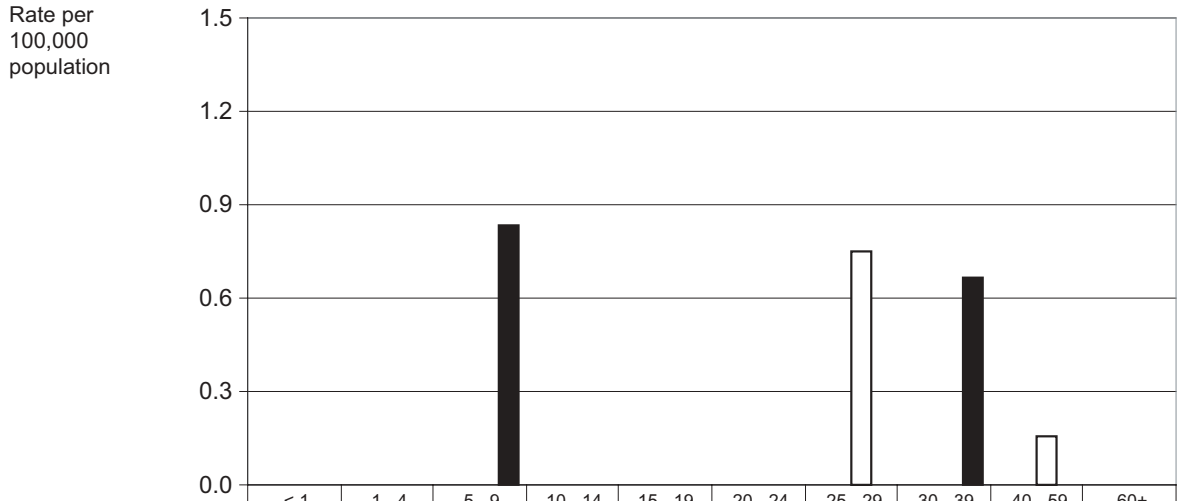
6.2 Mumps Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	0	0.0
13	Okanagan	0	0.0
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	2	0.8
22	Fraser North	1	0.2
23	Fraser South	2	0.3
31	Richmond	0	0.0
32	Vancouver	0	0.0
33	North Shore/Coast Garibaldi	0	0.0
41	South Vancouver Island	0	0.0
42	Central Vancouver Island	0	0.0
43	North Vancouver Island	0	0.0
51	Northwest	0	0.0
52	Northern Interior	0	0.0
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

6.2 Mumps Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Mumps Reports - Female	0	0	0	0	0	0	1	0	1	0
Mumps Reports - Male	0	0	1	0	0	0	0	2	0	0
Mumps Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.2	0.0
Mumps Rate - Male	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.7	0.0	0.0

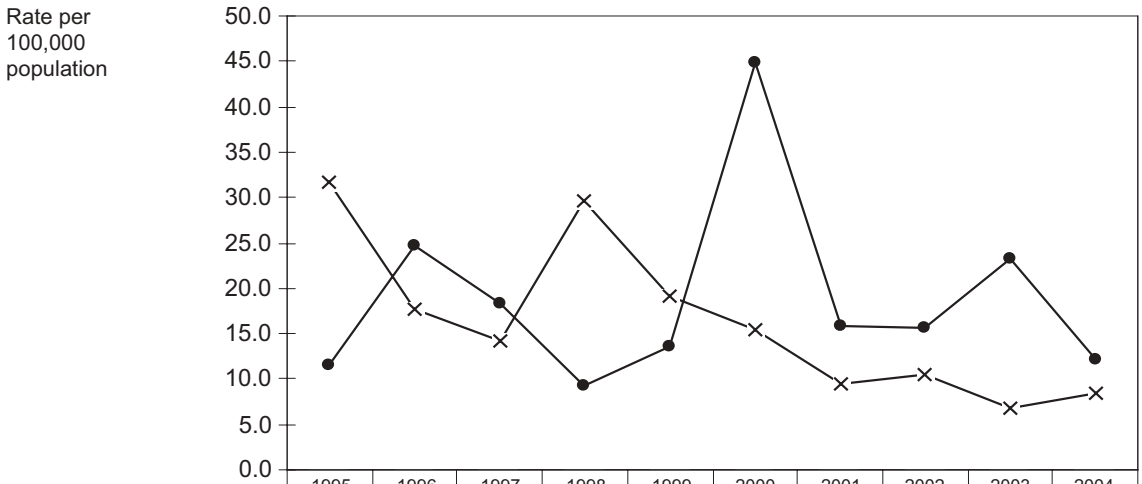
Pertussis

Pertussis outbreaks occur every three to five years and the rate of reporting of pertussis in 2004 was the lowest it has been since 1999. As in previous years, highest rates occurred in the 10-14 year age group, again surpassing rates found in infants.

This shift in the age distribution of pertussis has been attributed to a number of factors, including waning of immunity associated with a lower effectiveness whole cell pertussis vaccine previously given to this adolescent cohort in early childhood. For this reason, a program of adolescent pertussis immunization with an acellular pertussis booster dose was implemented in January 2004, replacing the routine tetanus-diphtheria (Td) vaccine in Grade 9 with an acellular-pertussis containing formulation (TdaP).

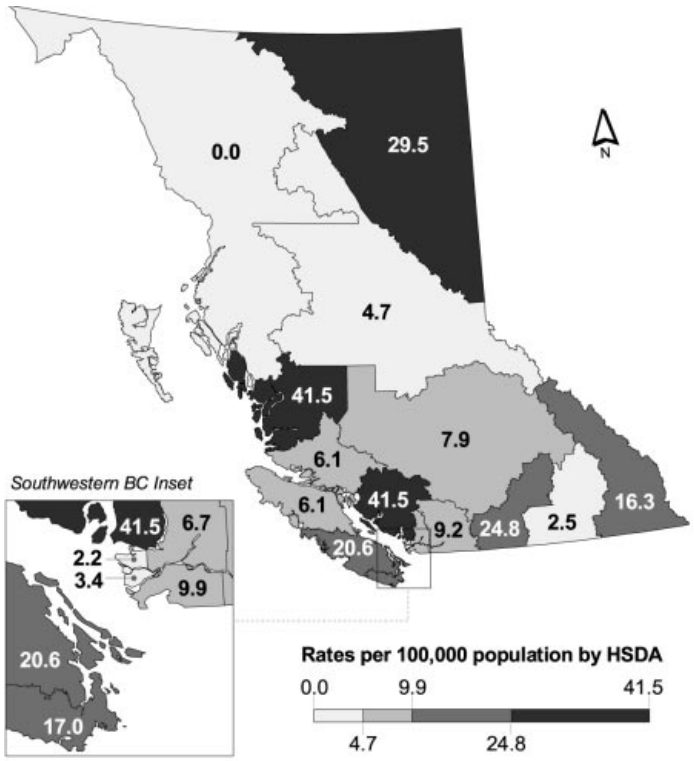
The combined effects of two program changes, including replacing whole cell pertussis vaccine with acellular vaccine in infants and pre-school children in mid-1997 as well as introduction of the adolescent acellular pertussis program in early-2004 will be monitored over successive years to guide further pertussis immunization program recommendations.

7.1 Pertussis Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Pertussis Reports	438	960	720	369	541	1813	645	645	960	508
—●— BC Pertussis Rate	11.6	24.8	18.2	9.3	13.5	44.9	15.8	15.7	23.2	12.1
—×— Canadian Pertussis Rate	31.7	17.8	14.3	29.5	19.2	15.5	9.5	10.5	6.8	8.4

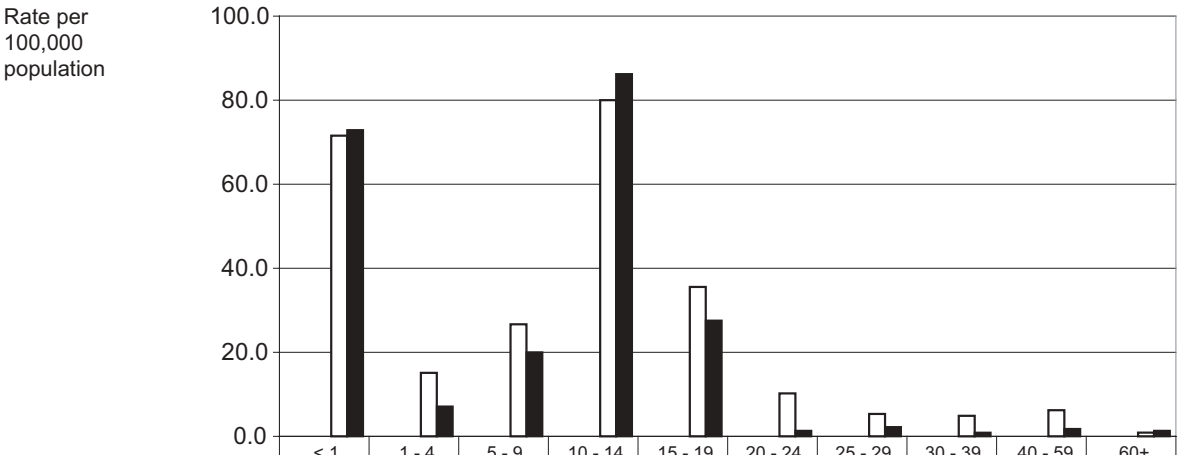
7.3 Pertussis Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	13	16.3
12	Kootenay Boundary	2	2.5
13	Okanagan	79	24.8
14	Thompson Cariboo Shuswap	17	7.9
21	Fraser East	24	9.2
22	Fraser North	38	6.7
23	Fraser South	63	9.9
31	Richmond	6	3.4
32	Vancouver	13	2.2
33	North Shore/Coast Garibaldi	112	41.5
41	South Vancouver Island	58	17.0
42	Central Vancouver Island	50	20.6
43	North Vancouver Island	7	6.1
51	Northwest	0	0.0
52	Northern Interior	7	4.7
53	Northeast	19	29.5

Note: Map classification by Jenks natural breaks method.

7.2 Pertussis Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Pertussis Reports - Female	14	12	30	101	48	15	7	15	40	3
Pertussis Reports - Male	15	6	24	115	39	2	3	3	11	5
Pertussis Reports - Unknown	0	0	0	0	0	0	0	0	0	0
□ Pertussis Rate - Female	71.7	15.0	26.5	80.0	35.7	10.4	5.2	4.9	6.3	0.7
■ Pertussis Rate - Male	73.0	7.1	20.0	86.2	27.4	1.3	2.2	1.0	1.7	1.4

Pneumococcal Disease (invasive)

In 2004, British Columbia reported 316 cases of invasive pneumococcal disease (IPD). 315 of these cases were laboratory confirmed. The British Columbia rate of IPD is 7.6 per 100,000 population. This BC rate is slightly below the Canadian rate of 7.9/100,000.

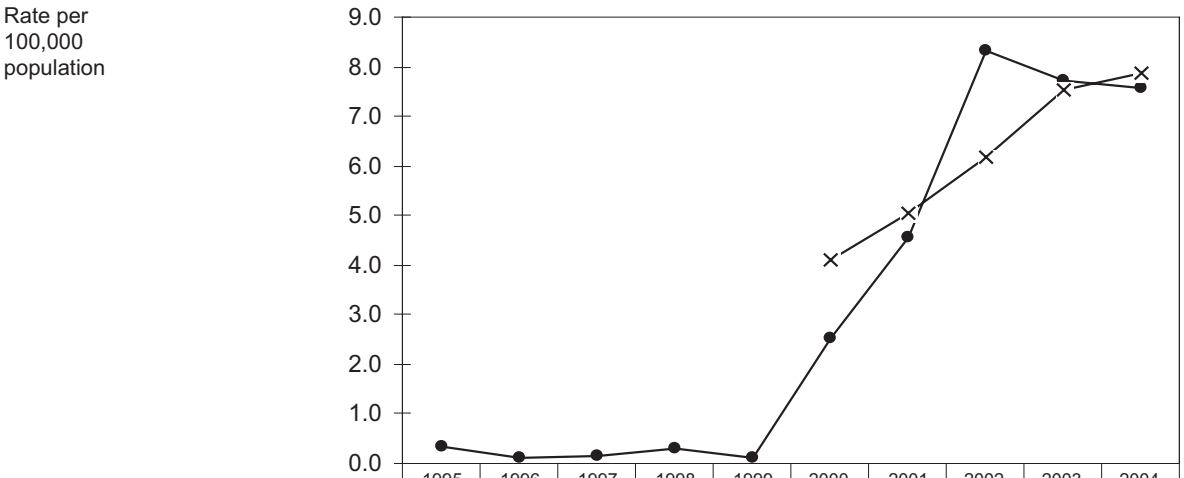
Health Delivery Service Areas reporting the highest rates of IPD were Central Vancouver Island (11.5/100,000), Kootenay Boundary (11.3/100,000) and Thompson Cariboo Shuswap and Fraser East (each at 10.7/100,000)

The highest rates of IPD are seen in children age 1 to 5 years and in persons 60 years of age and older. The next highest rate is in infants less than 1 year of age. For females age 1 to 5 years, the rate is 31.2/100,000 and for males in this age group the rate is 30.7/100,000. In those 60 years of age and older, the rate is 14.7/100,000 for females and 16.6/100,000 for males.

IPD rates have decreased from the previous year in infants less than 1 year of age: for males, the rate decreased from 78.7 to 19.5/100,000, and for females the rate decreased from 41.5 to 10.2/100,000. The number of cases reported in 2004, 2 cases in females and 4 cases in males, is significantly less than the 24 of cases reported in 2003 in this age group.

The universal infant pneumococcal conjugate vaccine program started in September 2003. High-risk and aboriginal children 2 to 59 months of age are also eligible for pneumococcal conjugate vaccine

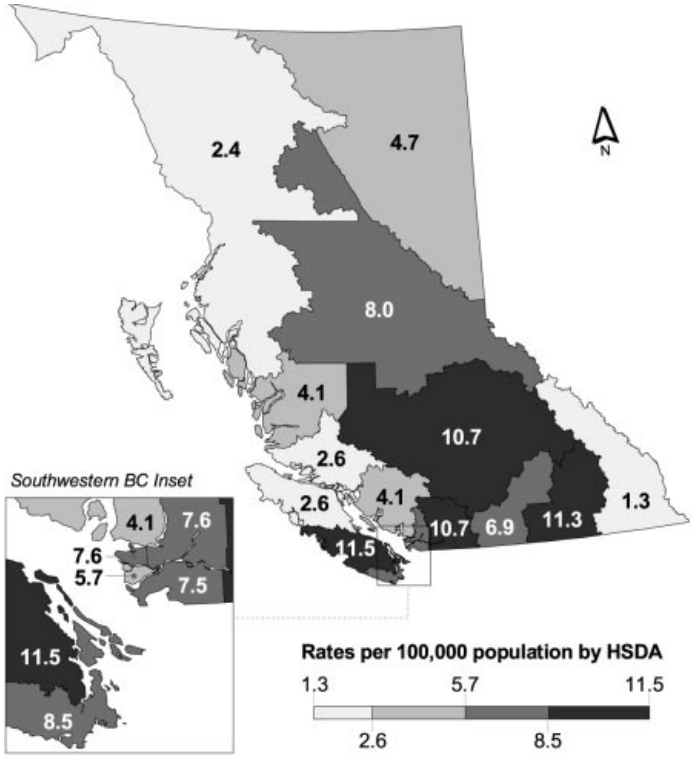
8.1 Pneumococcal Disease (invasive) Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Invasive Pneumococcal Reports	13	4	6	12	5	102	186	343	320	316
—●— BC Invasive Pneumococcal Rate	0.3	0.1	0.2	0.3	0.1	2.5	4.6	8.3	7.7	7.6
—×— Canadian Invasive Pneumococcal Rate						4.1	5.0	6.2	7.5	7.9

Note: Pneumococcal meningitis was replaced with Invasive Pneumococcal Disease in Jan. 2000

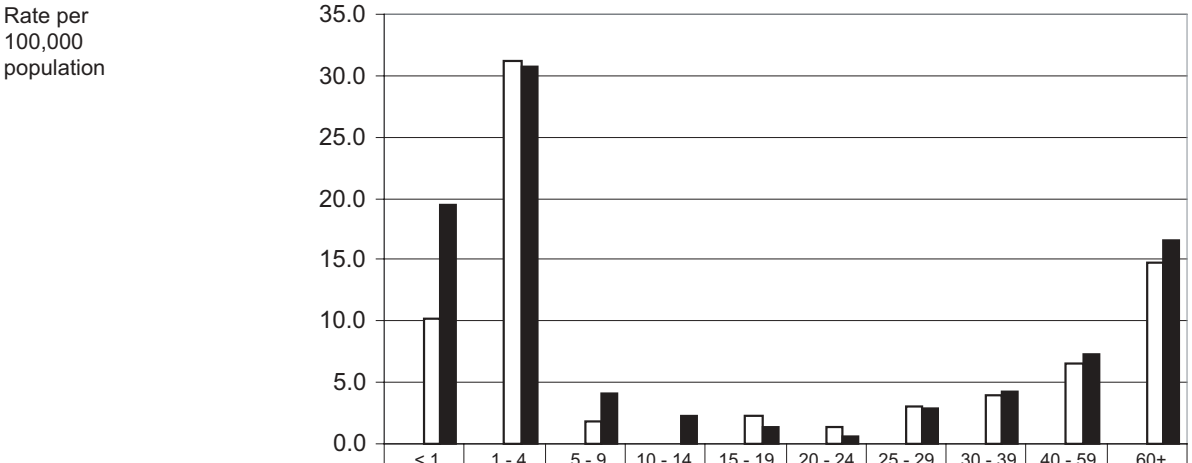
8.2 Pneumococcal Disease (invasive) Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	1	1.3
12	Kootenay Boundary	9	11.3
13	Okanagan	22	6.9
14	Thompson Cariboo Shuswap	23	10.7
21	Fraser East	28	10.7
22	Fraser North	43	7.6
23	Fraser South	48	7.5
31	Richmond	10	5.7
32	Vancouver	44	7.6
33	North Shore/Coast Garibaldi	11	4.1
41	South Vancouver Island	29	8.5
42	Central Vancouver Island	28	11.5
43	North Vancouver Island	3	2.6
51	Northwest	2	2.4
52	Northern Interior	12	8.0
53	Northeast	3	4.7

Note: Map classification by Jenks natural breaks method.

8.3 Pneumococcal Disease (invasive) Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Invasive Pneumococcal Reports - Female	2	25	2	0	3	2	4	12	42	61
Invasive Pneumococcal Reports - Male	4	26	5	3	2	1	4	13	46	59
□ Invasive Pneumococcal Rate - Female	10.2	31.2	1.8	0.0	2.2	1.4	3.0	3.9	6.6	14.7
■ Invasive Pneumococcal Rate - Male	19.5	30.7	4.2	2.2	1.4	0.7	2.9	4.3	7.3	16.6

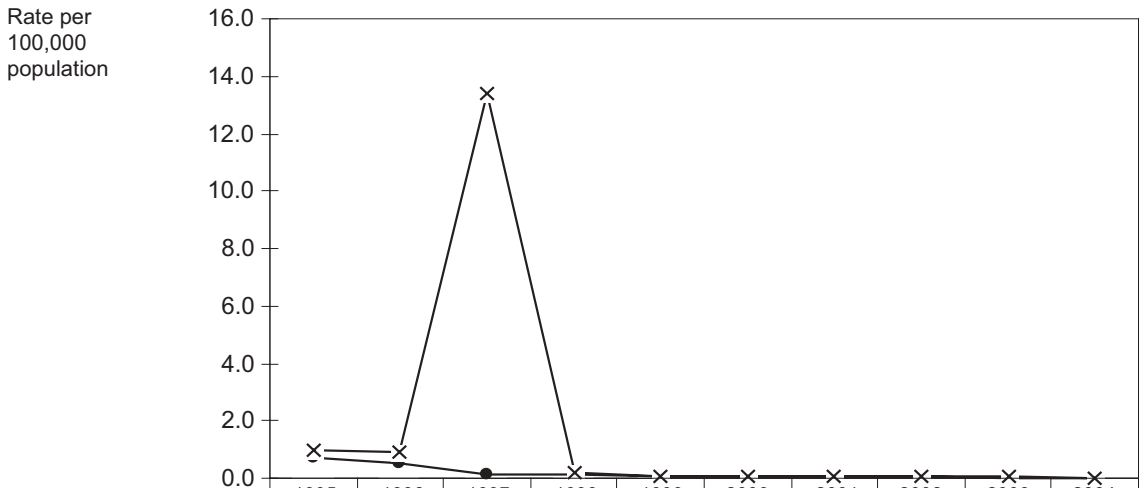
Rubella

No cases of rubella were reported in BC in 2004.

Congenital Rubella Syndrome

A case of congenital rubella syndrome was reported in an infant born to a woman newly immigrated to Canada from the Indian subcontinent. Conception and infection had occurred outside of Canada. Rubella vaccine is still not routinely given as a component of measles-containing vaccine in many parts of the world, and opportunities should be taken to offer MMR vaccine to immigrant women as soon as possible after arrival. Many such immigrants travel back to their countries of origin after immigrating to Canada and are at risk of rubella infection because endemic rates in their countries of origin are high.

9.1 Rubella Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Rubella Reports	26	19	5	4	3	2	2	2	1	0
BC Rubella Rate	0.7	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Canadian Rubella Rate	1.0	0.9	13.4	0.2	0.1	0.1	0.1	0.1	0.0	0.0

Sexually Transmitted and Bloodborne Pathogens

2004

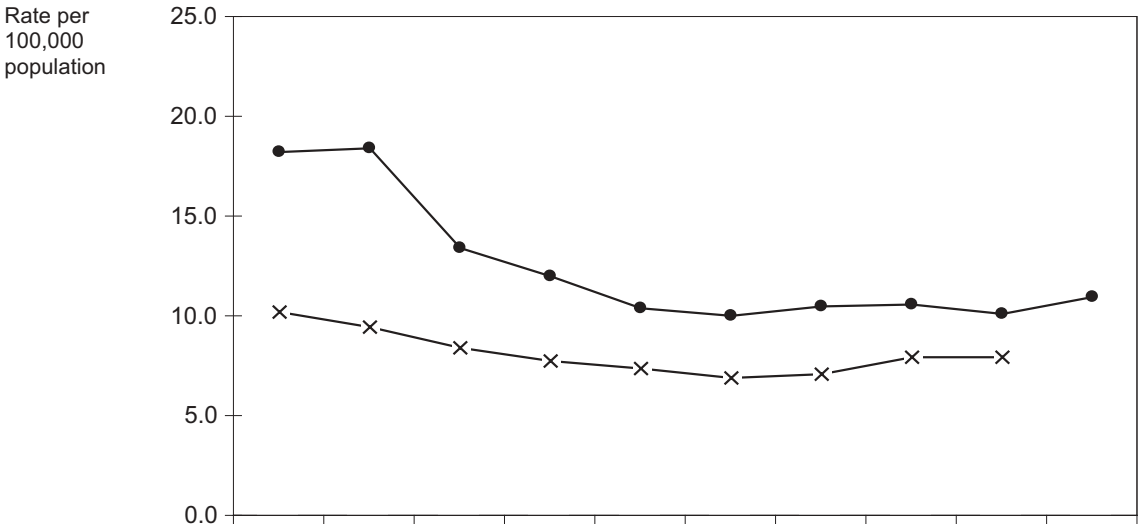
04

HIV

The HIV rate per 100,000 population increased in 2004 to 10.9 from 10.1 in 2003. Provincially cases continue to be distributed around the province, with the greatest concentration in the Lower Mainland.

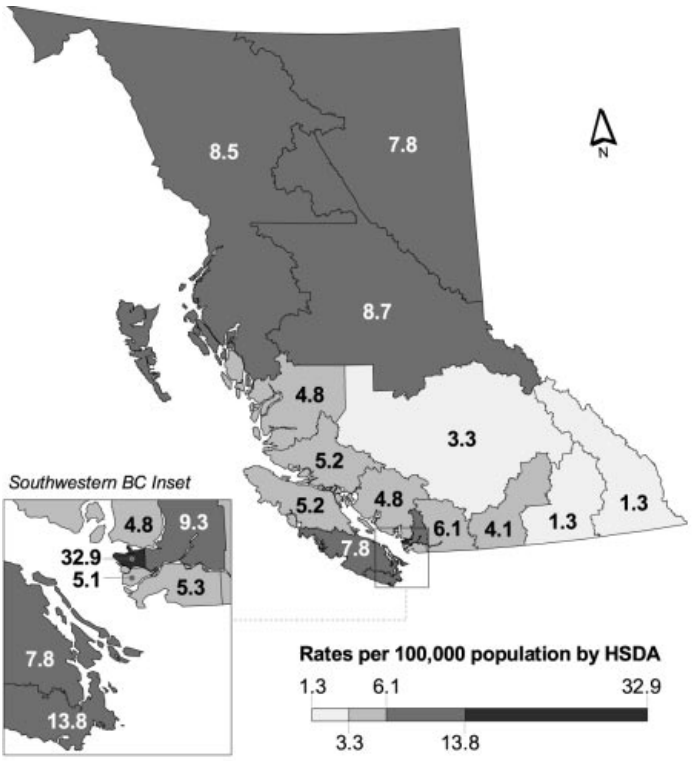
There was a 32% rate increase in women in the age group 30-39. For men, rates across different age groups remained similar to the previous year. There were significant increases in both Northern and Vancouver Island Health Authorities.

10.1 HIV Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC HIV Reports	687	713	529	476	417	404	429	438	418	457
BC HIV Rate	18.2	18.4	13.4	12.0	10.4	10.0	10.5	10.6	10.1	10.9
Canadian HIV Rate	10.2	9.4	8.4	7.7	7.3	6.9	7.0	8.0	7.9	

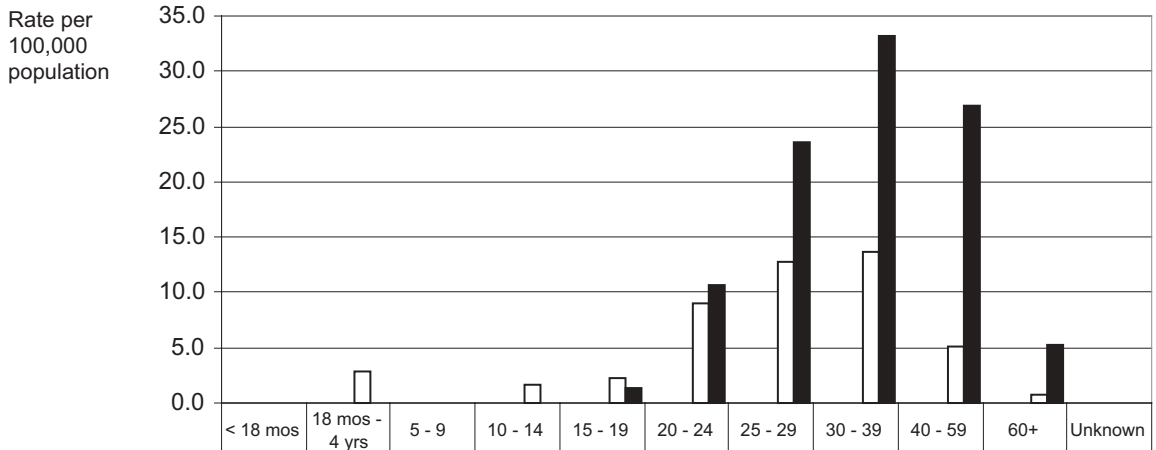
10.2 HIV Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	1	1.3
12	Kootenay Boundary	1	1.3
13	Okanagan	13	4.1
14	Thompson Cariboo Shuswap	7	3.3
21	Fraser East	16	6.1
22	Fraser North	53	9.3
23	Fraser South	34	5.3
31	Richmond	9	5.1
32	Vancouver	191	32.9
33	North Shore/Coast Garibaldi	13	4.8
41	South Vancouver Island	47	13.8
42	Central Vancouver Island	19	7.8
43	North Vancouver Island	6	5.2
51	Northwest	7	8.5
52	Northern Interior	13	8.7
53	Northeast	5	7.8

Note: Map classification by Jenks natural breaks method.

10.3 HIV Rates by Age Group and Sex, 2004

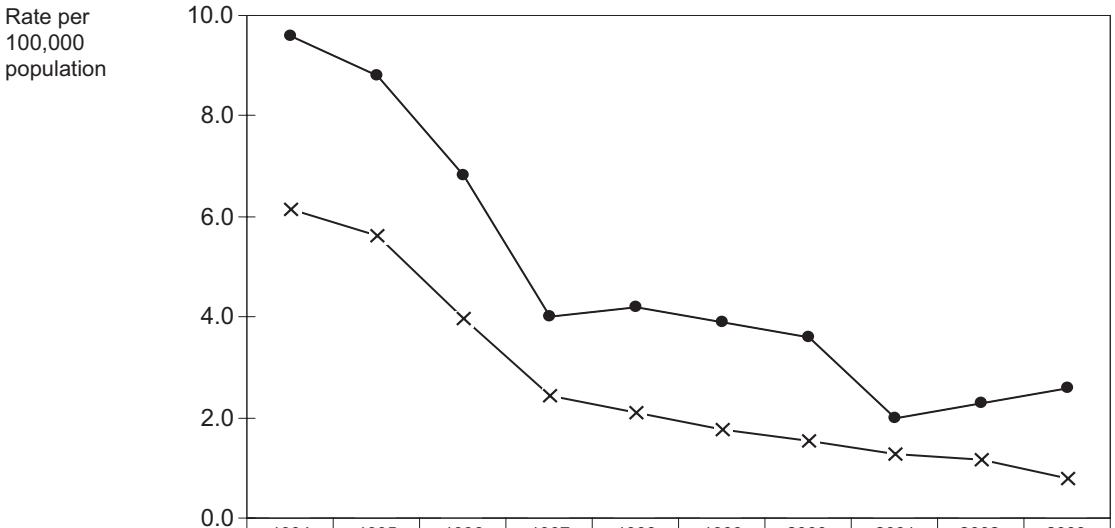


	< 18 mos	18 mos - 4 yrs	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
HIV Reports - Female	0	2	0	2	3	13	17	41	33	3	0
HIV Reports - Male	0	0	0	0	2	16	32	101	169	19	1
HIV Reports - Unknown	0	0	0	0	0	0	0	1	1	1	0
□ HIV Rate - Female	0.0	2.9	0.0	1.6	2.2	9.0	12.7	13.7	5.2	0.7	
■ HIV Rate - Male	0.0	0.0	0.0	0.0	1.4	10.6	23.6	33.2	26.8	5.3	

AIDS

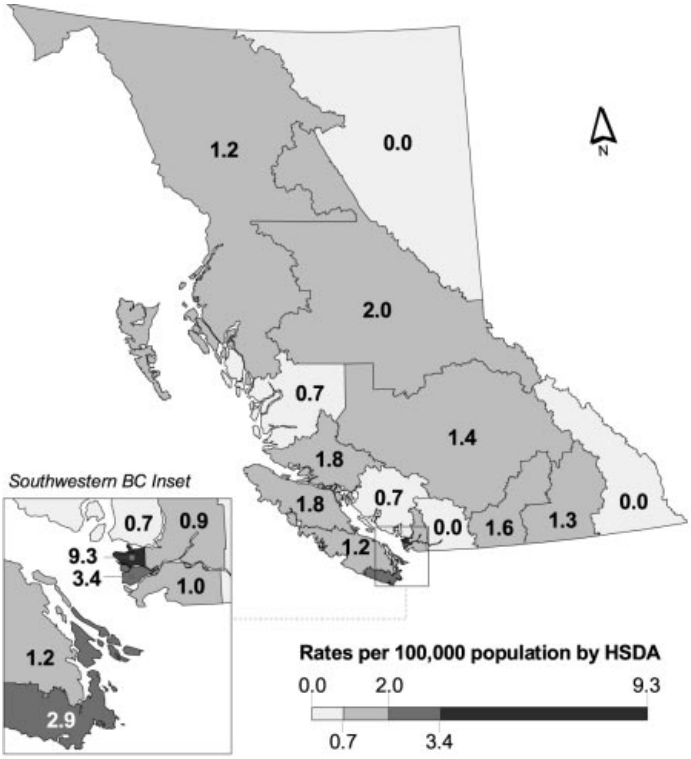
Due to the delays associated with AIDS reporting, the 2004 AIDS statistics will be included in our next report (2005). In 2003, the AIDS rate in BC increased to 2.6 from 2.3 in 2002. AIDS cases in males were concentrated in the 25-59 age group, whereas the female cases were more evenly distributed over the range of 15-59 years. The highest rate was recorded in the Vancouver Health Service Delivery Area, 9.3/100,000.

11.1 AIDS Rates by Year, 1994-2003



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
AIDS Reports	354	333	264	157	168	156	146	81	96	108
—●— BC AIDS Rate	9.6	8.8	6.8	4.0	4.2	3.9	3.6	2.0	2.3	2.6
—×— Canadian AIDS Rate	6.1	5.6	4.0	2.4	2.1	1.8	1.5	1.3	1.2	0.8

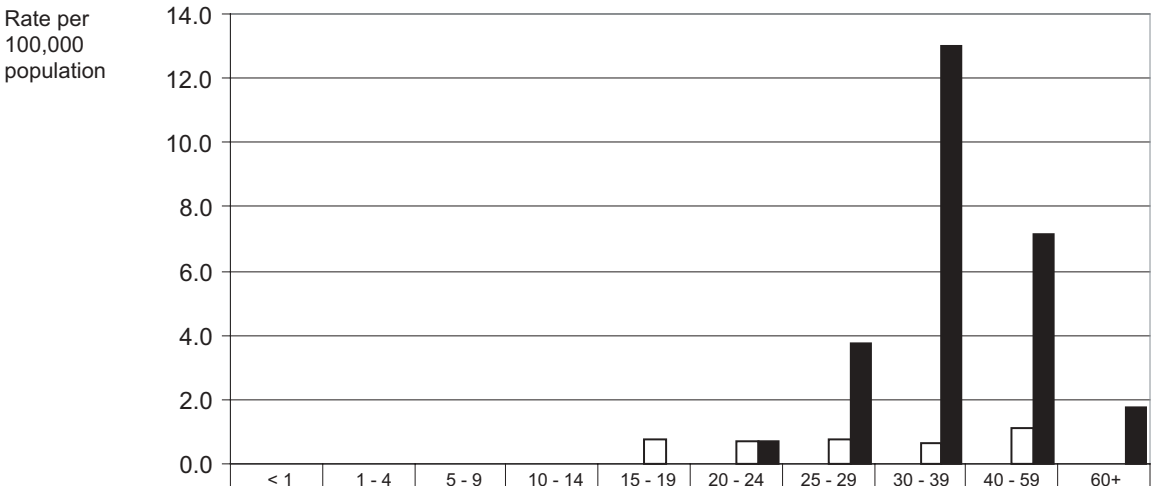
11.2 AIDS Rates by HSDA, 2003



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	1	1.3
13	Okanagan	5	1.6
14	Thompson Cariboo Shuswap	3	1.4
21	Fraser East	0	0.0
22	Fraser North	5	0.9
23	Fraser South	6	1.0
31	Richmond	6	3.4
32	Vancouver	54	9.3
33	North Shore/Coast Garibaldi	2	0.7
41	South Vancouver Island	10	2.9
42	Central Vancouver Island	3	1.2
43	North Vancouver Island	2	1.8
51	Northwest	1	1.2
52	Northern Interior	3	2.0
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

11.3 AIDS Rates by Age Group and Sex, 2003

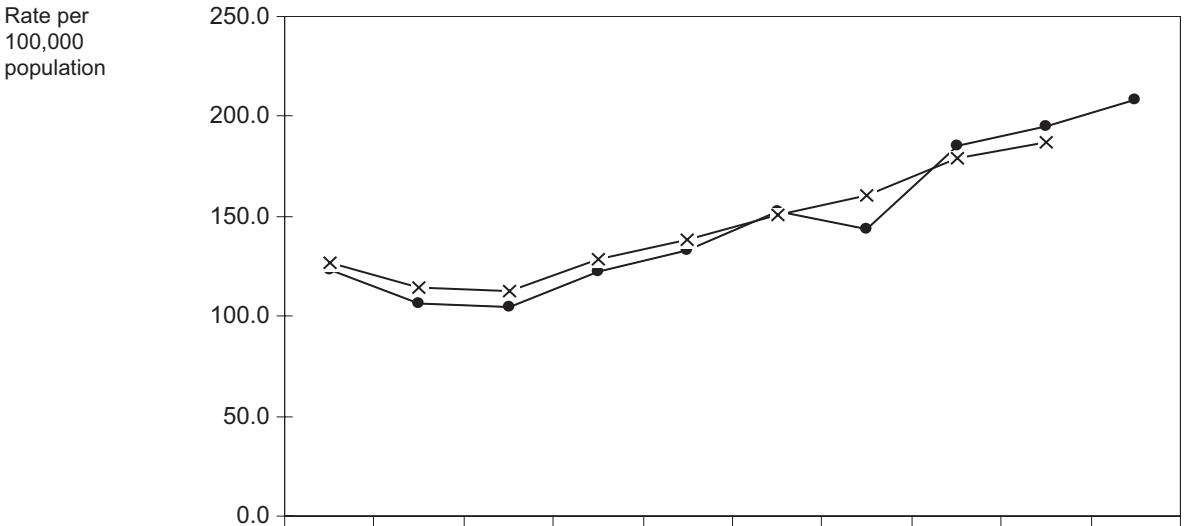


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
AIDS Reports - Female	0	0	0	0	1	1	1	2	7	0
AIDS Reports - Male	0	0	0	0	0	1	5	40	44	6
□ AIDS Rate - Female	0.0	0.0	0.0	0.0	0.7	0.7	0.8	0.6	1.1	0.0
■ AIDS Rate - Male	0.0	0.0	0.0	0.0	0.0	0.7	3.8	13.0	7.1	1.7

Genital Chlamydia

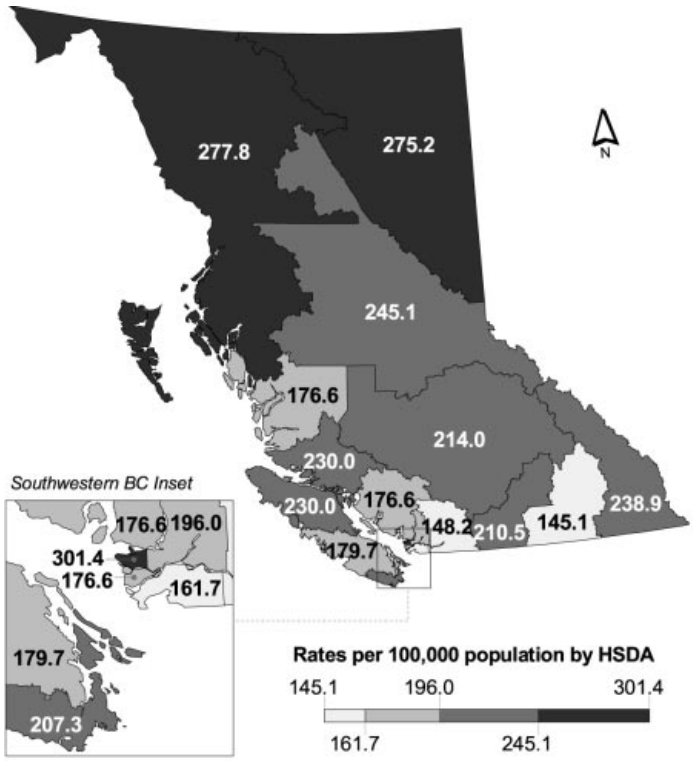
The chlamydia rate in BC was 208.4 in 2004, up from 194.8 in 2003. Most Health Authorities saw increases in the chlamydia rate. By age, women aged 15-19 and 20-24 continue to have the highest chlamydia rates at 1366 and 1528 respectively.

12.1 Genital Chlamydia Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Chlamydia Reports	4660	4116	4116	4876	5351	6162	5858	7615	8078	8721
BC Chlamydia Rate	123.4	106.2	104.2	122.4	133.4	152.6	143.6	185.1	194.8	208.4
Canadian Chlamydia Rate	126.8	114.8	112.7	128.8	138.2	150.9	160.7	179.3	186.9	

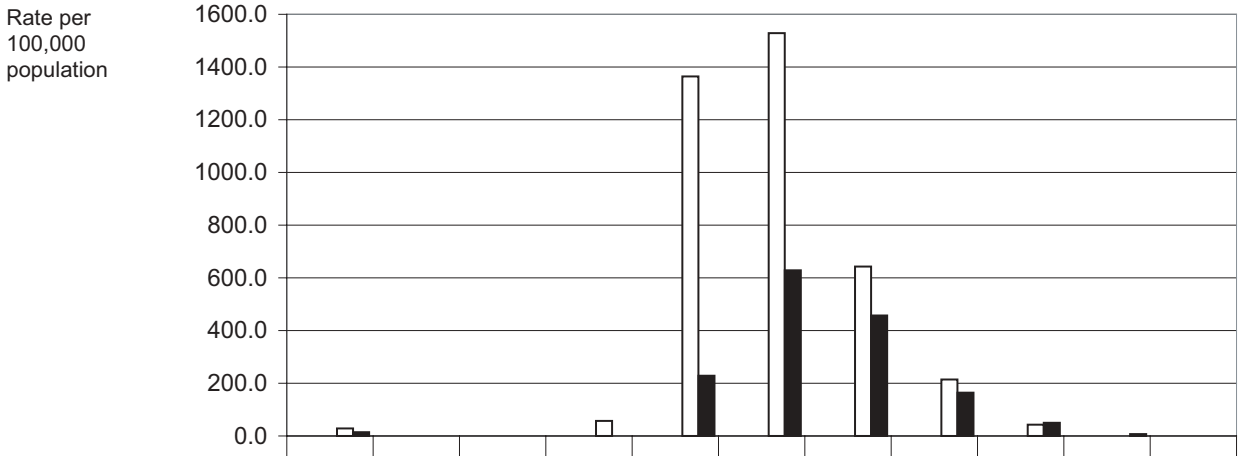
12.2 Genital Chlamydia Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	191	238.9
12	Kootenay Boundary	116	145.1
13	Okanagan	671	210.5
14	Thompson Cariboo Shuswap	459	214.0
21	Fraser East	386	148.2
22	Fraser North	1116	196.0
23	Fraser South	1034	161.7
31	Richmond	311	176.6
32	Vancouver	1751	301.4
33	North Shore/Coast Garibaldi	477	176.6
41	South Vancouver Island	706	207.3
42	Central Vancouver Island	437	179.7
43	North Vancouver Island	263	230.0
51	Northwest	230	277.8
52	Northern Interior	368	245.1
53	Northeast	177	275.2

Note: Map classification by Jenks natural breaks method.

12.3 Genital Chlamydia Rates by Age Group and Sex, 2004

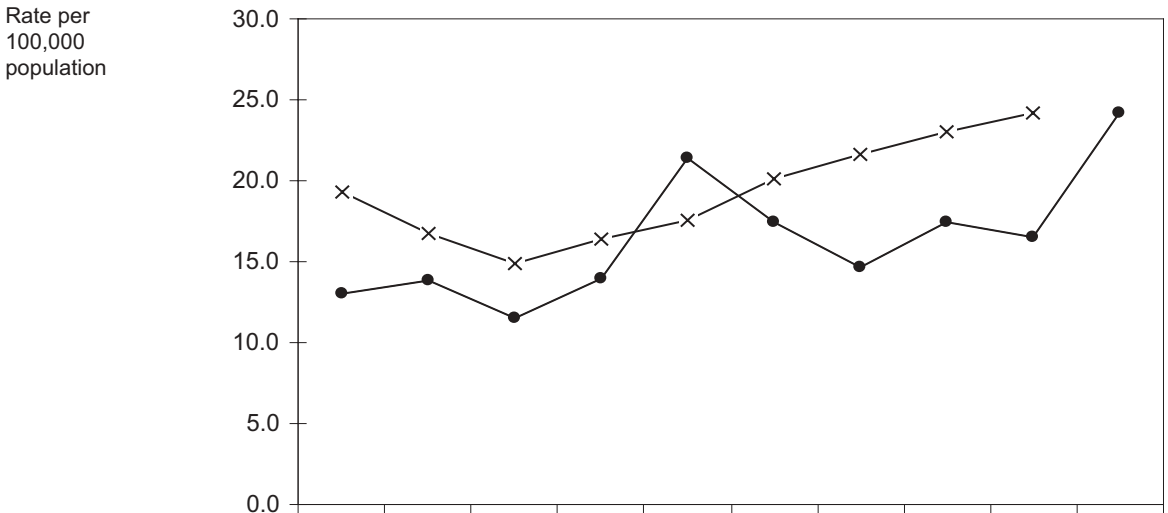


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
Chlamydia Reports - Female	5	0	0	73	1838	2204	862	665	273	12	32
Chlamydia Reports - Male	3	0	1	1	328	949	625	487	316	28	17
Chlamydia Reports - Unknown	0	0	0	0	0	0	2	0	0	0	1
□ Chlamydia Rate - Female	25.6	0.0	0.0	57.9	1365.9	1528.4	643.9	217.2	42.7	2.9	
■ Chlamydia Rate - Male	14.6	0.0	0.8	0.7	230.5	631.0	460.7	161.8	50.2	7.9	

Gonorrhea

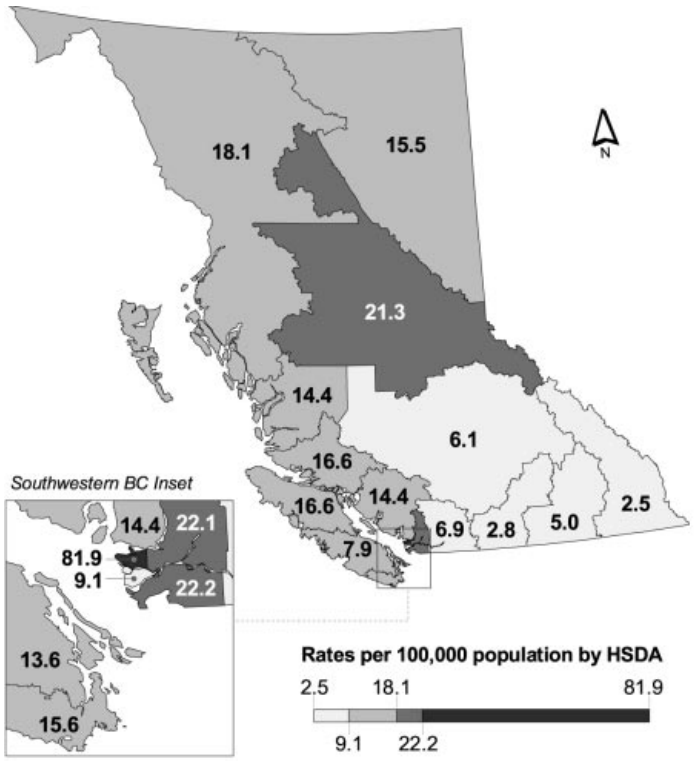
The 2004 gonorrhea rate for BC (24.2) was significantly higher than 2003 (16.5). The major increases involved males across all age groups and health authorities. This may reflect increased gonorrhea testing subsequent to the introduction of nucleic acid amplification testing (NAAT) of urine for males.

13.1 Gonorrhea Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Gonorrhea Reports	492	534	456	558	859	707	600	714	684	1013
BC Gonorrhea Rate	13.0	13.8	11.5	14.0	21.4	17.5	14.7	17.4	16.5	24.2
Canadian Gonorrhea Rate	19.3	16.8	14.9	16.4	17.6	20.1	21.6	23.0	24.2	

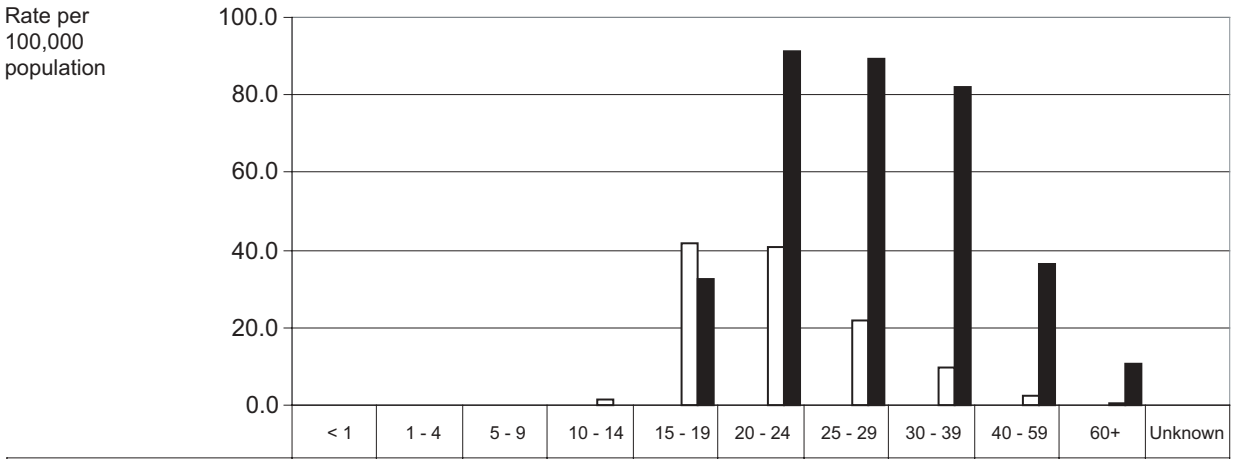
13.2 Gonorrhea Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	2	2.5
12	Kootenay Boundary	4	5.0
13	Okanagan	9	2.8
14	Thompson Cariboo Shuswap	13	6.1
21	Fraser East	18	6.9
22	Fraser North	126	22.1
23	Fraser South	142	22.2
31	Richmond	16	9.1
32	Vancouver	476	81.9
33	North Shore/Coast Garibaldi	39	14.4
41	South Vancouver Island	53	15.6
42	Central Vancouver Island	33	13.6
43	North Vancouver Island	19	16.6
51	Northwest	15	18.1
52	Northern Interior	32	21.3
53	Northeast	10	15.5

Note: Map classification by Jenks natural breaks method.

13.3 Gonorrhea Rates by Age Group and Sex, 2004

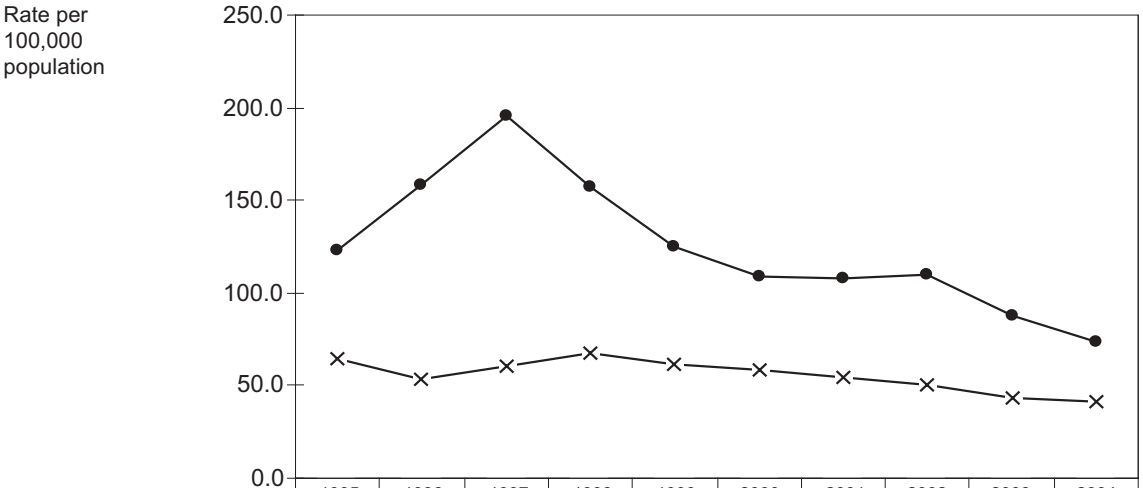


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
Gonorrhea Reports - Female	0	0	0	2	56	59	29	29	15	2	0
Gonorrhea Reports - Male	0	0	0	0	46	137	121	247	229	38	3
Gonorrhea Reports - Unknown	0	0	0	0	7	3	4	1	1	3	9
□ Gonorrhea Rate - Female	0.0	0.0	0.0	1.6	41.6	40.9	21.7	9.5	2.3	0.5	
■ Gonorrhea Rate - Male	0.0	0.0	0.0	0.0	32.3	91.1	89.2	82.0	36.4	10.7	

Hepatitis C

The reported rate of newly diagnosed hepatitis C infection in BC declined further in 2004, reaching the lowest rate since 1995 with 3074 cases for a rate of 73.5/100,000. However, the BC rate remains well above the Canadian rate of 41.3/100,000 due to a high prevalence of injecting drug use. The rate of hepatitis C in males exceeded females in most age groups except 15-19 and 20-24 year age groups. The highest reported rates of hepatitis C were found in Vancouver and Fraser East with both above 100/100,000 followed by South Vancouver Island.

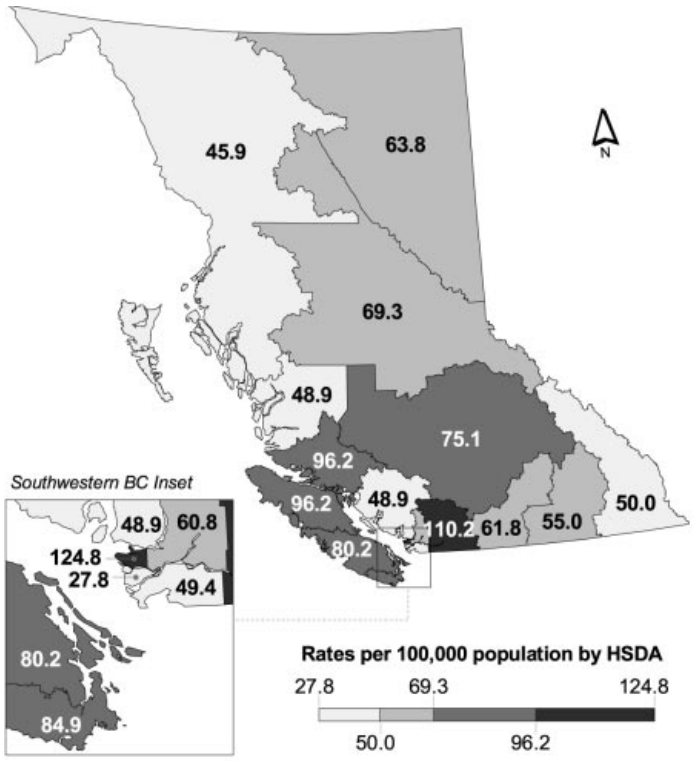
14.1 Hepatitis C Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Hepatitis C Reports	4650	6140	7720	6266	5011	4396	4379	4536	3617	3074
BC Hepatitis C Rate	123.1	158.5	195.5	157.3	124.9	108.8	107.4	110.2	87.2	73.5
Canadian Hepatitis C Rate	64.4	53.5	60.7	67.8	62.0	58.0	54.3	50.9	43.3	41.3

Note: Canadian rates are based on reporting provinces and territories only

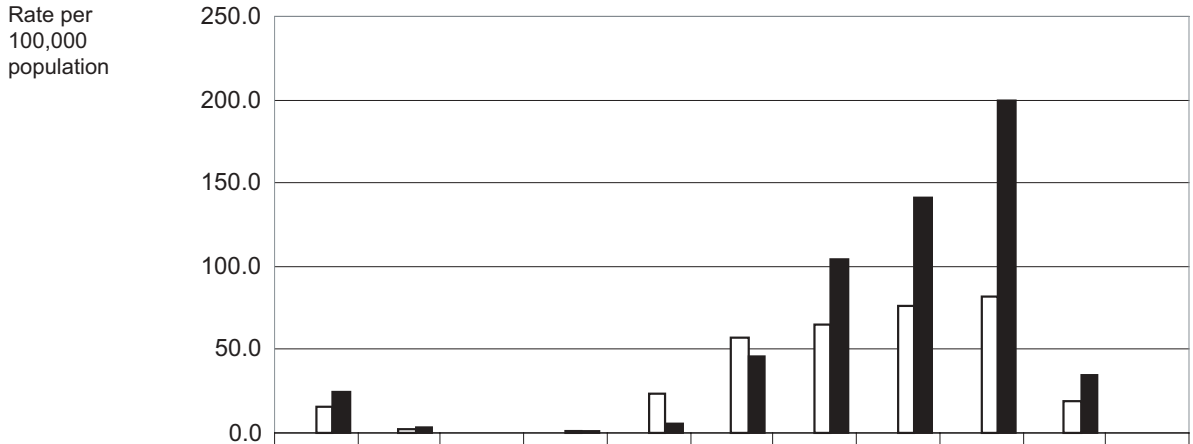
14.2 Hepatitis C Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	40	50.0
12	Kootenay Boundary	44	55.0
13	Okanagan	197	61.8
14	Thompson Cariboo Shuswap	161	75.1
21	Fraser East	287	110.2
22	Fraser North	346	60.8
23	Fraser South	316	49.4
31	Richmond	49	27.8
32	Vancouver	725	124.8
33	North Shore/Coast Garibaldi	132	48.9
41	South Vancouver Island	289	84.9
42	Central Vancouver Island	195	80.2
43	North Vancouver Island	110	96.2
51	Northwest	38	45.9
52	Northern Interior	104	69.3
53	Northeast	41	63.8

Note: Map classification by Jenks natural breaks method.

14.3 Hepatitis C Rates by Age Group and Sex, 2004

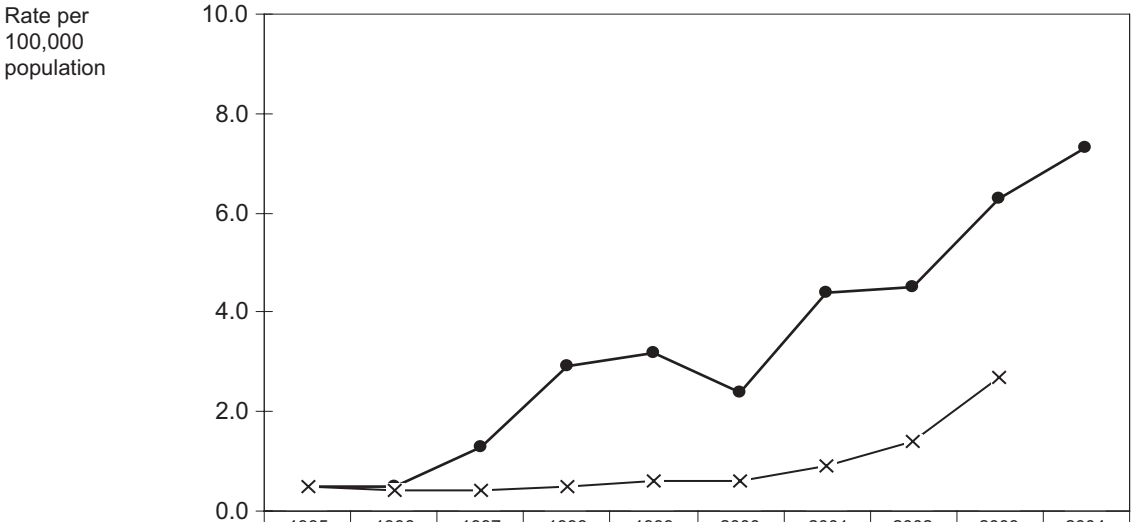


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
Hepatitis C Reports - Female	3	2	0	1	31	82	87	235	522	78	1
Hepatitis C Reports - Male	5	3	0	1	8	69	142	425	1256	123	0
☐ Hepatitis C Rate - Female	15.4	2.5	0.0	0.8	23.0	56.9	65.0	76.8	81.6	18.8	
■ Hepatitis C Rate - Male	24.3	3.5	0.0	0.7	5.6	45.9	104.7	141.2	199.4	34.6	

Infectious Syphilis

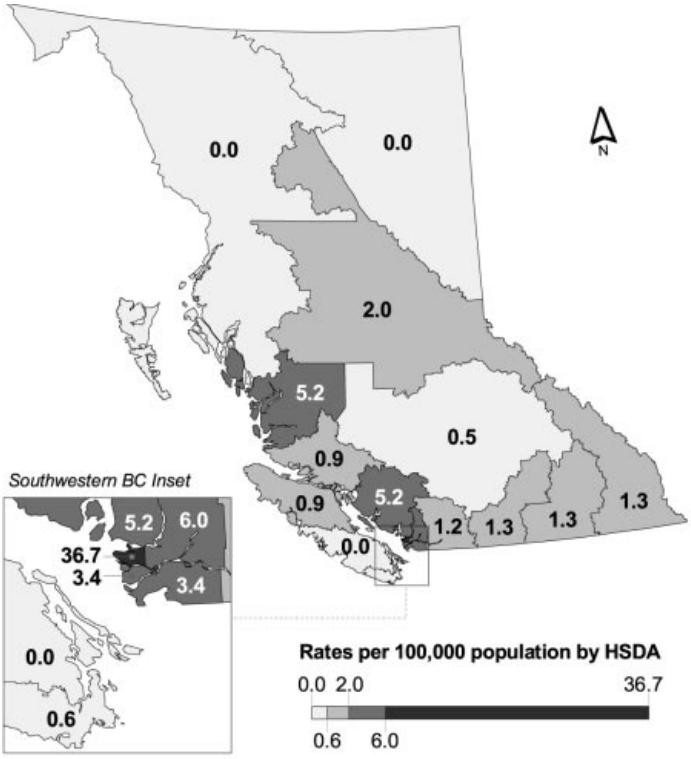
The rate per 100,000 population of infectious syphilis increased from 6.3 to 7.3. Over 300 cases were reported in 2004. The majority of cases are concentrated in the Lower Mainland. The largest proportional increase occurred in males reflecting the growing syphilis epidemic among gay men.

15.1 Infectious Syphilis Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Syphilis Reports	17	20	51	115	127	96	178	186	262	306
BC Syphilis Rate	0.5	0.5	1.3	2.9	3.2	2.4	4.4	4.5	6.3	7.3
Canadian Syphilis Rate	0.5	0.4	0.4	0.5	0.6	0.6	0.9	1.4	2.7	

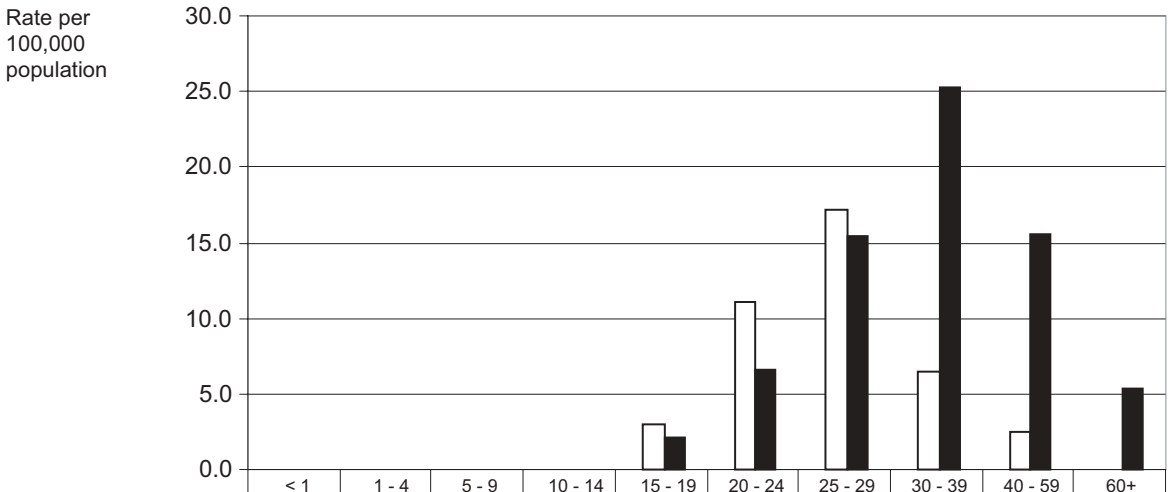
15.2 Infectious Syphilis Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	1	1.3
12	Kootenay Boundary	1	1.3
13	Okanagan	4	1.3
14	Thompson Cariboo Shuswap	1	0.5
21	Fraser East	3	1.2
22	Fraser North	34	6.0
23	Fraser South	22	3.4
31	Richmond	6	3.4
32	Vancouver	213	36.7
33	North Shore/Coast Garibaldi	14	5.2
41	South Vancouver Island	2	0.6
42	Central Vancouver Island	0	0.0
43	North Vancouver Island	1	0.9
51	Northwest	0	0.0
52	Northern Interior	3	2.0
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

15.3 Infectious Syphilis Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Syphilis Reports - Female	0	0	0	0	4	16	23	20	16	0
Syphilis Reports - Male	0	0	0	0	3	10	21	76	98	19
□ Syphilis Rate - Female	0.0	0.0	0.0	0.0	3.0	11.1	17.2	6.5	2.5	0.0
■ Syphilis Rate - Male	0.0	0.0	0.0	0.0	2.1	6.6	15.5	25.2	15.6	5.3

Diseases Transmitted by Direct Contact and Respiratory Routes

2004

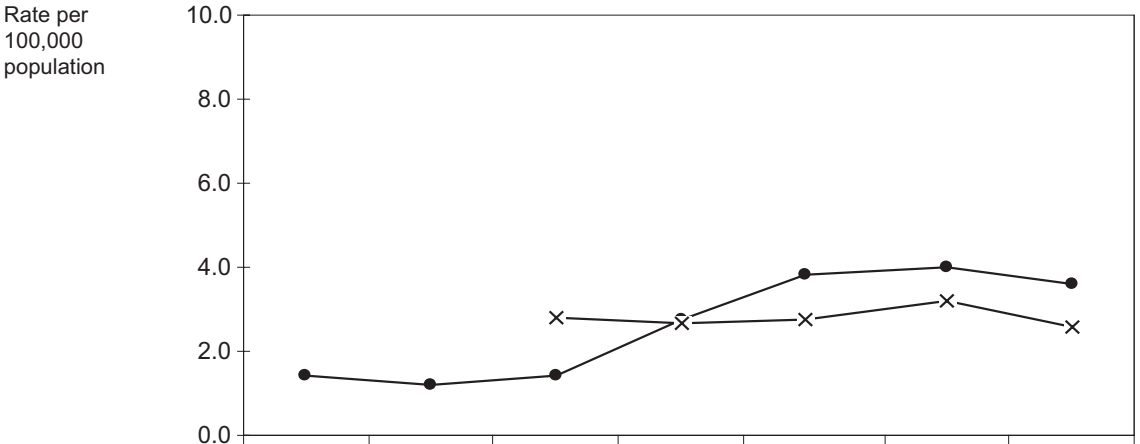
04

Streptococcal Disease, (invasive), Group A

The rate of reported cases of invasive group A Streptococcal (GAS) disease decreased in 2004 to 3.6 per hundred thousand population, although there was a slight increase in cases associated with soft tissue infections.

Rates of invasive GAS associated with necrotizing fasciitis and toxic shock-like syndrome remained unchanged from the prior year. The case fatality among the 148 confirmed cases was 10%.

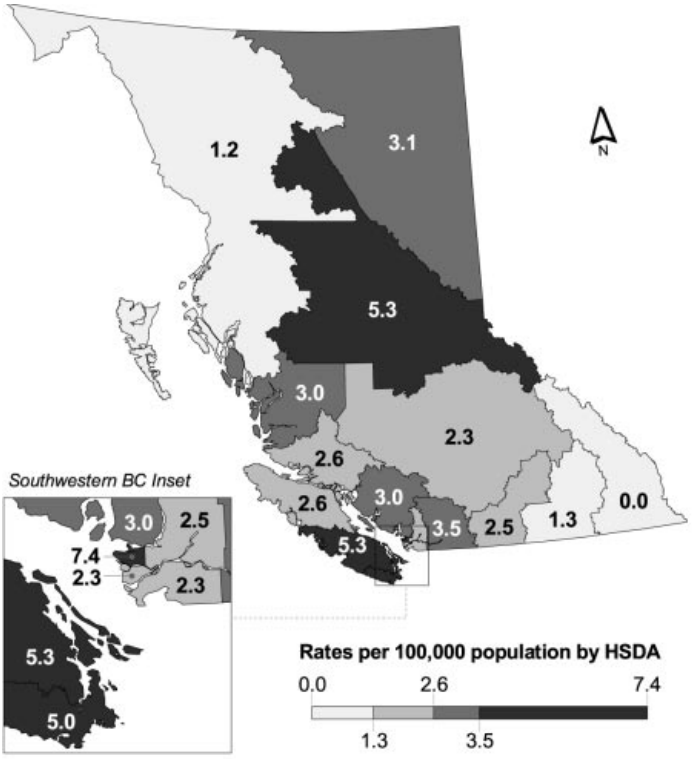
16.1 Streptococcal Disease (invasive) Group A Rates by Year, 1998-2004



	1998	1999	2000	2001	2002	2003	2004
BC GAS Reports	57	49	58	113	158	166	151
—●— BC GAS Rate	1.4	1.2	1.4	2.8	3.8	4.0	3.6
—×— Canadian GAS Rate			2.8	2.7	2.8	3.2	2.6

Note: Invasive Streptococcal Group A became notifiable nationally in January 2000

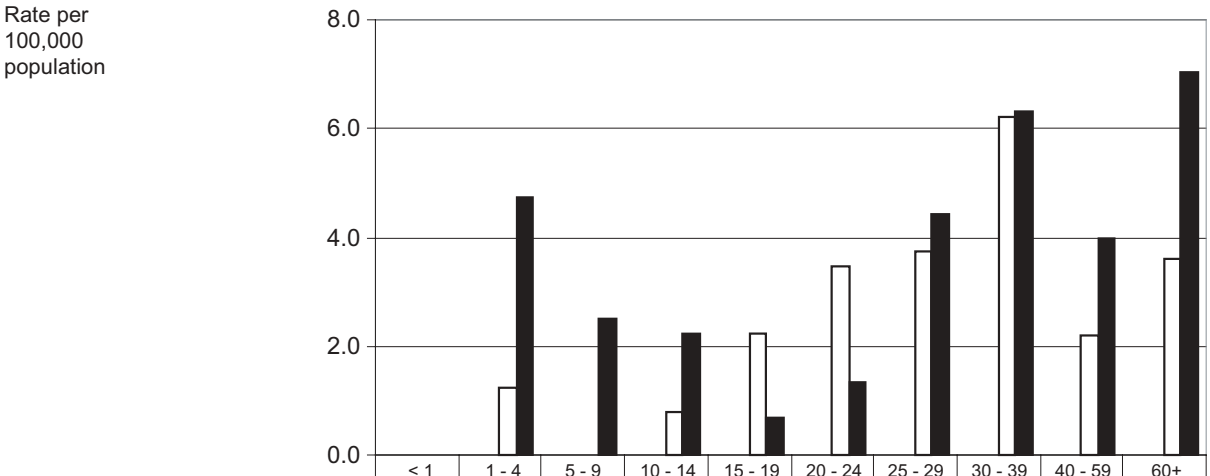
16.2 Streptococcal Disease (invasive) Group A Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	1	1.3
13	Okanagan	8	2.5
14	Thompson Cariboo Shuswap	5	2.3
21	Fraser East	9	3.5
22	Fraser North	14	2.5
23	Fraser South	15	2.3
31	Richmond	4	2.3
32	Vancouver	43	7.4
33	North Shore/Coast Garibaldi	8	3.0
41	South Vancouver Island	17	5.0
42	Central Vancouver Island	13	5.3
43	North Vancouver Island	3	2.6
51	Northwest	1	1.2
52	Northern Interior	8	5.3
53	Northeast	2	3.1

Note: Map classification by Jenks natural breaks method.

16.3 Streptococcal Disease (invasive) Group A Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Invasive Strep Group A Reports - Female	0	1	0	1	3	5	5	19	14	15
Invasive Strep Group A Reports - Male	0	4	3	3	1	2	6	19	25	25
□ Invasive Strep Group A Rate - Female	0.0	1.2	0.0	0.8	2.2	3.5	3.7	6.2	2.2	3.6
■ Invasive Strep Group A Rate - Male	0.0	4.7	2.5	2.2	0.7	1.3	4.4	6.3	4.0	7.0

Tuberculosis

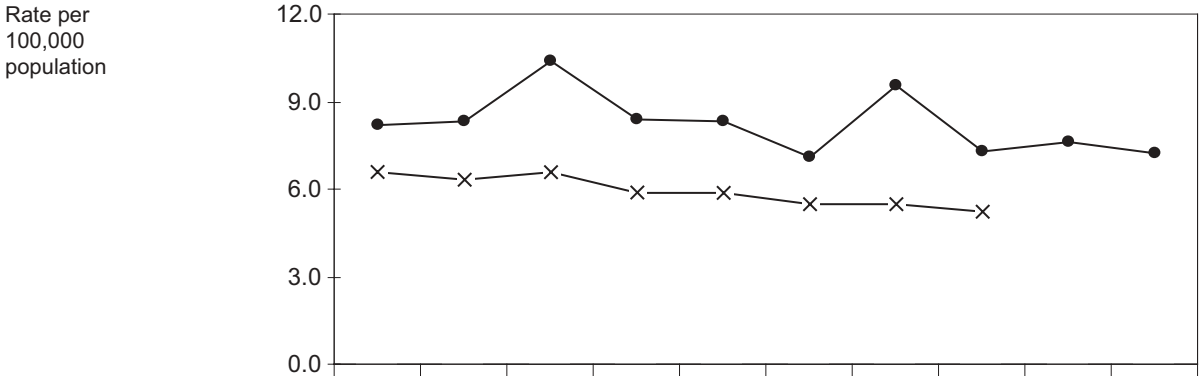
In 2004 there were 303 cases of reported tuberculosis in British Columbia, for a rate of 7.2 per 100,000, a 5% decrease in the number and rate of reported cases compared to 2003.

Rates for health regions vary across the province. The Vancouver, Richmond, Fraser North and Fraser South health service delivery areas have rates exceeding the provincial rate (7.2 / 100,000 population). The highest incidence rate was reported from Vancouver and Richmond (20.3 and 15.3 / 100,000 population respectively) while the lowest was in East Kootenay/Kootenay Boundary (no cases).

Compared to 2003, the rate of tuberculosis increased in Thompson Cariboo Shuswap, Northwest and Central Vancouver Island.

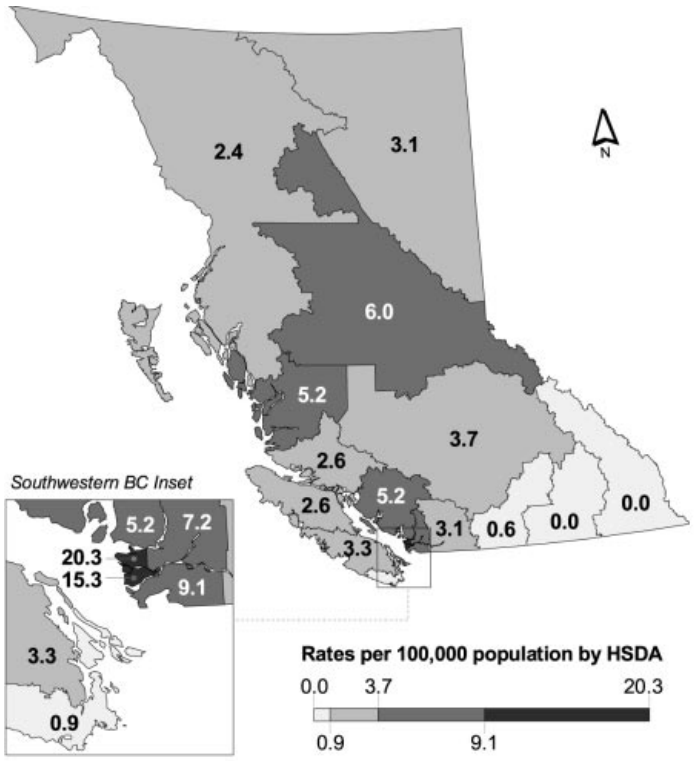
The age specific rates are shown in figure 1. Overall, the tuberculosis rate was higher in men than women (7.6 vs 6.9 per 100,000), but for the age group 24 years and under, the rate of tuberculosis was higher in women than men. In those ≥ 60 years old, the rate of tuberculosis in men was significantly higher than that in women (16.9 vs 10.1 per 100,000).

17.1 Tuberculosis Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Tuberculosis Cases	312.0	323.0	413.0	337.0	332.0	290.0	391.0	303.0	319.0	303.0
BC Tuberculosis Rate	8.2	8.3	10.4	8.4	8.3	7.1	9.5	7.3	7.6	7.2
Canadian Tuberculosis Rate	6.6	6.3	6.6	5.9	5.9	5.5	5.5	5.2		

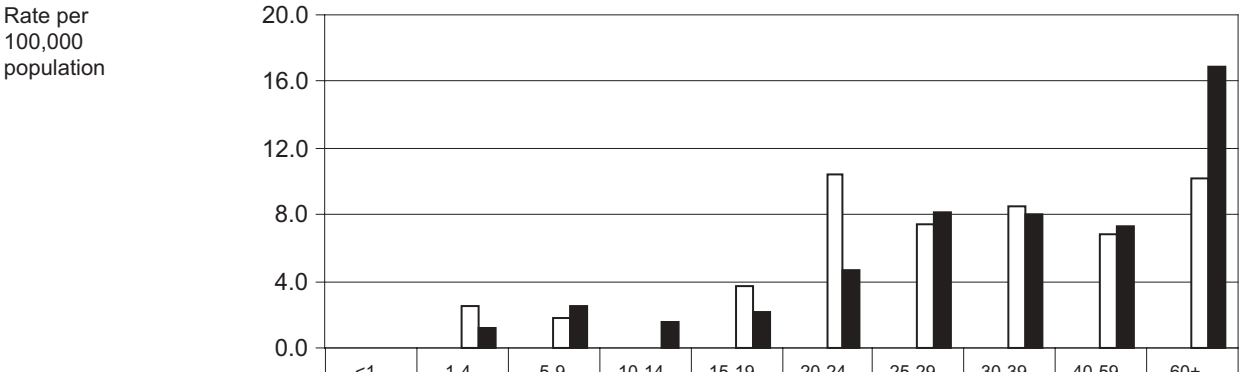
17.2 Tuberculosis Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	0	0.0
13	Okanagan	2	0.6
14	Thompson Cariboo Shuswap	8	3.7
21	Fraser East	8	3.1
22	Fraser North	41	7.2
23	Fraser South	58	9.1
31	Richmond	27	15.3
32	Vancouver	118	20.3
33	North Shore/Coast Garibaldi	14	5.2
41	South Vancouver Island	3	0.9
42	Central Vancouver Island	8	3.3
43	North Vancouver Island	3	2.6
51	Northwest	2	2.4
52	Northern Interior	9	6.0
53	Northeast	2	3.1

Note: Map classification by Jenks natural breaks method.

17.3 Tuberculosis Rates by Age Group and Gender, 2004



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Tuberculosis Cases - Female	0.0	2.0	2.0	0.0	5.0	15.0	10.0	26.0	44.0	42.0
Tuberculosis Cases - Male	0.0	1.0	3.0	2.0	3.0	7.0	11.0	24.0	46.0	60.0
□ Tuberculosis Rate - Female	0.0	2.5	1.8	0.0	3.7	10.4	7.5	8.5	6.9	10.1
■ Tuberculosis Rate - Male	0.0	1.2	2.5	1.5	2.1	4.7	8.1	8.0	7.3	16.9

Leprosy

Leprosy is not endemic in British Columbia. Two cases were reported in 2004 which is in keeping with the range of 0-3 reports per year experienced over the last 10 years.

Antimicrobial Resistant Organism Surveillance in British Columbia (ARO)

The Medical Microbiologists of British Columbia (BCAMM) have established a network for gathering meaningful information on antibiotic resistant organisms in British Columbia. Participation in this project is broadly representative of the population of British Columbia, and includes data from laboratories, listed at the end of the report, serving both in- and out-patients,. This report would not be possible without the contributions of many people, and we acknowledge the Medical Microbiologists, General Pathologists, laboratory technologists and infection control practitioners who have helped in the collection of data. BCAMM agreed that data should be combined in the report to prevent identification of individual sites and/or patients. Following approval of this report by BCAMM and all participants, it is made available to BCCDC Epidemiology and any use or further dissemination appropriately acknowledges BCAMM.

This is the fourth report from this group, with cumulative data to December 31, 2004. With this report, four new sites have been recruited to participate in the data collection, and all sites have provided data for the entire 2004 calendar. Some previously reported data for 2003 have been adjusted to reflect the receipt of additional data. Interpretation of these data must be done understanding the limitations as discussed in the next section.

It is intended that these data will be collected every six months or annually, with extension to other surveillance information and other centres as is possible or needed. While it would be desirable to collect additional demographic or clinical data, this would require additional resources. Details are provided in the following tables:

Table 1: MRSA reported by BCAMM ARO Surveillance Project

Table 2: VRE reported by BCAMM ARO Surveillance Project

Within the limitations of the data collection, during the first 24-month period of this project, the number of new patients identified with MRSA (2,500-3,000 patients) and the approximate proportion of MRSA/total S.aureus (9-10%) remained fairly constant. The data for 2004 shows an increase in both the absolute number of new patients with MRSA to 5,063 and an increase in the proportion of MRSA/ total S.aureus to 14.4%. The addition of four sites does not entirely account for the increase in the number of patients, nor does it explain the increase in the proportion of MRSA. The number of laboratories reporting an increase in the proportion of MRSA was the same as the number reporting a decrease or no change. Community acquired MRSA is increasingly reported, which may be reflected in the increase reported from the out-patient community laboratories. Anecdotally, some hospital laboratories are also noting an increase in MRSA from outpatients. Whether this is real or a problem with the surveillance data as collected (patients may be counted more than once if presenting at different hospitals or community laboratories) cannot be determined without further investigation and continued monitoring of the trend over time. With respect to VRE, the total number of patients identified to have VRE increased due to several local institutional outbreaks that began at the end of 2004, extending into 2005. The number of VRE as a percentage of all enterococci is still believed to be very low, and none were reported from out-patient community laboratories.

18.1 Table 1: MRSA reported by BCCAMM ARO Surveillance Project

Time period	Total new MRSA patients[a]	Total *S. aureus* isolates[b]	Approx % MRSA Total *S. aureus*[b]	Approx % MRSA Range[b,c]	Approx % MRSA Median[b]
Jan 1 – Jun 30	1,332	14,131	9.4%	1.5% - 62.7%	6.0%
Jul 1 – Dec 31	1,172	13,510	8.6%	1.3 – 40.7%	7.7%
Totals 2002	2,504	27,641	9.1%	1.3 –62.7%	
Jan 1 – Jun 30	1,271	13,545	9.4%	2 – 40.9%	9.3%
Jul 1 – Dec 31	1,851*	16,446*	11.5%	8 – 51%	12%
Totals 2003*	3,122*	29,991*	10.4%*	2 – 51%	
Totals 2004	**5,063**	**33,079**	**14.4%**	**6-33%**	**12.3%**

[a] See limitation 1
[b] See limitation 2
[c] Numbers at high end of range are outliers and reflect local outbreaks, the important figure is the mean %
* 2003 revised data with all sites reporting

18.2 Table 2: VRE reported by BCCAMM Surveillance Project

Time period	Total new VRE patients[a]	Estimate of VRE as % of all enterococci[c]
Jan 1 – Jun 30	35	<1%
Jul 1 – Dec 31	8	<1%
Total 2002	43	<1%
Jan 1 – Jun 30	5	<< 1%
Jul 1 – Dec 31	40*	< 1%
Total 2003	45*	
Total 2004	**150***	**Probably no more than 1%**

[a] See limitation 1
[c] See limitation 3
* Fourteen sites reporting, data to be amended

ARO Surveillance in British Columbia (cont'd)

Limitations

1. **Number of MRSA and VRE patients:** The patient numbers submitted are those identified at each participating laboratory, each patient counted only once at each site. However, patients may be counted more than once if they submitted cultures to more than one of the participating laboratories.

2. **Number of isolates:** The number of isolates reported is generated by laboratory information systems. Laboratories use a variety of approaches to count isolates, some of which are chosen according to local need and some of which are dictated by the constraints of the laboratory information system. For example, some laboratories retest every isolate on a patient (and thus re-count every isolate), while some laboratories have policies which require that the same isolate be re-tested (and thus re-counted) only every four or seven days, depending on the source of the isolate, or the location of the patient. Some laboratories only count in-patient isolates. Thus any calculation using the number of isolates tested, e.g. #MRSA/total MRSA tested, is subject to a degree of error.

3. **Number of enterococci:** Denominator data for enterococci is not provided, as the degree of resistance would be largely over-estimated. This is due to the fact that enterococci are common colonizers, or are present with other more virulent pathogens. They therefore are not subject to susceptibility testing and are not counted in laboratory information systems. Or to state it another way, the search for VRE is much more vigilant than the testing and reporting of enterococci in general. The same is not as much of a problem for *S. aureus*, since when *S. aureus* is present in a specimen it is usually considered a pathogen, subjected to susceptibility testing, and is counted. Having said this, it is still fair to estimate that VRE represent less than 1% of all enterococci isolated in B.C.

4. **Community versus hospital incidence:** Further epidemiologic investigation is required to meaningfully separate the isolates as arising from the community or arising in the hospital setting. Breaking the numbers down into those reported by community laboratories and those reported by in-patient settings would not necessarily reflect acquisition in the community, but could be provided if of interest.

5. **Time Period:** Centres may differ on the periods used for counting, some counting on calendar months, and others using "periods" within a fiscal year. The data collected were requested for the 6 calendar months or "periods" which best reflect those months, or for the calendar year. This is not felt to introduce significant error into these statistics, as it will be the trend of these data that is most useful.

We acknowledge and thank the Medical Microbiologists, General Pathologists, laboratory technologists and infection control practitioners at the following centres who have helped in the collection of this data

Participating Laboratories

1. BC Biomedical Laboratories
2. Burnaby General Hospital
3. Children's and Women's Hospital (Vancouver)
4. Cowichan District Hospital (Duncan and area)
5. Fraser Health East (MSA General, Chilliwack General, Mission Memorial, and Fraser Canyon Hospitals)
6. Kelowna General Hospital
7. Lion's Gate Hospital
8. MDS Metro Laboratories (Burnaby, Victoria, Kamloops, Omineca and Prince George locations)
9. Nanaimo General Regional Hospital
10. Penticton Regional Hospital
11. Prince George Regional Hospital
12. Providence Health Care
13. Richmond Hospital
14. Royal Columbian Hospital/Eagle Ridge (New Westminster)
15. Royal Inland Hospital (Kamloops)
16. Surrey Memorial Hospital
17. Vancouver Acute (VGH and UBCH sites)
18. Vancouver Island Health Authority (Victoria)
19. West Coast General Hospital (Port Alberni and Tofino)

Data collected and report prepared by Diane Roscoe, MD, FRCPC
Distributed for review by BCAMM
June 10, 2005

Enteric, Food and Waterborne Diseases

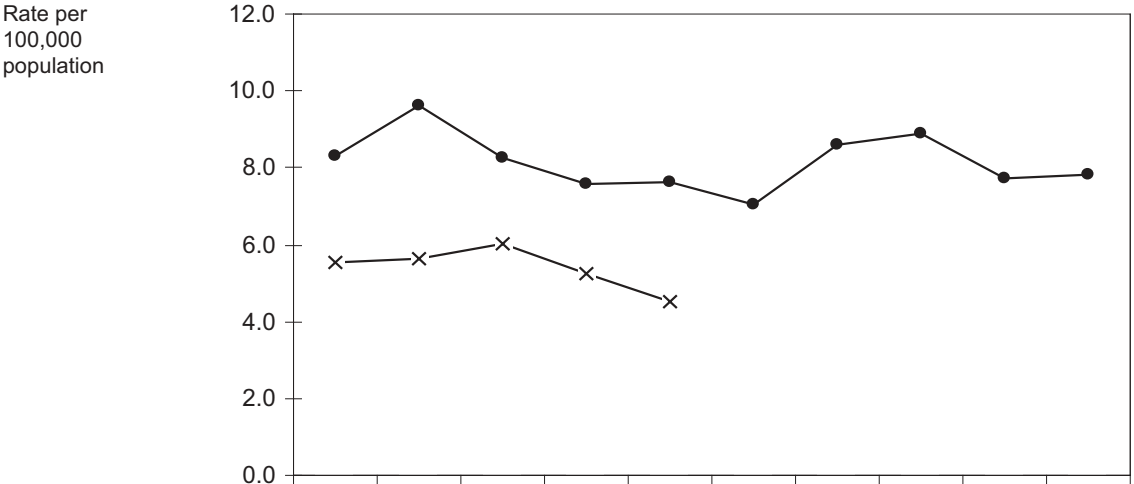
2004

04

Amebiasis

Throughout the last ten years, the rate of amebiasis in British Columbia has remained fairly constant. Although reporting exceeded expected values during several weeks in 2004, these were not consecutive, no outbreaks were identified and no seasonal pattern was evident. Seventy-four percent of cases were male with reporting rates highest among males aged 30 to 39 years of age. Homosexual and bisexual men may be at increased risk of infection as amebiasis is known to be transmitted sexually through oral-anal contact. Vancouver experienced a higher rate of illness (30.8 cases per 100,000 population) than other health authorities. The location of a large screening program for new Canadian immigrants in Vancouver partially accounts for heightened levels of reporting.

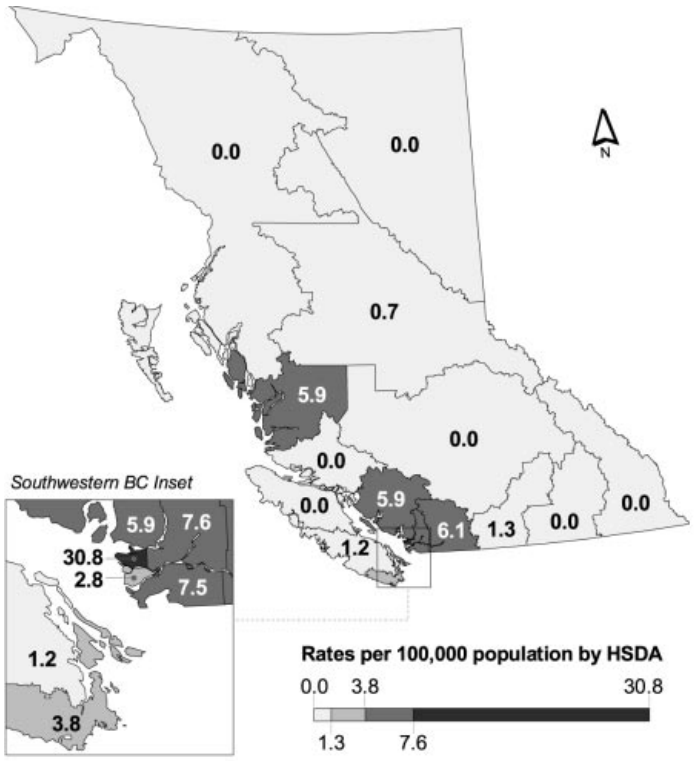
19.1 Amebiasis Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Amebiasis Reports	313	372	327	302	306	284	351	365	320	328
—●— BC Amebiasis Rate	8.3	9.6	8.3	7.6	7.6	7.0	8.6	8.9	7.7	7.8
—×— Canadian Amebiasis Rate	5.5	5.6	6.0	5.3	4.5					

Note: Amebiasis was removed from national surveillance in January 2000

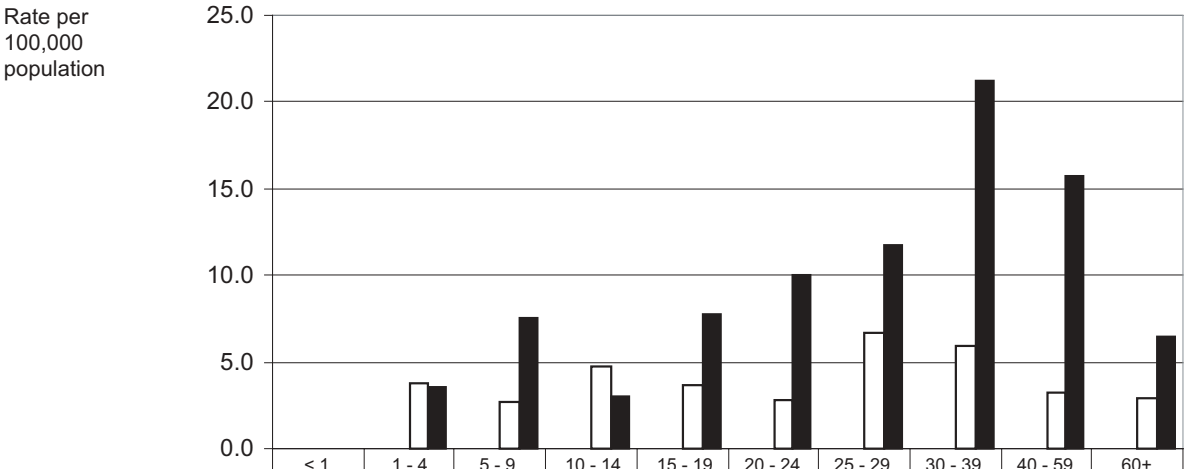
19.2 Amebiasis Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	0	0.0
13	Okanagan	4	1.3
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	16	6.1
22	Fraser North	43	7.6
23	Fraser South	48	7.5
31	Richmond	5	2.8
32	Vancouver	179	30.8
33	North Shore/Coast Garibaldi	16	5.9
41	South Vancouver Island	13	3.8
42	Central Vancouver Island	3	1.2
43	North Vancouver Island	0	0.0
51	Northwest	0	0.0
52	Northern Interior	1	0.7
53	Northeast	0	0.0

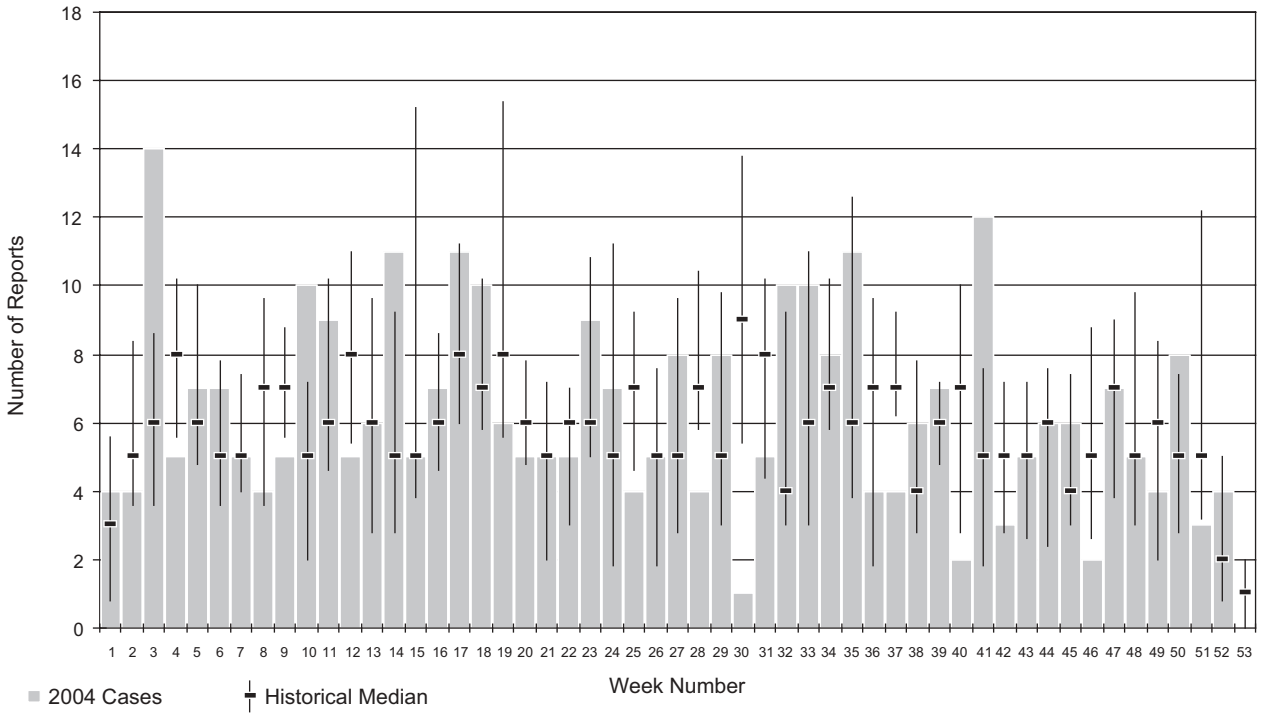
Note: Map classification by Jenks natural breaks method.

19.3 Amebiasis Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Amebiasis Reports - Female	0	3	3	6	5	4	9	18	21	12
Amebiasis Reports - Male	0	3	9	4	11	15	16	64	99	23
□ Amebiasis Rate - Female	0.0	3.7	2.7	4.8	3.7	2.8	6.7	5.9	3.3	2.9
■ Amebiasis Rate - Male	0.0	3.5	7.5	3.0	7.7	10.0	11.8	21.3	15.7	6.5

19.4 2004 Amebiasis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1995 to 2003)



Campylobacteriosis

Campylobacteriosis remains the most commonly reported enteric disease in the province with a total of 1471 cases reported in 2004.

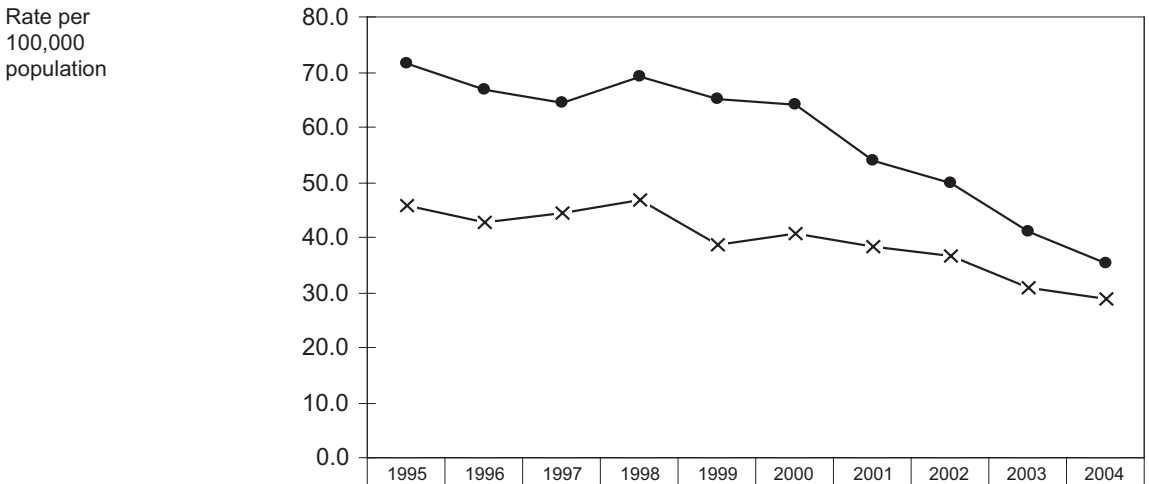
Annual reported incidence has continued to decline reaching its lowest rate since 1992 at 35.1 cases/100,000 population in 2004. This decline may be partly artifactual as it coincides with the introduction of a provincial protocol, introduced in the late 1990s, that reduces the number of stool tests ordered by physicians. However, Canadian rates and rates in the United States have also declined over this time period, suggesting a true decrease in disease rates. BC rates are approaching national rates of campylobacteriosis.

There were marked regional differences in the rate of reported *Campylobacter* infections. As in past years, the highest rates were reported from health service delivery areas in the south of the province with Vancouver, Richmond, North Shore/Coast Garibaldi, South Vancouver Island, Fraser East and the Okanagan reporting rates between 39.9 and 51.8 per 100,000. Regional differences in laboratory practices (e.g., use of transport media inhibiting the recovery of *Campylobacter*) may in part account for the differences in reported rates.

The highest rates were reported among male children aged 1-4 years (92.1 cases/100,000 population). The reasons for this are not clear. Rates in other sex and age groups varied between 7.1 and 45.7 cases/100,000 population.

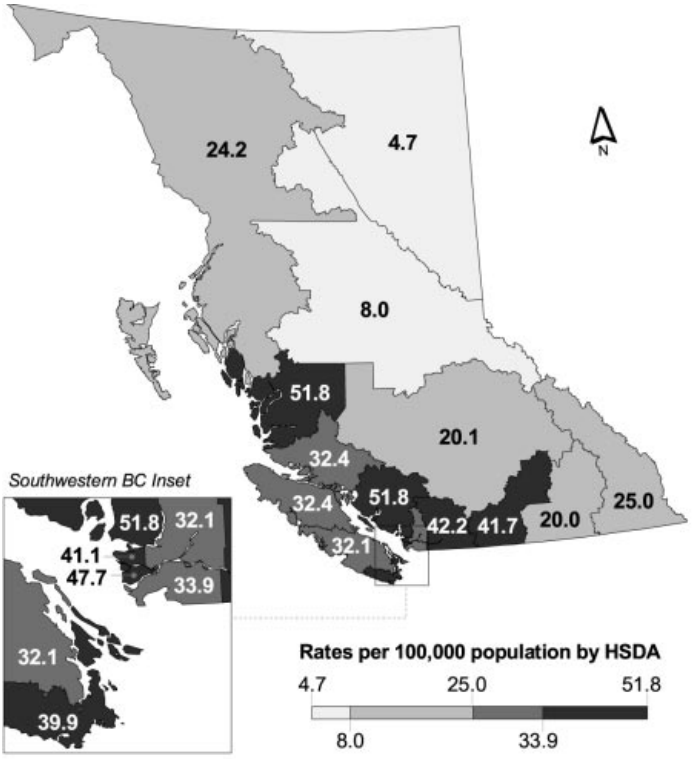
The highest rate was reported in week 3. This peak was due to a *Campylobacter* community outbreak in the Okanagan that spanned from December 2003 to January 2004. The vehicle was not identified. Unlike previous years, there was no summer peak in reported cases.

20.1 Campylobacteriosis Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Campylobacteriosis Reports	2698	2588	2549	2760	2613	2583	2192	2052	1702	1471
BC Campylobacteriosis Rate	71.4	66.8	64.6	69.3	65.1	63.9	53.7	49.9	41.0	35.1
Canadian Campylobacteriosis Rate	45.7	42.7	44.5	46.6	38.5	40.6	38.3	36.7	30.9	28.9

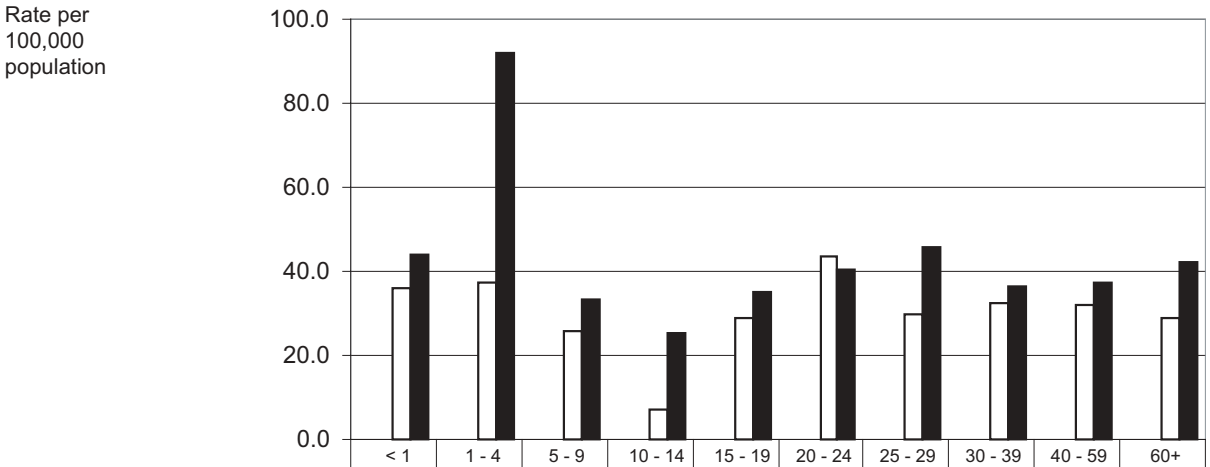
20.2 Campylobacteriosis Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	20	25.0
12	Kootenay Boundary	16	20.0
13	Okanagan	133	41.7
14	Thompson Cariboo Shuswap	43	20.1
21	Fraser East	110	42.2
22	Fraser North	183	32.1
23	Fraser South	217	33.9
31	Richmond	84	47.7
32	Vancouver	239	41.1
33	North Shore/Coast Garibaldi	140	51.8
41	South Vancouver Island	136	39.9
42	Central Vancouver Island	78	32.1
43	North Vancouver Island	37	32.4
51	Northwest	20	24.2
52	Northern Interior	12	8.0
53	Northeast	3	4.7

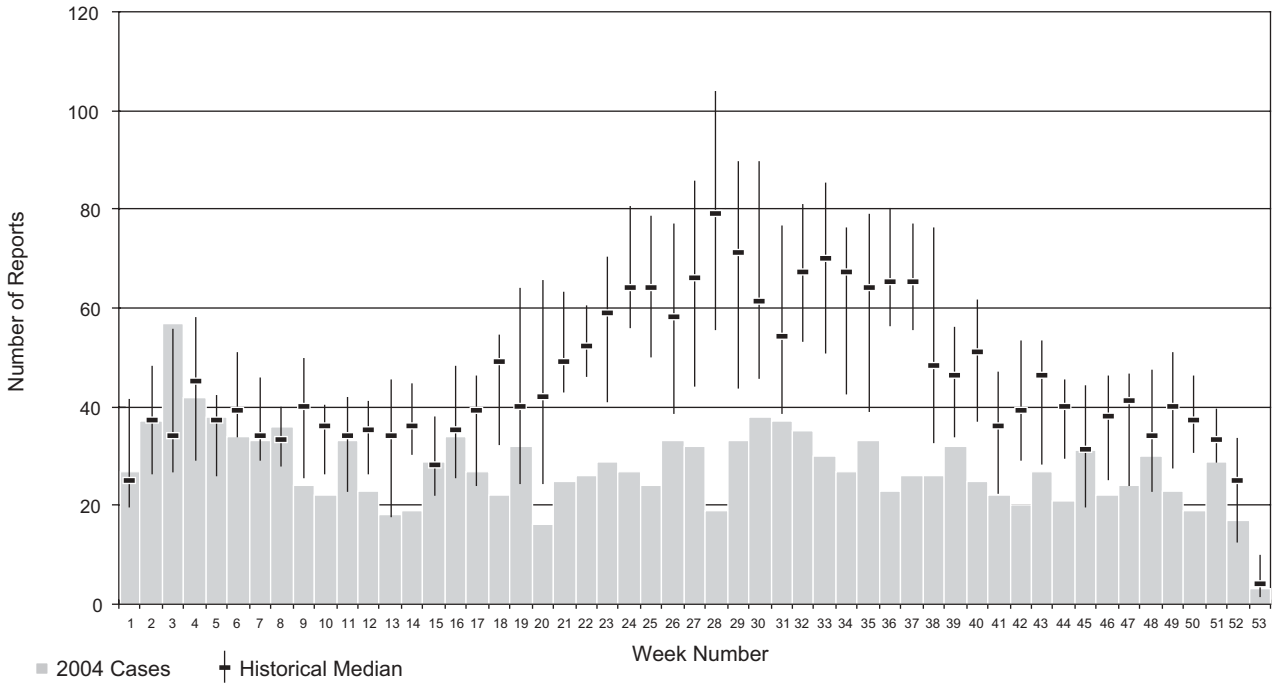
Note: Map classification by Jenks natural breaks method.

20.3 Campylobacteriosis Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Campylobacteriosis Reports - Female	7	30	29	9	39	63	40	100	205	120
Campylobacteriosis Reports - Male	9	78	40	34	50	61	62	110	235	150
□ Campylobacteriosis Rate - Female	35.9	37.5	25.6	7.1	29.0	43.7	29.9	32.7	32.0	29.0
■ Campylobacteriosis Rate - Male	43.8	92.1	33.4	25.5	35.1	40.6	45.7	36.5	37.3	42.2

20.4 2004 Campylobacteriosis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1995 to 2003)



Cryptosporidiosis

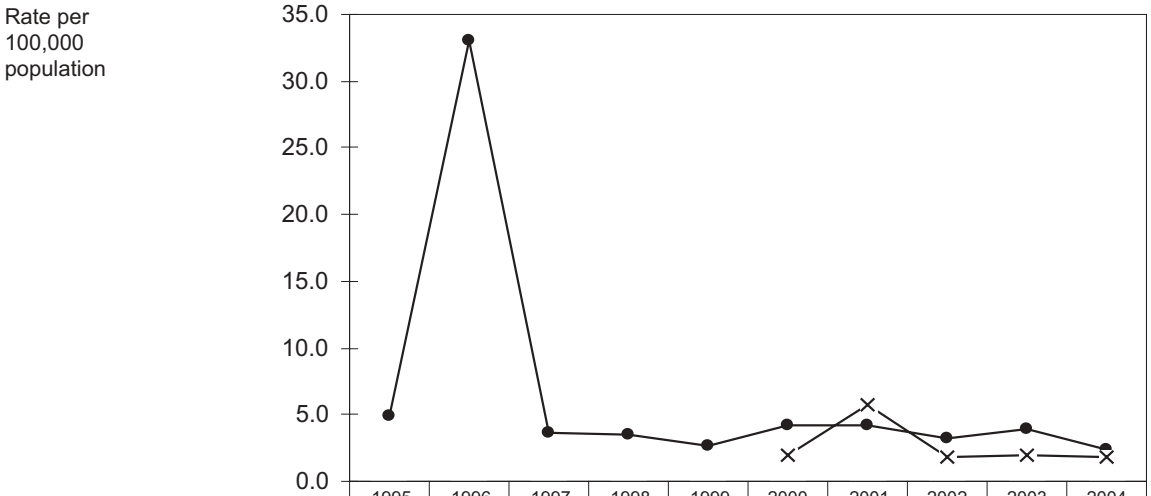
One hundred cases of cryptosporidiosis were reported in BC in 2004. Annual reported incidence of cryptosporidiosis has remained relatively stable over the past 8 years. In 2004, it reached its lowest point in the last 10 years at 2.4/100,000.

The highest rates were reported from Fraser East, and the lowest from the Northwest, Northern Interior and Thompson Caribou Shuswap areas.

The rate of reporting is highest in children under the age of 10 years and higher in males than females. Individuals in older age groups are more likely to have had prior exposure and some degree of immunity.

There was a slightly higher rate of reported cases during weeks 33 and 35, typical of the summer peaks characteristic of this disease.

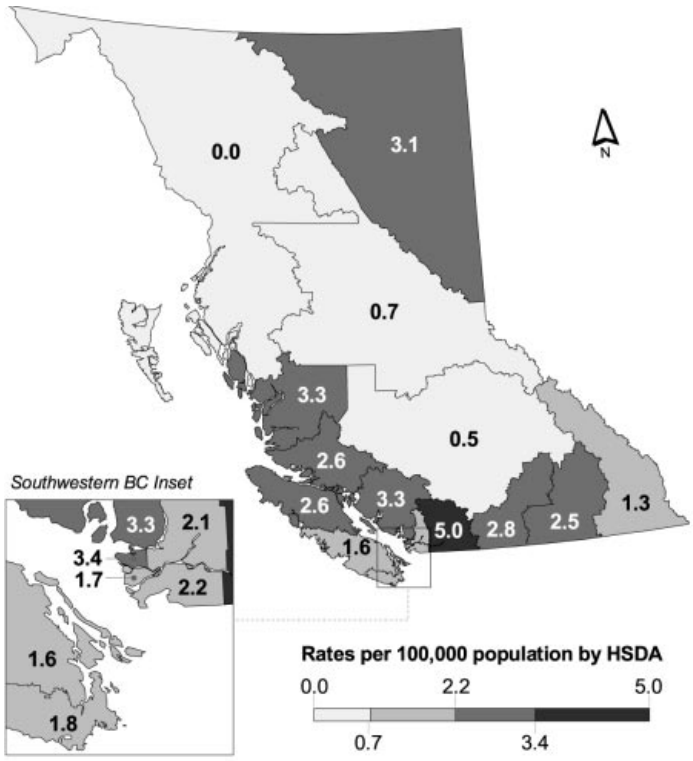
21.1 Cryptosporidiosis Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Cryptosporidiosis Reports	186	1278	144	139	109	167	173	130	162	100
BC Cryptosporidiosis Rate	4.9	33.0	3.6	3.5	2.7	4.1	4.2	3.2	3.9	2.4
Canadian Cryptosporidiosis Rate						2.0	5.7	1.8	1.9	1.8

Note: Cryptosporidiosis became nationally notifiable in January 2000

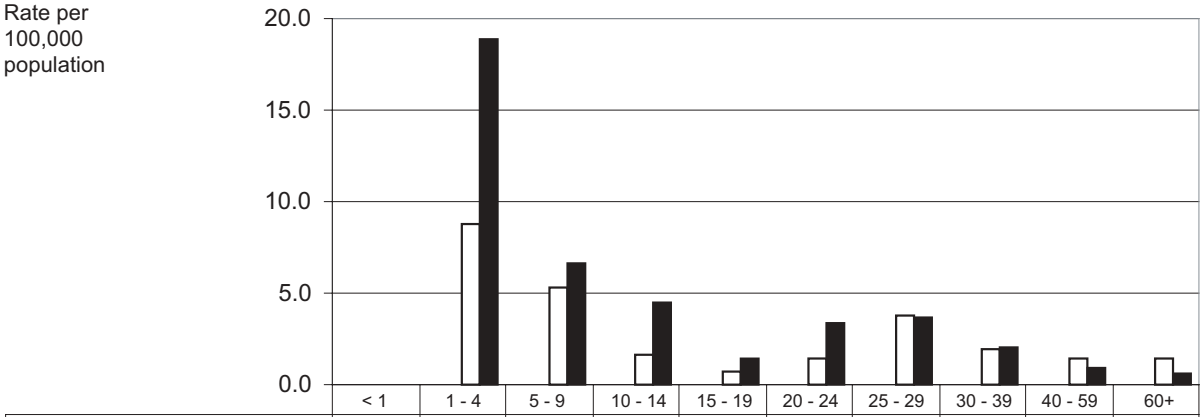
21.2 Cryptosporidiosis Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	1	1.3
12	Kootenay Boundary	2	2.5
13	Okanagan	9	2.8
14	Thompson Cariboo Shuswap	1	0.5
21	Fraser East	13	5.0
22	Fraser North	12	2.1
23	Fraser South	14	2.2
31	Richmond	3	1.7
32	Vancouver	20	3.4
33	North Shore/Coast Garibaldi	9	3.3
41	South Vancouver Island	6	1.8
42	Central Vancouver Island	4	1.6
43	North Vancouver Island	3	2.6
51	Northwest	0	0.0
52	Northern Interior	1	0.7
53	Northeast	2	3.1

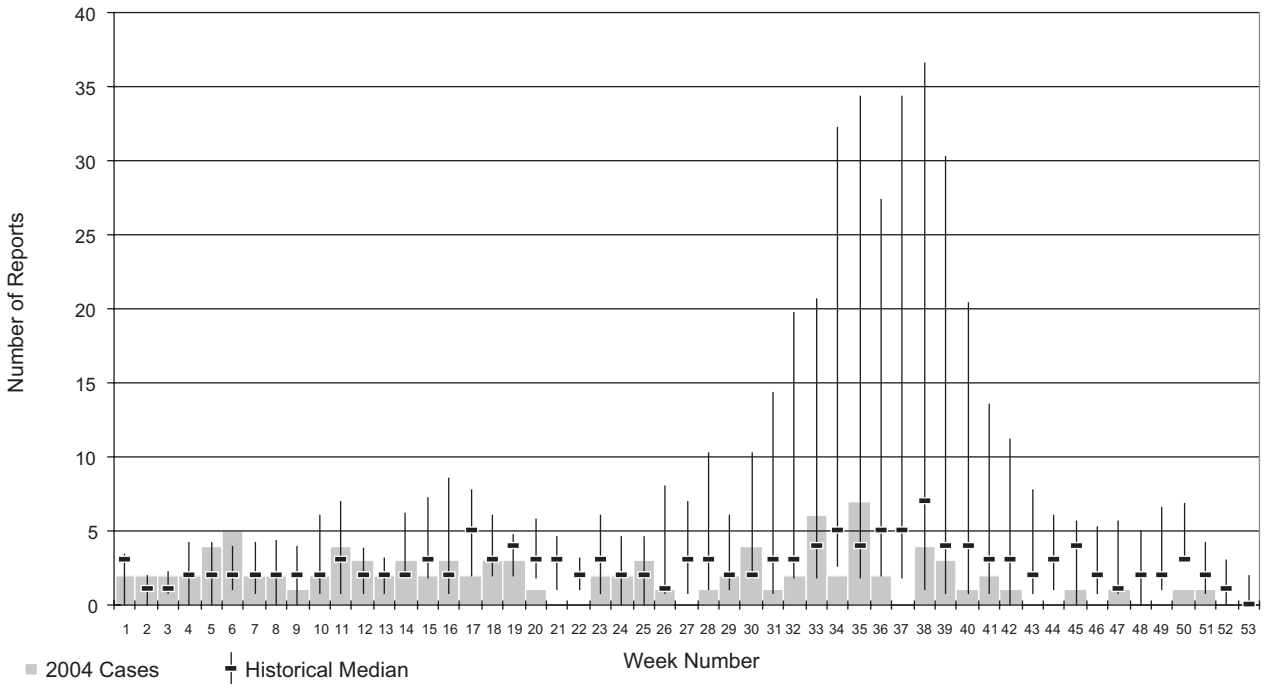
Note: Map classification by Jenks natural breaks method.

21.3 Cryptosporidiosis Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Cryptosporidiosis Reports - Female	0	7	6	2	1	2	5	6	9	6
Cryptosporidiosis Reports - Male	0	16	8	6	2	5	5	6	6	2
□ Cryptosporidiosis Rate - Female	0.0	8.7	5.3	1.6	0.7	1.4	3.7	2.0	1.4	1.4
■ Cryptosporidiosis Rate - Male	0.0	18.9	6.7	4.5	1.4	3.3	3.7	2.0	1.0	0.6

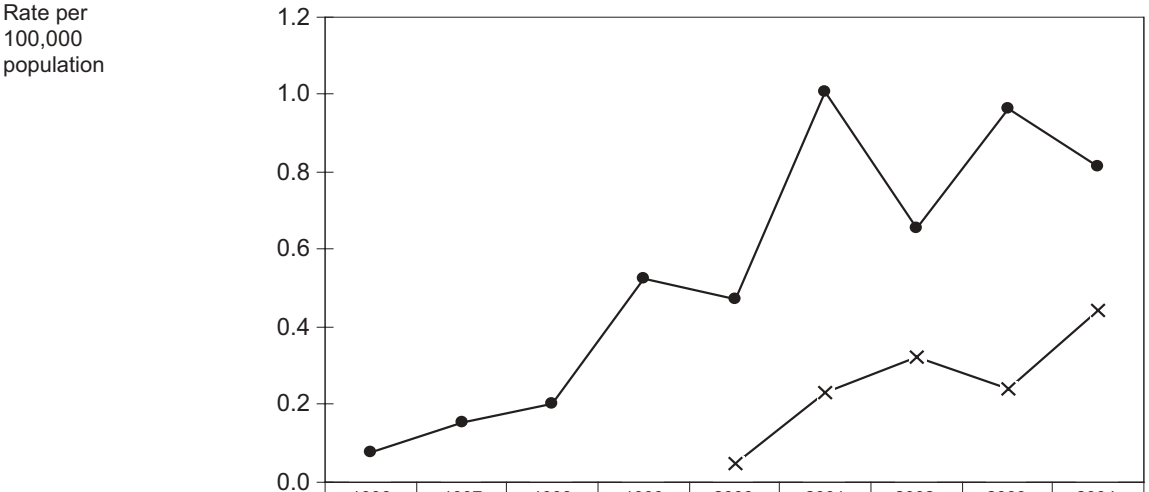
21.4 2004 Cryptosporidiosis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1995 to 2003)



Cyclosporiasis

Over the last 10 years, British Columbia has experienced a steady rise in the annual incidence of *Cyclospora* infections. While many infections are linked to travel to places where the disease is endemic, locally-acquired infections have increased in recent years. Outbreaks of locally-acquired disease tend to occur in the late spring/early summer and have been linked to the consumption of contaminated fresh produce. Outbreaks were recognized in 2001 (17cases), 2003 (10 cases) and 2004 (9 cases) in association with both imported and locally grown produce. Produce may become contaminated when irrigated with or washed in water containing the parasite.

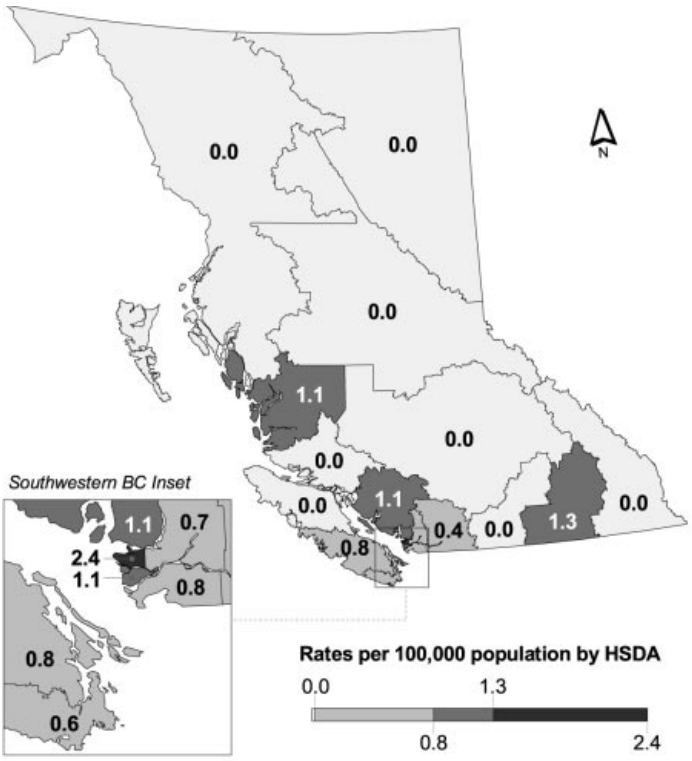
22.1 Cyclosporiasis Rates by Year, 1996-2004



	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Cyclosporiasis Reports	3	6	8	21	19	41	27	40	34
—●— BC Cyclosporiasis Rate	0.1	0.2	0.2	0.5	0.5	1.0	0.7	1.0	0.8
—×— Canadian Cyclosporiasis Rate					0.0	0.2	0.3	0.2	0.4

Note: Cryptosporidiosis became nationally notifiable in January 2000

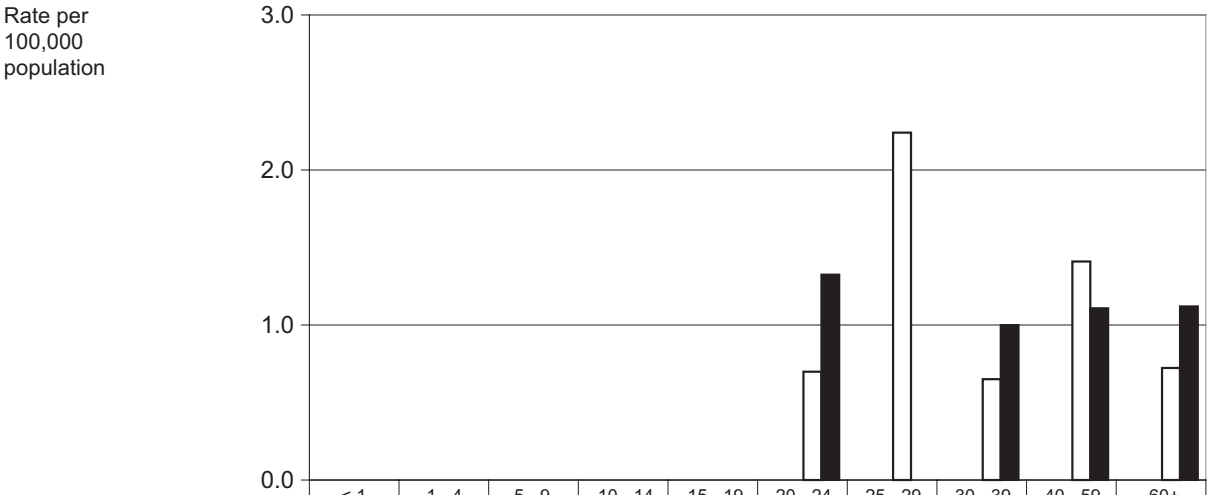
22.2 Cyclosporiasis Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	1	1.3
13	Okanagan	0	0.0
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	1	0.4
22	Fraser North	4	0.7
23	Fraser South	5	0.8
31	Richmond	2	1.1
32	Vancouver	14	2.4
33	North Shore/Coast Garibaldi	3	1.1
41	South Vancouver Island	2	0.6
42	Central Vancouver Island	2	0.8
43	North Vancouver Island	0	0.0
51	Northwest	0	0.0
52	Northern Interior	0	0.0
53	Northeast	0	0.0

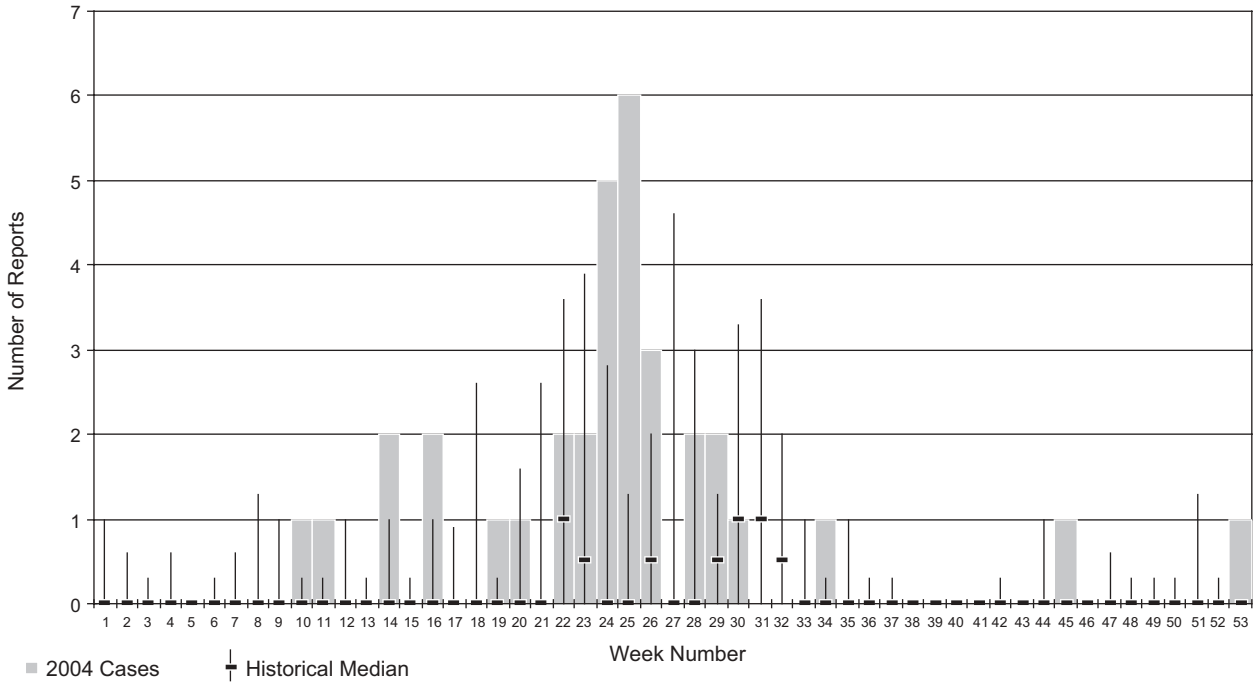
Note: Map classification by Jenks natural breaks method.

22.3 Cyclosporiasis Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Cyclosporiasis Reports - Female	0	0	0	0	0	1	3	2	9	3
Cyclosporiasis Reports - Male	0	0	0	0	0	2	0	3	7	4
□ Cyclosporiasis Rate - Female	0.0	0.0	0.0	0.0	0.0	0.7	2.2	0.7	1.4	0.7
■ Cyclosporiasis Rate - Male	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.0	1.1	1.1

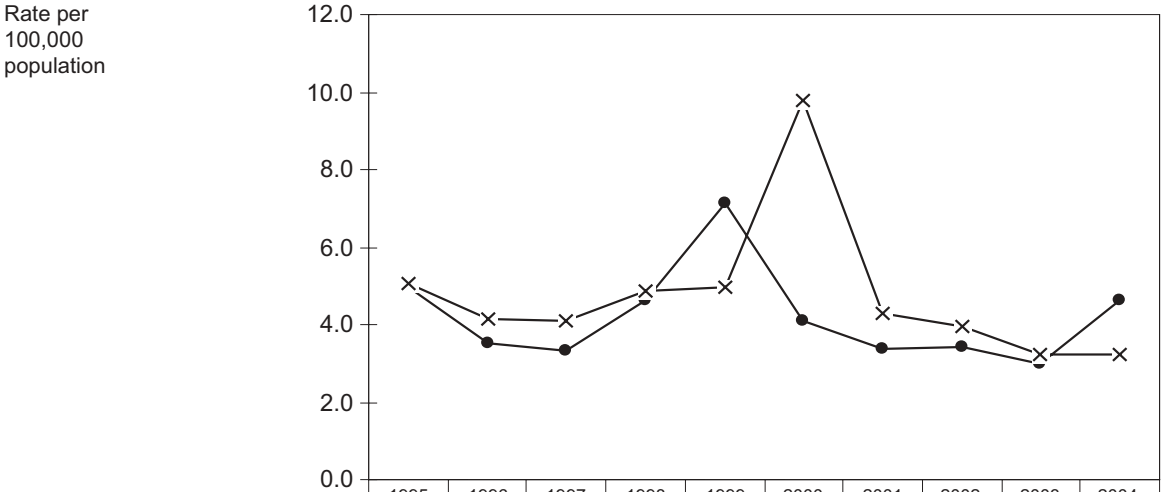
22.4 2004 Cyclosporiasis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1995 to 2003)



Verotoxigenic *E. coli* (VTEC) Infection

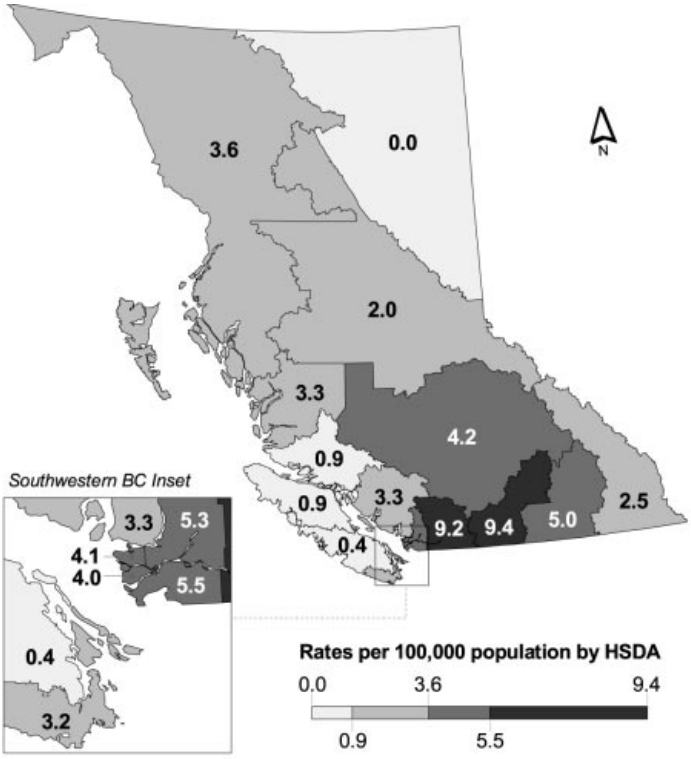
A number of summer outbreaks resulted in a higher incidence rate in 2004 relative to the previous four years. Reported incidence of *E. coli* was highest in children under 10 years of age and peak incidence occurred over the summer months, as expected. In 2004, outbreaks and sporadic cases were linked to contaminated ground beef, petting zoos and a children's spray (water) park, highlighting the diverse ways in which enteric infections can be transmitted. The spray park was located in the Okanagan region of the province, accounting for the high incidence rate reported there.

23.1 Verotoxigenic *E. coli* Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Verotoxigenic E. coli Reports	188	137	132	185	287	166	137	140	123	193
—●— BC Verotoxigenic E. coli Rate	5.0	3.5	3.3	4.6	7.2	4.1	3.4	3.4	3.0	4.6
—×— Canadian Verotoxigenic E. coli Rate	5.1	4.2	4.1	4.9	5.0	9.8	4.3	3.9	3.2	3.2

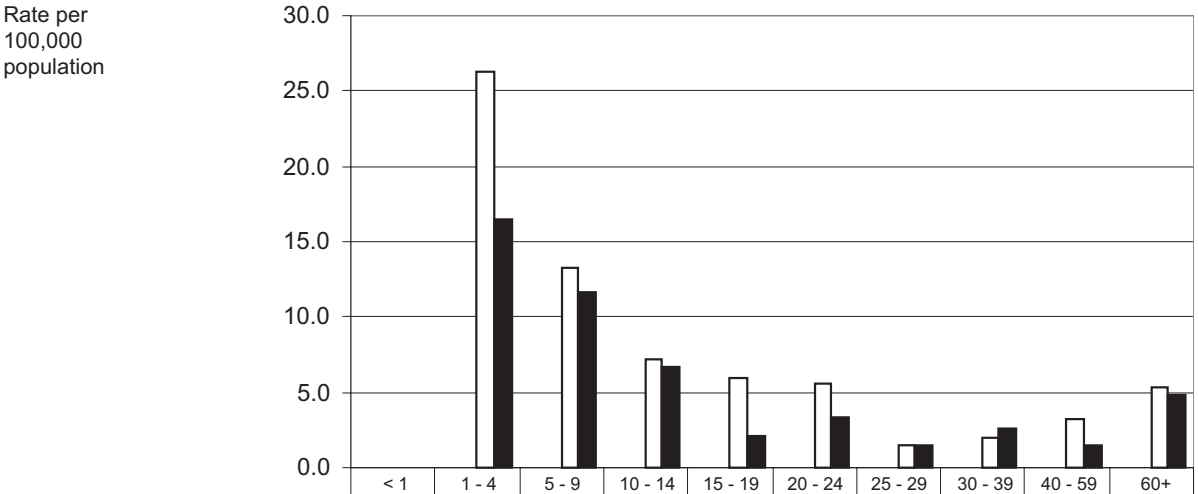
23.2 Verotoxigenic □□□*oli* Infection Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	2	2.5
12	Kootenay Boundary	4	5.0
13	Okanagan	30	9.4
14	Thompson Cariboo Shuswap	9	4.2
21	Fraser East	24	9.2
22	Fraser North	30	5.3
23	Fraser South	35	5.5
31	Richmond	7	4.0
32	Vancouver	24	4.1
33	North Shore/Coast Garibaldi	9	3.3
41	South Vancouver Island	11	3.2
42	Central Vancouver Island	1	0.4
43	North Vancouver Island	1	0.9
51	Northwest	3	3.6
52	Northern Interior	3	2.0
53	Northeast	0	0.0

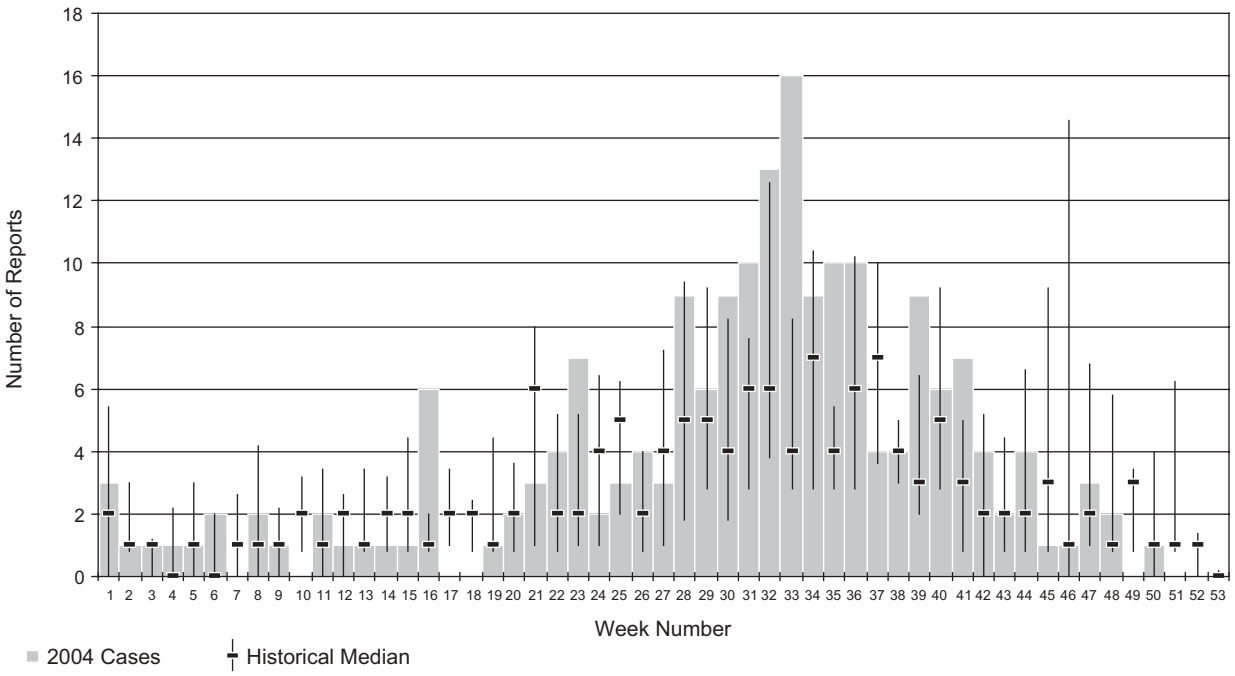
Note: Map classification by Jenks natural breaks method.

23.3 Verotoxigenic *E. coli* Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Verotoxigenic E. coli Reports - Female	0	21	15	9	8	8	2	6	21	22
Verotoxigenic E. coli Reports - Male	0	14	14	9	3	5	2	8	9	17
□ Verotoxigenic E. coli Rate - Female	0.0	26.2	13.3	7.1	5.9	5.5	1.5	2.0	3.3	5.3
■ Verotoxigenic E. coli Rate - Male	0.0	16.5	11.7	6.7	2.1	3.3	1.5	2.7	1.4	4.8

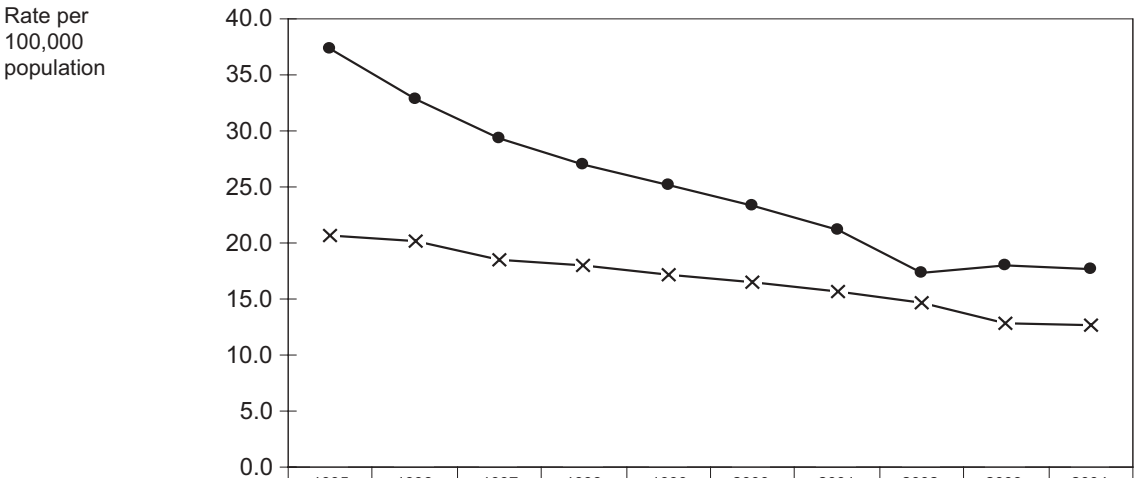
23.4 2004 Verotoxigenic *E. coli* Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1995 to 2003)



Giardiasis

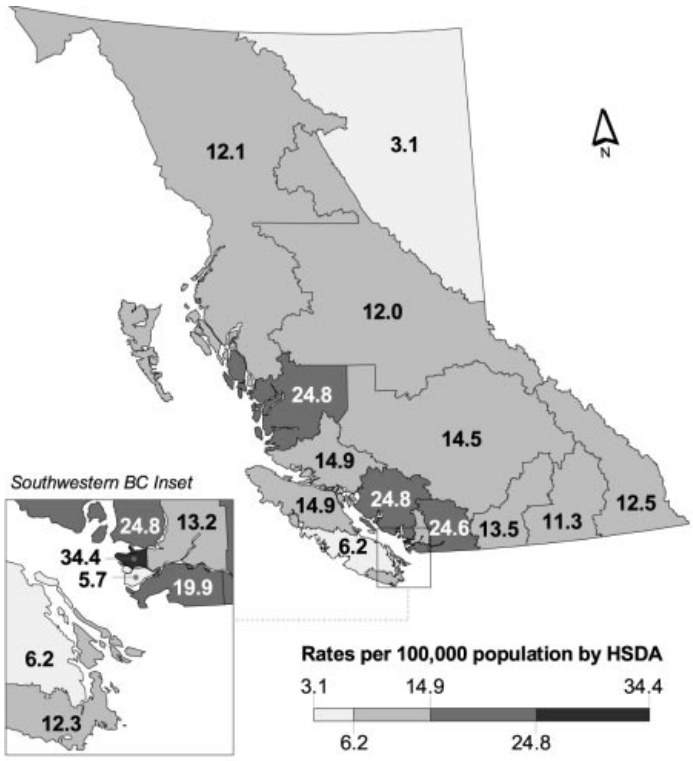
Annual rates of giardiasis in BC have decreased over the last decade. In 2004, fifty-eight percent of cases occurred among males. A bimodal age distribution is apparent, with rates of infection highest in children aged one to four and adults aged 25 to 39. Geographically, Vancouver, North Shore/Coast Garibaldi and Fraser East experienced the highest rates of infection at 34.4, 24.8 and 24.6 cases per 100, 000 population respectively. No waterborne outbreaks were identified.

24.1 Giardiasis Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Giardiasis Reports	1409	1274	1158	1075	1009	941	860	710	743	740
BC Giardiasis Rate	37.3	32.9	29.3	27.0	25.2	23.3	21.1	17.3	17.9	17.7
Canadian Giardiasis Rate	20.7	20.1	18.6	18.0	17.2	16.5	15.6	14.6	12.8	12.6

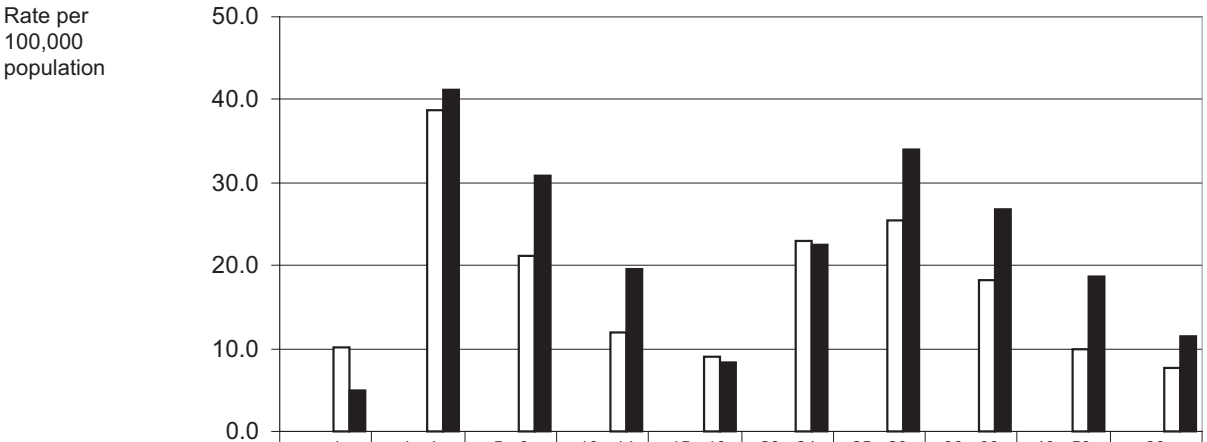
24.2 Giardiasis Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	10	12.5
12	Kootenay Boundary	9	11.3
13	Okanagan	43	13.5
14	Thompson Cariboo Shuswap	31	14.5
21	Fraser East	64	24.6
22	Fraser North	75	13.2
23	Fraser South	127	19.9
31	Richmond	10	5.7
32	Vancouver	200	34.4
33	North Shore/Coast Garibaldi	67	24.8
41	South Vancouver Island	42	12.3
42	Central Vancouver Island	15	6.2
43	North Vancouver Island	17	14.9
51	Northwest	10	12.1
52	Northern Interior	18	12.0
53	Northeast	2	3.1

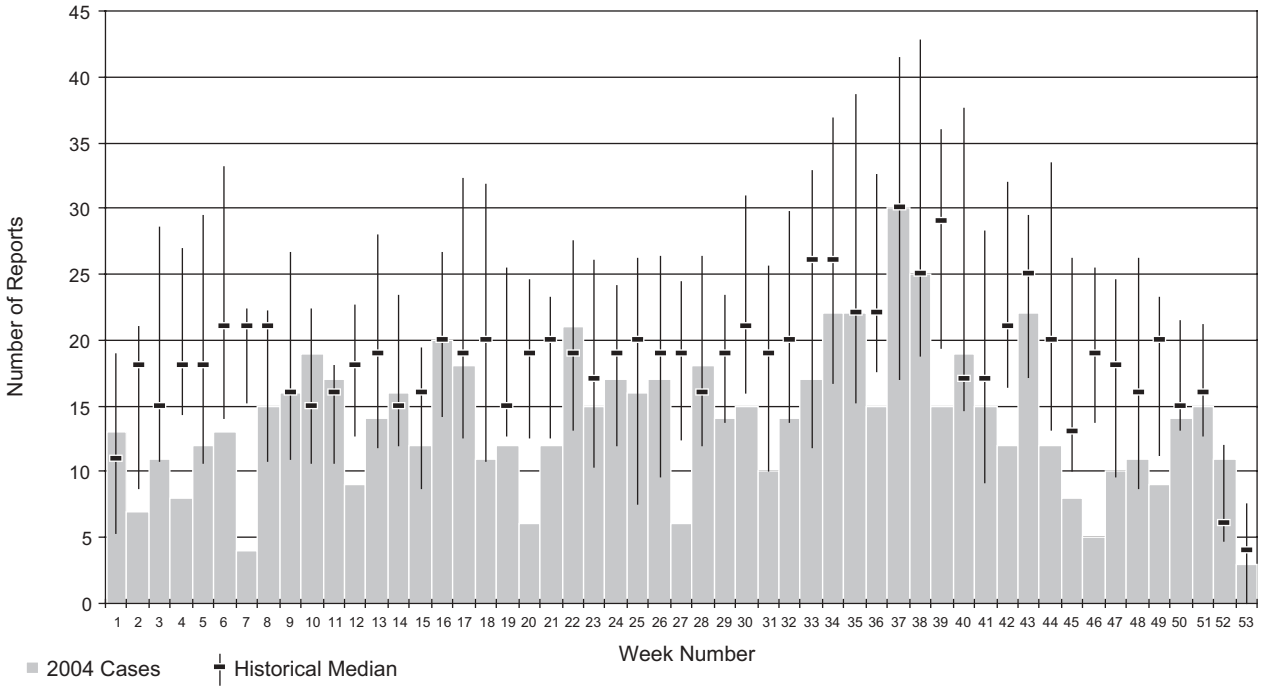
Note: Map classification by Jenks natural breaks method.

24.3 Giardiasis Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Giardiasis Reports - Female	2	31	24	15	12	33	34	56	63	32
Giardiasis Reports - Male	1	35	37	26	12	34	46	81	118	41
Giardiasis Reports - Unknown	0	1	3	0	0	1	0	1	1	0
□ Giardiasis Rate - Female	10.2	38.7	21.2	11.9	8.9	22.9	25.4	18.3	9.8	7.7
■ Giardiasis Rate - Male	4.9	41.3	30.9	19.5	8.4	22.6	33.9	26.9	18.7	11.5

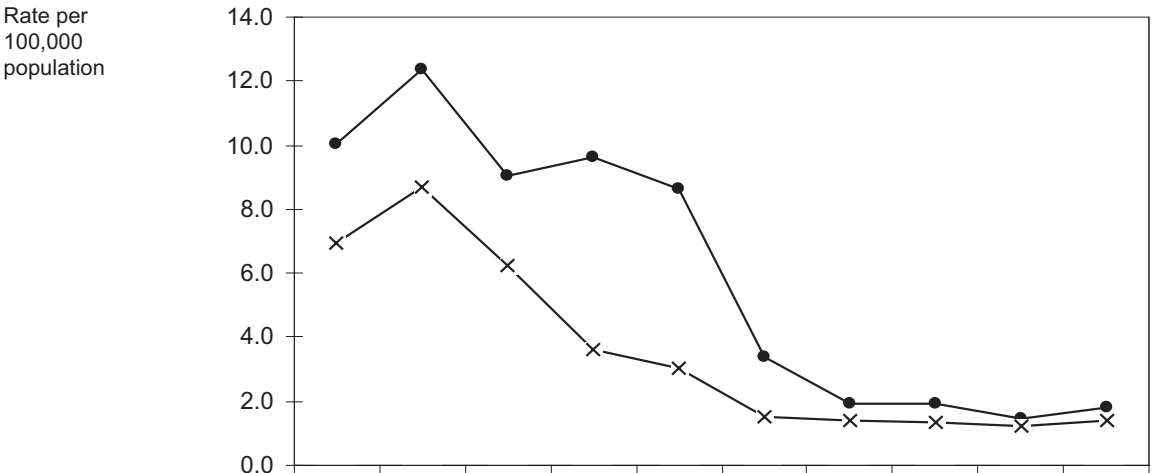
24.4 2004 Giardiasis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1995 to 2003)



Hepatitis A

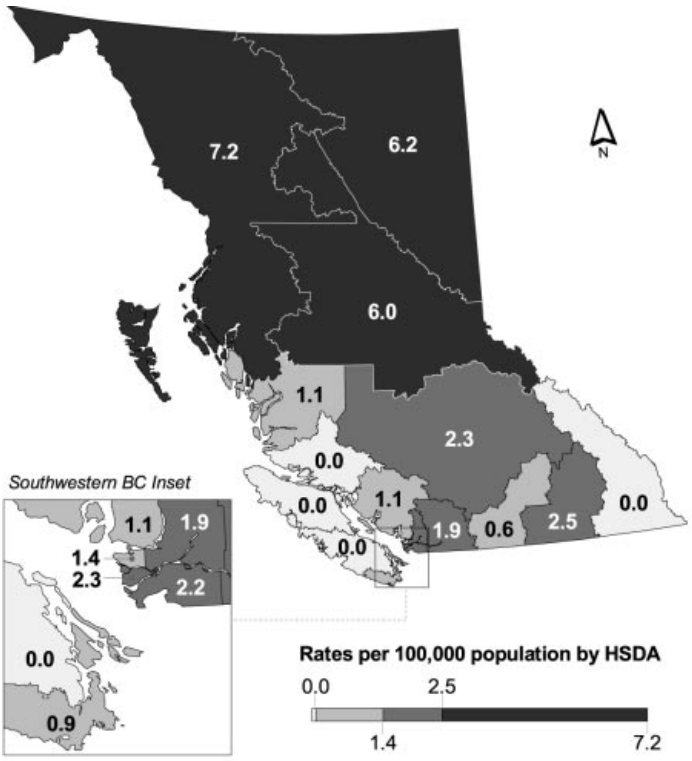
Hepatitis A reporting in BC in 2004 showed a slight increase from the previous year; from 60 to 76 cases. This was equivalent to a rate of 1.8 cases/100,000 population; the rate remains above the national reported rate of 1.4/100,000. Overall the rate in males was higher than females; although the rate in females was higher in 1-4, 5-9, 20-24 and 30-39 year age groups. The highest rates in BC (6.0/100,000 and above) were seen in the three health service delivery areas of the Northern Health Authority.

25.1 Hepatitis A Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Hepatitis A Reports	378	478	357	383	346	136	79	79	60	76
BC Hepatitis A Rate	10.0	12.3	9.0	9.6	8.6	3.4	1.9	1.9	1.4	1.8
Canadian Hepatitis A Rate	6.9	8.7	6.2	3.6	3.0	1.5	1.4	1.3	1.2	1.4

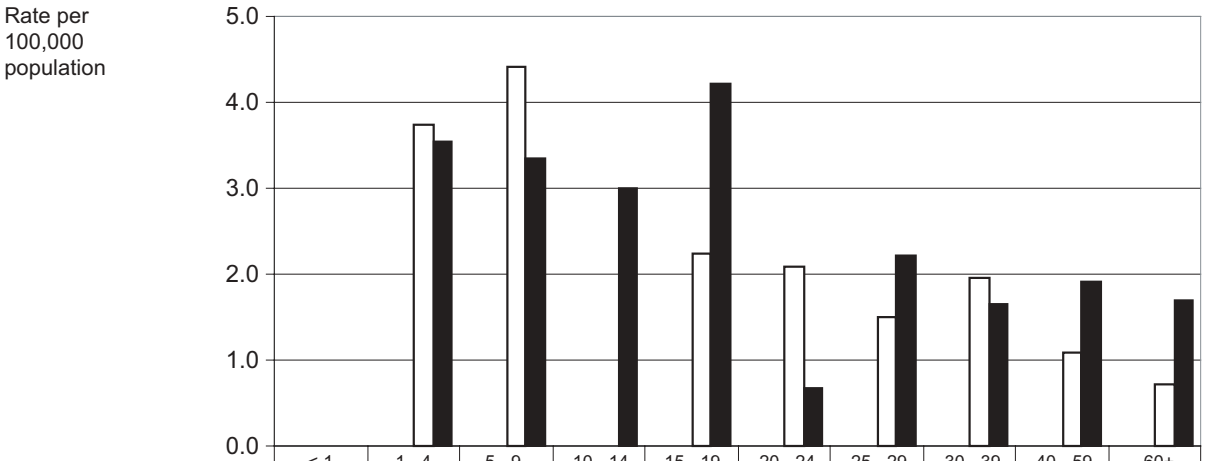
25.2 Hepatitis A Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	2	2.5
13	Okanagan	2	0.6
14	Thompson Cariboo Shuswap	5	2.3
21	Fraser East	5	1.9
22	Fraser North	11	1.9
23	Fraser South	14	2.2
31	Richmond	4	2.3
32	Vancouver	8	1.4
33	North Shore/Coast Garibaldi	3	1.1
41	South Vancouver Island	3	0.9
42	Central Vancouver Island	0	0.0
43	North Vancouver Island	0	0.0
51	Northwest	6	7.2
52	Northern Interior	9	6.0
53	Northeast	4	6.2

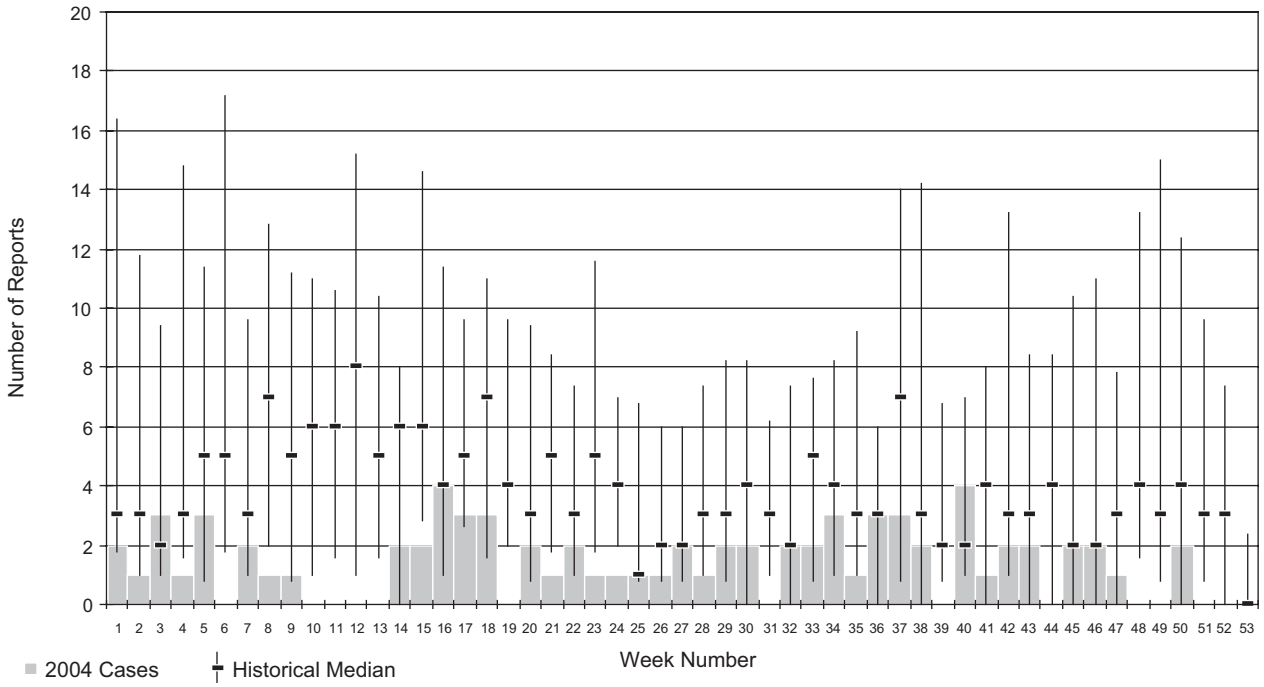
Note: Map classification by Jenks natural breaks method.

25.3 Hepatitis A Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Hepatitis A Reports - Female	0	3	5	0	3	3	2	6	7	3
Hepatitis A Reports - Male	0	3	4	4	6	1	3	5	12	6
□ Hepatitis A Rate - Female	0.0	3.7	4.4	0.0	2.2	2.1	1.5	2.0	1.1	0.7
■ Hepatitis A Rate - Male	0.0	3.5	3.3	3.0	4.2	0.7	2.2	1.7	1.9	1.7

25.4 2004 Hepatitis A Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1995 to 2003)



Listeriosis

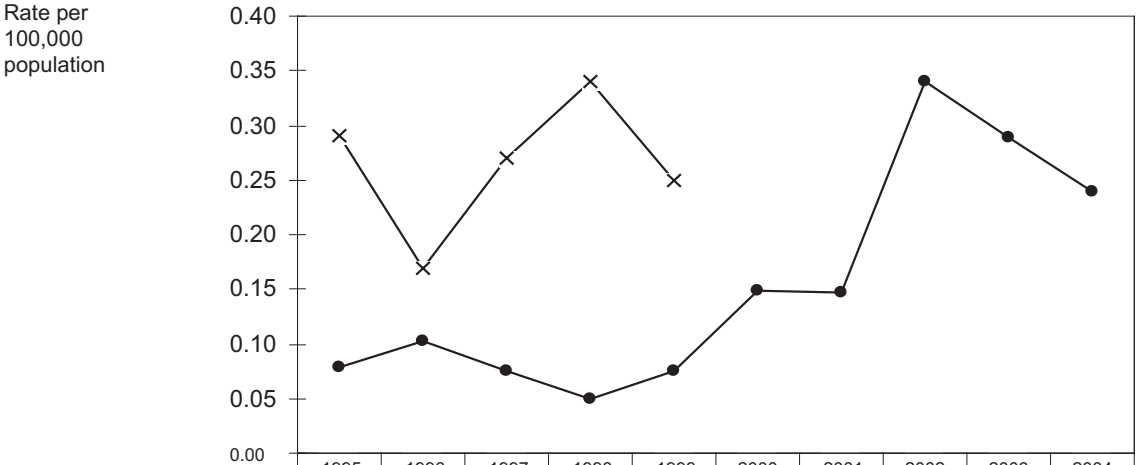
Ten cases of listeriosis were reported in 2004. The rate of 0.24/100,000 has been relatively stable in the last few years and comparable to national rates when the disease was nationally notifiable.

All cases were sporadic except for one which was associated with contaminated cheese from a dairy plant in Ontario.

No further cases related to consumption of cheese from this plant were identified. The cheese was recalled and the plant was closed.

All cases were reported from Vancouver Island and the Lower Mainland, except for one in Northern Interior. All cases were in people aged 53 years and older.

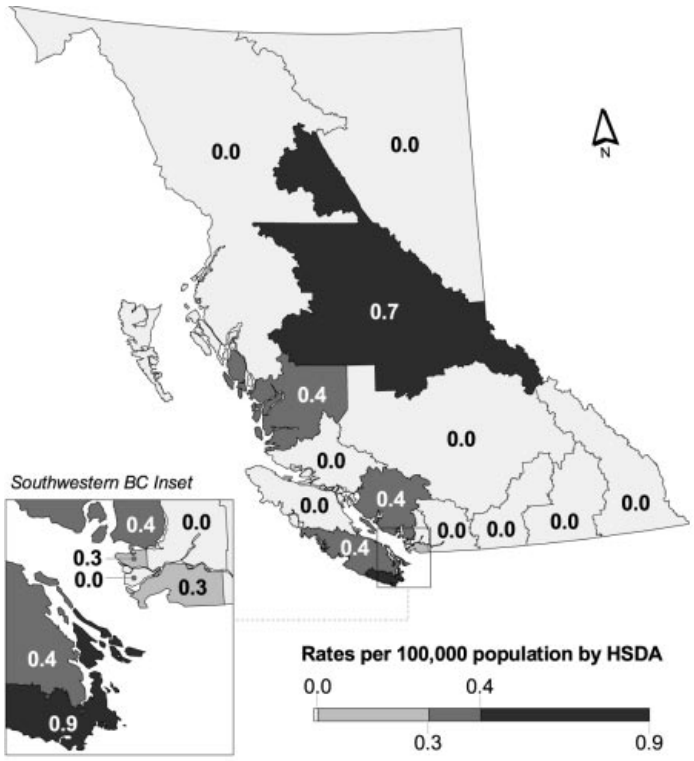
26.1 Listeriosis Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Listeriosis Reports	3	4	3	2	3	6	6	14	12	10
BC Listeriosis Rate	0.08	0.10	0.08	0.05	0.07	0.15	0.15	0.34	0.29	0.24
Candadian Listeriosis Rate	0.3	0.2	0.3	0.3	0.3					

Note: Listeriosis was removed from national surveillance in January 2000

26.2 Listeriosis Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	0	0.0
13	Okanagan	0	0.0
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	0	0.0
22	Fraser North	0	0.0
23	Fraser South	2	0.3
31	Richmond	0	0.0
32	Vancouver	2	0.3
33	North Shore/Coast Garibaldi	1	0.4
41	South Vancouver Island	3	0.9
42	Central Vancouver Island	1	0.4
43	North Vancouver Island	0	0.0
51	Northwest	0	0.0
52	Northern Interior	1	0.7
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

26.3 Listeriosis Rates by Age Group and Sex, 2004

	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Listeriosis Reports - Female	0	0	0	0	0	0	0	0	2	1
Listeriosis Reports - Male	0	0	0	0	0	0	0	0	2	5
Listeriosis Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2
Listeriosis Rate - Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.4

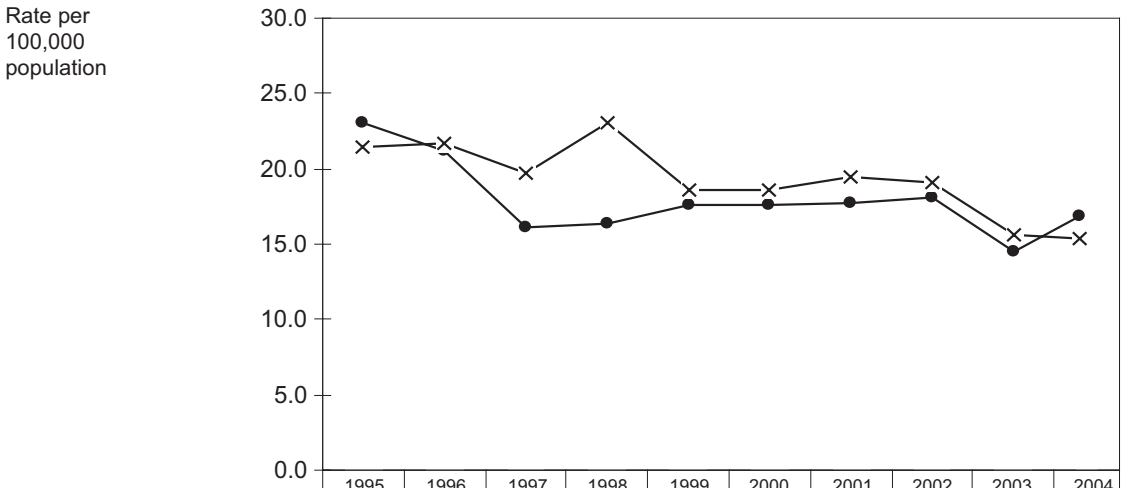
Salmonellosis

For the last six years, the provincial rate of salmonellosis has closely mirrored the national rate. BC rates of infection rose slightly in 2004 compared with 2003 but remain within expected range, given the 5-year average. No geographic pattern is apparent. This is not surprising given the multitude of risk factors associated with infection including livestock, travel, pets, and food. As anticipated, reporting was highest in children under 5 years of age.

A number of small salmonella outbreaks occurred in 2004. *S.* Brandenburg, a relatively rare serotype, was detected along the sunshine coast, affecting 12 people; illness was epidemiologically linked to consumption of locally grown fresh cucumbers. Increases were also noted in *S.* Saintpaul during 2004, but no source of infection was discovered. Increases in *S.* Typhimurium were investigated and found to be related to multiple international travel destinations. Three cases of *S.* Bovismorbificans were traced to a contaminated seed lot of alfalfa sprouts, imported from Australia.

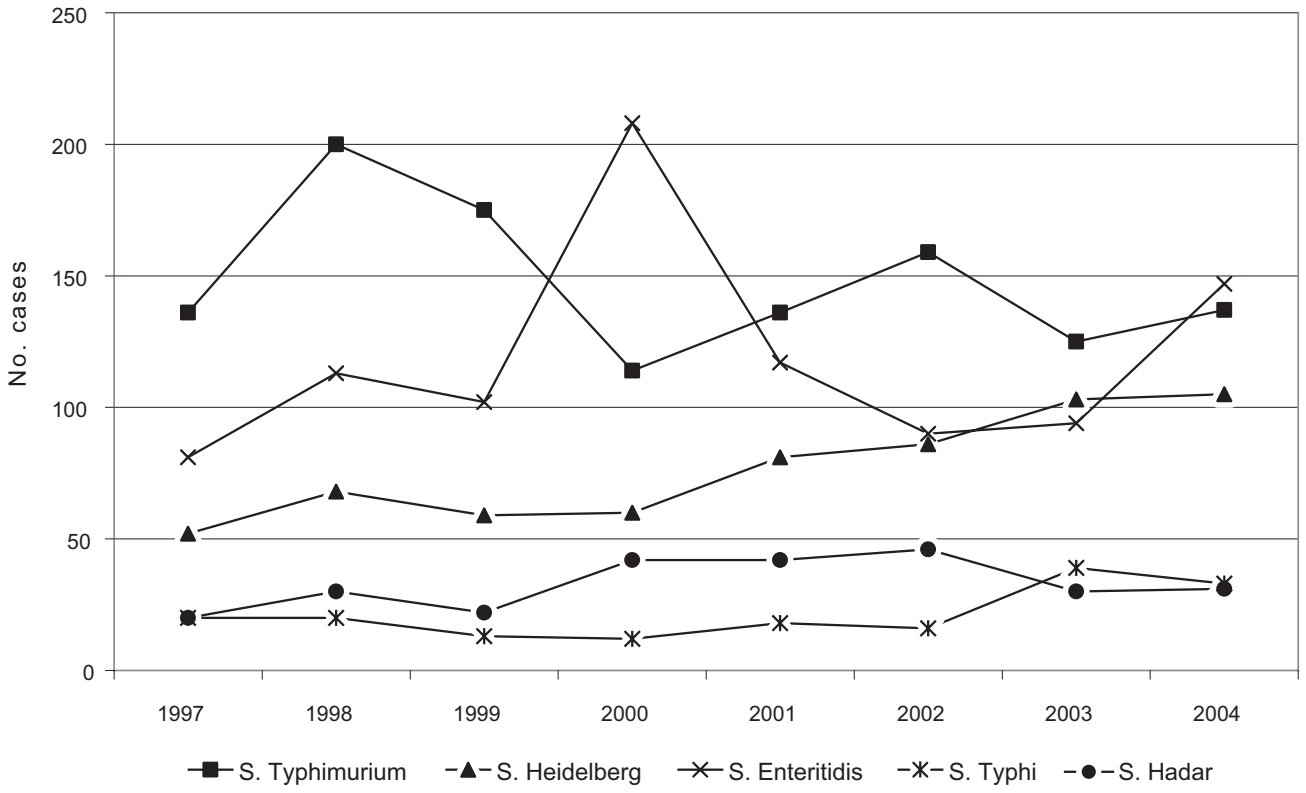
The top 5 Salmonella serotypes remained unchanged from 2003 to 2004. In 2004, *S.* Brandenburg and *S.* Saintpaul made their way into the top 10, replacing *S.* Infantis and *S.* Paratyphi B var java.

27.1 Salmonellosis Rates by Year, 1995-2004

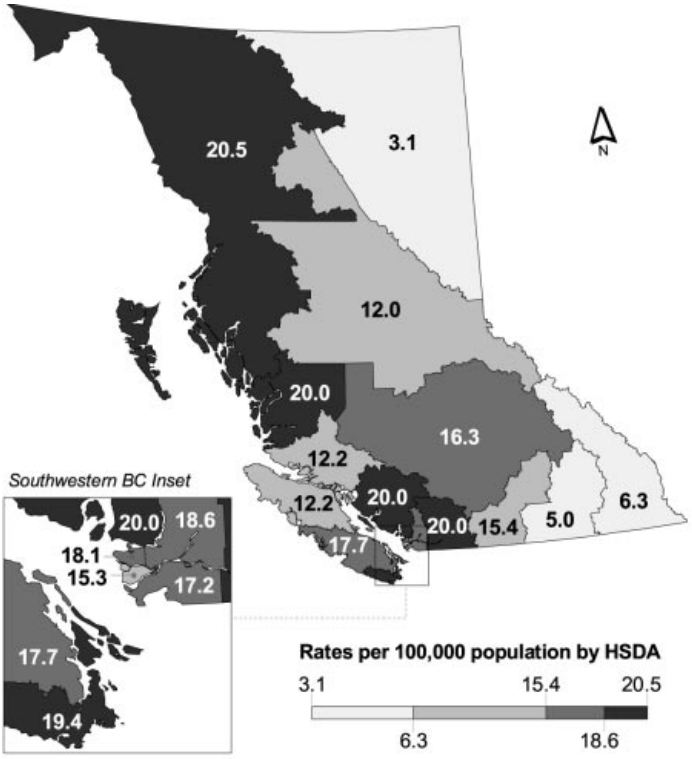


	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Salmonellosis Reports	869	821	637	654	706	710	723	745	603	707
—●— BC Salmonellosis Rate	23.0	21.2	16.1	16.4	17.6	17.6	17.7	18.1	14.5	16.9
—×— Canadian Salmonellosis Rate	21.5	21.7	19.7	23.0	18.6	18.5	19.5	19.1	15.6	15.3

27.2 Top 5 Salmonella Serotypes in 2004



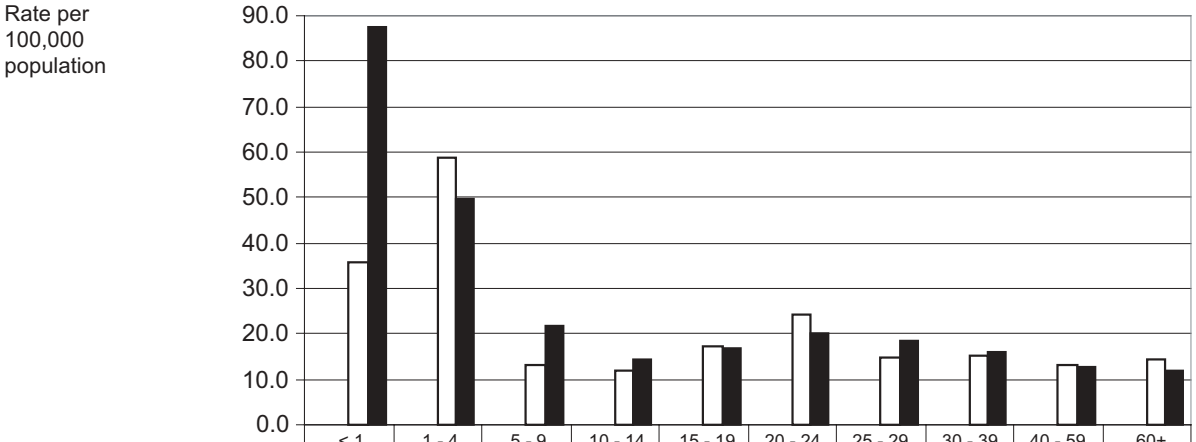
27.3 Salmonellosis Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	5	6.3
12	Kootenay Boundary	4	5.0
13	Okanagan	49	15.4
14	Thompson Cariboo Shuswap	35	16.3
21	Fraser East	52	20.0
22	Fraser North	106	18.6
23	Fraser South	110	17.2
31	Richmond	27	15.3
32	Vancouver	105	18.1
33	North Shore/Coast Garibaldi	54	20.0
41	South Vancouver Island	66	19.4
42	Central Vancouver Island	43	17.7
43	North Vancouver Island	14	12.2
51	Northwest	17	20.5
52	Northern Interior	18	12.0
53	Northeast	2	3.1

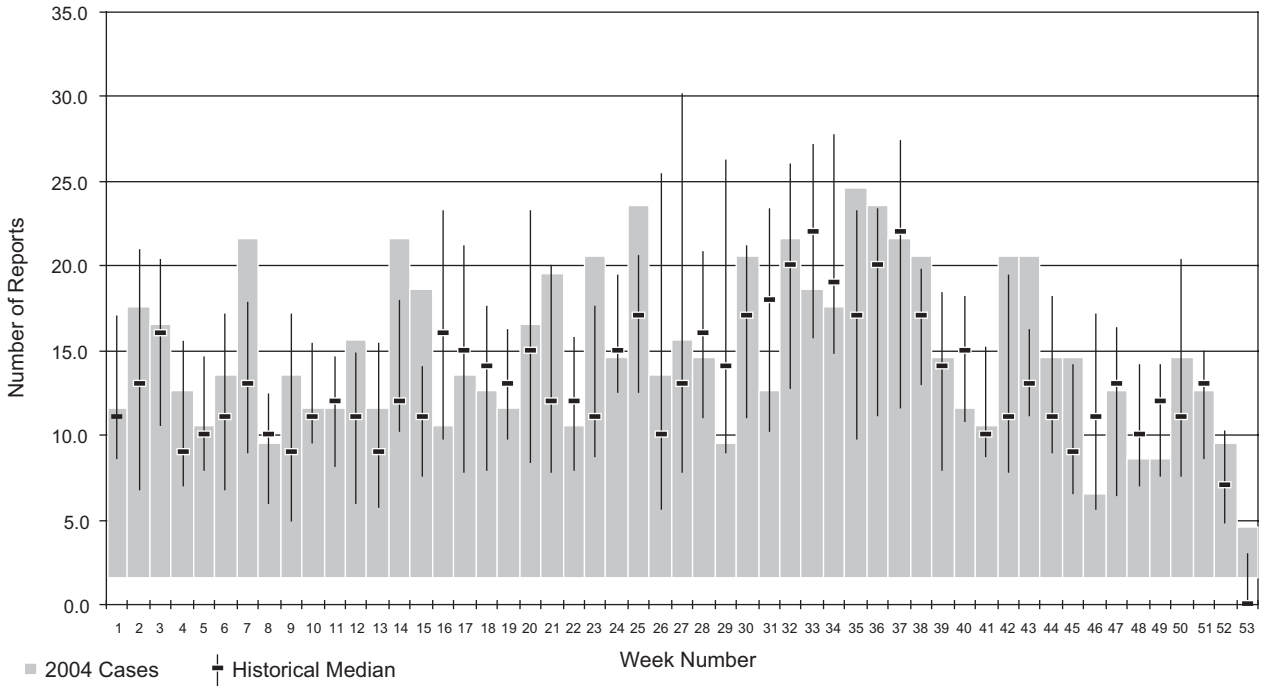
Note: Map classification by Jenks natural breaks method.

27.4 Salmonellosis Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Salmonellosis Reports - Female	7	47	15	15	23	35	20	47	85	59
Salmonellosis Reports - Male	18	42	26	19	24	30	25	48	80	42
□ Salmonellosis Rate - Female	35.9	58.7	13.3	11.9	17.1	24.3	14.9	15.4	13.3	14.2
■ Salmonellosis Rate - Male	87.7	49.6	21.7	14.2	16.9	19.9	18.4	15.9	12.7	11.8

27.5 2004 Salmonellosis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1995 to 2003)

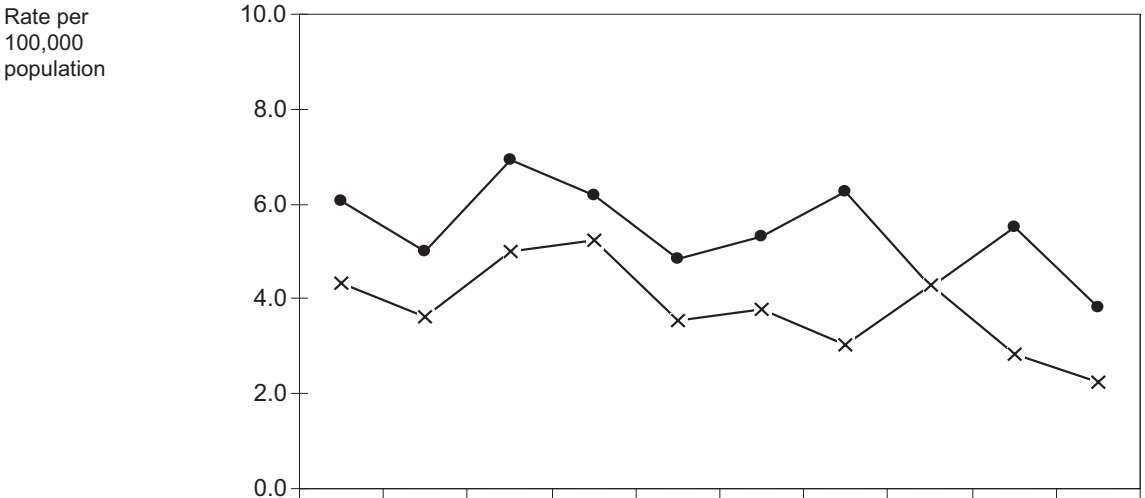


Shigellosis

There were 160 cases of shigellosis reported in 2004 for a rate of 3.8/100,000. The reported incidence rate has generally been declining since 1997, reaching its lowest rate in the last 10 years in 2004.

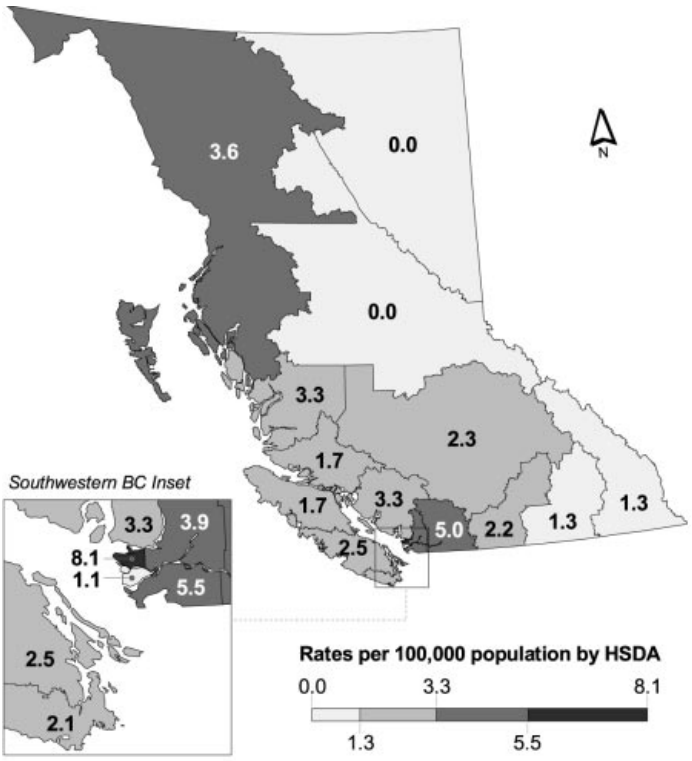
Rates were highest in Vancouver, Fraser South and Fraser East. Children aged 1-4 had the highest reported rates in 2004. The highest rates were reported in weeks 13 to 19, slightly earlier than the usual seasonal peak. Most of these cases were reported from returning travelers.

28.1 Shigellosis Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Shigellosis Reports	229	194	274	246	195	215	255	175	228	160
—●— BC Shigellosis Rate	6.1	5.0	6.9	6.2	4.9	5.3	6.3	4.3	5.5	3.8
—×— Canadian Shigellosis Rate	4.3	3.6	5.0	5.2	3.5	3.8	3.0	4.3	2.8	2.3

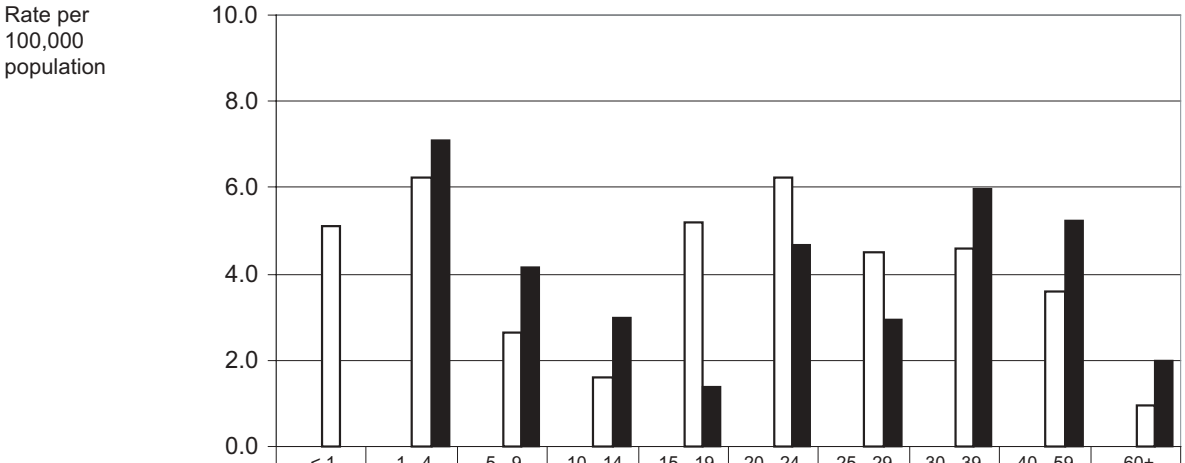
28.2 Shigellosis Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	1	1.3
12	Kootenay Boundary	1	1.3
13	Okanagan	7	2.2
14	Thompson Cariboo Shuswap	5	2.3
21	Fraser East	13	5.0
22	Fraser North	22	3.9
23	Fraser South	35	5.5
31	Richmond	2	1.1
32	Vancouver	47	8.1
33	North Shore/Coast Garibaldi	9	3.3
41	South Vancouver Island	7	2.1
42	Central Vancouver Island	6	2.5
43	North Vancouver Island	2	1.7
51	Northwest	3	3.6
52	Northern Interior	0	0.0
53	Northeast	0	0.0

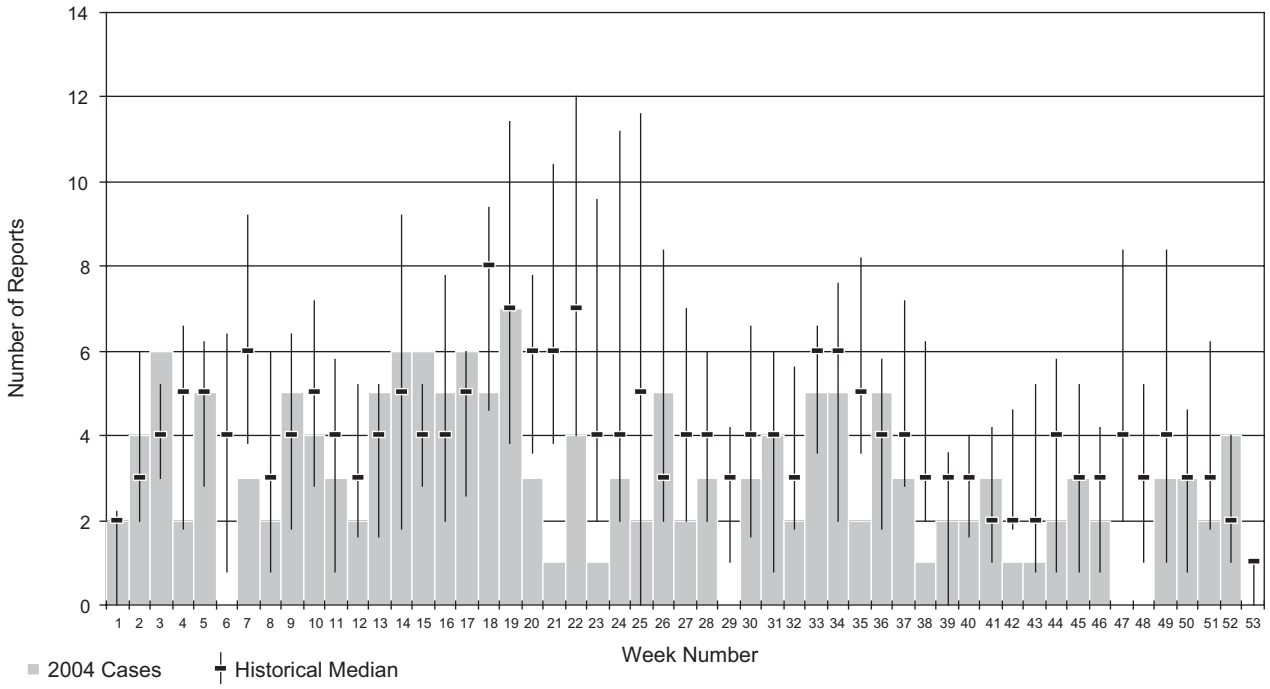
Note: Map classification by Jenks natural breaks method.

28.3 Shigellosis Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Shigellosis Reports - Female	1	5	3	2	7	9	6	14	23	4
Shigellosis Reports - Male	0	6	5	4	2	7	4	18	33	7
□ Shigellosis Rate - Female	5.1	6.2	2.7	1.6	5.2	6.2	4.5	4.6	3.6	1.0
■ Shigellosis Rate - Male	0.0	7.1	4.2	3.0	1.4	4.7	2.9	6.0	5.2	2.0

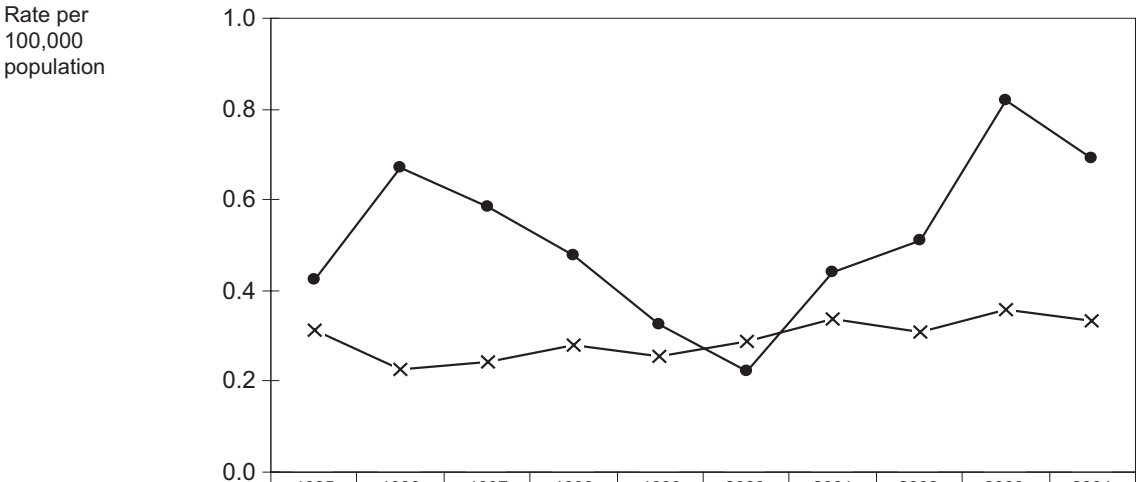
28.4 2004 Shigellosis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1995 to 2003)



Typhoid Fever

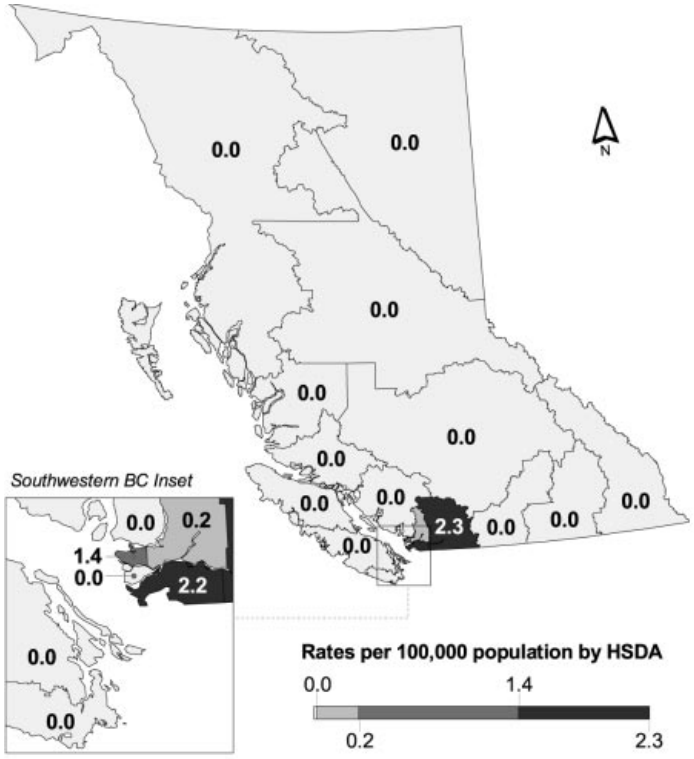
Typhoid cases have remained higher than expected for the last four years. This increase is related to travel of Indo-Canadians back to India, particularly to the Punjab region. A case-series study undertaken in 2003 indicated that none of the cases had received typhoid vaccine prior to their travel. Many of the infected persons had previously lived in India and did not consider themselves at risk of infection even though immunity wanes without repeated exposure. Indo-Canadians typically leave Canada for India in the fall and return in the spring, coinciding with peak incidence of the disease in British Columbia. Regions of the province with high concentrations of Indo-Canadians had the highest incidence rates of typhoid fever.

29.1 Typhoid Fever Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Typhoid Reports	16	26	23	19	13	9	18	21	34	29
—●— BC Typhoid Rate	0.4	0.7	0.6	0.5	0.3	0.2	0.4	0.5	0.8	0.7
—×— Canadian Typhoid Rate	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.3

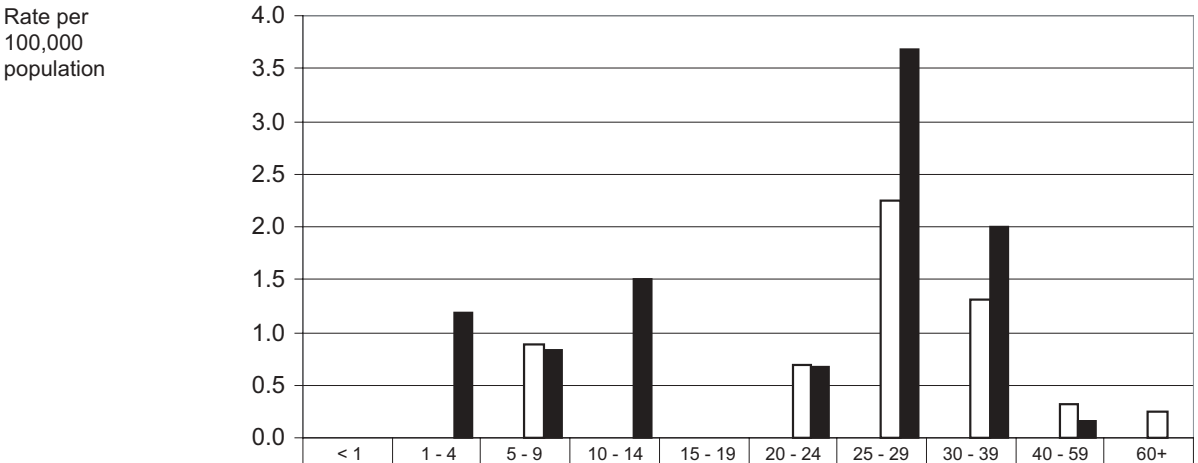
29.2 Typhoid Fever Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	0	0.0
13	Okanagan	0	0.0
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	6	2.3
22	Fraser North	1	0.2
23	Fraser South	14	2.2
31	Richmond	0	0.0
32	Vancouver	8	1.4
33	North Shore/Coast Garibaldi	0	0.0
41	South Vancouver Island	0	0.0
42	Central Vancouver Island	0	0.0
43	North Vancouver Island	0	0.0
51	Northwest	0	0.0
52	Northern Interior	0	0.0
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

29.3 Typhoid Fever Rates by Age Group and Sex, 2004

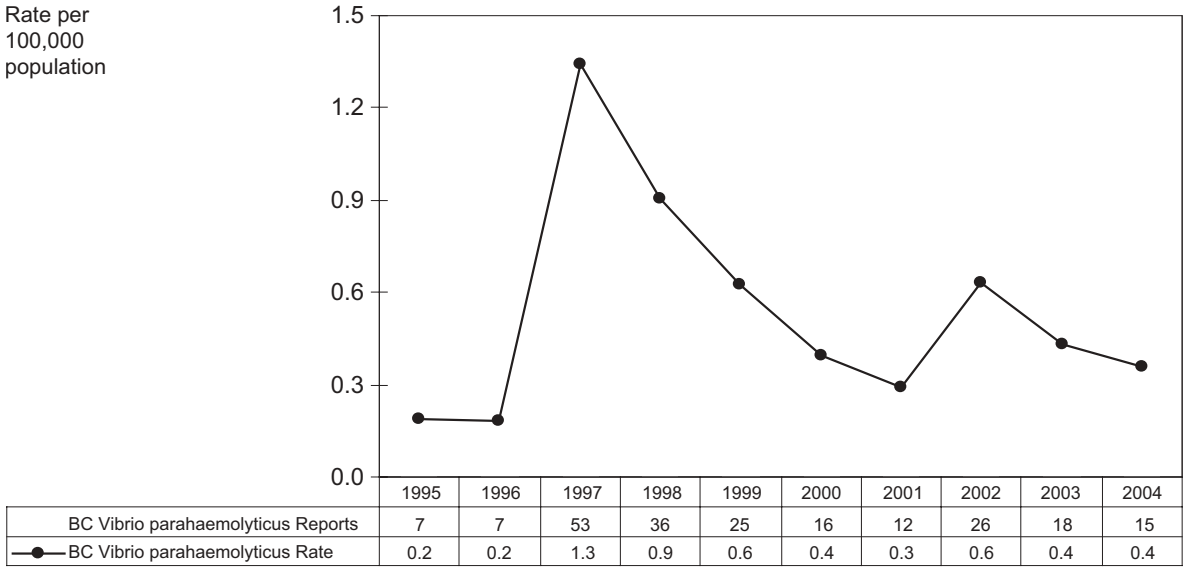


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Typhoid Fever Reports - Female	0	0	1	0	0	1	3	4	2	1
Typhoid Fever Reports - Male	0	1	1	2	0	1	5	6	1	0
Typhoid Fever Rate - Female	0.0	0.0	0.9	0.0	0.0	0.7	2.2	1.3	0.3	0.2
Typhoid Fever Rate - Male	0.0	1.2	0.8	1.5	0.0	0.7	3.7	2.0	0.2	0.0

Vibrio parahaemolyticus

Fifteen cases of *Vibrio parahaemolyticus* gastroenteritis were reported in 2004 for a rate of 0.4/100,000. Cases were reported from coastal regions only. All cases were reported in adults with the highest rates in those 60 years of age and older. The majority of cases were reported during July and August. *V. parahaemolyticus* infections in BC are associated with consumption of raw or undercooked oysters during the warmer months.

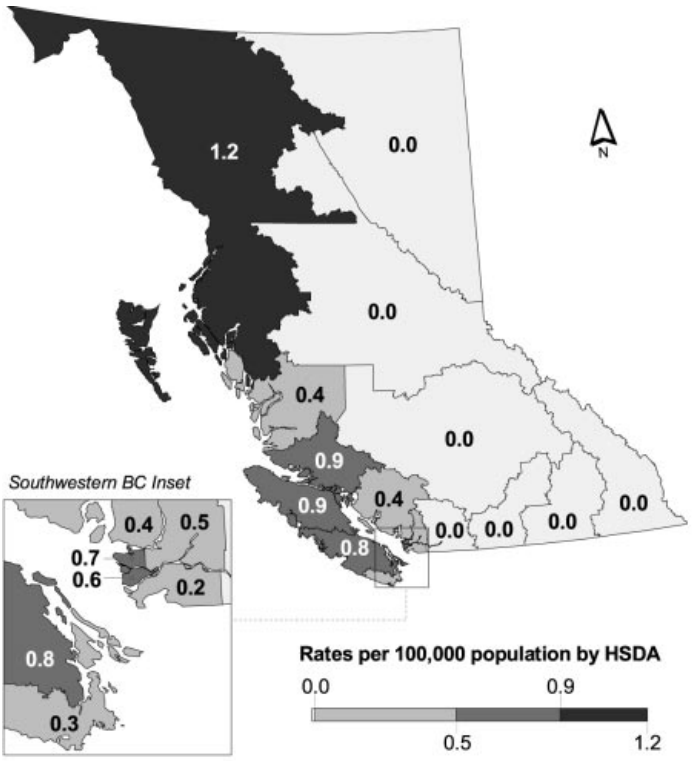
30.1 *Vibrio parahaemolyticus* Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Vibrio parahaemolyticus Reports	7	7	53	36	25	16	12	26	18	15
BC Vibrio parahaemolyticus Rate	0.2	0.2	1.3	0.9	0.6	0.4	0.3	0.6	0.4	0.4

Note: *Vibrio parahaemolyticus* is not notifiable nationally

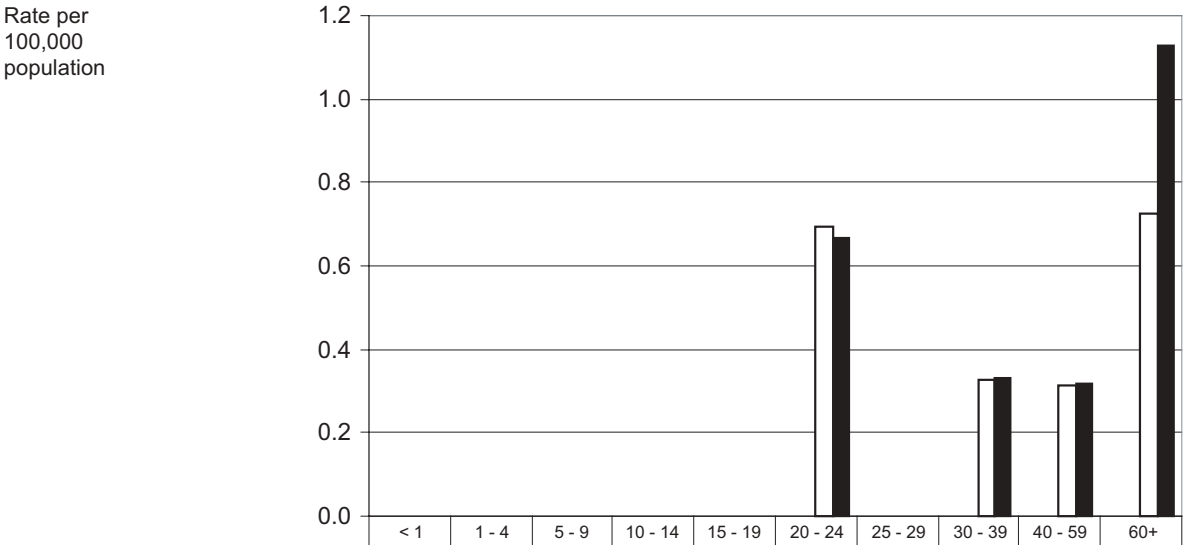
30.2 *Vibrio parahaemolyticus* Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	0	0.0
13	Okanagan	0	0.0
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	0	0.0
22	Fraser North	3	0.5
23	Fraser South	1	0.2
31	Richmond	1	0.6
32	Vancouver	4	0.7
33	North Shore/Coast Garibaldi	1	0.4
41	South Vancouver Island	1	0.3
42	Central Vancouver Island	2	0.8
43	North Vancouver Island	1	0.9
51	Northwest	1	1.2
52	Northern Interior	0	0.0
53	Northeast	0	0.0

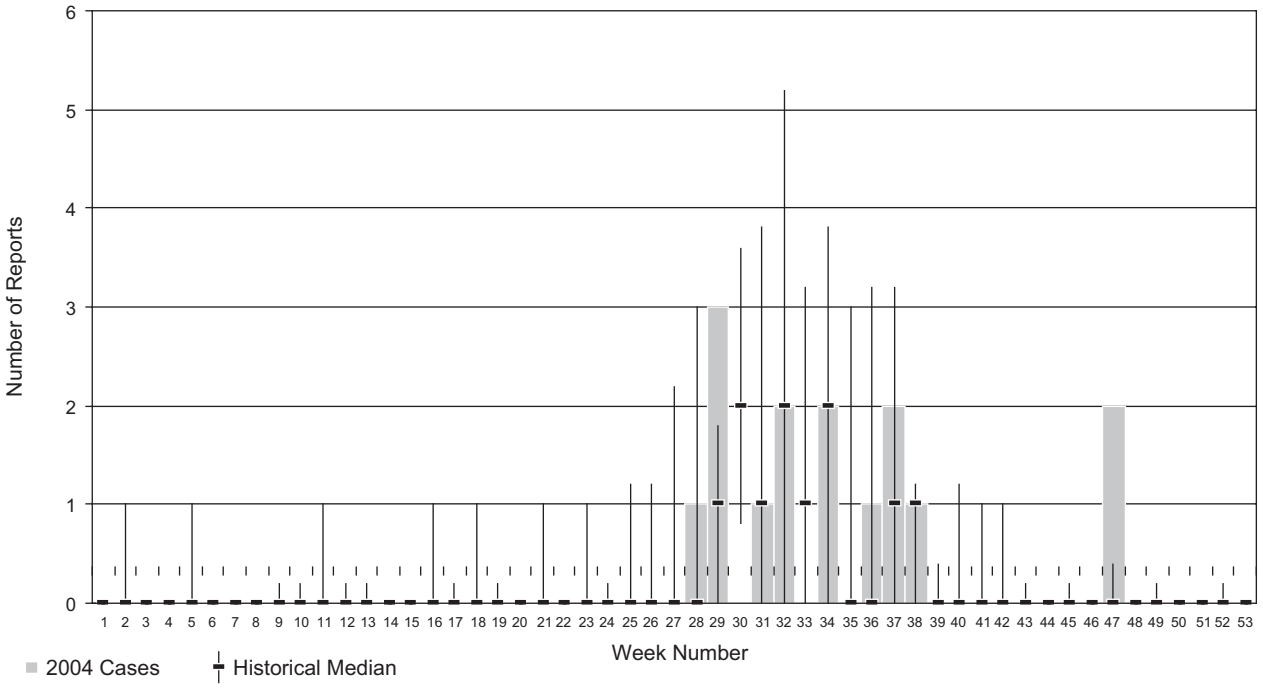
Note: Map classification by Jenks natural breaks method.

30.3 *Vibrio parahaemolyticus* Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Vibrio parahaemolyticus Reports - Female	0	0	0	0	0	1	0	1	2	3
Vibrio parahaemolyticus Reports - Male	0	0	0	0	0	1	0	1	2	4
□ Vibrio parahaemolyticus Rate - Female	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.3	0.3	0.7
■ Vibrio parahaemolyticus Rate - Male	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.3	0.3	1.1

30.4 2004 *Vibrio parahaemolyticus* Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1995 to 2003)



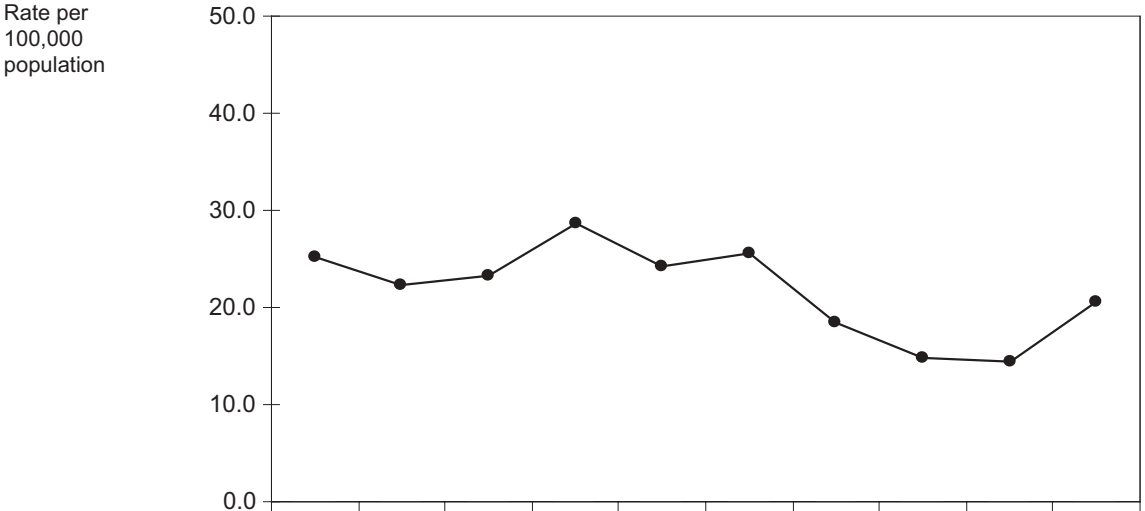
Yersiniosis

There were 862 cases of yersiniosis reported in 2004. The reported incidence rate of 20.6/100,000 was at its highest in the last 4 years. The majority of cases reported were *Yersinia enterocolitica* infections.

There was considerable geographic variation in rates. This variation has been seen consistently from year to year and is likely related to geographic differences in isolation techniques used at clinical laboratories; cold-enrichment, promoting the growth of *Yersinia*, is used in some labs servicing the Lower Mainland and Vancouver Island. The highest rate of reporting was seen in North Shore/Coast Garibaldi at 61.5/100,000.

The highest rates were reported among children aged 1-4 years at 40.1-41.2/100,000. Cases were reported throughout the year with a peak in weeks 32-34, a little later than in previous years.

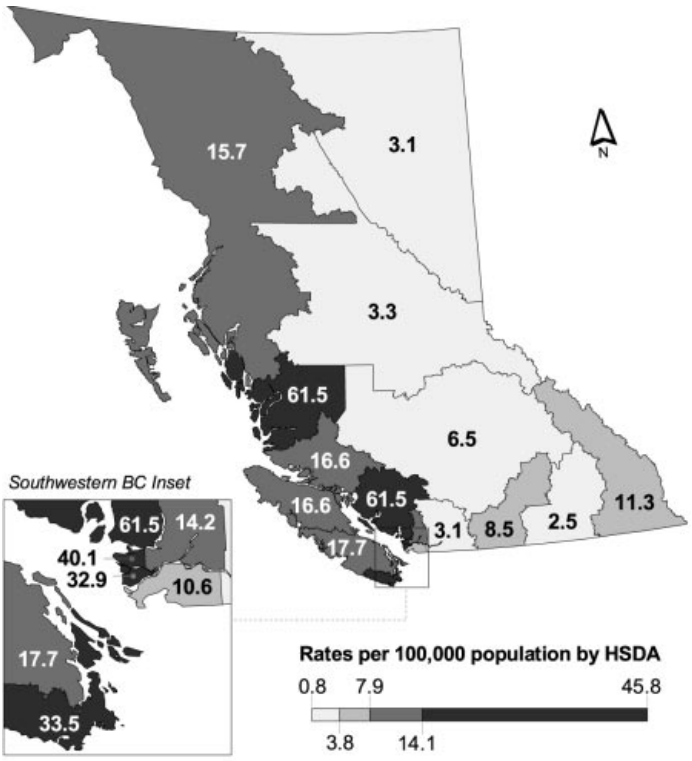
31.1 Yersiniosis Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Yersiniosis Reports	954	867	921	1138	970	1036	750	606	598	862
BC Yersiniosis Rate	25.3	22.4	23.3	28.6	24.2	25.6	18.4	14.7	14.4	20.6

Note: Yersiniosis is not notifiable nationally

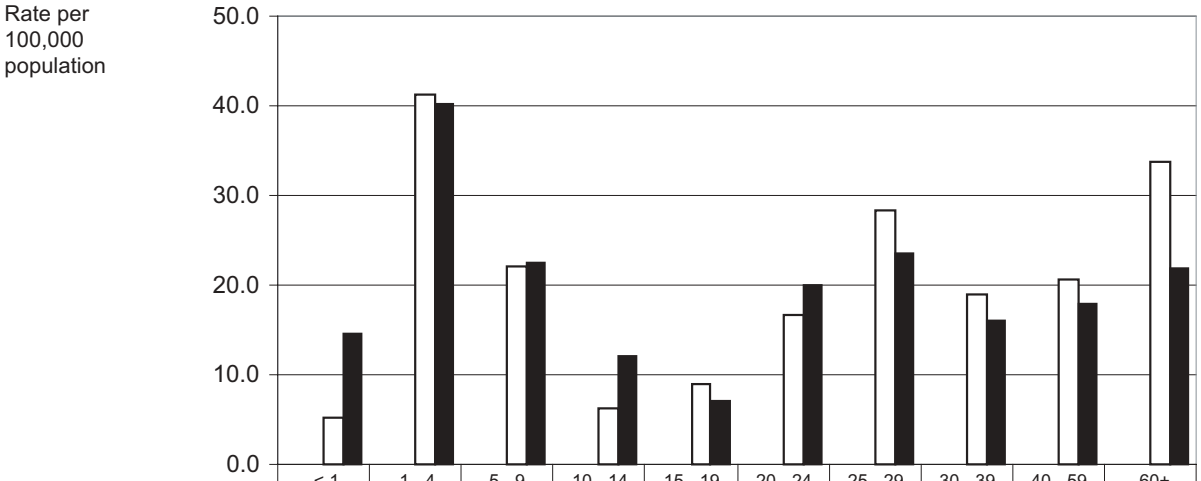
31.2 Yersiniosis Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	9	11.3
12	Kootenay Boundary	2	2.5
13	Okanagan	27	8.5
14	Thompson Cariboo Shuswap	14	6.5
21	Fraser East	8	3.1
22	Fraser North	81	14.2
23	Fraser South	68	10.6
31	Richmond	58	32.9
32	Vancouver	233	40.1
33	North Shore/Coast Garibaldi	166	61.5
41	South Vancouver Island	114	33.5
42	Central Vancouver Island	43	17.7
43	North Vancouver Island	19	16.6
51	Northwest	13	15.7
52	Northern Interior	5	3.3
53	Northeast	2	3.1

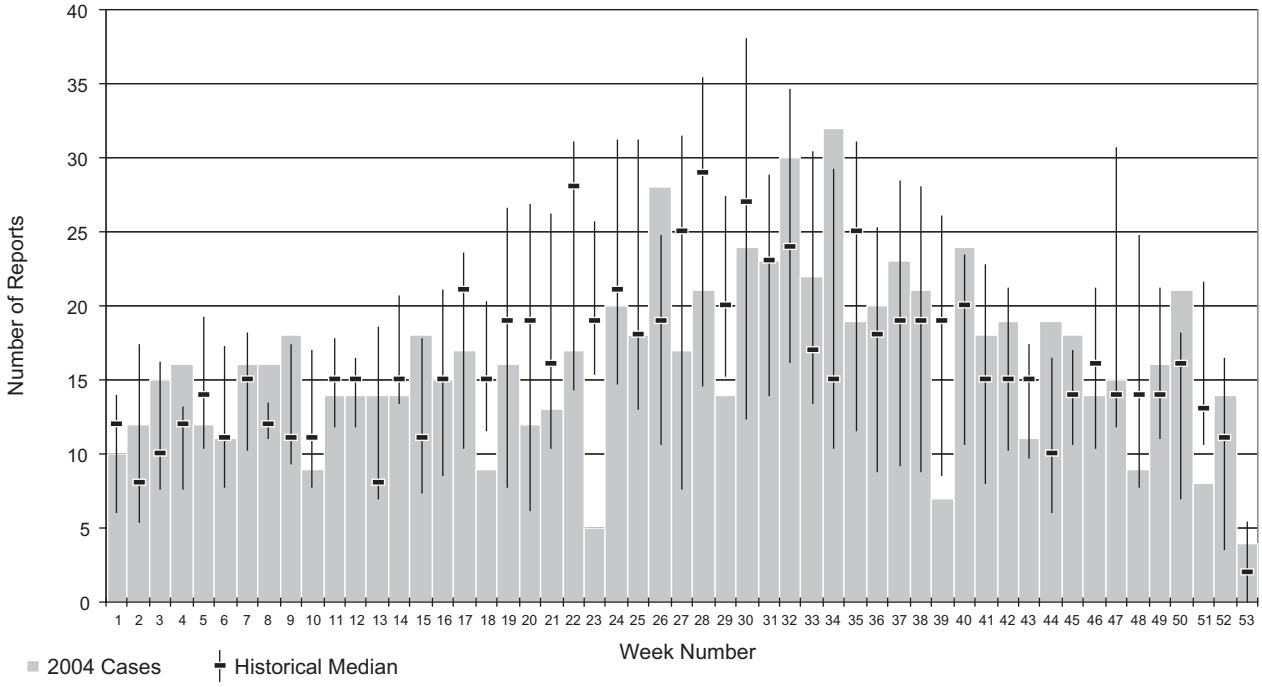
Note: Map classification by Jenks natural breaks method.

31.3 Yersiniosis Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Yersiniosis Reports - Female	1	33	25	8	12	24	38	58	132	140
Yersiniosis Reports - Male	3	34	27	16	10	30	32	48	113	78
□ Yersiniosis Rate - Female	5.1	41.2	22.1	6.3	8.9	16.6	28.4	18.9	20.6	33.8
■ Yersiniosis Rate - Male	14.6	40.1	22.5	12.0	7.0	19.9	23.6	15.9	17.9	22.0

31.4 2004 Yersiniosis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1995 to 2003)



Vectorborne and Other Zoonotic Diseases

2004

04

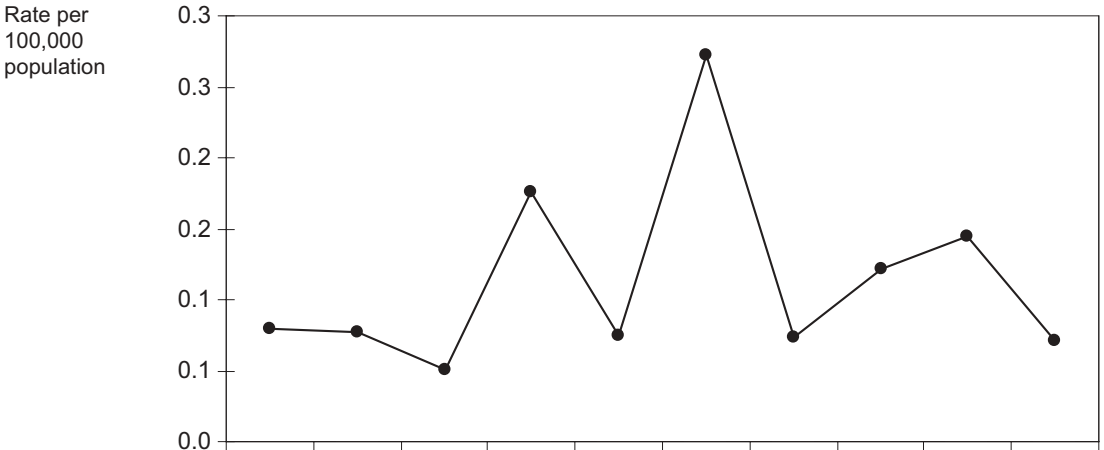
Hantavirus Pulmonary Syndrome

No new cases of Hantavirus Pulmonary Syndrome were reported in BC in 2004. There have been 7 reported cases in the province since 1994. Five of these cases were reported from the interior of the province and all have been related to contact with rodent excreta through recreational, peri-domestic, occupational or farming activities.

Lyme Disease

There were three confirmed cases of Lyme Disease reported in BC in 2004.

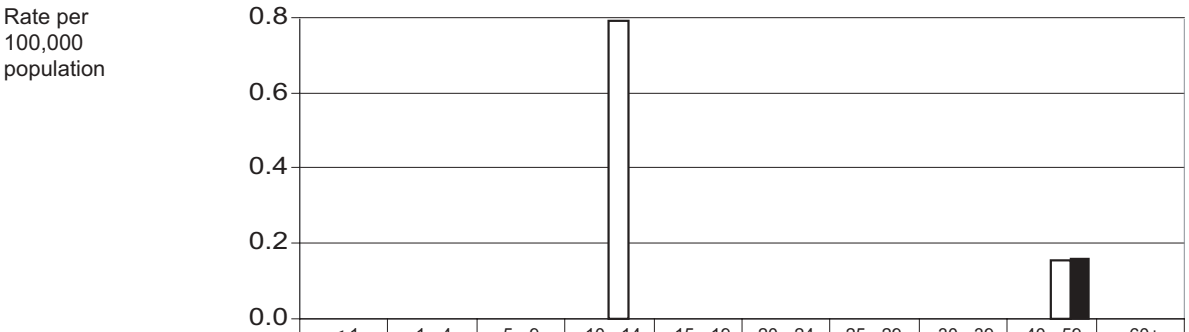
32.1 Lyme Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Lyme Reports	3	3	2	7	3	11	3	5	6	3
BC Lyme Rate	0.1	0.1	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.1

Note: Lyme Disease is not notifiable nationally

32.2 Lyme Disease Rates by Age Group and Sex, 2004

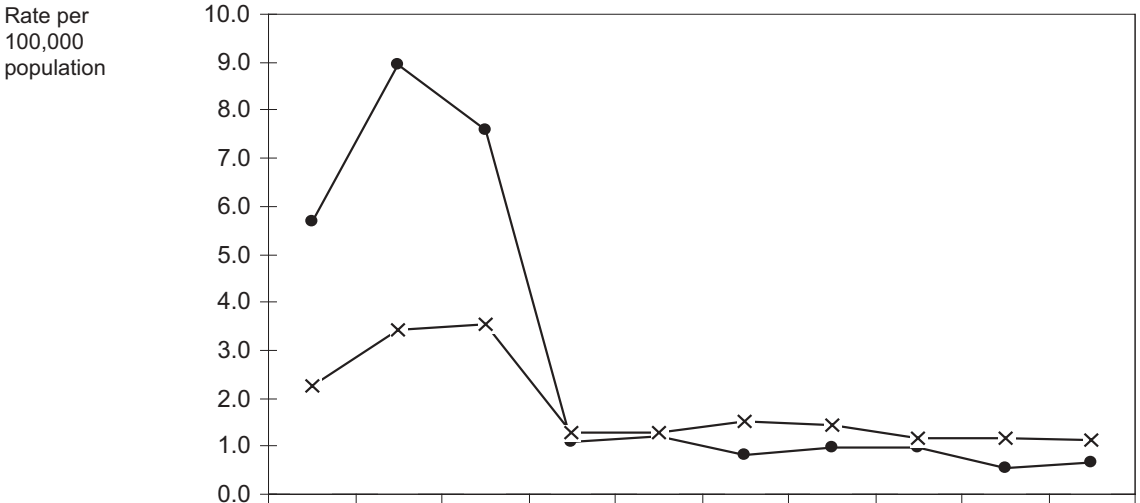


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Lyme Disease Reports - Female	0	0	0	1	0	0	0	0	1	0
Lyme Disease Reports - Male	0	0	0	0	0	0	0	0	1	0
Lyme Disease Rate - Female	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.2	0.0
Lyme Disease Rate - Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0

Malaria

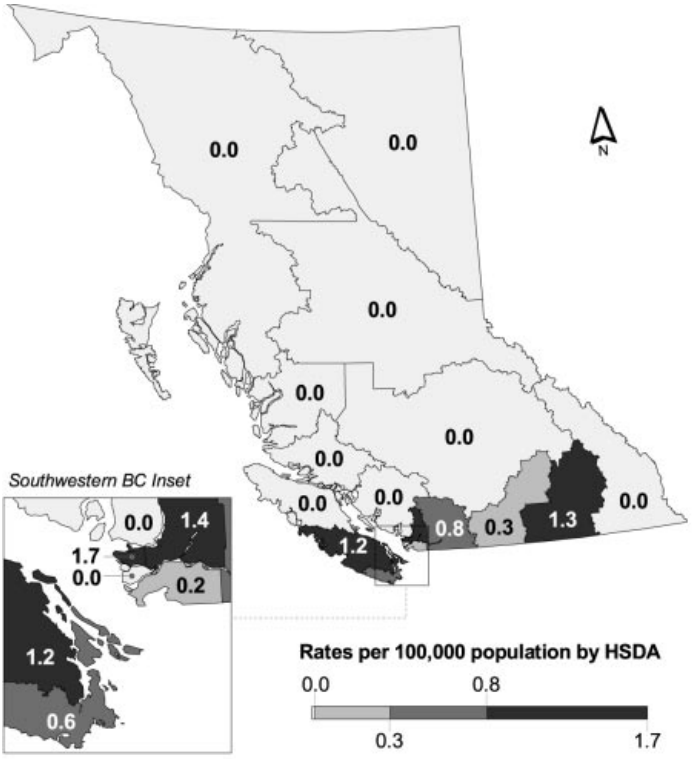
Malaria is not endemic in British Columbia and cases are travel related. The rate of reporting in British Columbia remained low at 0.7/100,000 population during 2004 representing 28 case reports.

33.1 Malaria Rates by Year, 1995-2004



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC Malaria Reports	215	347	300	44	49	33	40	40	22	28
BC Malaria Rate	5.7	9.0	7.6	1.1	1.2	0.8	1.0	1.0	0.5	0.7
Canadian Malaria Rate	2.3	3.4	3.5	1.3	1.3	1.5	1.4	1.2	1.2	1.1

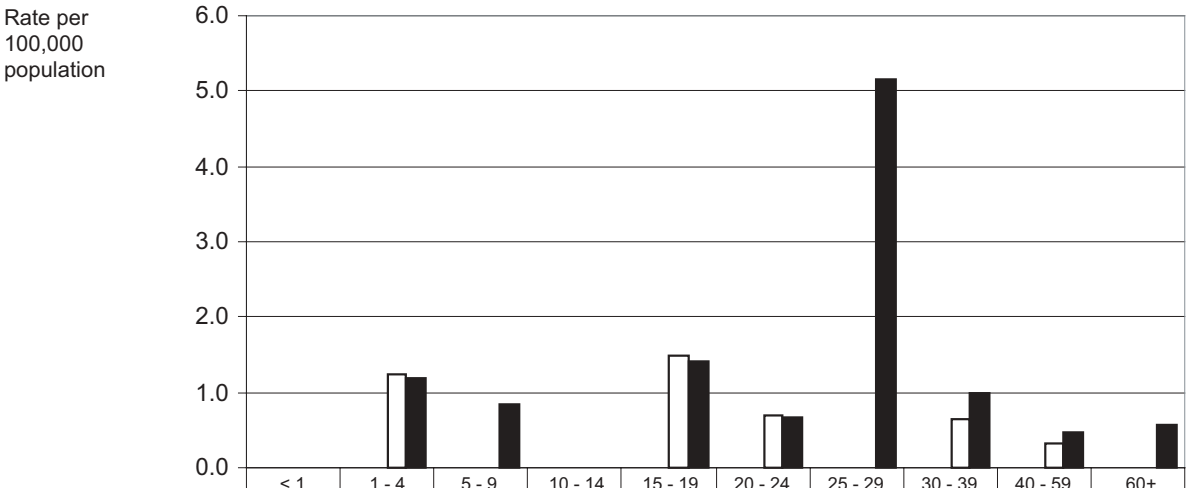
33.2 Malaria Rates by HSDA, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	1	1.3
13	Okanagan	1	0.3
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	2	0.8
22	Fraser North	8	1.4
23	Fraser South	1	0.2
31	Richmond	0	0.0
32	Vancouver	10	1.7
33	North Shore/Coast Garibaldi	0	0.0
41	South Vancouver Island	2	0.6
42	Central Vancouver Island	3	1.2
43	North Vancouver Island	0	0.0
51	Northwest	0	0.0
52	Northern Interior	0	0.0
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

33.3 Malaria Rates by Age Group and Sex, 2004



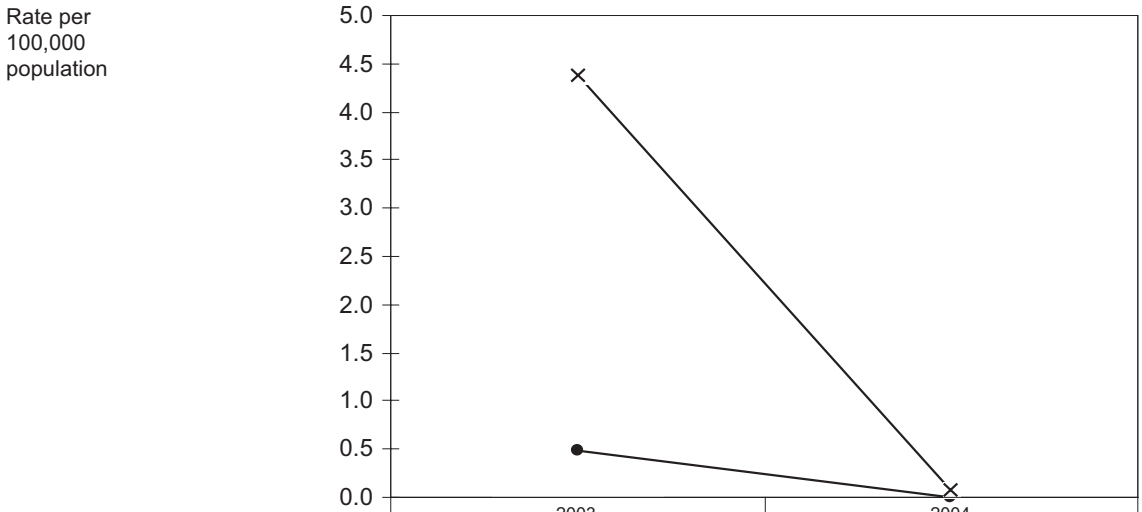
	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Malaria Reports - Female	0	1	0	0	2	1	0	2	2	0
Malaria Reports - Male	0	1	1	0	2	1	7	3	3	2
□ Malaria Rate - Female	0.0	1.2	0.0	0.0	1.5	0.7	0.0	0.7	0.3	0.0
■ Malaria Rate - Male	0.0	1.2	0.8	0.0	1.4	0.7	5.2	1.0	0.5	0.6

West Nile Virus

There were no cases of West Nile virus (WNv) reported in BC in 2004. Across Canada, climate conditions in the summer of 2004 were not optimal for mosquitoes and there was decreased WNv activity across the country. There were only 25 cases and no deaths reported in Canada in 2004 compared to 1388 cases and 14 deaths from WNv in 2003.

WNv activity was not detected in BC in 2004 but was found for the first time in California and as far up the Pacific coast as Oregon. While BC remains the only western jurisdiction with no history of endemic WNv activity (all cases in 2003 were travel related), Washington State has had no human cases and did not detect any WNv activity in 2004. BC had an extensive surveillance system for WNv in 2004 including testing 2262 submissions from mosquito traps representing over 52,000 mosquitoes from 145 areas across the province; submitting 1470 dead corvids (birds from the crow family) for testing; and testing over 27,000 samples from BC blood donors and 481 specimens from symptomatic patients. All tests in 2004 were negative for WNv. Further information on WNv in BC and the surveillance results, including interactive maps, can be found on the BCCDC website.

34.1 West Niles Virus Infection Rates by Year, 2003-2004



	2003	2004
BC West Niles Virus Infection Reports	20	0
BC West Niles Virus Infection Rate	0.50	0.00
Canadian West Niles Virus Rate	4.38	0.08

Environmental Fungi

2004

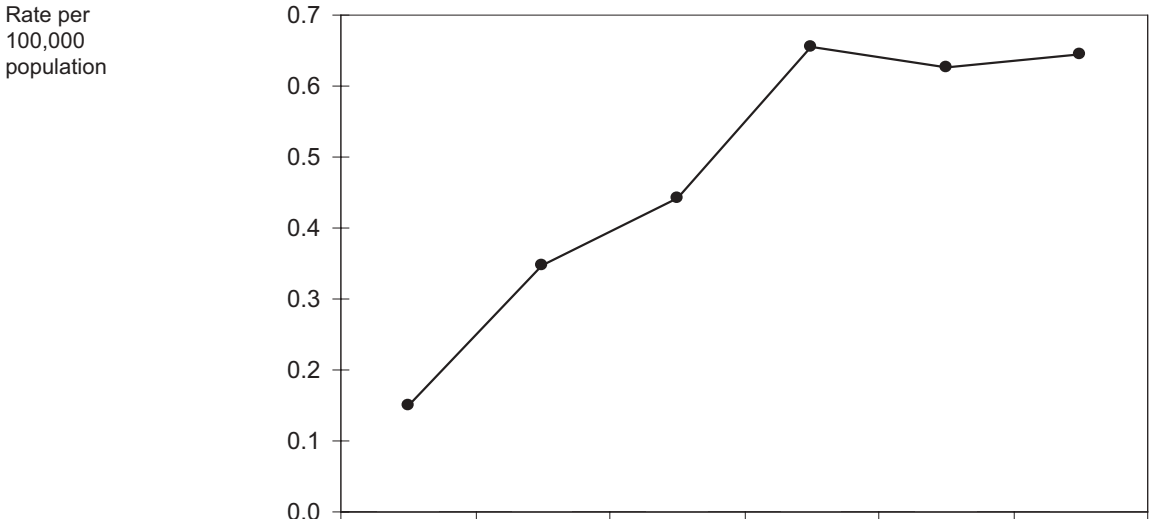
04

Cryptococcus

A particular variety of the fungus *Cryptococcus neoformans* (*C. neoformans* variety *gattii*) emerged on Vancouver Island in 1999. The fungus generally causes respiratory disease in immunocompetent humans and animals, however about 20% of cases may develop cryptococcal meningitis. Environmental investigations have recovered the fungus from soil and air samples as well as from the bark of many different tree species on Vancouver Island. Humans are exposed to the organism in the environment; it cannot be passed between people or animals.

The rate of cryptococcal infection due to variety *gattii* has increased in the three years since its discovery as human contact with the fungus increased as did recognition and diagnosis of the disease. In 2003, the rate of infection began to level off and this trend has continued through 2004. Infection with *C. neoformans* var *gattii* is more common in males and those over 60 years of age; pediatric cases are very rare. As of December 31, 2004 all cases had either lived on or traveled to Vancouver Island.

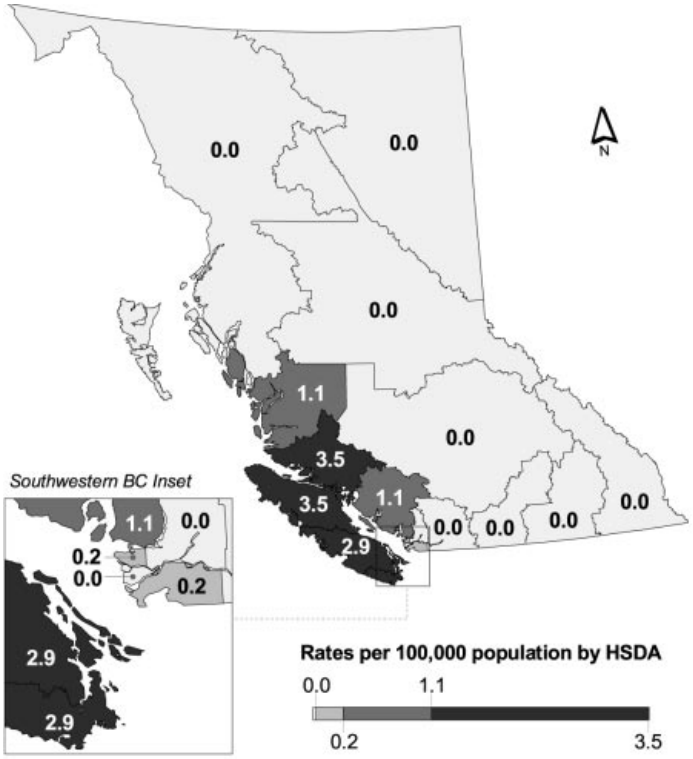
35.1 Cryptococcal Infection Rates by Year, 1999-2004



	1999	2000	2001	2002	2003	2004
BC Cryptococcal Infection	6	14	18	27	26	27
BC Cryptococcal Infection Rate	0.15	0.35	0.44	0.66	0.63	0.65

Note: Cryptococcal Infection became notifiable in BC in 2003

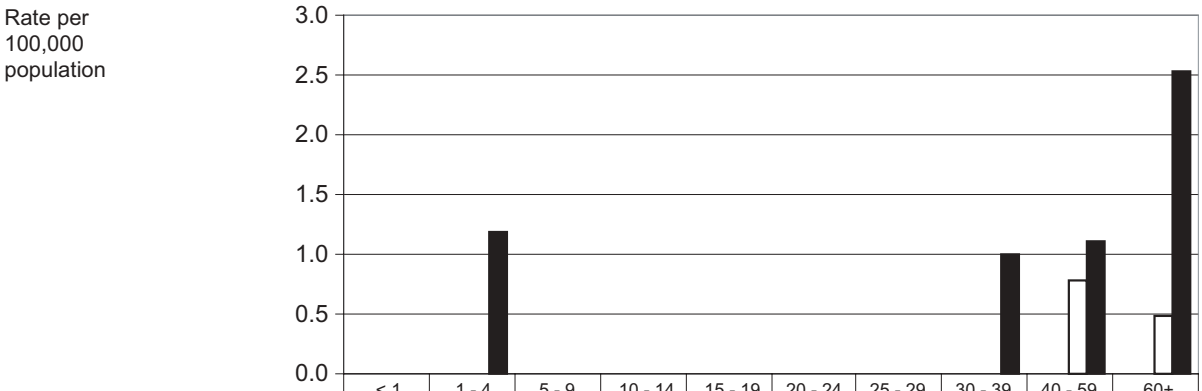
35.3 Cryptococcal Infection Rates by Health Region, 2004



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	0	0.0
13	Okanagan	0	0.0
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	0	0.0
22	Fraser North	0	0.0
23	Fraser South	1	0.2
31	Richmond	0	0.0
32	Vancouver	1	0.2
33	North Shore/Coast Garibaldi	3	1.1
41	South Vancouver Island	10	2.9
42	Central Vancouver Island	7	2.9
43	North Vancouver Island	4	3.5
51	Northwest	0	0.0
52	Northern Interior	0	0.0
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

35.3 Cryptococcal Infection Rates by Age Group and Sex, 2004



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Cryptococcal Infection - Female	0	0	0	0	0	0	0	0	5	2
Cryptococcal Infection - Male	0	1	0	0	0	0	0	3	7	9
□ Cryptococcal Infection Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.5
■ Cryptococcal Infection Rate - Male	0.0	1.2	0.0	0.0	0.0	0.0	0.0	1.0	1.1	2.5

Reportable Communicable Diseases in BC

November 2003

SCHEDULE A: Reportable by all sources, including Laboratories

Anthrax
Acquired Immune Deficiency Syndrome
Botulism
Brucellosis
Cholera
Congenital Infections:
- Toxoplasmosis
- Rubella
- Cytomegalovirus
- Herpes Simplex
- Varicella-Zoster
- Hepatitis B Virus
- Listeriosis and any other congenital infection

Cryptococcal infection
Cryptosporidiosis
Cyclospora infection
Diffuse Lamellar Keratitis
Diphtheria:
- Cases
- Carriers

Encephalitis:
- Post-infectious
- Subacute sclerosing panencephalitis
- Vaccine-related
- Viral

Foodborne illness:
- All causes

Gastroenteritis epidemic:
- Bacterial
- Parasitic
- Viral

Genital Chlamydia Infection
Giardiasis
Group A Streptococcal Disease, Invasive
Haemophilus influenzae Disease,
- All Invasive, by Type

Hantavirus Pulmonary Syndrome
Hemorrhagic Viral Fevers
Hemolytic Uremic Syndrome (HUS)
Hepatitis Viral:
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Hepatitis E
- Other Viral Hepatitis

Human Immunodeficiency Virus Infection
Leprosy
Lyme Disease
Measles
Meningitis: All causes
- (i) Bacterial: Haemophilus, Pneumococcal, Other
- (ii) Viral

Meningococcal Disease, All Invasive
- including "Primary Meningococcal Pneumonia" and "Primary Meningococcal Conjunctivitis"

Mumps
Neonatal Group B Streptococcal Infection
Pertussis (Whooping Cough)
Paralytic Shellfish Poisoning (PSP)
Plague
Poliomyelitis
Rabies
Reye Syndrome
Rubella
Severe Acute Respiratory Syndrome (SARS)
Smallpox
Streptococcus pneumoniae Infection, Invasive
Syphilis
Tetanus
Transfusion Transmitted Infection
Tuberculosis
Tularemia
Typhoid Fever and Paratyphoid Fever
Venereal Disease:
- Chancroid
- Gonorrhea – all sites

Waterborne Illness
- All causes

West Nile Virus Infection
Yellow Fever

SCHEDULE B: Reportable by Laboratories only

All specific bacterial and viral stool pathogens:
- (i) Bacterial: *Campylobacter*, *Salmonella*, *Shigella*, *Yersinia*
- (ii) Viral

Amoebiasis
Borrelia burgdorferi infection
Cerebrospinal Fluid Micro-organisms
Chlamydial Diseases, including Psittacosis
Cryptococcal Infection
Herpes Genitalis
Human Immunodeficiency Virus Infection
Influenza
Legionellosis
Leptospirosis
Listeriosis
Malaria
Q Fever
Rickettsial Diseases
Severe Acute Respiratory Syndrome (SARS)
Smallpox
Tularemia
West Nile Virus Infection

For the most up to date list of reportable diseases, see http://www.bccdc.org/download.php?item=129

2004 BC Selected Notifiable Disease Case Reports by Health Service Delivery Area

	INTERIOR					FRASER			
	East Kootenay	Kootenay Boundary	Okanagan	Thompson Cariboo Shuswap	Interior Cases	Fraser East	Fraser North	Fraser South	Fraser Cases
2004 Population	79951	79933	318711	214446	693041	260531	569406	639524	1469461
AIDS (2003)	0	1	5	3	9	0	5	6	11
Amebiasis	0	0	4	0	4	16	43	48	107
Campylobacteriosis	20	16	133	43	212	110	183	217	510
Chlamydia (genital)	191	116	671	459	1437	386	1116	1034	2536
Cryptococcal Infection	0	0	0	0	0	0	0	1	1
Cryptosporidiosis	1	2	9	1	13	13	12	14	39
Cyclosporiasis	0	1	0	0	1	1	4	5	10
E. coli Verotoxigenic	2	4	30	9	45	24	30	35	89
Giardiasis	10	9	43	31	93	64	75	127	266
Gonorrhea	2	4	9	13	28	18	126	142	286
Haemophilus infl. b (invasive)	0	0	1	0	1	0	0	1	1
Hepatitis A	0	2	2	5	9	5	11	14	30
Hepatitis B: Acute	0	0	2	1	3	0	5	12	17
Hepatitis B: Chronic	5	4	2	5	16	27	217	198	442
Hepatitis B: Undetermined	1	0	3	1	5	4	109	19	132
Hepatitis C	40	44	197	161	442	287	346	316	949
HIV	1	1	13	7	22	16	53	34	103
Malaria	0	1	1	0	2	2	8	1	11
Measles	0	0	0	0	0	0	1	0	1
Methicillin Resistant ***Staphylococcus aureus***	0	0	2	0	2	1	6	0	7
Meningococcal Disease (invasive)	1	0	1	1	3	2	1	5	8
Mumps	0	0	0	0	0	2	1	2	5
Pertussis	13	2	79	17	111	24	38	63	125
Pneumococcal Disease (invasive)	1	9	22	23	55	28	43	48	119
Rubella	0	0	0	0	0	0	0	0	0
Salmonellosis	5	4	49	35	93	52	106	110	268
Shigellosis	1	1	7	5	14	13	22	35	70
Streptococcal Group A (invasive)	0	1	8	5	14	9	14	15	38
Syphilis	1	1	4	1	7	3	34	22	59
Tuberculosis	0	0	2	8	10	8	41	58	107
Vancomycin Resistant Enterococci	0	0	0	0	0	0	0	0	0
Vibrio parahaemolyticus	0	0	0	0	0	0	3	1	4
West Nile Virus Infection	0	0	0	0	0	0	0	0	0
Yersiniosis	9	2	27	14	52	8	81	68	157
LESS COMMON DISEASES									
Leprosy	1	0	0	0	1	0	0	0	0
Listeriosis	0	0	0	0	0	0	0	2	2
Lyme Disease	0	0	0	0	0	0	2	0	2
Typhoid Fever	0	0	0	0	0	6	1	14	21

	VANCOUVER COASTAL				VANCOUVER ISLAND				Northern				BC TOTAL
	Richmond	Vancouver	North Shore Coast/ Garibaldi	Vancouver Coastal Cases	South Vancouver Island	Central Vancouver Island	North Vancouver Island	Vancouver Island Cases	Northwest	Northern Interior	Northeast	Northern Cases	
	176094	581034	270065	698064	340542	243171	114351	297245	82803	150129	64313	1027193	4185004
	6	54	2	62	10	3	2	15	1	3	0	4	108
	5	179	16	200	13	3	0	16	0	1	0	1	328
	84	239	140	463	136	78	37	251	20	12	3	35	1471
	311	1751	477	2539	706	437	263	1406	230	368	177	775	8721
	0	1	3	4	10	7	4	21	0	0	0	0	27
	3	20	9	32	6	4	3	13	0	1	2	3	100
	2	14	3	19	2	2	0	4	0	0	0	0	34
	7	24	9	40	11	1	1	13	3	3	0	6	193
	10	200	67	277	42	15	17	74	10	18	2	30	740
	16	476	39	531	53	33	19	105	15	32	10	57	1013
	0	2	0	2	0	0	0	0	0	1	0	1	5
	4	8	3	15	3	0	0	3	6	9	4	19	76
	1	9	5	15	12	0	1	13	0	0	0	0	48
	220	742	15	977	29	7	5	41	1	8	3	12	1488
	19	3	44	66	18	0	1	19	0	2	0	2	224
	49	725	132	906	289	195	110	594	38	104	41	183	3074
	9	191	13	213	47	19	6	72	7	13	5	25	457
	0	10	0	10	2	3	0	5	0	0	0	0	28
	0	0	0	0	0	0	0	0	0	0	0	0	1
	1	0	24	25	9	0	0	9	0	1	0	1	44
	0	7	2	9	8	2	2	12	0	0	0	0	32
	0	0	0	0	0	0	0	0	0	0	0	0	5
	6	13	112	131	58	50	7	115	0	7	19	26	508
	10	44	11	65	29	28	3	60	2	12	3	17	316
	0	0	0	0	0	0	0	0	0	0	0	0	0
	27	105	54	186	66	43	14	123	17	18	2	37	707
	2	47	9	58	7	6	2	15	3	0	0	3	160
	4	43	8	55	17	13	3	33	1	8	2	11	151
	6	213	14	233	2	0	1	3	0	3	0	3	306
	2	9	2	13	14	27	118	159	8	3	3	14	303
	0	0	1	1	0	1	0	1	0	0	0	0	2
	1	4	1	6	1	2	1	4	1	0	0	1	15
	0	0	0	0	0	0	0	0	0	0	0	0	0
	58	233	166	457	114	43	19	176	13	5	2	20	862
	1	0	0	1	0	0	0	0	0	0	0	0	2
	0	2	1	3	3	1	0	4	0	1	0	1	10
	0	0	1	1	0	0	0	0	0	0	0	0	3
	0	8	0	8	0	0	0	0	0	0	0	0	29

Note: No cases reported in 2004 for Anthrax, Botulism, Brucellosis, Diphtheria, Hemorrhagic Viral Fevers, Plague, Poliomyelitis, Severe Acute Respiratory Syndrome, Smallpox, Tetanus, and Tularemia.

2004 BC Selected Notifiable Disease Case Rates by Health Service Delivery Area

	INTERIOR					FRASER			
	East Kootenay	Kootenay Boundary	Okanagan	Thompson Cariboo Shuswap	Interior Rates	Fraser East	Fraser North	Fraser South	Fraser Rates
2004 Population	79951	79933	318711	214446	693041	260531	569406	639524	1469461
AIDS (2003)	0.0	1.3	1.6	1.4	1.3	0.0	0.9	0.9	0.7
Amebiasis	0.0	0.0	1.3	0.0	0.6	6.1	7.6	7.5	7.3
Campylobacteriosis	25.0	20.0	41.7	20.1	30.6	42.2	32.1	33.9	34.7
Chlamydia (genital)	238.9	145.1	210.5	214.0	207.3	148.2	196.0	161.7	172.6
Cryptococcal Infection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
Cryptosporidiosis	1.3	2.5	2.8	0.5	1.9	5.0	2.1	2.2	2.7
Cyclosporiasis	0.0	1.3	0.0	0.0	0.1	0.4	0.7	0.8	0.7
E. coli Verotoxigenic	2.5	5.0	9.4	4.2	6.5	9.2	5.3	5.5	6.1
Giardiasis	12.5	11.3	13.5	14.5	13.4	24.6	13.2	19.9	18.1
Gonorrhea	2.5	5.0	2.8	6.1	4.0	6.9	22.1	22.2	19.5
Haemophilus infl. b (invasive)	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.2	0.1
Hepatitis A	0.0	2.5	0.6	2.3	1.3	1.9	1.9	2.2	2.0
Hepatitis B: Acute	0.0	0.0	0.6	0.5	0.4	0.0	0.9	1.9	1.2
Hepatitis B: Chronic	6.3	5.0	0.6	2.3	2.3	10.4	38.1	31.0	30.1
Hepatitis B: Undetermined	1.3	0.0	0.9	0.5	0.7	1.5	19.1	3.0	9.0
Hepatitis C	50.0	55.0	61.8	75.1	63.8	110.2	60.8	49.4	64.6
HIV	1.3	1.3	4.1	3.3	3.2	6.1	9.3	5.3	7.0
Malaria	0.0	1.3	0.3	0.0	0.3	0.8	1.4	0.2	0.7
Measles	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1
Methicillin Resistant ***Staphylococcus aureus***	0.0	0.0	0.6	0.0	0.3	0.4	1.1	0.0	0.5
Meningococcal Disease (invasive)	1.3	0.0	0.3	0.5	0.4	0.8	0.2	0.8	0.5
Mumps	0.0	0.0	0.0	0.0	0.0	0.8	0.2	0.3	0.3
Pertussis	16.3	2.5	24.8	7.9	16.0	9.2	6.7	9.9	8.5
Pneumococcal Disease (invasive)	1.3	11.3	6.9	10.7	7.9	10.7	7.6	7.5	8.1
Rubella	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Salmonellosis	6.3	5.0	15.4	16.3	13.4	20.0	18.6	17.2	18.2
Shigellosis	1.3	1.3	2.2	2.3	2.0	5.0	3.9	5.5	4.8
Streptococcal Group A (invasive)	0.0	1.3	2.5	2.3	2.0	3.5	2.5	2.3	2.6
Syphilis	1.3	1.3	1.3	0.5	1.0	1.2	6.0	3.4	4.0
Tuberculosis	0.0	0.0	0.6	3.7	1.4	3.1	7.2	9.1	7.3
Vancomycin Resistant Enterococci	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vibrio parahaemolyticus	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.3
West Nile Virus Infection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yersiniosis	11.3	2.5	8.5	6.5	7.5	3.1	14.2	10.6	10.7
LESS COMMON DISEASES									
Leprosy	1.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Listeriosis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
Lyme Disease	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.1
Typhoid Fever	0.0	0.0	0.0	0.0	0.0	2.3	0.2	2.2	1.4

VANCOUVER COASTAL				VANCOUVER ISLAND				Northern				BC TOTAL
Richmond	Vancouver	North Shore Coast/ Garibaldi	Vancouver Coastal Rates	South Vancouver Island	Central Vancouver Island	North Vancouver Island	Vancouver Island Rates	Northwest	Northern Interior	Northeast	Northern Rates	
176094	581034	270065	698064	340542	243171	114351	297245	82803	150129	64313	1027193	4185004
3.4	9.3	0.7	8.9	2.9	1.2	1.7	5.0	1.2	2.0	0.0	0.4	2.6
2.8	30.8	5.9	28.7	3.8	1.2	0.0	5.4	0.0	0.7	0.0	0.1	7.8
47.7	41.1	51.8	66.3	39.9	32.1	32.4	84.4	24.2	8.0	4.7	3.4	35.1
176.6	301.4	176.6	363.7	207.3	179.7	230.0	473.0	277.8	245.1	275.2	75.4	208.4
0.0	0.2	1.1	0.6	2.9	2.9	3.5	7.1	0.0	0.0	0.0	0.0	0.6
1.7	3.4	3.3	4.6	1.8	1.6	2.6	4.4	0.0	0.7	3.1	0.3	2.4
1.1	2.4	1.1	2.7	0.6	0.8	0.0	1.3	0.0	0.0	0.0	0.0	0.8
4.0	4.1	3.3	5.7	3.2	0.4	0.9	4.4	3.6	2.0	0.0	0.6	4.6
5.7	34.4	24.8	39.7	12.3	6.2	14.9	24.9	12.1	12.0	3.1	2.9	17.7
9.1	81.9	14.4	76.1	15.6	13.6	16.6	35.3	18.1	21.3	15.5	5.5	24.2
0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.1	0.1
2.3	1.4	1.1	2.1	0.9	0.0	0.0	1.0	7.2	6.0	6.2	1.8	1.8
0.6	1.5	1.9	2.1	3.5	0.0	0.9	4.4	0.0	0.0	0.0	0.0	1.1
124.9	127.7	5.6	140.0	8.5	2.9	4.4	13.8	1.2	5.3	4.7	1.2	35.6
10.8	0.5	16.3	9.5	5.3	0.0	0.9	6.4	0.0	1.3	0.0	0.2	5.4
27.8	124.8	48.9	129.8	84.9	80.2	96.2	199.8	45.9	69.3	63.8	17.8	73.5
5.1	32.9	4.8	30.5	13.8	7.8	5.2	24.2	8.5	8.7	7.8	2.4	10.9
0.0	1.7	0.0	1.4	0.6	1.2	0.0	1.7	0.0	0.0	0.0	0.0	0.7
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.6	0.0	8.9	3.6	2.6	0.0	0.0	3.0	0.0	0.7	0.0	0.1	1.1
0.0	1.2	0.7	1.3	2.3	0.8	1.7	4.0	0.0	0.0	0.0	0.0	0.8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3.4	2.2	41.5	18.8	17.0	20.6	6.1	38.7	0.0	4.7	29.5	2.5	12.1
5.7	7.6	4.1	9.3	8.5	11.5	2.6	20.2	2.4	8.0	4.7	1.7	7.6
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.3	18.1	20.0	26.6	19.4	17.7	12.2	41.4	20.5	12.0	3.1	3.6	16.9
1.1	8.1	3.3	8.3	2.1	2.5	1.7	5.0	3.6	0.0	0.0	0.3	3.8
2.3	7.4	3.0	7.9	5.0	5.3	2.6	11.1	1.2	5.3	3.1	1.1	3.6
3.4	36.7	5.2	33.4	0.6	0.0	0.9	1.0	0.0	2.0	0.0	0.3	7.3
1.1	1.5	0.7	1.9	4.1	11.1	10.3.2	53.5	9.7	2.0	4.7	1.4	7.2
0.0	0.0	0.4	0.1	0.0	0.4	0.0	0.3	0.0	0.0	0.0	0.0	0.0
0.6	0.7	0.4	0.9	0.3	0.8	0.9	1.3	1.2	0.0	0.0	0.1	0.4
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32.9	40.1	61.5	65.5	33.5	17.7	16.6	59.2	15.7	3.3	3.1	1.9	20.6
0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.3	0.4	0.4	0.9	0.4	0.0	1.3	0.0	0.7	0.0	0.1	0.2
0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
0.0	1.4	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7

Note: No cases reported in 2004 for Anthrax, Botulism, Brucellosis, Diphtheria, Hemorrhagic Viral Fevers, Plague, Poliomyelitis, Severe Acute Respiratory Syndrome, Smallpox, Tetanus, and Tularemia.

Sources and Explanatory Remarks

1) Clinical and confirmed case reports are collected from the health regions in British Columbia through the integrated Public Health Information System (iPHIS).

2) Population estimates and projections are taken from P.E.O.P.L.E. Projection 29 (Population Extrapolation for Organizational Planning with Less Error). Health Data Warehouse Release Date: September 2004.

3) National rates are provided by Health Canada – Population and Public Health Branch. All published 2002, 2003 and 2004 national rates are preliminary numbers and are subject to change. Saskatchewan numbers are not included in 2003 and 2004.

4) Amebiasis, cryptosporidiosis and listeriosis were removed from national surveillance in January 2000. Lyme disease, HIV, methicillin resistant *Staphylococcus aureus*, vancomycin resistant enterococci, *Vibrio parahaemolyticus* and yersiniosis are not nationally notifiable diseases.

5) Data for influenza, invasive meningococcal disease and invasive group A streptococcal disease, West Nile virus, MRSA and VRE are collected through enhanced surveillance systems.

6) Data for HIV and AIDS are collected through the HIV/AIDS Surveillance System. Data for other sexually transmitted infections (STI) are collected through the STI Surveillance System.

7) Data for invasive pneumococcal disease (IPD) 1992-1999 had previously been limited to pneumococcal meningitis. Since July 2000, changes in the case definition now include all other invasive cases in addition to meningitis.

8) The Jenks Natural Breaks Classification method was used for defining different classifications of disease rates in the maps. This classification method identifies gaps or depressions within the data distribution and creates the categories based on the best fit of the data (i.e., groups based on similarities).

9) Health Service Delivery Area boundaries are taken from BC STATS, Ministry of Management Services.

10) Numbers in this report were generated in March 2005 and are subject to change due to possible late reporting and/or data clean up in the regions. This may also explain changes in the number of reported cases in previous years for some diseases.

11) Statistics on tuberculosis are based on the analysis on the data extracted in March 2005. For more updated statistics on tuberculosis please refer to TB Annual Report 2004.

12) While we endeavour to include data on the majority of reportable diseases in this publication, data on some are not included. For information on the incidence of these diseases in 2004 in British Columbia, please contact epidserv@bccdc.ca

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